E-product Stewardship in Aotearoa New Zealand

TechCollect NZ

Report One

Regulated product stewardship scheme framing and design options for electrical and electronic products in Aotearoa New Zealand

Building a better working world

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Waste Minimisation Fund disclaimer

The co-design project that this research is part of is supported by co-funding from the Waste Minimisation Fund (WMF) administered by MfE. However, this report does not reflect the views of MfE, nor does MfE support the content of this publication in any way.

Report scope and disclaimers

Ernst & Young have completed our engagement to perform professional services for TechCollect New Zealand Limited (TechCollect NZ); specifically:

- Providing secretariat and project management services to organise, oversee, develop and facilitate the Circular E-stewards Network (CEN), including:
    - Completion of a range of stakeholder engagement and other management activities, co-facilitation of working group sessions, and the delivery of a series of webinars
    - Preparation of a Co-design Recommendations Report for a regulated e-product stewardship scheme in Aotearoa New Zealand.

The project was led by TechCollect NZ, in consultation with the CEN. The CEN comprised 16 members representing industry, Māori, local government, and environmental and community perspectives. Officials from the Ministry for the Environment (MfE) in New Zealand were also involved as observers. The CEN's role was advisory in nature. To further understand Ernst & Young's role in this project, please see Appendix I.

TechCollect NZ management is fully and solely responsible for applying independent business judgment with respect to the services and work products provided by Ernst & Young, to make implementation decisions, if any, and to determine further courses of action with respect to any matters addressed in the information provided or other work product or deliverable. The nature and content of any information we provided has necessarily reflected the specific scope and limitations of our engagement and the amount and accuracy of information provided to us.

Glossary

Term	Definition
Advanced stewardship fee (ASF)	A fee applied to liable parties at the time the e-product is placed on the New Zealand market, whether imported or manufactured locally.
AS/NZS	Australian Standard/New Zealand Standard.
CEN	Circular E-Stewards Network, a working group of 16 members representing industry, Māori, local government, environment and community, and observers from the Ministry for the Environment, who played an important advisory role in co-developing the recommendations and preparing this report.
CENELEC	The European Committee for Electrotechnical Standardization
Circular economy / circularity	A circular economy is an alternative to the traditional linear economy in which resources are kept in use for as long as possible, extracting the maximum value from them whilst in use, and then recovering and regenerating products and materials at the end of each service life.
CGA	Consumer Guarantees Act 1993 - New Zealand legislation.
Clearing house	An independent financial body or organisation who manages confidential data reporting and facilitates fee payment activities between liable parties and the scheme manager associated with the e-product stewardship scheme.
Consumer-pays fee	A fee charged to consumers who drop off e-products to a collection site (or equivalent) based on the number and type of e-products that they dispose of.
Convenience target	A target measuring how convenient the collection service network is to the community. Specifies metrics for what is convenient (e.g., minimum number or location of collection services for all categories of e-products). A convenience model focuses on the availability of convenient collection points/services in the scheme collection network and ensures that 100% of e-products presented to the scheme collection network are accepted and managed.
Declaration of Priority Products	Under section 9 of the WMA, the Minister for the Environment can declare a product to be a priority product. This means a regulated product stewardship scheme must be developed as soon as practicable to manage the environmental impact of these products during their life cycle (including design, manufacture, purchase, use and end-of-life).
Design for environment	The integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle.
Eco-modulation	A type of stewardship fee which is modulated for liable parties based on the adherence of their products to a set of environmental design criteria. Eco-modulation seeks to influence improved product design for environment.
EEE	Electrical and electronic equipment.
e-product	Electrical and electronic product.
e-product category	Different categories of e-products as defined in Table 1.
e-waste	Waste (i.e., unwanted or end-of-life) e-products.
EPEAT	Electronic Product Environmental Assessment Tool.
GIS	Geographic information system.
GPS	Global positioning system.

Term	Definition
GST	Goods and services tax.
Guidelines	General Guidelines for Product Stewardship Schemes for Priority Products under the WMA.[1]
HS codes	Harmonised system codes.
ICT	Information and communication technology.
Improved product design target	The proportion of products placed on the New Zealand market which qualify for lowered fees through an eco-modulation approach.
IPR programme	Individual producer responsibility programme - a producer led programme for collecting and managing e-products the producer has sold or collected. These programmes are typically managed by a single producer and cover products specified by the producer (usually products that the producer sells and can be brand specific or agnostic) with their own, or externally contracted services for collection, transportation and preparation for reuse/recycling networks and communication and reporting systems.
JAS-ANZ	Joint Accreditation System for Australia and New Zealand.
KPIs	Key performance indicators.
Liable party	An individual or organisation who must pay a fee under the scheme that covers scheme costs for the priority product they place on the New Zealand market.
ISO	International Organization for Standardization.
IT	Information technology.
LCD	Liquid crystal display.
LED	Light emitting diode.
Mātauranga Māori	Māori knowledge - the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices.
Material recovery rate	Relates to the recycling of e-waste and the amount of materials recovered through recycling processes. It is equal to the proportion of an e-product (typically a percentage of the product by weight) that is recovered into useable materials resources (i.e., resources that are reused in new e-product manufacture, other product manufacture or market applications).
MBIE	Ministry of Business, Innovation and Employment (New Zealand central government organisation).
MCA	Multi-criteria analysis.
MfE	Ministry for the Environment (New Zealand central government organisation).
NFP	Not-for-profit.
Percentage-based reuse target	The percentage of total e-products by category, collected by the scheme that are either prepared for reuse (e.g., testing, data wiping and repair activities) or are directly reused.
POM	Placed on market.
Priority product	A product declared to be a priority product in accordance with section 9 of the WMA.
Priority product stewardship scheme	A scheme where the responsibility for a priority product's life cycle and end-of-life management is equitably shared across manufacturers, importers, retailers, and users of those priority products, which reduces the impact of end-of-life products on communities, Councils, neighbourhoods, and the environment.
PSDFF	Proposed scheme design feedback form - the online feedback form that stakeholders used to provide formal feedback on the proposed scheme design during stakeholder engagement.
PSO	Product stewardship organisation.
PV	Photovoltaic.
Reasonable access target	A target measuring how reasonable the community's access to the collection service network is. Specifies the metrics for what reasonable is (e.g., the minimum number and/or location of collection services that must be accessible to consumers for all categories of e-products).
RoHS	European Union Restriction on Hazardous Substances.
Scheme	Refers to product stewardship scheme.

[1] https://gazette.govt.nz/notice/id/2020-go3342

Term	Definition
Scheme framing	The structure used to implement the recommendations over a period of time that enables the scheme to gradually move electrical and electronic products up the waste hierarchy.
Scheme manager	The contact person for an accredited scheme.
SDE	Scheme design elements, including scheme framing, scheme product scope, targets and data, liable party determination, fee structure, mandatory standards, governance structure, compliance and monitoring, education and awareness, regulation, and roles/responsibilities.
Seed funding	Advanced funding source to support the initial costs of setting up the product stewardship scheme.
Service providers	The individuals or organisations that provide end-of-life management services to the scheme. These services include collection, transport, recycling, repair, and reuse.
Stats NZ	Statistics New Zealand.
Stream(s)	A certain e-product type within an e-product category (e.g., laptops are a stream under category 6).
TAO	Territorial Authorities' Officers.
Threads of circularity	Product design, repair and reuse, and recovery and recycling.
Volume-based fee (VBF)	A fee applied to liable parties after an e-product has been managed by the product stewardship scheme.
WEEE	Waste electrical and electronic equipment.
WEEE Directive	The Waste from Electronics and Equipment Directive 2012/19/EU from the European Union which sets collection, recycling and recovery targets for all types of electrical goods.
Weight-based collection target	The minimum total amount of e-waste that is collected for each e-product category for recycling each year.
WG	Working group.
WMA	Waste Minimisation Act 2008 - New Zealand legislation.
WMF	Waste Minimisation Fund - administered by MfE.

Executive summary

Purpose of the report

In 2020, electrical and electronic products (e-products) were declared a priority product[2] by the New Zealand Government under section 9 of the Waste Minimisation Act 2008 (WMA). This declaration recognised that action should be taken to minimise the environmental harm that e-products and e-waste (unwanted and end-of-life e-products) can cause when disposed of improperly. It also signified that greater reduction, reuse, recycling, recovery, and treatment of e-waste can bring social, environmental, economic, and cultural benefits to our communities.

In response, TechCollect NZ Limited (TechCollect NZ) was granted Waste Minimisation Fund (WMF) funding to lead a co-design process for a regulated e-product stewardship scheme in Aotearoa New Zealand.

This report summarises:

- The processes taken to co-design a product stewardship scheme for e-waste.
- The vision that has guided the development of the proposed scheme framing and design.
- The key elements of scheme design and how they can support the scheme's operation.
- Options considered for each scheme design element.

Key points

The processes taken to co-design a product stewardship scheme for e-products

- The purpose of this investigation was to capture a broad range of stakeholders' perspectives, research and learned experiences from other jurisdictions to support the co-design of a regulated product stewardship scheme for e-products and e-waste in Aotearoa New Zealand.
- The Declaration of Priority Products Notice 2020 (Declaration of Priority Products) set out the seven e-product categories to be investigated through the scheme's co-design process.
- The co-design process to examine and assess the potential design of a stewardship scheme for e-products was led by TechCollect NZ. They convened an advisory Circular E-Stewards Network (CEN), a working group of 16 members representing industry, Māori, local government, environment and community perspectives.
- Key stakeholder engagement and other activities completed as part of the co-design process included:
  - Local assessments and examination of global practices
  - Convening and engaging with the CEN at key stages throughout project development
  - Engagement and consultation with broader stakeholders.

[2] Declaration of Priority Products Notice 2020 - 2020-go3343 - New Zealand Gazette

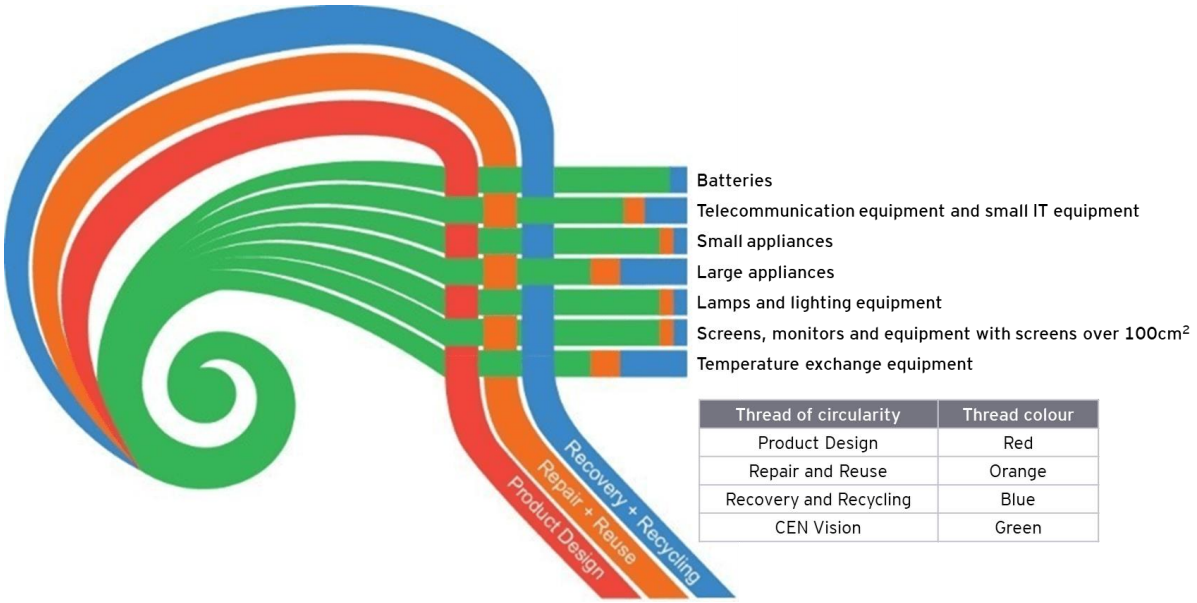
The vision that has guided the development of the proposed scheme framing and design

- To provide holistic guidance for designing and assessing scheme design options, the CEN developed a vision for the ideal future of e-product management in Aotearoa New Zealand.

- This vision is centred around two symbolic elements: the koru (spiral) and raranga (weaving):

  - The koru shape, depicted as the green spiral on the left of the diagram, represents the CEN's ambition for a circular economy where e-product reuse, repair, recovery, and end-of-life management considerations are integrated at the design stage with the aim of improving the environmental performance of e-products throughout the entire life cycle

  - Raranga (weaving) represents the current and ongoing integration of e-product design, repair, reuse, recovery, and recycling activities across different e-product categories, progressing the current linear state towards the CEN's ambition for a circular economy for e-products in Aotearoa New Zealand.



Thread of circularity	Thread colour
Product Design	Red
Repair and Reuse	Orange
Recovery and Recycling	Blue
CEN Vision	Green

- The CEN's vision of circular e-product design and life cycle management also seeks to acknowledge that across the different categories of e-products, some are further along in terms of repairability, reusability, and recyclability (as illustrated above through the red, orange and blue 'threads' corresponding to the e-product categories). Therefore, any e-product stewardship scheme needs to factor this into its design.

- These 'threads' of circularity have helped develop the Scheme Design Elements (SDEs), which are central for defining what the scheme could look like and how it would operate.

The key elements of scheme design and how they can support the scheme's operation

- The scheme design elements (SDEs) are central for defining what the scheme will look like and how it will function.
- The SDEs presented as part of the report (summarised below) are informed by targeted local and international research, robust consultation, and detailed feedback from both the CEN and wider stakeholders at various points throughout the co-design process.

Scheme design element	Description
Scheme framing	The **scheme framing** element considers how to best structure the rollout of product design, repair and reuse, and recovery and recycling activities to ensure the scheme is as sustainable as possible at every stage of its rollout over time.
Scheme product scope	The **scheme product scope** considers the broad scope of e-products to be included in a regulated product stewardship scheme in New Zealand.
Targets and data	The **targets and data** element considers how targets and data can be used to promote accountability, ensure the scheme is meeting its objectives, monitor progress and support continuous scheme improvement.
Liable party determination	The **liable party determination** element considers how to determine whether a manufacturer, importer, or distributor of e-products would be deemed financially obligated and how to collect scheme fees to support its operation.
Fee structure	The **fee structure** element considers how fees are set and updated, what activities the fees cover, who pays the fees and who collects the fees to ensure the scheme's costs are adequately funded whilst balancing responsibility across key stakeholders.
Mandatory standards	The **mandatory standards** element considers if/how performance-based standards could or should be leveraged to promote quality and consistency across scheme operations.
Governance structure	The **governance structure** element considers who the governing parties should be, what their roles are, how to manage conflicts of interest and how to leverage insights of key stakeholders across the e-product value-chain.
Compliance and monitoring	The **compliance and monitoring** element considers how the requirements of the scheme are monitored and enforced to ensure that the scheme is operating as intended.
Education and awareness	The **education and awareness** element considers how education and awareness programmes could improve awareness of the scheme and support desired behaviour change for e-product and e-waste management activities
Accredited scheme manager(s) roles and responsibilities	The **accredited scheme manager(s) roles and responsibilities** element considers what activities should be the responsibility of the accredited scheme manager(s).
Regulation	The **regulation** element considers how the WMA could be utilised to support scheme delivery, and/or if new regulatory levers are required to support effective scheme operation.
Scheme stakeholder roles and responsibilities	The **scheme stakeholder roles and responsibilities** element considers what activities should be the responsibility of particular scheme stakeholder groups.

Options considered for each scheme design element

- Any possible options associated with each SDE were considered during co-design processes.
- Associated considerations are outlined throughout section 3 of this report, with the recommended scheme design (including key recommendations and further activities required for a regulated e-product stewardship scheme) put forward in Report Two.

Next steps

The next steps towards development and implementation of a regulated e-product stewardship scheme should include:

1

Further activities and consideration of scheme framing and design recommendations

Specific aspects of the scheme design which could not be finalised are noted as further activities in section 3 of Report Two, as further research is required.

2

Public consultation on supporting regulations

This report recommends that regulations be in place to support the e-product stewardship scheme. This work is to be undertaken by MfE and will include a full public consultation process and central government approval.

3

Apply for scheme accreditation

The scheme manager(s) apply for accreditation by submitting a priority product stewardship application form. The application is assessed by MfE, and if the Minister for the Environment is satisfied that the scheme meets the requirements of the WMA, it will be accredited.

It is noted that scheme accreditation and scheme regulations are not sequential activities and may occur in parallel.

4

Scheme implementation

The earliest possible in-effect start date for the scheme is expected to be in 2025.

1. Co-design: The investigation process

1.1 Why was this investigation initiated?

Following the declaration of e-products as a 'priority product' by the New Zealand Government under section 9 of the WMA, an investigation into options for the development of a regulated product stewardship scheme for e-products and e-waste was initiated.

This investigation was co-funded by a grant awarded to TechCollect NZ, an Aotearoa New Zealand not-for-profit member-based organisation, from New Zealand's WMF, administered by MfE.

The way e-products are currently produced and consumed follows a predominantly linear model: raw materials are extracted (with environmental impacts), then combined into products that are often only used once before they are discarded. This enables a wide range of consumer goods, but also generates a large amount of e-waste which burdens the natural environment and demands the continued extraction of non-renewable materials to make new e-products.

As a society we must rethink the way we design, develop, use and recover e-products and materials to ensure the benefits of these goods are not overshadowed by their negative environmental impacts, or threatening the well-being of those managing e-products during their life cycle.

Most e-waste generated in Aotearoa New Zealand finds its way to landfill.

Why this investigation is critical

E-products, in particular, deserve a new approach to life cycle management because of the risk - and the opportunity - they present, including:

- ***The risk of harm to the environment and human health:*** E-products are made from materials (such as mercury, cadmium, lead, and pollutants in some plastics) that can be harmful to human health and the natural environment. When e-waste is disposed to landfill these hazardous materials can enter the environment and our waterways.
- ***The risk of environmental harm also has potential to impact the New Zealand Government's ability to uphold its Treaty of Waitangi obligations:*** Discharging waste into the environment can damage land, waterways, food sources, and other resources of significance to iwi and hapū. Article 2 of Te Tiriti guarantees protection of taonga such as these, and active protection is one of the Treaty Principles.
- ***The risk of modern slavery issues in the supply chain:*** E-products include many raw materials. The complex supply chains and the vast geographical extent of materials required for e-products raises a risk of human rights abuses occurring within e-product supply chains.
- ***The risk to Aotearoa New Zealand's climate change targets:*** E-products have significant amounts of embedded carbon emissions alongside the carbon emissions associated with importing and transporting new e-products to and around Aotearoa New Zealand.
- ***The opportunity for circular resource use:*** E-products include many valuable materials and components that can be repaired, resold, or reused if they are recovered post-consumption, which reduces the need for harmful extractive processes such as mining for new materials.
- ***The opportunity for feedback and growth:*** The scheme will generate insightful feedback which will help us understand more about the extent of the e-waste problem and the risks posed to the planet and people, and to plan for effective mitigation strategies.

- ***The opportunity to align Aotearoa New Zealand with other developed nations:*** Aotearoa New Zealand has been slow in the uptake of proper e-waste management. By leveraging learnings from overseas schemes, we have the opportunity to align our practices with other world leaders in effective management of e-products and circular economy activities.

A number of initiatives have been developed over the past 20 years to collect, sort, and recycle e-waste. However, these measures are largely voluntary, often inadequately resourced and limited to specific items which represent a fraction of the total volume of e-waste. As a result, most e-waste ends up in landfill, and there is still significant on-going demand for new e-products and raw materials.

1.2 What this investigation aimed to achieve

The purpose of this investigation was to capture a broad range of stakeholders' perspectives, research, and learned experiences from other jurisdictions to support the co-design of a regulated product stewardship scheme for e-products and e-waste in Aotearoa New Zealand. The results of that assessment are presented in this report to MfE, along with recommendations to establish an effective scheme framework under New Zealand's WMA. Recommendations are presented in Report Two.

1.3 The product categories under investigation

The Declaration of Priority Products Notice 2020[3] (Declaration of Priority Products) sets out the seven e-product categories to be investigated through the scheme's co-design process.

The categories are aligned with the open scope of the waste electrical and electronic equipment (WEEE) categories defined by the 2019 recast of the European WEEE Directive 2012/19/EU[4] (WEEE Directive). This approach led to the inclusion of all six of the e-product categories covered by Annex III and IV of the WEEE Directive. In addition to these categories, the Declaration of Priority Products also covers small non-rechargeable and rechargeable batteries (as per category seven).

Certain e-products within each category were not included in the investigation based on their capacity. For further information about e-product capacity thresholds and exclusions to product scope see Appendix F.

Table 1 - Product categories being investigated

Number	Category	Products included[5]
1.	Temperature exchange equipment	Refrigerators, Freezers, Equipment which automatically delivers cold products, Air conditioning equipment, Dehumidifying equipment, Heat pumps, Radiators containing oil and other temperature exchange equipment using fluids other than water for the temperature exchange.
2.	Screens, monitors and equipment with screens over 100cm²	Screens, Televisions, LCD photo frames, Monitors, Laptops, Notebooks.
3.	Lamps and lighting equipment	Straight fluorescent lamps, Compact fluorescent lamps, Fluorescent lamps, High intensity discharge lamps - including pressure sodium lamps and metal halide lamps, Low pressure sodium lamps, LED.

[3] https://gazette.govt.nz/notice/id/2020-go4533

[4] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0019

[5] Not an exhaustive list, categories may include other e-products of a similar nature.

Number	Category	Products included[5]
4.	Large equipment	Washing machines, Clothes dryers, Dish washing machines, Cookers, Electric stoves, Electric hot plates, Luminaires, Equipment reproducing sound or images, Musical equipment (excluding pipe organs installed in churches), Appliances for knitting and weaving, Large computer-mainframes, Large printing machines, Copying equipment, Large coin slot machines, Large medical devices, Large monitoring and control instruments, Large appliances which automatically deliver products and money, Photovoltaic panels.
5.	Small equipment	Vacuum cleaners, Carpet sweepers, Appliances for sewing, Luminaires, Microwaves, Ventilation equipment, Irons, Toasters, Electric knives, Electric kettles, Clocks and Watches, Electric shavers, Scales, Appliances for hair and body care, Calculators, Radio sets, Video cameras, Video recorders, Hi-fi equipment, Musical instruments, Equipment reproducing sound or images, Electrical and electronic toys, Sports equipment, Computers for biking, diving, running, rowing, etc., Smoke detectors, Heating regulators, Thermostats, Small Electrical and electronic tools, Small medical devices, Small Monitoring and control instruments, Small Appliances which automatically deliver products, Small equipment with integrated photovoltaic panels.
6.	Telecommunication equipment and small IT equipment	Mobile phones, GPS, Pocket calculators, Routers, Personal computers, Printers, Telephones.
7.	Batteries[6]	Non-rechargeable (e.g., AA, AAA) and rechargeable batteries excluding batteries designed for use in electric vehicles, or household-scale and industrial renewable energy power systems.[7]

1.4 How the investigation was carried out

The co-design process to examine and assess the potential design of a stewardship scheme for e-products was led by TechCollect NZ. They convened an advisory Circular E-Stewards Network (CEN), a working group of 16 members representing industry, Māori, local government, environment, and community perspectives. Key stakeholder engagement and other activities included:

- Local assessments and examination of global practices.
- Convening and engaging with the CEN at key stages throughout project development.
- Engagement and consultation with broader stakeholders.

The sections below summarise the approach taken, with a summary of research available at Appendix G. These activities have all contributed to the development of recommendations for a regulated e-product stewardship scheme in Aotearoa New Zealand, as detailed in Report Two.

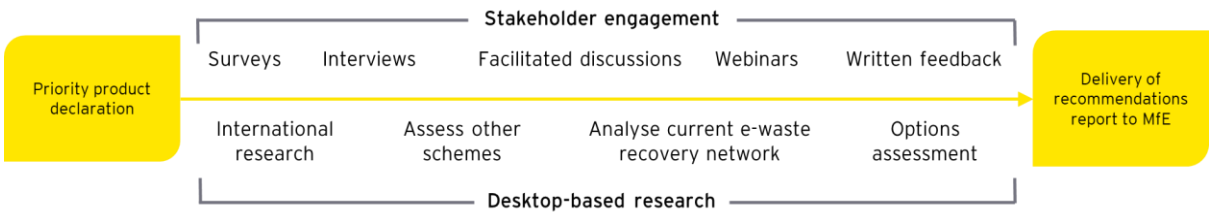


Figure 1 - Summary of approach

[6] Not part of Annex III of the 2019 recast of the European WEEE Directive 2012/19/EU.

[7] It is noted that the Battery Industry Group (B.I.G.) has developed a large battery stewardship scheme for these batteries. All batteries not covered by the large battery scheme are being investigated through this co-design process.

1.4.1 Local assessments and examination of global practices

Research was performed to understand global practices relating to e-waste stewardship schemes and their suitability in the Aotearoa New Zealand context. A summary of each of these research activities is presented in Table 2 with detailed summaries provided in Appendix G.

Table 2 - Research papers

Research Paper	Purpose
National Network Assessment	► Mapped available e-product and e-waste management services nationally (i.e., collection, direct reuse, repair and refurbishment, recycling), with consideration to geographic location and ease of community access in 10, 20 and 30-minute drive time intervals.
International Research Paper	► Gathered international insights into technical aspects of potential design elements across several jurisdictions with e-waste product stewardship schemes and extended producer responsibility programmes already implemented.
Recycler Assessment	► Determined current throughput and capacity of 10 e-waste recyclers in Aotearoa New Zealand. ► Identified gaps in conformance to key requirements of AS/NZS 5377:2013 and ISO 14001:2015.
Legal issues Analysis	► Identified applicable laws and regulations for collection, storage, transport, treatment, and processing of e-waste in Aotearoa New Zealand.
Pilot Programme Report	► Summarised lessons learned from expanding the TechCollect NZ pilot programme for collecting and recycling information and communication technology (ICT) e-waste.

1.4.2 Engagement with the CEN

Engagement with the CEN consisted of formal working group meetings, workshops, and one-on-one discussions. Outside of the formal meeting schedule below, members of the CEN made themselves available for multiple informal sessions to provide feedback and input on new developments in the scheme's framing and design. Usually, the CEN would be asked to complete feedback tasks before and after formal working group (WG) meetings through the CEN Microsoft Teams group. This enabled a collaborative and interactive workspace for CEN members to deliberate on key scheme design options and considerations.

Below is the agenda for each formal CEN meeting:

Table 3 - CEN meeting agendas

Meeting	Date	Activities and Discussions
WG 1	24/09/2020	► Introductions ► Problem definition, project purpose and milestones ► CEN functions, structure, roles, decision making, etc. ► Stakeholder mapping, identification, and prioritisation ► Discussion of initial stakeholder survey

WG 2	19/01/2021	► Update on work performed since WG 1
		  ► Stakeholder survey
		  ► Consumer research
		  ► Territorial Authorities survey
		  ► International discussions
		  ► National network assessment
		► Activity to develop a long list of scheme design elements options particularly in relation to:
		  ► Fees, funding, and cost effectiveness
		  ► Scheme governance, recovery model, scheme administration
		  ► Performance standards, training, and certification
		  ► Target-setting, compliance, and enforcement
		  ► Reuse and right to repair
		► Discussion and feedback from CEN on stakeholder engagement plan and structure

Meeting	Date	Activities and Discussions
WG 3	19/03/2021	► Update on work performed since WG 2 ► Updated engagement plan ► Recovery network desktop analysis ► International discussions ► One-on-one and group interviews ► Discussion and feedback on initial scheme framing options and associated scheme design elements ► Activity to map the scheme design options to the circular ambition of the CEN ► Activity to plan workshops
WG 4	23/06/2021	► Discussion over the retention of the short list of scheme design element options ► Proposal to re-frame scheme design ► Activity to design the scheme around a single circular economy framework
WG 5	25/08/2021	► Discussion on feedback received as part of the webinar sessions ► Discussion on draft report and its structure
WG 6	26/10/2021	► Discussion on draft report feedback and pathway to finalisation

The key outcomes from CEN discussions are discussed in this Report including in Appendix B and Appendix C.

1.4.3 Engagement and consultation with wider stakeholders

Engagement and consultation with wider stakeholders occurred at various points in the co-design process through a variety of surveys, interviews, webinars and facilitated discussions. During the initial stages of the co-design process, these engagements sought to gain stakeholder perceptions on potential elements for inclusion in an Aotearoa New Zealand e-product stewardship scheme. In the latter stages of the co-design process, the focus of the engagement turned to gather feedback and insights on the proposed scheme framing and design elements, to support the development of the final scheme design presented in Report Two.

1.4.3.1 Stakeholder surveys

Table 4 - Stakeholder surveys

Survey/Presentations	Purpose
Stakeholder Survey	► Collected opinions from a variety of different stakeholder groups (large and small) on how an e-product stewardship scheme should be structured, and opinions on e-waste and its management more generally.
Consumer Survey	► Gauged consumer perceptions of e-waste management and support for various elements of a proposed e-product stewardship scheme.
Territorial Authorities Officers (TAO) Forum Survey	► Surveyed local authorities for a general overview of what council driven e-waste collection and other related services are currently available in Aotearoa New Zealand.
Collector Survey	► Estimated e-waste collection costs for current services undertaken by commercial businesses, community groups, and local government.

1.4.3.2 Webinars and targeted discussions

A series of webinars and targeted engagement sessions were held with 148 stakeholders across eight defined groups, including e-product producers, wholesale importers/distributors, retailers, recyclers and repairers, Territorial Authorities, Māori community representatives, and New Zealand government agencies. The intent of this activity was to present proposed stewardship design elements to a wide range of stakeholders and facilitate open discussion and feedback on the potential design options presented. Following each webinar and targeted discussion, the Proposed Scheme Design Feedback Form (PSDFF) was circulated to attendees. This online feedback gathered opinions from a variety of different stakeholder groups (large and small) on the proposed scheme design. This feedback was a critical input to the final scheme design proposed in Report Two.

1.4.3.3 Proposed scheme design interviews

A number of one-on-one interviews were held with individual stakeholders. Each interview was generally run with one to three representatives from a specific organisation, in order to present and gain greater insight of their opinions on the proposed options for scheme design elements. However, some one-on-one interviews included up to 20 stakeholders from a particular group. Several stakeholders interviewed also attended facilitated webinar sessions. This exercise provided a valuable opportunity to understand the logistical and operational impacts that proposed elements of an e-product stewardship scheme in Aotearoa New Zealand may pose to different stakeholders. All interview attendees were invited to provide their feedback through the PSDFF; however, some organisations chose to provide a formal written response which was used alongside information gathered through the PSDFF.

1.4.4 Engagement rates with wider stakeholders

The response rates from wider stakeholders to the surveys, webinars, targeted discussions, PSDFF, and proposed scheme interviews are detailed below:

Table 5 - Stakeholder response by cohort

Stakeholder Survey - Total Respondents by Cohort								
Pre-consumption Stakeholders			Post-consumption Stakeholders					
E-product producer	E-product importer	E-product retailer	E-product repairer and/ or reseller	E-waste collector and/or sorter	Industry groups or associations	Community interest groups	Other	Total
15	4	14	6	39	7	12	33	130

Table 6 - Consumer survey response by age group

Consumer Survey - Total respondents by age group	
Age group	**Number of Responses**
18-24 years	244
25-29 years	192
30-34 years	177
35-39 years	165
40-44 years	162
45-49 years	179
50-54 years	172
55-59 years	169
60-64 years	145
65 or over	399
Total number of responses	**2005**

Table 7 - Territorial Authorities Officers Forum survey respondents by region

Territorial Authorities Officers Forum Survey - Total Respondents by Region Type	
Region Type	**Number of Responses**
City	9
Medium	25
Small	6
Very Small	4
Total number of responses	**44**

Table 8 - Collectors' survey respondents by cohort

Collectors Survey - Total Respondents by Cohort	
Stakeholder Group	**Number of Responses**
Commercial business	2
Community Group	8
Local Government	2
Total number of responses	**12**

Table 9 - Total stakeholders engaged by cohort during proposed scheme design stakeholder sessions

Proposed scheme design webinars/facilitated sessions/one-on-one discussions - Total Stakeholders Engaged by Cohort					
Pre-consumption Stakeholders		**Post-consumption stakeholders**			
E-product producer/importer	E-product retailer	Special Interest Groups	Councils/Territorial Authorities	E-waste recycler	**Total**
42	9	76	10	11	**148**

Table 10 - PSDFF respondents by cohort

Proposed scheme design feedback form - Total respondents by cohort								
Pre-consumption Stakeholders			**Post-consumption Stakeholders**					
E-product producer	E-product importer	E-product retailer	E-product repairer and/or reseller	E-waste collector and/or sorter	E-waste transporter	E-waste recycler	Other e.g., Councils	**Total**
7	10	4	13	22	3	13	14	**86**

Table 11 - Respondents to interviews by cohort

Proposed Scheme Design Interviews - Total stakeholders engaged by cohort	
Stakeholder Group	**Number of Organisations**
Producers	6
Wholesale Importers/Distributors	2
New Zealand Government Agencies[8]	2
Special Interest Groups[9]	2

[8] Central government agencies

[9] Global Product Stewardship Council, New Zealand Association of Metal Recyclers

The key outcomes from these activities are outlined throughout Reports One and Two.

1.4.4.1 Gaps in stakeholder engagement

Genuine efforts were made by TechCollect NZ, EY and members of the CEN to include as many stakeholders as possible from a variety of interest groups in the e-product and e-waste value-chains. However, not all stakeholders were able to join scheduled sessions, with attendance rates ranging from 4% to 78% of the total participants enrolled to attend the sessions. Nevertheless, it is expected that a minority of those invited to attend a session and provide feedback were not captured by the stakeholder engagement sessions.

To enable alternative pathways for those who may have missed sessions, TechCollect NZ uploaded a recording of a webinar session to its website. After viewing the webinar session, stakeholders were invited to provide feedback through the PSDFF. However, if those who viewed the webinar online did so after the period for online feedback closed, their views would not have been captured by the stakeholder engagement process.

Unfortunately, despite repeated efforts, some stakeholder groups were unable to participate. The stakeholders who did not respond, or for whom scheduled sessions or interviews were unable to be held, included two producer associations; two New Zealand Government agencies; and two special interest groups. Additionally, none of the several charity groups contacted responded or attended the scheduled sessions they were invited to. Charities were seen as a gap in the stakeholder engagement process, due to the important role these organisations play in Aotearoa New Zealand's reuse market at present.

2. The basis for scheme design: a vision for the future of e-products and e-waste

2.1 Stakeholder ambition

Understanding the vision for the future of e-products and e-waste in Aotearoa New Zealand was a critical step in establishing the basis for scheme design.

The vision for the scheme was co-designed by the advisory Circular E-Stewards Network (CEN), a working group of 16 members representing industry, Māori, local government, environment, and community perspectives.

By considering the design of a regulated product stewardship scheme for e-products and e-waste, the CEN's ambitions showed clear alignment to the Government's expectations for the scheme. Specifically, the CEN's vision supports a circular economy for e-products in Aotearoa New Zealand and establishing a clear pathway up the waste hierarchy to ensure both enhanced recovery and management of e-products as well as reducing the generation of e-waste, and realising social, economic, and environmental benefits through coordinated stewardship activity.

The CEN's vision (depicted in Figure 2 on the following page) is designed to provide holistic guidance for designing and assessing the scheme design elements and potential options. This vision is centred around two key symbolic elements, the koru (spiral) and raranga (weaving):

- The koru shape, depicted as the green spiral on the left of the diagram, represents the CEN's ambition for a circular economy for e-products where reuse, repair, recovery, and end-of-life management considerations are integrated at the design stage with the aim of improving the environmental performance of e-products throughout the entire life cycle

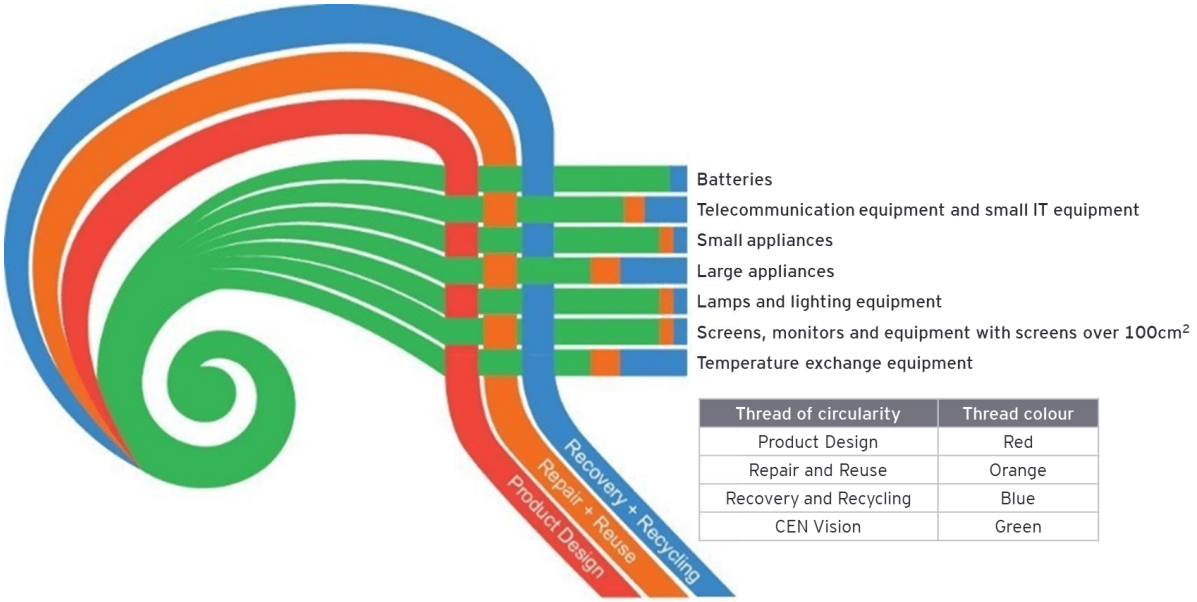
- Raranga (weaving) represents the current and ongoing integration of e-product design, repair, reuse, recovery, and recycling activities across different e-product categories, progressing the current linear state towards the CEN's ambition for a circular economy in Aotearoa New Zealand.

The CEN's vision of circular e-product design and life cycle management also seeks to acknowledge that across the different categories of e-products, some are further along in terms of repairability, reusability, and recyclability. Therefore, any e-product stewardship scheme needs to factor this into its design.

Achieving this vision requires collaboration across all stakeholders in the e-product life cycle, a reality which is reflected in the whakatauki[10] that accompanies the CEN vision - *Ko koe ki tēnā, ko au ki tēnei kiwai o te kete* or *together we can make a difference*.

The red, orange, blue, and green threads on the right of the diagram (underneath the e-product categories) illustrate how each of the categories listed have varying degrees of activity with respect to design for environment, repair and reuse, recovery, and recycling. It is important to note that the diagram is for illustrative purposes only and does not represent the actual state of recovery, recyclability, repairability, or design for environment activities for the e-product categories shown in the diagram.

[10] A whakatauki is a Māori proverb or significant saying.



Thread of circularity	Thread colour
Product Design	Red
Repair and Reuse	Orange
Recovery and Recycling	Blue
CEN Vision	Green

Figure 2 - CEN vision for the future state of e-product management in Aotearoa New Zealand

2.2 What the scheme needs to achieve

To enact their vision and align the project with the overarching expectations for a regulated e-product stewardship scheme in Aotearoa New Zealand, the CEN has indicated that a local scheme needs to achieve the following objectives:

- Equitably share responsibility for managing e-waste and its impacts across producers, consumers, communities, and government actors
- Prioritise the waste hierarchy, enable circular resource use, and divert e-waste away from landfill
- Mobilise producers to design their e-products to be more durable, more easily upgraded, repaired, repurposed, and recycled
- Respect the natural environment, its core ecosystem functions, and finite resources
- Drive sustainable economic benefits for Aotearoa New Zealand through innovation, employment, and skills training opportunities.

These overarching objectives supported the CEN's exploration of the scheme design elements and their assessment of the options and the resulting recommendations.

2.3 Three threads of a circular economy for e-products

To achieve the CEN's circular ambition for e-products in Aotearoa New Zealand, the life cycle of an e-product has been broken down into three 'threads of circularity': product design, repair and reuse, and recovery and recycling. A scheme is unlikely to achieve the circular ambition of the CEN if all three of these threads are not factored into the scheme's design.

This can be seen in Figure 3, where the coverage of each thread of circularity is shown to represent part of a circular economy model. These three threads of circularity are detailed further in the table below:

Table 12 - Threads of circularity

Thread of circularity	Description
Product Design	► Covers all the activities involved in designing, sourcing materials and manufacturing new e-products. ► Well-designed e-products can help prevent waste from arising in the first place, helping to shift e-product management up the waste hierarchy. ► Designing for repair and reuse can enable e-products to have multiple useful life cycles before recycling occurs. ► Designing for disassembly is essential to support repair and greater recovery and recirculation of valuable and critical materials at end-of-life. ► To enable repair and reuse, an e-product needs to be designed so it is easy and cost-effective to upgrade, repair, and reuse. Good e-product design is essential to influence the consumer's decision making at the end of an e-product's life.

Repair and Reuse	► Covers all the activities involved with e-product acquisition, use, maintenance, repair, and reuse.
	► Successful repair and reuse activities enable much longer e-product lifespans, delay the need for recycling, and reduce the need to produce new devices; thereby avoiding further resource extraction and carbon emissions.
	► Improved repair and reuse enable a better second-hand e-product market which can increase:
	  ► The availability of quality e-products to lower socio-economic groups who would otherwise not be able to afford them
	  ► The number of second-hand e-products available for environmentally conscious consumers who do not want to buy new e-products.

Recovery and Recycling	► Covers the collection, storage, transport, sorting, diversion activity for reuse, repair or refurbishment, recycling, and material recovery/recirculation of e-products. ► Works to prevent those e-products which can no longer be reused or repaired from ending up in landfill. ► Enables the recovery and reuse of materials in new e-products or other market applications.

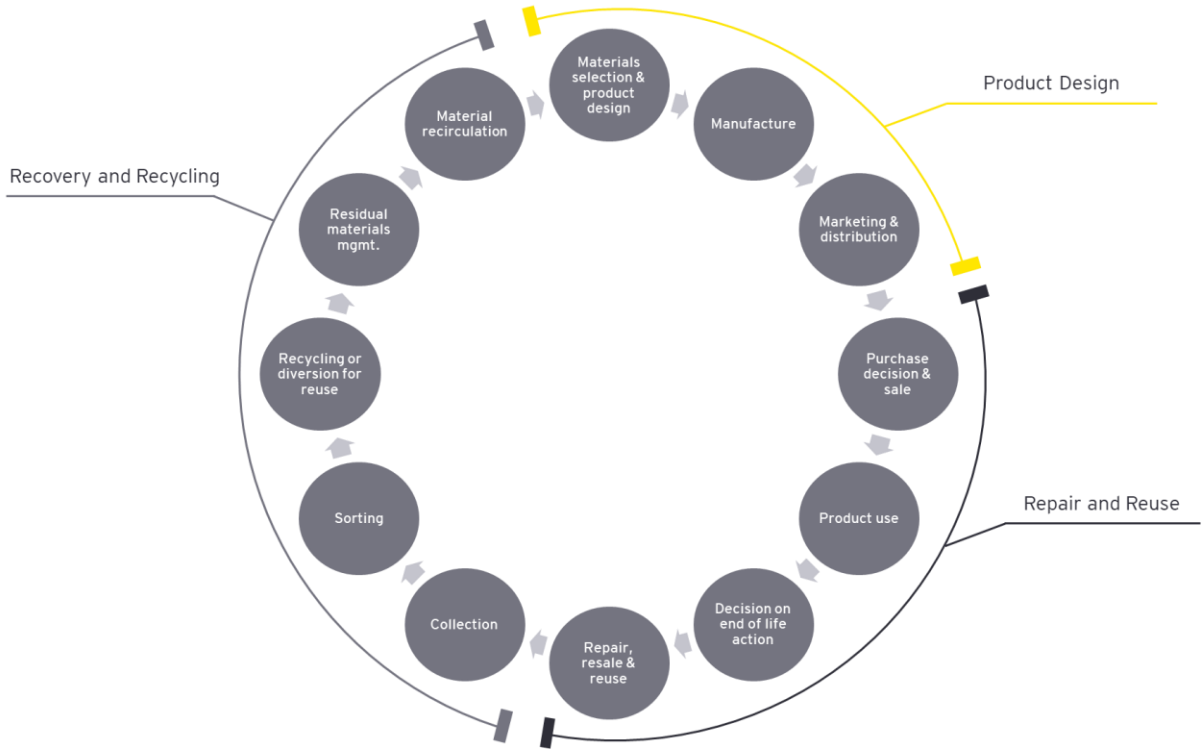


Figure 3 - Threads of circularity

The threads of circularity have helped develop the Scheme Design Elements (SDEs), which are central for defining what the scheme could look like and how it would operate. Further information on the SDEs is provided in section 3 of this report, with additional background information on the impacts of our current linear system at different points of the e-product value chain provided in Appendix E.

3. The scheme design elements: options and key considerations

The scheme design elements (SDEs) presented as part of this report have been informed by targeted local and international research, robust consultation, and detailed feedback from both the CEN and wider stakeholders at various points of the co-design process.

A summary of the SDEs is provided below in Figure 4 with more detail on each SDE located in Appendix A. The options associated with each SDE are presented throughout the following sections.

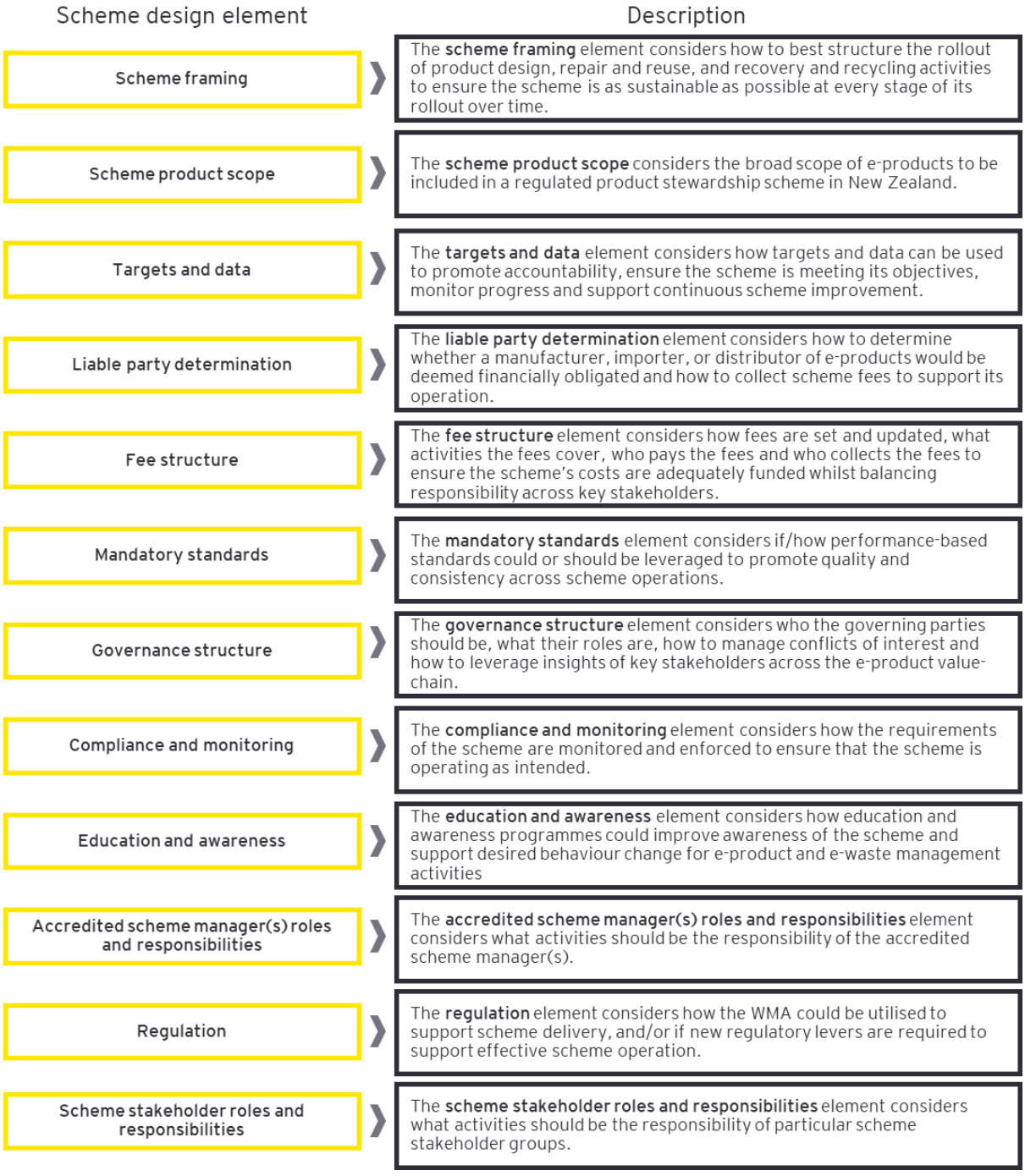


Figure 4 - Scheme design elements

3.1 Scheme framing

Due to the breadth of both the e-product categories set out by the Declaration of Priority Products and the number of activities the scheme should incorporate a significant portion of the discussion with the CEN was focussed on the scheme's framing.

Unlike many overseas models, Aotearoa New Zealand's general guidelines for priority product stewardship schemes include expectations that a scheme will improve circular resource use and move priority product management up the waste hierarchy.

The Guidelines include expectations that a scheme will improve circular resource use and move priority products up the waste hierarchy. This differs from many of the overseas schemes which largely focus on ensuring that producers fund or provide an end-of-life collection and recycling service for the e-products they place on the market, to reduce the environmental harm from e-waste. This does not mean that having an ambitious scope for the scheme is inappropriate; engagement with both the CEN and wider stakeholders demonstrates there is a keen interest from many stakeholders to design and develop a scheme which has a wider scope, such as repairability, reusability, and design for environment. However, given that Aotearoa New Zealand's current infrastructure for recovery, recycling, repair, and reuse is at different maturity levels for individual e-product categories, and all require improvement, the scheme will not be able to address all activities from the outset. The scheme needs to be framed in a way that introduces these elements in a staged and controlled manner and following realistic timeframes.

3.1.1 Options considered for scheme framing

Focussed scheme framing options

This option of the scheme's framing separates the three threads of circularity into different scheme options. Each thread has a set of SDEs developed specifically for each option and corresponding focus areas. Option 1 has the most conservative approach, focussing solely on recovery and recycling. Option 2 expands on this to include repair and reuse, alongside recovery and recycling. Option 3 is the most ambitious, including all three threads of circularity within the scheme's focus from scheme commencement. The initial set of options and associated diagram can be seen below in Figure 5.

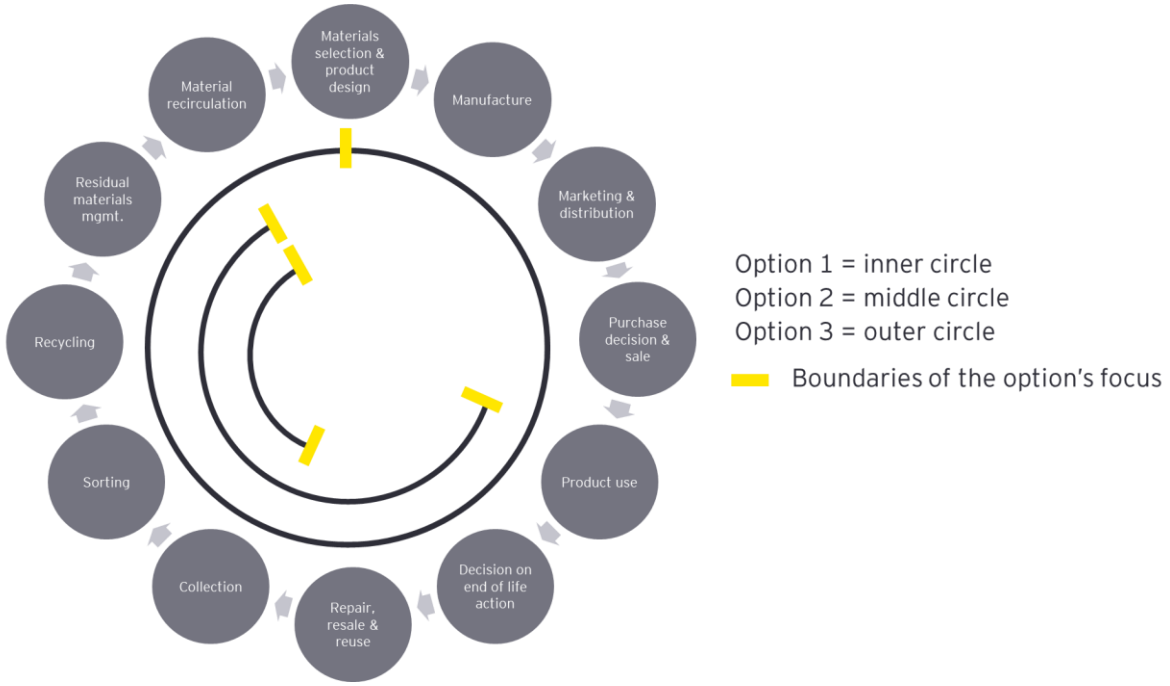


Figure 5 - Focussed scheme framing options

Expanding scheme framing options

This option of the scheme's framing provides a set of redesigned options which incorporate all three threads of circularity across all options. While the initial focus of each option differs, each option is designed to expand its focus over time to include the other threads of circularity. This approach better aligns the scheme's framing and focus with the Guidelines by ensuring all three threads of circularity are included in the scheme over time. These scheme framing options can be seen below in Figure 6.

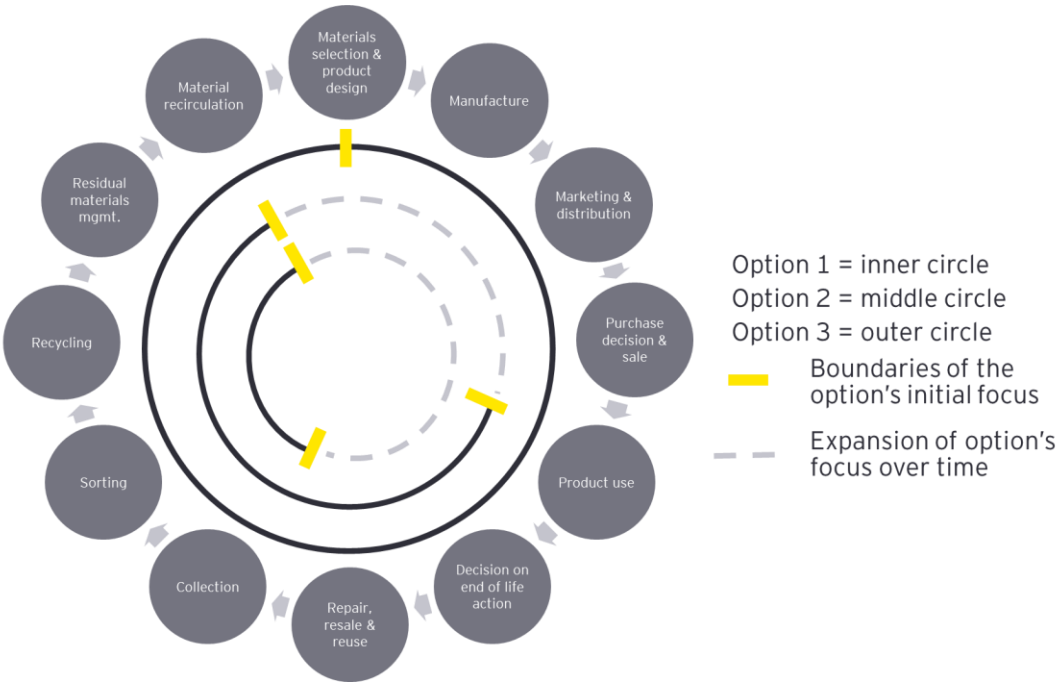


Figure 6 - Expanding scheme framing options

Staggered scheme implementation framing option

This option consolidates the set of options into one scheme framing design. This design incorporates all three threads of circularity implemented over the short-, medium-, and long-term, and adds a primary and secondary focus for each timeframe. The difference between primary and secondary focus is explained below:

- The primary focus indicates where most of the scheme's energy will be targeted, ensuring that life cycle activities are being supported to meet the vision, intended outcomes, and objectives of the scheme
- The secondary focus indicates areas where the scheme will seek to work in the background to support the roll-out of the other threads over future time periods.

For this scheme framing option, the short-term primary focus of the scheme is on recovery and recycling, with a secondary focus on repair, reuse, and product design activities.[11] The medium-term primary focus expands to include repair and reuse with a secondary focus on product design for environment.[12] Finally, in the long-term, the primary focus expands to include product design for environment. This scheme framing option can be seen in Figure 7.

[11] In the short term, product design activities are likely to be focussed on research into appropriate and feasible approaches to influencing product design through the scheme.

[12] In the medium-term, product design activities are likely to continue to focus on research into appropriate and feasible approaches to influencing product design.

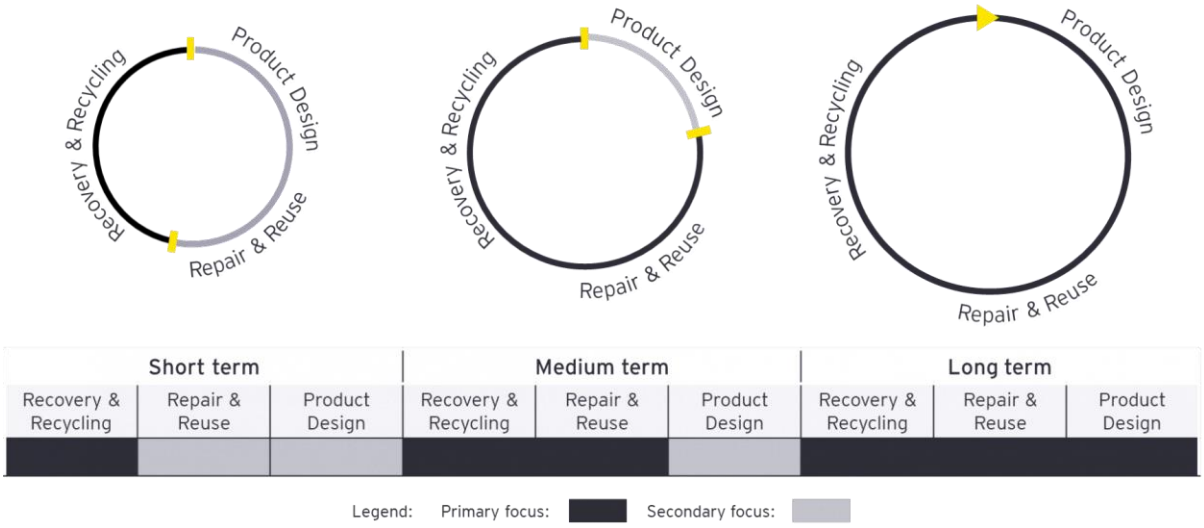


Figure 7 - Staggered scheme implementation framing option

3.1.2 Feedback and discussion on scheme framing

The scheme framing presented in Figure 5 was generally unsupported by the CEN, due to the perceived linearity of having the scheme set up in this way. There was support for option 3 by the CEN, who highlighted the need for the scheme to be as ambitious as possible with its design and scope, noting that recovery, recycling, repair, and reuse are already occurring in Aotearoa New Zealand to varying degrees.

There was concern raised by some CEN members that having a scheme option that focussed only on recovery and recycling would fail to meet desired outcomes and expectations of the Guidelines. When only focussing on recovery and recycling, the scheme may divert e-products from higher order waste hierarchy interventions (such as repair and reuse), in favour of recycling. Therefore, it was believed that those e-product categories that already had high rates of repair and/or reuse prior to the scheme's commencement would slip down the waste hierarchy, as recycling becomes the common recourse for end-of-life management after the end of an e-product's first useful life. As a result, the CEN recommended that any scheme option should include all three threads of circularity.

Feedback from the CEN on the scheme framing presented in Figure 6 was more positive. However, it also did not receive widespread support. CEN members highlighted that different e-product categories were at different stages in terms of recyclability, repairability, and product design for environment. Therefore, any scheme design needs to ensure that there are activities targeting the three threads of circularity in each time period.

CEN members highlighted that different e-product categories were at different stages in terms of recyclability, repairability, and product design; therefore, any scheme design needed to ensure that there were activities targeting each thread of circularity in each time period.

The CEN also continued to voice the concern that providing an option which only focuses on recovery and recycling, even if only for the short-term, could lead to negative outcomes for the current status of end-of-life management service in Aotearoa New Zealand. To address this, the CEN recommended that the idea of scheme framing "options" be replaced with a single scheme framing model which incorporates a primary and secondary focus in each time period.

The framing presented in Figure 7 received the most support from the CEN. Members were pleased that the scheme's framing no longer provided a basic recovery and recycling-only option. This also provided better alignment with the Guidelines on regulated product stewardship schemes, providing a pathway to move e-products up the waste hierarchy and allow for greater circular resource use. Given the positive response from the CEN, the staggered scheme implementation framing option was taken forward to be tested with a wider set of stakeholders as part of stakeholder engagement activity, including webinars, facilitated sessions, and one-on-one interviews.

Feedback from the webinars, facilitated sessions, and one-on-one interviews regarding the scheme framing was generally positive with 55% of respondents supporting the staggered approach to implementing the three threads of circularity.

Feedback from the webinars, facilitated sessions, and one-on-one interviews regarding the scheme framing was generally positive.

Stakeholders were also asked for their opinion on the most appropriate timing for the short-, medium- and long-term periods; with response results summarised below:

- A short-term timeframe of two years was supported by 52% of respondents, with 13% supporting a five-year timeframe. Furthermore, 16% suggested an alternative timeframe, and 18% did not provide any response
- A medium-term timeframe of three to five years was supported by 61% of respondents, with 7% supporting a five to seven-year timeframe. 13% provided an alternative suggested timeframe, and 18% did not provide any response
- Questioning on the most appropriate long-term timeframe, did not receive any clear support. Only 37% of respondents agreed with a long-term timeframe commencing five years after the scheme is established, with 35% providing an alternative suggested timeframe, and 18% did not provide a response.

In the cases where an alternative suggested timeframe was provided, stakeholders primarily noted their concern over the practicality of having repair, reuse, and product design for environment activities implemented across all e-product categories within the same fixed timeframe. Instead of attempting to align all e-products to the same timeframe, stakeholders provided two common suggestions:

- For each e-product category, develop tailored timeframes for the short-, medium-, and long-term that considers each category's current status with respect to repair, reuse, and product design for environment
- Have multiple schemes to manage each e-product category individually.

In addition to this, earlier stakeholder feedback highlighted a lack of trained repair technicians to support the expansion of the repair and reuse network in Aotearoa New Zealand. To ensure repair and reuse could be expanded through the scheme, stakeholders noted the need for support of the training of repair technicians as a precursor activity before any significant advancements could be made in repair or reuse. It is likely this will need to be a government-led initiative to support more people into vocational training for the e-product repair sector.

Testing this thinking with the CEN showed broad support for timeframes tailored to each individual e-product category. While this was supported, several CEN members noted that further activities are required to establish what is needed for each e-product category to be recycled, repaired, reused, and to have product design for environment activities and interventions applied. In the case of repair and reuse, there are challenges in building-out capabilities in this area without additional legislation, such as right to repair or design for environment. Ultimately, understanding what tasks are involved to improve recyclability, repairability and reusability will help determine each time period for each e-product category.

Scheme Objectives

As part of the scheme framing SDE it is also important to establish overarching objectives for the scheme to achieve. The international research and consultation led by TechCollect NZ as part of this co-design process identified that there are three common objectives for the extended producer responsibility programmes and product stewardship schemes assessed. These include:

International Insights

There are three common objectives for international extended producer responsibility programmes and products stewardship schemes for e-products and e-waste.

1. Preserving, protecting, and improving the quality of the environment
2. Protecting human health, and
3. Utilising natural resources responsibly.

Given the Guidelines include expectations that a scheme will improve circular resource use and move priority product management up the waste hierarchy, a unique approach compared with the international jurisdictions assessed which largely focus on end-of-life management, it was recommended by TechCollect NZ and members of the CEN to also include an overarching objective that seeks to enable circular economy outcomes and where possible, incorporate waste prevention, e-product repair and reuse initiatives.

Of the options assessed and considering stakeholder feedback and discussion above, a staggered scheme implementation framing option is recommended. For more details on scheme framing recommendations and the corresponding further activities proposed, see section 3.1 in Report Two.

3.2 Scheme product scope

The Declaration of Priority Products Notice 2020 (Declaration of Priority Products) sets out a broad scope of e-product categories to be investigated for a regulated e-product stewardship scheme in Aotearoa New Zealand.

These e-product categories, aligning with the full scope approach under the 2019 recast of the WEEE Directive, with an additional category for small batteries, cover all electrical and electronic devices under a certain voltage capacity threshold that require electricity power supplies to operate.

3.2.1 Options considered for the scheme product scope

Full scope

A full scope approach would see all e-product categories that fall under the Declaration of Priority Products included in a regulated e-product stewardship scheme from commencement. This is the most comprehensive product scope approach and would align with jurisdictional approaches in Europe following the WEEE Directive and Battery Directive frameworks.

The only e-products not included in a full scope approach for a regulated e-product stewardship scheme relate to rechargeable batteries designed for use in electric or hybrid vehicles or household-scale and industrial renewable energy power systems. For example, large lithium-ion batteries used in electric vehicles are not included, as these battery types are being investigated through a separate priority product stewardship co-design process led by the Battery Industry Group.

Select scope

A select scope approach would determine a subset of the e-product categories that fall under the Declaration of Priority Products which should be mandated for inclusion in a regulated e-product stewardship scheme and covered from scheme commencement.

Exemption criteria for excluding certain e-product categories from a regulated e-product stewardship scheme would need to be developed and justifiable on the basis that the e-product scope or category in question does not pose a significant risk or threat to the well-being of the environment or those managing these e-products at different life cycle stages. Furthermore, there should be no identified market failures leading to the loss of valuable resources that could otherwise be recovered through a regulated e-product stewardship scheme.

Phased in scope

A phased in scope approach would start with mandatory scheme participation for all e-product categories that have recovery and treatment capacity and capability and then extend the scope to include more e-product categories over time.

This approach acknowledges that certain e-product categories have more mature treatment options and recovery pathways than others. Additionally, there are some long-life e-products that are only now starting to enter Aotearoa New Zealand's waste stream in significant quantities, demonstrating a need for further repair, reuse, and recycling market development.

3.2.2 Feedback received/discussion on the scheme product scope

Full scope

The full scope approach was the only model tested with stakeholders at various points in the co-design process. In order to align with the Declaration, a full scope was presented to stakeholders, seeking feedback on whether specific e-product categories (if any) should be excluded from an e-product stewardship scheme, and if so, the reasoning for this position.

The majority of the 2,005 respondents to the consumer research survey when asked 'which types of electrical and electronic products should be included in a product stewardship scheme', supported a full scope. The level of support varied by e-product category. For example, 85% of respondents were supportive of the inclusion of small household appliances, screens, and monitors, while only 65% of respondents supported the inclusion of lamps.

A full scope approach was the only model that was tested with stakeholders, with feedback sought on whether any e-product categories should not be included.

When asked for further feedback on why a certain e-product category should be excluded, the highest ranked response was that some e-product categories should not be included as they contain valuable materials that recyclers want and there is no market failure to address. The next highest responses were that we are unable to recycle these products in Aotearoa New Zealand at present and there is no significant environmental or human health impact caused by these products throughout their life cycle.

Stakeholder groups targeted for the initial stakeholder survey included e-product manufacturers, retailers, distributors, business users, repair and service organisations, disposal, collection, and recycling organisations, Territorial Authorities, and community group stakeholders. There were 130 stakeholder respondents in total. Similar to the consumer research results, a majority of respondents were supportive of a full product scope that included all e-product categories in the Declaration (113 out of the 130 respondents).

The highest ranking e-product category that a small number of respondents believed should not be included in the scheme's product scope (12 out of the 130 respondents) was temperature exchange equipment, for example, fridges, freezers, and air conditioning equipment. It was suggested that these e-products can already be recycled and are being managed effectively by scrap metal merchants or recyclers. Respondents also noted that e-products in this category are too large for collection and storage activities alongside other possible in-scope e-product categories.

Stakeholder feedback further suggested that treatment of refrigerants and foams that insulate e-products such as fridges require sophisticated infrastructure with large capital expenditure. Therefore, further analysis is required of Aotearoa New Zealand's recycling capacity and capability, as well as the level of funding support necessary, to ensure an e-product stewardship scheme could appropriately manage unwanted and waste temperature exchange equipment.

The most common items that were suggested for exclusion from the scheme's product scope were temperature exchange equipment, large appliances and batteries.

The second highest ranking e-product category that participants in the initial stakeholder survey believed should not be included in the scheme's product scope was large equipment, with eight out of 130 respondents wanting to exclude this e-product category. Similar reasoning and rationale were cited for this decision as also provided for the temperature exchange equipment.

The third highest ranking e-product category that participants believed should not be included was batteries, with five out of 130 respondents indicating this e-product category should also be excluded. Specifically, for batteries, stakeholder feedback suggested that used lead acid batteries should not be in scope, as there are already viable recycling processes available in Aotearoa New Zealand that achieve a high material recovery yield and recirculation rate.

With respect to smaller battery types and their various chemistries and applications, one respondent advised that there is no onshore recycling capacity for these batteries at present, and another respondent advised that batteries have different recovery requirements and treatment pathways compared to the other e-product categories tested.

Other responses recommending specific e-product category exclusions included:

- Small IT and telecommunication equipment (three out of 130 respondents)
- Lamps (three out of 130 respondents)
- Small equipment (two out of 130 respondents)
- Screens and monitors (one out of 130 respondents).

These responses had consistent feedback themes around existing recycling market capacity and capability, specialised treatment requirements compared to other e-products, and perceptions around embedded resource value.

Research into the product scopes of international schemes provided useful insights, in some cases reiterating concerns raised in the stakeholder and consumer surveys. Specifically, these insights were:

- E-product collection networks vary by jurisdiction, scheme, and the e-product categories that are in scope
- Types of e-product collection networks are often dictated by the ease or suitability of consolidated collection networks available, treatment pathways, and handling requirements for certain e-products containing hazardous substances

- Education and awareness programmes are important to achieve scheme participation. Additionally, nationally consistent messaging is essential, especially where there are multiple scheme managers, to prevent scheme user confusion over which e-products are accepted by a scheme, and how they are managed

- All of the jurisdictional extended producer responsibility programmes and product stewardship schemes investigated have separate systems in place for e-products and batteries, i.e., none of the jurisdictions assessed manage batteries and other e-products under a single scheme.

Furthermore, the assessment of the current e-product and e-waste management network in Aotearoa New Zealand helped to reveal the status of recycling, recovery, and repair services. Specifically:

- There is an active national network of e-product and e-waste life cycle management service available across Aotearoa New Zealand; however, service access and capabilities differ greatly by region and e-product category

- Across all e-waste collection points mapped through the national assessment of available services, 95.8% of the Aotearoa New Zealand population has access to an e-waste collection point within a 30-minute drive time

- All e-product categories are widely accepted across the available services assessed i.e., collection, reuse, repair, refurbishment, and recycling; however, coverage for category 3 (Lamps) is limited with only one recycler providing treatment services nationally.

When tested with the CEN, the majority of feedback was supportive of a full scope approach. However, it was noted that a broad product scope presents some challenges, given not all e-products contain the same materials, have distinct lifespans, and some categories or streams require specialised end-of-life treatment pathways. The following potential benefits of a full scope approach were also noted:

- Creates a higher supply of e-products to Aotearoa New Zealand's e-waste management sector providing opportunities for market investment, employment, training and development

- Ensures consistent education, awareness and action campaigns for scheme users and reduces complexities and confusion across different e-product specific schemes

- Provides convenient and integrated scheme access for all e-products in a national recovery network

- Achieves economies of scale, especially with respect to increased recovery efficiencies and material recovery processes

- Harmonises Aotearoa New Zealand's e-product stewardship approach with jurisdictions with well-established schemes in place (e.g., European countries following the WEEE and Battery Directive frameworks) where we can compare our operational effectiveness directly.

Members of the CEN also advised that there are certain e-product categories and streams that are difficult to manage, based on Aotearoa New Zealand's current e-waste management capacity and capability. This can result in poor material recovery as no viable recycling options are currently available in some cases. The main reason for this is a perceived lack of embedded value or resource incentive for recyclers to invest in more sophisticated treatment techniques or equipment.

For example, photovoltaic (PV) solar panels are not recycled to achieve a high material recovery yield at present, and there are no dedicated recycling service providers available in Aotearoa New Zealand. Current recovery outcomes are not likely to exceed recycling of the aluminium frame component which represents less than 20% of a typical PV solar panel by weight. The remaining components, which include glass, silicon cells, and semiconductor materials, such as silver and copper, are either stockpiled or sent to landfill. E-products such as ionisation smoke alarms, personal care, and medical equipment may also require tailored approaches to safely manage radioactive content or biohazardous substances.

Members of the CEN recommended that further investigation is required to fully understand which e-product categories can be managed in line with best practice standards in Aotearoa New Zealand and accessible offshore markets. These investigations may justify the exclusion or phasing in of some e-product categories, at least in the short-term, and until available treatment capacity is expanded to match corresponding waste arising.

The CEN was supportive of a full scope approach an Aotearoa New Zealand scheme.

During the process of identifying financially liable parties, calculating, and assigning financial obligations, a potential issue has been identified under an Advanced Stewardship Fee (ASF) structure. This structure aims to utilise the New Zealand Customs Service's available data for e-products imported into the New Zealand market. An ASF structure for imported e-products would track tariff or harmonised system (HS) codes[13] corresponding to each in-scope e-product category to determine liable party obligations. In the case of batteries, there is only one product tariff code for all batteries. This means the New Zealand Customs Service's import data cannot distinguish between battery types, chemistries, capacities, or applications.

Considering potential product scope crossover with large batteries being investigated by the Battery Industry Group, it may be more appropriate for all batteries, regardless of size, chemistry, or application, to be managed under a single product stewardship scheme. This could be implemented either under an all-encompassing e-product stewardship scheme, or a specific product stewardship scheme just for batteries. Any such process should be simple and clear, to avoid any potential issues with respect to scheme product scope crossover, overlapping scheme campaigns, and duplication of reporting activities or fee collections.

Select scope

Although not tested specifically with stakeholders, a select scope was considered based on stakeholder feedback on a full scope approach.

A select scope would allow for a smaller group of liable parties due to a smaller number of in-scope e-products being covered by the scheme.

Potential benefits and issues of a select scope compared with a full scope approach identified by members of the CEN are noted below:

Potential benefits

- In-scope e-products that can demonstrate and provide evidence that there is no significant human health or environmental impact requiring coordinated intervention under a regulated e-product stewardship scheme are not included, reducing the number of liable parties and the level of obligation.
- In-scope e-products where there are no identified market failures leading to loss of valuable resources are not included, reducing the number of liable parties and the level of obligation.

[13] Harmonised Commodity Description and Coding System (HS) - A harmonised system of tariffs and internationally recognised schedule codifying all imported goods.

Potential issues

- Could lead to scheme user confusion and complicated messaging for scheme education, awareness and action campaigns.
- Could create scheme product scope contamination issues and lead to unrecoverable costs for the accredited scheme manager(s) and/or scheme service providers.
- Would not align with jurisdictions with well-established schemes in place (e.g., European countries following the WEEE and Battery Directive frameworks) or enable direct comparative analysis on operational effectiveness.
- Would reduce the supply of e-products and e-waste to Aotearoa New Zealand's e-product and e-waste management sectors compared with a full scope approach.
- Introduces additional monitoring, auditing, and compliance activities against exemption criteria for either the accredited scheme manager(s) or the scheme regulator.

Phased in scope

A phased in scope approach was also not specifically tested with stakeholders. However, consultation and feedback received in relation to the full scope approach helped to form the basis for the consideration of a phased in scope approach across the CEN. Potential benefits and issues of a phased in scope compared with a full scope approach identified by members of the CEN are noted below.

Potential benefits

- In-scope e-product categories or streams with no repair and recycling options at present are not included from scheme commencement; however, these are phased in over time as corresponding market capacity and capability is developed and becomes available.

Potential issues

- Could lead to scheme user confusion and complicated messaging for scheme education, awareness, and action campaigns.
- Could create scheme product scope contamination issues and lead to unrecoverable costs for the accredited scheme manager(s) and/or scheme service providers.
- Would not align with jurisdictions with well-established schemes in place (e.g., European countries following the WEEE and Battery Directive frameworks) or enable direct comparative analysis around operational effectiveness.
- Would reduce the supply of e-products and e-waste to Aotearoa New Zealand's e-product and e-waste management sectors compared with a full scope approach.
- May require amendments to scheme accreditation at different points in time, which can be lengthy and require further consultation activities.
- Would require periodic market assessments and funding of these activities.

3.2.3 Additional activities to address MfE feedback

TechCollect NZ delivered additional activities to address feedback received from MfE on the Final Draft Co-design Recommendations Report and propose a recommended scheme model that would support the public consultation and scheme accreditation stages that follow the co-design process, without significant delays, further funding or activities required.

This included revising the final draft scheme product scope recommendation from commencing with a full scope to a phased in scope approach that would reduce the number of further activities framed as essential for scheme implementation and introduce additional categories into the scheme's scope over the scheme's initial seven-year accreditation cycle to be led by the accredited scheme manager(s).

Under the revised phased in product scope approach, the e-product categories recommended to be included from commencement are e-product categories 2 (Screens, monitors and equipment with screens over 100cm²), 5 (Small equipment), and 6 (Telecommunication equipment and small IT equipment).

E-products and e-waste within categories 2, 5 and 6 are expected to be collected together and follow the same or similar management pathways as part of scheme operations. Co-design research and consultation also indicate that there is sufficient capacity and capability within Aotearoa New Zealand's recycling sector (and accessible offshore markets) to manage the estimated volume of e-waste generation across these categories, while other e-product categories not recommended to be included in-scope from commencement require further investigation and/or market development in order to ensure management in line with all mandatory and minimum scheme requirements recommended.

Some of the challenges and issues to be addressed in order to introduce the additional e-product categories into the scheme's scope include (but are not limited to):

- An expectation that metal recyclers and scrap metal merchants managing e-products and e-waste across different categories, particularly e-product categories 1 (temperature exchange equipment) and 4 (large equipment), are unlikely to be able to meet the requirements of the mandatory standards being recommended for scheme recycling service providers without significant investment to adjust their practices. Note: alternate mandatory standards or minimum requirements may need to be considered for metal recyclers given the nature of typical metal recycling processes which can take place outdoors without suitable control measures (e.g., dust suppression)

- A lack of available services and infrastructure to recycle e-waste across different e-product categories. Note: the national network assessment carried out as part of the co-design process identified that there are limited services available to recycle e-product category 3 (lamps) and there is only one service provider nationally

- For category 7 (batteries), potential issues with the recommended ASF structure and liable party determination process have been identified, as has potential crossover with the regulated product stewardship co-design recommendations for large batteries (led by the Battery Industry Group).

Introducing additional e-product categories into the scheme's scope should be informed by maturity assessments that are recommended to be carried out by the accredited scheme manager(s) in the scheme's short-term timeframe with respect to recyclability, repairability, and product design for each e-product category.

It is also proposed that the accredited scheme manager(s) works with the scheme regulator and stakeholder advisory group to support targeted research and consultation for bringing additional e-product categories into the scheme's scope over the scheme's medium- to long-term periods. The accredited scheme manager(s) may also seek to establish e-product category working groups in conjunction with the scheme regulator and stakeholder advisory group to provide additional input and support these efforts.

Of the options assessed and considering stakeholder feedback and discussion, and additional activities led by TechCollect NZ above, a phased in scope is recommended. For more details on scheme product scope recommendations and the corresponding further activities proposed, see section 3.2 in Report Two.

3.3 Targets and data

3.3.1 Options considered for targets and data

Material recovery target for recycling

A material recovery rate relates to the recycling of in-scope e-products as part of scheme operations. It is equal to the proportion of an e-product (typically a percentage of the e-product by weight) that is recovered into useable materials (i.e., that are used in new e-product manufacture or as an input into alternate manufacturing processes or market applications).

It is common practice for e-products to be separated into their constituent parts (e.g., plastic, ferrous/non-ferrous metals, batteries) by e-waste recyclers before these individual components or materials streams are then sent to downstream processors for recovery into new useable materials. As a result, material recovery rates are dependent on both the ability of the e-product to be separated into its constituent parts and for those parts to then be processed into useable materials.

A material recovery target sets the minimum recovery rate percentage and helps to drive better recycling outcomes. For example, if there is no material recovery target for an e-product, the focus may be on simply recovering the high value metals, with lower value or hazardous materials such as plastics with brominated flame retardants being disposed of to landfill. The material recovery target would need to be adjusted for each e-product category based on onshore and offshore recycling market capability for the various materials within the e-products. Energy from waste should not be considered as a form of recycling when examining the capacity of the market nor contribute to achieving material recovery targets.

The material recovery targets would be adjusted as appropriate based on regular reviews of the recycling market capability and scheme recycling outcomes being achieved, conducted by the accredited scheme manager(s) in conjunction with the scheme regulator.

Weight-based collection target

A weight-based collection target is the minimum total amount of e-waste that must be collected by the scheme for each e-product category for recycling each year (or another specified time period). This target is designed to ensure that the scheme is collecting a base level of e-waste for recycling.

The establishment of weight-based targets would require real world scheme data to be collected, on the amount of each category of e-product that was available to the accredited scheme manager(s) for collection. This is to recognise that the accredited scheme manager(s) will not have ownership or control of all e-waste generated, alongside e-product import and manufacturing tonnages, and expected lifetimes of those e-products. Once the accredited scheme manager(s) has a real world understanding of the e-product and e-waste flows in Aotearoa New Zealand, achievable weight-based collection targets could be set.

However, it is important to note that the reporting systems currently in place for e-product categories imported and e-waste categories collected for recovery are different. This would create challenges when aligning data sources to support weight-based collection targets, especially if carried out at the beginning of the scheme. As the scheme matures, weight-based collection targets would need to be reviewed and updated as more data from the scheme is collected.

Percentage-based reuse target

A percentage-based reuse target is the percentage of total e-products by category collected by the scheme that were diverted from recycling channels for reuse (e.g., testing, data wiping, or repair activities). This target is designed to improve behaviour around the sorting of e-products collected to identify those e-products which are still usable, so that they are not sent for recycling prematurely.

As with weight-based collection targets, a reuse target would require the use of operational data from the scheme. Specifically the typical quality of e-products/e-waste collected (such as age, functionality, and condition), along with the number of e-products diverted from recycling for reuse and the categories that are most commonly diverted for reuse. As a result, this target would be difficult to implement effectively from scheme commencement. Over time, the target would need to be reviewed and updated as repair and reuse services become more widely available.

Reasonable access target for collection services

A reasonable access target for collection services is the minimum number and location of scheme collection services accessible to the community for all in-scope categories of e-products. Examples of how 'reasonable access' is determined in other jurisdictions include a minimum distance (kilometres) or drive time (minutes) to a scheme collection site.

International Insights

A dual component "convenience" model target has been successfully implemented in other jurisdictions. This model has a focus on availability of collection points, and a commitment to manage 100% of products accepted.

A reasonable access target helps to ensure that a scheme is equitable in its accessibility for all e-product consumers by preventing collection sites from congregating around the largest population centres, which are cheaper to service and generally receive larger volumes of e-products and e-waste compared to rural and more remote locations. Work has already been carried out as part of the co-design process to establish the level of access to collection sites available (as of February 2021) by drive time. The reasonable access target could be set by leveraging the data from this initial research to inform scheme access targets.

One implementation method for achieving reasonable access targets is through a "convenience" model. It has a dual component target, comprised of criteria to determine what level of accessibility to scheme drop off locations is considered convenient. It would also be a requirement that the scheme must accept and manage 100% of the items within scope that are delivered to scheme access points established. This target is designed to focus efforts on aspects of the scheme that can be controlled by the accredited scheme manager(s), i.e., the availability of collection sites and what happens to the e-product after it is disposed of. This contrasts with a weight-based target which requires the scheme to focus on waste that may not yet be the responsibility of the service providers, i.e., e-products still held by consumers.

There is no global formula to determine "convenience". The practical aspects (e.g., the density of a collection network) depend on the individual situation in a particular country. Convenience is linked to the extra efforts people must take to discard their e-waste properly; the more additional effort required, the lower the convenience. If people must drive long distances to dispose of an old laptop for recycling, they may instead discard it in a waste bin. However, taking the e-product to a place they frequent often will be more convenient.

In some countries, product stewardship organisations (PSOs) have established "mobile collection stations", an e-waste truck stop, or run regular collection events, based on a fixed schedule at several places in different municipalities.

Product design for environment target

A product design for environment target is the proportion of e-products placed on the New Zealand market, which qualify for lowered fees through a set of eco-modulation criteria (if pursued). This target is designed to drive the growth in the number of e-products on the market that are designed for better environmental outcomes; for example, durability, repairability, and reduction of embedded hazardous materials. To set this target, data would need to be collected on all e-products in the New Zealand market at any given time, and the number of e-products that qualify for lower fees under a potential set of eco-modulation criteria.

This target could also be accompanied by indicators which demonstrate progress in e-product design for the environment, such as the quantity of hazardous materials collected as a percentage of the total material obtained for an e-product category, or the number of e-products achieving product design standards, such as the Electronic Product Environmental Assessment Tool[14] (EPEAT).

As this target uses point-in-time data, the collection of data and setting targets could occur within the same period. Setting this target would need to occur at the e-product category level with consideration of achievable targets for each respective category, likely using empirical evidence of best practice design for environment uptake in international markets.

3.3.2 Feedback received/discussion for targets and data

Material recovery target for recycling

The concept of material recovery targets was tested with stakeholders early in the co-design process. The initial stakeholder survey at the end of 2020 mostly showed positive support for a target related to the total material recovered by the scheme that was able to be recycled. Based on stakeholder feedback, material recovery targets will need to be set at the e-product category level.

Stakeholder feedback from the webinar sessions was generally positive towards a material recovery target, particularly among pre-consumption stakeholders. Feedback noted that targets need to be set at the e-product category level.

When tested with the CEN, there was concern about how a material recovery target would work in practice. Specifically, the need to assess the recycling capability of both onshore and accessible offshore recyclers for each e-product category to determine the appropriate recovery target level.

However, international research indicates that the majority of schemes in other jurisdictions, including European countries, have material recovery targets, broken down by e-product category. Because of this, it was deemed there would be enough relevant experience and learnings to support the development of these targets.

Stakeholder feedback from the webinar sessions was generally positive towards a material recovery target, particularly among pre-consumption stakeholders. There was some pushback from post-consumption stakeholders noting the amount of work required to set the material recovery targets accurately. Additional feedback reiterated the need for any material recovery targets to be set at the e-product category level, not as a 'one-size-fits-all' approach.

[14] https://www.epeat.net/

Weight-based collection target

Much like the material recovery target, a weight-based collection target was considered early in the co-design process. Results from the stakeholder survey showed the greatest support for a target which focussed on the weight of e-waste that was collected and recycled as part of the scheme.

It was generally agreed amongst the CEN that a weight-based target would not be appropriate for the scheme, primarily due to the potential for this type of target to limit or overextend the scheme if not set using accurate data.

CEN feedback on potential weight-based targets was favourable, with several members considering the target a strong measure of the success of the scheme. However, some concern was noted that having too much emphasis on the volume or weight of e-products collected by the scheme would be potentially detracting from higher order waste hierarchy interventions.

International research revealed that many schemes have a weight-based collection target alongside a material recovery target. However, this research also noted that many jurisdictions, particularly in Europe, have not met weight-based targets as they were not set using complete or accurate data.

International Insights

Many weight-based targets in other jurisdictions have not been met due to incomplete or inaccurate data. Stakeholders in Europe considered that the scheme can only be accountable for e-waste dropped off within their collection network, not all e-waste generated.

In the case of Europe, the setting of targets did not adequately consider the fact that scheme managers do not own all e-waste generated or control all e-waste flows; they only control e-waste which is dropped off in their collection network or provided by producers. As a result, scheme managers are not able to access all e-waste that is generated; some e-waste can get recycled through commercial contracts outside of the scheme, it may be illegally exported/dumped, go directly to scrap metal recyclers, be disposed of in landfill, or remain in the home or workplace due to consumer hoarding.

In Australia, some of the issues faced in Europe were overcome by calculating a 'waste arising' figure which uses scaling factors to account for the fact that not every e-product purchase results in an e-product being presented to a scheme as e-waste. For more information on these international learnings, refer to Appendix G of this report.

Ultimately these overseas examples show that robust data collection and analysis methodologies would be needed for this type of target to be effective in Aotearoa New Zealand. Typical data sources include "placed on market" (POM) data from producers/importers/retailers (number of units and the weight of each unit), real-time scheme data on the quantity of e-products moving through the scheme, and even consumer e-waste behaviour surveys (a method used in Australia and Spain). Due to these complexities, any use of a weight-based collection target would likely need to be added after the scheme had been in operation for some time, to ensure it was set at an appropriate level and targets are realistic and achievable.

The support for weight-based collection targets amongst stakeholders during the engagement activities was approximately 50% in favour. However, several stakeholders reiterated the issues noted in overseas schemes on the need for data accuracy and more evidence to support the targets set. This concern was noted in the multi-criteria analysis (MCA) assessment carried out by CEN members with weight-based collection targets

International Insights

Use of a weight-based target in Australia led some scheme managers to stop collection of e-waste once their target had been met for the year. This led to stockpiles of e-waste which local councils were required to manage.

being ranked as having the lowest level of support for the CEN's desired scheme outcomes when tested against a material recovery target, a reuse target, and a reasonable access target.

Concern was also raised about the behaviour that a weight-based target could elicit amongst both collection providers and the accredited scheme manager(s). Specifically, there was concern that having a set weight that should be collected each year would drive the scheme to recycle e-products prematurely (i.e., before they had become e-waste), or for the focus to be placed on heavier items, for example cathode-ray tube (CRT) televisions.

Not only could these behaviours result in greater levels of wastage occurring, as e-products are recycled prematurely, it could also see recovery inequity between both e-products and e-product categories. For example, a focus on heavier items could see lithium-ion e-bike batteries having high rates of collection, while the collection of smaller, lighter Lithium-ion button batteries is deprioritised due to the quantity needed to meet a weight-based collection target. Furthermore, Australian learnings showed that some scheme managers stopped collecting e-waste once they had met their weight-based targets for the year, resulting in stockpiles that local councils were left with to manage. A similar outcome in Aotearoa New Zealand would see the scheme fail to meet its intended purpose. From these discussions, it was generally agreed amongst the CEN that while weight-based collection targets could be used in the scheme, there were better alternatives available to achieve the desired outcomes.

Percentage-based reuse target

Initial responses from stakeholders showed a desire for a target that supported repair and reuse activities. Establishing a reuse target was also initially supported by some of the CEN members as a way of improving the prioritisation of diversion for reuse over recycling activities. However, there was also some opposition to the target and its proposed application to all categories of e-products, with it being noted that not all e-product categories can be effectively repaired or reused, especially given Aotearoa New Zealand's underdeveloped repair network in certain e-product categories.

The inclusion of reuse targets was also found to be uncommon across international schemes, with such a target appearing only in the Spanish scheme, which centres the target around "preparation for reuse". Preparation for reuse focusses on e-products disposed of for recycling through the scheme, which are still in good working order and can be diverted to service providers that undertake repair or refurbishment activities for e-product reuse.

The key difficulty for a reuse target is being able to collect enough data to support it. This was a leading point of feedback from stakeholders during the engagement sessions, with several stakeholders highlighting the need for far greater data collection on repair and reuse activities being required before such a target could be introduced. Furthermore, a point was raised that the target would be unlikely to provide an accurate picture of repair and reuse improvement through the scheme, as the majority of this activity occurred before products were collected by service providers. There was also significant push back from producers who noted issues of double counting, or the potential for liable parties to be charged scheme fees each time an e-product is placed on the market. Some stakeholders indicated that repair and reuse should not be part of a product stewardship scheme and should instead be encouraged and enabled via other policy instruments.

The CEN remained highly supportive of repair and reuse targets for implementation in the medium- to long-term.

Considering the feedback received by stakeholders and the learnings from the weight-based targets, the CEN's support for a percentage-based reuse target decreased. There were concerns that a hard reuse target may result in the same issues faced when using weight-based collection targets, leading to either a limitation on the volume of e-products heading through repair and reuse channels, or an overly ambitious target which is not achievable.

There would also be a practical issue with a percentage-based reuse target, as it would be heavily dependent on consumers to present enough e-products of reusable quality to support it. As a result, the CEN showed a preference for supporting repair and reuse activities through alternative means; for example, enabling greater access to the repair and reuse network and uptake of available repair services.

It is important to note; however, that the CEN was still highly supportive of a reuse target in the medium- to long-term, as this was seen as a driving factor for moving e-products up the waste hierarchy. It was recommended that in the initial stages of the scheme, a data collection activity should be set up to help reveal the drivers behind greater uptake in repair and reuse activities. A reuse or repair target could then be set based on these drivers and introduced for the appropriate e-product categories.

Reasonable access target for collection services - Convenience target

Initial stakeholder surveys did not test the concept of a reasonable access target. Although raised early in the CEN's discussions, the accessibility targets were not a major focus for the first half of the co-design process. This was potentially due to the earlier assessment of Aotearoa New Zealand's national recovery and recycling network by TechCollect NZ, which showed that the vast majority of New Zealanders lived within a 30-minute drive of a collection site.

There was support from stakeholders regarding implementation of a reasonable access target in the short-term.

International research revealed that only the Australian National Television and Computer Recycling Scheme (NTCRS) had implemented a reasonable access target, largely due to the significant distance between population centres and the overall low population density across the country. Given Aotearoa New Zealand shares similar characteristics to Australia in respect to the low population density outside of the main cities, the CEN saw the addition of a reasonable access target as an important element to include, in order to ensure that the scheme had equitable access and set key performance indicators (KPIs) for the accredited scheme manager(s) to achieve.

When this target was tested with stakeholders as part of the engagement sessions, it received significant support. Initially, it was suggested that a target should be implemented in the medium-term. However, 62% of respondents believed the reasonable access target should instead be implemented as soon as the scheme commenced. The CEN noted that immediate implementation of this target may be difficult, as there would need to be significant investment to advance some of the collection sites to a position where they would be able to accept all e-product categories. Nevertheless, given the high level of support both for the reasonable access target and an earlier implementation, it was clear that some form of reasonable access target should be included in the scheme.

International Insights

Australia was the only jurisdiction with a scheme implemented with a reasonable access target, partially due to low population density.
Given that Aotearoa New Zealand's population density is similar to Australia's, a reasonable access target may encourage equitable access.

Use of a convenience model for targets in the scheme was considered by stakeholders to be appropriate, provided it also came with provisions for repair, reuse, and recycling.

The convenience model of a reasonable access target was a late addition to the SDE options, resulting from stakeholder suggestions made after the stakeholder engagement sessions. The convenience model is a novel approach to target setting in a product stewardship scheme, with only a handful of jurisdictions adopting it so far.

One of these is the state of Illinois, U.S.A., which has implemented a 100% convenience target for its e-waste extended producer responsibility scheme. This scheme uses a population density per square mile metric to determine how many collection sites should be made available. Although having only operated for approximately two years, initial reports indicate this model to be working well.

As part of stakeholder feedback, two producer groups suggested the convenience targets as an alternative to the weight-based collection target and a complementary approach to the reasonable access target that had been proposed. The overall response to a convenience model by the CEN was positive. There was clear appreciation for how the model combined a reasonable access target and collection target, while also removing the need for a weight-based collection target and replacing it with a focus on managing 100% of in-scope e-products presented to the scheme.

This was also seen as a good mechanism for managing legacy and orphaned e-products once the scheme is up and running. Some members raised the issue of convenience targets being focussed on having a 100% recycling rate rather than a broader scope that includes repair and reuse. It was noted that adding a 100% repair and reuse target for those reusable e-products which could be diverted from recycling was possible, given that many collection sites already undertake sorting activities.

From this feedback, it was evident that implementing targets based on a convenience model was a suitable approach, provided the 100% acceptance rate for recycling was expanded to include repair and reuse as well.

Product design for environment target

The consideration of a product design for environment target related to an eco-modulated fee approach that was developed as part of an initial set of target options considered by the CEN. It remained a consideration for several months; however, concerns were raised over its appropriateness, as discussions progressed over the inclusion of fee eco-modulation within the scheme.

Given that eco-modulation is unlikely to be implemented across all e-product categories in the first few years of the scheme's operation, an eco-modulation target was not supported by the CEN.

Some CEN members noted this target could be implemented at a later date, once more work has been done on implementing eco-modulation overseas. This would also allow time for important research to be conducted into the benefits of eco-modulation, which is currently being carried out in Europe. Ultimately, given that fee eco-modulation is unlikely to be implemented across all e-product categories in the short-term, the target's inclusion into the scheme was postponed.

The CEN recommended that a data collection methodology and activity be developed and implemented, to enable future eco-modulation activity to be tracked. This data collection activity was shown to stakeholders as part of the engagement sessions; however, no specific feedback was sought on it. This research will help to inform decisions around the inclusion of fee eco-modulation in an Aotearoa New Zealand scheme, helping to determine if this target should be introduced in the long-term.

3.3.3 Additional activities to address MfE feedback

As noted, TechCollect NZ delivered additional activities to address feedback received from MfE on the Final Draft Co-design Recommendations Report and propose a recommended scheme model that would support the public consultation and scheme accreditation stages that follow the co-design process, without significant delays, further funding or activities required.

This included additional research and consultation to recommend suitable scheme targets and performance measures for scheme access and material recovery outcomes to be achieved by the accredited scheme manager(s) and scheme recycling service providers. TechCollect NZ led comprehensive assessments to inform these recommendations and drew upon relevant information and insights gathered throughout the course of the co-design process.

Scheme convenience target recommendations

A regional convenience model is recommended as the most appropriate framework to ensure equitable access to scheme services. This approach includes specific scheme convenience target metrics for the accredited scheme manager(s) to achieve in metropolitan, regional, rural, and remote areas of Aotearoa New Zealand for each year of scheme operation.

In order to track and measure progress in achieving the regional convenience target metrics, the accredited scheme manager(s) should carry out periodic (annual/bi-annual) geographical information systems (GIS) mapping and spatial analysis of service availability to determine population access for each year of scheme operation that covers each of the defined areas for the regional scheme convenience target. The accredited scheme manager(s) should provide regular reporting to the scheme regulator on achieving the regional scheme convenience targets, including annual reporting on scheme performance.

Scheme material recovery target recommendations

By assessing e-product category material recovery targets across different international settings and material fraction recovery assumptions based on the known and assumed capacity and capability of e-waste recyclers servicing the New Zealand market, TechCollect NZ has proposed initial material recovery target settings for e-product categories 2, 5 and 6 as the first e-product categories recommended to be included in the scheme's product scope from commencement.

The accredited scheme manager(s) should coordinate regular reporting with service providers engaged to undertake scheme recycling activities to confirm material recovery rates achieved in line with the category specific targets for all in-scope e-products. Scheme e-waste recycler reporting activities should include providing certificates of destruction (CODs) and batch reports for each scheme consignment managed that confirms the overall weight of e-waste items received and recycled, the material fraction composition post treatment, and the material recovery or recirculation rates achieved by downstream processors. These arrangements should be verified at least annually via mandatory audits that trace product and material/commodity flows to the point of final disposition.

Following the official scheme review point approximately three years post scheme commencement, it is recommended that the accredited scheme manager(s) work with the scheme regulator to review and update material recovery targets for in-scope categories (as appropriate) based on scheme data gathered and reported by the accredited scheme manager(s) in the first years of scheme operation. The achievement of all scheme targets will be confirmed at least annually in the accredited scheme manager(s) annual reporting on scheme performance and outcomes achieved.

Of the options assessed and considering stakeholder feedback and discussion, and additional activities led by TechCollect NZ above, scheme convenience and e-product category specific material recovery targets are recommended. For more details on scheme targets and data recommendations and the corresponding further activities proposed, see section 3.3 in Report Two.

3.4 Liable party determination

A liable party is a manufacturer, importer, or distributor of e-products with a financial liability under the WMA. The options for determining who is a liable party are presented below.

3.4.1 Options considered for liable party determination

Accredited scheme manager-led determination

The accredited scheme manager(s) is/are responsible for determining liable parties via the following steps:

- Perform research to identify who liable parties are (e.g., liaise with producers and producer associations)
- Establish and maintain a liable party registration portal on the scheme website (that is linked to the scheme regulator's website) and promote the registration process via industry communication channels
- Issue communications to individual manufacturers, importers, and distributors with a financial liability under the WMA, requesting them to register via the liable party registration portal.

The registered liable party listing will then be posted on the scheme website.

Once the scheme has commenced, liable parties that have not yet registered can be identified by:

- Using New Zealand Customs Service's data for imports (as per section 24 of the WMA), for example, the scheme regulator could perform cross checks with the registered liable party listing, to identify any gaps. This would apply to importers, not local in-scope e-product manufacturers or distributors
- Using POM data recorded by New Zealand Government agencies such as the Ministry of Business, Innovation and Employment (MBIE), and Statistics New Zealand (Stats NZ) for all locally manufactured e-products
- Notification via industry participants. For example, participants could notify the scheme manager and/or the scheme regulator of any known manufacturers, importers, and distributors who are not on the registered liable party list.

Under an accredited scheme manager-led determination approach, all data collected to determine liable parties would need to use a third-party clearing house provider to ensure commercially sensitive data is protected and to cross check self-reported data against New Zealand Customs Service data.

Scheme regulator-led determination

In some international jurisdictions such as Australia, the Federal Government has a major role in determining who liable parties are. For importers, the tariff or HS codes corresponding to each type of regulated product (i.e., priority product) are agreed and published in the applicable product stewardship legislation. Customs provide the scheme regulator with reports identifying all importers of each corresponding tariff code in any given period. The scheme regulator then prepares the liable importer listing and contacts them directly to advise them of their liability and the steps they must take to acquit their obligations.

Section 24 of the WMA allows the Secretary to request that the New Zealand Customs Service provide information about the importers and importation of priority products. These powers could be used by the scheme regulator to confirm that liable parties who are importing products into Aotearoa New Zealand have engaged with the accredited scheme manager(s), and reveal those who have not.

Due to New Zealand Customs Service's import data not including New Zealand-made e-products, additional arrangements between the scheme regulator and other government agencies, such as MBIE or Stats NZ, will be needed to provide the same oversight for Aotearoa New Zealand-based liable parties.

3.4.2 Feedback received/discussion for liable party determination

It was acknowledged early in the co-design process that consideration of liable party determinations needed to be carried out after the fee structure had been consulted on and a preferred model had been identified. As a result, conversations regarding liable parties commenced after webinars and broader discussions with stakeholder groups. As such, there has been limited engagement and collection of stakeholders' views regarding the determination of liable parties. When presented to the CEN, there was a clear preference for having liable parties determined directly by the scheme regulator using New Zealand Customs Service import data, rather than relying on self-reporting by liable parties.

However, discussions with MfE have indicated that the scheme regulator determination option is unlikely to be feasible. Due to legislative constraints, NZ Custom Services does not have authority to release liable parties' details to the accredited scheme manager. Therefore, regulator liable party determination is not currently an option. As a result, the accredited scheme manager-led determination process, with validation and enforcement support to be provided by the scheme regulator, was the only option which could be feasibly recommended as part of this co-design process.

Of the options assessed and considering stakeholder feedback and discussion above, an accredited scheme manager-led liable party determination process is recommended. For more details on scheme liable party determination recommendations and the corresponding further activities proposed, see section 3.4 in Report Two.

3.5 Fee structure

The options presented below consider the structure through which fees will be collected by the scheme. Fees will be used to cover the scheme's operational costs including collection, storage, transport, and recycling activities, as well as education and awareness activities, and scheme administration costs.

3.5.1 Options considered for the fee structure

Advanced stewardship fee

An advanced stewardship fee (ASF) structure applies a pre-determined fee to liable parties for the e-products that they place on the New Zealand market, whether imported or manufactured locally. The fee is published in advance of the product being placed on the market.

For both imported and locally manufactured in-scope e-products, this type of fee would require self-reporting of POM data by liable parties to determine the fee they would be charged by the accredited scheme manager(s). This data would be cross checked using POM data (e.g., New Zealand Customs Service's import data) by the scheme regulator as part of the scheme's monitoring and enforcement activities.

The fee is calculated using a forecast of end-of-life management cost for the new e-product at the time it is placed on the market, plus the cost of any scheme administration and other scheme activities, such as education and awareness raising campaigns.

Volume-based fee

A volume-based fee (VBF) is a fee applicable to liable parties based on a calculation of their market share regarding the volume of e-product that will be collected and managed by the scheme. The fee is based upon actual end-of-life management and scheme management costs.

As with ASF, this type of fee would require self-reporting of POM data by liable parties to determine the fee charged by the scheme (noting that MfE has advised that the scheme regulator cannot provide this data to the accredited scheme manager(s)). It would also require the accredited scheme manager(s) to calculate waste arising, i.e., out of the amount of e-product placed on the market, what percentage is able to be collected and managed by the scheme.

Unlike the ASF, the accredited scheme manager(s) would be able to adjust the fee based on actual costs to manage all e-products in-scope (e.g., to account for changes in commodity prices, scheme service and supply chain costs).

Consumer pays fee

A consumer pays fee is a fee charged to consumers who drop off in-scope e-products to a collection site (or equivalent) based on the number and type of e-products that they dispose of. The fee charged to consumers would be equivalent to the true cost of managing the e-product and include provisions for scheme administration costs.

Eco-modulation

Eco-modulation is a type of stewardship fee which is modulated for liable parties, based on the adherence of their products to environmental design criteria. Eco-modulation seeks to influence improved product design for environment and enable greater repair and reuse options for consumers, thereby extending the life of products and reducing waste.

It does not force producers or importers to adhere to design specifications; however, those who opt out of designing their products in line with the criteria pay higher scheme fees.

Examples of eco-modulation criteria for e-product design for environment include:

- Use of recycled materials
- Minimising chemical and hazardous material use
- Energy efficient e-product designs
- Percentage of the e-product which can be recycled at end-of-life/avoids wasted materials
- Ease of repair, for example, access to manuals, spare parts, etc.
- Availability of repair services supported by the liable party
- E-product durability
- Warranties for repaired e-products
- Number of e-products placed on the market that are repaired/remanufactured in comparison to new e-products placed on the market
- Access to software updates (i.e., how long an e-product is supported).

3.5.2 Feedback received/discussion for the fee structure

Advanced stewardship fee

The concept of an ASF was tested with stakeholders at the beginning of the co-design process. Of the fee options considered, charging a pre-determined fee (ASF) for e-products placed on the New Zealand market received the highest response, with 33% of stakeholders supporting the approach. Responses from the consumer survey indicated that 60% of respondents supported an upfront fee for financially liable parties.

Given the current regulatory settings and CEN feedback, an ASF is likely to be the most appropriate fee type for Aotearoa New Zealand's e-product stewardship scheme.

Positive feedback was noted regarding its simplicity and alignment with a potential eco-modulated fee approach.

An ASF also proved common amongst many of the overseas jurisdictions, particularly in Europe. However, it was noted that some jurisdictions did not use ASFs for all e-product categories due to the difficulty in applying these fees accurately to longer-life products, particularly those that currently have limited recycling options available, such as solar panels.

Although this is a valid consideration, initial one-on-one discussions with potential liable parties noted a desire for the fee structure to be as simple as possible to ensure a balanced market advantage between competitors in the scheme. These discussions tended to show a preference towards the ASF model as a way of ensuring those who place the e-product on the market pay for the e-product, rather than using a VBF that relied on market share at the time the e-product was recycled. Feedback from some mainstream producers noted that this approach could see their organisations covering the costs of recycling for e-products imported by shell organisations that were dissolved after importing one shipment of e-products.

Most of the initial feedback from the CEN supported an ASF model, and reiterated the opinions shared by wider stakeholder groups and potential liable parties; specifically, an ASF is perceived as simpler than a VBF. The ASF approach was seen to benefit liable parties, as the fees are published upfront, allowing for better forecasting of their liability. Some members voiced their support for leveraging successful overseas examples to inform the best path forward for fee selection.

Although charging at the point of market entry was preferred, there was the suggestion that it should be applied in the same way as Goods and Services Tax (GST). Investigation into this option revealed that it would be difficult to implement, as there were no provisions in the WMA to support a GST-type fee. As a result, this suggestion was not taken any further. CEN members highlighted that more work would need to be carried out to detail how an ASF would work in practice before any decision could be reached on its recommendation.

The second round of engagement with wider stakeholders presented an ASF alongside both a VBF and eco-modulation. From the feedback received, 49% of respondents showed a preference for an ASF model, the highest level of support received by any of the fee types shown. However, in contrast to the initial one-on-one discussions, producers were not supportive of an ASF model, with only 33% of producer respondents showing a preference for this approach, compared to 67% supporting a VBF.

Two areas of concern were noted by producers when using an ASF model:

- An ASF has the potential to generate large surplus funds due to the need to estimate the cost of end-of-life management services, which could end up being lower by the time the recycling is carried out. This was seen as an issue due to the WMA not allowing either the surplus funds to be returned to liable parties or for fees to be used for anything other than managing the scheme. However, surplus funds could be used to cover future scheme costs if the fee could be reduced so that surpluses do not continue. Given that the WMA requires the scheme fee to be published upfront in regulation, it cannot be reviewed and changed immediately. MfE suggested this review and update process could take place every three years

- The scheme should have options for the type of fee model used to allow the accredited scheme manager(s) flexibility in selecting the most appropriate type for each e-product category. This is especially the case for long-life e-products where fluctuations in commodity prices cause difficulty in setting an accurate ASF. The desire to account for market fluctuations, such as during the COVID-19 pandemic, means the accredited scheme manager(s) using an ASF structure are disincentivised from reducing fees over time to reflect the market conditions at the time the fee is charged.

On the other hand, several responses from producers highlighted support for the ASF model, reiterating the earlier feedback during the co-design process about the simplicity of this approach. Additional feedback noted how charging at import would make it easier to align producer operations to existing legislative requirements for e-products, for example, reporting on energy use for dishwashers, fridges, and freezers.

There was a clear preference among post-consumption stakeholders for an ASF model, following the webinars, facilitated sessions, and the second round of one-on-one discussions, with 62% of recyclers in favour of the approach. Fundamentally, despite some concerns raised by producers, an ASF model was the preferred fee structure for the scheme.

In discussing these results, the CEN noted it would be difficult to provide a recommendation on the best fee type that would satisfy all stakeholders. Although the ASF model had a higher level of support amongst stakeholders, CEN members noted that the drawbacks from such an approach may require other fee types to be made available in future. However, the WMA requires a fee schedule to be published upfront in the regulations. Therefore, given current regulations and the CEN feedback, an ASF is likely to be the most appropriate fee type for Aotearoa New Zealand's e-product stewardship scheme.

Volume-based fee

Initial feedback by the CEN provided mixed support for VBFs. Concerns were raised over the behaviour such an approach could create. Supporters of the VBF structure noted its ability to better reflect the true cost of scheme recycling activities, as the fee is charged based on actual costs rather than estimations made at the point of market entry. It was noted that the use of a VBF would be dependent on scheme targets, as it is most compatible with a scheme using volume-based collection targets and/or a convenience model for reasonable access and recovery.

Practical concerns were also raised regarding how to convert the import quantity reported into a weight-based figure that accurately reflects the true weight of each in-scope e-product. However, this concern could be addressed through a comparison with the Australian scheme, which has several years of experience in converting POM data into weight-based data using converted weight factors.

As with ASFs, VBFs were tested with stakeholders from the beginning of the co-design process. Initial responses from the stakeholder survey showed 26% in favour of the VBF model, with 53% of consumers supporting the approach in the consumer survey. In Australia, a VBF is the fee type used in the co-regulatory scheme for televisions and computers. However, there are no regulatory controls over how the fee is calculated, the time period in which the fee is charged (e.g., quarterly, yearly), or how often the fees need to be reviewed (noting that it is a competitive model with multiple scheme managers).

International Insights

Overseas, both the Japanese and Australian schemes utilise a VBF/pay-as-you-go funding model. However, in Japan, this is only used for batteries; all other categories are covered by an ASF.

This flexibility sees the scheme managers review the fees set each year. Given the regulations in Aotearoa New Zealand restrict the frequency of a change in fees, it would be difficult to provide this level of flexibility for a VBF. Therefore, the VBF structure for the co-regulated product stewardship scheme for televisions and computers in Australia would be difficult to replicate in Aotearoa New Zealand.

A VBF was thought to better cover the costs of legacy and orphaned e-products in-scope at the start of the scheme, because it charges on the volume of e-waste collected by the scheme, rather than the individual e-products on the market. A concern was raised that having a fee determined by the quantity of e-waste recycled would limit the scheme's ability to use the fee to influence e-product design for environment. The CEN highlighted the need to test the fee models with stakeholders to better inform their recommendations.

Later feedback from the CEN showed increased support for a VBF structure.

Feedback from the webinar sessions showed support for a VBF, but not at the same level as an ASF model. Producers showed a clear preference for a VBF over an ASF, a position largely driven by their desire to keep fees as accurate to the cost of end-of-life management as possible, to avoid a surplus. Some of the benefits of a VBF approach noted by producers included:

Feedback from the webinar sessions showed support for a VBF, but not at the same level as an ASF model. Producers showed a clear preference for a VBF over an ASF, a position largely driven by their desire to keep fees as accurate to the true cost of e-product end-of-life management and scheme management as possible, to avoid a surplus.

- Fees charged representing the actual costs of collection and end-of-life management costs are equitably distributed across all liable parties for individual e-product categories
- Being better suited to long-life products with limited recycling options at present, such as solar panels
- Having a flexible funding model that can account for and manage fluctuating market conditions, for example, rising and falling commodity market values, varying e-waste recycling service costs, and supply chain issues caused by COVID-19
- Avoids generating surplus funds compared to an ASF model.

Conversely, post-consumption stakeholders showed clear opposition to the approach with some feedback reiterating the concerns about the behaviour the model could lead to, particularly in respect to the collection of e-products. However, it is noted that collection targets, instead of the fee structure, impact collected volumes. While there was a clear divide amongst stakeholders, the overall support for a VBF was significantly lower than an ASF, with only 20% of respondents preferring this approach, compared to the 49% who supported an ASF. However, it is important to note disproportionate response rates between stakeholder groups, with producers (i.e., the main stakeholder group who will pay the fee) showing clear preference for a VBF model.

Consideration of this feedback by the CEN enabled a greater understanding of the fee structure preference amongst stakeholders. CEN members could appreciate the benefits of implementing a VBF, especially for long-life products. One suggestion from a CEN member was that ASF and VBF approaches both be recommended as part of the final scheme design, with the final decision being made by MfE and the Minister for the Environment, depending on the assessment of applications received for scheme accreditation. Note: the final fee structure is established in regulation, which is subject to Cabinet's approval (New Zealand Government).

From discussions with MfE, the WMA does not permit a VBF model and requires the fee amount to be stated up-front in regulation. Any changes to the fee model would require a change to the regulations made under the WMA.

Consumer-based fee

A consumer-based fee was considered alongside the first set of fee options tested with both the CEN and stakeholders.

Neither the stakeholder survey, nor the consumer survey showed any material support for consumer-based fees. The CEN was also significantly opposed to this approach due to it largely manifesting a continuation of the status quo, where consumers are responsible for managing the costs of e-waste, leading to cost barriers to proper management of e-products.

There was limited support for consumer-based fees, due to its continuation of the status-quo and reliance on consumers.

In addition to this, certain CEN members noted that consumers would likely end up paying for the scheme through other means, such as liable parties increasing prices to cover their scheme costs. Only one CEN member demonstrated support for the idea, noting that it could encourage consumers to look for better e-products that do not need to be replaced as often, thus driving consumer behaviour change. Conversely, this was also seen as a way to drive illegal dumping of e-waste by consumers who wanted to avoid fees.

Furthermore, provisions will need to be made in the scheme regarding education and awareness, meaning consumer behaviour change can also be achieved through other scheme activities. Guidance by the CEN's MfE observers noted that a consumer-based fee would not be compatible with the Guidelines. As a result of these findings, a consumer-based fee was not carried forward for further consideration by the CEN and stakeholders.

Eco-modulation

Fee eco-modulation was introduced to the CEN as a potential tool to support product design for environment interventions under the scheme. The idea was not presented as part of the initial stakeholder or consumer surveys. International research of European stewardship schemes revealed eco-modulation as a novel approach being taken by some jurisdictions, such as France.

Applications of the funding approach tended to focus on e-products which are suitable for higher order waste intervention, including repair and reuse, and reduction of harmful materials. In France, eco-modulation criteria exist for a variety of e-products deemed as high-risk, such as refrigerators, washing machines, computers, televisions, and vacuum cleaners.

Initial conversations with pre-consumption stakeholders demonstrated limited support for eco-modulation due to Aotearoa New Zealand's small market size not having the required influence to ensure producers meet the criteria requirements. One producer noted that if the restrictions on e-product design superseded larger international markets, it was likely that that brand owners or producers would simply exit the New Zealand market. These initial findings showed that significant consideration of eco-modulation would be needed for it to be included in the recommendations.

Initial feedback from some CEN members was very positive. Eco-modulation was seen as a way to progress the ambition of the product stewardship scheme beyond recycling end-of-life e-products. Multiple CEN members noted that this approach would help to avoid turning Aotearoa New Zealand into a "dumping ground" for poorly designed e-products, as more advanced markets raised their minimum standards.

Although feedback was positive, points over the practical implementation of eco-modulation were raised during discussions, noting the need for measurable criteria that are designed in close consultation with relevant stakeholders, especially producers.

It was deemed important by the CEN to take the concept of eco-modulation out to a wider group of stakeholders to better gauge support.

One member saw this as a way to ensure that Aotearoa New Zealand could have increased influence in global e-product design. Although feedback was positive, points regarding the practical implementation of eco-modulation were raised during discussions, noting the need for measurable criteria that are designed in close consultation with relevant stakeholders, especially producers. Furthermore, some concern was raised over having the scheme attempt to influence product design (when the majority of e-product design and manufacture is performed overseas), instead of separate pieces of 'design for environment' or 'right to repair' legislation. Following on from this, it was deemed important to test the concept of eco-modulation with wider stakeholders, to better gauge its support.

The response from stakeholders regarding eco-modulation was positive. Out of all the fee types that were tested with stakeholders, eco-modulation received the highest amount of validation with 60% of respondents indicating their support for it. There was clear disapproval from producers for eco-modulation, with 67% voting against the fee model, and the remaining 33% not having an opinion. While these producers were not against product design for environment requirements, the belief was that it should occur outside of the e-product stewardship scheme and be aligned with programmes that have already been implemented in other jurisdictions, for example, the European Union Restriction on Hazardous Substances[15] (RoHS) and EPEAT eco-labelling. It was noted that these types of product design programmes should form the basis of the eco-modulation criteria if it was adopted by the scheme, to ensure the criteria are as simple and globally consistent as possible.

Some producers also advised that the implementation of modulation criteria should consider the time it takes for new e-product designs to appear on shelves. In the case of one producer, it was noted that this time lag, on average, would be at least three years. Furthermore, a staggered implementation across e-product categories was preferred, as a way to limit the immediate impact on producer operations.

Other stakeholder cohorts, apart from importers, showed a clear preference for eco-modulation. In many cases, there was a desire from stakeholders to implement eco-modulation as soon as possible, rather than leaving it to be part of the long-term scheme activities. Several of the stakeholders from the retailer and importer cohorts who showed support for eco-modulation suggested that it should also include e-product packaging, even though this is not included in the Declaration of Priority Products. These stakeholders sometimes saw the packaging as more of a hazard to the environment than the e-product it was protecting, demonstrating their lack of understanding of the hazardous materials that can be contained in e-products. Additional considerations for inclusion in the criteria for eco-modulation, as suggested by stakeholders, included:

- Design for disassembly
    - Use screws instead of rivets and glue (for ease of dismantling)
    - Use standardised screw head types on items (reduces time spent swapping screwdrivers)
- The availability of reasonably priced spare parts
- The extent of the free warranty period (as a proxy for durability/reliability)
- The reduction in hazardous substances over and above RoHS requirements
- The inclusion of post-consumer recycled content plastics
- Greater focus on construction out of metal, as opposed to plastic, for recyclability reasons
- The inclusion of handles or handling holes on heavier items.

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

The results of the webinar sessions provided positive reinforcement for the CEN's initial position on eco-modulation. There was a reiteration of support for an eco-modulated fee structure following the feedback received. In addition to this, individual assessments of VBF, ASF and eco-modulation models as part of the CEN MCA saw eco-modulation rated as the best fee structure for supporting the CEN desired outcomes for the scheme (these results are available in Appendix D).

International Insights

In Europe, better design through eco-modulation did not necessarily equate to a significant reduction in the cost of recycling.

10 years of eco-modulation in France has yet to show a significant impact on producer design for environment behaviour.

However, during the fifth CEN meeting, learnings from recent research into eco-modulation in Europe were shared with the group, which revealed complications with the approach. Most notably was the fact that in some e-product categories, better design did not mean a significant reduction in the cost of recycling. Additionally, learnings from the French scheme, which has been using a fee eco-modulation approach for 10 years, could not inform whether the fee approach has any impact on producers' decisions to make their product more environmentally friendly.

It was also noted that producers found the criteria complicated. This proved insightful for many CEN members who highlighted that while it didn't mean the eco-modulation approach should be removed from the scheme design, it should be made as simple as possible. As a result, support for eco-modulation centred around criteria for repairability and durability. While repairability indexes are currently a novel aspect of product design for environment scoring, a new French index has recently been developed and applied to five categories of e-products: laptops, smartphones, televisions, washing machines, and lawnmowers.[16] This development will likely provide valuable insight for implementing a similar index in Aotearoa New Zealand as part of eco-modulation.

Given the research and development that is still required for eco-modulation to be implemented, it is unlikely to be suitable for implementation in the short-term. Nevertheless, the support shown for this fee structure means it should be implemented as part of the scheme in the long-term, provided that research continues to support it as an effective tool for influencing e-product design for environment interventions.

Seed funding

It was discussed with MfE that the WMA does not permit scheme fees to be charged to liable parties to set up the scheme; fees are only permitted to fund scheme operations. As such, seed funding (i.e., funding made available through government and/or industry and private sector funding or grants) for scheme implementation (and further activities to be carried out post scheme commencement) will need further investigation. The key components of scheme establishment with significant expenditure include market development support for setting up the scheme's collection network, and financial support for the accredited scheme manager(s) to cover the initial administration and establishment costs for their operations, for example, IT systems, collection networks, scheme promotions, service provider networks.

The international research and consultation led by TechCollect NZ identified that government funding support was made available for collection and recycling infrastructure at the start of many voluntary and regulated schemes overseas. As a recent example, the Battery Stewardship Council (BSC) who is leading a voluntary-accredited product stewardship scheme for batteries in Australia was awarded a $1M grant in 2021 from the Australian Government Product Stewardship Investment Fund.

[16] https://repair.eu/news/the-french-repair-index-challenges-and-opportunities/

This government funding support helped the BSC to lay the foundations for a national scheme and build a network of partner organisations, collection points and infrastructure, where consumers can take their used batteries, deposit them safely and have the confidence that they will be recycled[17].

Of the options assessed and considering stakeholder feedback and discussion above, an ASF structure is recommended. For more details on scheme fee structure recommendations and the corresponding further activities proposed, see section 3.5 in Report Two.

3.6 Mandatory standards

3.6.1 Options considered for mandatory standards

Service provider coverage

Several options were considered to determine those service providers which needed to have mandatory standards placed on them by the scheme, and those which already had mandatory standard requirements from other regulations which the scheme could rely on. The service providers considered include all of those involved in end-of-life management of e-products and e-waste, as follows:

- E-product repairers (preparation for reuse)
- E-product resellers
- E-product/e-waste collectors and sorters
- E-waste transporters
- E-waste recyclers.

Standards considered

AS/NZS 5377: 2013

- Provides guidance and specifies requirements for the safe and environmentally sound collection, storage, transport, and treatment of used electrical and electronic equipment, in order to maximise reuse and material recovery, reduce or eliminate waste, safeguard worker health, and minimise harm to the environment. At present, AS/NZS 5377:2013 is the only New Zealand-specific standard; however, an updated Australia-only version has been released. It may be more appropriate to utilise this updated standard, to ensure the most up-to-date guidance is being used by scheme providers.

- The accreditation body is Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

R2

- This standard establishes responsible recycling ("R2") practices for the recycling of electronics globally. It provides guidance regarding how electronics recyclers can help prospective purchasers of their services (customers) make informed decisions and have increased confidence that used, and end-of-life electronic equipment is managed in an environmentally responsible manner whilst protecting the health and safety of workers and the public, and that all data on all media devices is secure until destroyed.

- The accreditation body is Sustainable Electronics Recycling International (SERI).

[17] Joint-Ley-Liu-Media-Release-BSC-Funding.pdf

e-Stewards

- The e-Stewards Standard for Ethical and Responsible Reuse, Recycling, and Disposition of Electronic Equipment and Information Technology Version 4.0 is a comprehensive set of performance requirements created specifically for the electronics recycling, refurbishment, and IT asset disposition industry, to ensure the highest levels of social and environmental protection.

- The accreditation body is e-Stewards.

CENELEC

- The European Committee for Electrotechnical Standardization (CENELEC) is one of three European Standardisation Organisations officially recognised by the European Union (EU Regulation 1025/2012). CENELEC provides a platform for the development of European Standards (ENs) and other deliverables through a transparent and consensus-driven process in the fields of electricity, electronics, and associated technologies.

- The accreditation body is CENELEC.

No mandatory standard

- Instead of having mandatory standards, the accredited scheme manager(s) would have mandatory requirements and have a set of guidelines that each service provider should follow when carrying out services for the scheme. This is to reduce the potential burden that the scheme may place on existing service providers.

It should be noted that most e-waste standards also require a management system standard to be implemented, for example, regarding quality (such as ISO 9001) and environmental management (such as ISO 14001).

Independently accredited certifying bodies

In considering appropriate e-waste management standards and certifications that should be mandated for different scheme service providers, there is the need for certification companies to be independently certified themselves by an accreditation body. For Australia's NTCRS there is a mandatory requirement for e-waste recyclers participating in the scheme to be certified to AS/NZS 5377:2013; however, some certification bodies (i.e., the auditing bodies) are not independently accredited for issuing certifications to this standard as this is not a mandatory requirement under the corresponding legislation.

Independent accreditation provides formal recognition by an independent governing agency (e.g., JAS-ANZ) that a certification body is competent to perform conformity assessments. Such recognition is based on the certification body being able to demonstrate its competence, consistency, and impartiality, according to relevant regulations, in assessing an organisation's ability to meet the requirements of recognised ISO or AS/NZS standards. This does not necessarily mean that a non-accredited certification body is not a competent and capable organisation. However, it cannot demonstrate that it has the competence, capability, and impartiality required to conduct conformity assessments through an independently certified process and is not subject to the same level of scrutiny.

JAS-ANZ has strict policies and procedures including instruction for calculating audit duration for e-waste service audits and certification. As an example, JAS-ANZ allows site sampling for conducting AS/NZS 5377:2013 audits for multiple sites within a single organisation; however, each site where e-waste management activities occur must be individually audited periodically. It has been noted that in Australia some of the non-accredited certification companies do not follow these rules, which may reduce the audit cost for the client. However, this will likely reduce the effectiveness of the audits, and may result in poor quality outcomes which go against the main purpose of introducing such standards for scheme service providers.

3.6.2 Feedback received/discussion about mandatory standards

During initial engagement with the CEN, there was agreement that mandatory standards should be in place to manage key risks, including unethical behaviour (e.g., theft, fraud, and release of data stored on e-products), management of hazardous chemicals/materials, e-product integrity during storage and handling, and health and safety of workers and the public. As a result of this feedback, the option for no mandatory standards was removed from consideration. It was further suggested by the CEN that an independent audit process, which ensures these standards are implemented as required, would also be critical in order to support:

- Consistent and appropriate execution of the scheme across the varying parties involved
- Confidence across all stakeholder groups that the scheme is being implemented effectively with independent oversight.

This view remained consistent across CEN discussions, broader stakeholder engagement, and examination of global practices. In particular, it was noted in the Proposed Scheme Design Feedback Form (PSDFF) that 68% of respondents agreed that mandatory standards should be applied to recyclers, and 56% agreed that mandatory standards should be applied to collectors and repairers. Only 7% of all respondents did not agree that mandatory standards should be applied to recyclers, with 25% of respondents either not answering the question or being unsure of their response.

There was consistent support for execution of mandatory standards as part of the scheme, with responsible parties subject to audit. However, unanimous agreement on which existing standards should be utilised could not be reached.

A majority (30%) of respondents to the PSDFF did not have an opinion or did not know which standard they preferred. Broadly, the following concerns were noted across stakeholder engagement:

- Heightened administrative costs for stakeholders could limit participation in the scheme
- Mandatory standards may disadvantage smaller organisations and prevent them from participating in the scheme.

A 'lead-in' time was put forward by CEN members to effectively roll out mandatory standards as an element of the scheme. This would provide parties with responsibilities under the standard, with an opportunity to adjust their practices and establish these more effectively across their operation.

While a lead-in time of 12-months was generally supported, concerns were raised regarding practicality for smaller organisations and the impact of low numbers of qualified auditors in Aotearoa New Zealand.

When completing the PSDFF, 60% of respondents believed that a lead-in time of 12-months was appropriate (9% disagreed while 11% did not know and 21% did not answer). However, it was indicated by respondents that there is currently a lack of qualified Aotearoa New Zealand auditors and certifiers for existing standards (e.g., AS/NZS 5377:2013) and this should be accounted for during scheme design. This feedback was corroborated by further research which showed that only one JAS/ANZ accredited body/local auditor currently exists for AS/NZS 5377:2013. Further learnings from Australia have shown that without quality auditing, the assurance of service providers' standards remains a significant issue.

International research showed that several jurisdictions have mandated specific standards or certifications for e-product and e-waste recycling. However, no standards have been mandated for:

- E-product recovery and collection
- Transportation
- Repair and refurbishment.

Jurisdictional standards for e-product recycling are as follows:

- **Australia** - AS/NZS 5377:2013: Collection, storage, transport, and treatment of end-of-life electrical and electronic equipment
- **Switzerland** - EN 50625: Collection, logistics, and treatment requirements for WEEE
- **Republic of Korea** - KEA CE-3500: Standards for the Recycling Rate of Parts and Materials to Calculate Recyclability Rate of electrical and electronic equipment
- **Japan**: Only authorised businesses are licenced to recycle products under the regulated scheme and certification is performed by Japan's Ministry of Environment.

International Insights

Australia, Switzerland, and Japan have a standard or certification requirement in place for e-product recycling.

Spain has a Spanish Royal Decree which outlines technical requirements for collection, transport, preparation, reuse, and recycling activities.

It was noted that while there are no mandatory standards or certifications required in the Spanish system, there are technical requirements for e-products set in Spanish Royal Decree 110/2015, including their collection, transport, and preparation for reuse, as well as their involvement in recycling activities. Some e-product repair agents are also certified to EN 50614: Requirements for the preparing for reuse of waste electrical and electronic equipment. However, certification using this standard is voluntary. The lack of mandatory standards in European schemes was noted as a major issue due to the inconsistency in treatment and handling that this approach caused. As a result of this, the WEEE Forum has an active focus in rectifying this issue over the coming years.

The CEN was supportive of mandatory standards for recycling and preparation for reuse activities. However, there was some debate amongst the CEN about whether to include a selection of standards that scheme service providers could choose from, or to simply have a single standard. It was thought that having multiple appropriate standards would enable greater flexibility for service providers to choose the standard that suited them the best. In addition to this, the CEN noted that mandatory standards needed to be relevant to the cohort they were being applied to (e.g., AS/NZS 5377:2013 may not be appropriate for preparation for reuse activities).

Although consensus could not be reached across the CEN on the preferred mandatory standard(s) that should be recommended for service providers delivering scheme recycling services, MfE requested TechCollect NZ propose a suitable standard or standards to be included in the recommendations. Of the standards considered and tested with stakeholders at different points of the co-design process AS/NZS 5377:2013 and R2 were considered by TechCollect NZ and various stakeholders (e.g., local e-waste recyclers, global e-product producers) to be the most appropriate e-waste recycler standards for an Aotearoa New Zealand scheme.

For either standard, noting the information provided in section 3.6.1 above, it is recommended that certification can only be issued to recyclers by independently certified accreditation bodies. This will help to ensure an even playing field for all scheme recycling service providers, as well as consistent and effective auditing procedures.

In the case of collectors, CEN members were concerned whether collectors can afford improvements to their sites and the preparation of required procedures and management system documentation to meet applicable standards. Many of the current collection sites are operated by volunteers and not-for-profit (NFP) organisations, with limited funds at their disposal. It was suggested that a more appropriate approach could be for the accredited scheme manager(s) to set minimum requirements for collection sites servicing the scheme. These requirements would be based on the key requirements of standards (e.g., collection sites are required to be undercover and on hardstand).

Regarding the standard(s) that should be used by the scheme for different service providers, the CEN was unable to reach unanimous recommendations. CEN members highlighted a lack of technical understanding of what each standard proposed as their main reason for not providing any recommendation. CEN members who understood the technical aspects of the standards being considered noted that although AS/NZS 5377:2013 was currently used for managing e-waste, it was limited in its scope and flexibility. Also, this standard would soon be replaced with an Australian only version.

It was suggested, to future-proof the scheme and support its circular economy objective, the standard(s) selected should be comprehensive, and applicable to all scheme service providers (if possible). It should also look to include repair, reuse, data wiping, and product grading/testing.

Of the options assessed and considering stakeholder feedback and discussion above, mandatory standards issued by independent certifying bodies are recommended for e-product and e-waste recyclers providing scheme services. For more details on scheme mandatory standards recommendations and the corresponding further activities proposed, see section 3.6 in Report Two.

3.7 Governance structure

3.7.1 Options considered for governance structure

Single accredited scheme manager

A single accredited scheme manager model would see the scheme managed by a single NFP product stewardship organisation (PSO), accredited by the Minister for the Environment. The accredited scheme manager would be responsible for coordinating and overseeing the collection, sorting, and end-of-life management of all in-scope e-product categories presented to the scheme, including for repair and reuse. It would also be responsible for the coordination of education and awareness activities and be responsible for collecting and distributing fees from liable parties to scheme service providers. Competition can still be enabled under this model through the tender process for selecting scheme service providers, for example, transporters and recyclers, to ensure the scheme is managed as efficiently and as cost-effectively as possible.

Multiple accredited scheme managers

There are various examples of how multiple PSOs operate in the one scheme.

The first model would see several scheme managers receive accreditation for running the scheme. This would be a competitive model whereby each accredited scheme manager would need to compete for each liable party membership. Each accredited scheme manager would be responsible for meeting scheme targets and for managing the confirmed obligation/liability of their members, including the collection and distribution of fees and the coordination of recovery and recycling activities. It would be possible for accredited scheme managers to share collection sites, transporters, and recycling facilities. A model of this kind is implemented in Australia's NTCRS, which has reasonable access and recycled weight-based targets.

The second model builds on the first model where an independent 'clearing house' is responsible for equitably allocating collection volumes to competing PSOs. This is done based upon market share (i.e., the percentage of POM volume managed by each PSO). In order to do this, the clearing house manages reporting systems for POM data from PSOs and collection data from collection sites and PSOs. The clearing house ensures that an equitable split of high volume/metro and low volume/regional sites are assigned to each PSO (in some cases, geographical regions can be assigned to a PSO).

International Insights

The use of multiple scheme managers in overseas schemes highlighted potential issues with crossover in education and awareness campaign messaging leading to scheme user confusion and product scope contamination.

If during the scheme year a PSO is at risk of not meeting or exceeding its required collection/recycling volume, adjustments to its collection network can be made (i.e., the PSO is assigned more/fewer collection sites which it must pick up volume from). This model is implemented in several European countries, including Austria, Germany, Ireland, Switzerland, and the United Kingdom. These European schemes have collection targets but do not have reasonable access targets.

A third model is to have different PSOs managing different categories of e-products. For example, in Europe there are several jurisdictions with separate schemes (and therefore different PSOs) managing e-waste, batteries, and lamps. Another example is in Australia where there is a co-regulatory scheme for televisions, computers, and printers (with five PSOs managing the scheme at present), a voluntary scheme for mobile phones (with one PSO), and a voluntary scheme for batteries (with one PSO).

In each case, collection sites can collect a specific category of e-product only (e.g., a mobile phone store only collects mobile phones) or all categories of e-products (e.g., waste transfer stations) and there can be trading between schemes where respective e-products are recovered through different schemes (e.g., batteries received via e-product schemes can be sent to be managed under battery schemes and vice versa).

Individual producer responsibility programmes

Individual producer responsibility (IPR) programmes are producer-led programmes that seek to internally collect and manage the e-products the producer has sold. These programmes are managed by a single producer, or an appointed programme manager, and cover e-products specified by the same producer with their own collection, transportation, preparation for reuse/recycling networks, and communication and reporting systems (this usually includes products that the producer sells, and which may be brand specific or agnostic).

IPR programmes are a component of regulated schemes in many international jurisdictions, including in Europe and Australia, and are used as a method for a producer (liable party) to reduce its liability (i.e., its scheme fee is reduced proportionate to the amount of e-product that it collects and recycles via its IPR programme).

There are voluntary IPR programmes in Aotearoa New Zealand that could be engaged as IPR programme managers, which currently include Sharp's Comprehensive Recycling and Waste Reduction Scheme, the New Zealand Telecommunications Forum's RE:mobile programme, and Fuji Xerox's Zero Landfill Scheme. These programmes have been successful in diverting e-waste from landfill.

3.7.2 Feedback received/discussion for governance structure

Single and multiple scheme managers

The governance structures considered by the CEN and wider stakeholders were quickly reduced to a single accredited scheme manager model. In initial discussions and surveys, there were several options presented including the single and multiple scheme manager models and two models run by either local or central government agencies or bodies. Although management by a central government agency did gain 20% support by stakeholders in the initial stakeholder survey, both government options were removed from consideration due to the incompatibility with the Guidelines.

Preliminary discussions with the CEN on governance models showed a clear preference for a single accredited scheme manager model run as a not-for-profit, supported by a single stakeholder advisory group.

To align with the Guidelines, the single and multiple scheme manager models were presented as NFP entities. Out of these two models, 32% of stakeholders in the initial stakeholder survey showed support for a single NFP entity, while the options with multiple entities received less than 5% of support. International research was neutral regarding the best option for governance, noting that governance aspects are often specified in legislation, and the appropriateness of governance models is dependent on the individual circumstances of each jurisdiction.

Preliminary discussions with the CEN on governance models showed a clear preference for a single accredited scheme manager model, run as an NFP. It was considered that, due to the small size of the New Zealand market, a single scheme manager could effectively meet the needs of an e-product stewardship scheme. The NFP aspect was supported to avoid profit becoming a driving factor in the decision-making process of a future accredited scheme manager. Having a profit motive was seen as helping drive a race to the bottom in pricing for recovery and recycling, thereby reducing the potential for positive social, environmental, and economic benefits from the scheme.

International Insights

International research was relatively neutral on the best option for governance, noting that the appropriateness of governance models is dependent on the individual circumstances of each jurisdiction.

There was concern amongst some CEN members that a single scheme manager model would reduce competitiveness; however, the ability for competition to be driven through the tendering process for service providers was seen as a solution to this concern. Although there was clear support for a single scheme manager model, the CEN was concerned about presenting the model to wider stakeholders without developing a governance structure model. As a result, the structure below was developed:

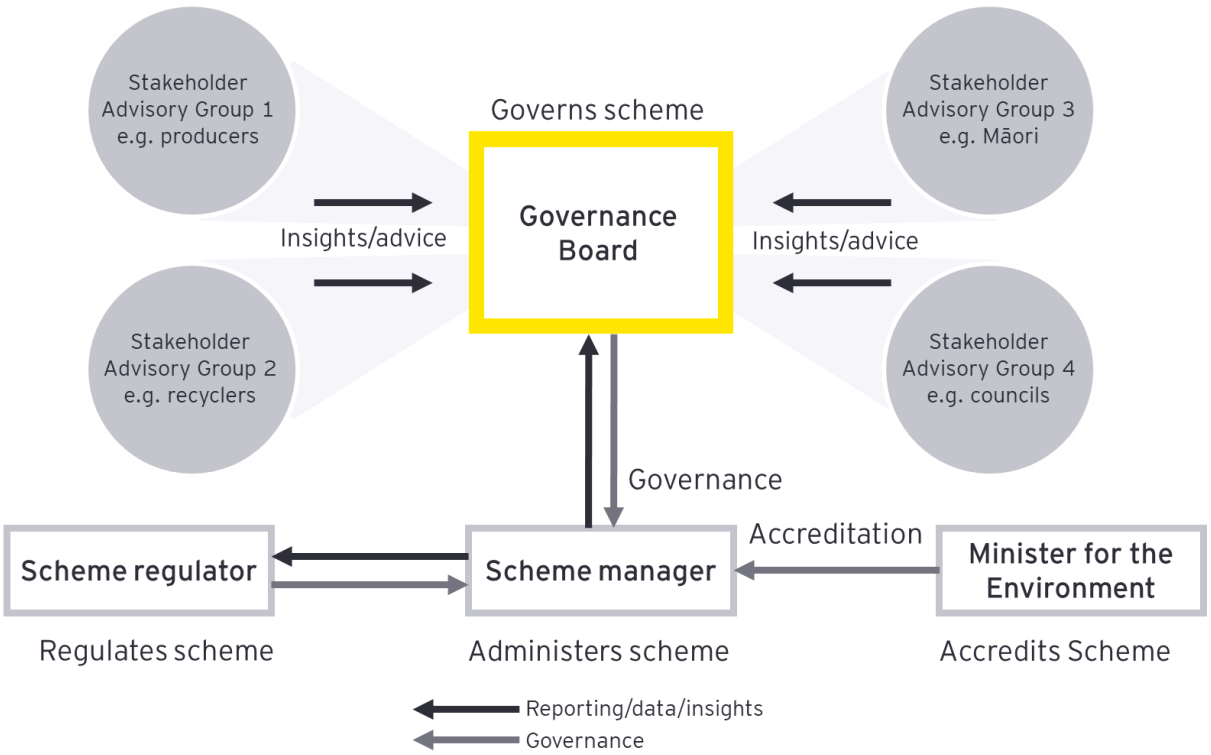


Figure 8 - Initial governance structure

The response from stakeholders in the second round of engagement was generally positive, with the proposed governance being supported by 54% of respondents. Of those that did not agree with the approach, most were concerned that a particular stakeholder group had not been represented on the stakeholder advisory group. This feedback showed a desire for a wide range of stakeholder interests to be included as part of the stakeholder advisory groups, with the following groups all receiving near equal levels of support:

- E-product producers/importers
- E-product retailers/distributors
- Consumer groups
- Tangata whenua/Māori organisations
- E-product repair agents
- Resellers of used e-products
- E-waste collectors
- E-waste recyclers
- Environmental and/or community organisations
- Local councils/territorial authorities.

Out of all the cohorts consulted, only producers showed clear disapproval of the proposed governance structure, the reasons for which were:

- The scheme should have multiple scheme managers to ensure competition and enable greater efficiencies. Two scheme managers were seen to meet the requirements of the New Zealand market

- The governance structure should not be prescribed by regulations, allowing accredited scheme managers the choice over how to structure their operations in accordance with the Guidelines

- The proposed structure was too complex and may become burdensome, adding to the overall cost of the scheme.

Of those that supported the proposed structure, slight modifications were suggested to improve its effectiveness. The most prominent recommendation was to consolidate all the stakeholder advisory groups into a single advisory group, to ensure there was mutual learning amongst different stakeholder groups. It was also stressed that the accredited scheme manager be as independent as possible, to avoid conflict of interest dictating the scheme's focus, and/or providing preferential treatment to certain stakeholders. However, it is noted this may be difficult to achieve given the variety of interests within the e-waste and e-product sector. As a result, it is likely that checks and balances, such as those listed in the Guidelines, will need to be relied upon to ensure the scheme is governed in the best interests of Aotearoa New Zealand.

From discussions with MfE, section 1(a)(v) of the Guidelines do not permit a commercially competitive PSO model (unlike in in Australia, where there are multiple competing PSOs for e-waste). However, the WMA does not preclude multiple NFP accredited scheme managers.

It was further discussed that an umbrella PSO model could be implemented where a single PSO is accredited as the scheme manager for all e-products and subsequently enters into arrangements with one or more PSO to manage different categories of e-products in-scope. In this example, the accredited scheme manager would be responsible for identifying liable parties, collecting fees, performance reporting to MfE, and meeting the other requirements of the Guidelines, including the delivery of an education and awareness programme.

The e-product category-focused PSO(s) would be responsible for managing the collection and reuse/recovery network for the category or type of e-product they are responsible for (and would receive payment from the accredited scheme manager as per the contractual arrangements). In this model, the accredited scheme manager and e-product category-focused PSO(s) would need to work together to ensure a cost-effective collection network which is convenient for e-product users.

Upon review of the proposed governance structure, the CEN remained generally supportive of this structure. There was concern raised by both CEN members and individual organisations or directors over the amount of control the accredited scheme manager held in the scheme. In particular, scheme service providers saw the accredited scheme manager as removing the ability for recyclers, repairers, and collectors to determine how the scheme is run themselves.

Although this model is the approach used in many other international schemes, these concerns demonstrate the need for a strong stakeholder advisory group. This group will provide service providers with a voice in scheme decision making and operation. In addition, CEN members highlighted the need for members of the accredited scheme manager governance board to hold skills in law, finance, and commerce, to ensure the effective ongoing operation of the scheme and represent the interests of all major scheme stakeholder groups. It was also noted that board members should be appointed via a fair, open and transparent election process and will need processes to manage any real or perceived conflicts of interest with the support of an independent chair.

CEN member feedback also noted the need for an official review of the scheme with public consultation, regardless of the final scheme governance structure, to review the scheme's effectiveness in achieving the confirmed objectives and consider the need to adjust the scheme's framing, design elements, and operational settings.

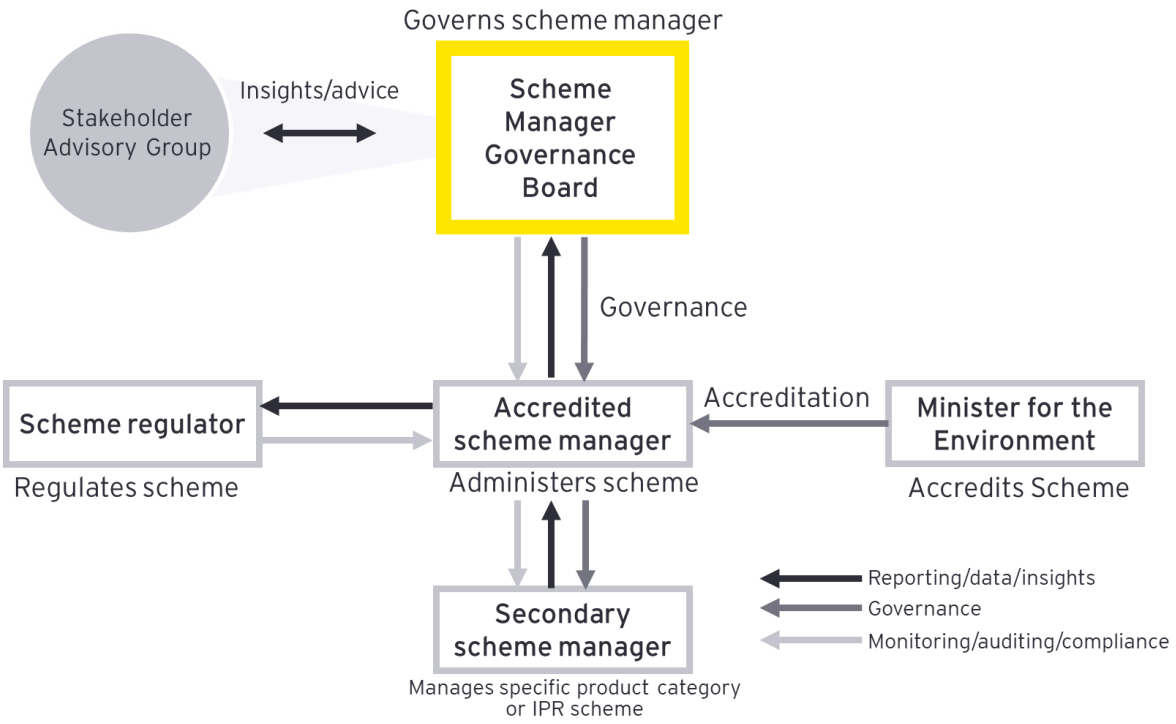


Figure 9 - Updated governance structure

Individual producer responsibility programmes

IPR programmes did not feature in initial surveys or discussions with stakeholders. However, they were still highlighted by CEN feedback as an area that should be considered for the scheme. This was reiterated during the webinar sessions, with one producer noting that the governance structure did not seem to consider IPR programmes as an option for liable parties.

Consideration of IPR programmes was highlighted during the completion of international research in latter stages of this investigation, and therefore not discussed in great detail with stakeholders.

Section 22(1)(a) of the WMA states that regulations for priority products can be made "prohibiting the sale of a priority product, except in accordance with an accredited scheme". From discussions with the CEN's MfE observers, this means that a producer will not be able to run its own IPR programme instead of participating in the product stewardship scheme (i.e., as a liable party) unless its IPR programme is an accredited scheme. However, it was discussed that the accredited scheme manager(s) could enter into a service agreement with a producer to run its own collection and reuse and/or recycling programme (i.e., if it enabled the accredited scheme manager(s) to meet requirements of the Guidelines and sections 14 and 15 of the WMA).

Following discussions with the CEN on how IPR programmes would be incorporated into the scheme, there was clear support for them to be included as a recommendation. Some members noted their concern that IPR programmes may reduce convenience for e-product users and increase complexities for e-product collectors. These CEN members also noted that the same requirements that apply to scheme service providers engaged by the accredited scheme manager(s) should also apply to IPR programme service providers.

Of the options assessed and considering stakeholder feedback and discussion above, a single accredited NFP scheme manager model is recommended, with the option of an umbrella product stewardship organisation model and support individual producer responsibility programmes. For more details on scheme governance structure recommendations and the corresponding further activities proposed, see section 3.7 in Report Two.

3.8 Compliance and monitoring

3.8.1 Options considered for compliance and monitoring

Tracking system for e-products

A tracking system is the primary tool for the accredited scheme manager(s) to monitor and track both e-product and material flows through the scheme. The scheme would utilise POM and import data from liable parties to establish the number of e-products and their categories which are sold in Aotearoa New Zealand each year. At the same time, the tracking system would also collect data on the e-products collected by scheme service providers, including information on the type of end-of-life management activity (i.e., recycling or diversion for repair or reuse).

For the e-products that are sent for recycling, the tracking system would also collect data on downstream e-product and material flows (i.e., where the e-product materials are sent and how they are treated). It would also need to account for e-products collected for reuse that are sent offshore as a working product. Due to the amount of data being collected and the potential for some of this to be commercially sensitive, it is likely parts of this system would need to be run by an independent third-party clearing house, not the accredited scheme manager(s).

With such a system in place, the accredited scheme manager(s) will be able to:

- Understand the approximate number of e-products that are currently in use in Aotearoa New Zealand and the e-product categories they belong to
- Have an understanding of the rate at which each e-product category is presented for recovery by scheme users
- Track the flows of e-products presented for either recycling, repair, or diversion for reuse, enabling the accredited scheme manager(s) to actively monitor its progress towards material recovery targets
- Provide a more accurate and transparent chain of custody for collected and processed materials that can be communicated to the public through the scheme's regular reporting.

Over time, data on e-product flows from sale to recovery will enable the accredited scheme manager(s) to estimate the quantity of an e-product category that may be presented to the scheme. With this information, the accredited scheme manager(s) will be able to better design the recovery network, to ensure there is sufficient capacity and capability to recover e-products when they are presented for recovery.

For example, if the average number of small appliances imported into Aotearoa New Zealand each year between 2023 and 2026 was 1,000,000 and the average number of small appliances recovered by the scheme was 100,000 each year for the same time period, the accredited scheme manager(s) could estimate that each year 10% of the quantity of small appliances sold in Aotearoa New Zealand would be presented for recovery.

If 2,000,000 small appliances were imported in 2027, the accredited scheme manager(s) could estimate that 200,000 small appliances may be presented to the scheme over the following three years, and as a result, ensure there is sufficient capacity to manage this quantity of appliances. The insights gained from the tracking system could also be used to publicise the typical longevity of e-product categories and track the impact of the scheme on e-product outcomes over time, especially in the event eco-modulation is pursued in the long-term.

Ultimately, the e-product tracking system would enable the accredited scheme manager(s) to monitor e-product flows and ensure the scheme can manage Aotearoa New Zealand's e-products and e-waste efficiently.

Auditing

Auditing is the main tool the accredited scheme manager(s) and scheme regulator can use to ensure that the requirements of scheme service providers and liable parties are met. The four auditing activities that were considered for inclusion in the scheme were:

- Auditing of scheme service providers against mandatory standards and their contractual agreements with the accredited scheme manager(s)
- Auditing of liable parties' POM data declarations and scheme participation levels
- Auditing of the accredited scheme manager(s) against the terms of scheme accreditation
- Auditing of e-products which qualify for low fees under any eco-modulation criteria (if pursued).

Auditing activities

Scheme service providers

Audits against contractual agreements would be carried out by the accredited scheme manager(s) to ensure that relevant targets are met and data is correctly collected and sent to the accredited scheme manager(s). For example, scheme recyclers would be audited by the accredited scheme manager(s) to ensure that material recovery rates are met, there is evidence of improvement over previous periods, permits for recycling and export activities are in place, or data received by the accredited scheme manager(s) matches the data collected in the recycler's systems.

Audits against mandatory standards would be carried out by an independent certification body (i.e., an auditor) that is accredited to the nominated mandatory standard(s). Certification audits would be the responsibility of scheme service providers who would provide proof of certification to the accredited scheme manager(s).

Note: Although outside of the scope of the e-product stewardship scheme, scheme service providers may be subject to inspections and audits by other Government regulators and/or agencies, such as the Environmental Protection Authority (EPA) or Worksafe New Zealand.

Liable parties

The auditing of liable parties to ensure they meet the requirements of the WMA and associated regulations (e.g., that they are participating in the scheme if they are selling priority products in the New Zealand market) would be carried out by the scheme regulator. New Zealand Customs Service's import data would be used to cross check against the liable party's self-reported POM data to ensure that all importers of priority products are registered as liable parties and paying scheme fees.

Separate checks by the scheme regulator would also be required to confirm that all manufacturers of priority products in Aotearoa New Zealand are complying with the requirements of the scheme, as New Zealand Customs Service's import data would not cover these organisations.

Auditing of self-reported POM data/determinations would be performed by the clearing house provider engaged by the accredited scheme manager(s).

Accredited scheme manager(s)

Auditing of the accredited scheme manager(s) would be carried out by the scheme regulator, or an independent auditor engaged by the accredited scheme manager(s). This audit would seek to ensure the accredited scheme manager(s) is/are meeting the requirements of its accreditation, including meeting targets such as financial performance, environmental performance, and contractual agreements with service providers. This process would allow the scheme regulator, the accredited scheme manager(s), and the wider public to be confident that the scheme is meeting requirements as per the terms of accreditation.

E-product auditing

E-product auditing would be performed over e-products imported/ manufactured/ distributed by liable parties whose fees are reduced under eco-modulation criteria (if pursued). Auditing would confirm that the eco-modulation criteria are being met thereby justifying a fee reduction. As with auditing against mandatory standards, e-product auditing would need to be carried out by third party independent auditing firms. Costs would need to be covered by the liable party applying for reduced fees under eco-modulation criteria.

E-product auditing would likely need to accept certification for product design to meet environmental standards that the eco-modulation criteria are based on. This would ultimately be dependent on the criteria developed to underpin the eco-modulation approach.

3.8.2 Feedback received/discussion

Tracking system for e-products

A tracking system for e-products was first introduced to the CEN after the initial stakeholder and consumer surveys. This concept was initially suggested to be used as a blockchain solution to track the e-product movements through the e-product ecosystem. Feedback from some CEN members noted additional positive outcomes for the scheme resulting from this approach, including:

- Providing a systems approach to defining roles and responsibilities for the various service providers under the scheme
- Providing a technologically advanced way to support the management of a product stewardship system that can be enhanced over time
- Providing an effective tool for tracking and monitoring e-products as they move through different life cycle stages.

In overseas jurisdictions, PSOs use tracking systems to meet their e-product recovery targets in real time and to create clear oversight of all operational activities that help to inform scheme performance reporting. In Spain, for example, Royal Decree 110/2015 requires the implementation of e-product tracking systems using radio-frequency identification (RFID) devices from the point of collection. However, this only applies to e-product categories 1 (temperature exchange equipment), 2 (screens, monitors and equipment with screens over 100cm^2), 4 (large equipment) and 7 (batteries) individually. Most other PSOs establish their own data management and e-product tracking systems independently, and it is important to understand where the stocks and flows of these e-products require further development regarding the most effective solutions for managing them.

Feedback from the CEN on the tracking system was positive. CEN members showed enthusiasm towards the concept and the potential for blockchain to help track individual e-products through their life cycle. This position was supported by a waste consulting group who noted that a blockchain system had the ability to support a full circular economy beyond Aotearoa New Zealand's borders, as a blockchain system is designed to enable products, product components and materials to be tracked through global supply chains.

A tracking system received a positive response from the CEN, due to its many potential uses.

Although there was general support for the use of blockchain, some CEN members suggested a reduced focus on blockchain, to allow for the most appropriate system to be used once the scheme commenced. As a result, the system was presented as a product tracking system for e-products to wider stakeholders during the webinars, facilitated discussions, and one-on-one discussions. There was no specific feedback provided regarding the e-product tracing system from wider stakeholders. However, 79% of respondents to the PSDFF supported the compliance and monitoring aspects, which included the tracking system concept.

Auditing

The inclusion of auditing was raised as an additional aspect of the scheme by the CEN. As part of the initial feedback on scheme options, CEN members noted the need for a system of both certification and auditing to support the implementation of scheme requirements. As a result of this feedback, auditing against mandatory standards and e-product auditing were added as compliance and monitoring aspects.

The auditing of scheme service providers against mandatory standards was tested with stakeholders and, in general, received a positive response. Of those that responded, 65% agreed with the concept of recurring audits of scheme service providers who would be required to meet mandatory standards under the scheme's regulation. There was overall support by those affected by this requirement.

Table 13 - PSDFF stakeholder responses to auditing requirements proposed for scheme service providers by cohort

Cohort	Yes	No	Don't know	Did not answer	Number of respondents
Repairer/Reseller	54%	0%	15%	31%	9
Collector/Sorter	77%	0%	5%	18%	18
Recycler	77%	0%	15%	8%	12

E-product auditing was also added to the scheme as a compliance and monitoring aspect for any eco-modulation criteria that may be adopted. With these two auditing tools, the accredited scheme manager(s) was seen to have the ability to ensure the scheme's requirements are followed.

Auditing of service providers against mandatory standards was well supported by all stakeholders, including those that would be covered by these auditing requirements.

There was concern raised by potential scheme service providers around the extra cost burden of mandatory auditing requirements. This was in addition to concerns around the costs of having to meet mandatory standards. It was suggested by a stakeholder and a member of the CEN that the cost of certification according to these mandatory standards should be covered by the scheme itself. However, the cost of compliance in most business situations is covered by the organisation required to meet these standards. Given that the scheme would be paying these service providers to perform recovery and recycling activities under the scheme, the cost of compliance should be covered by service providers as a cost of doing business with the scheme.

With respect to e-product auditing, little feedback was provided by stakeholders. Retailers noted that having e-product auditing would be welcomed as it would provide them with an understanding of the material composition of the e-products they were selling. Nevertheless, the retailers believed that the cost of e-product auditing should be borne by producers, not retailers. It was also noted that e-product auditing was expensive to carry out and any auditing requirements for e-products could be better met by requiring alignment with established product design for environment standards, such as EPEAT and RoHS.

Consultation with the CEN's MfE observers and a review of the Guidelines necessitated the inclusion of liable party auditing and accredited scheme manager(s) auditing, to ensure that the final scheme design recommendations met the requirements of a regulated product stewardship scheme. It was suggested that these auditing activities would also promote fairness, by ensuring that all parties have checks and balances in place to ensure the scheme requirements are being met.

Of the options assessed and considering stakeholder feedback and discussion above, tracking systems for e-products and regular auditing of liable parties, and stakeholders providing scheme services are recommended. For more details on scheme compliance and monitoring recommendations and the corresponding further activities proposed, see section 3.8 in Report Two.

3.9 Education and awareness

3.9.1 Options considered for education and awareness

Education and awareness raising programmes

Education and awareness programmes play an important role in driving necessary change. The accredited scheme manager(s) would deliver campaigns to educate the public on the benefits of a circular economy, the risks of continuing business as usual, and the positive impacts society as a collective could make. Through education and awareness programmes, e-product users would be provided resources to help understand:

- What product stewardship is and why it is important
- How the scheme works
- How to participate.

Education and awareness programmes would be funded by fees collected through the scheme from liable parties. These programmes would be an ongoing investment to support the adoption of the scheme by e-product users and driving lasting consumer behaviour change.

Product labelling

Labelling is one of the regulatory options under the WMA that could support education and awareness of the scheme amongst e-product users. Product labelling already exists for certain e-products. For example, the energy efficiency labels found on fridges, freezers and other whiteware goods. There were several options considered for the types of labels that could be used on e-products as part of the scheme:

- Informative labels that signify that the e-product is part of the scheme
- Instructional labels that describe how to access the scheme
- Service labels that inform the kinds of repair options that are available for the e-product
- Design score labels that indicate an e-product's durability or adherence to product design for environment standards.

3.9.2 Feedback received/discussion

Education and awareness programmes

Education and awareness campaigns were a core consideration in the co-design process. Feedback from the CEN noted that education and awareness campaigns are critical for the success of the scheme. This was supported by international research, which showed that education and awareness programmes are important to achieve scheme participation by the community and industry. It also noted that nationally consistent messaging is important, especially where there are multiple PSOs, to prevent consumer confusion over which e-products are accepted by a scheme and how they are managed. These findings are particularly important for the wider product stewardship scheme development in Aotearoa New Zealand, and indicates that as the number of schemes grows, a more centralised approach to education and awareness may be necessary.

The Guidelines require the scheme to have clear information available to households and business consumers on how the scheme works, how it is funded, and how to find the nearest collection point. Because of this requirement, and the importance of education and awareness noted by the CEN and international research, education and awareness campaigns were not tested directly with stakeholders as part of the PSDFF. It was reintroduced as part of the draft report presented to the CEN, who noted the need for any recommendation to be clear on what the education and awareness programmes should achieve. There was also support for any education and awareness campaign to drive behaviour change amongst e-product users.

Product labelling

The use of labelling on e-products was one of the initial compliance aspects tested in the co-design process. The use of e-product labelling was identified through international research as a common approach used in design for environment activities. In this situation, it is designed to inform consumers on how best to manage an e-product at different stages of its life cycle. The use of labelling in the scheme was generally supported by the CEN. Several members noted how it could show the inclusion of the e-product in the scheme and support better consumer decision making. Labels were also seen as a good vehicle for informing consumers of an e-product's durability or repairability, potentially through a durability index like the one that has recently been adopted in France.

On the other hand, some CEN members highlighted a few technical concerns, specifically:

- The additional complexity labelling would bring to the manufacturing of e-products
- A label's information may become obsolete long before an e-product reaches the end of its life, due to both technological change and evolution of the scheme itself
- The additional value a label would have for consumers if all e-products were covered by the scheme and had to have a label
- How and when an Aotearoa New Zealand-specific scheme label would be applied to an e-product, or e-product packaging which may be discarded soon after purchase, especially those that are imported into the New Zealand market.

Support from stakeholders following the webinar sessions was generally supportive but drew some concern, particularly in terms of implementation. Of all respondents who answered the question on e-product labelling in the PSDFF, 59% supported labelling as part of the scheme. Of these, 27% supported labelling being introduced in the medium-term while 32% believed it should be introduced in the short-term. A total of 17% did not agree with introducing labelling as part of the scheme. All producers and most importers (i.e., the stakeholders who would have responsibility to prepare e-product labels) were opposed to the use of e-product labelling.

Product labelling was generally supported amongst the CEN and wider stakeholders. While many saw it as a good education and awareness tool, several stakeholders noted the complexities an Aotearoa New Zealand-specific label would bring to the market.

Several reasons were provided by these cohorts as to why e-product labelling should not be used:

- Producers indicated that it is difficult to determine the durability and repair of an e-product, and this has implications for the accuracy of labels
- The production of Aotearoa New Zealand e-products is usually combined with product runs for other markets, for example Australia. Adding any Aotearoa New Zealand-specific labelling requirements would increase the costs of manufacture, and by extension, the price of e-products for New Zealand consumers. In extreme cases, labelling could result in e-products being withdrawn from the market
- The delivery and installation of e-products by installers can result in the label being removed before the consumer ever sees it.

Although the overall response was negative from producers and importers, there were two key suggestions made, should labelling be carried forward:

- Use a globally or a regionally adopted standard to determine what is included on the label, so that it can be easily applied as part of multi-region e-product runs (similar to the energy efficiency labels on whiteware)
- Rather than have labelling on the e-product itself, promotion of the scheme could be implemented at the point of sale (either in store or online) showing the inclusion of the e-product in the scheme and the availability of scheme collection sites and repair services.

Considering the feedback provided throughout the co-design process, the use of labelling received a mixed response, particularly from those who would be responsible for applying the label. Overall, the CEN continued to show support for labelling as an education and awareness tool, provided it aligns to the scheme's overall education and awareness campaign.

Of the options assessed and considering stakeholder feedback and discussion above, scheme education and awareness raising programmes including point of sale promotions are recommended. For more details on scheme education and awareness raising recommendations and the corresponding further activities proposed, see section 3.9 in Report Two.

3.10 Accredited scheme manager(s) roles and responsibilities

3.10.1 Options considered for the accredited scheme manager(s) roles and responsibilities

Initial set of roles and responsibilities

Several options were considered for the accredited scheme manager(s) roles and responsibilities. These were consolidated into the list below:

- Maintain a registry/database of scheme service provider details
- Manage the collection of funds from liable parties and their distribution to scheme service providers
- Monitor and enforce minimum requirements and standards for scheme service providers and implement reporting and auditing processes
- Perform monitoring, data collection, and reporting on scheme performance and provide reporting to the scheme regulator
- Identify instances of non-compliance and facilitate the process of corrective actions
- Implement education and awareness-raising activities for those with roles and responsibilities under the scheme
- Maintain a publicly accessible website that shows the location of collection sites and registered repairers
- Develop and manage the modulation of fees based on design for environment and repairability/reuse criteria (if pursued)
- Promote initiatives that reduce waste arising, such as repairing, reusing, and improving the sharing economy.

Additional roles and responsibilities developed after stakeholder engagement

- Meet applicable requirements under the WMA and supporting regulations
- Maintain a registry/database of liable parties
- Manage the collection of POM data from liable parties including fee determination
- Set targets for convenience (collection) and material recovery rates (recycling) that are approved by the Minister for the Environment (as part of scheme accreditation) and implement periodic review processes
- Run a tender process to select preferred scheme service providers and execute contracts for the 'collection and preparation for reuse and recycling' network
- Develop a system for registering repairers to the scheme and promoting repair and refurbishment services
- Set terms in the service provider contracts detailing which scheme service providers need to meet
- Manage the scheme service delivery (i.e., collections, transport, recycling, and preparation for reuse)

- Perform an internal audit on scheme performance, and report on scheme performance to the scheme regulator and the public
- Participate in audits conducted or coordinated by the scheme regulator
- Provide publicly accessible information on managing and deleting personal data stored on e-products.

3.10.2 Feedback received/discussion for the scheme manager's roles and responsibilities

The roles and responsibilities of the accredited scheme manager(s) were largely determined by the Guidelines and examples of international product stewardship approaches for e-products and e-waste. In addition to these, some CEN members noted that a key responsibility for the accredited scheme manager(s) should be providing support to service providers to expand the existing repair network, so that there are repair services offered in all regions of Aotearoa New Zealand for the appropriate categories of e-products.

Similar to stakeholder roles and responsibilities, CEN conversations regarding accredited scheme manager(s) roles and responsibilities were difficult to draw conclusions from, with roles and responsibilities only able to be meaningfully outlined once foundational scheme design elements (e.g., fee structure, targets and data) had been decided.

This was seen by some CEN members as a necessary responsibility for the scheme, after an initial network analysis showed an uneven coverage of repair services across Aotearoa New Zealand when considering both the number of sites and the categories for which repair services were available. However, it is important to note that the network analysis had a limited data set of repair services, meaning there are likely more repair services and sites available than the national analysis noted.

The investigation of sharing economy initiatives has also been included as part of the accredited scheme manager(s) proposed roles and responsibilities, based on CEN discussions. It was agreed that this would support the scheme to challenge the existing model of consumption. It is noted that these initiatives could go beyond traditional ownership models and improve the ability for producers to maintain control of an e-product throughout its life cycle, which could lead to better stewardship outcomes. It is likely that such an initiative would be for the accredited scheme manager(s) to consider after the scheme has been established, in consultation with the stakeholder advisory group and scheme regulator.

The outcomes of broader stakeholder engagement discussions and the PSDFF were as follows:

- Producers considered that the scheme should not pay for any repairs and therefore that the accredited scheme manager(s) should not be required to distribute funds to repair organisations
- 61% of respondents supported the proposed accredited scheme manager(s) roles and responsibilities. 11% did not agree, with 6% not having any opinion and 22% did not provide a response
- Stakeholders considered that the accredited scheme manager(s) should hold responsibility for job creation targets and ensuring responsible recycling outcomes
- Stakeholders considered that the accredited scheme manager(s) should not be responsible for developing and modulating fees based on e-product design for environment and repair/reuse factors. It was instead suggested that sharing economy initiatives should be performed by the scheme regulator or through additional legislation passed through parliament

- One producer noted that if a single accredited scheme manager model was used to govern the scheme, there should be a formal responsibility on the accredited scheme manager to operate the scheme in the most economically efficient way possible, to ensure that fees are managed appropriately.

Following feedback across all SDEs by stakeholders and MfE, several changes were made to the scheme design. As a result, the initial set of accredited scheme manager(s) roles and responsibilities were not considered broad enough. Therefore, additional roles and responsibilities were developed in line with changes to the SDEs that would ensure there would be active consideration of them by the accredited scheme manager(s) as part of their regular responsibilities.

Like the discussion regarding stakeholder roles and responsibilities, it was difficult to draw conclusions regarding accredited scheme manager(s) roles and responsibilities during CEN discussions. This is because roles and responsibilities are only able to be meaningfully outlined once foundational SDEs (such as fee structure, targets, and data) have been decided. However, the recommendations make note of the roles and responsibilities that are likely critical for the accredited scheme manager(s) to have, in order to successfully operate the scheme.

Of the options assessed and considering stakeholder feedback and discussion above, both the initial set of accredited scheme manager(s) roles and responsibilities and the additional roles and responsibilities developed after stakeholder engagement are recommended. For more details on accredited scheme manager roles and responsibilities recommendations and the corresponding further activities proposed, see section 3.10 in Report Two.

3.11 Regulation

3.11.1 Options considered for regulation

Within the WMA there are several regulations in relation to priority products, other products, materials, and waste more generally. Several of these regulations are necessary to support the scheme to carry out its functions and meet the scheme's objectives. The proposed regulations to be used by the scheme were considered to be largely dependent on the types of activities the co-design process recommended.

These regulations were broken down into two categories:

- Critical regulations to support core scheme functions
- Supplementary regulation that could support the scheme's functions.

The regulations could be applied as needed to support the phasing-in of the various elements of the scheme.

Critical regulations to support core scheme functions

There were four WMA regulatory options that were considered critical to enable the scheme to function effectively from the outset:

WMA Reference	Description
22 (1) (a)	Prohibiting the sale of a priority product, except in accordance with an accredited scheme.
23 (1) (d)	Setting fees payable for the management of a product and specifying: ► The class or classes of person who must pay the fee ► The stages in the life of the product where the fee must be paid ► The purposes to which the fee must be applied.

WMA Reference	Description
23 (1) (g) and (h)	► For any product or material that has become waste, prescribing standards to be met when reusing, recycling, or recovering the product or material. ► Requiring specified persons or specified classes of person to ensure that the standards prescribed under paragraph (g) are met.

Supplementary regulation that could support the scheme's functions

These regulations were considered due to their ability to support the scheme in achieving better outcomes for e-products and e-waste:

WMA Reference	Description
23 (1) (a)	Controlling or prohibiting the disposal, or anything done for the purpose of disposing, of products or waste.
23 (1) (f	Prescribing requirements for the labelling of a product.
23 (1) (b	Controlling or prohibiting the manufacture or sale of products that contain specified materials.

Additional legislation, outside of the scope of this project and the WMA, may be required to support scheme activities related to repair and reuse and product design. For example, an amendment to the Consumer Guarantees Act 1993 (CGA) is likely needed to prevent producers from being able to opt out of their obligations for providing parts or repair services for their products, by communicating this with their consumers up front.

3.11.2 Feedback received/discussion about regulation

During initial CEN discussions, it was agreed that regulatory actions should be designed to ensure (and/or enable) that:

► E-waste does not end up in landfill

► E-products have opportunities for an extended life cycle through repair and reuse

► E-waste is eliminated through design, including having materials and methods selected for durability, repairability and recyclability.

It was further discussed that the WMA could be leveraged to:

► Prohibit the sale of e-products, except in accordance with the regulated e-product stewardship scheme

► Control the disposal of e-waste and prevent it from being disposed of in landfill

► Control or prohibit the manufacture or sale of e-products that contain specified materials

► Set payable fees dependent on the type of e-product

► Implement mandatory standards to be met when recovering, recycling, or repairing e-products and e-waste.

It was identified through the international research that, of the regulatory systems assessed, governance aspects are specified in legislation and there are clearly defined roles and responsibilities across the actors noted. The regular review of regulatory systems enables scheme governance to be assessed and updated as necessary.

International Insights

Globally, it is common practice for governance aspects relating to e-product stewardship schemes to be specified in legislation with clearly defined roles and responsibilities across the actors noted. Regulatory systems are also subject to regular reviews and are updated as necessary.

Upon completion of the PSDFF, 59% of respondents supported the proposed regulations over the short-, medium-, and long-term timeframes. However, 12% did not agree, 4% did not know, and 26% did not provide a response. There was uncertainty regarding feasibility and value of phasing as respondents were undecided on whether this would mean that consolidated legislation would be introduced at the commencement of the scheme, or if regulations would need to go out to consultation at each phase. There was a concern that this could lead to delayed action. However, given there was also desire from some stakeholders for more engagement on the scheme's design, having multiple rounds of regulation development for the scheme would enable additional engagement opportunities.

Stakeholders reiterated the issues with other pieces of legislation, or the lack of any legislation at all, which could limit some of the aspects of an e-product stewardship scheme.

Stakeholders also noted a lack of any specific design for environment legislation that could support the e-product stewardship scheme to improve product design and reduce the amount of e-waste generation in the first place. Although producers were largely against any product design for environment considerations, including fee eco-modulation, being a part of the scheme, they did note that this should be covered by a separate piece of legislation.

Stakeholders reiterated the issues with other pieces of legislation, or the lack of any legislation at all, which could limit some of the aspects of an e-product stewardship scheme.

This included regulation relating to consumer guarantees, right to repair and product design for environment aspects.

Ultimately, there are activities that should be carried out in the future to improve both the WMA and other relevant pieces of legislation that may currently limit the scheme's effectiveness.

Additional WMA regulations were also considered necessary by members of the CEN for a regulated e-product stewardship scheme in Aotearoa New Zealand, post participation in MfE-led consultation on regulated product stewardship schemes for tyres and large batteries.

These additional regulations are provided below:

WMA Reference	Description
23 (1) (c)	Requiring specified classes of person to provide a take-back service for products, and prescribing requirements for: ► The take-back service ► The reuse, recycling, recovery, treatment, or disposal of products taken back.
23 (1) (i)	Requiring specified persons or specified classes of person to collect, and provide to the Secretary, information about any requirements imposed in regulations made under paragraph (a), (b), (c), (d), or (e).

Of the options assessed and considering stakeholder feedback and discussion above, the regulations deemed as critical to support core scheme functions are recommended. For more details on the regulation recommendations and the corresponding further activities proposed, see section 3.11 in Report Two.

3.12 Scheme stakeholder roles and responsibilities

3.12.1 Options considered for scheme stakeholder's roles and responsibilities

The scheme stakeholder roles and responsibilities table below provides a summary of stakeholder groupings, definitions, and corresponding roles and responsibilities under the proposed regulated e-product stewardship scheme in Aotearoa New Zealand. These roles and responsibilities could support the implementation of the various SDEs as the scheme expands its focus over the short-, medium- and long-term timeframes.

It is noted that a set of 'general shared responsibility principles' could apply to all stakeholders from scheme commencement. These principles could include:

- Taking all reasonable steps to eliminate or reduce the risk to human health and the environment from e-products and e-waste
- Preventing breakage or spoilage of e-products and e-waste that might limit its suitability for reuse, repair, refurbishment, or recycling.

Note: A single organisation may play more than one scheme participant role (e.g., a collection site may be both an "e-waste collector and sorter" and an "e-product repairer", and an "e-product retailer" could also be an "e-waste collector and sorter").

Stakeholder group/scheme participants	What does this mean and who does this include?	Roles and responsibilities
E-product consumers/ owners	Simple description - You have purchased and own (or have leased, loaned or share) e-products in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity who purchases and owns (or leases, loans or shares) in-scope e-products for use in the home, at school or work, or for recreational or personal use, and not for manufacturing or resale.	► You can dispose of in-scope e-products or e-waste through designated scheme collection services (note: you can also recycle/reuse/repair the e-product via channels outside of the scheme). ► It is your responsibility to manage any personal or sensitive data securely. The accredited scheme manager(s) will maintain publicly accessible information on methods to support and guide secure data deletion. ► Before accessing a scheme drop off point you should consider what options may be available to direct in-scope e-products in good working order, ensuring all e-products are safe and suitable, for direct reuse, or repair/refurbishment and subsequent reuse.
E-product manufacturers	Simple description - You make e-products and sell (or lease) them in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity who: a. Manufactures an in-scope e-product and sells or leases it in Aotearoa New Zealand under the person's own brand, or b. Is the owner or licence holder of a trademark under which an in-scope e-product is sold or leased in Aotearoa New Zealand, or	► All e-product manufacturers will be required to: a. Register with the accredited scheme manager(s) b. Pay scheme fee c. Report e-product POM data d. Participate in independent audit processes and provide information as required, and e. Align with future scheme aspects around product design for environment. ► Manufacturers of leased products only - ensure all e-products returned at the end of their lease period are correctly handled in line with scheme requirements.

Stakeholder group/scheme participants	What does this mean and who does this include?	Roles and responsibilities
	c. Manufactures in-scope e-products for use in trade by the person or the person's agent.	► If you retain/regain product ownership during and/or after use cycles, you should consider, before recycling, what options may be available to direct in-scope e-products in good working order for reuse. You should ensure that all e-products are safe and suitable for direct reuse, or repair/refurbishment and subsequent reuse.
E-product importers	Simple description - You import e-products for sale (or lease) in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity who, irrespective of the selling or leasing technique used, is established in the New Zealand market, and places on the market in-scope e-products from a foreign country.	► All e-product importers will be required to: a. Register with the accredited scheme manager(s) b. Pay scheme fees c. Report e-product POM data d. Participate in independent audit processes and provide information as required, and e. Only import e-product brands which are participating in the regulated e-product stewardship scheme and notify in-scope e-product manufacturers not participating in the scheme of their mandatory obligations, and report scheme participation status to the accredited scheme manager(s)/scheme regulator. ► *Importers of leased products only* - ensure all e-products returned at the end of their lease period are correctly handled in line with scheme requirements. ► If you retain/regain product ownership during and/or after use cycles, you should consider, before recycling, what options may be available to direct in-scope e-products in good working order for reuse. You should ensure that all e-products are safe and suitable for direct reuse, or repair/refurbishment and subsequent reuse.
E-product distributors	Simple description - You distribute e-products for sale (or lease) in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity in the supply chain, who makes in-scope e-products available on the New Zealand market.	► All e-product distributors will be required to: a. Register with the accredited scheme manager(s) b. Pay scheme fees c. Report e-product POM data d. Participate in independent audit processes and provide information as required e. Only distribute in-scope e-product brands which are participating in the regulated e-product stewardship scheme, and f. Advise scheme liable party non-participation status to the accredited scheme manager(s)/scheme regulator if identified. ► *Distributors of leased products only* - ensure all e-products returned at the end of their lease period are correctly handled in line with scheme requirements. ► If you retain/regain product ownership during and/or after use cycles, you should consider, before recycling, what options may be available to donate in-scope e-products in good working order for reuse. You should ensure that all e-products are safe and suitable for direct reuse, or repair/refurbishment and subsequent reuse.
E-product retailers	Simple description - You sell (or lease) e-products in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity who:	► All e-product retailers (including online retailers) will be required to: a. Only sell in-scope e-product brands which are participating in the regulated e-product stewardship scheme

Stakeholder group/scheme participants	What does this mean and who does this include?	Roles and responsibilities
	a. Sells or leases in-scope e-products directly to Aotearoa New Zealand consumers, or b. Sells or leases in-scope e-products under a separate producer's name or licenced trademark by means of distance communication directly to Aotearoa New Zealand consumers, either established in Aotearoa New Zealand or in a foreign country.	b. Advise scheme liable party non-participation status to the accredited scheme manager(s)/scheme regulator if identified c. If providing scheme collection services, divert customer-returned e-products received in good working order for direct reuse or repair/refurbishment, and subsequent reuse where possible d. If providing scheme collection services, divert customer-returned e-products that are not suitable for repair or reuse to an accredited service provider for recycling, and e. Provide point of sale information to consumers about the scheme, including its existence, how to interact with the scheme, and any repair services available for the e-product, should it malfunction after the retailer's responsibility (under the CGA) for remedying issues with the e-product has lapsed. ► Brick and mortar e-product retailers will be encouraged to provide collection services for the e-products they sell in their stores. ► E-product retailers contracted to provide scheme services such as in-scope e-product/e-waste collection, consolidation, and preparation for transport services will be required to meet the requirements of an e-product/e-waste collector as listed below.
Independent e-product repairers and refurbishment providers	Simple description - You fix or modify e-products in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity who: a. Fixes a specified fault in used, in-scope e-products that are waste and/or replaces defective components, in order to make the product a fully functional product to be used for its originally intended purpose, or b. Modifies used, in-scope e-products to increase or restore its performance and/or functionality, or to meet applicable treatment standards, with the result of making it a fully functioning product to be used for a purpose that was originally intended. This includes activities such as cleaning and data sanitisation.	► Independent e-product repairers/refurbishment providers receiving e-products from the scheme that have been diverted from recycling will be required to: a. Hold all necessary permits to operate legally in Aotearoa New Zealand, as well as any export permits for e-products or e-waste sent overseas b. Divert in-scope e-products and components that cannot be repaired, refurbished, or reused to certified recyclers formally participating in the scheme c. Maintain verifiable records for all e-products received in line with the confirmed scheme categories and a chain of custody for in-scope e-products storing data e.g., where it has come from, what repair or refurbishment activity has been taken, and safety/quality guarantees for resale markets d. Follow accredited scheme manager(s) procedures to book in the receiving of loads of consolidated e-products/e-waste e. Report required information to the accredited scheme manager(s) f. Only send residual e-product materials to a legal landfill if no other market is available for it and/or the e-product is not able to be recycled by the scheme or reused, and g. Communicate opportunities for in-scope e-product design improvements to the accredited scheme manager(s) that will support extended e-product life cycles and increased resource recovery.

Stakeholder group/scheme participants	What does this mean and who does this include?	Roles and responsibilities
		► Repairers/refurbishment providers operate outside of the scheme, do not receive scheme payments and are proposed to be engaged directly be scheme collectors contracted by the accredited scheme manager(s) to divert e-products that are reusable or repairable from scheme recycling operations; however, should have the opportunity to be 'endorsed' by the scheme resulting in their services being included in scheme awareness communications. They would be required to report information about their services and data to the accredited scheme manager(s).
E-product/e-waste collectors and sorters	Simple description - You collect and sort e-products/e-waste in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity who temporarily or permanently receives in-scope waste/used/unwanted e-products in order to sort, aggregate or transport that equipment to e-product repairers, e-product reuse organisations, storage facilities, or e-waste recyclers.	► Collectors and sorters contracted by the accredited scheme manager(s) to provide collection, sorting, and consolidation services will be required to: a. Maintain verifiable records on all e-products/e-waste received in line with the confirmed scheme categories and report these records to the accredited scheme manager(s) as required b. Follow accredited scheme manager(s) procedures to send consolidated e-product/e-waste loads to accredited scheme manager(s) approved recyclers and repairers/refurbishment providers c. Meet the accredited scheme manager(s) minimum requirements for collection sites d. Hold all necessary permits to operate legally in Aotearoa New Zealand e. Promote scheme access availability and maintain scheme information on company websites e.g., by promoting the scheme managers website f. Participate in audits organised by the accredited scheme manager(s), and g. Maintain health and safety protocols and procedures for in-scope e-product/e-waste collection and sorting activities meeting legal requirements.
E-product/e-waste transporters	Simple description - You transport e-products/e-waste in Aotearoa New Zealand. Technical definition - An individual, group, organisation, or entity, who provides in-scope e-product/e-waste transport services, e.g., from e-product/e-waste collectors/sorters to e-product repairers, e-product reuse facilities, and/or e-waste recyclers, or from e-waste recyclers to downstream recyclers.	All e-product/e-waste transporters contracted by the accredited scheme manager(s) will be required to follow their procedures to book in the transport of loads of consolidated e-products/e-waste, report required information, and participate in audits organised by the accredited scheme manager(s).
E-waste recyclers	Simple description - You break down or recycle e-waste in Aotearoa New Zealand. Technical definition - An organisation or entity that undertakes operations by which in-scope waste/used/unwanted e-products and materials are processed for the purpose of recovering usable materials. This includes disassembling, shredding, or granulating the product into its components and materials, including (but not limited to) metals, plastic, glass, printed circuit boards, batteries and wires.	► All e-waste recyclers contracted by the accredited scheme manager(s) will be required to: a. Obtain and hold certification to the mandatory standard(s) for recycling b. Hold all necessary permits to operate legally in Aotearoa New Zealand, as well as any export permits for e-products or e-waste sent overseas as per Basel Convention requirements c. Maintain verifiable records on all e-products/e-waste received in line with the confirmed scheme categories, along with material recovery rates, residual materials management, and next stage treatment pathways; these records should be reported to the accredited scheme manager(s) as required

Stakeholder group/scheme participants	What does this mean and who does this include?	Roles and responsibilities
	Note: recycling operations in some cases can be performed by a third party, e.g., e-products or e-waste are sent offshore for processing (in accordance with Basel Convention requirements), or components are sent to a New Zealand-based recycler for processing.	d. Follow accredited scheme manager(s) procedures to book in the receiving of loads of consolidated e-products/e-waste e. Regularly report all required information to the accredited scheme manager(s) f. Participate in audits organised by the accredited scheme manager(s), and g. Only send residual e-product/e-waste materials to a legal landfill if no other market is available for it and/or the material is not able to be recycled or reused. ► All e-waste recyclers are encouraged to: a. Divert all e-products received in good working order for direct reuse or repair/refurbishment and subsequent reuse where possible, and only using appropriately certified repair and refurbishment providers, and b. Communicate opportunities for in-scope e-product design improvements to the accredited scheme manager(s) that will support extended e-product life cycles and increased resource recovery.

3.12.2 Feedback received/discussion about scheme stakeholder roles and responsibilities

Initial CEN discussions confirmed that shared responsibility should be a core component of scheme design and implementation. However, there was agreement regarding the need for roles and responsibilities across stakeholder groups to be clearly outlined, alongside clear definitions of stakeholder groupings.

CEN conversations regarding stakeholder roles and responsibilities were difficult to draw conclusions from, with roles and responsibilities only able to be meaningfully outlined once foundational scheme design elements (e.g., fee structure, targets, and data) had been decided.

Following CEN advice regarding SDEs and associated options, a set of roles and responsibilities across key stakeholder groups was established. A high-level version of this was put forward to stakeholders during webinar sessions, with a post-webinar pack providing an outline of the proposed stakeholder roles and responsibilities in detail (as per Report Two).

During completion of the PSDFF, 59% of respondents supported the proposed stakeholder roles and responsibilities. However, 13% did not agree, while 5% did not know, and 23% did not provide a response. The breakdown of responses by stakeholder group was as follows:

	Response to question: "Do you agree with the proposed stakeholder roles and responsibilities?"				
Stakeholder group	Yes	No	Don't know	Did not answer	Number of respondents
Producer	33%	33%	0%	33%	3
Importer	20%	30%	10%	40%	8
Retailer	50%	0%	25%	25%	4
Repairer/Reseller	46%	15%	8%	31%	9
Collector/Sorter	68%	9%	5%	18%	18
Transporter	100%	0%	0%	0%	3

Stakeholder group	Response to question: "Do you agree with the proposed stakeholder roles and responsibilities?"				
	Yes	No	Don't know	Did not answer	Number of respondents
Recycler	77%	15%	0%	8%	12
Other	64%	7%	0%	29%	10
Average/Total	**59%**	**13%**	**5%**	**23%**	**47**

These responses indicate that there may be issues with responsibilities put forward for particular stakeholder groups, and not for others. For example, there was an equivalent proportion of producers who agreed and disagreed with the responsibilities outlined. Other stakeholder groups, such as recyclers, demonstrated much greater agreement with the proposed stakeholder responsibilities.

Online feedback from respondents further suggested that:

- The requirement for manufacturers, importers, and distributors to join the PSO resembles a membership subscription. Funding of the PSO should be built into the ASF captured on all e-products entering the country
- In relation to the e-waste collector/sorter having a responsibility to "Direct all e-products in good working order for direct reuse or repair/refurbishment and reuse ahead of recycling, only using certified repair agents", this may lead to issues for smaller organisations. For example, the cost of shipping these items to a certified repairer may outweigh any collection payment received, especially in rural and remote areas.

The CEN and stakeholders also commented on the issue of e-products being imported directly into Aotearoa New Zealand by consumers and the scheme's ability to collect fees on this e-product. In this situation, it would likely be difficult for the accredited scheme manager(s) to capture and charge for the e-product being imported.

As a result, it is possible that some e-products will be presented for recovery, which have not been covered by any fees collected by the accredited scheme manager(s). At this stage, this issue is likely limited to a small proportion of imported e-products that could end up costing the accredited scheme manager(s) more to pursue than the actual charged fee. Advice provided by MfE observers indicated that the accredited scheme manager(s), with support from the independent third-party clearing house provider, will need to do their best to collect scheme fees from individual sellers and importers.

During CEN discussions, conversations regarding stakeholder roles and responsibilities were difficult to draw conclusions from, with roles and responsibilities only able to be meaningfully outlined once foundational SDEs (e.g., fee structure, targets, and data) had been finalised, and a scheme manager, or scheme managers, had been accredited.

Of the options assessed and considering stakeholder feedback and discussion above, it is recommended that scheme stakeholder roles and responsibilities are finalised in line with final scheme framing and design elements. This may include further stakeholder consultation.

For more details on the proposed scheme stakeholder roles and responsibilities, including associated further activities required, see section 3.12 in Report Two.

Appendices

Appendix A Detailed description of the scheme design elements

The following are the detailed summary of product stewardship SDEs that were considered as part of the co-design process and for which recommendations have been provided.

Scheme framing

- The scheme's framing provides the contextual framework to support the scheme's implementation. This is largely provided through a time-based allocation of the scheme's recommendations in order to gradually introduce the number of necessary activities.

- Due to the ambitious approach this scheme is taking to achieve product stewardship through the inclusion of repair, reuse and e-product design for environment activities, the scheme framing is a critical element for delivery.

Scheme product scope

- The scheme product scope determines which e-products are ultimately included and managed by the e-product stewardship scheme.

- The type of approach used will determine how and when each product category will be included in the scheme, if at all.

Targets and data

- Targets are critical for setting the scheme's direction and focus. Targets directly influence the behaviour of the accredited scheme manager(s), liable parties, and scheme service providers by influencing other SDEs such as the fee structure and stakeholder roles and responsibilities. They also provide the basis on which the scheme's success can be assessed by both the New Zealand Government and the wider public.

- Data is vital to tracking the performance of the scheme against its targets and monitoring the improved e-product and e-waste outcomes over time. Capturing this data would require a well-designed system and processes that are easy to use by scheme service providers and can be analysed efficiently by the accredited scheme manager(s).

Liable party determination

- This SDE is critical for assigning the responsibility for determining who is a liable party under the scheme. This process enables the scheme to assign liability and collect fees which ultimately fund the scheme's management of e-products and e-waste.

Fee structure

- The fee structure is central for determining how the scheme interacts with liable parties and service providers. Scheme fees fund all scheme operations as well as basic scheme administration functions of the accredited scheme manager(s) who operates the scheme. The fee structure is therefore critical for ensuring the long-term financial sustainability of the scheme.

- The requirement to pay a fee under the scheme is determined firstly by whether the definition of sale of a priority product has been met. This occurs when:

    1. A priority product is offered for sale

2. A priority product is distributed or delivered, whether or not for valuable consideration (including delivery to an agent for sale on consignment).

- This definition means that a sale is whenever a product is sold or changes hands, regardless of whether this exchange included an exchange of value, for example, money or swap/trade-in. This means that gifted or freebie products given away to consumers as part of a competition or alongside the purchase of a product would still be treated as a sale and must act in accordance with an accredited scheme if regulation under s22(1)(a) of the WMA is enacted. If a fee is included in regulation under s23 of the WMA, once the requirement to act in accordance with an accredited scheme is enacted, any such fee must be paid.

- The purpose of Part 2 of the WMA (Product stewardship) is to encourage (and, in certain circumstances, require) the people and organisations involved in the life of a product to share responsibility for a) ensuring there is effective reduction, reuse, recycling, or recovery of the product, and b) managing any environmental harm arising from the product when it becomes waste i.e., end-of-life product management.

- End-of-life e-product management activities are likely to include the collection, transportation, sorting, and recycling of e-waste. Those with agreements to perform these end-of-life activities may be eligible for payment. The fee would also cover the core administration costs of the accredited scheme manager(s) incurred in meeting their roles as responsibilities (detailed in the section below relating to accredited scheme manager(s) roles and responsibilities).

Mandatory standards

- Mandatory standards seek to set minimum requirements for social and environmental outcomes from end-of-life management activities occurring under the scheme.

- The use of mandatory standards by the scheme is designed to strike the right balance between ensuring quality social and environmental outcomes from activities occurring under the scheme without creating undue requirements roadblocks for service providers to engage with and participate in the scheme.

- There are already several industry standards in place for some service providers which means additional mandatory standards are not necessary to ensure quality outcomes. For example, e-waste transporters are already required to transport e-waste in line with the *Land Transport Rule: Dangerous Goods 2005*. Requiring additional standards to be met by transporters may not lead to a balanced outcome and could reduce the number of transporters available to provide scheme services.

Governance structure

- The governance structure provides options for how the scheme could be run and the kinds of governance elements that could be included.

- Governance is key to ensuring effective oversight and efficient management of the scheme and the e-products it manages.

- Governance considerations consider the requirements of the WMA and the setup of the New Zealand market.

Compliance and monitoring

- The implementation of compliance and monitoring elements is designed to provide confidence to the accredited scheme manager(s), the scheme regulator and the wider public, that the scheme's requirements are being met. This SDE also exists to support the accredited scheme manager(s) to proactively manage the scheme's capacity over time.

- Compliance elements refer to activities that ensure alignment to the scheme's various standards and requirements.

- Monitoring elements refer to activities that provide transparency over both the activities occurring under the scheme and e-product flows in Aotearoa New Zealand.

Education and awareness

- Education and awareness are critical for ensuring e-product users are aware of the scheme and how to interact with it.

- The delivery of education and awareness programmes ensures that the products sold by liable parties are correctly managed once the e-product reaches the end of its life.

Accredited scheme manager(s) roles and responsibilities

- The roles and responsibilities of the accredited scheme manager(s) lay out possible requirements for any future operator which is accredited to run the scheme.

- These roles and responsibilities also directly influence the amount of administration costs incurred as part of running the scheme.

- Due to the potential limitations on what administration costs are eligible to be covered by the fee collected from liable parties, the roles and responsibilities have been broken up into those that are critical to the scheme's function and those which are supplementary.

Regulation

- Regulation provides the legal authority for the scheme to carry out the activities necessary to manage e-products in Aotearoa New Zealand.

- The set of regulations available to the scheme are provided as part of the WMA and determine how several scheme functions such as fee and data collection and standards are carried out.

- Any regulation related to the scheme will need to be sent out for public consultation and approved by New Zealand Government before it can be brought into effect.

Scheme stakeholder roles and responsibilities

- The roles and responsibilities of scheme stakeholders lay out possible requirements for any future liable party, e-product consumer or service provider associated with the scheme.

- Most of these roles and responsibilities are designed to support the accredited scheme manager(s) to make decisions and run the scheme effectively. This includes the collection of data, charging of fees and the payment of scheme service providers.

- Some roles and responsibilities will need to be included in the regulations while others can be implemented through contracts between service providers and the accredited scheme manager(s).

Appendix B CEN feedback summaries

Scheme design options long list feedback

Option 1: Recovery and Recycling

Table 14 - Option 1 feedback

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
Overarching objectives for any approach	1. Minimise social and environmental harm from product disposal and handling. 2. Shared responsibility. 3. Fair and consistent with no free riders. 4. Financially sustainable.		► A recovery and recycling scheme would minimise social and environmental harm compared with business as usual arrangements; however, only when e-products are unwanted or have reached the end of their useful life. Earlier life cycle or higher order interventions like design for environment, product repairability and reuse are not key scheme design features. However, defining liable parties clearly with specific roles and responsibilities e.g., financially contributing to an end-of-life product stewardship system etc., would see responsible e-waste recovery and recycling significantly increase in Aotearoa New Zealand. Note: it is estimated that less than 2% of the e-waste New Zealanders generate annually (approx. 98 kiloton) is recovered for recycling at present. ► A recovery and recycling scheme would create a clear and consistent system of shared responsibility for all defined actors; however, as a noted shortfall of Option 1, there are no real incentives for more circular product design or life cycle management for producers. Note: these elements could be phased in over time and in step with the global market. ► A recovery and recycling scheme would ensure that product stewardship scheme participation is fair and consistent for all defined actors; however, as noted, there is a focus on end-of-life recovery and recycling which may not be	► An accurate timeline around EU's investigations into eco-modulated fee approaches to enhance the EU's extended producer responsibility system for WEEE and implement a coordinated approach across all European-member states. ► An independent assessment of the average end-of-life management costs for e-product categories 1 - 7 to inform the design of the scheme's funding framework e.g., $x/per kg (collection, storage, transport and recycling) and fee raising methodology or computation. ► Proposed roles and responsibilities for all actors proposed to have mandated obligations under a recovery and recycling scheme.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			preferred or meet NZ's circular ambitions for a regulated e-product stewardship scheme. ► A recovery and recycling scheme provides several scheme funding options that are viable and sustainable; however, as noted, this scheme design option focuses on end-of-life recovery and recycling only. Higher order interventions like product repair and reuse would be market driven or funded by consumers. Note: we anticipate that there will be a range of scheme costs specific to e-product categories (or product streams where appropriate) that need to account for the true end-of-life management costs. ► A recovery and recycling scheme doesn't address the shared responsibility or fair and consistent objectives. The focus is entirely on recycling and recovery - so there is no incentive for producers, retailers or consumers. I can't see how a recovery and recycling scheme will cause a change in the behaviour of these groups. It places all responsibility on reclaim/recycle, albeit with more funding from a levy/fee. While it's the easiest approach, it's easy because it barely upsets the status quo. It would be an opportunity missed. ► A recovery and recycling scheme is not financially nor environmentally sustainable if it means that it's just a fee to pay for recycling. This does not follow the waste hierarchy. How does it incentivize best practice outcomes when there are limited options for value add? ► By including all e-products do we have the capacity and capability now to handle volume? ► A recovery and recycling scheme does not conform with the waste hierarchy. I am going to move onto the circular approach, I don't support this one.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► A recovery and recycling scheme is basically glorified recycling which is not what we should be aiming for. Therefore, I am focusing my attention on the other scheme options.	
Intended outcome of this approach	No e-waste to landfill		► Having a funded e-product stewardship scheme that covers the cost for end-of-life management activities will significantly increase e-waste landfill diversion in Aotearoa New Zealand. If a recovery and recycling scheme was underpinned by a national e-waste landfill ban, this would ensure the intended outcome of the recovery and recycling scheme option could be achieved. ► Unclear how a recovery and recycling scheme would result in no e-waste to landfill. Currently, the majority of e-waste can't be reclaimed or recycled. What will this scheme do to significantly change that? ► A recovery and recycling scheme does not result in a good enough outcome. Our outcome needs to be to keep materials in use for as long as possible in their current form, rather than recycle everything. ► A landfill ban on e-waste will result in more parts harvesting, asset management (extending usage), and commodities stripping.	► Process and timeline (in the context of the options of the co-design process) to design and implement a national e-waste landfill ban - including non-regulatory support measures required e.g., infrastructure grant funding, education and awareness campaign.
Fees, funding and cost effectiveness	Fee applied based on data from a single point. Options discussed are: 1. Imports: a fee charged to producers based on import data for each new product brought into the country for sale 2. Sales: a fee charged to producers based on sales data from 1st and 3rd party physical and online store purchases	**Stakeholder survey** ► 33% of respondents supported an upfront levy on the producer applied to the products placed on the New Zealand market. ► 26% of all survey respondents supported the application of a VBF on producers. ► 25% of respondents supported a fee or levy applied to the party offering the product for sale in Aotearoa New Zealand.	► The preferred funding option for a recovery and recycling scheme will greatly depend on the targets that are set for the scheme's operation and performance. ► Another consideration that is relevant here is what scheme costs would be covered under a recovery and recycling scheme e.g., collection, storage, transport, treatment, scheme management, education and awareness, market development etc., this should be proposed for all approaches. ► If it can be avoided, the regulations should not prescribe a pricing model, especially when	► Profile and register of local e-product producers and online e-product retailers including e-products POM and current market share in Aotearoa New Zealand. ► Examples and evidence of international schemes operating without product recovery targets. ► I haven't reviewed the international report yet but the comments in this row indicate

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
	3. Collected volume-based: producers pay a fee based on the volume of their products collected at end-of-life 4. At collection point: consumers pay a fee when dropping their old item off at end-of-life.	**Consumer survey** ► An upfront levy/fee on the producer is the most preferred option across all three demographic markers (age, location, income level). ► There was support for a fee placed on those selling the product in Aotearoa New Zealand, but it was not as high as for a fee on the producer. **International research** ► Overall, there are two main scheme funding models: advanced disposal fees charged when products are made available for sale; and product recovery and recycling fees at end-of-life. ► In some jurisdictions a blend of these two funding models is used for different e-product categories and corresponding programmes. **Initial CEN feedback** ► Applying scheme fee payments at the border is considered a simple way of collecting the funds for the scheme as we import just about all our electronics. ► Gathering scheme funds up front is seen as a cost-effective way to collect funds for the scheme. ► Should a fee be applied in advance of disposal for certain products that have a long-life and limited recycling ability? e.g., PV panels. ► Balancing the need to raise funds for the scheme while incentivising the intended behaviour. ► Regardless of the basis of calculating the fee, it will ultimately see	most IT companies and large producers have waste management expertise. It should be up to the scheme manager(s) to decide what pricing model they offer; ensuring the scheme is sustainably funded. ► There are provisions in the WMA for a recovery and recycling scheme funding option 1 (section 24 requires the NZ Customs Service to provide information about priority products); however, if this is the preferred funding model (for any scheme option) there needs to be special considerations under this option for e-products with long life-cycles and limited treatment pathways at present e.g., PV panels. ► If ASFs are applied to PV panels placed on the market now, the true end-of-life management costs are likely to be very different to ASFs set once the product enters Aotearoa New Zealand's waste stream. ► We need to also factor in that not all e-products are imported into Aotearoa New Zealand and there are local manufacturers and online providers to account for. ► We would expect there will be a mix of self -reporting from liable parties and validation activities led by the scheme regulator under this option. ► If there is no product recovery target set for the scheme's performance (especially in the first few years of the scheme's operation) and producers are obliged to cover end-of-life management costs for all e-waste generated, then funding option 3 may be more appropriate and better suited to this type of scheme structure. However, please note, it would not be practical to charge liable parties based on the brand of each product recovered for recycling. At present, products are recycled without separating products by brand.	what systems are used internationally but not what is working well or badly. Just because they are using a system elsewhere doesn't mean it is effective - and also if it is effective who is making that call? The measure needs to be what is effective in extending the lifetime of e-products I.e., influencing design, not what can be shredded and so called recycled. This comment is relevant to the whole document, not just this section.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		consumers pay - needing awareness and education so consumers feel okay about that fee. ► Also need an awareness campaign to ensure users don't think it's just one producer or retailers raising their prices. ► Fees on producers don't incentivise users to recycle as significantly as user deposit/refund schemes. ► Support the idea of making the fee clear at the point of sale - it allows consumers to see there is an end-of-life cost to buying new e-products. ► Could argue that consumer-pays option will encourage consumers to look for better e-products thereby driving consumer behaviour change. ► Retailer based fees result in a lot of administration for retailers and can lead to inconsistent results. **One-on-one discussions** ► Retailer - Important we are not seen as more expensive than other sellers- if a levy is applied it needs to be on everyone. ► Producer - Do it at the point of sale so it doesn't look like the producer/brand is raising its prices. ► Producer - Fee based on imports is likely the simplest/cheapest way to collect and transfer the funds. ► Producer - Need to ensure Aotearoa New Zealand does not become too expensive for electronics driving consumers to overseas websites where it is cheaper even with shipping costs. There needs to be either a balance of pricing or	This will be expensive to track and measure and would likely increase recycler service rates in the New Zealand market. ► Recovery and recycling scheme funding option 2 should be incorporated in funding option 1 i.e., a mix of self-reporting from liable parties and validation activities led by the scheme regulator. ► Funding option 4 as a completely consumer paid model will not ensure e-waste diversion from landfill - the intended outcome of this approach is 'no e-waste to landfill' and end-of-life management costs that sit wholly with consumers will be a major barrier to scheme participation. This option is unlikely to attract New Zealand Government and community support in the next phase of co-design and options assessment. ► Funding option 1 seems easiest and would capture all products at point of import. Funding option 2 seems a more complicated way of achieving funding option 1 - while also missing any products not sold through major retailers (offered through promotions, e.g.). It might also be a problem with many retailers parallel importing - the distributor isn't liable for these imports. Funding option 1 would capture the importer, whether a distributor or retailer (e.g., The Warehouse). ► Funding options 1 or 2 would put the cost on to the producer. I expect many will pass this on to the consumer (either opaquely or transparently), and many will use it as an excuse to raise prices in addition to the fee. ► There's a funding option missing where a levy/fee is added to the sale of goods as a charge (like GST). While this doesn't directly hit the producer, it makes the fee visible to consumers and totally transparent - producers can't raise the price beyond the fee. This might	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		strengthen customs to ensure items bought overseas are still captured upon entering the New Zealand market. ► Climate Control Association - The hydrofluorocarbons scheme applies a $1 fee per kg of refrigerant gas imported to pay for recovery activities. Captures almost all imports. ► Multiple stakeholders - Applying a fee to consumers at point of collection would act as a disincentive and discourage recovery of items. ► Multiple producers and retailers - Margins are squeezed already. Raising the cost of doing business here could cause some producers to exit the market.	work well if the fee was significant and scaled - more for less durable, unrepairable products and less (or zero) for those built to last. That would be a direct incentive for producers to do better and for consumers to choose better.	
Governance	MfE guidelines are that product stewardship schemes should be governed by a not-for-profit entity; however, this entity could be governed by: 1. A single not-for-profit administered by a board made up of broad commercial, community, regulatory and environmental interests 2. Multiple product stewardship organisations who are responsible for administering a portion of the scheme (e.g., for a certain region, set of product categories, or other structure) 3. Not-for-profit governed by a board of territorial authority representatives who are responsible for product	**Stakeholder survey** ► 32% of respondents supported a single national not-for-profit. ► 20% of respondents supported a current government agency managing the scheme nationally. **Consumer Survey** ► A current governance agency was the most preferred option followed by a single not-for-profit managing the scheme nationally. ► One comment said that it is important that the scheme is administered nationally so that there is one set of standards and rules, otherwise the scheme could end up like recycling systems around the country currently.	► Governance option 1 is preferred - given the size of the New Zealand market, multiple scheme managers would probably not be necessary or required. ► Requiring not-for-profit status of the scheme manager(s) will ensure that the sole purpose of the entity is aligned with the objectives and intended outcomes of a scheme/WMA and is likely to ensure transparency. ► Competition can still be ensured via a tender process for recyclers/repairers, transporters and collection sites i.e., scheme service providers. ► A competitive scheme manager structure in Australia has led to market failures where scheme prices set are below cost encouraging non-compliance and instability - two co-regulatory arrangements folded in Australia leaving	► Proposed roles and responsibilities for all actors proposed to have mandated obligations under Option 1. ► Example roles and responsibilities of scheme managers operating international product stewardship and extended producer responsibility schemes for e-waste and e-products. ► I think these options need more detail. I'm not sure how governance options 1 and 3 would differ in action - to make a decision. This needs more data about the differences in how all options would operate and what the potential pros/cons are of each.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
	stewardship activities in their respective area.	**International research** ► Many regulatory systems also provide options for individual producer responsibility (IPR) approaches where liable producers can opt to coordinate their own stewardship efforts. **Initial CEN feedback** ► The New Zealand market is small enough to be covered by a single entity managing the scheme, additional entities would require work to ensure there is an even playing field between them. ► A new not-for-profit helps to appease consumer desires for transparency and independence from the government/for-profit market players. ► Needs to be not-for-profit so that profit generation isn't a driving factor behind scheme decisions. Not-for-profits can remain focussed on the best decisions for achieving scheme objectives and outcomes. ► The government can provide oversight of the scheme governance through the WMA product stewardship clauses. **One-on-one discussions** ► Product Stewardship Sector Group - Governance decisions should be based on the ability to deliver the scheme effectively at scale. ► Product Stewardship Sector Group - A newly formed government agency would help to reduce any fear around having a scheme which supports some groups over others.	uncertainty and gaps in service access across the country. ► Governance option 2 is not preferred, especially if there is no requirement for not-for-profit status. ► A for-profit scheme manager, or for-profit scheme managers, could see profit driven motives undermine the scheme's objectives and result in profit driven decisions, rather than those that progress the scheme's intentions and ongoing development over time. ► If multiple scheme managers are preferred, strong scheme regulator enforcement of compliance aspects is essential to create an even playing field for all accredited scheme managers. ► Governance option 3 is not preferred; however, Territorial Authority representation on a single not-for-profit scheme manager would be a recommended component under Governance option 1. ► Scheme governance should not sit solely with a scheme manager(s) - the scheme regulator must have a key role to play for various scheme governance aspects e.g., calculating and assigning liable party obligations, ensuring the scheme operators/manager(s) meet respective obligations, such as monitoring and compliance, reporting oversight etc. ► Governance option 1 for a single national not-for-profit seems the easiest to implement and administer. There's a risk that multiple organisations, in option (2), could result in a fractured approach - as we have not with recycling being different around the country. It would also add increased bureaucracy and costs. ► Option 1 - Not-for-profit preferred if it is not controlled by any individual stakeholder.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		Having a newly dedicated government agency would be useful to go across all types of product stewardship schemes (e.g., tyres, batteries).	► Option 1 Not-for-profit preferred.	
Product stewardship organisation roles and responsibilities	Potential governance body responsibilities: ► Set requirements and standards for scheme participants ► Maintain a registry/database of participant details ► Oversee the collection and distribution of funds ► Perform monitoring, data collection and reporting on scheme performance ► Identify instances of non-compliance and facilitate corrective actions ► Implement communication and awareness raising activities ► Maintain a publicly accessible database/software tool to help people locate the appropriate collection point ► Enforcement powers to use when instances of non-compliance persist.	**International research** ► Roles and responsibilities underpinned by regular and transparent reporting. ► Stewardship organisations have codes of conduct or service provider agreements with standard terms and conditions around ethical business conduct. ► Based on the scheme approach, what governance responsibilities should be considered?	► Depending on the scheme aspects that are to be funded e.g., collection, storage, transport, treatment, scheme management, education and awareness etc., the scheme manager, or scheme managers, could also manage a market development fund that aims to stimulate market development for resources recovered from e-waste and/or enhance local capacity and capability to manage e-waste onshore (where appropriate). ► Other scheme manager responsibilities could include working with industry/regulators to develop health and safety guidelines for e-waste management activities e.g., storage and transport etc. (all e-product categories). ► Need to also consider including Individual Producer Responsibility (IPR) options under a recovery and recycling scheme where producers run their own collection and recycling programme (using certified recyclers etc.) but are still required to join a product stewardship organisation and contribute financially to scheme education and awareness activities, monitoring and reporting etc. We are supportive of IPR options. ► Should have separation of responsibilities for scheme manager(s), collectors and recyclers. The scheme manager should operate effective systems that show traceability of e-products. Downstream auditing is critical. Best practice management demonstrating continuous improvement (value creation). Should also manage an innovation fund to promote best practice local recovery solutions.	► Examples of market development funds for other product stewardship schemes for priority products e.g., tyres under Tyre Stewardship Australia.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
Performance standards, training and certification	If requirements are placed on certain stakeholders in the e-product life cycle, they must join the scheme manager(s) registry which requires participants to achieve the accepted level of accreditation/certification to provide scheme services. Under a recovery focus, certification against hazardous materials handling and storage standard e.g., AS/NZS 5377 could be a scheme requirement for: 1. E-waste recyclers only 2. E-waste recyclers and transporters 3. E-waste recyclers, transporters and collectors 4. No mandatory certification requirements.	**Stakeholder survey** ► 21% of respondents supported requiring all scheme participants to join a registry which requires them to achieve an accepted certification/standard level. **International research** ► Only recycling activities have mandatory requirements to be certified to an industry standard. However, some of the industry standards also have sections addressing collection and transport activities. ► No scheme has mandatory training requirements to undertake operational activities associated with a scheme's delivery. **Initial CEN feedback** ► Standards need to cover all aspects - ethics, hazardous materials, handling, storage etc. as per AS/NZS 5377 or similar. ► It is likely that those paying for the scheme would insist on a high degree of compliance with standards by recovery actors as poor recycling techniques by recovery actors in the scheme could see them face reputational risks to their brand. ► Having mandatory standards would push up administration costs for the scheme. ► The scheme would need to set who would be issuing the standards certification and the audit process to ensure that actors are meeting the requirements of the scheme.	► Option 1 is preferred; however, we need to fully understand market readiness and market impacts should certain standards become mandatory for e-waste recyclers. ► Could consider making a range of standards available to participate in the scheme for e-waste recycling e.g., AS/NZS 5377:2013, AS 5377:2020, R2, E-Stewards, WEELABEX etc. ► Also need to consider if we will recommend a requirement for certifying bodies to be accredited themselves e.g., independent JAS-ANZ certified inspection bodies. ► Could also consider having a lead in period e.g., 12-months, for e-waste recyclers to obtain standard certification. If standards are set which cannot be immediately met by a large section of the recycling market, this could derail the operational success of a scheme from the outset. ► Option 2 is not recommended - creating additional barriers for logistics providers to participate in scheme operations may reduce the number of providers available to service the scheme if certain standards are made mandatory. ► Note, transporters have a legal obligation under New Zealand transport laws i.e., Land Transport Act 1998, to promote safe road user behaviour and vehicle safety. ► Option 3 is not recommended - over and above the comments regarding scheme logistics providers above, e-waste collectors are highly unlikely to meet collection and storage standard requirements e.g., Territorial Authority transfer stations, and non-regulatory infrastructure support funding may be required to lift current practices in line with best practice standards.	► Independent assessment of current installed and future planned recycling capacity for all e-product categories and market readiness to meet selected standard requirements. ► List of certifying bodies and available auditors in Aotearoa New Zealand to various standards e.g., Global Compliance Certification have a local auditor who can certify recyclers to AS/NZS 5377:2013. ► New Zealand e-waste collection network assessment to understand compliance with appropriate standard(s) e.g., AS/NZS 5377:2013 and the amount of government grant funding required to deliver non-regulatory support.

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		► Having mandatory standards may disadvantage small market players and prevent them from participating in the scheme. **One-on-one discussions** ► Producer - No specific standards or code of practice that they impose on their members due to the impact of RMA consenting requirements varying from being able to comply with a nationwide blanket standard requirement.	► Option 4 should not be considered - standards should be required for recycling activities at a minimum. ► Consider internationally established alternatives such as R2 standard as there might not be any New Zealand auditors for 5377. ► We need an independent entity to do the auditing. I assume it will be a business opportunity. ► Agree with AS/NZS 5377 standard or ISO 14001 - not R2. ► Option 3. All parts of the life cycle need to have mandatory standards.	
Targets, monitoring, compliance and enforcement	Two potential targets in a recovery focused approach: 1. Total weight of e-waste (by category) recovered for recycling under the scheme 2. Total weight of e-waste component materials recovered from recycling under the scheme. Mechanisms to aid with compliance could include: ► Labelling requirement to show that a product is covered by the stewardship scheme ► Blockchain solution to track product movements through the economy, which is currently being designed for the hydrofluorocarbons scheme and could apply across product stewardship schemes.	**Stakeholder survey** ► 21% of respondents supported a weight-based target of e-waste collected and processed under the scheme. ► 21% of respondents supported recording the product type/categories collected and processed under the scheme. **Consumer Survey** ► The top three data points consumers want the scheme to monitor, and report are: ► Total volume of e-waste collected, recycled and disposed of under the scheme ► Percentage of the total material recovered for reuse through scheme recycling activities ► Number of sites for e-waste collection, processing, recycling, involved with the scheme.	► Product recovery targets: It is recommended that a recovery and recycling scheme commence without product recovery targets based on POM data/expected life cycle projections and start by collecting all e-waste arisings in Aotearoa New Zealand. ► After a suitable period e.g., the first formal scheme review, and using the scheme's operational data, this aspect could be reviewed and updated as appropriate. ► If product recovery targets are set too low, we run the risk of over collecting and the potential to halt collections - this has occurred in international schemes and is something Aotearoa New Zealand should be weary of. ► If product recovery targets are set too high, we run the risk of not being able to collect enough e-products to meet the target which could lead to enforcement activity and non-compliance penalties - this issue is playing out in Europe at the moment, particularly on the back of global market impacts from the COVID-19 pandemic.	► Independent assessment of current installed and future planned treatment capacity for all e-product categories. ► Examples and evidence of international schemes operating well without product recovery targets. ► Review UNITAR Report that assesses identified difficulties in meeting product recovery targets for EU members. ► Investigation of product labelling interventions, particularly for e-products imported into the New Zealand market.

		International discussions ► There are two main scheme targets that underpin the objectives and intended outcomes of a programme or schemes delivery i.e., e-product collection targets (weight-based) and material recovery targets (percentage by weight). ► One scheme has a reasonable access target, which is most suited to jurisdictions with large transport distances to cover. ► Targets are typically informed by e-product POM data either for individual product categories or across the full scope of products included, and in some cases, they can be scaled, increasing over time. **Initial CEN feedback** ► Recovery targets are needed by product category otherwise this metric is very blunt and will have a limited ability to tell how the scheme is performing. ► Labelling is a good idea but can bring a whole new level of complexity to the scheme due to the level of technological change that will occur between when the product is sold and when it reaches the end of its life. ► If participation in the scheme is mandatory, all products would be included so labelling would be on all products, which raises the question of if it is necessary. ► Need more insight as to what would be on the label. ► Labelling should be applied by the producer not at the point of sale. **One-on-one discussions**	► Material recovery targets: Should set material recovery rates for all e-products and e-waste recovered through the scheme at a minimum. ► These targets should match both local and available offshore recycling market capability, should be product category specific (or even product stream specific - in some cases) and be scaled, increasing over time - or regularly reviewed for effectiveness in line with best practice capabilities. ► The role of energy from waste or waste to energy in meeting or contributing to MRTs set needs to be discussed and decided on - Note: there is limited energy from waste treatment options for e-waste products and components in Aotearoa New Zealand at present; however, offshore markets may apply this treatment approach for downstream recycling activities. ► If energy from waste is an acceptable material recovery target treatment approach, it should only be for products and materials where all higher order waste management activities and options have been exhausted. ► Product labelling may be a good complementary scheme aspect, particularly around a product's life cycle management requirements, and raising awareness around scheme availability. However, we need to fully understand at what point in an e-product's life cycle this type of intervention would take place, especially as many e-products are imported into the New Zealand market. Also need to consider embedded e-products e.g., e-products with batteries. ► Blockchain solutions have a wide range of applications that should be considered in the scheme design process. ► It allows a systems approach to define roles/responsibilities and for a broad range of service providers to sign up for various tasks.	

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		► Recycler - Align data collection with trade codes used for export of raw materials. ► Producer - Fine to put a label on a product but the reality is the label will likely come off or the product may become obsolete before recovery occurs.	► Even if a recovery and recycling scheme is not the most circular option in design, this type of approach could bring a unique and technologically advanced way of developing a product stewardship system that can enhance over time. ► Blockchain applications could also be used as an effective tool for tracking and monitoring conformity with various scheme compliance aspects for the scheme manager. ► Weight of e-waste and component materials is a strong measure. It would be great to break this down into categories. ► Labelling is essential to promote the scheme to consumers. This has to be visible to encourage behaviour change. Similarly, we need a mechanism to report how the scheme is causing change e.g., showing volumes of recycling increasing and uses for the reclaimed materials. ► Blockchain would be fantastic - a method to show product movements will raise the idea of tracing e-waste back through to import. The data this would open up is immense - possible analysis of how long an e-product has been in use etc. ► It is important to define such targets. E.g., incineration should not be claimed as recovery. There should be qualitative (e.g., zero waste to landfill) and not just quantitative targets set. Consideration to calculating waste arising or e-product put on market which determines recovery targets. Also, leakage and how much was exported.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
Design for environment	No consideration for product design in a recovery focused approach. Environmental impacts are managed by requirement for those actors under the scheme to meet certain environmental standards		► A very significant omission to this approach. A missed opportunity for the change we need. ► Not an acceptable position.	
Right to repair	Repair is not prioritised or mandated as part of a recovery-focused scheme.		► A very significant omission to this approach. A missed opportunity for the change we need. ► Not an acceptable position.	
Education and awareness	► Education campaign for consumers and school children - what are our electronics made of, their potential harm to the environment, the opportunity, how we can play our part. ► Educational campaigns would seek to raise awareness amongst consumers about the negative impacts of early disposal of functional e-products. Provide support and examples of how to improve the life of their electronic products at purchase or at disposal (e.g., ways to charge batteries to extend their life). ► Awareness campaign for how scheme works, what consumers and businesses need to do. ► Awareness campaign for other scheme actors on what the requirements will be.	**International research** ► Education and awareness programmes are important to achieve scheme participation by the community and industry. ► Specific resources are allocated by product stewardship organisations and scheme regulators for this activity, and for some jurisdictions this is mandated. ► Nationally consistent messaging is important, especially where there are multiple product stewardship organisations, to prevent consumer confusion over which products are accepted by a scheme and how they are managed. **Initial CEN feedback** ► Education is an important part of ensuring longer product life. ► Not the best way to improve longevity and repair as consumers are often unable to do much due to the product design. The emphasis of this aspect of the scheme should be on producers. ► Education is a nice to have but surveys already show that this is not a problem for New Zealanders, the	► Any scheme education and awareness campaign should be consistent across Aotearoa New Zealand, regardless of the number of scheme managers. ► A clear and consistent community campaign will ensure good understanding of the potential impacts of e-waste, why we should manage our e-waste responsibly, the roles and responsibilities of different actors, the benefits associated with environmentally sound e-waste management, scheme access points and scheme performance. ► A recovery and recycling scheme should also see a range school specific awareness campaigns targeted at different age groups that aligns with the five key competencies of the national school curriculum. ► Another focus of education and awareness for a recovery and recycling scheme could also be placed around recycling activities - the aim would be for e-waste recyclers to provide advice back to producers around the recycling process i.e., identify hard to manage materials, technical barriers to e-waste separation and opportunities for life cycle design improvements that support material recovery and recirculation - this could be coordinated and facilitated by the scheme manager(s). ► Education for consumers is important but can only go so far. The e-products available need	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
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		vast majority know what is right and wrong. ► The scheme will need a large investment in advertising to get public awareness and behaviour change.	to be more durable and able to be repaired and reclaimed at end-of-life. That needs to be communicated on the e-products, so informed consumers can make better choices. We are keen to see this not being focused on consumers entirely. While they can do better, the responsibility must be shared by the producers and retailers. ► Behavioural change education is also needed in the supply chain, not just consumers and corporates around reducing, reusing and recycling. A recovery option doesn't need to exclude promoting the waste hierarchy in its remit. ► Education is needed to support the scheme, why it's needed etc. Support consumers, household and businesses to make better choices, but ultimately change will happen if we stop importing badly designed products, reuse and repair are easy to access and access to recovery options are widely available.	
Regulatory Implications	► Regulatory actions should be designed to ensure e-waste does not end up in landfill. ► Likely/possible WMA act levers to be used: ► Control and prohibition of disposal for e-waste ► Setting of payable fees depends on the type of e-product ► Implementation of standards to be met when recycling ► Required collection of information and reporting.	**International research** ► Financial support was available for developing collection and recycling infrastructure at the start of many schemes. ► Most ongoing support from government is used to fund general research and development programmes. ► Implementation of a levy at the border would require a significant amount of work and time to develop new legislation that allowed for it to exist.	► Having a funded e-product stewardship scheme that covers the cost for end-of-life management will significantly increase e-waste landfill diversion. If a recovery and recycling scheme design approach was underpinned by a national e-waste landfill ban, this would ensure the intended outcome of this approach could be achieved. ► All other WMA levers listed would ensure a recovery and recycling scheme is effective in achieving the intended goal i.e., no e-waste to landfill. ► Product labelling would be a good complementary scheme aspect, particularly around a product's life cycle management requirements and raising awareness around scheme availability. However, we need to fully understand at what point in an e-product's life cycle this type of intervention would take	► Investigation of product labelling interventions, particularly for e-products imported into the New Zealand market.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			place, especially as many e-products are imported into the New Zealand market. Also need to consider embedded e-products e.g., e-products with batteries. ► An e-waste landfill ban is priority - but it needs to be realistic. That means the scheme must provide alternative options. It's hard to see how a basic recovery and recycling scheme option would cause enough change to make a landfill ban viable. With the current state of unrecyclable appliances, a significant proportion will end up dumped, as there is no alternative. Hence, the scheme needs to do more to make the ban viable. ► Procurement policies should be changed to be pro-environment instead of lowest cost. ► How can policies entice investment in capacity and capability building? ► We need to look at how best to stop importing products that are low quality, use cheap/child labour to produce, use bad environmental practices to produce etc. We need to ensure we are not the graveyard for products that other countries legislate to prohibit.	

Option Two: Repair and Reuse

Table 15 - Option 2 feedback

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
Overarching objectives for any scheme	1. Minimise social and environmental harm from product disposal and handling. 2. Shared responsibility. 3. Fair and consistent with no free riders. 4. Financially sustainable.		► A repair and reuse scheme would minimise social and environmental harm compared with business as usual arrangements; however, not all e-products are suitable for repair, refurbishment or reuse. Defining liable parties clearly with specific roles and responsibilities e.g., financially contributing to a repair/end-of-life product stewardship scheme, would see responsible e-waste recovery and management significantly increase in Aotearoa New Zealand. Note: at present, it is estimated that less than 2% of the e-waste New Zealanders generate annually (approx. 98 kiloton) is recovered for recycling. No data is currently available on the volume of e-products recovered for repair, refurbishment or reuse. ► A repair and reuse scheme would create a clear and consistent system of shared responsibility for all defined actors. However, a shortfall of this scheme is there are no real incentives for more circular product design. Note: these elements could be phased in over time and in step with the global market. ► A repair and reuse scheme would ensure that product stewardship scheme participation is fair and consistent for all defined actors; however, as noted, the focus is weighted more towards repair (for some product categories) and end-of-life recovery, which may not be preferred or meet Aotearoa New Zealand's circular ambitions for a regulated e-product stewardship scheme. We need to also address whether liable party obligation would transfer from a producer, importer, distributor, retailer etc., to a product repair agent if a products life cycle is extended. We would also	► An accurate timeline around EU's investigations to design eco-modulated fee approaches to enhance the EU's extended producer responsibility system for WEEE. ► An independent assessment of the average end-of-life management costs for e-product categories 1 - 7 to inform the design of the scheme's funding framework e.g., $x/per kg (collection, storage, transport and treatment). ► Proposed roles and responsibilities for all actors proposed to have mandated obligations under a repair and reuse scheme. ► Analysis of CGA considerations with respect to e-product repair and refurbishment activities.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			need to account for repaired volume and track this as 'leakage' with respect to scheme product recovery targets (if these are set). Extended product life cycle warranties may also need to be offered to ensure a safe and sufficient extended e-product life cycle. ► A repair and reuse scheme provides several scheme funding options that are viable and financially sustainable. Note: we anticipate that there will be a range of scheme costs specific to e-product categories (or product streams where appropriate) that need to account for the true end-of-life management costs. As noted above, we would also need to account for repaired volume and track this as 'leakage' with respect to scheme product recovery targets if these are established. ► Adds responsibility on to producers and retailers, aiming to ensure repair is possible and component reuse is planned. But how is it going to do that? ► Create circular economy jobs and higher value activity. Not clear with this option will include end-of-life management given that not all devices can be repaired and reused forever. ► More financially, socially and environmentally sustainable than a recovery and recycling scheme. ► Pointless picking out just reuse and repair. A circular ambition scheme is the only one we should consider. ► Anything less than a circular ambition scheme is doing our country a disservice in the long-term. ► A reuse and repair scheme is better than just focusing on recycling but is not an acceptable option.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
Intended outcomes	1. No e-waste to landfill 2. Electronic products have an extended life through repair and reuse.		► Having a funded e-product stewardship scheme that covers the cost for end-of-life management activities will significantly increase e-waste landfill diversion in Aotearoa New Zealand. If a repair and reuse scheme was underpinned by a national e-waste landfill ban, this would ensure the intended outcome of this approach could be achieved. ► A repair and reuse scheme will contribute to extended e-product life cycles through repair, refurbishment and reuse activities; however, not for all e-product categories. The national assessment of e-waste services has indicated a growing number of e-product repair and refurbishment agents in Aotearoa New Zealand; however, the 'national network' is not far-reaching, nor are repair and refurbishment services available for all e-product categories (mostly for categories 6 - large equipment and 4 - ICT equipment). Market investment and capability up-skilling would be anticipated and could be aided with government funding support. This would lead to the creation of 'green jobs' in Aotearoa New Zealand. ► Change linear consumption behaviours ► Change linear manufacturer behaviours.	► Process and timeline (in the context of the options co-design process) to design and implement a national e-waste landfill ban - including non-regulatory support measures required e.g., infrastructure grant funding, education and awareness campaign. ► Independent assessment of current installed and future planned e-product repair and refurbishment capacity for all e-product categories and market readiness to meet selected standard requirements.
Fees, funding and cost effectiveness	Fee applied at a single point. Single point options discussed are: 1. Imports: a fee charged to producers based on import data for each new product brought into the country for sale 2. Sales: a fee charged to producers based on sales data from 1st and 3rd party physical and online store purchases	**Stakeholder survey** ► 33% of respondents supported an upfront levy on the producer applied to the products placed on the New Zealand market. ► 26% of all survey respondents supported the application of a VBF on producers. ► 25% of respondents supported a fee or levy applied to the party offering the product for sale in Aotearoa New Zealand.	► The preferred funding option will greatly depend on the targets that are set for the scheme's operation and performance. ► Another consideration that is relevant here is what scheme costs would be covered e.g., collection, storage, transport, treatment, scheme management, education and awareness, market development etc., this should be proposed for all approaches. Further, repair and refurbishment activities should be market/consumer driven and not	► Profile and register of local e-product producers and online e-product retailers including e-products POM and current market share in Aotearoa New Zealand. ► Examples and evidence of international schemes operating without e-product recovery targets.

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	3. Collected volume-based: producers pay a fee based on the volume of their products collected at end-of-life 4. At collection point: consumers pay a fee when dropping their old item off at end-of-life.	**Consumer Survey** ► An upfront levy/fee on the producer is the most preferred option across all three demographic markers (age, location, income level). ► There was support for a fee placed on those selling the product in Aotearoa New Zealand, but it was not as high as for a fee on the producer. **International Research** ► Overall, there are two main scheme funding models: advanced disposal fees and product recovery and recycling fees. ► In some jurisdictions a blend of these two funding models is used for different e-product categories and corresponding programmes. **Initial CEN Feedback** ► Applying scheme fees at the border is considered a clean way of collecting the funds for the scheme as we import just about all of our electronics. ► Gathering scheme funds up front is seen as a cost-effective way to collect funds for the scheme. ► Should a fee be applied in advance of disposal for certain products that have a long-life and limited recycling ability (e.g., PV panels)? ► Balancing the need to raise funds for the scheme while incentivising the intended behaviour. ► Regardless of the basis of calculating the fee, it will ultimately see consumers pay - needing awareness	funded as part of liable party obligations or mandatory financial contributions. ► If it can be avoided, the regulations should not prescribe a pricing model, especially when most IT companies and large producers have waste management expertise. It should be up to the scheme manager(s) to decide what pricing model they offer. ► There are provisions in the WMA for option 1 (section 24 requires the NZ Customs Service to provide information about priority products); however, if this is the preferred funding model (for any approach) there needs to be special considerations under this option for e-products with long life-cycles and limited treatment pathways at present e.g., PV panels. ► If ASFs are applied to PV panels placed on the market now, the true end-of-life management costs are likely to be very different to ASFs set once the e-product enters Aotearoa New Zealand's waste stream. ► We need to also factor in that not all e-products are imported into Aotearoa New Zealand and there are local manufacturers and online providers to account for. ► Also, we would expect that there will be a mix of self -reporting from liable parties and validation activities led by the scheme regulator under this option. ► If there is no product recovery target set for the scheme's performance (especially in the first few years of the schemes operation) and producers are obliged to cover end-of-life management costs for all e-waste generated, then option 3 may be more appropriate and better suited to this type of scheme structure. However, please note, it would not be	► More conversations are needed before we can get anywhere close to suggesting/agreeing a fee system. This needs to be worked through with representatives of all stakeholders ensuring that prolonging the life of equipment is incentivised, but this is done in a manner that doesn't put the emphasis on a volunteer economy to repair/reuse etc.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		and education so consumers feel okay about that fee. ► Also need an awareness campaign to ensure users don't think it's just one producer or retailers raising their prices. ► Fees on producers don't incentivise users to recycle as significantly as user deposit/refund schemes. ► Support the idea of making the fee clear at the point of sale - it allows consumers to see there is an end-of-life cost to buying e-products. ► Could argue that consumer-pays option will encourage consumers to look for better products thereby driving consumer change. ► Retailer based fees result in a lot of administration for retailers and can lead to inconsistent results. ► If the fee structure doesn't encourage repair and reuse first, then all collection is going to recycling by default. ► A VBF would be an excellent approach if it differentiated between those products that were repaired first before they were recycled. **One-on-one discussions** ► Electronic retailer - Important we are not seen as more expensive than other sellers- if a levy is applied it needs to be on everyone. ► Producer - Do it at the point of sale so it doesn't look like the producer/brand is raising its prices.	practical to charge liable parties based on the brand of each product recovered for recycling. At present, products are recycled without separating products by brand. This will be expensive to track and measure and would likely increase recycler service rates in the New Zealand market. ► As above, option 2 should be incorporated in option 1, i.e., a mix of self -reporting from liable parties and validation activities led by the scheme regulator. ► Option 4 as a completely consumer paid option will not ensure e-waste diversion from landfill or extended e-product life cycles - the intended outcome of this approach is 'no e-waste to landfill and extended product life cycle's' and end-of-life management costs that sit wholly with consumers will be a major barrier to scheme participation. ► This option is unlikely to attract government or community support in the next phase of co-design and options assessment. ► Consider rebate mechanisms that enables the scheme manager(s) to mitigate cost from resale, sharing platforms, repairs? Or generate revenue from licencing fees for approving repairers/resellers? Net fees would be less as a whole as e-waste generation would be less. Or have tiered fees which are lower for those who offer longer e-product warranties, gold EPEAT, have x number of repair facilities set up or have product as a service offering... or reduce liability by 2x for volume that is reused rather than recycled. ► How will the fees encourage more repairability? Should more repairable and durable products attract lower fees? Is that possible?	

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		► Producer - Levy at the border is likely the simplest/ cheapest way to collect and transfer the funds. ► Producer - Need to ensure Aotearoa New Zealand does not become too expensive for electronics then the customers may end up shopping on overseas websites where it is cheaper even including shipping. There needs to be either a balance of pricing or strengthen customs to ensure that items bought overseas are still captured upon entering Aotearoa New Zealand. ► Climate Control Association - The hydrofluorocarbons scheme applies a $1 levy per kg of refrigerant gas imported to pay for recovery activities. Captures almost all imports. ► Multiple stakeholders - Applying at the point of collection would act as a disincentive, discouraging recirculation of items. ► Multiple producers and retailers - Margins are squeezed already raising cost of doing business here could push some producers to exit the market.	► I like the idea that fees could be tied to warranty length. Could we recommend a repairability index (the French have one) where fees are linked to how repairable products are? ► Fees on import.	
Governance	MfE product stewardship guidelines state that a scheme should be governed by a not-for-profit entity; however management of this entity could be governed by: 1. A single not-for-profit administered by a board of commercial, community, regulatory and environmental interest groups	**Stakeholder survey** ► 32% of respondents supported a single national not-for-profit. ► 20% of respondents supported a current government agency managing the scheme nationally.	► Option 1 is preferred - given the size of the New Zealand market, multiple scheme managers may not be necessary or required. ► Requiring not-for-profit status of the scheme manager will ensure that the sole purpose of the entity is aligned with the objectives and intended outcomes of a scheme/WMA and is likely to ensure transparency.	► Proposed roles and responsibilities for all actors proposed to have mandated obligations. ► Example roles and responsibilities of product stewardship organisations operating international product stewardship and extended

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
	2. Multiple product stewardship organisations either for or not-for-profits who are responsible for administering some of the scheme 3. Management by local/regional government bodies in their relevant jurisdictions 4. A new/existing government agency managing the scheme nationally.	**Consumer Survey** ► One comment said that it is important that the scheme is administered nationally so that there is one set of standards and rules, otherwise the scheme could end up like recycling systems around the country currently. **International research** ► Many regulatory systems also provide options for individual producer responsibility (IPR) approaches whereby those deemed liable (e.g., producers) can opt to coordinate their own stewardship efforts rather than through a product stewardship organisation. ► Governance arrangements for regulated systems are underpinned by regular and transparent reporting. ► Product stewardship organisations also have code of conducts or service provider agreements with standard terms and conditions around ethical business conduct. **Initial CEN Feedback** ► The New Zealand market is small enough to be covered by a single entity managing the scheme, additional entities would require work to ensure there is an even playing field between them. ► Helps to appease consumer desires for transparency and independence from the government/for-profit market players.	► Competition can still be ensured via a tender process for recyclers/repairers, transporters and collection sites. ► Option 2 is not preferred, especially if there is no requirement for not-for-profit status. ► A for-profit product stewardship organisation, or for-profit product stewardship organisations, could see profit driven motives undermine the scheme's objectives and result in profit driven decisions, rather than those that progress the scheme's intentions and ongoing development over time. ► If multiple scheme managers are preferred, strong scheme regulator enforcement of compliance aspects is essential to create an even playing field for scheme managers. ► A competitive scheme manager structure in Australia has led to market failures where scheme prices set are below cost encouraging non-compliance and instability - two of the four current co-regulatory arrangements have just folded in Australia leaving uncertainty and gaps in service access across the country. ► Option 3 is not preferred; however, Territorial Authority representation on a single not-for-profit product stewardship organisation would be a recommended component under option 1. ► Scheme governance would not sit solely with a scheme manager(s) - the scheme regulator could also have a key role to play for various scheme governance aspects e.g., calculating and assigning liable party obligations, ensuring the scheme operator/scheme manager(s) meets their defined obligations, reporting oversight etc.	producer responsibility schemes for e-products.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		► Needs to be not-for-profit so that profit generation isn't a driving factor behind scheme decisions. ► Not-for-profits can remain focussed on the best decisions for achieving scheme objectives and outcomes. ► The government can provide oversight of the scheme governance through the WMA product stewardship clauses. ► Using a government agency opens the scheme up to political cycle issues. ► A current government agency's capacity may be stretched if it has to also administer this scheme. ► Using government bodies will likely add costs and bureaucracy as well as create a drawn-out development phase when the scheme is first created. ► Do not support Territorial Authorities from running the scheme. The scheme needs to have a consistent nationwide approach. **One-on-one discussions** ► Product Stewardship Sector Group - Governance decisions should be based on the ability to deliver the scheme effectively at scale. ► Product Stewardship Sector Group - A newly formed government agency would help to reduce any fear around having a scheme which supports some groups over others. Having a newly dedicated government agency would be useful to go across all types of product	► A single not-for-profit is okay. It's important to recognize that anyone can set up a not-for-profit construct. It is about ensuring that any entity operates in the national interest that is set up to advance action toward circular economy. ► It should be a not-for-profit social enterprise - with a remit to create positive impact (environmental, social and financial).	

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		stewardship schemes (e.g., tyres, batteries). ► International discussions - For regulated systems, there are clearly defined roles, responsibilities and governance requirements for various actors specified in legislation or scheme design documentation.		
Product stewardship organisation roles and responsibilities	Potential governance body responsibilities: ► Set requirements and standards for scheme participants ► Maintain a registry/database of participant details ► Oversee the collection and distribution of funds ► Perform monitoring, data collection and reporting on scheme performance ► Identify instances of non-compliance and facilitate corrective actions ► Implement communication and awareness raising activities ► Maintain a publicly accessible database/software tool to help people locate the appropriate collection point ► Enforcement powers to use when instances of non-compliance persist.	**International research** ► Roles and responsibilities underpinned by regular and transparent reporting. ► Product stewardship organisations have codes of conduct or service provider agreements with standard terms and conditions around ethical business conduct.	► Depending on the scheme aspects that are to be funded e.g., collection, storage, transport, treatment, scheme management, education and awareness etc., the scheme manager(s) could also manage a market development fund that aims to stimulate market development for resources recovered from e-waste and/or enhance local capacity and capability to manage e-waste onshore (where appropriate). ► Other scheme manager responsibilities could include working with industry/regulators to develop health and safety guidelines for e-waste management activities e.g., storage and transport etc. (all e-product categories). ► Need to also consider including Individual Producer Responsibility (IPR) options under Option 2where producers run their own collection and treatment programme but are still required to join a product stewardship organisation and contribute financially to scheme education and awareness activities, monitoring and reporting etc. We are supportive of IPR options. ► There is also a key role for the scheme manager to work with the New Zealand market and establish a national scheme collection and service network. ► There is also a role for coordinating and/or managing repair and refurbishment activities - ensuring certification and extended product warranties for repair and refurbishment	► Examples of market development funds for other product stewardship schemes for priority products e.g., tyres under Tyre Stewardship Australia.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			agents participating in the scheme and/or diverting volume from recycling through scheme collection points. ► Single entity set up with suitably experienced resources to promote and invest in the sharing economy, reuse, repair networks, spare parts recovery. Advocate for green procurement practices, circular consumption, better design. Build product tracking provenance systems.	
Performance standards, training and certification	Under a reuse focus, mandatory certification could be required for: 1. E-product repairers and resellers 2. E-waste recyclers 3. E-waste recyclers and transporters 4. E-waste recyclers, transporters and collectors 5. No mandatory certification requirement.	**Stakeholder survey** ► 21% of respondents supported requiring all scheme participants to achieve certification/compliance against a standard such as AS/NZS 5377. **Consumer survey** ► A scheme should adhere to existing rules and regulations by MfE. **International research** ► No scheme has mandatory training requirements to undertake operational activities associated with a scheme's delivery. **Initial CEN Feedback** ► Standards need to cover all aspects - ethics, hazardous materials, handling, storage etc as per AS/NZS 5377 or similar. ► It is likely that those paying for the scheme would insist on a high degree of compliance with standards by recovery actors as poor recycling techniques by recovery actors in the scheme could see them face reputational risks to their brand.	► A combination of options 1 and 2 is preferred; however, we need to fully understand market readiness and market impacts should certain standards become mandatory for e-waste recyclers, repairers and refurbishment agents. ► Could consider making a range of standards available to participate in the scheme for e-waste recycling, repair and refurbishment e.g., AS/NZS 5377:2013, AS 5377:2020, R2, E-Stewards, WEELABEX etc. ► Also need to consider if we will recommend a requirement for certifying bodies to be accredited themselves e.g., independent JAS-ANZ certified inspection bodies. ► Could also consider have a lead in period e.g., 12-months, for e-waste recyclers, repair and refurbishment agents to obtain standard certification. If standards are set which cannot be immediately met by a large section of the recycling or repair market, this could derail the operational success of a scheme from the outset. ► Need to ensure that any e-product repair or refurbishment activities are undertaken safely and in an environmentally sound way e.g., managing residual e-waste components	► Independent assessment of current installed and future planned recycling, repair and refurbishment capacity for all e-product categories and market readiness to meet selected standard requirements. ► List of certifying bodies and available auditors in Aotearoa New Zealand to various standards e.g., Global Compliance Certification have a local auditor who can certify recyclers to AS/NZS 5377:2013. ► New Zealand e-waste collection network assessment to understand compliance with appropriate standard(s) e.g., AS/NZS 5377:2013 and the amount of government grant funding required to deliver non-regulatory support. ► Existing standards may not be sufficient for every step required. If we need new or updated standards to fit what we need then we should highlight that and be specific about what is needed.

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		► Having mandatory standards would push up administration costs for the scheme. ► The scheme would need to set who would be issuing the standards certification and the audit process to ensure that actors are meeting the requirements of the scheme. ► Having mandatory standards may disadvantage small market players and prevent them from joining the scheme. **One-on-one discussions** ► Recycler - No specific standards or code of practice that they impose on their members due to the impact of RMA consenting requirements varying from being able to comply with a nationwide blanket standard requirement. ► International discussions - Only recycling activities have mandatory requirements to be certified to an industry standard. However, some of the industry standards also have sections addressing collection and transport activities.	and materials. Also, that the e-product is safe for extended use. ► Option 3 is not recommended - creating additional barriers for logistics providers to participate in scheme operations may reduce the number of providers available to service the scheme if certain standards are made mandatory. ► Note, transporters have a legal obligation under NZ transport laws i.e., Land Transport Act 1998, to promote safe road user behaviour and vehicle safety. ► Option 4 is not recommended - over and above the comments regarding scheme logistics providers above, e-waste collectors are highly unlikely to meet collection and storage standard requirements e.g., Territorial Authority transfer stations, and a non-regulatory infrastructure support funding may be required to lift current practices in line with best practice standards. ► Option 5 should not be considered - standards should be required for recycling, repair and refurbishment activities at a minimum. ► R2 standard covers testing, reuse, and data destruction. ► None. Standards need to exist for every part of the life cycle from collection, repair, reuse, recycle, transportation, and even landfilling (as it will be a journey until we can keep everything out of landfill). ► AS/NZS 5377 standard would be acceptable.	
Targets, monitoring, compliance and enforcement	Three targets: 1. Total amount of e-products (by weight) collected by the scheme broken down into products which were repaired/reused	**Stakeholder survey** ► 21% of respondents supported a total weight of e-waste collected and processed under the scheme.	► Product recovery targets: It is recommended that a repair and reuse scheme commence without product recovery targets based on POM data/expected life cycle projections and start by recovering all e-waste arisings in Aotearoa New Zealand.	► Independent assessment of current installed and future planned treatment capacity for all e-product categories.

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	2. Total amount of e-waste (by weight) that was recycled under the scheme 3. Percentage of the total waste collected that was repaired or reused. Compliance: ► Signified by labelling on e-product and/or blockchain implementation for e-product tracking.	► 21% of respondents supported recording the product type/categories collected and processed under the scheme. ► 19% of respondents supported a target which considered the percentage of total material collected that was able to be reused, recycled or otherwise repurposed. **Consumer Survey** ► The top three data points consumers want the scheme to disclose are: ► Total volumes of e-waste collected, recycled and disposed of under the scheme ► Percentage of the total material recovered for reuse through recycling activities ► Number of sites for e-waste collection, processing, recycling, involved with the scheme. **International Research** ► There are two main scheme targets that underpin the objectives and intended outcomes of a program or schemes delivery: e-product collection targets (tonnes) and material recovery targets (percentage). ► One scheme has a reasonable access target, which is most suited to jurisdictions with large transport distances to cover. ► One scheme has preparation for reuse targets that apply to large equipment and small information technology and communication equipment.	► After a suitable period of time e.g., the first formal scheme review, and using the scheme's operational data, this aspect could be reviewed and updated as appropriate. ► If product recovery targets are set too low, we run the risk of over collecting and the potential to halt collections - this has occurred in international schemes and is something Aotearoa New Zealand should be weary of. ► If product recovery targets are set too high, we run the risk of not being able to collect enough products to meet the target which could lead to enforcement activity and non-compliance penalties - this issue is playing out in Europe at the moment, particularly on the back of global market impacts from the COVID-19 pandemic. ► Material recovery targets: A repair and reuse scheme design should set material recovery rates for all e-products and e-waste recovered through the scheme at a minimum. ► These targets should match both local and available offshore recycling market capability, should be product category specific (or even product stream specific - in some cases) and be scaled, increasing over time - or regularly reviewed for effectiveness in line with best practice capabilities. ► The role of energy from waste in meeting or contributing to material recovery targets set need to be discussed and decided on as part of the recommendations package - Note: There is limited energy from waste treatment options for e-waste products and components in Aotearoa New Zealand at present; however, offshore markets may apply this treatment approach for downstream recycling activities. ► If energy from waste is an acceptable material recovery target treatment approach, it should only be for products and materials where all	► Examples and evidence of international schemes operating without product recovery targets. ► Review UNITAR Report that assesses identified difficulties in meeting product recovery targets for EU members. ► Investigation of product labelling interventions, particularly for e-products imported into Aotearoa New Zealand. ► Much more work is needed to define targets.

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		► Targets are typically informed by e-product POM data either for individual product categories or across the full scope of products included, and in some cases, they can be scaled, increasing over time. **Initial CEN Feedback** ► Recovery targets are needed by product category otherwise the metrics are very blunt and will have a limited ability to tell how the scheme is performing. ► This metric helps to incentivise repair and reuse (target 1). ► This set up will help to produce the data to show how the scheme is performing. ► The greater the number of targets, the greater the effort and cost of gathering the data and analysing it. ► There should not be any targets for reuse as this is not economical for some product categories. ► Labelling is a good idea but can bring a whole new level of complexity to the scheme due to the level of technological change that will occur between when the product is sold and when it reaches the end of its life. ► If participation in the scheme is mandatory, all products would be included so labelling would be on all e-products, which raises the question of if it is necessary. ► Need more insight as to what would be on the label.	higher order waste management activities and options have been exhausted. ► Product repair and reuse targets: It is recommended that repair and reuse scheme commence without product repair and reuse targets and start by diverting as much e-waste for repair and reuse that is possible and financially viable. ► Reuse targets are problematic, as the number of products arising from the waste with a potential to be resold is very small, even in industrialized countries (<0.5%). ► After a suitable period of time e.g., the first formal scheme review, and using the scheme's operational data, this aspect could be reviewed and updated as appropriate. ► We need to also address whether liable party obligation would transfer from a producer, importer, distributor, retailer etc. to a product repair agent if a product's life cycle is extended. We would also need to account for volume diverted for repair and track this as 'leakage' with respect to scheme product recovery targets (if these are set). ► Spain is the only jurisdiction assessed in the international research with preparation for reuse targets in place and these only apply to large equipment (category 4) and ICT equipment (category 6). The point of distinction between direct reuse and preparation for reuse is made around the disposal action from the e-product owner. If the e-product is unwanted and is disposed of in a scheme collection point but is still in good working order, then it can be diverted by a programme collector from recycling channels and treated for reuse. If the unwanted e-product is still in good working order and is gifted or donated for direct reuse, then the e-product does not meet the criteria for this	

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		► Labelling should be applied by the producer not at the point of sale. **One-on-one discussions** ► Recycler - Align data collection with trade codes used for export of raw materials. ► Producer - Fine to put a label on a product but the reality of that is that label will likely come off long before recycling occurs or the information by end up being obsolete.	target. It was noted in consultation with Spanish product stewardship organisation Ecotic, that it can be difficult to verify this point of distinction and the two e-product categories where these targets apply were determined by Spain's Ministry for the Environment. ► Product labelling would be a good complementary scheme aspect, particularly around a product's life cycle management requirement and raising awareness around scheme availability. However, we need to fully understand at what point in an e-products life cycle this type of intervention would take place, especially as many e-products are imported into Aotearoa New Zealand. Also need to consider embedded e-products e.g., e-products with batteries. ► Blockchain solutions have a wide range of applications that should be considered in the scheme design process. ► It allows a systems approach to define roles/responsibilities and for a broad range of service providers to sign up for various tasks. ► Even if a repair and reuse scheme is not the most circular option in design, this type of approach could bring a unique and technologically advanced way of managing a product stewardship system that can enhance over time. ► Blockchain applications could also be used as an effective tool for tracking and monitoring conformity with various scheme compliance aspects for the scheme manager(s). ► If recycling is part of a repair and reuse scheme, recovery targets in units (not weight) by major product types + total units repaired and reused by major product types. These numbers can be a percentage of products put on the market. Also capture average product	

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			age if through better labelling/radio-frequency identification (RFID) available at end-of-life. ► Option 3 is odd. Why would waste collected be repaired? Repair keeps products in-use, preventing them (delaying them?) becoming waste. Need to measure how much is being kept in-use through longer durability and more repair. Ideally, you'd want to see waste collected reduced because less is reaching end-of-life. ► There could also be prevision made for working parts harvested and reused/sold.	
Design for environment	Product design not considered. Product reuse/repair prioritised over recycling to reduce unnecessary wastage of usable products to recycling processes. Recovered material from both repair and recycling reuse focus to be used in new EEE products or other high-quality products.	**International research** ► Design for environment legislation should probably be separate from a product stewardship scheme. However, repair (performed in Aotearoa New Zealand) should be an allowed treatment method under the product stewardship scheme and a standard in place.	► Design for recyclability/disassembly (no composites, glues, screws) or repair (modular). ► This is where a repair and reuse scheme design doesn't feel right. It wants more repairs but doesn't consider product design - which is essential to enable repair. There is a soft argument that measuring repair drives better design, but why wouldn't you require it instead? ► Agree it's not acceptable. We need to ensure that e-products are designed to be more robust, upgradable, longer life and repairable.	
Right to repair	Repair is prioritised over recycling through the development of a national repair network which is governed by the scheme. While repairability is not mandated in product design, it does require producers/OEMs to endorse and provide support for the national repair network. Products repaired through the national repair network are eligible for warranties on repaired parts.	**Consumer survey** ► Widespread support for improving reuse through manufacturing improvements and improving public awareness. **Initial CEN Feedback** ► Any scheme should take account of repair and reuse. ► Repair performed in Aotearoa New Zealand should be done through an allowed treatment method under the	► The national assessment of e-waste services has indicated a growing number of e-product repair and refurbishment agents in Aotearoa New Zealand; however, the 'national network' is not far-reaching, nor are repair and refurbishment services available for all e-product categories (mostly for categories 6 - large equipment and 4 - ICT equipment). Further, repair activities do not currently take place in Aotearoa New Zealand for lamps (category 3) or small-scale batteries (category 7).	Repair needs to be accessible, industry training set up etc. It does not need to be governed by the scheme.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
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		product stewardship scheme and have a standard in place. ► Having this in the scheme would help to encourage design for repairability. ► Repair by third parties sometimes means that producer warranties no longer apply. ► Repair might not be appropriate for all e-waste; it depends on the value of the e-product and what it is. ► Good to support but this should not be part of mandatory scheme. **One-on-one discussions** ► Producers - Qualified repairers in Aotearoa New Zealand are getting older and not being replaced by younger technicians. This presents both a challenge and opportunity for a national repair network. Without investing in training there will be no one to repair the items in Aotearoa New Zealand. However, by investing in training, there is an opportunity to create new jobs in Aotearoa New Zealand. ► Producers - Aotearoa New Zealand cannot dictate producers/market to design products for repair/durability. If producers are required to meet regulations that they deem uneconomic/too costly, they may exit the New Zealand market. The New Zealand market size on its own is usually not worth the investment.	► Market investment and capability up-skilling would be anticipated and could be aided with government funding support, leading to the creation of 'green jobs' in Aotearoa. ► Need to consider feasibility and legality of requiring producers to make spare parts, tools, repair manuals, and diagnostics for out-of-warranty repairs available to repair and refurbishment providers and/or consumers (where appropriate). ► Another focus of education and awareness for Option 2could also be placed around recycling, repair and refurbishment activities - the aim would be for e-waste recyclers and repairers to provide advice back to producers around the treatment process i.e., identify hard to manage materials, technical barriers to e-waste separation and opportunities for life cycle design improvements that support material recovery and recirculation - this could be coordinated and facilitated by the scheme manager(s). ► Extended product life cycle warranties may also need to be offered by repair and refurbishment providers to ensure a safe and sufficient extended e-product life cycle. ► Some of our members are part of the Australian Information Industry Association (AIIA) Group who have submitted comprehensive feedback on the Australia Productivity Commission's inquiry into right to repair - please refer to the accompanying attachment and group feedback on the following topics, Definition needed for 'repair', Barriers to Repair, Consumer Guarantees and other consumer right under ACL, Competition Issues in Repair, Intellectual Property Protections, "Planned" product obsolescence, Repair Issues for e-waste and Possible Policy options.	

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			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► Warranty repairs are taken care of by existing OEM service centres. Encourage set up of trading networks for spare parts to cater to out of warranty repair and online "how to fix" platforms. This will lower beyond economic repair thresholds. ► Another problem with this approach. It considers repair to be the ideal (only) solution. Repair assumes e-products become faulty. The first step is good design to prevent failures, then to allow repair for those that occur. Both steps are needed to make e-products durable and stay in use. Tackling just repair misses the wider picture. ► Extended warranties on e-products to attract a reduced recycling charge might get producers\OEMs to support a national repair network. ► Do we know that e-products are actually repaired under warranty? I imagine much of it isn't and the item will be binned and replaced. ► A national repair network is needed but why should it be governed by the scheme? The standards it meets should be mandated but we're not proposing that recycling operations are governed by the scheme, so why repair. We need right to repair legislation enacted.	
Education and awareness	► Education campaign for consumers and school children - what are our electronics made of, their potential harm to the environment, the opportunity, how we can play our part. ► Educational campaigns would seek to raise awareness amongst consumers about the negative impacts of early disposal of functional e- products. Support and examples of how to improve the life of their electronic products is	**Consumer survey** ► Several comments highlighted the need for any scheme to have a proper education and awareness campaign behind it to highlight the existence of the scheme along with locations, products and costs involved with it. One suggestion included using a similar advertising campaign as the one used in the general election when the scheme is initially set up.	► Any scheme education and awareness campaign should be consistent across Aotearoa New Zealand, regardless of the number of scheme managers. ► A clear and consistent community campaign will ensure good understanding of the potential impacts of e-waste, why we should manage our e-waste responsibly, how to access certified/accredited repair agents, the roles and responsibilities of different actors, the benefits associated with environmentally sound e-waste	

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	provided at purchase or at disposal (e.g., ways to charge batteries to extend their life). ► Awareness campaign for how scheme works, what consumers and businesses need to do. ► Awareness campaign for other scheme actors on what the requirements will be.	**International research** ► Education and awareness programs are important to achieve scheme participation by the community and industry. ► Specific resources are allocated by product stewardship organisations and scheme regulators for this activity, and for some jurisdictions this is mandated. ► Nationally consistent messaging is important, especially where there are multiple product stewardship organisations, to prevent consumer confusion over which products are accepted by a scheme and how they are managed. **Initial CEN Feedback** ► Education is an important part of ensuring longer e-product life cycles. ► Not the best way to improve longevity and repair as consumers are often unable to do much due to the e-product design. The emphasis of this aspect of the scheme should be on producers. ► Education is a nice to have but surveys already show that this is not a problem for New Zealanders, the vast majority know what is right and wrong. ► The scheme will need a large investment in advertising to get public awareness and behaviour change.	management, scheme access points and scheme performance. ► There should also be a range school specific awareness campaigns targeted at different age groups that aligns with the five key competencies of the national school curriculum. ► Another focus of education and awareness for Option 2could also be placed around recycling, repair and refurbishment activities - the aim would be for e-waste recyclers and repairers to provide advice back to producers around the treatment process i.e., identify hard to manage materials, technical barriers to e-waste separation and opportunities for life cycle design improvements that support material recovery and recirculation - this could be coordinated and facilitated by the scheme manager(s). ► Include targeted education and awareness aspects around safe e-product repair, donating unwanted e-product in good working order and product safety testing for reuse/extended life cycles. ► General public education around unsustainable consumption and how it relates to affecting the climate (manufacture and use of products account for 50% of emissions). ► Education for consumers needs to focus on how to repair. ► Education should not pin the need for behaviour change solely at the feet of the consumer. The producers, retailers and importers of these e-products need to be targeted. ► Consumer education is needed but it isn't sufficient on its own.	

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Regulatory Implications	► Regulatory actions should be designed to ensure e-waste does not end up in landfill and that electronic products have an extended life through repair and reuse. ► Likely/possible WMA act levers to be used: ► Control and prohibition of disposal for e-waste ► Setting of payable fees depends on the type of product ► Implementation of standards to be met when recycling and repairing ► Required collection of information and reporting.	**International research** ► Financial support was available for developing collection and recycling infrastructure at the start of many schemes. ► Most ongoing support from government is used to fund general research and development programmes.	► Having a funded e-product stewardship scheme that covers the cost for end-of-life management and coordinates e-waste diversion for reuse or repair will significantly increase e-waste landfill diversion. If this scheme design approach was underpinned by a national e-waste landfill ban, this would ensure the intended outcome of this approach could be achieved. ► All other WMA levers listed would ensure a repair and reuse scheme is effective in achieving the intended goal i.e., no e-waste to landfill and extended e-product life cycles through repair. ► Product labelling may be a good complementary scheme aspect, particularly around a product's life cycle management requirements, repair options and raising awareness around scheme availability. However, we need to fully understand at what point in an e-products life cycle this type of intervention would take place, especially as many e-products are imported into the New Zealand market. Also need to consider embedded e-products e.g., e-products with batteries. ► There's a loophole in the Consumer Guarantees Act that needs to be fixed. Currently, producers can opt out of their obligations providing parts or repair if they make it known up front. Regulations need to stop this if repair is going to be a focus of a scheme. ► Agree with above.	► Investigation of product labelling interventions, particularly for e-products imported into Aotearoa New Zealand. ► Investigation of mandating producers to make spare parts, repair tools, repair manuals, and diagnostics for out-of-warranty repairs available to repair and refurbishment providers and/or consumers (where appropriate). ► Analysis of CGA considerations with respect to e-product repair and refurbishment activities.

Option Three: Circular Ambition

Table 16 - Option 3 feedback

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Overarching objectives for any scheme	1. Minimise social and environmental harm from product disposal and handling. 2. Shared responsibility. 3. Fair and consistent with no free rider. 4. Financially sustainable.		► A circular ambition scheme would minimise social and environmental harm compared with business as usual arrangements; however, not all e-products are suitable for repair, refurbishment or reuse. Defining liable parties clearly with specific roles and responsibilities e.g., financially contributing to a circular scheme design option, would see responsible e-waste recovery and management significantly increase in Aotearoa New Zealand. Proactive and preventative action is always preferred over reactive remedies to product life cycle impacts and market failures; however, market impacts of this approach need to be fully understood in the next phase of stakeholder consultation once this option has been refined across the CEN. ► A circular ambition scheme would create a clear and consistent system of shared responsibility for all defined actors and provides genuine options to incentivise more circular product design and life cycle management. ► A circular ambition scheme would ensure that product stewardship scheme participation is fair and consistent for all defined actors. We need to also address whether liable party obligation would transfer from a producer, importer, distributor, retailer etc. to a product repair agent if a products life cycle is extended. We would also need to account for repaired volume and track this as 'leakage' with respect to scheme product recovery targets (if these are set). Extended product life cycle warranties may also need to be offered to ensure a safe and sufficient extended e-product life cycle.	► An accurate timeline around EU's investigations to design eco-modulated fee approaches to enhance the EU's extended producer responsibility system for WEEE. ► An independent assessment of the average end-of-life management costs for e-product categories 1 - 7 to inform the design of the scheme's funding framework e.g., $x/per kg (collection, storage, transport and treatment). ► Proposed roles and responsibilities for all actors proposed to have mandated obligations. ► Analysis of CGA considerations with respect to e-product repair and refurbishment activities. ► This needs to be where we want to get to. One big issue is how do we get there and how quickly? What do we focus on and how do we lay out that journey and ensure that it is fulfilled? The focus has to be on circular - anything less is linear; you can't have an almost circular economy/system. I think our design needs depth and a lot of detail to back it up and explain our thinking. I think we are miles away from being in that position. I'm keen to understand and agree upon what we are aiming to put

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			► A circular ambition scheme provides several scheme funding options that are viable and financially sustainable. The development of a fee eco-modulation approach is likely to bring about effective stewardship interventions from the top of the waste hierarchy; however, measurable criterial that is supported by a robust evidence base is essential. Further, modulated fee criteria must be defined in close consultation with the relevant stakeholders, and in particular with producers and there needs to be sufficient lead-in time for producers to adapt their processes. ► Prefer a circular ambition scheme over recovery and recycling, and repair and reuse scheme design options if it addresses the various areas in recovery and recycling, and repair and reuse schemes. ► I much prefer this scheme design option. It's the only one that captures all responsibility fairly. ► This has to be the scheme design option taken. I'm not sure why we are even considering the other approaches seriously. Put them on the table and then take them off. Move on. ► What is meant by shared responsibility? That needs to be spelled out. It needs to be shared between the producers and consumer, with the emphasis on the producer building well-designed products. ► The other overarching objective is to build and improve on existing 'good' services. Let's not build a whole new opportunity for big business to come in and take our jobs away from our communities and make money for their shareholders. ► Support this scheme design option only.	forward to MfE so that we can discuss if that is really what is needed. I think we need real details that can be discussed with stakeholders so that they and the CEN can be sure that we have a robust design to put forward. I think we need to review where we are and how best to proceed.

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Intended outcomes	1. No e-waste to landfill. 2. Extended life. 3. E-waste is eliminated through design - materials and methods selected for durability, repairability, recyclability.		► Having a funded e-product stewardship scheme that covers the cost for end-of-life management activities will significantly increase e-waste landfill diversion in Aotearoa New Zealand. If this scheme design approach were underpinned by a national e-waste landfill ban, this would ensure the intended outcome of this approach could be achieved. ► A circular ambition scheme will contribute to extended e-product life cycles through repair, refurbishment and reuse activities; however, not for all e-product categories. The national assessment of e-waste services has indicated a growing number of e-product repair and refurbishment agents in Aotearoa New Zealand; however, the 'national network' is not far-reaching, nor are repair and refurbishment services available for all e-product categories (mostly for categories 6 - large equipment and 4 - ICT equipment). Market investment and capability up-skilling would be anticipated and could be aided with government funding support. This would lead to the creation of 'green jobs' in Aotearoa New Zealand. ► A circular ambition scheme provides genuine options to incentivise more circular product design and life cycle management, especially if a fee eco-modulation approach is developed; however, even if there are rewards for good design for environment aspects and penalties without, this does not guarantee that e-waste will be eliminated through design. This will ultimately be a decision for the respective liable parties, primarily producers, and we could see certain producers exit the New Zealand market if this type of model is progressed. As above, the market impacts of this approach need to be fully understood in the next phase of	► Process and timeline (in the context of the options co-design process) to design and implement a national e-waste landfill ban - including non-regulatory support measures required e.g., infrastructure grant funding, education and awareness campaign. ► Independent assessment of current installed and future planned e-product repair and refurbishment capacity for all e-product categories and market readiness to meet selected standard requirements. ► Producer feedback on Option 3and potential eco-modulation funding model and corresponding impacts to the New Zealand market.

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			stakeholder consultation once this option has been refined across the CEN. ► The key point here is the design of products. Recycling alone is the minimum we can do (and not enough), repair is better, but to make products durable and repairable, we need to include design. ► Agree with comment above. Design has to be the focus followed by option 2. Extended life should be an outcome of design.	
Fees, funding and cost effectiveness	Fee applied at a single point. Single point options discussed are: 1. Import based: a fee based on import data for each new product placed on the market which funds end-of-life activities 2. At the till: fee included in the sale price, like GST 3. Volume based: producers pay a fee based on the volume of their products recovered at end-of-life 4. At collection point: consumers pay a fee when dropping their old item off for recovery.	**Stakeholder Survey** ► 33% of respondents supported an upfront levy on the producer applied to the products placed on the New Zealand market. ► 26% of all survey respondents supported the application of a VBF on producers. ► 25% of respondents supported a fee or levy applied to the party offering the product for sale in Aotearoa New Zealand. **Consumer survey** ► An upfront levy/fee on the producer is the most preferred option across all three demographic markers (age, location, income level). ► There was support for a fee placed on those selling the product in Aotearoa New Zealand, but it was not as high as for a fee on the producer. **International research** ► Overall, there are two main scheme funding models: advanced disposal fees and product recovery and recycling fees.	► The preferred funding option will greatly depend on the targets that are set for the scheme's operation and performance. ► Another consideration that is relevant here is what scheme costs would be covered e.g., collection, storage, transport, treatment, scheme management, education and awareness, market development etc., and this should be proposed for all approaches. Further, repair and refurbishment activities should be market/consumer driven and not funded as part of liable party obligations or mandatory financial contributions. ► If it can be avoided, the regulations should not prescribe a pricing model, especially when most IT companies and large producers have waste management expertise. It should be up to the scheme manager(s) to decide what pricing model they offer. ► There are provisions in the WMA for option 1 (section 24 requires the NZ Customs Service to provide information about priority products); however, if this is the preferred funding model (for any approach) there needs to be special considerations under this option for e-products with long life-cycles and limited treatment pathways at present e.g., PV panels.	► Profile and register of local e-product producers and online e-product retailers including e-products POM and current market share in Aotearoa New Zealand. ► Examples and evidence of international schemes operating without product recovery targets. ► What legislation do we need to ensure that e-products that are badly designed for longevity, use of materials, human rights of workers, etc. are actually not allowed into the country? We don't want all the bad e-products ending up in Aotearoa that is not allowed to be sold in other (more onto it) countries.

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		► In some jurisdictions a blend of these two funding models is used for different e-product categories and corresponding programmes. **Initial CEN Feedback** ► Applying at the border is considered a clean way of collecting the funds for the scheme as we import just about all of our electronics. ► Gathering scheme funds up front is seen as a cost-effective way to collect funds for the scheme. ► Should a fee be applied in advance of disposal for certain products that have a long life and limited recycling ability e.g., PV panels? ► Balancing the need to raise funds for the scheme while incentivising the intended behaviour. ► Regardless of the basis of calculating the fee, it will ultimately see consumers pay - needing awareness and education so consumers feel okay about that fee. ► Also need an awareness campaign to ensure users don't think it's just one producer or retailers raising their prices. ► Fees on producers don't incentivise users to recycle as significantly as user deposit/refund schemes. ► Support the idea of making the fee clear at the point of sale - it allows consumers to see there is an end-of-life cost to buying e-products. ► Could argue that consumer-pays option will encourage consumers to look for better e-products thereby driving consumer change.	► If ASFs are applied to PV panels placed on the market now, the true end-of-life management costs are likely to be very different to ASFs set once the product enters Aotearoa New Zealand's waste stream. ► We need to also factor in that not all e-products are imported into Aotearoa New Zealand and there are local manufacturers and online providers to account for. ► Also, we would expect that there will be a mix of self-reporting from liable parties and validation activities led by the scheme regulator under this option. ► Option 2 is not recommended - although fixed visible fees at the point of sale can be used as an effective educational tool to raise consumer awareness around a scheme's availability, this could result in rigid pricing structures for end-of-life management activities that do not accurately account for or keep up with actual market costs. It was also noted in the international research that the United Kingdom experienced major resistance for this funding approach stating that it could lead to unrecoverable administrative costs, serious issues around market competition and severely impact the way they market and price their products. ► Option 3 - If there is no product recovery target set for the scheme's performance (especially in the first few years of the schemes operation) and producers are obliged to cover end-of-life management costs for all e-waste generated, then funding option 3 may be more appropriate and better suited to this type of scheme structure. However, please note, it would not be practical to charge liable parties based on the brand of each e-product recovered for recycling. At present, e-	

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		► Retailer based fees result in a lot of administration for retailers and can lead to inconsistent results. ► If the fee structure doesn't encourage reuse and repair first, then all collection is going to default recycling. ► A VBF would be an excellent approach if it differentiated between those products that were repaired first before they were recycled. **One-on-one discussions** ► Electronic retailer - Important we are not seen as more expensive than other sellers- if a levy is applied it needs to be on everyone. ► Producer - Do it at the point of sale so it doesn't look like the producer/brand is raising its prices. ► Producer - Levy at the border is likely the simplest/ cheapest way to collect and transfer the funds. ► Producer - Need to ensure Aotearoa New Zealand does not become too expensive for electronics then the customers may end up shopping on overseas websites where it is cheaper even including shipping. There needs to be either a balance of pricing or strengthen customs to ensure that items bought overseas are still captured upon entering Aotearoa New Zealand. ► Climate Control Association - The hydrofluorocarbons scheme applies a $1 levy per kg of refrigerant gas imported to pay for recovery activities. Captures almost all imports.	products are recycled without separating products by brand. This will be expensive to track and measure and would likely increase recycler service rates in the New Zealand market. ► Option 4 as a completely consumer paid option will not ensure e-waste diversion from landfill or extended e-product life cycles. End-of-life management costs that sit wholly with consumers will be a major barrier to scheme participation. This option is unlikely to attract government and community support in the next phase of co-design and options assessment. ► The fee needs to recognise e-products that are more durable and repairable. If the aim is to improve design, the fee needs to include this. Potentially it could be linked to warranty period or a labelling of product lifetime or repairability. That's much harder to implement than a flat fee for waste - but nothing gets solved by choosing the easiest option. ► We need to ensure that consumers are protected by right, and that sale of extended warranties is outlawed, they should not need them. ► Option 3 funding option 2 could be the way that consumers have the visibility of the costs to them of the scheme, but I believe option 1 is the best for capturing all goods. Need to allow for e-products that are developed here because ultimately, we should be creating a scheme that can cope with manufacturing here for some e-products. ► Import based. Aligned with the Battery Industry Group scheme design too.	

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		► Multiple stakeholders - Applying at the point of collection would act as a disincentive, discouraging recirculation of items. ► Multiple producers and retailers - Margins are squeezed already and raising cost of doing business here could push some producers to exit the market.		
	Eco-modulation approach with reduced levy for good practice/e-product design, and vice versa.	**International research** ► Fee eco-modulation is a relatively new funding approach where those deemed liable provide scaled contributions for a programme or schemes operation, modulated on the basis of environmental criteria linked with a products life cycle management requirements. **Initial CEN Feedback** ► Significant CEN support for eco-modulation as a way to influencing eco design in e-products. ► Having eco-modulation incentivises more durable e-products leading to less e-products needing to be imported unless a producer is attempting to grow their sales volume. **One-on-one discussions** ► Product Stewardship Sector Group member - Rewarding producers who are moving product design to circular approach and more durable products will encourage others. ► Producer - Aotearoa New Zealand cannot influence producers as our market is too small. We have to follow what the rest of the global market is doing.	► The development of a fee eco-modulation approach may bring about effective stewardship interventions from the top of the waste hierarchy; however, measurable criteria that are supported by a robust evidence base is essential. Further, modulated fee criteria must be defined in close consultation with the relevant stakeholders, and in particular with producers, and there needs to be sufficient lead time for producers to adapt their processes. ► Modulation is a new concept to reward design for environment. No broad evidence showing the impact to motivate producers and the efforts required is available. Some of our members are sceptical if "modulation" is the right way to reward design for environment, especially with other international legislation and ecolabel standards in place influencing design for environment (e.g., RoHS, EPEAT). No major differences in the recyclability (cost) of equipment (of a similar e-product category) can be seen in current e-products. As a result, the criteria used to "modulate" are often based on academic exercises with no or low connection to operational practices. In France, where "modulation" has been in place for several years, authorities are using elements from outside waste management (e.g., warranty duration, repairability) as criteria. It can be expected that, at least outside of the EU, countries will set their own	► An accurate timeline around EU's investigations to design eco-modulated fee approaches to enhance the EU's extended producer responsibility system for WEEE. ► Determination of what e-waste categories and/or streams are considered 'high-risk' due to the material make-up and potential impacts to human health and the environment - if not all. ► The development of fee eco-modulation criteria linked with a product's life cycle impacts in consultation with producers.

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		► Recycler - Eco-modulation can come into play with certain e-products after a scheme has been established. There isn't the need for a blanket eco-modulation approach as some products (e.g., fridges and freezers) are already well serviced by recycling and repurposing activities.	bonus/malus criteria, impacting the administration effort to implement "modulation". Differences in take back cost of design for environment/non-design for environment e-products are minimal, and cost advantages may be lower than the cost to administer the "modulation". ► Fee eco-modulation provides genuine incentives for more circular e-product design and life cycle management; however, even if there are rewards for good design for environment aspects and penalties for e-products without, this does not guarantee that e-waste will be eliminated through design. This will ultimately be a decision for the respective liable parties, primarily producers, and we could see certain producers exit the New Zealand market if this type of model is progressed. As above, the market impacts of this approach need to be fully understood in the next phase of stakeholder consultation once this option has been refined across the CEN. ► This is needed. We can have influence in global design. Our producers and retailers can choose better products. They can offer repair and parts at a reasonable cost. This is also the way the world is moving. If we don't do this, we will be the dump for e-products that can't be sold in other markets. ► We also need to put legislation in place to stop the bad e-products coming into the country. ► This approach. If only one other country has done it, then we can help lead this trend.	
Governance	MfE expectations product stewardship guidelines state that a scheme should be governed by a not-for-profit entity; however, management of this entity could be governed by:	**Stakeholder survey** ► 32% of respondents supported a single national not-for-profit.	► Option 1 is preferred - given the size of the New Zealand market multiple scheme managers may not be necessary or required. ► Requiring not-for-profit status of the scheme manager will ensure that the sole purpose of the entity is aligned with the	► Proposed roles and responsibilities for all actors proposed to have mandated obligations under Option 3. ► Example roles and responsibilities of product

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	1. A single not-for-profit administered by a board of commercial, community, regulatory and environmental interest groups 2. Multiple product stewardship organisations either for or not-for-profit who are responsible for administering some of the scheme 3. Management by local/regional government bodies in their relevant jurisdictions 4. A new/existing government agency managing the scheme nationally.	► 20% of respondents supported a current government agency managing the scheme nationally. **International research** ► For regulated systems, there are clearly defined roles, responsibilities and governance requirements for various actors specified in legislation or scheme design documentation. ► Many regulatory systems also provide options for individual producer responsibility (IPR) approaches whereby those deemed liable (e.g., producers) can opt to coordinate their own stewardship efforts rather than through a product stewardship organisation. ► Governance arrangements for regulated systems are underpinned by regular and transparent reporting. ► Product stewardship organisations also have code of conducts or service provider agreements with standard terms and conditions around ethical business conduct. **Initial CEN feedback** ► The New Zealand market is small enough to be covered by a single entity managing the scheme, additional entities would require work to ensure there is an even playing field between them. ► A new not-for-profit helps to appease consumer desires for transparency and independence from the government/for-profit market players.	objectives and intended outcomes of a scheme/WMA and is likely to ensure transparency. ► Competition can still be ensured via a tender process for recyclers/repairers, transporters and collection sites. ► Option 2 is not preferred, especially if there is no requirement for not-for-profit status. ► A for profit product stewardship organisation, or for-profit product stewardship organisations, could see profit driven motives undermine the scheme's objectives and result in profit driven decisions, rather than those that progress the scheme's intentions and ongoing development over time. ► If multiple scheme managers are preferred, strong scheme regulator enforcement of compliance aspects is essential to create an even playing field for scheme managers. ► A competitive product stewardship organisation structure in Australia has led to market failures where scheme prices set are below cost encouraging non-compliance and instability - two of the co-regulatory arrangements folded in Australia leaving uncertainty and gaps in service access across the country. ► Option 3 is not preferred; however, Territorial Authority representation on a single not-for-profit scheme manager would be a recommended component under a repair and reuse scheme option 1. ► Option 4 would be a suitable option; however, it requires significant resourcing. If an existing government agency was to manage the scheme, MfE would be the obvious part of the environment portfolio to lead this.	stewardship organisations operating international product stewardship and extended producer responsibility schemes for e-products.

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		► Needs to be not-for-profit so that profit generation isn't a driving factor behind scheme decisions. ► Not-for-profits can remain focussed on the best decisions for achieving scheme objectives and outcomes. ► The government can provide oversight of the scheme governance through the WMA product stewardship clauses. **One-on-one discussions** ► Product Stewardship Sector Group - Governance decisions should be based on the ability to deliver the scheme effectively at scale. ► Product Stewardship Sector Group - A newly formed government agency would help to reduce any fear around having a scheme which supports some groups over others. Having a newly dedicated government agency would be useful to go across all types of product stewardship schemes (e.g., tyres, batteries).	► Scheme governance would not sit solely with a scheme manager(s) - the scheme regulator could also have a key role to play for various scheme governance aspects e.g., calculating and assigning liable party obligations, ensuring the scheme operator meets their defined obligations, reporting oversight etc. ► I prefer Option 3 governance option 1. I think there may be a case for multiple schemes on an e-product basis but not on a regional basis. But I'm only thinking that a few e-products could be separated out - such as large batteries. Ideally though one scheme governance body for all e-waste. ► Whether this should be a newly formed government agency as suggested by the WasteMINZ Product Stewardship Sector Group, I don't know. I would prefer a social enterprise model with social procurement as a fundamental policy. ► Same as comments above. Social enterprise model. ► How do we encompass all e-waste sources? E-waste exists in vehicles (in addition to their batteries), how do these other sources of e-waste get incorporated?	
Product stewardship organisation roles and responsibilities	Potential governance body responsibilities: ► Set requirements and standards for scheme participants ► Maintain a registry/ database of participant details ► Oversee the collection and distribution of funds ► Perform monitoring, data collection and reporting on scheme performance	**International research** ► Roles and responsibilities underpinned by regular and transparent reporting. ► Product Stewardship organisations have codes of conduct or service provider agreements with standard terms and conditions around ethical business conduct.	► Depending on the scheme aspects that are to be funded e.g., collection, storage, transport, treatment, scheme management, education and awareness etc., the product stewardship organisation(s) could also manage a market development fund that aims to stimulate market development for resources recovered from e-waste and/or enhance local capacity and capability to manage e-waste onshore (where appropriate). ► Other product stewardship organisation responsibilities could include developing health and safety guidelines for e-waste	► Examples of market development funds for other product stewardship schemes for priority products e.g., tyres under Tyre Stewardship Australia.

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	► Identify instances of non-compliance and facilitate corrective actions ► Implement Communication and awareness raising activities ► Maintain a publicly accessible database / software tool to help people locate the appropriate collection point ► Enforcement powers to use when instances of non-compliance persist.		management activities e.g., storage and transport etc. (all e-product categories). ► Need to also consider including Individual Producer Responsibility (IPR) options where producers are required to join a product stewardship organisation and contribute financially to scheme education and awareness activities, monitoring and reporting etc. However, they can outsource their calculated obligation to appropriate market providers e.g., certified e-recyclers. We are supportive of IPR options. ► Scheme requirements and standards should be set by the scheme regulator; however, the scheme manager(s) should monitor standard certifications and ensure mandatory requirements are met/maintained by all scheme actors with defined obligations. ► Non-compliance aspects and corresponding enforcement functions could be established between the product stewardship organisations and scheme service providers by developing codes of ethical conduct. ► The primary non-compliance enforcement powers should sit with the scheme regulator. ► There is also a key role for the scheme manager to work with the New Zealand market and establish a national scheme collection and service network. ► Coordinating and/or managing repair and refurbishment activities - ensuring certification and extended product warranties for repair and refurbishment agents participating in the scheme and/or diverting volume from recycling through scheme collection points. ► Validating fee eco-modulation for liable parties in line with the environmental criteria established to underpin the eco-modulated fee structure - if this is a scheme feature.	

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			► Industry-wide training needs to be added to the responsibilities. They need to ensure an effective training scheme is developed and a requirement of organisations applying for standards accreditation.	
Performance standards, training and certification	If requirements are placed on certain stakeholder in the e-product life cycle, they must join the scheme manager registry which requires participant to achieve the accepted level of accreditation/certification to provide scheme services. Under a reuse focus mandatory certification could be required for: ► E-product producers ► E-product importers ► E- product retailers ► E-product repairers ► E-product repurposing organisations ► E-waste collectors ► E-waste transporters ► E-waste recyclers.	**Stakeholder survey** ► 21% of respondents supported requiring all scheme participants to join a registry which requires them to achieve an accepted certification/standard level. **Consumer survey** ► A scheme should adhere to existing rules and regulations by MfE. **International research** ► Only recycling activities have mandatory requirements to be certified to an industry standard. However, some of the industry standards also have sections addressing collection and transport activities. ► No scheme investigated has mandatory training requirements to undertake operational activities associated with a scheme's delivery. **Initial CEN Feedback** ► Standards need to cover all aspects - ethics, hazardous materials, handling, storage etc as per AS/NZS 5377 or similar. ► It is likely that those paying for the scheme would insist on a high degree of compliance with standards by recovery actors as poor recycling techniques by recovery actors in the scheme could see them face reputational risks to their brand.	► It is recommended that there are mandatory standard requirements in place for e-product repairers and e-waste recyclers at a minimum. However, we need to fully understand market readiness and market impacts should certain standards become mandatory for e-waste recyclers, repairers and refurbishment agents. ► Could consider making a range of standards available to participate in the scheme for e-waste recycling, repair and refurbishment e.g., AS/NZS 5377:2013, AS 5377:2020, R2, E-Stewards, WEELABEX etc. ► Also need to consider if we will recommend a requirement for certifying bodies to be accredited themselves e.g., independent JAS-ANZ certified inspection bodies. ► Could also consider having a lead in period e.g., 12-months, for e-waste recyclers, repair and refurbishment agents to obtain standard certification. If standards are set which cannot be immediately met by a large section of the recycling or repair market, this could derail the operational success of a scheme from the outset. ► Need to ensure that any e-product repair or refurbishment activities are undertaken safely and in an environmentally sound way e.g., managing residual e-waste components and materials. Also, that the e-product is safe for extended use.	► Independent assessment of current installed and future planned recycling, repair and refurbishment capacity for all e-product categories and market readiness to meet selected standard requirements. ► List of certifying bodies and available auditors in Aotearoa New Zealand to various standards e.g., Global Compliance Certification have a local auditor who can certify recyclers to AS/NZS 5377:2013. ► NZ E-waste Collection Network Assessment to understand compliance with appropriate standard(s) e.g., AS/NZS 5377:2013 and the amount of government grant funding required to deliver non-regulatory support. ► I note the recycler comment in the discussion column. The Resource Management Act, or its predecessor, cannot be used as a reason for not imposing mandatory standards.

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		► Having mandatory standards would push up administration costs for the scheme. ► The scheme would need to set who would be issuing the standards certification and the audit process to ensure that actors are meeting the requirements of the scheme. ► Having mandatory standards may disadvantage small market players and prevent them from joining the scheme. **One-on-one discussions** ► Recycler - No specific standards or code of practice that they impose on their members due to the impact of Resource Management Act consenting requirements varying from being able to comply with a nationwide blanket standard requirement.	► Mandatory standards are not recommended for other actors. ► Creating additional barriers for logistics providers to participate in scheme operations may reduce the number of providers available to service the scheme if certain standards are made mandatory. ► Note, transporters have a legal obligation under NZ transport laws i.e., Land Transport Act 1998, to promote safe road user behaviour and vehicle safety. ► E-waste collectors are highly unlikely to meet collection and storage standard requirements e.g., Territorial Authority transfer stations, and a non-regulatory infrastructure support funding may be required to lift current practices in line with best practice standards. ► If fee eco-modulation approaches were applied for Option 3, the environmental criteria that underpins it could be linked to appropriate standards, certifications or accreditations that result in benefits i.e., reduced scheme fee contributions, for producers manufacturing products with good design for environment aspects; however, this should not be a mandatory requirement. ► This is a circular focus, not just reuse. The top-level standards need to be on what is allowed into the country. ► This is a circular focus section, not reuse. I think we need to move away from considering any electrical items as e-waste. We need e-products to be used for as long as possible or move to a second, third... life. Parts are harvested and put back into the manufacturing cycle.	

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			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► I agree all stakeholders in the product's life from its first life should be required to meet standards, perhaps even the first chain too - I.e., in how they handle returns of products.	
Targets, monitoring, compliance and enforcement	Four targets: 1. The percentage total of products with low scheme fees under eco-modulation 2. Total amount of e-products (by weight) collected by the scheme broken down into products which were repaired/reused 3. Total amount of e-waste (by weight) that was recycled under the scheme 4. Percentage of the total waste collected that was repaired or reused. Compliance: ► Signified by labelling on e-product and/or blockchain implementation for e-product tracking.	**Stakeholder survey** ► 21% of respondents supported a target which captured the types/categories that have been collected and processed as part of the scheme. ► 19% of respondents supported a target which considered the percentage of total material collected that was able to be reused, recycled or otherwise repurposed. **International discussions** ► There are two main scheme targets that underpin the objectives and intended outcomes of a program or schemes delivery: e-product collection targets (tonnes) and material recovery targets (percentage). ► One scheme has a reasonable access target, which is most suited to jurisdictions with large transport distances to cover. ► One scheme has preparation for reuse targets that apply to large equipment and small information technology and communication equipment. ► Targets are typically informed by e-product POM data either for individual product categories or across the full scope of e-products included, and in some cases, they can be scaled, increasing over time.	► Percentage of low scheme fee allocations under fee eco-modulation targets: before this type of target could be considered, the environmental criteria linked with the fee eco-modulation framework would need to be developed. This includes determining what e-waste categories and/or streams are considered 'high-risk' due to the material make-up and potential impacts to human health and the environment - if not all. ► Modulated fee criteria must be defined in close consultation with the relevant stakeholders, and in particular with producers, and there needs to be sufficient lead time for producers to adapt their processes. ► As above, the market impacts of this approach need to be fully understood in the next phase of stakeholder consultation once this option has been refined across the CEN. ► Other requirements may be easier to implement e.g., the weight of e-products reused/remanufactured leads to a reduction of the collection obligation, which is higher than their weight (e.g., twice the e-product reused). The reuse could be led by the producer (e.g., remarketed products) or by cooperating with a remanufacturer. The producer may buy certificates of "reuse volume" for used e-products remarketed by channel partners and or remanufacturers (or other economic players). The revenues from the certificates will help these companies	► Independent assessment of current installed and future planned treatment capacity for all e-product categories. ► Examples and evidence of international schemes operating without product recovery targets. ► Review UNITAR Report that assesses identified difficulties in meeting e-product recovery targets for EU-members. ► Investigation of product labelling interventions, particularly for e-products imported into Aotearoa New Zealand.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		Initial CEN Feedback ► Recovery targets are needed by e-product category otherwise the metrics are very blunt and will have a limited ability to tell how the scheme is performing. ► This metric helps to incentivise repair and reuse (target 2). ► This set up will help the data to show how the scheme is performing. ► The greater the number of targets, the greater the effort and cost of gathering the data and analysing it. ► Labelling is a good idea but can bring a whole new level of complexity to the scheme due to the level of technological change that will occur between when the e-product is sold and when it reaches the end of its life. ► If participation in the scheme is mandatory, all e-products would be included so labelling would be on all e-products, which raises the question of if it is necessary. ► Need more insight as to what would be on the label. ► Labelling should be applied by the producer not at the point of sale. **One-on-one discussions** ► Recycler - Align data collection with trade codes used for export of raw materials. ► Producer - Fine to put a label on a product by the reality of that is that label will likely come off long before recycling occurs or the information by end up being obsolete.	reduce the price of second-hand e-products and make it more attractive. ► Product recovery targets: It is recommended that a circular ambition scheme commence without product recovery targets based on POM data/expected life cycle projections and start by recovering all e-waste generated in Aotearoa New Zealand. ► After a suitable period of time e.g., the first formal scheme review, and using the scheme's operational data, this aspect could be reviewed and updated as appropriate. ► If product recovery targets are set too low, we run the risk of over collecting and the potential to halt collections - this has occurred in international schemes and is something Aotearoa New Zealand should be weary of. ► If product recovery targets are set too high, we run the risk of not being able to collect enough products to meet the target which could lead to enforcement activity and non-compliance penalties - this issue is playing out in Europe at the moment, particularly on the back of global market impacts from the COVID-19 pandemic. ► Material recovery targets: scheme design should set material recovery rates for all e-products and e-waste recovered through the scheme at a minimum. ► These targets should match both local and available offshore recycling market capability, should be product category specific (or even product stream specific in some cases) and be scaled, increasing over time - or regularly reviewed for effectiveness in line with best practice capabilities.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► The role of energy from waste in meeting or contributing to material recovery targets set need to be discussed and decided on as part of the recommendations package. Note: there is limited energy from waste treatment options for e-waste products and components in Aotearoa New Zealand at present; however, offshore markets may apply this treatment approach for downstream recycling activities. ► If energy from waste is an acceptable material recovery target treatment approach, it should only be for products and materials where all higher order waste management activities and options have been exhausted. ► Product repair and reuse targets: It is recommended that Option 3commence without e-product repair and reuse targets and start by diverting as much e-waste for repair and reuse that is possible and financially viable. ► Reuse targets are problematic, as the number of e-products "arising from the waste" with a potential to be resold is very small, even in industrialized countries (<0.5%). ► After a suitable period of time e.g., the first formal scheme review, and using the scheme's operational data, this aspect could be reviewed and updated as appropriate. ► We need to also address whether liable party obligation would transfer from a producer, importer, distributor, retailer etc. to an e-product repair agent if an e-product's life cycle is extended. We would also need to account for volume diverted for repair and track this as 'leakage' with	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			respect to scheme product recovery targets (if these are set). ► Spain is the only jurisdiction assessed in the international research with preparation for reuse targets in place and these only apply to large equipment (category 4) and ICT equipment (category 6). The point of distinction between direct reuse and preparation for reuse is made around the disposal action from the e-product owner. If the e-product is unwanted and is disposed of in a scheme collection point but is still in good working order, then it can be diverted by a programme collector from recycling channels and treated for reuse. If the unwanted e-product is still in good working order and is gifted or donated for direct reuse, then the e-product does not meet the criteria for this target. It was noted in consultation with Spanish product stewardship organisation Ecotic, that it can be difficult to verify this point of distinction and the two e-product categories where these targets apply were determined by Spain's Ministry for the Environment. ► Product labelling would be a good complementary scheme aspect, particularly around an e-products life cycle management requirements, where individual e-products sit on the spectrum of the environmental criteria developed for fee eco-modulation (if relevant) and raising awareness around scheme availability. However, we need to fully understand at what point in an e-products life cycle this type of intervention would take place, especially as many e-products are imported into the New Zealand market. Also need to consider embedded e-products e.g., e-products with batteries.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► Blockchain solutions have a wide range of applications that should be considered in the scheme design process. ► It allows a systems approach to define roles/responsibilities and for a broad range of service providers to sign up for various tasks. ► Blockchain applications could also be used as an effective tool for tracking and monitoring conformity with various scheme compliance aspects for the scheme manager(s). ► What is the data needed for, what will we do with it? We need to be clear about that before we can say what data is to be collected. ► My thoughts on what we need to know as a first cut: ► How long do e-products last? ► Which manufacturers are good, and bad for longevity, the ability to upgrade etc.? Publish the data to consumers? ► What is the reason for them failing? ► How do we influence better design and/or regulation to ensure the bad products are no longer allowed into Aotearoa New Zealand? ► What new products are coming onto the market and what will the standards be for handling them at end of first life? ► What materials are being used that are toxic etc. that we need to remove from future products?	
Design for environment	Eco-design approaches form a key part of the stewardship scheme. Product design is considered as a central element for protecting the environment by removing harmful substances and supporting greater reuse and repair.	**International research** ► In general, design for environment approaches are complementary to extended producer responsibility and product stewardship legislation.	► Fee eco-modulation approaches could be an effective way of stimulating design for environment approaches under Option 3, as reduced recycling costs and associated fees for liable parties can be a powerful incentive for circularity in an e-products design.	► Process, timeline and appetite (in the context of the co-design process) for Aotearoa New Zealand to establish a framework for setting eco-design

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
	Recovered material from repair and recycling reuse focus to be used in new e-products or other high-quality products.	► In Europe, there is an Eco-Design Directive that establishes a framework for setting eco-design requirements for energy-related products. ► It is generally preferable that waste legislation is not used to drive e-product design decisions and that separate legislation specific to eco-design be developed. **Initial CEN Feedback** ► Design for environment legislation should probably be separate from a product stewardship scheme. However, repair (performed in Aotearoa New Zealand) should be an allowed treatment method under the product stewardship scheme and a standard should be in place. **One-on-one discussions** ► Product Stewardship Sector Group - We want to have a scheme that help move us to circular economy, which includes rewarding companies who make their products more repairable and durable, but education is also important, and lifespan and durability labelling would help. ► Product stewardship Sector Group - With EU Directive encouraging durability and repairability there is the danger Aotearoa New Zealand gets all the e-products that can no longer be sold here so I think it is important for any product stewardship scheme to have similar criteria, so we don't get all the non-durable etc e-products.	► Need to understand if Aotearoa New Zealand will follow the EU approach and establish a framework for setting eco-design requirements for energy-related products and how this may impact Option 3design. ► Circular is not just about better repair/reuse options. It's about making stuff that has a long-life as the most important focus. They should not need to be recycled. ► I support the international points made here. ► Design for the environment is fundamental to a product stewardship scheme, it's not a separate discussion. ► I agree with the discussion column. ► Agree - no point insisting that design for environment legislation needs be separate. Need it across all legislation to become true.	requirements for energy-related products.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
Right to repair	Right to repair and reuse are a central aspect of the scheme. Repairability of e-products influenced by eco-modulation aspect of approach. Those e-products that are designed for longevity and repair have lower scheme fees. A national repair network provides repair services for faulty items. Items repaired through the national repair network are eligible for warranties on repaired parts.	**Consumer survey** ► Widespread support for improving reuse through manufacturing improvements and improving public awareness. **Initial CEN Feedback** ► Should be encouraging this. ► Could see Aotearoa New Zealand become world leaders in managing e-waste and e-product design. ► If producers can provide spare parts to the market, then their levy could be reduced. ► The single most useful things producers can be made/pushed to do is design e-products that last longer. This has to be the goal of the scheme. ► Should not be a priority as we are not a manufacturing nation. ► Repairability and durability will lead to higher costs. ► Any scheme should take account of repair and reuse. ► Repair performed in Aotearoa New Zealand should be done through an allowed treatment method under the product stewardship scheme and have a standard in place. ► Having this in the scheme would help to encourage design for repairability. ► Repair by third parties sometimes means that producer warranties no longer apply.	► The national assessment of e-waste services has indicated a growing number of e-product repair and refurbishment agents in Aotearoa New Zealand; however, the 'national network' is not far-reaching, nor are repair and refurbishment services available for all e-product categories (mostly for categories 6 - large equipment and 4 - ICT equipment). Further, repair activities do not currently take place in Aotearoa New Zealand for lamps (category 3) or small-scale batteries (category 7). ► Market investment and capability up-skilling would be anticipated and could be aided with government funding support, leading to the creation of 'green jobs' in Aotearoa. ► Need to consider requiring producers to make spare parts, tools, repair manuals, and diagnostics for out-of-warranty repairs available to repair and refurbishment providers and/or consumers (where appropriate). ► Another focus of education and awareness could also be placed around recycling, repair and refurbishment activities - the aim would be for e-waste recyclers and repairers to provide advice back to producers around the treatment process i.e., identify hard to manage materials, technical barriers to e-waste separation and opportunities for life cycle design improvements that support material recovery and recirculation - this could be coordinated and facilitated by the scheme manager(s). ► Extended product life cycle warranties may also need to be offered by repair and refurbishment providers to ensure a safe and sufficient extended e-product life cycle. ► Some of our members are part of the Australian Information Industry Association	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
		► Repair might not be appropriate for all e-waste; it depends on the value of the e-product and what it is. ► Good to support but this should not be part of a mandatory scheme. **One-on-one discussions** ► Producers - Qualified repairers in Aotearoa New Zealand are getting older and not being replaced by younger technicians. This presents both a challenge and opportunity for a national repair network. Without investing in training there will be no one to repair the items in Aotearoa New Zealand. However, by investing in training, there is an opportunity to create new jobs in Aotearoa New Zealand. ► Producer - Aotearoa New Zealand cannot dictate producers/market to design products for repair/durability. If producers are required to meet regulations that they deem uneconomic/too costly, they may exit the New Zealand market. The New Zealand market size on its own is usually not worth the investment.	(AIIA) Group who have submitted comprehensive feedback on the Australia Productivity Commission's inquiry into right to repair - please refer to the accompanying attachment and group feedback on the following topics, Definition needed for 'repair', Barriers to Repair, Consumer Guarantees and other consumer right under ACL, Competition Issues in Repair, Intellectual Property Protections, "Planned" product obsolescence, Repair Issues for e-waste and Possible Policy options. ► Must be a fundamental part of any scheme. There should be standards for ensuring health and safety considerations, but repair and maintenance should be largely possible by the consumer. ► If producers can't meet our needs, then they are welcome to exit the market. We shouldn't be bullied into accepting inferior standards that end up impacting consumers or our environment. ► Education is needed and support for those that want to repair stuff needs to be widely available.	
Education and awareness	► Education campaign for consumers and school children - what our electronics are made of, their potential harm to the environment, the opportunity, and how we can play our part. ► Educational campaigns would seek to raise awareness amongst consumers about the negative impacts of early disposal of functional e- products. Support and examples of how to improve the life	**Consumer survey** ► Several comments highlighted the need for any scheme to have a proper education and awareness campaign behind it to highlight the existence of the scheme along with locations, e-products and costs involved with it. One suggestion included using a similar advertising campaign as the one used in the general election when the scheme is initially set up.	► Any scheme education and awareness campaign should be consistent across Aotearoa New Zealand, regardless of the number of scheme managers. ► A clear and consistent national campaign will ensure good understanding of the potential impacts of e-waste, why we should manage our e-waste responsibly, where individual e-products sit on the spectrum of the environmental criteria developed for fee eco-modulation (if relevant), how to access	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
	of their e-products is provided at purchase or at disposal (e.g., ways to charge batteries to extend their life). ► Awareness campaign for how scheme works, what consumers and businesses need to do. ► Awareness campaign for other scheme actors on what the requirements will be.	**International research** ► Education and awareness programmes are important to achieve scheme participation by the community and industry. ► Specific resources are allocated by product stewardship organisations and scheme regulators for this activity, and for some jurisdictions this is mandated. ► Nationally consistent messaging is important, especially where there are multiple product stewardship organisations, to prevent consumer confusion over which products are accepted by a scheme and how they are managed. **Initial CEN Feedback** ► Education is an important part of ensuring longer product life. ► Not the best way to improve longevity and repair as consumers are often unable to do much due to the product design. The emphasis of this aspect of the scheme should be on producers. ► Education is a nice to have but surveys already show that this is not a problem for New Zealanders, the vast majority know what is right and wrong. ► The scheme will need a large investment in advertising to get public awareness and behaviour change.	certified/accredited repair agents, the roles and responsibilities of different actors, the benefits associated with environmentally sound e-waste management, scheme access points and scheme performance. ► There should be a range school specific awareness campaigns targeted at different age groups that align with the five key competencies of the national school curriculum. ► Another focus of education and awareness could also be placed around recycling, repair and refurbishment activities - the aim would be for e-waste recyclers and repairers to provide advice back to producers around the treatment process i.e., identify hard to manage materials, technical barriers to e-waste separation and opportunities for life cycle design improvements that support material recovery and recirculation - this could be coordinated and facilitated by the scheme manager(s). ► Include targeted education and awareness aspects around safe e-product repair, donating unwanted e-product in good working order and product safety testing for reuse/extended life cycles. ► There's a real need to mandate labelling of durability/life and repairability on e-products. Part of the scheme could include this. That's up-front education for consumers (and direct advice helping them to choose better). ► A share economy needs to be encouraged. We don't all need all the e-products. ► Education also on what are the good and bad e-products/producers and what e-products are over specified. Expected lifetime etc. Expected lifetime costs - independently verified.	

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► Agree with consumer labelling. But maybe also the true cost of an item - i.e., it may look cheap but maybe you have to buy 10 of them instead of the more expensive one. And now with pay after schemes you buy cost not such an issue.	
Regulatory Implications	► Regulatory actions should be designed to ensure: e-waste does not end up in landfill, e-products have an extended life through repair and reuse, and e-waste is eliminated through design including having materials and methods selected for durability, repairability, recyclability. ► Likely/possible WMA act levers to be used: ► Control and prohibition of disposal for e-waste. ► Control or prohibition of manufacture or sale of e-products that contain specified materials. ► Setting of payable fees dependent on the type of e-product. ► Implementation of standards to be met when recycling and repairing. ► Required collection of information and reporting.	**International research** ► Financial support was available for developing collection and recycling infrastructure at the start of many schemes. ► Most ongoing support from government is used to fund general research and development programmes. ► Implementation of a levy at the border would require a significant amount of work and time to develop new legislation that allowed for it to exist.	► Having a funded e-product stewardship scheme that covers the costs for end-of-life management and coordinates e-waste diversion for reuse or repair will significantly increase e-waste landfill diversion. If this scheme design approach was underpinned by a national e-waste landfill ban, this would ensure the 'no e-waste to landfill' intended outcome of this approach could be achieved. ► All other WMA levers listed would ensure a circular ambition scheme is effective in achieving intended goals 1 and 2 of Option 3i.e., no e-waste to landfill and extended e-product life cycles through repair. However, as noted above, even if there are rewards for good design for environment aspects and penalties without, this does not guarantee that e-waste will be eliminated through design. This will ultimately be a decision for the respective liable parties, primarily producers, and we could see certain producers exit the New Zealand market if this type of model is progressed, unless e-products that score poorly on the eco-modulation environmental criteria are banned from the New Zealand market completely. As above, the market impacts of this approach need to be fully understood in the next phase of stakeholder consultation once this option has been refined across the CEN.	► Investigation of product labelling interventions, particularly for e-products imported into Aotearoa New Zealand. ► Investigation of mandating producers to make spare parts, repair tools, repair manuals, and diagnostics for out-of-warranty repairs available to repair and refurbishment providers and/or consumers (where appropriate). ► Analysis of CGA considerations with respect to e-product repair and refurbishment activities. ► Process, timeline and appetite (in the context of the options co-design process) for Aotearoa New Zealand to establish a framework for setting eco-design requirements for energy-related products.

Scheme design element	Options	Findings/comments from initial investigations into options	Requested feedback on each design element:	
			Q1: Please comment on which options you prefer for each design element and why.	Q2: What additional data is needed to evidence our assessment?
			► Need to understand if Aotearoa New Zealand will follow the EU approach and establish a framework for setting eco-design requirements for energy-related products and how this may impact the circular ambition scheme design option. ► Product labelling would be a good complementary scheme aspect, particularly around a product's life cycle management requirement, repair options and raising awareness around scheme availability. However, we need to fully understand at what point in an e-products life cycle this type of intervention would take place, especially as many e-products are imported into Aotearoa New Zealand. Also need to consider embedded e-products e.g., e-products with batteries. ► Labelling of life and repairability. If the scheme regulations aren't the best place - you need to think where it is. ► Need to also use legislative levers to prevent bad e-products from coming into the country, it's wider than just harmful materials but also inbuilt obsolescence, ability to reuse/repair etc.	

Appendix C CEN feedback on scheme design short list

Table 17 - Short list feedback

Scheme Framing	Outcome
Remove options 1 and 2	Recommendations adopted; see Report Two, section 3.1.
Continue with option 3 but by staggering the phase in of the scheme design elements.	
Governance	
Develop a model for how the governance of the not-for-profit product stewardship organisation would be structured: ► A hybrid model where an advisory board of commercial, community and environmental stakeholders vote impartial board members to the product stewardship organisation ► The product stewardship organisation board sets the requirements for the scheme as per the roles and responsibilities of the team ► The board instructs the scheme manager who carries out the product stewardship organisation roles and responsibilities ► The advisory board continues to act as source of advice for the board, informing them of the different views of the e-product stakeholders when the board is making decisions about the scheme elements e.g., changing liable party fees ► Core attributes of board members include impartiality, independence and having members with board/governance expertise and who understand the regulatory framework that the scheme operates under.	Recommendation not adopted; some characteristics carried through to final design, but many structural elements redesigned.
Targets and Data	
Split the targets, compliance and monitoring slide into two different slides covering: ► Data and targets ► Compliance and monitoring.	Recommendation adopted; see Report Two, section 3.3.
State the process for capturing necessary data and setting of the various targets we recommend for the scheme e.g., where is the POM data going to come from to inform the total weight of e-waste?	
Have part of the process of the short-term/medium-term starting to pull together data for the various targets.	Recommendations not adopted; this work will need to commence prior to scheme commencement.
Add a medium-term target for reasonable access target that the scheme operator must meet.	Recommendation not adopted; a convenience target/model is recommended instead.
Ensure the period prior to the implementation of a target is gathering and reporting data relevant to that target.	Recommendations not adopted; this work will need to commence prior to scheme commencement.
Fees	
Update product design modulation point *a: use of recycled materials*.	Recommendations adopted; see Report Two, section 3.5.
Modify fee implementation plan to reflect those proposed in pathways 1.	Recommendation not adopted; fee structure changed significantly since this recommendation was presented to stakeholders.
Add to the structure of fee setting and management, a clearing house that includes a tracking system, collections and recycling costs, things that cover repair and reuse.	Recommendations adopted; see Report Two, section 3.5.
Change sales-based fee to an import-based fee that uses customs data for imported e-products and New Zealand organisation/agency (e.g., MBIE or Stats NZ) for data on New Zealand made products.	Recommendation not adopted; the fee structure has changed significant since this recommendation was presented to stakeholders.
Explain the process by which the fee is triggered and who pays it based on the legislation i.e., the sale of a product (transfer of a product from one party to another).	Recommendations adopted; see Report Two, section 3.5.
For the short-term funding structure, get assessment from stakeholders on whether short-term fees should be volume-based or import based.	Recommendation adopted; this was tested with stakeholders.

Scheme Framing	Outcome
Bring in education and awareness around the concepts of eco-modulation for e-product design and repair/reuse modulation in the short-term and move the modulated fee system to medium-/long-terms.	Recommendation not adopted; this will a determination of the scheme manager applicant(s)/regulator when developing and proposing the scheme's education and awareness strategy.
Add consideration for how fees would be modulated for producers who are already carrying out e-product repair/ refurb activities and how this would look if the e-product was: a. Collected/repaired and put back on the NZ market, or b. Collected/repaired and exported overseas.	Recommendation discussed in the report. It will ultimately be up to the scheme manager and scheme regulator as to how this should occur.
Develop a high-level estimate of the short-term fees for each e-product category using current market data collected through the CEN member networks and the National Network Analysis. The fee should include considerations for: a. The costs of recycling legacy products b. Collection c. Transport d. Recycling e. Costs associated with the governance of the scheme (using the scheme roles and responsibilities as a guide).	Recommendations adopted; see Report Two, section 3.5.
Develop stakeholder clarifications - fee basis and quantity will be stated in the regulation; can be reviewed and there is a public consultation process that goes with that regulatory review.	Recommendations adopted; see Report Two, section 3.5.
Mandatory Standards	
Have standards for scheme collectors. Have a research period for this in the short-term to understand the needs of collectors, including any funding support needed to meet mandatory standards. Add in mandatory standards for collectors for the medium-term.	Recommendation not adopted; recommending minimum requirements for collectors to be set by the accredited scheme manager(s) instead. See Report Two, section 3.6.
Consider adding additional standards around batteries.	Recommendation not adopted; mandatory standards recommended for scheme recycling activities cover battery management activities within scope. See Report Two, section 3.6.
Set one type of standard for each stakeholder to reduce costs (will test different standards with stakeholders during the sessions including getting an understanding of where they are at currently with alignment to the standards proposed).	Recommendation partially adopted, see Report Two, section 3.6.
Remove E-stewards as a potential standard.	Recommendation not adopted; no clear reason to remove this standard as a potential option.
Add process for monitoring standards adherence using independent auditors.	Recommendations adopted; see Report Two, section 3.6.
Compliance and Monitoring	
Remove the reference to blockchain and refer to it only as a tracking system to follow the e-products through their life cycle from beginning to end.	Recommendations adopted; see Report Two, section 3.8.
Stickers should be placed on the e-product by the retailer and form part of the eco-modulation fee - i.e., if the e-product is sold with labelling identifying inclusion of the e-product in the scheme and potentially repairability etc., then they qualify for lower fees.	Recommendation not adopted; on the basis of product labelling not being recommended and an eco-modulation fee structure not being recommended in the short-term.
Accredited scheme manager roles and responsibilities	
Add clarity around what non-compliance in the scheme means in point five.	Recommendation not adopted; this is for the scheme regulator to provide information on.

Scheme Framing	Outcome
Rephrase point 10 to have it more like education and awareness for consumers. Combine with point seven.	Recommendation adopted; see Report Two, section 3.10.
Scheme stakeholder roles and responsibilities	
Update title of repair actor name to include reuse/resellers.	Recommendations adopted; see Report Two, section 3.12.
Develop a set of roles and responsibilities for tangata whenua piece.	Recommendation not adopted; no information provided by CEN member.
Add an opportunities section to contrast between a BAU scenario.	Recommendation not adopted; section not carried through to final report.
Education and awareness	
Position e-product labelling as an education tool alongside being a compliance aspect.	Recommendations partially adopted; see Report Two, section 3.9.
Scheme vision	
Scheme vision - review diagram designs and work to add an illustrative vision slide at the beginning.	Recommendation adopted; see section 2 of this report.

CEN feedback on final proposed design for webinars, facilitated discussions and one-on-one sessions

Table 18 - Final proposed design feedback

Our ambition for a circular approach to e-waste in Aotearoa New Zealand	Outcome
There should be a stated ambition toward circularity and its principles. It isn't just waste hierarchy that should be mentioned and definitely should not say divert e-waste away from landfill. These are very limited ambitions. Circularity is not just about extending the life of products; it also captures regeneration. The dimension of maintaining embodied carbon and waste valorisation should be considered. Suggest that instead of "prioritise waste hierarchy and divert all e-waste away from landfill" we instead say something like enable circularity principles of keeping resources in use and regenerating.	Recommendation adopted; see section 2 of this report.
The current state of e-product management in Aotearoa New Zealand	
No mention of sharing economy activities. Device as a service or managed service offerings. There must be mention of sharing services.	Recommendation not adopted; difficult for scheme to influence this due to regulatory restrictions.
Need to be more specific about the capability and capacity to tackle different electronic and electrical products. What type of recycling takes place locally? Recognise the small volumes in Aotearoa New Zealand make it challenging for it to tackle its waste domestically.	Recommendation partially adopted; see section 2 of this report.
The components of a circular economy for e-products	
Should take into account the dimension that if we are to realise circularity, we need to address how we can regenerate resources. There is a 4th 'R' which should be talked about. If we don't then it does not take into account future needs and sustainable development.	Recommendation not adopted; no solution provided to support implementing the 4th R.
Pathway to circularity	
The recycling of various goods need to be staggered as otherwise recycling capacity might struggle.	Recommendations adopted; see Report Two, section 3.1.
Explain how will we be strengthening and expanding. This will concern many stakeholders.	Recommendation adopted, see Report Two; section 3.1.
State what is acceptable in terms of primary and secondary focus and the timescales.	Recommendation adopted, see Report Two; section 3.1.

Our ambition for a circular approach to e-waste in Aotearoa New Zealand	Outcome
It is not the product stewardship organisation 's responsibility to build/expand the network. State it will be done through the existing communities including businesses.	Recommendation adopted, see Report Two; section 3.1.
It would be useful to consider whether this could be lined up with council long-term planning periods: ► Short-term for councils is three years (planning is done in detail for the first 3 years of a long-term plan) ► Years four to 10 would be medium-term and 10 years on would be long-term. We have just started year one of the 2021-31 long-term plan, so subject to how long it takes to get a product stewardship organisation off the ground, the timeframes could look like short-term period could potentially be three years 2025/26, 2026/27, 2027/28. Medium-term: The next six years (to match long-term plan cycles) and long-term after that. OR for faster progress: Short-term years two and three of this long-term plan 2022/23 and 2023/24. Medium-term three years. 2025/26, 2026/27, 2027/28 and long-term after that. This cycle gives councils the best opportunity to match planning to budgets.	Recommendation not adopted; timeframes dependent on product category maturity.
Also contemplate e-product life extension in the pathway to circularity (not just recovery and recycling, repair and reuse and design) but sharing. Actions could be encouraging such behaviour without having to regulate which we can mention and tease out from the audience?	Recommendation not adopted; difficult for scheme to influence this due to regulatory restrictions.
Data gathering and a roadmap should be developed to get to higher ambition circular outcomes. There will potentially be pent-up historical volume that will surface when a scheme starts so we need to do some work to quantify the volume. Very important to highlight the need to have proper tracking systems to capture data which will inform further policy and operating decisions. Should also contemplate upfront the incentives that could be offered to promote positive circular behaviours in importers.	Recommendation adopted; see Report Two, section 3.1.
I don't believe it would be practical to phase in eco-modulation criteria over medium-/long-term (if this gets legs). This would most likely take place as a single activity covering both/all elements. The medium-term focus for repair could consider mandatory standards for repair agents like there will be for recyclers in the short-term or other activities to enable more repair, reuse and life cycle extension.	Recommendation adopted, see Report Two; section 3.1.
For the eco-modulation criteria, producers could be rated on their progress towards the following: 1. Recycling - are consumers able to easily get the product to a recycler/recycling disposal point no matter where they live in Aotearoa New Zealand? 2. Repair and reuse - are consumers easily and affordably able to get their e-product repaired or refurbished in Aotearoa New Zealand? Is there a good second-hand market for this e-product? 3. Design - are producers already making sure the e-product can last longer and be more easily repaired?	Recommendation partially adopted, see Report Two; section 3.1.
Governance	
What is the process for forming the stakeholder advisory groups? What is the term for being on the board? How often will they meet? What is their role? Where are iwi in this structure? Are these paid positions?	Recommendation not adopted; for the scheme regulator/scheme manager to determine.
What is the process for selecting members of the independent board? What is the term for being on the board? How often will they meet? Are these paid positions?	
How are these groups/boards set up/voted in?	

Our ambition for a circular approach to e-waste in Aotearoa New Zealand	Outcome
I thought we also ended up deciding that the board needed to have some people with e-waste knowledge as well as the ones representing maybe law, accountancy, Mātauranga Māori?	
What would be the likely representation from each stakeholder group? It's not clear that there is a single advisory board to advise an independent board. We are seeming to suggest that the board composition is made up of only those who are approved by the advisory?	
Targets and Data	
Clarify when the scheme starts there won't be 100% coverage across geography and product types. Short-term task is about assessing and prioritising the gaps to fill over time.	Recommendation adopted; see Report Two, section 3.3.
How do you define Material Recovery Target (MRT)? How is it calculated? What is the current/baseline MRT?	Recommendation adopted; see Report Two, section 3.3.
What is the definition of reasonable access? Should this be a short-term target rather than medium-term?	Recommendation not adopted; using a convenience model instead.
A data system would need to be specified collectively and developed with input from representatives of all stakeholders that will be using it. What such systems currently exist?	Recommendation not adopted; system development will be dependent on the scheme manager(s).
We suggested that a good framework be developed first for repair and reuse data.	Recommendation adopted, see Report Two; section 3.3.
A recycling rate is not a material recovery rate. Recycling may include energy recovery and depends on the point in time of the process we are capturing. Material recovery depends on the recovery technology employed be it smelting or other methods which recover pure commodity streams. Definitions will be needed and a further appreciation for what would be approved recovery methods that achieve high rates of recovery. Need to elaborate what a material recovery target actually is defined to be.	Recommendation adopted, see Report Two; section 3.3.
Fees	
Clarify in each case / basis, it is the liable party who the fee is collected from: ► Liable parties: What is it going to cost me? ► What are those funds going to be used for? ► Collection recovery and recycling actors: how much money could I get once accredited?	Recommendation partially adopted, see Report Two; section 3.5.
The fees are to be published for everybody to see i.e., the consumers.	Recommendation adopted; this would exist in the regulation that the government develops to support the scheme (as recommended).
Could the fee collected also pay for a specific project that facilitates the setup of reuse/repair or the setup of a sharing economy? Also, would want to factor in a low carbon analysis that will help inform all stakeholders of the carbon/GHG impacts and reduction opportunities of such a scheme?	Recommendation not adopted; limitations in the WMA on what the fee collected can be used for.
Consideration of fee eco-modulation should be accounted for or considered up front.	Recommendation not adopted; eco-modulation implementation recommended for long-term.
Mandatory Standards	
Research into the needs of collectors. Could have standards/collaborative plan. Need to pursue this and see where things are at.	Recommendation adopted, see Report Two; section 3.6.
Compliance and Monitoring	
Discuss with stakeholders if certifying bodies should be independent themselves.	Recommendation adopted; this was tested with stakeholders.

Our ambition for a circular approach to e-waste in Aotearoa New Zealand	Outcome
Distinguish who does what - the scheme manager(s) vs the regulator - levels of compliance and monitoring: ► Suggest the scheme regulator oversees the accredited scheme manager(s) and audits that it is/they are complying with all requirements ► While it is proposed in slide 14 that the scheme manager will require that scheme participants get audited against their requirements, could this be something slightly different i.e., require you are certified against the mandatory standards in slide 12?	Recommendations not adopted; for the scheme regulator/scheme manager to determine.
Suggest clarifying the roles for MfE and PSO and scheme participants.	
Regulatory Levers	
Look to simplify the regulations to support the scheme manager to: ► Run the scheme ► Progress the determination and pursuit of targets e.g., through coordination of activities, development of repair, collection, recovery and recycling infrastructure ► Facilitate the process of accreditation for scheme participants ► Monitor compliance with rules and requirements of scheme participants ► Report information on scheme performance.	Recommendation not adopted; while roles and responsibilities have been recommended, they are ultimately for the scheme regulator/scheme manager to determine.
What about control or prohibition of sale of e-products that do not meet the scheme requirements - in terms of repairability, longevity etc? One of the earlier goals should be to develop such recommendations to the regulator.	Recommendation adopted; see Report Two, section 3.11.
The scheme operator must show independence and good governance and have obligations to report publicly on these.	Recommendation partially adopted; see Report Two, section 3.11.

Appendix D CEN assessment of scheme design options

A multi-criteria analysis (MCA) was issued to members of the CEN to gather written feedback on scheme design elements complementary to the discussions facilitated during CEN meetings to formalise their views and opinions.

CEN members were asked to score on a scale of 0 (not applicable) to 3 (high level of support), about how each design element would support nine specific impacts of the proposed scheme. These specific impacts included, sharing responsibility across stakeholders for e-waste management, opportunities for mana whenua, prioritisation of the waste hierarchy, drive for better e-product design, safe/responsible management of e-waste, human and environmental health and safety, economic benefits, and speed for which the proposed scheme could be implemented.

Scores (0-3) for each specific impact were tallied to provide a score indicative of support for each proposed design element. Scores for design elements across the responses received were then aggregated to provide a total score. Overall, seven MCA responses were received from the CEN, a summary table of interest groups represented in the responses received is detailed below.

Table 19 - MCA respondents by cohort representation

MCA - Total Respondents by Cohort Representation								
E-product producer	E-product distributor	Consumer interest groups	E-product repairer	E-product collector	E-product recycler	Environmental organisation	Waste management group	Māori Organisation
2	1	1	2	4	3	1	1	1

Represented response rates exceed the total number of responses received (seven) as a single member of the CEN may represent multiple interests (e.g., one member represented as a collector/repairer and an environmental organisation).

The total scores for each proposed scheme design element have also been provided in the table below, with higher scores indicative of higher support.

Table 20 - MCA results

Scheme Design Element		Total Score
Target	Material Recovery Target	76
	Weight Based Target	67
	Percentage of products collected that are either repaired or reused Target	143
	Reasonable Access Target	98
Fee	Volume based fee	75
	Advanced stewardship fee	79
	Eco-modulation fee	137

Appendix E Additional background information

Despite our understanding of the impact a linear consumption of e-products has on the environment and society, the problem in Aotearoa New Zealand is continuing to grow. While there are well established recycling, repair, and reuse services, the inconvenience experienced by consumers to use these services means these services are only able to collect and process a small proportion of the estimated 100,000 tonnes of e-waste produced in Aotearoa New Zealand every year[18]. As a result, the majority of e-waste generated in Aotearoa New Zealand finds its way to landfill. This situation is driven by a variety of issues across the e-product value chain, some of which are described below:

Table 21 - Linear economy impacts

Activity	Impact
Production and importing	► Under the current, predominantly linear economic model, the majority of e-products offered for sale in Aotearoa New Zealand (imports and limited domestic production) lack sufficient considerations for recyclability, repairability, or life beyond their initial purchase. ► Currently, there is a lack of economic incentive or viability for such consideration in Aotearoa New Zealand, and producers are not required to contribute to the cost of e-product management at the end of the e-product's life. ► While access to repair facilities is required under New Zealand's Consumer Guarantees Act 1993 (CGA), full product replacement is often favoured and cheaper than repair, which can add to the accumulation of e-waste. Considering that the vast majority of e-products consumed in Aotearoa New Zealand are imported, the low levels of product repair and reuse also add to emissions associated with production and transportation.
Distribution	► Retailers and distributors provide e-products with limited provisions for collecting items from the market at the end of their life (so they can be recycled) or support for repair/refurbishment (so they can be reused). Some progressive companies have begun to provide take back services for their e-products which are usually leased to consumers. ► Failure of e-products during a reasonable lifespan, as determined by the CGA, can result in a full replacement rather than repair. This is often due to undeveloped reverse supply chains that make it difficult for retailers and distributors to return the item to the manufacturers for repair or pursue alternative repair services, and a lack of available spare parts, product manuals and diagnostic tools. The replaced item is often discarded to landfill.
Consumption	► There is a lack of education and awareness of the true life-cycle costs of cheap and poorly made e-products. ► There is a lack of information available to consumers on what to do with an e-product at the end of its life, the potential human health and environmental impacts of the e-product if disposed of improperly, and a lack of responsible life cycle management options that are affordable and convenient. ► It can be cheaper and easier to replace end-of-life e-products rather than repairing them; however, for some businesses, the supply chain disruptions due to COVID-19 have made repair and reuse of e-products more viable over the past 12 to 24-months.
End of life cycle	► Currently the capability and capacity for end-of-life management of some e-products is to disassemble and then export the components and materials. There is limited local ability to recover the wide range of base resources found within e-products and e-waste to feed directly back into remanufacturing supply chains.

The wide variety of factors driving the current approach to e-product consumption means that a comprehensive plan is required to effectively challenge and replace current behaviours and norms. The development of a regulated e-product stewardship scheme will provide the framework from which action can be taken. If designed and executed well, this scheme has real potential to transition Aotearoa New Zealand to a circular economy for e-products.

[18] Global E-waste Monitor 2020

Appendix F Product capacity thresholds and exclusions to product scope

There are limitations on the inclusion of certain products within each product category based on their capacity. These limitations are made using the WEEE Directive definition of e-products and e-waste below:

- Electrical and electronic products (or e-products) mean equipment which is dependent on electric currents or electromagnetic fields in order to work properly, and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1,000 volts for alternating current and 1,500 volts for direct current

- Unwanted and end-of-life e-products (or e-waste) mean electrical or electronic equipment (EEE), which is waste, within the meaning of Article 3(1) of Directive 2008/98/EC, including all components, sub-assemblies and consumables which are part of the product at the time of discarding.

E-products or e-waste that does not meet these definitions is not covered by the co-design process covered in this report.

Alongside product capacity thresholds for e-products or e-waste, there are also exemptions for products within the scope of each category. These exemptions are informed by the WEEE Directive 2012/19/EU which stipulates explicit exclusions for specific e-product users and for certain intended applications:

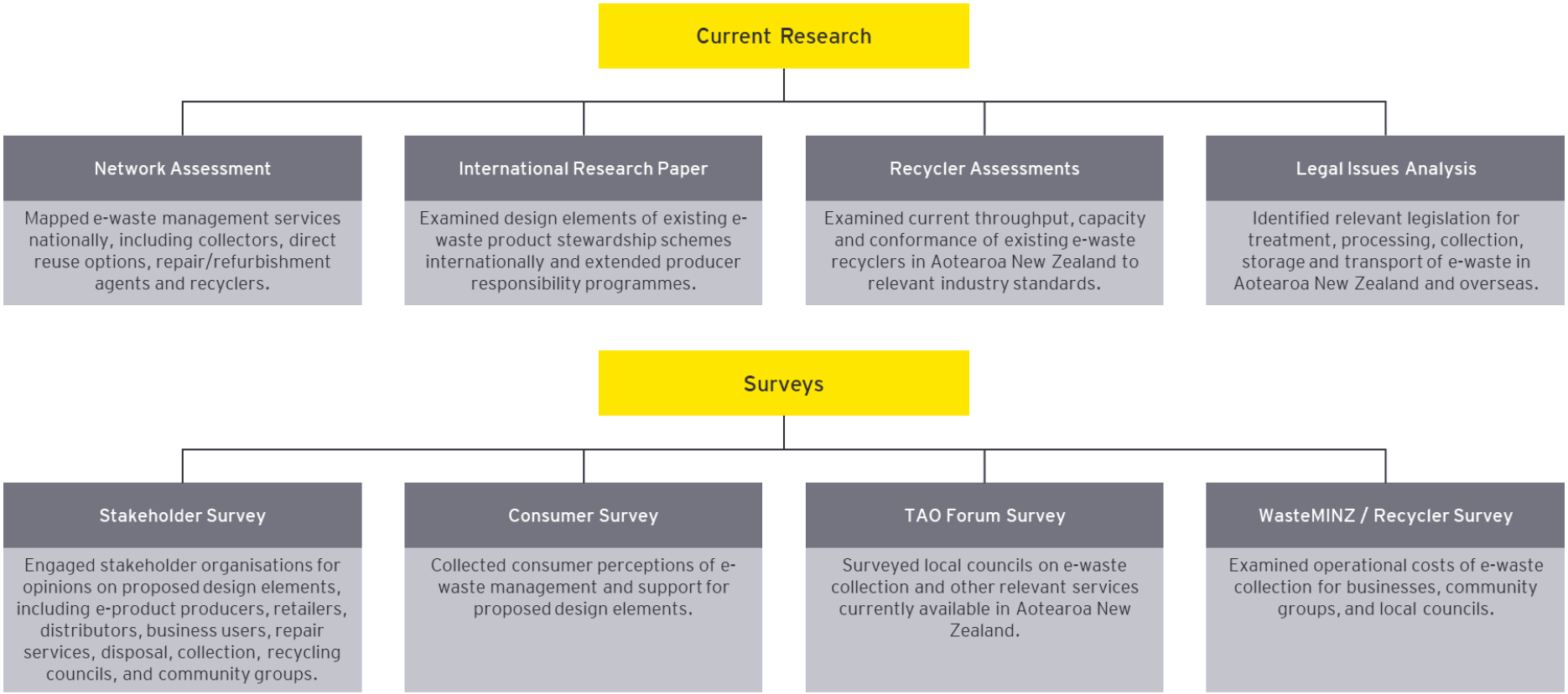
Table 22 - WEEE Directive scope exemptions

European WEEE Directive 2012/19/EU scope exemptions
The WEEE Directive shall not apply to any of the following EEE: a. Equipment which is necessary for the protection of the essential interests of the security of Member States, including arms, munitions and war material intended for specifically military purposes b. Equipment which is specifically designed and installed as part of another type of equipment that is excluded from or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment c. Filament bulbs. In addition to the equipment specified in paragraph 3, from 15 August 2018, this Directive shall not apply to the following EEE: a. Equipment designed to be sent into space b. Large-scale stationary industrial tools c. Large-scale fixed installations, except any equipment which is not specifically designed and installed as part of those installations d. Means of transport for persons or goods, excluding electric two-wheel vehicles which are not type-approved e. Non-road mobile machinery made available exclusively for professional use f. Equipment specifically designed solely for the purposes of research and development that is only made available on a business-to-business basis g. Medical devices and in vitro diagnostic medical devices, where such devices are expected to be infective prior to end-of-life, and active implantable medical devices.

Appendix G Supporting research

Overview

A range of research, consultation, and survey activities were performed to inform scheme design recommendations. These activities are summarised below and detailed further throughout the following sub-sections.



Research

As part of the design consideration process, TechCollect NZ (with the support of EY and the CEN in some cases), researched a number of different aspects to inform scheme design. The key outcomes of this research are presented below and discussed further in the following sub-sections.

Network Assessment

- Most New Zealanders are within 30 minutes' drive of a collection point for e-waste.
- There is an existing network of second-hand outlets.
- There is a lack of standardised collection for e-waste categories across the various collection sites in Aotearoa New Zealand.
- Commercial repair services exist nationally and continue to grow. However, they are limited in their coverage of the population and e-product categories offered for repair.
- The cost of recycling usually falls to the consumer. However, it is noted that this varies greatly by e-product category and available service.

International Research Paper

- Advanced stewardship fee, and e-product recovery and recycling fee models were prominent funding models in the jurisdictions assessed. A blend of the two funding structures for different e-product categories is used in some jurisdictions.
- POM data typically informed collection and material recovery targets.
- Only recyclers had performance standards, training and certification activities as mandatory requirements to be certified to an industry standard.
- Some international schemes have requirements for product stewardship organisations to take out insurance for their activities, and collection sites, transporters and recyclers may also be required to be insured for their activities.
- Product design for environment approaches are generally complementary to extended producer responsibility and product stewardship legislation and it is preferable that legislation specific to eco-design be developed.
- Financial support was available for developing collection and recycling infrastructure at the start of many schemes, with most ongoing support from government used to fund general research and market development programmes.
- Of the jurisdictions examined, Switzerland, Spain, and the United Kingdom had stewardship activities in place for all seven categories of e-waste. Spain had an additional category for PV panels and removed them from the large equipment category (category 4).
- The Republic of Korea had stewardship activities for five categories of e-products and Australia for three.

Recycler Assessment

- Of the 10 e-waste recyclers assessed, two were certified to an e-waste standard, four to an environmental management standard, and one to a safety management standard.

- An environmental policy was present for nine recyclers and six had an established environmental action plan with objectives and targets.
- A risk assessment process with annual review was in place for eight recyclers.
- All recyclers also provide some form of health, safety and environment training for workers.

Legal Issues Analysis

- Relevant pieces of legislation for e-waste stewardship in Aotearoa New Zealand include:
  - New Zealand Imports and Exports (Restrictions) Act 1988.
  - Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention).
  - Hazardous Substances and New Organisms (HSNO) Act 1996, (Stockholm Convention).
  - New Zealand Consumer Guarantees Act 1993 (CGA), for repair and reuse provisions.
  - WMA under which the proposed scheme would be accredited.
  - Specific provisions may also need to be considered from the Health and Safety at Work Act 2015 (HSWA) and associated regulations, Land Transport Rule: Dangerous Goods 2005, Maritime Transport Act 1994, and Electricity (Safety) Regulations 2010.
  - Privacy Act 2020 does not consider the disposal of e-waste, and currently there is no mandated data cleaning standard.
  - There is no Modern Slavery Act in Aotearoa New Zealand at this time. However, a Draft Plan of Action against Forced Labour for 2020-2025 has been established.

Pilot Programme Report

- Collection partnership negotiations and the establishment of collection service arrangements can take time. In most cases, the process to identify potential collection partners, undertake the required due diligence activities, coordinate legal advice and establish a formal partnership agreement can take several months from the first point of contact.
- Collection partners can have space constraints onsite for e-waste collection and storage activities, and quick service turnaround is essential to avoid programme partner dissatisfaction and potential occupational health and safety issues or hazards.
- Recycling service providers in Aotearoa New Zealand are largely uncertified to industry standards such as AS/NZS 5377:2013, as there are no compulsory requirements and limited market demand to be certified to such standards at present.
- The amount of e-waste items that may be suitable for repair, refurbishment and life cycle extension is currently unknown. However, is the amount is expected to be low.
- National logistics services are available for a range of e-waste collection equipment that are suitable to service various collection partner types and varying e-waste volumes e.g., parcels (>25kg), wheelie bins, pallets, bulk bags, stillages, skips, containers etc.
- There are higher transport costs for rural and remote regions with larger distances to travel to and from pilot programme collection services to recycling facilities.

Network Assessment

TechCollect NZ collaborated with members of the CEN to undertake a desktop audit of available e-product and e-waste management services nationally, including e-product repair and reuse services, e-waste collection sites and recycling facilities. The assessment included geographic information system (GIS) drive time and population mapping, data analysis and the development of summary report capturing all key findings[19]. The purpose of the assessment was to examine the available e-product and e-waste service networks in Aotearoa New Zealand and assess population service coverage/access.

The network assessment concluded that an active national network of e-product and e-waste life cycle management service are available across Aotearoa New Zealand; however, service access and capabilities differ greatly by region and product category.

The summary of findings has been used to assist in developing suitable scheme design options recommended for a regulated e-product stewardship system in Aotearoa New Zealand and to inform scheme design elements of service availability and population coverage.

Collection and recovery

- A GIS mapping exercise demonstrated that the majority of New Zealanders were within 30 minutes' drive of a collection point for e-waste (95.8%).
- Within major urban centres, this was reduced to between 10- and 20-minutes' drive.
- However, not all collection points are equal, with variations in the e-product categories accepted at collection points across the country.
- Except for lamps (category 3), e-product categories are widely accepted across the available services assessed.
- It is also noted that rural and regional areas of Aotearoa New Zealand have greater transport distances and costs to cover compared with metropolitan areas, as the majority of e-waste recyclers are located in Aotearoa New Zealand's major population centres.

Repair and Reuse

- Aotearoa New Zealand has an existing network of second-hand outlets, including community resource recovery centres, hospice and charity shops, and online options such as TradeMe.
- These outlets support the reuse of second-hand e-products such as IT equipment, fridges, small kitchen appliances and cell phones.
- Commercial repair service providers exist nationally, although the research was not exhaustive and further analysis is required to map the entire national repair network.
- Repair and refurbishment services for e-product categories 3 (Lamps) and 7 (Batteries) are not currently available.
- Within main population centres, large equipment (category 4) and small IT and telecommunication equipment (category 6) have the greatest coverage for repair services.

[19] The final Network Assessment Report will be published on TechCollect NZ's website with this report – visit www.techcollect.nz for more information.

- The South Island has severely limited access to e-product repair, with no coverage for temperature and exchange equipment (category 1) and few sites for screens and monitors (category 2), large equipment, and small IT and telecommunication equipment (category 6).

Figure 10 - Distribution of e-waste services in Aotearoa New Zealand

Recycling

- Aotearoa New Zealand has established e-waste recycling infrastructure, which accepts most categories of e-waste.
- While recycling facilities are available, the cost of recycling usually falls to the consumer, with fees ranging from free to upwards of $40 per item, depending on the cost to the service organisation of handling and recycling the product category of e-waste being collected.
- The national recycling market in Aotearoa New Zealand is largely uncertified to an industry standard for e-waste management activities with a limited number of mandatory standards in place to manage how e-waste is broken down and recycled.

International Research Paper

Research and consultation was led by TechCollect NZ in order to understand technical aspects of product stewardship schemes and extended producer responsibility programmes for international jurisdictions, and to gather technical insights to inform proposed system design elements for a mandatory e-product stewardship scheme in Aotearoa New Zealand. Activities undertaken included direct consultation with international product stewardship organisations and e-product stewardship experts, targeted jurisdictional research, and a series of e-product stewardship scheme design workshops. Jurisdictional profiles examined included Australia, Switzerland, Spain, United Kingdom, Japan, and Republic of Korea.

Governance models for regulated systems had clearly defined roles, responsibilities and governance requirements for various actors specified in legislation or scheme design documentation and were underpinned by regular and transparent reporting. Many regulatory systems also provide options for IPR approaches whereby those deemed liable (e.g., producers) can opt to coordinate their own stewardship efforts rather than through a PSO. Some schemes also have requirements for PSOs to take out insurance for their activities, and PSOs can also require collection sites, transporters, and recyclers to be insured for their activities. In some cases, Codes of Ethical Conduct are also used by PSOs.

Recurrent design elements

Scheme funding models

- An ASF and a VBF were the two main funding models identified, with a blend of the two for different e-product categories used in some jurisdictions.

Scheme targets

- E-product collection targets (tonnes) and material recovery targets (percentage), underpin the objectives and intended outcomes of a programme or scheme's delivery.
- Targets are typically informed by e-product POM data, either for individual product categories or across the full scope of products included, and in some cases, they can be scaled, increasing over time.

Mandatory requirements

- Only recyclers had performance standards, training, and certification activities as mandatory requirements to be certified to an industry standard.
- However, while some of the industry standards also had sections addressing collection and transport activities, there are also codes of ethical conduct used by product stewardship organisations in certain examples as a way to ensure minimum requirements are being met. No scheme has mandatory training requirements to undertake operational activities associated with a scheme's delivery.

In general, product design for environment approaches is complementary to extended producer responsibility and product stewardship legislation. The international research noted that it was generally preferable that waste legislation is not used to drive e-product design decisions, and that separate legislation specific to eco-design be developed. Europe also has an Eco-Design Directive that establishes a framework for setting eco-design requirements for energy-related products. It should be noted; however, that New Zealand's focus on a scheme that promotes a circular economy for e-products may make the overseas approach not as applicable for use in Aotearoa.

Reporting target achievement was found to be an important aspect of scheme design for liability to the public. Regular and transparent reporting also raises awareness of a scheme or programme's availability and highlights the benefits realised through coordinating efforts to address the identified product impacts or market failures. PSOs are generally required to submit annual reports to the respective scheme regulator and liable parties are generally required to submit POM data to the scheme regulator, or the scheme regulator can obtain this data elsewhere (e.g., product import records).

Switzerland, Spain, and the United Kingdom had schemes in place for temperature exchange equipment, screens and monitors, lamps, large equipment, small equipment, small IT and telecommunications equipment, and batteries. Spain also had an additional category for PV panels. The Republic of Korea had stewardship activities in place for large scale equipment, telecommunication devices, medium size equipment, small size equipment and mobile phones. Australia had stewardship activities for IT equipment and televisions, mobile phones, and batteries (<5kg).

This research concluded that the following elements are critical during public engagement:

- Raise awareness of the scheme by reporting target achievement and highlighting benefits regularly and transparently
- Educate with consistent messaging if multiple PSOs are used.

For education and awareness, specific resources are allocated by PSOs and scheme regulators, and for some jurisdictions this is mandated by government. Nationally consistent messaging is important, especially where there are multiple PSOs, to prevent consumer confusion over which e-products are accepted by a scheme and how they are managed.

Accessibility of collection and the types of e-product collection networks are often dictated by the ease or suitability of consolidated collection networks available, treatment pathways and handling requirements for certain e-products containing hazardous substances. There are a variety of collection methods used including dedicated collection points, retailers of e-products, post-back options and periodic collection events.

At the start of many schemes, financial support was available for developing collection and recycling infrastructure, with most ongoing support from government used to fund general research and market development programmes.

Recycler Assessments

TechCollect NZ assessed 10 e-waste recyclers in Aotearoa New Zealand during March 2021 to determine the current processing throughput and capacity of e-waste recyclers audited. The audits also aimed to identify gaps in conformance to key requirements of AS/NZS 5377:2013 Collection, storage, transport and treatment of end-of-life electrical and electronic equipment, and for ISO14001:2015 Environmental management systems.

A summary of the recycler audits performed, and current certification status for e-waste recycling, environmental and safety management standards is provided below.

Table 23 - Number of audits performed

No. of recycler audits	No. of recyclers certified to an e-waste standard	No. of recyclers certified to an environmental management standard	No. of recyclers certified to a safety management standard
10*	2/10 - NOTE: One recycler certified to AS/NZS 5377:2013 and one certified to R2.	4/10 - NOTE: Three recyclers certified to ISO 14001 and one certified to Eco Warranty EMS Certification.	1/10 - NOTE: One recycler certified to ISO 45001.

**Note: Two recyclers declined/did not respond to invitation to participate in a site audit, therefore company websites were reviewed for relevant assessment information and assumptions were made from current certification statuses.*

The current throughput and capacity of four recyclers was unknown; however, an average throughput of 729 tonnes and a capacity to accept an average of 1,197 tonnes was reported by the other six recyclers. The number of full-time employees for each recycler varied from between two to 20 people, and five employees with a disability. For two recyclers, the number of full time equivalents is unknown as they did not respond and were subsequently audited using publicly available data.

60% of recyclers audited offered some form of repair service. 70% also offered data destruction services.

Of those assessed, the number of recyclers who accept each product category and repair services offered are listed in the table below.

Table 24 - Categories accepted by recyclers

Category	No. recyclers who accept products from category	No. recyclers who provide repairs for product category
1. (Temperature exchange equipment)	2	-
2. (Screens and monitors)	10	6
3. (Lamps)	3	-
4. (Large equipment)	5	-
5. (Small equipment)	7	1
6. (Small ICT equipment)	10	6
7. (Batteries)	5	-

Data destruction services for e-waste are also provided by seven recyclers, a collection service provided by eight, and advertised public drop off services provided by five.

Processes used by recyclers include manual dismantling of equipment by all, shredding or granulation for certain components (hard disk drives) by two, cathode-ray tube dismantling by two, fluorescent tube removal by six, and battery treatment by one.

For material traceability, a recyclers' ability to trace materials to the immediate downstream vendor and point of final disposal varied by recycler and material type. General waste could be traced to a local landfill for all 10 recyclers, while seven of the eight recyclers assessed currently dispose of mixed plastics at local landfills. One recycler who sorts plastics by polymer type or sends mixed plastic bales for recycling, could trace material to the point of final disposition, country and process used. All 10 could trace metals (ferrous and non-ferrous) to the immediate downstream vendor, but not all could trace to the point of final disposition. Similar results were found for non-leaded glass, CRT leaded glass, fluorescent tubes, printed circuit boards, printer cartridges/toner, and batteries.

Recyclers were generally able to trace hazardous materials (i.e., metals, batteries) to their immediate downstream vendors.

However, fewer could trace materials to the point of final disposition.

A process to evaluate/audit downstream vendors was in place for five recyclers, eight had a process to record the weight and type of incoming and outgoing loads, four prepared a mass balance report and five calculate the overall material recovery rate. In terms of licencing requirements, one recycler holds a council licence for collection and transfer of e-waste, while three other recyclers hold hazardous waste export permits for exporting e-waste/components. Six recyclers reported identifying and implementing a process to comply with legal obligations and requirements, while eight have implemented an audit process.

An environmental policy was in place for nine recyclers, six had established an environmental action plan with objectives and targets, and four had an environmental aspect and impacts register. A risk assessment process with annual review was in place for eight recyclers, and of the sites observed, adequate risk controls were generally in place. Minor non-compliances were noted for fire safety and controls to account for long-term health effects (noise, dust, heavy metals), and require further consideration. The majority of recyclers also had incident reporting processes in place, HSE communication processes, emergency response, and business continuity plans. All recyclers also provide some form of HSE training for workers.

Legal Issues Analysis

The focus of this research was to identify applicable laws and regulations for the treatment and processing of e-waste in Aotearoa New Zealand. A legal framework is required to be considered for the processing of e-products and e-waste as they may contain substances and components that pose hazards to human health or the health of the environment.

This research was carried out via a desktop analysis for aspects of international and domestic legislation and regulations that are relevant to the management and stewardship of e-waste. These aspects are summarised below.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)

The Basel Convention is an international agreement to manage and restrict the import, export, and disposal of hazardous waste. A definitive list of products considered to be hazardous is not available through the Basel Convention; rather, a two-stage process is used in place of prescriptive guidance. However, a provision to regard all e-waste as hazardous, similar to the current practice of the Environmental Protection Authority, may replace this.

Countries party to the Basel Convention are expected to minimise the quantities of hazardous waste (including e-waste) that are moved across borders, treat and dispose of wastes as close as possible to their place of generation, and to prevent or minimise the generation of wastes at source. Obligations for the movement of hazardous e-waste are also set out.

The process for managing the import and export of hazardous waste in line with Aotearoa New Zealand's commitments under the Basel Convention is administered by the New Zealand Environmental Protection Authority. For the movement of e-waste categorised as or assumed to be hazardous, importers and exporters must ensure they have the necessary consent (permitting process) that the Environmental Protection Authority facilitates. Under requirements recently introduced under the Basel Convention, this permit process will now also extend to the import or export of most mixed plastic waste. Any requirements set by the importing country must also be followed.

Countries party to Basel, including Aotearoa New Zealand, are expected to minimise the quantities of hazardous waste (including e-waste) that are moved across borders, to treat and dispose of wastes as close as possible to their place of generation, and to prevent or minimise the generation of wastes at source.

Provisions of the Basel Convention that aim to prevent and punish breaches of the convention are legally enforced in Aotearoa New Zealand through the New Zealand Imports and Exports (Restrictions) Act 1988 and Hazardous Substances and New Organisms Act 1996 (HSNO Act).

Stockholm Convention

The objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants (POPs) by eliminating the most dangerous of these and targeting additional POPs to be managed and phased out. Within the context of e-waste, this extends to plastics used in electrical equipment and electronics which may contain brominated flame retardants (BFRs). As it is difficult to test for, the general presumption is that any e-waste casing may contain a BFR and will require a permit under the Basel Convention to be exported.

Aotearoa New Zealand's obligation under the Stockholm Convention is implemented domestically through the HSNO Act 1996, while the process for managing the import and export of POPs is administered by the Environmental Protection Authority. Administration of the permitting process for importing and exporting hazardous waste includes gaining prior informed consent from destination countries before export permits are granted. The New Zealand Government had also

released an updated national implementation plan under the Stockholm Convention in 2018, which contains additional guidance for stockpiles, waste disposal and contaminated sites.

Modern Slavery

Modern slavery is the use of forced or coerced labour where people are made to work under conditions that deny them their human rights. While there is no Modern Slavery Act in Aotearoa New Zealand currently, the New Zealand Bill of Rights Act affirms that all people residing in Aotearoa New Zealand have the right to personal security, freedom from discrimination, the right to life, to refuse medical treatment, vote, freedom of thought, freedom of religion, freedom of movement, and freedom of expression. Additionally, a Modern Slavery Leadership Advisory Group has been convened by the Ministry of Business, Innovation and Employment, and a Draft Plan of Action against Forced Labour for 2020-2025 established. A Migrant Exploitation Protection Work Visa has also recently been released, which allowed exploited labourers to quickly seek alternative employment for a period of up to six months.

In the experience of Aotearoa New Zealand companies who are captured by the Australian, New South Wales or United Kingdom modern slavery legislation, the impact on them is the requirement to disclose whether they have identified any risks of forced labour in their supply chain. This usually takes the form of a modern slavery statement, either prepared by the company headquarters in Aotearoa New Zealand, with operations in Australia or the United Kingdom, or prepared by the Australian or United Kingdom company after having considered their Aotearoa New Zealand operations as part of their supply chain.

New Zealand Consumer Guarantees Act (CGA)

While the CGA does not contain specific provisions concerning e-products, it establishes the rights customers have when purchasing goods and services, and the corresponding obligations of the providers of those goods or services, including the repair, refund or replacement of a faulty product or for substandard service.

Customers have more rights when buying from a business, online business or second-hand dealer, compared to a private sale (e.g., TradeMe/Facebook), where you are not covered by the CGA unless the seller misled you, did not have the right to sell the product, or the item was seriously unsafe or faulty.

Under the CGA, products or services provided by the retailers, manufacturers, service providers or other suppliers in trade must be of 'acceptable quality'. Acceptable quality means that a product is safe, fit for purpose and lasts for a reasonable time. When faults occur, a refund, replacement or repair needs to be provided to the consumer within a reasonable time. If the fault is major, the consumer can decide which remedy to accept. For minor faults, the retailer can decide. Consumers can also decide to approach a manufacturer/importer for a remedy. A manufacturer/importer must offer spare parts and repair facilities for a reasonable period after the goods are sold. Section 42 of the CGA exempts them from this if it's made clear to the consumer before the goods are sold.

Section 12 of the CGA requires a guarantee that the manufacturer will take reasonable action to ensure that facilities for repair of the goods and supply of parts for the goods are reasonably available for a reasonable period after the goods are supplied. However, this can be negated under section 42 if reasonable action is taken to notify the consumer who first acquires the goods at or before the time the goods are supplied, that the manufacturer does not offer repair services or make spare parts available.

The CGA would need to be amended in order to mandate stronger provision of repair services for electrical goods sold in Aotearoa New Zealand.

Consequently, section 42 would need to be amended in order to mandate stronger provision of repair services for electrical goods sold in Aotearoa New Zealand. This could be reinforcing repair as a priority, over replacement, with the potential to be enforced in the future; informatively notifying consumers of the unavailability of repair facilities, and specifying 'undertakings' that manufacturers would need to carry out beforehand. The movement internationally toward formalising a right to repair was noted; however, this requires further discussion domestically before specific policy changes can be identified.

Waste Minimisation Act 2008 (WMA)

The aim of the WMA is to reduce the environmental harm of waste and provide economic, social and cultural benefits for Aotearoa New Zealand[20]. A product stewardship scheme for e-products/e-waste must apply for accreditation under the WMA, and regulations may be made to ensure its effective operation. To mandate participation in the proposed scheme, regulations can be made under section 22(1)(a) of the WMA that prohibits the sale of a priority product, except in accordance with an accredited product stewardship scheme.

A product stewardship scheme for e-products/e-waste will need to apply for accreditation under the WMA and regulations may be made to ensure its effective operation.

Similar to section 22(1) above in developing a landfill ban, labelling requirement, producer fee or any of regulations under section 23(1) of the WMA, the process is that the Minister for the Environment must obtain and consider the advice of the Waste Advisory Board, and be satisfied that key affected stakeholders are adequately consulted with, the benefit to the environment and people outweighs the costs, and that the regulations are consistent with international obligations.

The WMA does not provide a mechanism to directly restrict substances or products that are imported into Aotearoa New Zealand, but the manufacture or sale of products that contain specified materials can be banned under section 23(1)(b). Under international and Trans-Tasman trading rules, any regulations that affect imports must equally apply to domestically produced goods.

Section 24 of the WMA allows for information requests to go to New Zealand Customs Service in writing for information about the import of priority products. Such requests must be from the Secretary for the Environment and only for the purpose of enforcing the product stewardship regulations made to underpin the stewardship scheme for a priority product.

The information collected by the New Zealand Customs Service and shared with MfE would contain confidential contact information that cannot be shared with third parties such as an accredited product stewardship scheme manager.

Other Laws and Regulations

Relevant laws and regulations that may impact Aotearoa New Zealand's e-waste management sector under a regulated product stewardship for electrical and electronic products extend beyond specific product, consumer, and environmental legislation.

Occupational Safety

From an occupational perspective, provisions of the Health and Safety at Work Act 2015 may apply, specifically those provisions in relation to management of plant, substances or structures (section 211(f)), protection and welfare of workers/ other persons (section 211(g)), and hazards and risks (section 211(h)). The associated General Risk and Workplace Management Regulations 2016, Health and Safety at Work (Hazardous Substances) Regulations 2017, and Major Hazard Facilities Regulations 2016 expand further on applicable sections of the Health and Safety at Work

[20] https://environment.govt.nz/acts-and-regulations/acts/waste-minimisation-act-2008/

Act 2015 and provide information on legal requirements which may be applicable within an occupational context for the management of e-waste.

Data Privacy

As e-waste extends to laptops, mobile phones and other personal devices which contain personal or sensitive information, the topic of data privacy must also be considered. For a data breach the Privacy Act 2020 (Privacy Act) would be used to bring restitution to parties affected by the breach; however, the Privacy Act and other legislation does not currently set out data privacy requirements for the disposal of e-waste. Currently, there is no mandated data cleansing standard for the disposal of e-waste. For data removal from disposers of equipment, the Government Communications Security Bureau has published the New Zealand Information Security Manual, which details processes and controls for the protection of information and systems for Government Departments.

There are currently no legislated data privacy requirements, or mandated data cleansing standard for the disposal of e-waste.

Transport of E-waste

For the handling and transport of e-waste, the Land Transport Rule: Dangerous Goods 2005 applies where the materials to be transported are classified as 'dangerous goods'. For Maritime transport, while e-waste is not specifically mentioned, the Maritime Transport Act 1994 would apply for e-waste which meet the criteria to be classified as dangerous goods.

Electrical Safety

The Electricity (Safety) Regulations 2010 prescribe mandatory requirements and standards that must be met by e-product repair and/or refurbishment providers for the in-service safety inspection and testing of electrical equipment, second-hand electrical equipment prior to sale, and repaired electrical equipment, in addition to domestic electrical appliances and equipment for reconditioning or parts recycling. There is the potential to review this to make repair easier. Currently, it prevents many repairs of e-products, or makes repairs less convenient and more expensive.

Fire Safety

Fire safety risks related most closely to electrical equipment are that risk items could catch fire when exposed to air or could overheat and combust. The most relevant fire safety requirements are within the hazardous substances and dangerous goods regulations highlighted above i.e., Health and Safety at Work (General Risk and Workplace Management) Regulations 2016; Health and Safety at Work (Hazardous Substances) Regulations 2017; Electricity (Safety) Regulations 2010; Land Transport Rule: Dangerous Goods 2005, etc.

Commerce

While the Commerce Act 1986 has no specific provisions related to regulated product stewardship schemes, the Commerce Commission has issued guidance on product stewardship in keeping with Commerce Act 1986 rules. The New Zealand Government has obligations under the Trans-Tasman Mutual Recognition Arrangement (what is sold in Australia can be sold in Aotearoa New Zealand and vice versa) and World Trade Organisation (WTO) framework (a six-month notice period of regulations with WTO before they come into force).

TechCollect NZ Pilot Programme Expansion Lessons Learned

With the support of their members (i.e., Apple, Canon NZ, Dell Technologies New Zealand, HP New Zealand, Logitech New Zealand, Microsoft, The Warehouse Group and Toshiba) TechCollect NZ has operated a free national e-waste and recycling pilot programme for information and communication technology (ICT) e-waste in Aotearoa New Zealand since November 2018.

As part of the WMF grant awarded to TechCollect NZ to lead the co-design process, TechCollect NZ has expanded its pilot programme across Aotearoa New Zealand to learn what e-waste management systems work best in the New Zealand market and collect data to understand industry capacity and capability.

The lessons summary provided key learnings across:

- Collection - capacity, health and safety standards
- Recycling - fees, technology and processes used, standards being achieved and downstream vendors
- Logistics - optimal routes, trucks, fees, hub and spoke and back-loading options for logistics service providers.

The key findings of this pilot programme expansion process are summarised below:

Collection

- Collection partnership negotiations and the establishment of collection service arrangements can take time. In most cases, the process to identify potential collection partners, undertake the required due diligence activities, coordinate legal advice and establish a formal partnership agreement can take several months from the first point of contact.
- Collection partners can have space constraints onsite for e-waste collection and storage activities, and quick service turnaround is essential to avoid programme partner dissatisfaction and potential occupational health and safety issues or hazards. In order to avoid situations where pilot programme collection partners are left without empty e-waste collection crates between swap out requests, especially during and ahead of peak periods with reduced service operations (e.g., Christmas and New Year's Day), TechCollect NZ offers and coordinates additional e-waste collection crates to be made available as contingency collection equipment should they be required. This ensures collection partner staff health and safety is not compromised and all of TechCollect NZ's pilot programme protocols and procedures are followed at all times.
- In some cases, those looking to access TechCollect NZ's free service have been turned away as the volume to be dropped off is classified as 'commercial quantities'. So, it is important to have clear and consistent messaging in pilot programme promotional and informative communications to ensure those looking to access the service are informed of eligibility criteria, and collection partner staff are supported to manage programme user expectations and complaints.
- Retail collection partner participation in the pilot programme collection network can impact KPIs set for foot traffic conversion into new products sales. To address this issue for pilot programme collection arrangements with Noel Leeming, a unique stock keeping unit (SKU) code has been developed to track all programme e-waste drop offs.
- The COVID-19 pandemic has seen wide-reaching impacts to pilot programme collection activities and service accessibility during lockdown periods and various alert level restrictions. Most notably, the effects of the COVID-19 pandemic saw TechCollect NZ's first retailer pilot programme collection partner close their national network of retail stores. Also, it is important to have accurate and up to date COVID-19 programme messaging that reflects the latest advice of public health officials.

- In order to protect collection partner staff from potential exposure to COVID-19, TechCollect NZ works collaboratively with collection partners to develop targeted pilot programme user messaging requesting that all in-scope e-waste products accepted are cleaned and sanitised with detergents and disinfectants prior to accessing a pilot programme collection service. This advice is informed by the New Zealand Ministry of Health's COVID-19 general cleaning and disinfection advice and provides information links back to the Ministry's website to ensure accurate and up to date messaging.

- Although the TechCollect NZ pilot programme covers operational costs for e-waste collection equipment hire, transport and environmentally sound recycling, there are resourcing requirements for collection partners to ensure safe operation of the programme that are not covered under the current pilot programme arrangements. Under a regulated product stewardship scheme , provisions may be required to cover resourcing related expenses to encourage broad participation and ensure a convenient national network of collection services are available across Aotearoa New Zealand.

Recycling

- Recycling service providers in Aotearoa New Zealand are largely uncertified to industry standards such as AS/NZS 5377:2013, as there are no compulsory requirements and limited market demand to be certified to such standards at present.

- Although some recycling service providers offer standard rates to recycle various e-waste categories and streams, some recyclers in Aotearoa New Zealand offer e-product category or stream specific service rates which may be the most cost-effective approach for a regulated e-product stewardship scheme in future for a broad range of e-products.

- The amount of e-waste items that may be suitable for repair, refurbishment and life cycle extension is currently unknown; however, this is expected to be low. In order to fully understand the potential of e-waste diversion for repair and reuse ahead of recycling, this needs to be assessed and characterised before life cycle extension interventions can be effectively coordinated through a regulated e-product stewardship scheme. This analysis should include a feasibility assessment of the market incentives and financial viability for this type of activity under a regulated e-product stewardship scheme.

- Where there is limited, or no, processing capacity or capability available to recycle certain e-waste products, components and materials locally, e-waste recyclers must secure hazardous waste export permits and obtain prior informed consent from receiving jurisdictions to transport e-waste offshore under the Basel Convention. At present, there are no costs, other than resourcing costs, to obtain hazardous waste export permits from New Zealand's Environmental Protection Authority; however, there may be associated hazardous waste import costs imposed at the point of destination which can impact local service rates offered to the New Zealand market.

Logistics

- National logistics services are available for a range of e-waste collection equipment that are suitable to service various collection partner types and varying e-waste volumes, for example, parcels (greater than 25kg), wheelie bins, pallets, bulk bags, stillages, skips, containers etc.

- There are higher transport costs for rural and remote regions with larger distances to travel between pilot programme collection services and recycling facilities. In order to manage the pilot programme budget as efficiently as possible, and to recover as much in-scope e-waste items for environmentally sound recycling as possible, TechCollect NZ negotiated cost sharing arrangements with collection partners in rural and remote regions for pilot programme logistics expenses. These collection partners recognise that higher transport costs are required to service their regions and to date, all have been willing to contribute financially in order to offer TechCollect NZ's pilot programme to their local communities.

- Transport services in rural and remote regions are less frequent than in metropolitan areas, and in some cases, transport services are only available fortnightly. Where this is the case, TechCollect NZ works with collection partners in rural and remote regions to provide additional and/or larger e-waste collection crates to maintain high service standards and ensure collection partners have sufficient collection equipment capacity to safely manage incoming volume.

Surveys

Stakeholder survey

The stakeholder survey collected opinions on how the scheme should be structured from several stakeholder groups. This informed the development of the initial long list of SDE options. The number of stakeholders engaged is noted below:

Table 25 - Stakeholder survey respondents by cohort

Stakeholder Survey - Total Respondents by Cohort								
Pre-consumption stakeholder			Post-consumption Stakeholders					
E-product producer	E-product importer	E-product retailer	E-product repairer and/ or reseller	E-waste collector and/or sorter	Industry groups or associations	Community interest groups	Other	Total
15	4	14	6	39	7	12	33	130

It should be noted that not all respondents answered every question in surveys administered, and that majority totals and percentages are only representative of the views of stakeholders who responded to a specific question.

Respondents were asked a variety of questions on the potential impacts of structural elements of the scheme, including: which electronic categories they did/did not want to see included, legal levers under the WMA to be included, funding approaches, data metrics for monitoring, and general thoughts on barriers to repair/reuse of e-products.

Key points included:

- Temperature exchange equipment was the most voted category for exclusion. Written feedback indicated that this choice is associated with the complexities of degassing, including safety concerns and a lack of expertise.

- Strong support (greater than 70%) for legal levers of product labelling, a landfill ban, mandatory standards, and required collection of information for reporting was indicated.

- A clear majority preference could not be established when asked what method of funding would be preferred. Similarly, there was no clear preference for data metrics.

- A lack of collection/recycling infrastructure to support a scheme was the most selected barrier to repair/reuse of e-products by respondents.

Opinions on who should administer the proposed scheme were mixed. However, approximately a third of respondents (31%) preferred a single not-for-profit organisation, as shown in Figure 11 below.

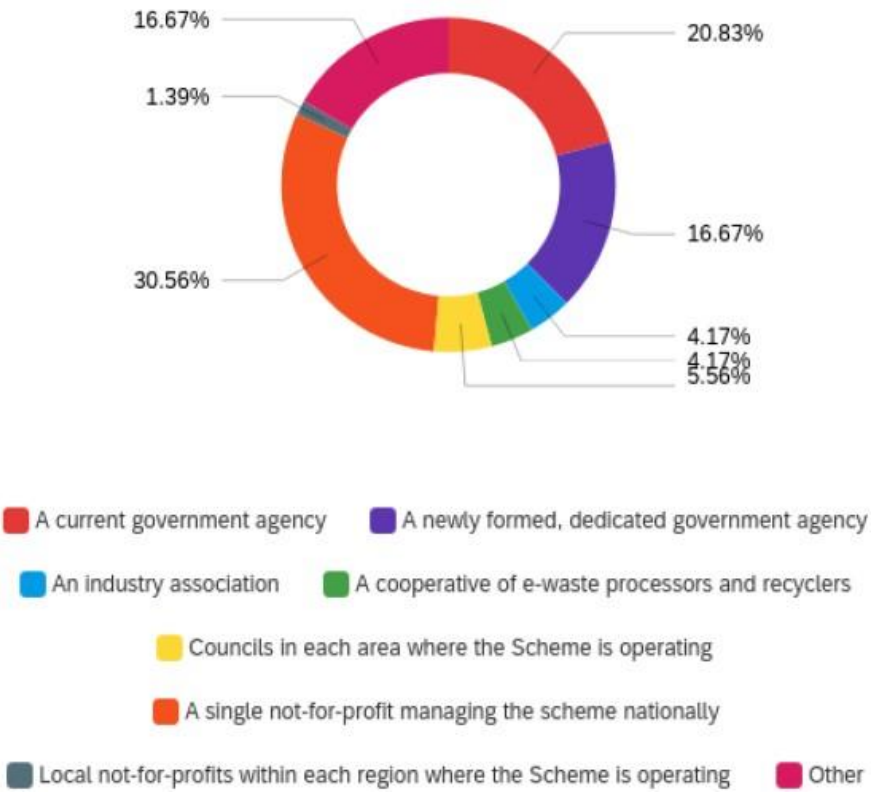


Figure 11 - Stakeholder opinions on who should manage scheme

Respondents were also asked questions on current organisational practices for the life cycle of e-products, such as participation in repair/reuse of products, post-consumption life cycle management, and corporate social responsibility or sustainability goals relating to product stewardship or a circular economy.

A lack of collection/recycling infrastructure was considered to be the main barrier for the implementation of an e-product stewardship scheme in Aotearoa New Zealand by most respondents, and regulations were believed to be a main enabling factor to facilitate a scheme.

The main barriers highlighted in relation to e-waste collection included cost, inconvenience, and a lack of recycling capacity to manage collected materials. While cost of repair, access to parts, and demand for repair were raised as the main barriers to refurbishment and repair activities, most also agreed that more should be done by the e-product industry to enable greater recycling of e-products.

The majority of respondents believed consumer behaviour change was a key factor to enable a stewardship scheme for e-waste in Aotearoa New Zealand, followed by economic incentives, and universal standardisation and labelling for e-products. A take back service for leased e-products at end of useful life was also noted to be available by most respondents. Small equipment was generally reported to be resourced through retail stores, screens and small IT equipment from service providers, and batteries and lamps from online retailers.

Few respondents reported holding any standards or certification that support the recovery/treatment activities undertaken for e-waste (e.g., AS/NZS 5377:2013, R2). Additionally, most respondents use methods other than the WEEE Directive categories to group different e-products accepted.

Consumer survey

The E-waste Product Stewardship Scheme Survey, administered as part of Consumer New Zealand's Waste Minimisation Survey, was conducted online using a nationally representative sample of New Zealanders, aged 18 years and over (2,005 respondents), who are the main or joint household decision makers in terms of e-product purchases.

Respondents were asked to rank potential impacts of an e-waste stewardship scheme in order of what they considered most important. Results found that 33% of respondents felt that protecting our environment from improper disposal and handling of e-waste was the most important, while 25% felt it was the second most important. Enabling a circular economy was valued as the most important potential outcome by 27% of respondents and second most important for 24%.

Consumers had varying views regarding the most important outcome of an e-waste stewardship scheme. However, a majority considered "protecting our environment from improper disposal. and handling of e-waste" the most important.

Only 10% felt that reducing the amount of e-waste being sent overseas was the most important potential outcome, 17-20% felt this to be the second to least most important factor. Creating jobs and generating market demand for used e-products was considered a mid to low priority by most respondents. Additionally, 39% ranked a uniquely Aotearoa New Zealand approach to addressing e-waste, including the application of mātauranga Māori to be the least important potential outcome or driving factor.

Respondents were also requested to select all the types of e-products they believe should be included in a regulated product stewardship scheme. Response rates for the inclusion of small household appliances, screens, large household appliances, temperature exchange equipment, and batteries (not including electric vehicle or energy storage) were high (76-85%). However, the demand for the inclusion of lamps was lower (although still over 50%) with 65% respondents selecting this option.

Variation in consumers' views regarding the potential environmental impact of e-waste suggests there is limited awareness of the issues associated with the current approach.

Where respondents selected that a product category should not be included within the scheme, they were also asked to provide reasoning. Of those who did not select a category, 25-33% reasoned those unselected products contained valuable materials that recyclers would want, regardless of whether a scheme were in place or not, and 20-28% of respondents reasoned that Aotearoa New Zealand is unable to recycle a particular e-product category at present.

The response selected for screens and large household appliances in particular, may indicate a lack of consumer education and awareness among the general public, as services to facilitate the recycling of these e-products are currently available through select retailers and dependant on location community outlets. Between 15-23% of respondents reasoned that there was no significant environmental impact caused by e-products throughout their life cycle, and 14-20% reasoned the same for impacts to human health. This again suggests a need for further consumer education as many e-products contain components and materials which when improperly managed, can have long-term environmental and health impacts. Reasoning that products do not contain valuable materials worth recovering was also reported by 7-15% of respondents, and 20-30% responded that they don't know why they did not consider selecting an e-product category for inclusion in the proposed scheme (again signalling a lack of awareness and education about responsibly managing or recycling e-products).

Proposed design elements

- 77% saw labelling with proper disposal information as a positive aspect for inclusion.
- 68% value mandatory standards for repair, and recycling or recovery of e-products and components for inclusion.
- 60% want producers and sellers to take back e-products at the end-of-life.
- 59% selected controls to prohibit the sale of e-products containing hazardous materials.
- 58% chose a landfill disposal ban and requirement for mandatory reporting on scheme operations for inclusion.
- 53% designated a producer fee to cover the scheme operational activities for inclusion.
- 39% chose a consumer deposit on the sale of an e-product to cover life cycle management costs, making it the least popular option.

Proposed funding models

- 60% preferred upfront funding for producer funded models.
- 53% supported producer fees for unwanted and end-of-life e-products.
- 51% supported a fee or levy on retailers, direct importers, and distributors.
- 46% preferred a small consumer fee on collection, processing, and recycling.

Proposed performance indicators

- 75% of respondents answered that data on the total volumes of e-waste collected, recycled and disposed of under the scheme should be collected and reported.
- 66% selected percentage of total material recovery through the scheme and the number of sites for e-waste collection.
- 64% thought that e-product types/categories collected and processed as part of the scheme should be included.
- 52% of respondents wanted data on the number of users/participants in the scheme to be reported.

Proposed scheme administrator

- 51% answered that a current government agency should govern and administrate the e-product stewardship scheme.
- 32% thought councils in each area where the scheme is operating would also be acceptable.
- 27% were supportive of a newly formed, dedicated government agency being established.

Overall themes which came through in the final freeform section of the feedback survey included:

- Concern regarding potential costs to taxpayers and consumers

- Feelings that the scheme would be a good step in the right direction
- Feelings that an e-waste scheme is well overdue
- That something should be implemented quickly and that it should be kept simple, with multiple collection points.

Territorial Authorities' Officers Forum Survey

A survey of Territorial Authorities was conducted to gain a general overview of what council driven e-waste collection and other services are currently available in Aotearoa New Zealand. A breakdown of responses received by region type is provided in the table below.

Table 26 - TAO survey respondents by types

TAO Survey - Total Respondents by Region Type	
Region Type	**Number of Responses**
City	9
Medium	25
Small	6
Very Small	4
Total Number of responses	44

Of the 44 respondents, 17 indicated that all their sites provide a collection service for e-waste and 75% reported that Territorial Authorities collect e-waste from their transfer stations. Collection from second-hand facilities was indicated by 29% and 20% for council materials recovery facilities.

Cost, lack of storage space, and difficulty associated with segregating large volumes of materials were identified as the key drivers for why a free e-waste collection system was not implemented at council sites.

Cost, lack of storage space, and difficulty associated with segregating large volumes of materials were identified as the key drivers for why a free e-waste collection system was not implemented for all council sites. Some councils also direct consumers to community e-waste recycling groups who accept e-waste for a fee. Mobile phone collection at sites other than transfer stations was offered by seven councils and five provide the same services for batteries.

For councils who currently do not collect e-waste, 15 agreed that they would or might consider it once an e-product stewardship scheme is established, and six responded that they might consider participating under certain conditions. These conditions include those costs be covered by a product stewardship organisation and not rates funded, appropriate infrastructure, suitability (retail might be better suited), and accessibility.

Arrangements for subsidisation of e-waste collection services varied between councils. Some councils specified a 50% subsidy for handling, transport, and recycling e-waste, while others noted that a specific subsidy was not in place. Most councils handle temperature exchange equipment as scrap metal with only five noting that they pay for degassing. Illegal e-waste dumping clean-up costs were estimated by six councils to be up to $20,000 a year, three councils estimated between $40,000 - $100,000, and one council reported a cost of $2 million per annum; the remaining responses did not report costs or provide a cost estimate.

Council e-waste costs are generally funded through user fees, a waste disposal levy, and general rates. A total of 12 councils also reported having some kind of free community repair activity for e-products, with the biggest barrier to entry for other councils reported to be access to a skilled electrician, certification, warranties, and compliance to testing standards.

Collector Survey

An interim survey of e-waste collection costs for current services was administered by CEN members Ruth Clark (TAO Forum) and Sarah Pritchett (WasteMINZ). A breakdown of the number of responses received is provided in the table below.

Table 27 - Collector survey respondents by cohort

Collectors Survey - Total Respondents by Cohort	
Stakeholder Group	**Number of Responses**
Commercial business	2
Community Group	8
Local Government	2
Total Number of responses	12

Respondents were asked to provide the total weight of e-waste collected over a 12-month period, with a total of 2,451 tonnes recorded. Categories 2 (screens and monitors) and 7 (batteries) constituted the highest volume by weight. A lack of data across categories was also noted, suggesting that data management with a common method of reporting is needed, although it was noted that this may be difficult for smaller organisations.

A lack of data across categories was noted, suggesting that data management with a common method of reporting is needed. Although, for smaller organisations this may be difficult.

Respondents were also asked to estimate their space requirements for their current e-waste collection activities. The amount of space required ranged from 2m^2 (for battery collection only) to 400m^2. Transport efficiencies would reduce the need for space. Under an e- product stewardship scheme, 11 respondents indicated that their space requirements would need to increase to support an expected influx of additional e-products.

Areas where the highest cost of operations may lie were indicated to be for staff costs, use of space, hardstand and covered buildings, insurance, plant costs (forklifts, pallet handlers), and material costs (e.g., shrink wrap).

Collectors' Survey Pricing Information

Feedback on the average wage per hour across roles related to e-waste management activities

Table 28 - Average wage per hour across roles related to e-waste management activities

Role	Average wage per hour	Percentage of time for activity	Wage cost based on percentage per hour
Gatehouse operator/ public facing product receiver	$23.00	10%	$2.30
Admin staff	$29.00	5%	$1.45
Materials handling	$23.00	75%	$17.25
Management	$40.00	5%	$2.00
Health and safety	$32.00	5%	$1.60
Other	$25.00	-	$0.00
Average cost per hour (assumes GST included)	-	-	$25.00

The average wage data was cross-referenced with information on the amount of time spent by each role throughout the collection process in the table above. These two factors were multiplied to give an average hourly rate of $24.60 and rounded to $25.00. As GST exclusive was not stated, it is assumed these are inclusive of GST (15%).

Feedback on space requirements and associated costs for e-waste management activities

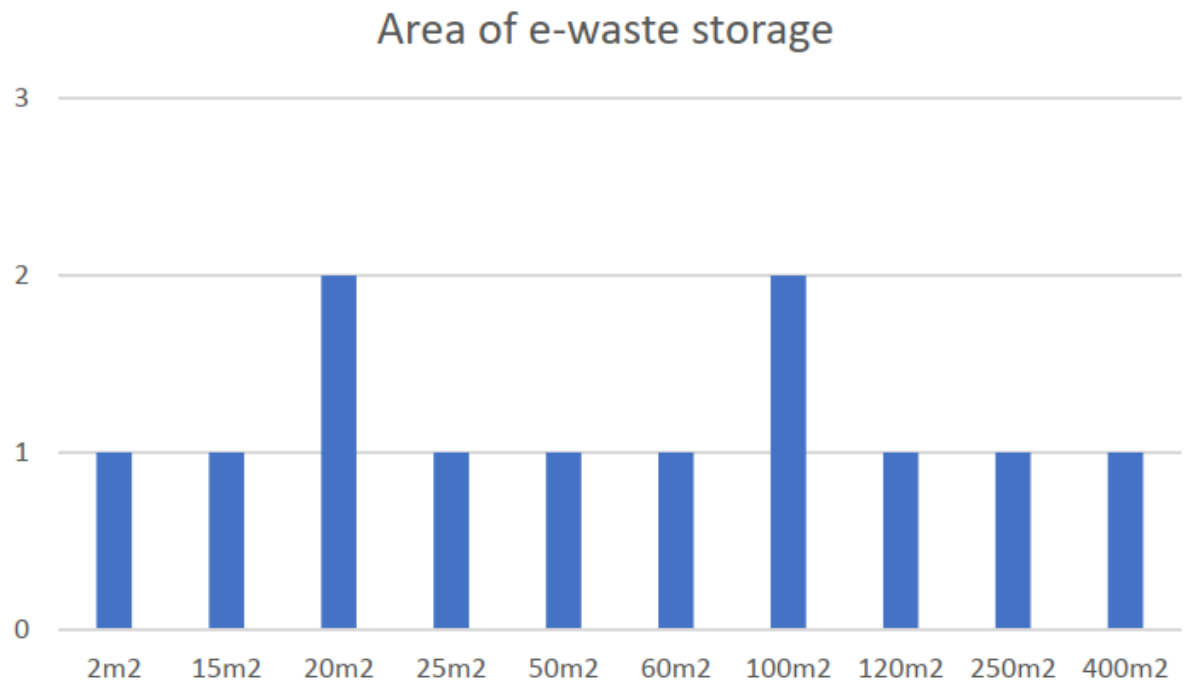


Figure 12 - Area of e-waste storage

Table 29 - Cost required for space

Cost per annum	Respondents	e-waste space	Cost of space for e-waste storage per m2
NA/unknown	10		
$17,800	1	250m2	$71.00
$33,600	1	130m2	$254.00

Feedback on additional costs related to e-waste management activities

Table 30 - Additional costs

Expense	Cost per annum or assumed per annum
Hardstand storage space	$0 (built into lease) - $25,000
Vehicle maintenance	$1,500 - $10,000
Public liability insurance	$1000 - $10million
Accident Compensation Corporation levy	$110 - $3,182
Pallets	Negligible
Wrapping pallets	Negligible - $400
Forklift use	$200 - $5,000
Shrink-wrap	$50 - $1,000
Spray paint/ marker pens	$28 - $200

Expense	Cost per annum or assumed per annum
Other costs (unspecified)	$4,235 - $5,042

Note: Prices listed above are estimates based on information provided by 12 respondents. Not all respondents answered every question and consequently estimates of pricing are not necessarily representative.

Indicative cost per item for collection

Table 31 - Indicative cost per item for collection

Item	Estimated cost per item
CRT TV	$7.00
Desktop computer	$3.50
Laptop computer	$1.22
LCD screen	$1.64
Keyboard	$0.35

Given the small number of respondents and the variability in responses received the collection costs above are a very rough estimate. To arrive at these cost estimates, several calculations were undertaken, including one for the average cost to process e-waste per tonne which was found to be $350.00 (accounting for wage costs only).

Scheme Design Webinar Feedback Survey

A total of 60 Proposed Scheme Design Feedback Form (PSDFF) responses were received from stakeholder groups who participated in the webinar sessions, facilitated discussions, and one-on-one interviews. A breakdown of the number of responses received by stakeholder group is presented in the graph below.

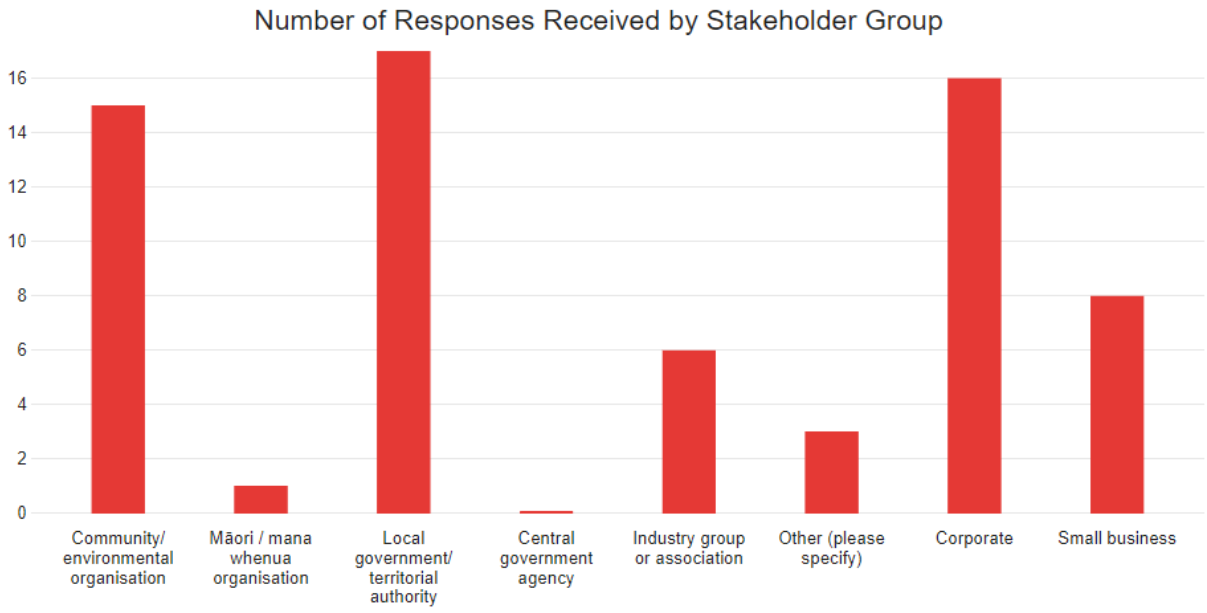


Figure 13 - PSDFF responses by cohort

A staggered approach to scheme implementation was supported by 55% of respondents, with the following opinions on targets and eco-modulation also noted. Detail on the specific elements for short-, medium-, and long-term targets are detailed in Report Two.

Short-Term Targets - From years 1-2 of the scheme

- 52% supported a short-term timeframe of 1-2 years for implementation.
- 49% felt that short-term targets were appropriate.
- 35% did not think any targets needed to be removed or moved to another timeframe.
- 11% felt that changes were needed, provided viable alternatives including moving medium-term targets to short-term, sole use of the short-term for data collection, and shift of reasonable access targets to short-term.
- 68% agreed that mandatory standards should be applied to recyclers in the short-term, and 56% for collectors and recyclers.

Medium-Term Targets - From years 3-5 of the scheme

- 61% supported a medium-term timeframe covering 3-5 years of the scheme's operation.
- 52% felt that medium-term targets were appropriate.
- 62% of respondents want reasonable access recovery infrastructure shifted to the short-term.

Long-Term Targets - From year 5+ of the scheme

- 37% supported the long-term timeframe commencing five years into the scheme.
- 35% wanted the long-term focus to begin earlier to prevent e-product design from being left out of earlier phases of the scheme.
- 40% felt that long-term targets were appropriate. Those that did not agree generally confused the data collection activity around eco-modulation as a target and suggested it be removed.
- Responses for whether long-term targets should be shifted were mixed.
  - 21% did not think any change was needed.
  - 28% wanted changes, with a split of respondents stating that eco-modulation should not be included in the scheme or that data collection should begin earlier than the long-term.

Governance and Fee Structure

- 54% of respondents agreed with the proposed governance structure.
- 49% support an ASF.
- 20% support a VBF.

Eco-modulation

- 60% of respondents support eco-modulation, 36% of which also support introducing eco-modulation for repair and reuse in the medium- and long-term.

Mandatory Standards

Approximately 22% of respondents preferred AS/NZS 5377:2013 to be the mandatory standard put in place for scheme e-waste recyclers, 29% did not have an opinion/didn't know which standard they preferred, 17% preferred e-Stewards, 14% R2 Certification, 12% CENELEC EN 50625, and 6% selected other.

A lead time of 12-months to meet the mandatory standards was deemed appropriate by 60% of respondents, only 9% disagreed, 65% also agreed that mandatory certification and recurring auditing should be carried out for the medium-term. Staging of regulations was also supported by 59% of respondents over the short-, medium-, and long-term. Visible labelling on all e-products/packaging from the scheme's outset was supported by 59% of respondents. Proposed scheme manager roles and responsibilities were supported by 61% of respondents and proposed stakeholder roles and responsibilities by 59%.

Key Feedback

As part of the feedback form, respondents were provided the opportunity to further expand on their thoughts from the live webinar sessions. Key feedback from these responses included encouragement for design interventions and the use of more modern, eco-friendly technologies where available, or import restrictions for e-products which use harmful outdated components (i.e., alkaline batteries over carbon zinc), and development of a repairability index and durability rating for e-products. An emphasis on the need for public education and awareness of stewardship was also noted. While Aotearoa New Zealand is a small market with lesser influence on product design elements (not just for e-products), feedback for greater use of metals and standardised screw heads over plastics and rivets was also noted.

Multiple stakeholders raised concerns regarding the burden of additional operating and certification costs.

Multiple stakeholders also raised concerns on the burden of additional operating and certification costs, and the potential roadblock to continuation of community repair events by the introduction of mandatory standards. Another stakeholder suggested that training programmes be implemented for recyclers and community groups to help them understand the requirements of the mandatory standards. Standardised branding, signage and communication messaging across all collection points to increase consumer engagement was also suggested. Concerns regarding a current lack of auditors in Aotearoa New Zealand capable of auditing against proposed mandatory standards were also raised. Use of a third-party clearing house approach for data collection was also suggested.

On the topic of fee structures, one stakeholder suggested that if a VBF is used it should be constructed not just considering weight but also the material of the product (i.e., higher fee for products containing hazardous substances). Another stakeholder suggested that any fee model implemented should consider the necessity of the e-product (i.e., medical equipment vs luxury goods).

Those stakeholders in favour of fee eco-modulation suggested that it be introduced in the short-term rather than long-term. Others felt that fee eco-modulation could be sufficiently implemented in conjunction with additional levers of labelling, right to repair legislation and extension of warranty periods. Another stakeholder suggested labelling e-products in line with an existing international or other jurisdictional standard.

Appendix H Impacts of COVID-19

How COVID-19 has impacted this assessment

This project commenced in September 2020 during the pandemic which has continued into 2022. COVID-19 restrictions on movement and gatherings limited the amount of face-to-face interaction that was possible for CEN meetings and workshops. The effects of the pandemic also had an impact on the priorities and availability of CEN members and other stakeholders as they worked through the impacts of COVID-19 on their own organisations.

These impacts also affected the assessment's wider stakeholder engagement activities, which, for the most part, were conducted virtually rather than in person as originally intended.

Broader implications of COVID-19 on an e-product stewardship in Aotearoa New Zealand

Looking more broadly at some of the social and economic impacts of COVID-19, we noted the following over the course of the assessment:

1. **Industries restricted to essential services:** During periods of lockdown in Aotearoa New Zealand and to combat COVID-19, the economy was largely shut down, except for essential services. Other than kerbside recycling, waste transfer stations, and community collection points for products that currently have return schemes, most other services were closed during these times. Some e-product repair services stayed in operation, but only where mail-in device repairs were possible. Essential services were extremely busy during lockdown periods which puts pressure on their ability to engage in stewardship scheme co-development. This has included importers and retailers for those e-products deemed to be essential for New Zealanders to be able to live and work while isolating at home.

2. **Supply chain disruptions:** The COVID-19 related lockdowns in Aotearoa New Zealand, as well as across other economies, caused severe disruptions to global supply chains. Although the Aotearoa New Zealand lockdowns lasted for a few months (with regional variations to note), the backlogs they brought took time to be worked through. For example, more than a year later a global shortage of semiconductors was still being experienced due to competing demands and a shortage in supply. The supply chain disruptions have also impacted e-product providers and their ability to secure replacement e-products or parts for their New Zealand customers. One electronic brand interviewed for this process relayed an example of increased repair activity because it took so long to bring replacement electrical equipment into the country.

3. **Government priorities:** The New Zealand Government's response to the pandemic and its economic impacts has been met with praise from around the world. However, that response has drawn a large amount of government time, budget, attention, and other resources which would have otherwise been utilised in other areas. This has effectively created a policy backlog similar to the supply chain issues mentioned above. While the specific impact on the development of an e-product stewardship scheme is not yet known, the CEN has taken the view that stewardship schemes can provide economic and social benefits for communities and form a part of the pandemic recovery effort.

Considering COVID-19 impacts on scheme implementation and operation

It is worth considering how the process of implementing the scheme and its ongoing operation might be affected by periodic restrictions on activity under public health orders in response to community outbreaks of COVID-19.

Protocols under the different COVID-19 alert levels in Aotearoa New Zealand - Recovery, treatment and recycling sites, and e-product retailers, already have protocols and messaging to implement at the corresponding alert levels. While we expect that high rates of vaccination will lessen the need for such restrictions, when the scheme manager(s) is accredited, they will also need to put protocols and messaging in place to ensure the community and e-product/e-waste management sectors remain safe and compliant with public health orders when engaging with the scheme.

Impacts on the scheme's operations - If periods of restricted movement and economic activity (i.e., alert levels 3 or 4) are in place around Aotearoa New Zealand once the scheme is in operation, this will have an impact on the scheme's ability to function or compliance monitoring and audit activities to be conducted. These factors should be considered during scheme performance assessment and reporting.

Further development of the scheme once in operation - Similar to the experience of investigating scheme design options, restrictions on movement and gatherings due to COVID-19 will impact on the data gathering and further stakeholder consultation activities on scheme design elements to be implemented or explored further in the short-, medium- or long-terms.

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Building a better working world

Appendix I Ernst & Young Transmittal Letter

Michael Dudley
Senior Policy Manager
TechCollect New Zealand
Quay Street, Auckland 1010

10 May 2023

Dear Michael

We have completed our engagement to perform professional services for TechCollect New Zealand Limited (TechCollect NZ); specifically:

- Providing secretariat and project management services to organise, oversee, develop and facilitate the Circular E-stewards Network (CEN), including:
  - Completion of a range of stakeholder engagement and other management activities, co-facilitation of working group sessions, and the delivery of a series of webinars
  - Preparation of a Co-design Recommendations Report for a regulated e-product and e-waste stewardship scheme in New Zealand.
- Completion of a summary report, outlining the logistics of current e-waste services in New Zealand.
- Analysis of legislation and regulations relevant to e-waste and the development of a report outlining these findings.

Our engagement was performed in accordance with our Statement of Work (SOW) dated 3 September 2020 and addenda dated 9 December 2020 and 30 September 2021. Under our Agreement, our procedures were limited to those described in the SOW.

Background

In July 2020, the Associate Minister for the Environment declared e-products a priority product class under section 9 of the Waste Minimisation Act 2008 (WMA). This declaration recognised that action should be taken to minimise the environmental harm e-products and e-waste (unwanted and end-of-life e-products) can cause when disposed of improperly. It also signified that greater reduction, reuse, recycling, recovery, and treatment of e-waste can bring social, environmental, economic, and cultural benefits to our communities.

The declaration triggered a process to develop a regulated product stewardship scheme for e-products under the WMA. To support the development of regulated product stewardship schemes, the New Zealand Government published General Guidelines for Product Stewardship Schemes for Priority Products under the WMA (Guidelines). The Guidelines indicate that the expected effects of a regulated product stewardship scheme should:

- Result in a greater level of circular resource use

- Better share and internalise the full end-of-life costs of a priority product across manufacturers, importers, retailers, and users, reducing the impact of that waste on communities, Councils, neighbourhoods, and the environment

- Offer an open, transparent, and publicly accountable process to managing e-products and e-waste through the provisioning of clear information to consumers and businesses about the scheme and regular reporting of the scheme's activities and outcomes

- Support collaboration in co-design and the optimal use of the existing e-waste collection and processing infrastructure network in New Zealand.

The purpose of this project was to capture a broad range of stakeholders' perspectives, research, and learnt experiences from other jurisdictions, to recommend co-design options for a regulated product stewardship scheme for e-products and e-waste in Aotearoa New Zealand, in line with the Guidelines.

The project was led by TechCollect NZ, in consultation with the CEN. The CEN comprised 16 members representing industry, Māori, local government, and environmental and community perspectives. Officials from the Ministry for the Environment (MfE) in New Zealand were also involved as observers. The CEN's role was advisory in nature.

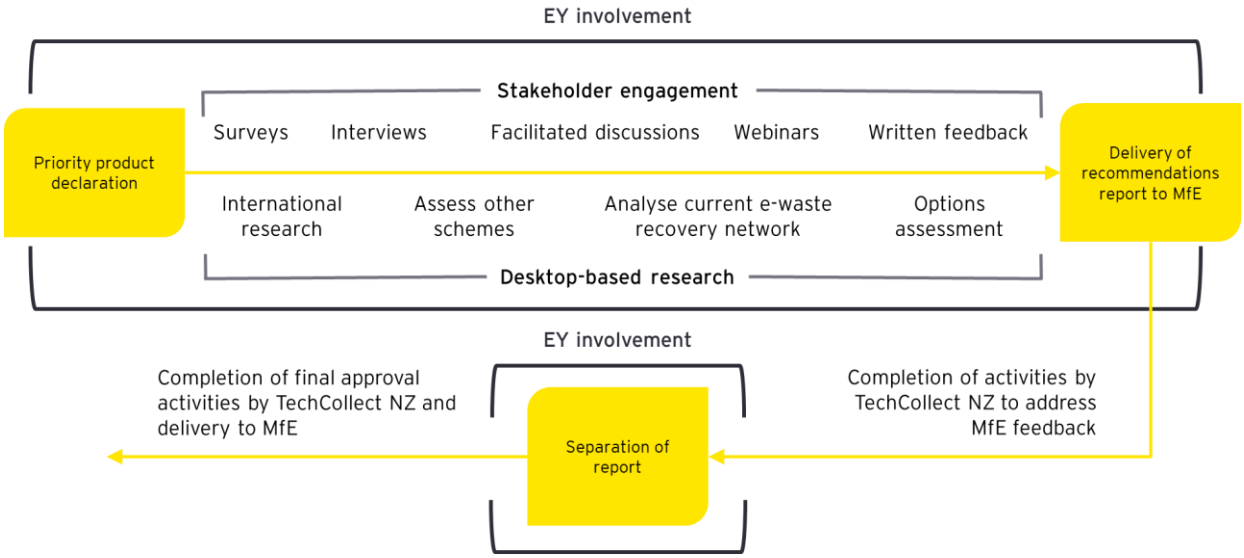
Scope of our work

TechCollect NZ engaged EY to provide secretariat and project management services in relation to the CEN (as noted above).

EY did not have "voting rights" as the secretariat and project management service provider (i.e., findings within the Co-design Recommendations Reports were factual and outlined with reference to CEN working group discussions and research and consultation activities).

Following feedback from MfE received in February 2022, further activities were completed by TechCollect NZ without EY or formal CEN involvement. These activities included, but were not limited to, amendment of the Co-design Recommendations Report to revise key elements (e.g., scheme product scoping) through additional research and co-design activities. Following completion of these activities, EY separated the report into two versions (targeted to different audience types). TechCollect NZ subsequently approved these reports, which were shared with MfE.

A summary of the project activities and stakeholder engagement, including EY's specific involvement as agreed with TechCollect NZ, is provided in the figure below:



Following acceptance of the final reports by MfE, TechCollect NZ will make the Co-design Recommendations Reports publicly available. The next steps include (but not necessarily in this order):

- Consideration of regulations recommended to support the proposed scheme framing and design (by MfE)
- Application for accreditation (by product stewardship organisation (PSO))
- Assessment of the application for accreditation against WMA sections 14-15 requirements and advice given to Minister (by MfE)
- Decision on accreditation (by Minister)
- Public consultation on regulations relating to the scheme (by MfE)
- Decisions on regulations (by Cabinet)
- Implementation of the scheme (by PSO).

In relation to the above, it is noted that:

- MfE will assess applications for scheme accreditation from eligible applicants against the requirements of the WMA s14-15, which for priority products includes the expected scheme contents and effects set out in the Guidelines
- The co-design recommendations, per the accepted Co-design Recommendations Reports, will also be used to inform public consultation by MfE on regulations to support the scheme's operation.

Building a better working world

Work products

Based on EY's procedures performed during the period 3 September 2020 to 10 May 2023, we prepared the following work product(s) for your use:

- Co-design Recommendations Reports for a regulated product stewardship scheme of E-Waste ("Co-design Recommendations Reports")
- Summary report, outlining the logistical aspects of current e-waste services in New Zealand ("Logistics Summary Report")
- Report outlining the analysis of legislation and regulations relevant to e-waste ("Legal Analysis Report").

As outlined above, management of TechCollect NZ reviewed these documents for final approval. Decisions regarding any recommendations outlined within these reports are the responsibility of MfE.

Disclaimers

TechCollect NZ management is fully and solely responsible for applying independent business judgment with respect to the services and work products provided by us, to make implementation decisions, if any, and to determine further courses of action with respect to any matters addressed in the information provided or other work product or deliverable. The nature and content of any information we provided has necessarily reflected the specific scope and limitations of our engagement and the amount and accuracy of information provided to us.

We have not performed audit or review procedures. Our engagement was not intended to be an assurance engagement, and we are unable to and do not express an opinion or make a statement about the underlying supporting data. Interpretation of the data involves the exercise of professional judgement. Accordingly, the facts, circumstances, assumptions and conclusions described in the reports may be viewed differently by others.

We appreciate the cooperation and assistance provided to us during the course of our work.

Kind regards

Pip Best
Partner, Climate Change and Sustainability Services, EY

EY | Building a better working world

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