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RESEARCH TO SUPPORT CO-DESIGN OF A PLASTIC PACKAGING PRODUCT STEWARDSHIP SCHEME FOR NEW ZEALAND

Tranche 3: Review of recognised global best practice schemes to recommend scheme options for New Zealand

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Disclaimers

The Ministry for the Environment does not necessarily endorse or support the content of the publication in any way.

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EXECUTIVE SUMMARY

Background

This report, commissioned by the Packaging Forum and the NZ Food & Grocery Council (Client) on behalf of the Plastic Packaging Product Stewardship (PPPS) Steering Group, presents a scheme design for a PPPS scheme for New Zealand, based on a study by RPS AAP Consulting, Helen Lewis Research and the Product Stewardship Centre of Excellence (Research team).

The study was the third tranche of a research program, which also included:

- **Tranche 1:** The Current State & Problem Definition – Plastic Data: This included identification of all plastic packaging, available data (tonnes) on plastic consumption, recovery, and processing.
- **Tranche 2:** The Current State & Problem Definition – Internal flow of plastic packaging from placed on market (POM) to collection and processing: This included mapping out how plastic is placed on the market in New Zealand, collected at end of life, separated at a Materials Recycling Facility (MRF), and processed.

These tranches were completed by Valpak. Key findings from the Tranche 1 & 2 report were that:

- Only 17.1% of the total estimated 263,231 tonnes of plastic packaging[1] placed on market were recycled
- One of the biggest issues is rejects/losses, defined as material that has been collected but is not being recycled, due to it not being commercially viable to do so.

This tranche (**Tranche 3**) was based on a review of recognised global best practice schemes and consideration of the New Zealand context.

These three tranches are expected to provide input into the next tranche (Tranche 4), which will focus on a cost benefit analysis (CBA) of options identified by Tranche 3.

Main study outcomes

The outcomes of Tranche 3 showed that while there are some general themes arising out of the international review of schemes, product stewardship approaches are tailored to the unique market, political, social, environmental and infrastructure context of each jurisdiction.

Despite this diversity, a noteworthy theme was that United States' (US) schemes tend to allow significant flexibility on how the scheme is funded (a market-based approach), while outside of the US, regulators provide more direction on the ultimate approach (e.g., levy structures etc.).

Key features of the New Zealand context are that:

- The proposed scheme is for plastic packaging only, whereas most other schemes cover all packaging
- There are already a number of complementary product stewardship policies and schemes
- It is a smaller market, in terms of volume of material, than most schemes reviewed
- There are large gaps in processing infrastructure

Due to this somewhat unique context, Tranche 3 considered a variety of options for each design aspect, investigating the advantages and disadvantages of each option, before arriving at recommendations.

[1] Note this refers to the total amount of all plastic packaging and is not limited to the scope of the PPPS. This is because recovery data is not available for the specific categories of in-scope materials.

These recommendations were aggregated into a consolidated scheme design, referred to in this document as the 'Template Design'. While this design contains the most 'meritorious' (e.g., best balancing of expected advantages, disadvantages and trade-offs) of potential design aspects, the study also identified potential alternatives that offer different potential advantages. As such, further analysis is required through the Tranche 4 process prior to finalising the design to take forward to implementation.

This further work is expected to include quantitative analysis of alternatives that will lead to differences in scheme benefits and costs, through the CBA (Tranche 4).

Template Design

The starting point for the design is the Government's declaration of plastic packaging as a priority product under the Waste Minimisation Act 2008 (WMA):

"All packaging used for consumer goods at retail or wholesale level (excluding beverage containers) made of plastic resin codes 1, 2, 3,4,5,6 or 7, singly or in combination with one or more of these plastics or any non-plastic material, and not refilled by the producer for retail sale or able to be refilled by the consumer at a retail establishment".

The table below presents the Template Design.

Scheme design aspect	Recommendation
Problem statement	
Problem statement	Include clear environmental, social and economic problem statements as outlined in this report.
Scope	
Material type	Include all plastic resin codes 1, 2, 3, 4, 5, 6 or 7, singly or in combination with one or more of these plastics or any non-plastic material (except for products, which are under review by the Government in relation to single-use plastic bans; and plastic-lined metal containers).
Packaging function	Include all three levels of plastic packaging of consumer goods: primary, secondary and tertiary. This would ensure that liable producers are responsible for all the packaging they place on the market in NZ. It would also increase the recycling rate as secondary and tertiary packaging is often highly recyclable (e.g., clear plastic bags and pallet wrap) but not collected for recycling.
Packaging origin	Packaging of consumer goods which is disposed in households and away from home (e.g., cafes, workplaces). Secondary and tertiary packaging used for consumer goods generated back of house in retail premises and wholesale premises (e.g., distribution centres) is also within scope.
Packaging format	Include both rigid and flexible formats.
Reusable packaging	Include refillable consumer packaging and reusable secondary and tertiary packaging for reporting purposes but not for the levy, noting that the NZ criteria specifically excludes this.
Overall scope*	• All primary and secondary packaging of consumer goods likely to be disposed within the home and consumer packaging consumed away from home which is disposed at C&I facilities. • Excludes packaging which would be covered by the implementation of a Container Return Scheme (CRS)
Number of schemes	Global scheme design practice recommends one scheme for all consumer packaging within scope however the NZ Guidelines allow for multiple accredited schemes as long as collaborative arrangements are in place. Household and Commercial & Industrial (C&I) packaging could be managed within the one scheme, but with different collection channels and funding models
Objectives, outcomes and targets	

Policy objectives	Align with the General Guidelines for Product Stewardship Scheme (Guidelines), including minor wording changes to reference plastic packaging specifically. This is to improve eligibility for accreditation of the scheme.
Schemes outcomes	Include the following outcomes: • Problematic and/or unnecessary plastic packaging is eliminated in addition to those items already banned for specific sectors (e.g. single use plastic bans for PVC and Polystyrene apply only to food & grocery sector) • Quantity of single use plastic packaging placed on the market is reducing over time in per capita terms • All plastic packaging placed on the market in New Zealand is designed for recycling and has an accessible system for collection and recycling • Increased recycling rates for household and household-like plastic packaging • All New Zealand households have access to a collection and recycling service for plastic packaging • All New Zealand households have access to accurate and accessible information on how to recycle plastic packaging • Consumers are increasingly aware of the scheme and becoming more engaged in waste reduction and recycling activities. • Improved quality of recycled plastic packaging that meets manufacturers specifications • New and expanded markets for recycled plastic packaging to increase pull through demand for materials • There is a system in place to trace the quantity and quality of plastic packaging (by resin type) at every stage of the recovery chain • Reduced plastic packaging in litter.
Targets	Include relevant, time-bound, measurable targets linked to the objectives and outcomes
Liable parties and thresholds	
Definition of producer	Define producers in a similar way to the UK to include brand owners and importers placing packaging on the NZ market, subject to the agreed threshold for liable parties. Packaging suppliers would be liable to pay the levy for packaging supplied to small organisations such as cafes that individually fall below the threshold but collectively exceeds the threshold. Note that this will require new legislation to revise the WMA to allow for Levy setting.
Liable party threshold	Threshold is based on a combination of the weight (kg) of packaging placed on market and turnover. Below either of these thresholds, members would pay a fixed annual fee.
Roles and responsibilities	Producers have primary responsibility, but the scheme should define roles and responsibilities for all packaging stakeholders including the supply chain, recyclers and government.
Funding	
Funding instrument	Adopt a weight-based levy, with fee-modulation for recycling cost. The levy, cost categories and corresponding levy rates should be determined by the Product Stewardship Organisation (PSO) rather than being prescribed by government noting that this would require new legislation to enact. Instead, government should provide the underpinning principles for the levy, while the appropriate levy structure should be determined by the PSO, in a way that the operator deems is most likely to achieve the objectives of the scheme, while maintaining a healthy financial position.
Expenditure	Adopt a principles-based approach to expenditure. That is, the scheme should be held to account on how well it meets its objectives, outcomes and targets, instead of exactly where and how expenditure is directed.
Determining net costs	Determine the approach to material ownership and calculation of net costs for the purposes of paying service providers on a case-by-case basis by collection channel.

	For the kerbside channel, the regulations should embed incentives to encourage fair arms-length contracting by counterparties, including back-stop provisions in the event that parties are unable to reach an agreement.
Governance	
Legal entity	Managed by a single entity (PSO) with a not-for-profit (NFP) structure.
Membership categories	Establish all three categories of membership (Tier 1, Tier 2 and Associate member) with different rights and obligations.[1] • Tier 1: Levy paying producer members • Tier 2: Producer members below the levy threshold • Tier 3: Associate members
Membership rights and obligations	Legal advice should be sought on the specific rights and obligations of each membership category.
Board of Directors	Drawn from Tier 1 (liable parties paying the levy) and Tier 2 (liable parties below the levy threshold) members, include independent directors with appropriate skills and experience e.g. legal, financial, governance, packaging design or recycling, and with a diverse range of perspectives e.g. Māori and local community, and an independent chair.
Monitoring and reporting	To enhance transparency and accountability, the scheme should be required to provide public annual reports, performance standards, and methods for measuring against targets. Liable parties and suppliers within the chain must report packaging material by weight and material type (including in combination materials). The scheme should also publish a strategy and roadmap that outlines how it will increase its ambition over time and how.
Risk management	
Risk management process	Identify, manage and track these risks using best practice risk management principles.
Structural elements for financial risk management	Use a combination of upfront funding, a periodic review and setting the levy to a rate required to fund long term costs to manage financial risks.
Operational framework	
Overall framework	Adopt the operational guidance outlined in the Guidelines, as well as adopting sound risks management policies and a periodic review to levy settings.
Channel management	The scheme should select collection and logistics channels using formal methods such as cost benefit analysis (CBA). Once operational, the scheme should manage its portfolio of channels to balance material coverage, yield, cost effectiveness and population coverage. The scheme should maintain a program to accredit/approve service providers to mitigate the risks of poor collection/recycling practices.
Marketing and communication	Adopt the recommendations of Kantar (2023), including that it "engage consumers emotively and empower/enable them to make a difference", and employ the functional attributes that the scheme would need to deliver to be effective: • a national approach • clear guidelines and labelling • ease and convenience so that little extra effort would be required from consumers • knowledge and understanding of what happens to recycling (for those who want to know more) • messaging that differs by target group. Marketing and communication should include community engagement, education, marketing and market research.
Research and market development	To support market development, use a mix of co-investment (providing capital as an equity investor alongside private/council investors), and innovative financing and procurement models (providing loans which may be paid back through material offtake), while supporting the NZ Government's continued support to the industry through grant programs.
Regulations	

Enforcement	Enforce the powers in the Waste Minimisation Act through legislative, legal and/or policy instruments and recommend any additional regulations required, to act as a credible threat of penalty in the event of free riding.[2]

1: Tier 1 = Companies that meet the definition of producer and the threshold to pay the levy. Tier 2 = Companies that meet the definition of producer are below the threshold for the levy. Associate members = Other Organisations that support the scheme and whose interests are aligned e.g., government, waste and recycling industry, civil society, etc.

2: While this is a mandatory scheme, to ensure effective participation, this study recommends reinforcing the powers in the Act. This could include drafting and enacting supporting legislation or legislative instruments (e.g. regulations, rules or determinations), or releasing a policy. It is likely that a policy on its own risks not being effective and will require the other instruments for effective enforcement.

Note*: The scope of the Template Design, with respect to packaging origin/source, is focussed on sources of consumer goods sold at retail and wholesale noting that there is no definition provided in the gazette definition of either retail or wholesale However, this research has identified that a broader scope that also includes business-to-business packaging has many advantages and is consistent with global precedent. Even if the scheme commences with the scope as per the Declaration of Priority Products in the Gazette, a broader scope could be phased in over time.

Alternatives recommended for quantitative analysis (CBA)

The Template Design includes the recommendation that the scheme determine and actively manage its portfolio of collection channels by balancing material coverage, yield, cost effectiveness and population coverage.

Moreover, channel selection should be based on CBA. To understand the wide range of possible benefits and costs of different channel approaches and how each of these approaches best delivers on the PPPS objectives to increase the recovery and recycling of plastic packaging, this research recommends including the following ‘book-end’ options:[2]

- **CBA Option 1 – Existing systems:** Utilise existing collection systems to collect in-scope plastics, being the current co-mingled recyclables bin at kerbside, as well as public place and drop-off collection points (community and resource recovery facilities) and commercial/industrial systems, leveraging other systems already in place (e.g., the retail network for soft plastics)
- **CBA Option 2 –Expand Plastics Recovery System:** Expand existing collection systems through either public or private providers, increase take-back/public place/community/resource recovery drop off and commercial/industrial systems and provide matching infrastructure for plastics-only sorting.
- **CBA Option 3 – Full Source Separation:** Expand the kerbside and commercial/industrial system to have 3 new bins (plastic film, rigid plastic packaging and liquid paperboard (LPB)) and provide matching infrastructure for plastics-only sorting (i.e., Plastics Recovery Facilities).

The CBA should also test sub-options for each of these three options (e.g., 1a, 1b, 2a … etc.) being:

a. **Net payment terms** with service providers, where the scheme does not own the material and therefore pays service providers a net fee, which takes into account the potential revenue earned by the service provider from the sale of materials recovered

b. **Gross payment terms** with service providers (also known as a ‘tolling agreement’), where the scheme **does** own the material and therefore pays the service provider only for its operational costs, plus a reasonable profit margin

c. **A mixed-ownership model** where the scheme owns the material up to point of transfer to reprocessors, with ownership then transferred.

[2] Bookends refers to options which sit on different ends the possible range of alternatives. This provides a type of ‘boundary analysis’, where the outcomes of being at each end of the range can be analysed, providing data which can be used to make inferences about what the outcomes might be for options in between that range.

These sub-options are not meant to change benefits and costs per se, but how those benefits and costs are distributed among stakeholders, as well as considering who is best placed to manage the risks that come about from material ownership, both the upside and downside risks.

As such, the analysis of these sub-options should be semi-quantitative, with:

- Quantitative analysis of how the benefits and costs are distributed among stakeholders ('Distributional analysis')
- Discussion on what risk management mechanisms are available to entities that own the material, and the effectiveness of those mechanisms based on the context
- Quantitative and qualitative analysis of what this might mean in terms of risk margins and the ability to attract capital
- The system-wide risks that arise if any individual entity in the chain is not able to prudently manage risk, and how the impacts of such failures could propagate across the system.

Alternatives identified

The matrix below indicates, in order of merit based on the research to date, potential alternative design aspects to the Template Design. These alternatives were reviewed by the Steering Group and other interested stakeholders at workshops and have been retained in this report for completeness.

Scheme design element	Template design	Alternative 1	Alternative 2
Problem statement	Per Section 5.1		
Scope			
Material type	• Mono-material plastic • Multi-material plastic • Bioplastic • Plastic coated fibreboard • Other composites containing plastic		
Function	• Primary (sales) packaging • Secondary (grouped) packaging • Tertiary (transport) packaging		
Origin*	• Consumer goods packaging disposed in households and away from home and associated packaging disposed at retail and wholesale premises • Excludes CRS packaging	• Template design + • B2B packaging (manufacturing, building & construction and other) • Excludes agricultural plastics although there will need to be systems in place to manage overlaps with the Green Farms scheme	• Start with Template design • Progressively phasing in additional packaging to Alternative 1 after 3-4 years
Rigid and soft	• Both		
Single and reusable	Exclude refillable packaging of consumer goods and associated reusable packaging (e.g., transport crates) with an existing recovery system at end of life	Exclude reusable B2B packaging with an existing recovery system at end of life	
Objectives, outcomes and targets	Per Section 5.3		
Liable parties & thresholds			
Definition of producer	As per UK but excluding reusable packaging		
Thresholds	Combination of turnover & weight	Turnover only	Weight only
Stakeholder roles & responsibilities	Per Section 5.5		
Scheme funding			
Funding instrument	Weight based (pro-rata)	Revenue (pro-rata)	Fee tiered by revenue

Fee-Structure (noting requirements for a change in legislation to deliver this)	Fee-modulation for recycling cost	Flat fee	Eco-modulation for recyclability & recycled content
Funding rate	Best practice review recommends this should be determined by PSO however this does not align with the current provision of the Act.	Prescribed by government	
Funding allocation	Determined by PSO	Prescribed by government	
Material ownership & payment terms	Channel by channel approach	PSO owns material and pays a gross fee to service providers (tolling model)	Service providers own material and get paid a net fee by PSO (service provider manages risk)
Scheme Governance & reporting			
Legal entity	Single entity with not-for-profit (NFP) structure		
Objects	Per Section 5.7.2		
Membership categories	Tier 1, 2 and Associate members		
Rights and obligations	Seek legal advice		
Board of Directors	Levy-paying members (Proprietary and retail brand owners and importers) and independent directors including Māori and community.	Also include on the board members representing industry associations, local government and recyclers	
Monitoring & reporting	Per Section 5.7.6		
Risk management	Per Section 5.9.1		
Operational framework			
Sound risk management	Adopt AS/NZS ISO 31000:2009 or other relevant standard		
Periodic review to levy	2-3 years	Annual	
Channel management	Undertake CBA of channel options, and active management of channels to balance coverage, yield, cost effectiveness and population coverage		
Marketing & communication	Per Section 5.9.4		

Research & development	Grants, Co-investment, Handling fees, Innovative financing	Template option + Direct investment
Regulations	Per Section 5.10	

Note*: The scope of the Template Design, with respect to packaging origin/source, is focussed on sources of consumer goods sold at retail or wholesale without defining retail or wholesale. However, this research has identified that a broader scope that also includes business-to-business packaging has many advantages and is consistent with global precedent. Even if the scheme commences with the scope as per the Gazette, a broader scope could be phased in as shown in Alternative 2.

Main next steps

These recommendations, including potential variants, are expected to be further tested through the application of CBA and further stakeholder consultation.

The evidence base of the first three tranches of the project, as well as the CBA (Tranche 4), will inform the recommended PPPS scheme design to be put forward at the end of the project.

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1 INTRODUCTION

1.1 Purpose of this report

This report presents research and scheme design options and recommendations for the plastic packaging product stewardship scheme (PPPS) for New Zealand (NZ).

The work has been commissioned by the PPPS Steering Group through the Packaging Forum and the NZ Food & Grocery Council as the appointed project leads. The report has been authored by RPS AAP Consulting, Helen Lewis Research and the Product Stewardship Centre of Excellence.

1.2 Plastic packaging waste in New Zealand

According to Valpak (2023):[3]

- More than 260,000 tonnes of plastic packaging were placed on market (POM) in New Zealand in 2022
- Only 17.1% of the 260,000 tonnes of plastic packaging placed on market were recycled
- One of the biggest issues is rejects/losses, defined as material that has been collected but is not being recycled, due to it not being commercially viable to do so.

This shows a very low base of plastics recovery by global standards, which is a gap that the PPPS would address.

1.3 Legislative and policy context

1.1.1. Legislation to establish a regulated scheme

The NZ Government has declared plastic packaging as a priority product for product stewardship, as per the Waste Minimisation Act 2008.

Following the declaration, NZ has the opportunity to introduce a regulated product stewardship scheme tailored to local conditions, learning from global best practices in scheme design and implementation.

The need to develop an effective stewardship solution for plastic packaging is driven by several factors. These include low recycling rates and relatively low domestic recycling capacity, China and other south east Asian countries no longer accepting most types of plastics since 2018 and community expectations for improved recycling systems, among other factors.

The declaration means that the objects of the *Waste Minimisation Act 2008* (the Act) require the industry to take action. This includes:

- Develop an accredited product stewardship scheme “as soon as practicable after a product is declared to be a priority product" (Section 10)
- With the requirements for accreditation outlined in Section 14
- And providing for the Government to regulate by, among other provisions:
  – *“prohibiting the sale of a priority product, except in accordance with an accredited scheme”* (Section 22).
  – *“requiring specified classes of person to provide a take-back service for products”* (Section 23).

[3] Valpak (2023) Research to support co-design of a plastic packaging product stewardship scheme for New Zealand

Against this backdrop, plastic packaging has been declared a priority product to enable the NZ Government to enable establishment of a regulated stewardship scheme co-designed with stakeholders.[4]

The product category of Plastic packaging is defined in the New Zealand Gazette Te Kāhiti o Aotearoa as *"all packaging used for consumer goods at retail or wholesale level (excluding beverage containers) made of plastic resin codes 1, 2, 3,4,5,6 or 7, singly or in combination with one or more of these plastics or any non-plastic material, and not refilled by the producer for retail sale or able to be refilled by the consumer at a retail establishment"*.

A co-designed, accredited, and regulated scheme offers many benefits. Importantly, it sets performance targets to drive change and positive environmental outcomes and ensures a high level of industry participation and resourcing, a common challenge for voluntary industry led schemes.

1.3.1 Container return scheme

In 2020, the NZ Government funded a scheme investigation and co-design process to establish a Container Return Scheme (CRS) for beverage containers.

The project was co-led by Auckland Council and Marlborough District Council. The project was guided by the following principles:[5]

- Make it easier and convenient to return containers across New Zealand
- Design a solution that is cost effective and efficient
- Improve quality and marketability of recyclables and assess impact of design on current kerbside and other collection and processing systems
- Create new opportunities for employment, community participation and fund-raising for charities and social enterprises.

An interim regulatory impact statement by the Ministry for the Environment (MFE) found that of the options considered, a CRS is the preferred option and is likely to:[6]

- Address the root causes of the beverage container recovery and litter problem, with the refundable deposit being a key incentive to improve waste practices across the value chain
- Shift costs away from councils, ratepayers and the environment, and, instead, towards responsible parts of the supply chain (i.e., beverage manufacturers, retailers and the consumers of beverages)
- Limit costs to businesses, retailers and consumers
- Align strategically with the proposed waste strategy and complement other waste initiatives (particularly proposed changes to kerbside recycling)
- Be achievable in the medium term.

The statement outlined the scope of the preferred option as being (p.7):

- Broad scope of single-use beverage containers including all single-use metal, glass, plastic (HDPE, PET and PP; and recyclable bio-based HDPE and PET) and liquid paperboard (LPB)
- Exempt fresh milk in all packaging types

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[4] https://www.beehive.govt.nz/release/government-regulate-environmentally-harmful-plastic-packaging-tyres-e-waste

[5] https://www.marlborough.govt.nz/services/recycling-and-resource-recovery/rubbish-and-recycling-projects/container-return-scheme/about-the-project

[6] https://environment.govt.nz/what-government-is-doing/cabinet-papers-and-regulatory-impact-statements/interim-regulatory-impact-statement-a-beverage-container-scheme-for-aotearoa-new-zealand/

- Exempt beverage containers intended for refilling
- Exempt beverage containers over 3 litres.[7]

The likely implementation of a CRS provides important context for a PPPS because the scope of the PPPS would then be focused on plastic packaging formats other than those already covered by the CRS. As such, this design process focuses on plastic packaging that is not expected to be within the scope of a CRS.

In March 2023, the Government deferred work on a CRS although it remains on the agenda.

1.4 Designing the Plastic Packaging Product Stewardship Scheme

1.4.1 Packaging Forum (PF)

The PF comprises members spanning the Soft Plastics Recycling Scheme (SPRS), the Glass Packaging Forum, refillers, importers, industry organisations, collectors, councils, manufacturers, packaging designers, packaging suppliers, public place bin collectors, recyclers/processors, retailers, and others.

The PF aims to ensure the industry is a credible partner for collaboration on sustainable outcomes for packaging. It also works to develop and promote litter reduction and best-practice product stewardship solutions for packaging.

1.4.2 New Zealand Food & Grocery Council (NZFGC)

The NZFGC is an industry association representing the manufacturers and suppliers of NZ's food, beverage, and grocery brands.

The association provides representations to and engages with the Government, retailers and other relevant organisations on matters that affect the industry.

1.4.3 Overview of project

The PPPS project has identified four key tranches of research that will support the design of the PPPS. These are:

- **Tranche 1:** The Current State & Problem Definition – Plastic Data: This included identification of all plastic packaging, available data (tonnes) on plastic consumption, recovery, and processing.
- **Tranche 2:** The Current State & Problem Definition – Internal flow of plastic packaging from placed on market (POM) to collection and processing: This included mapping out how plastic is placed on the market in New Zealand, collected at end of life, separated at a Materials Recovery Facility (MRF), and processed.
- **Tranche 3:** Review of recognised global best practice schemes to recommend scheme options for New Zealand which meet the General Guidelines for Product Stewardship schemes for Priority Products Notice 2020and the Waste Minimisation Act 2008 requirements. This included a desktop review of international Product Stewardship models leveraging research which is publicly available from project stakeholders.
- **Tranche 4:** Implementation options for New Zealand: This will include cost benefit analysis (CBA) of all scheme options identified in Tranche 3 which meet NZ criteria.

[7] It should be noted that the kerbside collection threshold in NZ is 4 litres. This design envisages that this threshold would still be maintained with a PPPS and that consumers would need to take packaging greater than 4 litres to a drop-off point instead.

This report outlines the findings of Tranche 3 and has been completed in parallel to Tranches 1 and 2. Tranche 4 is expected to commence in Q4 2023.

1.4.4 Objectives of Tranche 3

The objectives of Tranche 3 are to:

- Review relevant schemes from around the world relating to all single use packaging.
- Identify the NZ contextual factors that affect how a scheme should be designed
- Select design elements, based on the global scheme reviewed that are most appropriate for the NZ context.

1.5 About the authors

RPS Group

RPS is a multi-national infrastructure advisory firm, headquartered in the United Kingdom. In the Asia Pacific RPS have offices in New Zealand, Australia and Singapore. RPS' promise is to make complex easy.

RPS has deep experience developing scheme models for a wide range of product stewardship schemes in Australia. Our stewardship scheme experience spans coffee pods, plant pots, soft plastics, mobile and telecommunications products, mattresses, batteries, televisions and computers, packaging and container deposit. RPS has been appointed as a specialist advisor for economic modelling with the Australian Government Product Stewardship Centre of Excellence.

Helen Lewis Research

Helen provides research and strategic support to a range of industry and government clients on product stewardship and packaging sustainability. Her previous roles have included Chief Executive of the Australian Battery Recycling Initiative and Director of the Centre of Design at RMIT University.

Helen has a PhD in product stewardship and is a Fellow of the Australian Institute of Packaging. She is the author of Product stewardship in action (2016) and is a co-author of Packaging for sustainability (2012) and Design + Environment (2001).

Product Stewardship Centre of Excellence

The Product Stewardship Centre of Excellence (PSCoE) helps achieve best practice product stewardship, supporting Australia's transition towards a circular economy. It provides practical support, mentoring and robust technical guidance to enable businesses to participate in product stewardship initiatives and mainstream circular economy thinking in everyday business decisions.

The PSCoE is comprised of a consortium bringing together the University of Technology Sydney's Institute for Sustainable Futures (ISF), the Australian Industry Group and Dentsu Communications.

2 METHODOLOGY

2.1 Overview

The review of scheme options followed the steps outlined in Figure 1.

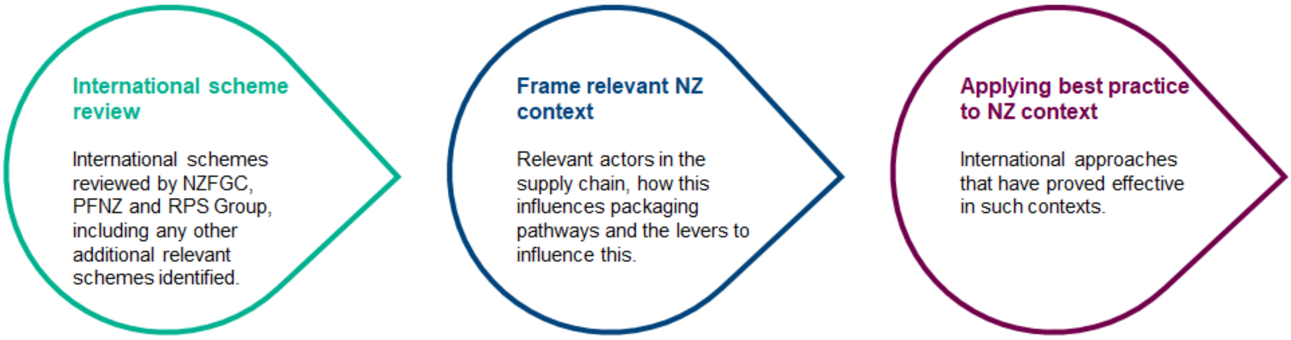

Figure 1: Tranche 3 methodology

2.1.1 International Scheme Review

The team reviewed the following schemes from around the world as being the most relevant for a PPPS:

- Europe and the United Kingdom (UK)
  - Proposed EU Regulations
  - Belgium
  - Ireland
  - Netherlands
  - Norway
  - France
  - United Kingdom
- North America
  - Alberta
  - California
  - Colorado
  - Oregon
  - British Columbia
  - Maine
  - Ontario
- Others:
  - Australia

2.1.2 Frame the relevant NZ context

Successful product stewardship design requires an understanding of the unique institutional, geographical and material context rather than ‘copying-and-pasting’ a scheme design implemented elsewhere. For this step, the team framed the relevant NZ context in terms of:

- The relevant actors in the supply chain
- The network of incentives that lead to packaging currently taking suboptimal pathways from the point of view of the waste hierarchy
- What it is likely to take to alter incentives faced by the actors in the supply chain
- The funding required to make this happen and the form that funding could take to be most effective
- The potential role(s) of government in supporting this process
- The need to balance incentives across the supply chain
- The effects of different forms of market development and how they are likely to work as an integrated package of support mechanisms spanning:
  - Capital co-funding
  - Payments for volumes processed
  - Investments in research and development projects
  - Alternative forms of financing (e.g. low-interest loans etc.).

2.1.3 Applying best practice to NZ context

Based on this research we identified international best practice models that will best be able to meet the requirements of the Waste Minimisation Act, including sections 14 and 15 and general guidelines for Priority Product stewardship schemes published under section 12 and among the criteria for scheme accreditation under 15 (1)(e).

The design recommendations were formed by:

- Ensuring a reasonable range of potential design choices have been considered
- Evaluating the advantages and disadvantages of different options
- Recommending a design choice based on this evaluation

2.2 Scheme review and design framework

Appendix A outlines the review and design framework that was applied to the review of international schemes, and for the presentation of PPPS design recommendations.

The framework helped the team think through the different decisions that need to be made for a product stewardship scheme and which approaches have been adopted by prior schemes.

The framework was informed by frameworks adopted on similar prior engagements by the authors, including the Product Stewardship Centre of Excellence’s eight key elements to scheme design and five key characteristics to effective product stewardship, as well as the EXPRA 10 golden rules for EPR. As shown in Appendix A, the framework elements include:[8]

[8] https://stewardshipexcellence.com.au/wp-content/uploads/2023/06/Evaluating-product-stewardship-benefits-and-effectiveness-%E2%80%93-SUMMARY-REPORT-May-2023-20230628.pdf; https://www.expra.eu/en/about/believes

- Problem definition
  - Design
  - Manufacture
  - Use
  - End of life
- Scope:
  - Product / packaging
  - Geography
  - Sectors
- Objectives:
  - Environment – reduction, reuse, recycling, hazards
  - Human health
  - Social
  - Economic / financial / governance
- Outcomes achieved:
  - Environment – reduction, reuse, recycling, hazards
  - Human health
  - Social
  - Economic / financial / governance
- Funding:
  - Membership fee
  - Packaging levy – who pays the levy / thresholds
  - What is the levy tied to (units, volume, weight) and why?
  - Who ultimately pays the cost (cost incidence)?
  - How is this achieved (e.g. passthrough to consumer)?
  - Levy – basis for any fee-modulation
  - Reporting packaging data for the levy
- Use of funding:
  - Handling fees for collection, sorting and reprocessing
  - Direct investment in infrastructure
  - Incentives for end-use (manufacturing)
  - Grants and commercialisation projects
  - Marketing, education and awareness campaigns
  - Auditing, reporting and compliance
- Governance:
  - Legislation
  - Legal structure

- Board composition
- Roles and responsibilities – PSO and local government

- Operations:
  - Accessibility of services - all users, national coverage (household packaging)
  - Accessibility of services – commercial packaging
  - Definition of roles and responsibilities
  - Markets for recovered material
  - Safety / environmental management
  - Design, reuse, repair, collection and recycling standards, protocols, codes of practices
- Measures to address risks:
  - Level of industry participation
  - Do they have sufficient funds to achieve the outcomes
  - Any evidence of challenges implementing and solutions
- Effectiveness
  - How well has the initiative been in achieving its objectives?
  - What characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing.

2.3 New Zealand guidelines for priority product schemes

The NZ legislative framework for priority products outlines the necessary elements and considerations for this scheme design. Key documents within that framework are the:

- *Waste Minimisation Act 2008*, which provides the legislative underpinning as the driving force to introduce a scheme and giving power to the Government to regulate the sale of priority products
- The Declaration of Priority Products Notice 2020 and corrected text (corrigendum) notice published September 2020.
- Guidelines for Product Stewardship Schemes for Priority Products Notice 2020 (Guidelines), which provide more details on how schemes should be designed and what they should achieve, including:
  - Expected Product Stewardship Scheme Effects
  - Expected Product Stewardship Scheme Contents.

The scheme design was developed to be aligned with the Act, Notice and Guidelines. This document references the relevant provision(s) of the Guidelines where this was used to inform the scheme design.

3 KEY THEMES FROM INTERNATIONAL REVIEW

The international review showed that scheme designs varied significantly depending on the jurisdiction.

Appendix A contains the detailed review of each scheme.

This section outlines some of the key themes arising from the review of European and North American schemes. Both regions have some common underpinnings. For example:

- European schemes, other than for those countries outside of the EU, are underpinned by the EU's *Packaging and Packaging Waste Directive (PPWD)*
- Schemes in the US are underpinned by state legislation, potentially influenced by a model bill introduced by the US Product Stewardship Institute.

Observations from European schemes include that:

- **Scope of liable parties** – some include suppliers of unfilled packaging which broadens coverage, some include both household and commercial and industrial (C&I) markets, while the UK also specifically includes online marketplaces. All include more than one packaging material.
- **Governing organisations** – the UK is planning to replace multiple Producer Responsibility Organisations (PROs) with one scheme administrator, potentially within the public service (with extensive government involvement), which is a significant departure from their previous regulation. Single PROs are common elsewhere across Europe but not located in the public sector.
- **Governing Organisation Boards** – some are made up of industry associations, others have directors elected from individual members.
- **Fee-modulated levies** – are becoming the default option for all of packaging EPR schemes. Some have relatively simple categories (e.g. rigid/flexible plastics) while others are more complex (e.g. France bonus-malus system with discounts or extra charges for various factors).
- **What funds are used for** – at least a couple of schemes link funding to implementation of standardised kerbside recycling by local authorities. In the UK this will include flexible packaging in kerbside from 2027.

Observations from North American schemes include that:

- **Focus on residential streams** – Generally focus on residential streams and on shifting costs from consumers to producers (either plastics only or most packaging materials).
- **Targets can be granular** – Alberta and British Columbia have separate targets for rigid and flexible plastics.
- **Targets can include a range of outcomes** – Including end-of-life collection (access), sorting and processing, as well as recycling, reuse and recyclability.
- **Scheme objectives going beyond recycling** – For example, California has an emphasis on source reduction and material quality and the Colorado bill also has a design obligation and markets focus[9]
- **Flexibility on how many governing organisations to appoint** – Legislation allows for multiple PSOs but governments often appoint only one
- **US schemes favour a market-based approach** – That is, they set objectives for PSOs but provide flexibility on how this is achieved

[9] Although it should be acknowledged that at present, material quality and design obligations would have limited impacts in New Zealand due to the very low level of domestic plastic packaging production in the country. As such, these elements are unlikely to be an immediate focus of a scheme for the country.

- **US schemes tend to apply pricing principles but not rules** – This includes principles for how prices should be determined, including for fee-modulation, but not strict rules, with some being stronger in their principles than others.

It should also be noted that there are various additional international trends and policies affecting the design, use and recycling of packaging, such as:

- The EU Parliament's backing of a proposal to ban the export of all types of waste[10]
- Implementation of export bans in Australia[11]
- The EU's tax on virgin plastics[12]
- The EU's eco-design directive, which is a framework of design requirements for specific product groups to improve their circularity.[13]

Some key insights from the global review for this design of the PPPS included:

- **Based on the UK,** having a clear flowchart process for identifying packaging which is liable under EPR provides significant transparency
- **Based on Norway,** multiple PSOs for packaging materials has made it difficult for a fee-modulation system to be introduced, as this reduces the competitiveness of a PRO scheme amongst its peers
- **Based on Ireland,** which is a similar size country to NZ, the country has put in place a robust system to identify the true cost of recycling by material type at the MRF, and to assess recyclate quality.

The use of pricing principles in the US also provides some points for consideration for the PPPS. Overall, the advantage of the US approach is that the PSO has flexibility to adapt pricing as it gains experience on how price settings impact behaviour, as well as adapting to market conditions. The main disadvantage is that the risk that the PSO reduces its ambitions and correspondingly, its costs and fees to members.

[10] https://balkangreenenergynews.com/waste-is-a-resource-eu-to-impose-stricter-rules-ban-plastic-waste-export/#:~:text=The%20European%20Parliament%20overwhelmingly%20backed,EU%20to%20non%2DOECD%20countries.

[11] https://www.reuters.com/business/environment/exclusive-after-much-praised-waste-export-ban-australia-under-fire-shipping-2022-02-28/

[12] https://clustercollaboration.eu/community-news/consequences-plastic-tax-packaging-sector

[13] https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products_en

4 RELEVANT NEW ZEALAND CONTEXT

4.1 Packaging data

According to Valpak (2023):[14]

- More than 260,000 tonnes of plastic packaging (including out of scope materials) were placed on market (POM) in New Zealand in 2022
- Only 17.1% of the 260,000 tonnes of plastic packaging placed on market were recycled (noting that it is not possible from the available data to determine what the recycling rate for "in scope" plastic packaging)
- One of the biggest issues is rejects/losses, defined as material that has been collected but is not being recycled, due to it not being commercially viable to do so.

This shows a very low base of plastics recovery by global standards, which is a gap that the PPPS would address.

4.2 Current pathways

The Valpak report identified that in New Zealand there are a wide variety of recycling collection options, including kerbside collections; drop-off; post-back; commercial collections; municipal and commercial transfer stations, community recycling centres and resource recovery centres.

4.3 Complementary policies, declarations and schemes

The PPPS design considers that that there are complementary initiatives in NZ that also address plastic packaging design, production, use and end-of-life management. These are:

- **The Container Return Scheme**: which, as outlined in Section 1.3, will cover selected single-use beverage containers
- **Kerbside collection standard:** standardising kerbside collection in NZ[15]
- **Plastic pacts:** Facilitating knowledge sharing in the Pacific Region on topics ranging from effective recovery systems, circular design and new business models[16]
- **Farm plastics:** which were also identified in the priority product declaration in accordance with the Waste Minimisation Act. Co-design of a regulated scheme is currently being led by Agrecovery.
- **Existing voluntary schemes,** all of which are accredited under the Waste Minimisation Act, including:
  - The Soft Plastics Recycling Scheme (managed by the Packaging Forum), which collects household soft plastic through a network of retail drop-off points
  - Agrecovery recycling schemes for farm plastics including agricultural chemical drums and small LDPE and woven PP plastic bags
  - Plasback, which collects farm plastics including silage wrap, silage covers, grain bags, polypropylene bags, twines, large drum recovery, vine nets and irrigation pipe.
  - Resene Paintwise scheme which collects paint containers.

[14] Valpak (2023) Research to support co-design of a plastic packaging product stewardship scheme for New Zealand

[15] https://www.beehive.govt.nz/release/standard-kerbside-recycling-part-new-era-waste-system

[16] https://environment.govt.nz/news/government-supports-the-regional-plastics-pact-to-address-plastic-packaging/

5 RECOMMENDATIONS FROM REVIEW OF GLOBAL SCHEMES

The following subsections outline several aspects of scheme design investigated by the research team, outlining options that were considered and the recommendations relating to each one.

5.1 Problem statement

5.1.1 Environmental

In 2022, more than 260,000 tonnes of all plastic packaging, including items that are not in-scope for PPPS, were placed on market (POM) in New Zealand and only 45,000 tonnes (17.1%) was recycled at the end of its life.[17].

Most consumer packaging is only used once, while a small proportion (an unknown quantity) is refilled or reused in other ways.

An unacceptable quantity ends up in the natural environment as litter. Plastic litter on land and in waterways reduces public amenity as well as posing risks to animals and wildlife. The results of the National Litter Audit found that plastic was the commonly found material type in 2022 with a 72.4% increase since 2019 (50 plastic items vs. 29 items per 1,000 m² in 2019).[18] This includes both packaging and non-packaging items. Plastics made up 38% of littered items in the areas surveyed (excluding cigarette butts), with the majority of items being plastic packaging and cutlery.[19] There is also growing international awareness of the global risks of marine plastics and microplastics in the food chain and ecosystems.

The manufacture, use and disposal of plastic packaging in New Zealand needs to transition from a linear to a circular economy.

5.1.2 Social

Accessibility of recycling services for consumers is inconsistent, with some households in remote and regional areas lacking a service or only being able to recycle some materials.

There is growing awareness that some plastics release toxic chemicals including additives and residual monomers into people and may pose risks to human health.[20]

5.1.3 Economic

There is limited local infrastructure to recycle the various types of plastic packaging in New Zealand, with only 29,000 tonnes (64% of recovered plastic packaging) processed locally and 16,000 tonnes (36%) exported for processing with a further 16,000 tonnes capacity to be added.[21] There is an opportunity to establish new businesses and clean technology (clean-tech) jobs within New Zealand to collect, sort, reuse and reprocess plastic packaging. Most recycled material from the current local collection and recycling

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[17] Valpak (2023) Research to support co-design of a plastic packaging product stewardship scheme for New Zealand, p. 79

[18] Keep New Zealand Beautiful (2022), National Litter Audit 2022, https://www.knzb.org.nz/wp-content/uploads/2023/03/KNZB-National-Litter-Audit-2023-Report-web.pdf

[19] BATK (2023), 2022-23 Packaging Forum Litter Audit

[20] See for example The Minderoo-Monaco Commission on Plastics and Human Health (2023), https://www.minderoo.org/no-plastic-waste/minderoo-monaco-commission/

[21] Valpak (2023) Research to support co-design of a plastic packaging product stewardship scheme for New Zealand, p. 79

system does not meet packaging manufacturer specifications, which means that most is down cycled into lower value applications.[22]

The financial costs of managing plastic waste are currently predominantly borne by communities mainly via their rates, with some industry funded schemes, rather than being part of the cost of supplying packaging.

5.2 Packaging scope

5.2.1 Categories of plastic packaging

Plastic packaging is defined in the Minister's declaration of priority products as[23]:

> *All packaging used for consumer goods at retail or wholesale level (excluding beverage containers) made of plastic resin codes 1, 2, 3, 4, 5, 6 or 7, singly or in combination with one or more of these plastics or any non-plastic material, and not refilled by the producer for retail sale or able to be refilled by the consumer at a retail establishment*.

This definition requires clarification as it does not define retail, wholesale or refillable.

Packaging can be categorised in many ways including by material type, function, format, and origin.

Material type and composition

The potential scope of plastic packaging by material type and composition is explored in Table 1.

The priority product declaration currently includes plastic composite packaging, for example, fibre/plastic composite packaging such as lined paper drink cups, other plastic lined fibre food service packaging and liquid paperboard (LPB) containers. The research finds that in combination materials in other countries are managed within the main primary material. For design of modulated fees and collections in a plastic packaging only scheme, specific criteria for inclusion of fibre/plastic composites will need to be defined, for example, inclusion of material if:

a. the packaging is not recyclable in the paper/cardboard stream due to the plastic component (which could be determined through rules in the Australasian Recycling Label (ARL) labelling scheme)

b. the plastic component exceeds a certain weight threshold, e.g., >5% of the total packaging weight

c. the plastic component exceeds a certain thickness threshold (in microns).

The first of these options above is likely to be the most feasible given the difficulties in determining a common threshold for weight or thickness that inhibits recyclability.

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[22] It should be acknowledged that achieving this is also dependent on whether technology exists to remanufacture (E, g food grade flexible plastic systems are currently in their infancy).

[23] Corrigendum—Declaration of Priority Products Notice 2020, https://gazette.govt.nz/notice/id/2020-go3468

Table 1: Scope of packaging by material type

Option	Examples	Recommendation	Comment
Mono-material plastics	PET, HDPE, LDPE, PVC, PP	Within scope	Includes identical polymers made from renewable materials e.g. Bio-PET
Multi-material plastics	Multi-laminated substrates with different plastic materials and often other materials e.g. aluminium, paper	Within scope	Fee-modulation to incentivise mono-material packaging and simplified structures
Bioplastic	PLA, starch blends	Within scope but will require an alternative collection channel (organics recycling). This requires further consultation with local councils and the organics industry on acceptability of compostable plastics in this stream.	Fee-modulation to incentivise certified compostable polymers
Fiber/plastic composite or plastic-coated fibre	Coffee cups, liquid paperboard, aseptic cartons	Within scope except for products, which are being reviewed by the Government under single use and hard to recycle plastic bans	If a fibre packaging stewardship scheme is introduced in future these products could transition out of the PPPS and into the new fibre scheme
Other composite packaging formats	Plastic cans with metal lids	Within scope except plastic-lined metal cans, which have existing recycling pathways and the plastic component is not problematic	Fee-modulation to disincentivise use of mixed materials that inhibit recycling

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Recommendation 1: Material type

Recommendation for PPPS (Material type)

It is recommended that the scheme scope include plastic packaging made of plastic resin codes 1, 2, 3, 4, 5, 6 or 7, singly or in combination with one or more of these plastics or any non-plastic material (except for products which are under review by the Government in relation to single-use plastic bans and plastic-lined metal containers).

Function

Packaging can be categorised by material, function i.e. primary, secondary or tertiary (transport) packaging (Table 2).

Table 2: Packaging categorised by function[24]

Packaging function	Description
Primary (sales) packaging	Primary packaging, also known as consumer or retail packaging, refers to the layer/s that contain and protect individual product units up to the point of sale (e.g. bag, bottle, jar, box etc.) and that are removed for use. Primary packaging also includes any packaging given to consumers at the point of retail sales (e.g. retail bag, food service cups and containers etc.) as well as packaging delivered to consumers with online sales (e.g. bag, cushioning etc.).
Secondary packaging	Secondary packaging is additional to the primary packaging and is used to protect and collate individual product units during storage, transport and distribution. This may include shelf-ready packaging (SRP), also known as retail-ready packaging (RRP) or counter- top display units (CDUs), containing multiple product units and used for retail display.
Tertiary (transport) packaging	Tertiary packaging is used in the protection and shipping of a product. This type of packaging is also known as distribution packaging, transport packaging and business-to-business (B2B packaging). It consists of packaging and components such as pallets, stretch wrap, strapping and any labels.

A noteworthy feature of the UK scheme is that it has developed clear flow charts to provide guidance on which packaging is deemed liable under the scheme. Similar flow charts are recommended for the PPPS. Appendix C provides illustrative examples of potential flow charts for primary, secondary and tertiary packaging to be liable under the PPPS.

Recommendation 2: Packaging function

Recommendation for PPPS (Packaging function)

It is recommended that the scheme include all three layers of plastic packaging used to distribute consumer goods: primary, secondary and tertiary. This would ensure that liable producers are responsible for all the packaging they place on the market in NZ. It would also increase the recycling rate as secondary and tertiary packaging generated back of house in retail and wholesale premises is often highly recyclable (e.g., clear plastic bags and pallet wrap) but not collected for recycling.

[24] Based on APCO (2022), Australian packaging consumption & recycling data 2019-20,p. 119, https://documen

ts.packagingcovenant.org.au/public-documents/Australian%20Packaging%20Consumption%20And%20Recycling%20Data%202019-20

Origin of packaging waste

Plastic packaging can also be categorised by where the waste originates i.e., within households, commercial & industrial facilities or the agricultural sector (Table 3). The priority product declaration refers to plastic packaging *"used for consumer goods at retail or wholesale level (excluding beverage containers)"*. While this should be considered the initial scope of the scheme (Option 1 below), it is recommended that the scope is expanded over time to include all sectors apart from agriculture (Options 2 and 3). Examples of packaging within scope and out of scope for Option 1 are shown in Table 4,

Table 3: Options for packaging scope categorised by origin

Origin	Option 1 scope	Option 2 scope	Option 3 scope
Household packaging Packaging generated in the normal activities of a household. Examples: Bottles, tubs, bags, wrap, trays	All primary and secondary packaging of consumer goods likely to be disposed within the home. Also include consumer packaging consumed away from home, which is disposed at C&I facilities (see below).	All primary and secondary packaging of consumer goods likely to be disposed within the home. Also include consumer packaging consumed away from home, which is disposed at C&I facilities (see below).	All primary and secondary packaging of consumer goods likely to be disposed within the home. Also include consumer packaging consumed away from home, which is disposed at C&I facilities (see below).
Commercial & industrial (C&I) packaging Packaging is generated from trade, commercial and industrial activities including waste from hospitality venues, offices, manufacturing, factories, schools, universities, hospitals, government operations etc	All primary, secondary and tertiary packaging of consumer goods consumed at retail or wholesale levels Excludes beverage containers within scope of the CRS if it is to be implemented. Examples (see Table 4): • Single use food service packaging • Pallet wrap, shrink film, bags etc used to transport consumer goods, generated back of house in retail premises, warehouses and distribution centres.	All C&I business-to-business (B2B) included within scope I.e., packaging generated in manufacturing and other business and public sector activities. Examples: • Pallet wrap, shrink film and strapping used to transport products to a business user. • Bulk packaging e.g., sacks, crates, drums.	Add C&I packaging in a phased approach
Building & construction packaging Packaging is generated on construction sites and during renovation/refit projects.	Out of scope.	Include plastic packaging from the building & construction sector within scope. Examples: • Pallet wrap, strapping, tubes, tubs, bags, drums Excludes building wrap (i.e. for waterproofing or insulation).	Include construction packaging in a phased approach (see 5.2.2 below)

Agricultural plastics packaging Packaging is generated on farms and associated facilities, e.g. packing sheds.	Out of scope as a separate scheme has been developed for agrichemicals and their containers and ‘farm plastics’. The first phase includes four categories with other categories to be phased in over time. Phase one examples: • Sacks, bulk bags, chemical drums	Out of scope.	Out of scope.

Table 4: Examples of packaging in scope for Option 1

Origin of packaging waste	Within scope	Out of scope for levy
Households	All primary packaging e.g. bottles, tubs, bags, wrap, trays etc Secondary packaging e.g. bundle shrink	Beverage containers covered by the CRS
Food service venues – cafes, canteens etc	All primary household-like packaging e.g. bottles, tubs, bags, wrap, trays etc Secondary packaging generated back of house e.g. bundle shrink Tertiary packaging generated back of house e.g. pallet wrap	Beverage containers covered by the CRS Reusable packaging e.g. dairy crates Bulk B2B packaging
Fashion retailer	Plastic wrap around garments Tertiary packaging generated back of house e.g. pallet wrap	Reusable distribution packaging e.g. plastic totes
Distribution centre	Pallet wrap on incoming consumer goods removed at the DC Any packaging added to distribute consumer goods to retail stores or direct to customer	Reusable distribution packaging e.g. plastic totes

Recommendation 3: Packaging origin[25]

Recommendation for PPPS (Packaging origin)

It is recommended that the scheme initially include primary packaging of consumer goods disposed in households and away from home. It should also include secondary and tertiary packaging of consumer goods which is generated back-of-house in retail and wholesale premises. Over time it is recommended that the scope is widened to include all commercial & industrial packaging including B2B packaging (see section 5.,2.2). Farm plastics are excluded.

Rigid and soft plastics

Plastic packaging can be categorised by its primary format, i.e. whether rigid or soft (Table 5).

[25] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/product-stewardship/regulated-product-stewardship/#six-priority-products-for-regulated-product-stewardship

Table 5: Packaging categorised by format[26]

Category	Description	Recommendation
Soft (flexible) plastic packaging	Soft (flexible) plastics are generally defined as plastics that can be scrunched into a ball, unlike 'rigid' plastics such as bottles and tubs, which are moulded and hold their shape.	Within scope, including incorporating soft plastics currently covered within the voluntary *Soft Plastics Recycling Scheme*[27].
Rigid plastic packaging	Rigid plastic packaging such as bottles and tubs, which are (generally) moulded and hold their shape.	Within scope

[26] APCO (2022), Australian packaging consumption & recycling data 2019-20,p. 123, https://documents.packagingcovenant.org.au/public-documents/Australian%20Packaging%20Consumption%20And%20Recycling%20Data%202019-20

[27] https://www.recycling.kiwi.nz/#:~:text=Soft%20Plastic%20Recycling,-Recycling%20soft%20plastic&text=What%20do%20you%20need%20to%20do%3F,white%20soft%20plastic%20recycling%20bin.

Recommendation 4: Packaging format

Recommendation for PPPS (Packaging format)

It is recommended that the scheme include both formats. There will be efficiency benefits if it incorporates soft plastics currently covered by the voluntary soft plastics scheme.

Single use and reusable packaging

The definition of plastic packaging excludes packaging '*refilled by the producer for retail sale or able to be refilled by the consumer at a retail establishment'.*

Options to include or exclude refillable and other types of reusable packaging are outlined in Table 6 and it is noted that there is noting that prevents an accredited priority scheme creating options for producers of refillable packaging to join the scheme in an appropriate category of membership and their containers included in scheme collections and recycling at end of life.

Table 6To be defined as reusable, packaging needs to demonstrate that it is capable of being reused a minimum number of times over its life cycle, in a purposely designed system of reuse. It also needs to be reused in the same application for which it was originally designed.

The proposed definition of reusable packaging is:[28]

> *Packaging or packaging component which has been designed to accomplish and proves its ability to accomplish a minimum number of trips or rotations in a system for reuse.*

In contrast, single use packaging is packaging that is: [29]

> ***Packaging that is likely to be designed to be discarded after a single use and is routinely disposed of after its contents have been unpacked or exhausted.***

Table 6: Options to include different types of reusable packaging

Type of packaging	Description - examples	Advantages of including	Disadvantages of including	Recommendation
Household packaging returned to producer (packaging owned by producer)	• Packaging is dropped off at collection point or collected from home e.g., water cooler bottles	• Would ensure a recycling system is available at end of life	• Producers may already have a system to recycle at end of life. • Lost opportunity to incentivise reusable packaging	Included within the scheme for reporting purposes only. Out of scope for the levy to provide producers with an incentive to introduce refillable packaging.

[28] APCO, *Scaling Up Reusable Packaging*, p. 41. Available at: https://documents.packagingcovenant.org.au/public-documents/Scaling%20Up%20Reusable%20Packaging

[29] Ibid.

			(producers not liable for fees)	
Refill at home (packaging owned by consumer)	• Customer buys refill packs e.g., sachets to fill a reusable bottle	• Would ensure a recycling system is available at end of life	• Lost opportunity to incentivise reusable packaging (producers not liable for fees)	Included - obligated to pay the levy when first placed on the market unless there is evidence that it meets the definition above
Refill on the go (packaging owned by consumer)	• Consumer refills packaging away from home, e.g., from a dispensing machine	• Would ensure a recycling system is available at end of life	• Lost opportunity to incentivise reusable packaging (producers not liable for fees)	Included - Obligated to pay the levy when first placed on the market unless there is evidence that it meets the definition above
Business-to-business packaging (producer owned or third-party pool)	• Fresh produce crates, pallets	• Would ensure a recycling system is available at end of life	• Lost opportunity to incentivise reusable packaging (producers not liable for fees)	Included within the scheme for reporting purposes only.

Recommendation 5: Reusable packaging

Recommendation for PPPS (Reusable packaging)

It is recommended that the PPPS exclude refillable consumer packaging and reusable distribution packaging with an existing recovery system at end of life to incentivise this type of packaging in recognition of its environmental benefits.

5.2.2 Scope recommendation and options for a phased approach

The Declaration of Priority Products in the New Zealand Gazette is focused on consumer goods packaging including at retail and wholesale levels, albeit the declaration does not provide a prescriptive definition of what is covered by this scope. There is no definition of 'consumer' for example, in any of the policy documents nor any definition or retail or wholesale. In the absence of specific definitions, this report builds on the definition of packaging used in other countries with examples of decision-making flowcharts in Appendices. The recommendations in this document commence with **consumer** goods sold at retail and wholesale.

However, it is also recommended that packaging within scope of the scheme is widened over time, commencing with the initial scope and phasing in all other types of plastic packaging including all commercial and industrial (B2B) packaging. This is consistent with many of the global schemes that were reviewed (Box 1), which generally include all plastic packaging.

As the recommended packaging scope is very broad and considering the current collection services, recycling capacity and markets for recyclate, a phased approach based on origin of waste is recommended. Table 6 outlines a phased approach where the scope of the scheme would be expanded over time as additional recycling infrastructure came online and new markets for recyclate were developed.

A longer-term option is to extend the scope of the scheme beyond plastics to include all household packaging: plastics, steel, aluminium, paper/cardboard, glass, and timber in line with global practice. It is noted that an accredited priority product scheme for plastic packaging can also add services to packaging types not declared as priority products using appropriate categories of membership and fees for services. An expanded scheme will achieve higher recovery rates and improve efficiencies. It will also avoid the substitution of plastic packaging with alternative materials such as glass and cardboard that may have higher life cycle impacts (e.g., higher carbon footprint, more food waste etc.).

Table 7: Options to expand scope of the scheme over time

Phase	Scope	Rationale for scope	Exclusions	Rationale for exclusions
Option 1 – household and household-like	Plastic consumer goods packaging (primary, secondary and tertiary) Includes consumer goods packaging disposed away from home, e.g., in food service venues	Priority materials given there is an existing kerbside collection service, limited end markets for some plastic and market failures that have limited progress to date.	• Beverage containers covered by a Container Return Scheme (CRS) • Refillable packaging that meets a clear definition.	Beverage containers are covered by the proposed CRS. Refillable packaging is currently excluded by the government from scope of priority products. Exclusion from fee liabilities will provide an incentive for greater use of refillable packaging.
Option 2 all plastic packaging	All plastic consumer goods packaging consumer in households and away from home, C&I packaging and building & construction packaging	Best practice schemes include all plastic packaging to reduce waste and recover resources.	• Beverage containers covered by a CRS • Refillable packaging that meets a clear definition. • Reusable B2B packaging. • Building wrap (insulating film). • Agricultural packaging (farm plastics)	As above. Building wrap is not packaging. Agricultural packaging is covered by proposed product stewardship schemes for farm plastics and agrichemical containers.
Option 3 – phased approach	Gradually expand the scheme to include all plastic packaging in a phased approach. Year 1: Option 1 scope Year 3: Add all C&I (B2B) packaging except for building and construction. Year 5: Extend scope to all plastic packaging including building & construction. Consideration should be given to extending scope to include other non-plastic materials (metals, paper/board, glass).	C&I tertiary packaging includes large quantities of mono-material LDPE and relatively straightforward to collect. Good end markets already available for clean, clear wrap. Building & construction packaging is more problematic to recycle due to different materials and limited collection systems and could be introduced later. Extending scope to include all packaging in Year 5 would address the wider waste problem and avoid unintended consequences due to plastics substitution.	• Beverage containers covered by a CRS. • Refillable and reusable packaging. • Building wrap (insulating film). • Agricultural packaging (farm plastics)	As above

Box 1: Examples of how packaging scope is defined from the global scheme review

UK regulations

The definition of packaging is *'all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer'*.

Norway

Packaging means all products and disposable items, made of any materials of any nature, to be used for the containment, protection, handling, delivery from the producer to the user, and presentation of goods, including raw materials and processed goods. This includes consumer packaging, distribution packaging and transport packaging.

Excluded from scope: packaging covered by deposit schemes.

Ireland (regulations)

For the purposes of scope, 'Packaging' is defined as:

- sales or primary packaging, that is to say packaging conceived so as to constitute a sales unit to the final user or consumer at the point of purchase, or
- grouped or secondary packaging, that is to say packaging conceived so as to constitute at the point of purchase a grouping of a certain number of sales units (whether the latter are sold as such to the final user or consumer or whether the packaging serves only as a means to replenish shelves at the point of sale), and which can be removed from a product without affecting the product's characteristics, or
- transport or tertiary packaging, that is to say packaging conceived so as to facilitate handling and transport of a number of sales units or grouped packaging in order to prevent damage from physical handling and transport (but not including road, rail, ship, and air containers).

Recommendation 6: Scope

Recommendation for PPPS (Scope)

It is recommended that packaging scope commences with plastic packaging for consumer goods, consumed within the home or away from home, and associated secondary and tertiary packaging. It is recommended that the scope is expanded over time to include all C&I plastic packaging in Year 3 and building & construction plastic packaging in Year 5.

It is recommended that the government consider extending EPR to all packaging (plastic, glass, metals, paper/board, timber) in Year 5.

5.2.3 Options for more than one scheme

An alternative could be to establish two schemes: one for household packaging and one for C&I packaging. Some of the advantages and disadvantages are shown in Table 8.

Some global schemes focus on household packaging only while some (e.g. Belgium) have two. Others operate a hybrid model (Table 9).

Table 8: Options for one or more PSOs

PSO Options	Advantages	Disadvantages
Option 1: Combined scheme with a phased approach (section 5.3.3)	Efficiency benefits due to shared governance, administration & reporting. Companies generating both types of packaging only need to join one scheme. Reduced regulatory/oversight burden on government as it only needs to manage one scheme.	More complex to manage as household and C&I packaging face different challenges, collection systems etc. Costs and collection systems for C&I packaging are very different to household packaging. Much C&I packaging is clean, mono-material, aggregated in larger volumes and has existing markets.
Option 2: Separate PSOs for household and C&I packaging	C&I packaging may require a simpler pricing and operational model. Avoids some of the complexity of managing two systems.	Additional costs for liable parties and government in managing two PSOs.

Table 9: Examples from international schemes

Scope	Examples
One PSO for all packaging	**Ireland** Repak is responsible for household and 'backdoor packaging' received by producers
One PSO for all packaging – operations outsourced	**Norway** One PSO Green Dot Norway is owned by the return companies for packaging: Sirkel Glass AS (glass) Norsk Metallgjenvinning AS (metal) Norsk Resy AS (corrugated cartons) Norsk Returkartong AS (cartons) Plasretur AS (plastics) Plastretur is owned equally by packaging manufacturers, product manufacturers and the trade. **Netherlands** The Dutch Packaging Waste Fund (Stichting Afvalfonds Verpakkingen or StAV) manage compliance, relationship with producers, collect fees Nedvang manage operations, relationships with municipalities and recyclers.
One PSO for household packaging only	**France – CITEO** Adelphe, a subsidiary of Citeo, assists companies in the wine and spirits and pharmaceutical sectors in meeting their specific technical and regulatory requirements.
Separate PSOs for household and C&I packaging	**Belgium** Fost Plus covers household and out of home packaging.

There is a separate scheme for commercial and industrial packaging (VAL-I-PAC).

Recommendation 7: Number of schemes

Recommendation for PPPS (Number of schemes)

Global scheme design practice recommends one scheme for all consumer plastic packaging within scope however the NZ Guidelines allow for multiple accredited schemes as long as collaborative arrangements are in place. Household and C&I packaging could be managed within the one scheme, but with different collection channels and funding models.

5.3 Objectives, outcomes and targets

5.3.1 The PPPS is being established to reduce the environmental impacts of packaging through product stewardship. Section 8 of the Waste Minimisation Act 2008 states the purpose of Product Stewardship being *"To encourage and in certain circumstances require the people and organisations involved in the life of a product to share responsibility for ensuring there is effective reduction, reuse, recycling or recovery of the product and managing any environmental harm arising from the product when it becomes waste"* Policy objectives.

The policy objectives from the General Guidelines for Product Stewardship for Priority Products[30] (Guidelines) are summarised below, with minor wording changes to reference plastic packaging specifically. This is the recommended approach to ensure consistency with government policy. Note the research also included a review of the Cabinet Paper on EPR which was released during the research period.

Circular resource use

1. Continuous improvement in minimising waste and harm and maximising benefit from *plastic packaging* at end-of-life.
2. Increasing end-of-life management of *plastic packaging* higher up the waste hierarchy to support transition to a circular economy in New Zealand.
3. Investment in initiatives to improve circular resource use, reusability, recyclability and new markets for *plastic packaging.*

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

Internalised end-of-life costs

4. Full net costs for stewardship of *plastic packaging* at end of life met by product or producer fees proportional to the producer’s market share and ease of reuse or recyclability of their product.
5. Free and convenient collection of *plastic packaging* for household and business consumers at end-of-life, including rural populations.
6. Collection and management of legacy and orphaned *plastic packaging* fully or substantially funded by the scheme.

Public accountability

7. Clear information to household and business consumers on how the scheme works, how it is funded, and how to find the nearest collection point.
8. Transparent chain of custody for collected and processed materials, to both onshore and to offshore processors, and published mass balances showing rates of reuse/recycling or environmentally sound disposal of *plastic packaging.*
9. Publicly available annual reports that include measurement of outcomes and achievement of targets, fees collected and disbursed, and net cash reserves held as contingency.

Collaboration

10. Optimal use of existing and new collection and processing infrastructure and networks, and co-design and integration between *plastic packaging* and other product groups.

Recommendation 8: Policy objectives

Recommendation for PPPS (Policy objectives)

The recommended policy objectives for the PPPS align with the General Guidelines for Product Stewardship Scheme, including minor wording changes to reference plastic packaging specifically.

5.3.2 Outcomes

The scheme’s proposed outcomes need to reflect the policy objectives shown above. Targets (section 5.4.3) then provide tangible metrics to monitor progress towards them.

Recommendation 9: Scheme outcomes

Recommendation for PPPS (Scheme outcomes)

It is recommended that the PPPS include the following outcomes:

- Problematic (i.e. hard-to-recycle) and/or unnecessary plastic packaging is eliminated including those items already banned
- Quantity of single use plastic packaging placed on the market is reducing over time and per capita terms
- All plastic packaging placed on the market in New Zealand is designed for recycling and has an accessible system for collection and recycling
- Increased recycling rates for household and household-like plastic packaging
- All New Zealand households have access to a collection and recycling service for plastic packaging
- All New Zealand households have access to accurate and accessible information on how to recycle plastic packaging
- Consumers are increasingly aware of the scheme and becoming more engaged in waste reduction and recycling activities.
- Improved quality of recycled plastic packaging that meets manufacturers specifications
- New and expanded markets for recycled plastic packaging to increase pull through demand for materials.
- There is a system in place to trace the quantity and quality of plastic packaging (by resin type) at every stage of the recovery chain
- Reduced plastic packaging in litter.

5.3.3 Targets

It is recommended that the PPPS include relevant, time-bound, measurable targets linked to the objectives and outcomes. Some proposed targets and potential performance indicators are provided in Table 10. Specific targets will need to be established based on the results of Tranche 1 data collection. These may include sub-targets for different categories of packaging such as rigid or flexible packaging and household or C&I packaging.

The Guidelines state that targets will need to be reviewed and adjusted at least every three years, taking into account changes in the market, technology and any other factors.

The proposed targets are predicated on government mandating reporting.

Table 10: Proposed targets and indicators

Target	Performance Indicator*	Potential data source
Environmental		
1. Increase in the recycling rate (see right for definition) for plastic packaging from [% tbc] to [% tbc]	Quantity (tonnes) of plastic packaging recovered (excluding stockpiling), divided by total packaging POM (tonnes) [out the gate for reprocessors and MRF exports overseas divided by POM]	National material flow analysis
2. Reduce packaging litter in the environment by [tbc][1]	Volume of plastic items (litres) per 1,000m^2 Volume of plastic containers (litres) per 1,000m^2	National litter audit
3. Increase in the proportion of post-consumer recycled content in plastic packaging from [% tbc] to [% tbc]	Average national quantity (tonnes) of post-consumer recycled content in plastic packaging divided by the total quantity (tonnes) of plastic packaging POM	Data to be reported by PSO members and aggregated
Social		
4. Reasonable free access to collection services	To be defined e.g. Number [tbc] of collection points per population, collection points within specified km, and/or percentage of the population with access to a collection service (as per the Australasian Recycling Label) Can be different for urban vs rural (e.g. kerbside vs drop-off	
5. A) Increase in consumer awareness from [tbc] to [tbc]; and B) Increase engagement from [tbc] to [tbc]	Percentage of consumers aware of/engaged with the scheme and availability of recycling services. Percentage of consumers recycling plastic packaging	Consumer survey
Economic		
6. Increase in the proportion of plastic packaging processed and utilised onshore from [% tbc] to [% tbc]	Secondary (recycled) plastic produced from packaging (excluding stockpiled amounts) and utilised within New Zealand for manufacturing or other industrial applications, divided by total plastic packaging recycled. [out the gate of reprocessors for local utilisation and energy recovery divided by POM]	

1: Due to the impending introduction of the CRS, the litter target relating to plastic packaging would need to be clear on which items are included as part of the PPPS target

KPIs should be measured based on covered scope, e.g., excluding CRS packaging.

Recommendation 10: Targets

Recommendation for PPPS (Targets)

It is recommended that the PPPS include relevant, time-bound, measurable targets linked to the objectives and outcomes.

5.4 Liable parties and thresholds

5.4.1 Definition of producer

The NZ Waste Minimisation Act[31] defines a producer as a person who:

d. manufactures a product and sells it in New Zealand under the person's own brand; or

e. is the owner or licence holder of a trademark under which a product is sold in New Zealand; or

f. imports a product for sale in New Zealand; or

g. manufactures or imports a product for use in trade by the person or the person's agent.

Note that the recommendations in this section do not align with the WMA.

In most of the schemes reviewed for this report a producer is defined as the company that first places products on the market. This is generally the brand owner or importer, while retailers are included for their own brand (private label) packaging. The liable party for food service packaging is generally the packaging supplier rather than the food brand owner.

The proposed definition of liable parties, i.e., the organisation that would be liable to pay the levy, is outlined in Box 2. Some examples are shown in Table 11.

[31] https://www.legislation.govt.nz/act/public/2008/0089/latest/DLM1154502.html

Recommendation 11: Definition of producer

Recommendation for PPPS (Definition of producer)

It is recommended that the scheme define producers in a similar way to the UK (Box 2), subject to the agreed threshold for liable parties (Section 5.4.3). This would include brand owners and importers placing packaged products on the market in NZ. Packaging suppliers would also be liable to pay the levy unless they supply packaging to organisations that are already paying the levy. They would be liable if they meet the thresholds for packaging supplied to small organisations such as cafes that fall below the levy threshold but collectively exceed the threshold. Note that this will require new legislation to revise the WMA to allow for levy setting.

Box 2: Proposed definition of liable parties (producer)

Liable parties are all organisations that import or supply packaging i.e.:

- supply goods in plastic packaging to the NZ market under their own brand
- place goods into plastic packaging that's unbranded when it's supplied, which could be goods packaged for their own organisation or for another organisation
- import products in plastic packaging unless it is:
  - branded, and it's been imported on behalf of a brand owner that is established in NZ
  - unbranded, and supplied to a 'large' (i.e. obligated) organisation that applies its brand before supplying it on
- own an online marketplace that sells filled or unfilled plastic packaging in the NZ.
- supply empty plastic packaging to a business unless it is sold to a producer with a disposal cost obligation (i.e. that meets the threshold as liable to pay the levy).

Source: Adapted from UK definition, available here: https://www.gov.uk/guidance/packaging-waste-prepare-for-extended-producer-responsibility

Table 11: Examples of liable parties

Category of liable party	Examples
Businesses who supply goods in plastic packaging to the NZ market under their own brand	• Product manufacturers – food, beverages, personal care etc – that sell products under their own brand. • Supermarkets selling own brand products that have been manufactured by another company. They would be liable to pay the levy for all primary, secondary, and tertiary packaging.
Place goods into plastic packaging that's unbranded when it's supplied, which could be goods packaged for their own organisation or for another organisation.	• Bakeries selling bread rolls in plastic packaging that is not labelled (e.g., clear plastic bags) but the product is sold under the company's brand name. • Retailers providing customers with unbranded plastic shopping bags and fresh produce bags.
Import products in plastic packaging unless it is: • branded and has been imported on behalf of a brand owner that is established in NZ. • unbranded, and supplied to a 'large' (i.e. obligated) organisation that applies its brand before supplying it on.	Importers of appliances, furniture etc. Exemptions: • appliances imported on behalf of a brand owner in NZ (e.g., a national appliance retailer) who then places it on the market. • appliances imported on behalf of a company that adds their own brand before selling it (e.g., a NZ-based appliance manufacturer).
Own an online marketplace that sells filled or unfilled plastic packaging in the NZ.	An online marketplace selling clothing directly to consumers in NZ. They would be liable for the primary packaging as well as any additional distribution packaging (e.g. post satchel).
Businesses who supply empty plastic packaging to businesses that are below the minimum threshold for the levy.	• A food service packaging manufacturer or distributor supplying single use containers e.g. sandwich / sushi box to many small businesses (e.g., cafes) that are each below the threshold, but collectively above the threshold. They would be liable for the quantity of primary packaging (sushi container) as well as any secondary (e.g. plastic bags) and tertiary packaging (e.g. pallet wrap) supplied to organisations below the threshold, assuming they collectively exceed the threshold. The food service packaging/distributor would not be liable for packaging supplied to a large quick service restaurant and its franchisees that sell products under their own brand and are therefore liable to pay the levy.

5.4.2 Industry feedback on liable parties

Appendix B summarises some useful industry feedback the Project Team received relating to liable parties, provided by Rachel Barker (CEO, Plastics NZ – New Zealand's Industry Association). The feedback on thresholds for liable parties has been incorporated into this design (see next Section 5.4.3). The remaining elements of the design are generally consistent with the feedback provided by Plastics NZ.

5.4.3 Thresholds

Most schemes exempt smaller companies from the liability to pay the levy (Box 3), although some place reduced obligations on smaller companies, e.g., to pay a membership fee and/or report packaging quantities.

Three options for the threshold are provided in Table 12.

It is recommended that the threshold is based on a combination of turnover and the weight (kg) of plastic packaging placed on market. Below this threshold, members would pay a fixed annual fee. This is the approach used in Ireland and proposed for EPR regulations in the UK. Further consultation could be undertaken with the UK Government to understand the reasoning behind their hybrid model.

Table 12: Options for threshold measurement

Option	Advantages	Disadvantages
1. Threshold based on a combination of turnover and weight (UK and Ireland examples)	• A more nuanced approach to deal with complexity	• Higher administrative burden for the PSO
2. Threshold based on turnover	• Simplest to administer as all organisations know their turnover.	• Obligates organisations that may be above the size threshold but place minimal packaging onto the market. • May penalise high volume, low margin traders
3. Threshold based on weight of plastic packaging placed on market	• Reflects the polluter pays principle because obligations are based on the amount of packaging	• Increased administrative burden on smaller firms (to know the quantity of packaging POM)

Box 3: Examples of thresholds for products stewardship schemes

Examples of thresholds for other schemes (note that these apply to all packaging, not just plastic)

- Norway: 1,000 kg placed on market (POM)
- Netherlands: 50,000 kg POM
- Ireland: turnover €1m & 10,000 kg POM (others pay a flat fee)
- UK: £2m turnover and 50,000 kg POM (others have a reporting obligation only - between £1-£2m turnover and 25-50,000 kg POM)
- Australia (APCO): $5 m turnover

Recommendation 12: Liable party threshold

Recommendation for PPPS (Liable party threshold)

It is recommended that the threshold is based on a combination of turnover (<$1 million) and the weight (1,000 kg) of plastic packaging placed on market. Below either of these thresholds, members would pay a fixed annual fee. Above this threshold, members will pay based on the weight of plastic POM.

5.5 Stakeholder roles and responsibilities

Stakeholder roles and responsibilities need to be clearly defined in the scheme design. Producers have **primary responsibility** for the life cycle impacts of plastic packaging they place on the market and meet this obligation by joining the PSO and paying the levy to support its operations.

Other sectors have important roles to play to ensure that the scheme meets its objectives and targets, including central government, local government, packaging suppliers, retailers and recyclers.

Recommendation 13: Roles and responsibilities

Recommendation for PPPS (Roles and responsibilities)

It is recommended that producers have primary responsibility. A recommended description of roles and responsibilities is provided in Table 13.

Table 13: Recommended roles and responsibilities

Stakeholder	Role	Responsibilities
Producers – Proprietary brand owners, retail brand owners, packaging manufacturers and importers (liable parties or stewards)	To take primary responsibility for the life cycle impacts of plastic packaging they place on the market.	• Join the PSO and pay the membership fee and levy. • Ensure that all plastic packaging placed on market complies with packaging design guidelines.

		• Provide annual data to the PSO on plastic packaging placed on market by resin, format and sector
Product stewardship organisation (PSO or scheme administrator)	Stewardship organisation established to meet producer obligations as per regulations made under WMA	• Recruit members • Collect membership fees and levies. • Determine the level of levies and review annually. • Set and deliver on agreed targets for the PSO. • Develop packaging design guidelines to support levies. • Develop performance standards for collection, sorting and recycling to be eligible for handling fees and provide guidance on reporting requirements. • Determine average net costs of collection, sorting and recycling. • Pay handling fees to local councils, the waste and recycling industry and others e.g. take back systems for net costs of kerbside collection, drop-off facilities, sorting and recycling of plastics code 1,2 and 5. • Establish the infrastructure to collect household plastics code 3,4,6 & 7 and materials in combination with plastic and associated C&I plastics within scope (e.g. at food service, retail and wholesale facilities). • Provide an annual report to the Government on performance against the objectives and targets. • Promote the scheme to households and businesses. • Undertake audits of the recovery chain to update net cost data and check compliance with standards
Packaging manufacturers and importers that don't meet the definition of producer (non-liable parties)	Help brand owners meet sustainable packaging guidelines	• Adopt the sustainable packaging guidelines. • Join the PSO as an Associate Member
Plastic manufacturer and importer	Redesign and innovate materials and technologies to improve circularity	• Adopt the sustainable packaging guidelines. • Join the PSO as an Associate Member
Retailers (non-brand owners) that don't meet the definition of producers (non-liable parties)	Support drop-off facilities for plastic packaging	• Adopt the sustainable packaging guidelines. • Join the PSO as an Associate Member
		•
		•
Local government	Collect plastic packaging from households	• Manage the kerbside collection system for plastics 1, 2 and 5 with plastic collection system funded by the PRO. • Provide additional infrastructure to collect other plastics, e.g., through drop-off facilities. • Educate residents on how to recycle their plastic packaging. • Collaborate with plastic recyclers and manufacturers to buy products with post-consumer recycled plastics.

		• Provide regular reports to the PPPS on the quantity collected by type of plastic and destination
Waste collectors (B2B plastics) & Recyclers	Collect plastic packaging from the C&I sector	• Meet minimum performance standards for collected plastics. • Provide baled plastics to MRFs or plastic reprocessors. • Provide regular reports to the PPPS on the quantity collected by type of plastic and source sector. • Establish systems to trace plastic packaging from source to destination
Material Recovery Facilities (MRFs) or specialised Plastic Recovery Facilities (PRFs)	Sort plastic packaging from kerbside collection services	• Meet minimum quality standards for baled plastics and make bales available for audit. • Provide regular reports to the PPPS on the quantity received in the gate and quantity provided to a recycler by type of plastic and destination. • Establish systems to trace plastic packaging from source to destination
Plastic reprocessors	To recycle plastics into flakes, pellets or products	• Provide regular reports to the PPPS on the quantity received in the gate and quantity and type of products placed on market by type of plastic and destination. • Establish systems to trace plastic packaging from source to destination

5.6 Scheme funding

5.6.1 Guiding principles for scheme funding approach

By internalising the whole-of-life management of the impacts of plastic packaging, the scheme will result in producers incurring additional cost which may be passed along the supply chain to the consumer. The exact ‘funding instrument’ (i.e., the way funds are raised) will influence how these costs are distributed among producers.

In scenarios where government policy or regulation is expected to result in a change to the distribution of costs incurred by stakeholders within society, governments often apply policy assessment criteria/guidelines to determine which method of funding instrument is most appropriate[32]. These criteria can include, among others:

- **Simplicity:** Is the funding instrument simple to interpret and administer?
- **Equity:** Is it likely to be perceived as fair?
- **Effectiveness:** How much of the desired change is the approach likely to bring about?

[32] https://oag.parliament.nz/2021/fees-and-levies/docs/summary-fees-and-levies.pdf and Guidelines | The Legislation Design and Advisory Committee (ldac.org.nz)

- **Economic efficiency:** Are the economic, environmental and social benefits of the approach likely to exceed the costs?

These same principles have been applied throughout the scheme design, including the recommendation on choice of funding instrument. Of the above, simplicity and equity are key considerations for the choice of funding instrument because these two determine how acceptable the approach will be for those that are providing the funding. The remaining two of the four criteria listed above are considerations that are more linked to how that funding used, rather than how it is raised.

5.6.2 Funding instrument

Product stewardship schemes are most often funded through either:

- A levy[33] which is a rate paid proportional to the size of the funding provider or the burden they contribute to the scheme, which in turn could be based on:
  - Weight put on the market (e.g., cents per kg), as this influences burden.
  - Units put on the market, which may be simpler to administer in some markets.
  - Revenue from product put on the market, which may be considered more equitable in some markets.
- A flat or tiered structure of membership fee, with either weight, units, revenue or some other metric used to determine the fee rate.

If a levy is adopted another consideration is differentiation based on the direct costs associated with recovery and recycling referred to as **fee-modulation** or based on environmental or sustainability outcomes, which is referred to as **eco-modulation**.

Table 14 summarises the options this study considered with respect to the funding instrument.

Table 14: Options for funding instrument (excluding fee-modulation)

Option	Advantages	Disadvantages
Levy based on weight	• Reflects costs (which are strongly driven by weight) • Simple to interpret. • Provides an automatic incentive to lightweight	• Requires auditing to ensure accurate reporting. • Without fee modulation lightweighting may be delivered through change to a more complex plastic or composite, which is harder to recycle.
Levy based on revenue	• Equitable in the sense that it's proportional to producer profits	• Raises confidentiality concerns
Tiered membership fee based on revenue	• Simple • Equitable in the sense that it's proportional to producer size	• Dampens incentives to lightweight. • Can be a wide range of producers within each revenue band

Table 15 summarises the options this study considered with respect to fee-modulation.

[33] Noting the term levy is typically used in global EPR schemes but under the WMA provisions allow for fees not levies and there is a distinction between the two terms.

Fee-Modulation

Fee modulation considers the cost to collect and sort each material for recycling to achieve expected targets as well as recycling revenues or gate fees. Fee modulation is not a provision under the WMA and would require new legislation.

Typically, fee modulation relates to the process of defining the fee levels to be assigned to packaging based on material type (e.g. plastic, paper, glass, metal) where each material type "pays its own way".

In the NZ context, fee modulation would relate to varying fees for different plastic or plastic composite types relating to the costs involved in collection, sorting and processing.

A major advantage of fee-modulation is that it transfers the price-signal (i.e. the price of recycling) to the funding members. That way, the funding members are directly incentivised to reduce costs. Conversely, a major limitation is that it is sometimes not technically feasible for members to substitute materials. This leads to some members paying more than otherwise, without a corresponding opportunity to reduce their costs.

Eco-Modulation

The Minister for the Environment's cabinet paper on EPR has defined eco-modulation as 'a differential pricing mechanism used to incentivise waste minimisation and circular economy outcomes. Higher charges may be set for products/materials that contribute less to meeting overall scheme outcomes, for example because they are hard to recycle, while products/materials that better meet objectives (e.g., those that are easier to recycle) may have lower scheme charges.'[34]

The Consumer Goods Forum has developed guiding principles for eco-modulation of EPR fees:[35]

- **Simplicity**: the system should be designed as simply as possible, with practical implementation in mind
- **Clarity of objectives and criteria**: These should be made explicit to make clear which improvements in the waste management and recycling system it targets. These can include a drive towards more efficient technology and better packaging design.
- **Focus on net costs**: Eco-modulation must include the 'net cost' of collection, sorting and recycling of a material stream to provide the optimal set of incentives for the design and production of recyclable packaging.
- **Investment into system improvement**: EPR fees collected on materials with relatively low recycling rates should be ringfenced for the development of infrastructure, technology, and consumer education to enable recycling of those materials. Fees should not be used to cross-subsidise packaging materials or for continued support of end-of-life practices below recycling in the waste management hierarchy.
- **Transparency and consultation**: The rules should be fully transparent to all stakeholders and defined through a dialogue with industry.
- **Harmonisation and a level playing field**: Consistent criteria should be developed and implemented across markets and jurisdictions wherever possible.

Eco-modulation of fees for the PPPS could be used to incentivise further environmental improvements that support circularity, such as:

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[34] Legislated Framework for Extended Producer Responsibility, August 2023. Available at: https://environment.govt.nz/what-government-is-doing/cabinet-papers-and-regulatory-impact-statements/legislative-framework-for-extended-producer-responsibility/.

[35] Consumer Goods Forum (2022), Guiding principles for the eco-modulation of EPR fees for packaging. Available at: https://www.theconsumergoodsforum.com/wp-content/uploads/2022/02/Guiding-Principles-for-the-Ecomodulation-of-EPR-Fees-February-2022.pdf

- Higher fees for more complex and harder-to-recycle formats or colours.
- Higher fees for materials that are used in small volumes and/or contaminate more recyclable materials, e.g. PVC.
- Lower fees for post-consumer recycled (PCR) content.

Eco-modulation along these lines would require very clear definitions of recyclability and PCR content, supported by guidelines.

Table 15: Options for fee-modulation

Option	Advantages	Disadvantages
No fee-modulation nor eco-modulation	• Simplest approach	• Is not cost-reflective nor reflective of the environmental burden
Fee-modulation but no eco-modulation (i.e. fee modulation only)	• Simple • Difficult to game • Does not drive producers from plastics to potentially more environmentally harmful materials or formats.	• Provides no incentives for recyclability or recycled content
Eco-modulation based on recyclability	• Provides incentives to move to recyclable packaging designs and disincentivises problematic material. • Strongly aligned with the principle of internalising the costs of whole-of-life management • Equitable in terms of rewarding sustainable design and production	• Can cause confusion unless the levy tiers are clearly defined and easy to interpret. • Requires auditing and enforcement to avoid gaming. • Creates additional volatility in funding. • Needs to be reviewed regularly to reflect changes in the market
Eco-modulation based on recycled content	• Supports demand for recycled content	• Producers in largely importing geographies have limited ability to control recycled content. • Administratively more complex and therefore can disadvantage smaller producers

Global trends on funding

Almost all packaging schemes around the world are based on a weight-based levy, with many applying eco-modulation for recyclability (e.g., Ireland, France, British Columbia).

This form of funding instrument has been proven to provide an appropriate balance between simplicity, equity, effectiveness and efficiency.

However, the global experience is that excessively complex eco-modulation (e.g., France) has led to criticisms of complexity and the potential to result in funding shortfalls.[36]

[36] https://resource-recycling.com/recycling/2023/05/30/lessons-from-france-eco-modulated-fees-are-ineffective/

Table 16: Examples of eco-modulation

Please note that all of these schemes include all packaging materials rather than a single focus on plastic packaging.

Scheme	Criteria for eco-modulation
Repak (Ireland)	Fees are per tonne based on material type, role in the supply chain (materials manufacturer, converter, brand owner etc.) and costs of recycling. Fee categories are:[1] • Recycled plastics rigid • Recycled plastics flexible • Non recycled plastics • Beverage bottles PET • Beverage bottles other plastics
CITEO (France)	The Modulated Eco-Contribution Scale decreases or increases the eco-contribution paid by manufacturers based on a 'bonus-malus' (reward-penalty) system for recyclability and recycled content. Basic rate varies for different polymers/formats. Bonuses awarded for: • Awareness raising about sorting • Reduction at source (unit weight or number) • Post-consumer recycled content • Penalties awarded for: • PE or PP density >1 – 10% penalty • Dark non-detectable particularly carbon black – 50% penalty • Opaque PET, specific composites, PVC – 100% penalty The criteria used to adjust eco-contributions is determined by a working group made up of stakeholders representing all business sectors of the packaging and paper lifecycle. The mandatory contribution has proven effective in reaching higher recycling objectives.
Recycle BC (British Columbia	Fees are based on recyclability, with different fees for:[2] • PET bottles • HDPE bottles • Plastic film • Plastic laminates • Expanded polystyrene • Rigid polystyrene • Other plastics

1: https://repak.ie/images/uploads/reports/Repak_AR_2021_1.pdf

2: https://recyclebc.ca/wp-content/uploads/2022/11/RecycleBC-2023-Fee-Rates-Table.jpg

Recommended funding instrument for PPPS

From a funding instrument perspective, important aspects of New Zealand's market are that:

- The legislative framework has a strong emphasis on internalising costs and providing incentives
- Most packaging material is imported
- Domestic processing capacity is highly limited.

Against that backdrop, this research recommends a weight-based levy with simple fee-modulation for costs related to recycling, i.e., based on packaging format (e.g., bottle, other rigid, flexible) and material composition (e.g., PET, HDPE, other mono-material, multi-material). Eco-modulation for recyclability could be added at a future date (e.g., Year 3) when the PSO would have more information on hard-to-recycle materials and formats. Eco-modulation for recycled content could be added as more PCR material becomes available in the region. This could also include a requirement that the content is sourced from within the region or even from within New Zealand, however this would require consideration of free trade legislation and rules.

However, the recommendation in this report is that the levy rate should not be prescribed by government regulation, nor should the exact recyclability categories and corresponding differentiated levy rates.

Instead, it is recommended that the WMA is amended such that government provides the underpinning principles for the levy, while the appropriate levy structure should be determined by the PSO, in a way that the operator deems is most likely to achieve the objectives of the scheme, while maintaining a healthy financial position.

To ensure that these levy settings adapt to changing market conditions, as well as building on data and experience from a track record of scheme operation, the PSO should review the levy settings on an agreed review schedule (as discussed in Section 5.9)

Recommendation 14: Funding instrument

Recommendation for PPPS (Funding instrument) which would require legislative changes

It is recommended that the PPPS adopt a weight-based levy, with fee-modulation to reflect recycling costs. Eco-modulation should be incorporated into the funding instrument at a future date (e.g. by Year 3) to reflect both recyclability and post-consumer recycled content.

The recommendation in this report is that the the levy should not be prescribed by government, nor should the exact recyclability categories and corresponding differentiated levy rates.

Instead it is recommended that the WMA is amended such that government provides the underpinning principles for the levy, while the appropriate levy structure should be determined by the PSO, in a way that the operator deems is most likely to achieve the objectives of the scheme, while maintaining a healthy financial position.

Box 4: Colorado example – noting that this example is "all packaging".

The Act outlines some principles of how the funding mechanism (called 'producer responsibility dues' rather than levy) should operate, including that is should:

- Vary by type of material
- Whether or not the material is readily recyclable
- Be based on the net recycling services costs
- Incentivise:
    1. Reduced material use
    2. Enhanced recyclability and commodity value
    3. High levels of PCR material use
    4. Designs for the reuse and refill of covered materials
    5. High recycling and refill rates

Discourage practices that increase recycling or reuse costs, practices that disrupt recycling of other materials, using covered materials that are not on the minimum recyclable list.

Source: https://leg.colorado.gov/bills/hb22-1355

5.6.3 How the funds will be spent

There are two general approaches implemented globally for determining how funds are spent, being:

- Prescribing in detail where and how much schemes should allocate their expenditure.
- Providing the scheme with discretion in that respect.

There is a range of potential options along that spectrum between highly prescriptive and highly discretionary and whilst these are not catered for under the WMA requirements as they stand, these are included in this report which draws on global best practice.

In addition to whether a prescriptive or discretionary approach is used, there is also the question of which outcomes the funding is directed to, which could include, among others:

- Infrastructure investment (capital)
- Handling fees for collection channels, sorting and processing ($ per tonne)
- End-market development: activities to support increased demand for recycled materials e.g., by promoting PCR content in packaging, standards or specifications etc.
- Research & development: funding for innovation to improve products and processes, e.g., new business models or recycling technologies
- Commercialisation: funding to help bring innovations to market
- Education & awareness: activities designed to build awareness and knowledge relevant to the scheme, e.g., on how packaging is recycled
- Marketing and promotion: information on the scheme, how to recycle etc.
- Auditing, reporting and compliance

- Administration and overheads.

Table 17 first discusses the general approaches.

Table 17: General approaches for allocating expenditure

Option	Advantages	Disadvantages
Prescriptive approach	• Mitigates the scheme neglecting important policy objectives • Clear and transparent • Makes it easier to hold the scheme to account	• Rigid and not adaptive to changing needs or challenges • Requires detailed regulations • Likely to restrict improvements and innovation as technology changes rapidly
Discretionary approach	• Allows the scheme to direct expenditure to where it is most needed, which can change over time • Supports innovation	• Risks adverse outcomes and gaming (e.g., acting according to the letter of the rules but not the spirit, to save costs). • Increases reporting and compliance needs

The approach recommended for PPPS is a principles-based approach, which is at the discretionary end of the above spectrum. That is, the scheme should be held to account on how well it meets its objectives, outcomes and targets (refer to Section 5.3), instead of exactly where and how expenditure is directed.

That said, it is recommended that an *impactful* amount of funding must be directed to:

- Funding the collection and recycling of plastic packaging (shifting costs from ratepayers to producers)
- Improving infrastructure
- Achieving greater material quality
- Enhancing local processing capacity

Beyond these areas, the PSO should have discretion on where to allocate expenditure to achieve targets.

This approach balances:

- Efficiency (natural incentive for liable parties) and long-term interests (system improvement), while
- Addressing the risk of short-term focus/thinking.

A good example of this is the Californian approach (refer to Box 5), although it should be noted that discretion is a key feature of many international schemes (e.g., Repak).

Box 5: Discretionary approach to use of funding (California)

California's Plastic Pollution Prevention & Packaging Producer Responsibility Act

The Plastic Pollution Prevention & Packaging Producer Responsibility Act in California outlines objectives, outcomes, and targets to, among other outcomes, shift the burden of managing end-of-life plastics from consumers to the industry, increase recyclability, reduce plastic packaging, and promote plastic recycling.

The law requires, by 2032:[1]

- 100% of packaging in the state to be recyclable or compostable
- 25% cut in plastic packaging
- 65% of all single-use plastic packaging be recycled.

However, the law provides flexibility on how this is achieved. While it does not specify the amount of funding for each type of expenditure, it does specify that funding should be direct to:

- Expanding access to or improvement of curbside collection services wherever feasible.
- Expanding access to drop-off recycling services or other mechanisms where curbside collection services are not feasible, or as necessary in order to supplement curbside collection services to achieve the requirements of this chapter.
- Expanding access to collection services in public spaces
- Providing or facilitating deployment of innovative enhanced collection, composting, and recycling systems and innovative recycling systems within a recycling centre or MRF that utilizes advanced technology, such as artificial intelligence and robotics, to improve the identification and sorting of covered materials, where feasible.
- Creation of on-premises access to recycling or composting services for multifamily residences.
- Funding, providing, or facilitating the efficient transport of materials from remote or rural areas to centralized sorting facilities, brokers, or viable responsible end markets.

1: https://calrecycle.ca.gov/packaging/packaging-epr/

Recommendation 15: Expenditure

Recommendation for PPPS (Expenditure)

It is recommended that the PPPS adopt a principles-based approach to expenditure. That is, the scheme should be held to account on how well it meets its objectives, outcomes, and targets (refer to Section 5.4), instead of exactly where and how expenditure is directed. This is not currently catered for within the WMA so would require legislative change.

5.6.4 Determining net costs

One of the key requirements in the Guidelines is for the scheme to internalise the net costs of recycling. This should be interpreted as the scheme being required to compensate service providers for their net costs (full costs of operation, including amortisation of capital and financing costs, a reasonable profit margin, minus any revenue from material sales or any other attributable revenues).

There are three ways that the scheme can do this:

1. Make payments to the service provider that covers the net costs and then transfer any cost and revenue risk to that service provider (i.e., scheme does not own material).
2. Retaining ownership of the material but effectively outsourcing the operational function (e.g., collection, sorting or processing) and making payment for the gross cost (this is often referred to as a 'tolling arrangements').
3. A mixed-ownership model where the scheme owns the material until sorting is completed and ownership is transferred to reprocessors.

This should be determined by the scheme on a case-by-case basis by collection channel.

For example, there is already a supply chain developed for collecting and processing plastic resins 1, 2 and 5 at the kerbside. Actors within that supply chain have developed business practices to manage cost and material revenue risks prudently. The most appropriate solution for the kerbside channel is therefore likely to be a net cost payment (i.e., no material ownership).

However, one of the key challenges that arises in the context of determining a net cost payment is data. Specifically, to apply a formulaic approach to determining net costs, the party that incurs the cost and is seeking payment (e.g., a Council), needs to be transparent about the costs that it incurs. If this transparency is not there, the scheme will have difficulty determining a 'fair' payment.

To address this issue, the regulations should embed incentives to encourage fair arms-length contracting by counterparties, including default provisions in the event that parties are unable to reach an agreement. For example, failing a negotiated agreement between the scheme and Council(s) as to the net cost payment terms, the regulations could specify that the scheme then has rights to collect plastics, including valuable plastics such as beverage containers, from the kerbside.

This is neither attractive to:

- Council, who obtain revenue from many plastics, particularly beverage containers once a CRS is implemented

- Nor the PSO, whose core focus is on operating a portfolio of channels but not necessarily the specifics of kerbside collections.

Such a default arrangement is likely to encourage parties to reach a mutually agreeable agreement on net cost payment terms.

Conversely, for new channels or in cases where the scheme is directly investing in processing capacity, there is a strong case for a tolling arrangement type model. In the case of new channels, this is due to operators not having the sophistication to manage market risk, allowing the scheme to assume and manage this risk on their behalf. In the case of directly owned processing capacity (e.g., for soft plastics), material ownership is likely to be beneficial so that the scheme can hedge its feedstock risk.

A good example of how different schemes adopt different payment models, based on their unique context, is how the container deposit schemes in Queensland and New South Wales (NSW), in Australia, differ with respect to material ownership.

In Queensland, the scheme operator COEX owns the material and earns revenue from material sales,[37] whereas in NSW, the Return and Earn scheme does not own the material but instead contracts out service provision to TOMRA Cleanaway to operate the network on its behalf, with the payment representing net costs.[38]

Recommendation 16: Calculation of net costs

Recommendation for PPPS (Calculation of net costs)

It is recommended that the PPPS determine the approach to material ownership and calculation of net costs for the purposes of paying service providers on a case-by-case basis by collection channel. This decision should be informed by an analysis of the financial impacts and risks of potential approaches.

For the kerbside channel, the regulations should embed incentives to encourage fair arms-length contracting by counterparties, including back-stop provisions in the event that parties are unable to reach an agreement.

5.7 Scheme governance & reporting

The following sections assume that a single-scheme approach is adopted, as recommended in Section 5.2.3. However, even if the PPPS starts as multiple interrelated schemes, the schemes can subsequently be subsumed into one legal structure eventually. This has the benefits of providing a common governance framework.

[37] https://containerexchange.com.au/wp-content/uploads/2023/06/COEX-Annual-Report-FY22.pdf

[38] https://returnandearn.org.au/wp-content/uploads/2018/05/2021-22-NSW-CDS-Annual-Report_FINAL.pdf

5.7.1 Legal entity

The Guidelines require the scheme to be administered by a legally registered not-for-profit (NFP) entity such as a company, incorporated society or charity. There are several options for the legal structure of the entity.

The two most common legal structures for PSOs are NFP companies led by Tier 1 members, and incorporated societies. It is recommended that Packaging Forum and the NZ Food & Grocery Council seek legal advice on the most appropriate legal structure for the entity, in relation to the guidance provided by the Cabinet Paper proposals for a legislative framework for EPR, and whether it would be appropriate and beneficial to apply for charitable status.

The review of global schemes highlighted some alternative options for the scope of the entity (Section 5.3.3). Some have a single PSO covering household packaging only (e.g., CITEO, France) while others cover all packaging (e.g., Repak, Ireland). Belgium has two PSOs: one for household packaging and one for C&I packaging.

Recommendation 17: Legal entity

Recommendation for PPPS (Legal entity)

It is recommended that the PPPS be managed by a single entity with a NFP structure.

5.7.2 Objects of the entity

The constitution of an entity must include its 'Objects', which reflects the objectives of the scheme and determines the core purpose of the organisation and activities that it can undertake.

Some examples of scheme Objects are shown in Table 18.

Table 18: Examples of scheme objects

Scheme	Scheme objects
Tyre Stewardship Australia	The principal objects of the Company are to: • implement the Scheme. • administer the accreditation of participants in the Scheme. • monitor audit and report on the development of the Scheme. • undertake education, awareness and information activities to promote the Scheme and the value of end-of-life tyres utilisation, and other products falling within the scope of the Scheme. • contribute to technology and market and business development activities that are consistent with goal of increased utilisation of end-of-life tyres, and other products falling within the scope of the Scheme.
Battery Stewardship Council (Australia)	The Company will work with supply chain companies to design and implement a scheme for batteries to increase the rate of recycling and to eliminate disposal of batteries to landfill. • The activities of the company will include: • Governance of a stewardship scheme • Collection of a levy • Administration of rebates for collection and sorting of batteries

- Accreditation of companies in the scheme.
- Reporting and auditing
- Education and marketing
- Any other activities that the Board of the Company decides is appropriate to achieve its aims

5.7.3 Membership categories

Companies will need to join the PSO as members. There may need to be separate categories of membership to reflect different obligations, for example between organisations liable to pay the levy and other organisations in the packaging value chain. Some options are presented in Table 19.

Table 19: Membership category options

	Membership categories	Purpose / advantages	Risks / disadvantages
Tier 1 Member	Companies that meet the definition of producer and the threshold to pay the levy	Core membership: pay a membership fee and levy	None
Tier 2 Member	Companies that meet the definition of producer but are below the threshold for the levy	Important to engage the entire sector on packaging design and labelling Requiring companies to report packaging placed on market will allow the PSO and the government to better monitor progress towards targets Additional income from membership fees (if required)	Adds administrative workload to recruit and manage these additional members Additional income (if any) is unlike to cover additional administrative costs
Associate Member	Other organisations that support the scheme and whose interests are aligned e.g., government, waste and recycling industry, civil society, etc	Important to engage all interested stakeholders by: • Keeping them informed of developments • seeking their input to activities • Involving in working groups	Adds administrative workload to manage these additional members Risk of members interests not always being aligned (can be managed through approval process for membership) Additional income (if any) is unlike to cover additional administrative costs

Recommendation 18: Membership categories

Recommendation for PPPS (Membership categories)

It is recommended that the PRO establish three categories of membership with different rights and obligations.

5.7.4 Member rights and obligations

The constitution will need to outline the rights and responsibilities of the different member categories. Some options are outlined in Table 20.

Table 20: Membership rights and obligations

Membership categories	Obligations	Rights	Advantages / disadvantages / risks
Tier 1 Members: Companies that meet the definition of producer and the threshold to pay the levy	• Pay a membership fee • Pay the levy • Meet packaging design guidelines • Implement agreed industry labelling scheme • Report annual data on packaging	• Voting rights at general meetings & AGM	• Companies paying the levy will want to have control over the PSO's activities
Tier 2 Members: Companies that meet the definition of producer are below the threshold for the levy	• Pay a membership fee • Meet packaging design guidelines • Implement agreed industry labelling scheme • Report annual data on packaging	• Attend general meetings & AGM as observers • Participate in working groups	• Allows members to stay informed and influence activities • Restriction on voting rights will ensure companies paying the levy have most control • Inability to vote may concern some of the smaller non-levy paying members
Associate Members and other stakeholders that support the scheme and whose interests are aligned e.g., government, waste and recycling industry, civil society, etc.	• Pay a membership fee	• Participate in working groups	• Membership fee may discourage membership (but could be set at zero)

Recommendation 19: Member rights and obligations

Recommendation for PPPS (Membership rights and obligations)

It is recommended that the PPPS takes legal advice on the specific rights and obligations of each membership category.

5.7.5 Board of Directors

The review of global schemes found considerable variation in the composition of the PSO boards, with the majority controlled by either appointed industry associations or elected producers. Some are drawn from brand owners while others represent other sectors in the supply chain including packaging suppliers and retailers. Some examples are provided in Table 21.

The Guidelines for NZ schemes suggest that directors should represent the interests of producers and consumers of the priority product and the wider community as informed by stakeholder advisory groups. It should be noted however that while the specific knowledge and skills that Directors bring to the Board draw on their other interests (e.g., the organisation or sector they work for) they have a fiduciary responsibility to act in the best interests of the entity. In that sense they do not 'represent' the interests of their sector.

Any person appointed as a director will need the requisite skills and competencies as required of directors because of their fiduciary responsibilities under the relevant legislation. This is not a requirement of members of Advisory Committees, which are therefore likely to be more appropriate for some member types rather than being on the board.

Table 21: Options for board directors

Director categories	Advantages	Disadvantages
Tier 1 Producer Members (brand owners/importers and packaging suppliers) – Companies that meet the definition of producer and the threshold to pay the levy	Producers paying the levy – including both proprietary brand owners and retail brand owners - need to have significant input and influence on the scheme.	None
Tier 2 Producer Members – Brand owners, importers and packaging suppliers that meet the definition of producer but are below the threshold for the levy.	Provide perspectives from a broader group of producers including SMEs that are not liable parties	Increases size of board and ability to achieve consensus
Associate Member 1 – industry associations whose members include brand owners, packaging suppliers, retailers and recyclers in the plastic packaging value chain	Provide broader perspectives from the packaging value chain and including SMEs	Increases size of board Selecting which associations are represented on the Board may create its own conflicts
Associate Member 2 – local governments and their associations	Would bring relevant knowledge and experience Existing service provider in the recovery chain	Potential conflict of interest as local governments will financially benefit from scheme Increases size of board
Associate Member 3 – Recyclers	Would bring relevant knowledge and experience Existing service provider in the recovery chain	Potential for conflicts of interest as recyclers (reprocessors) will financially benefit from scheme
Independent directors	Essential for good governance. Include Māori and local community. Contribute relevant skills and experience, e.g., in packaging design, recycling, governance etc.	None

It is recommended that the PPPS Board of Directors is drawn from the following categories (with Tier 1 Members holding the majority vote):

- Tier 1 Members – Proprietary brand owners, importers and packaging suppliers that meet the definition of producer (elected)
- Tier 1 Members – Retailers that meet the definition of producer (elected)
- Tier 2 Members – Organisations that meet the definition of producer but are below the threshold (elected)
- Independent directors with appropriate skills and experience e.g., in packaging design, recycling, governance, Māori and local community etc (appointed).

It is recommended that the Board appoint an independent chair who does not have a commercial interest in the sector.

Recommendation 20: Board of Directors

Recommendation for PPPS (Board of Directors)

It is recommended that the majority of PPPS Board Directors are Tier 1 Members (organisations paying the levy). The Board should also include Tier 2 Members, independent directors with appropriate skills and experience and an independent chair. The board should include a minimum of 3 and no more than 11 members.

The attributes each group would bring to the Board are suggested in Table 22. There would also be an opportunity for stakeholders to be engaged and involved through advisory groups.

Policies and processes would need to be established to manage any potential conflicts of interest.

Table 22: International examples of board composition

Board composition	Examples
Industry associations only	Plastretur (Norway) – associations representing packaging manufacturers, product manufacturers and retailers
Individual producers across the value chain	Fost Plus (Belgium) – 27 members representing defined sectoral groups (different categories of users, material categories and distribution) Repak (Ireland) – 6 independents and 6 producers from across the value chain (2 from retail, 2 from brand owners, 1 from materials/packaging, 1 from service industry)
Individual producers and industry associations across the value chain	APCO (Australia) – independents and elected board members in 2 categories i.e., brand owners and industry associations. 'Industry experts' can also be nominated by an association or the Board and there are 1-3 appointed independent directors. Industry association members include Australian Institute of Packaging (AIP), Australian Food & Grocery Council (AFGC) and Australian Council of Recycling (ACOR). Battery Stewardship Council (Australia) - independents (including one government official) and elected members from importers, brand owners, retailers and recyclers

5.7.6 Monitoring and reporting

To enhance transparency and accountability, the scheme should be required to provide:

- Public annual reports, which are independently audited
- Performance standards, which are independently verified
- Transparent methodologies for measuring against targets.

The Guidelines require public accountability including *"Publicly available annual reports that include measurement of outcomes and achievement of targets, fees collected and disbursed, and net cash reserves held as contingency"*.

A global example of a scheme with strong transparency is the VinylPlus scheme in Europe, which has a very high level of transparency in reporting on both financial and physical outcomes from the scheme.

Also, the scheme outlines a clear roadmap on how it will achieve its 2030 goals to meet the expectations of external stakeholders, through the following three pathways:

- Pathway 1: Scaling up PVC Value Chain Circularity
- Pathway 2: Advancing towards Carbon Neutrality and Minimising Environmental Footprint
- Pathway 3: Building Global Coalitions and Partnerships for the Sustainable Development Goals (SDGs).

The report clearly shows how tonnes of PVC recycled has grown since 2001, including the types of PVC formats that have grown the most. Supporting this growth is the significant investment made by the scheme into recycling technologies.

The level of transparency and independent verification (KPMG provided the independent financial and tonnage verification, while SGS provided the reporting verification) appears to be one of the highest of schemes reviewed as part of this research.

The scheme also maintains a very strong media and public presence, which is likely to have contributed to its success in terms of membership and obtaining member funds.

Recommendation 21: Monitoring and reporting

Recommendation for PPPS (Monitoring and reporting)

To enhance transparency and accountability, the scheme should be required to provide public annual reports, performance standards, and methods for measuring against targets. Liable parties and suppliers within the chain must report material by weight and material type.

The scheme should also publish a strategy and roadmap that outlines how it will increase its ambition over time and how.

5.8 Risk Management

5.8.1 Risk management process

PSO faces many types of risks, with four key types of risk being:

- **Lack of industry participation**, which is a fundamental risk for voluntary schemes and, while mitigated to some extent in regulatory schemes, there is still a risk that members do not contribute equitably and/or do not adequately fulfil their roles and responsibilities.

- **Operational risks**, relating to issues associated with collecting material, accessing markets and/or ensuring the performance of service providers.
- **Financial risks**, around the scheme's ability to meeting short term and long-term financial obligations.
- **Reputational risk**, arising out of actual or perceived poor performance of the scheme.

These risks are inter-related. For example, participation, operational and reputation issues can lead to funding problems.

The scheme should identify, manage and track these risks using best practice risk management principles. Section 5.9 includes suggested risk management practices that should be included into the operational framework. Central to this is the maintenance of a risk register.

A key risk for many schemes, including this scheme if the regulations are not effectively enforced, is the lack of participation, or 'free riding'. Section 5.10 outlines strategies to mitigate this risk.

Recommendation 22: Risk management process

Recommendation for PPPS (Risk management process)

The scheme should identify, manage, and track these risks using best practice risk management principles.

5.8.2 Structural scheme design elements to manage financial risk

Through its operational framework (Section 5.9), the scheme will manage all types of risks (participation, operational, financial and reputational).

However, financial risks are also an important consideration for how the scheme is designed structurally, not just how it is operated. As such, there is an opportunity to build in financial risk management measures into the scheme design.

Table 23 summarises the potential financial risk management options. It should be noted that these are not mutually exclusive.

Table 23: Financial risk management options

Option	Advantages	Disadvantages
Upfront funding before the scheme commences	• Provides working capital from Day 1	• No major disadvantages for mandatory schemes (in voluntary schemes, this can deter early participation)
Option to vary the levy - Similar to a 'call option' in financial markets, this builds in an option for the scheme to 'call on' addition funding from members when under financial pressure	• Only draws down on funding if needed (keeping member budget impacts to a minimum)	• Results in a contingent liability for members, which can have financial management and reporting implications
Build in periodic review of levy rates	• Flexible to adapt to changes in financial needs	• Does not address financial pressures that arise in the middle of the period
Set the levy to what is required in the long run, which means a surplus accumulates in the short run as the scheme is ramping up	• Does not require constantly changing levy settings • Still able to link the levy to something tangible (e.g., long run costs)	• Levy is higher than a levy that simply matches annual costs to annual revenue
Build in a contingency buffer (e.g., 20%) into the levy, above forecasted financial needs	• Strong precedent for using this as a financial management tool across a range of businesses and sectors	• If actual costs turn out to be the same as forecasted costs, the scheme will keep accruing a contingency every year

A combination of upfront funding (Option 1), a periodic review (Option 3) and setting the levy to a rate required to fund long term costs (Option 4), is recommended for the PPPS.

The upfront funding would be for working capital and for transitional activities such as establishing the entity, staff costs, and putting in place policies, procedures and systems. This is required to set up the entity before formal operation after which the PSO would be self-funded through levy receipts. The upfront funding amount is likely to be in the order of NZD $0.5 - $1.0 million. This could be funded in the form of a loan by Tier 1 members, an industry association or a financial institution, and repaid once levy revenue starts accruing.

This recommended funding approach provides an appropriate balance of initial financial strength (upfront funding), stability of the levy (Option 4) but adaptability to evolve with changing market conditions (Option 3).

While a call option (Option 2) and contingency (Option 5) have their merits, they are more suitable for voluntary schemes where schemes need to secure voluntary membership and therefore are often required to commence with a lower levy if possible.

In terms of the frequency of how often the levy should be reviewed, the Cabinet paper requires review within a minimum of 3 years. This would provide an appropriate balance between levy stability and adaptability to changing market conditions. Levy stability means that members can budget for their levy obligations over the 3-year period with relative certainty. This period could be longer or shorter. The drawback of a longer period for fixing the levy is less adaptability. Conversely, the drawback of a shorter period is less stability.

While a 3-year period is expected to provide the appropriate balance, an annual review, which is the approach adopted by Repak in Ireland, provides an alternative option.

Recommendation 23: Structural elements for financial risk management

Recommendation for PPPS (Structural elements for financial risk management)

It is recommended that the scheme use a combination of upfront funding, a periodic (2-3 year) review and setting the levy to a rate required to fund long term costs to manage financial risks.

5.9 Operational framework

The Guidelines provide some guidance on operational matters for the scheme, including that:

- Services (e.g., collection, sorting, material recovery and disposal) will be procured using transparent, non-discriminatory and competitive processes open to all competent entities whether existing, new entrant or social enterprise.
- Clear, regular and open reporting and communication will be given to scheme participants and stakeholders.
- Processes exist to manage commercially confidential or sensitive information appropriately.
- All people involved in the scheme will have completed suitable training to complete their roles, including in best practice in prevention and reduction of harm to people and the environment.
- Ability to obtain new or existing permits held, for all necessary activities in New Zealand in relation to processing and potential export of priority products or their constituent components.

In addition to these operational matters, the research and best practice recommends:

- Sound risk management practices
- Building in a periodic review to levy settings.

Recommendation 24: Operational framework

Recommendation for PPPS (Operational framework)

The scheme should adopt the operational guidance outlined in the Guidelines, as well as adopting sound risks management policies and a periodic review to levy settings.

5.9.1 Sound risk management

There are defined best practices on risk management. An example is *AS/NZS ISO 31000:2009, Risk Management – Principles and Guidelines*.

In accordance with these guidelines, sound risk management requires:

- An authorised policy for risk management
- A framework for managing risks including:
  - Risk hierarchy
  - Risk governance and accountabilities including structures, roles and responsibilities
  - Risk system including the risk management processes, tools and reporting structure
  - Related policies and procedures including business continuity management, OH&S, Information security, fraud and corruption
  - Monitoring, review and continual improvement.

The PPPS' risk management functions should be developed in accordance with this, or other similarly sound risk management guidance.

5.9.2 Periodic review to levy settings

The financial solvency of the scheme is a crucial matter. Not only does it influence the ongoing viability of the scheme but if the scheme is under financial pressure, there is a risk of poor practices by the scheme operation. For example, there is a situation called 'moral Hazard', where a party is incentivised to take on excessive risks in the knowledge that the consequences of that risk will be borne by other parties. In the context of product stewardship, this could include outcomes like saving costs by stockpiling.

In most markets, businesses have the ability to prudently manage their finances by continually adapting to market and financial conditions. The scheme should have the ability to do the same, particularly with respect to levy settings. However, this needs to be balanced since:

- Very frequent changes make it difficult for members to budget
- Too frequent changes expose the scheme to financial risks.

An appropriate balance is likely to be a 4-5 year cycle, with contingency measures built in to manage financial risks that arise mid-cycle. However, the appropriate cycle should be determined through robust financial modelling.

5.9.3 Channel management strategy

The Tranche 1 and 2 report identified that in New Zealand there are a wide variety of recycling collection options, including kerbside collections; drop-off; post-back; commercial collections; municipal and commercial transfer stations, community recycling centres and resource recovery centres.

The scheme will need to manage its portfolio of channels to balance the following objectives:

- **Material coverage:** The scheme is collecting all the packaging materials within its scope without significant gaps/leakage in terms of types of packaging that are being missed
- **Yield/effectiveness:** The selected channels are effective in collecting material from their respective catchments
- **Cost effectiveness:** The unit cost ($ per kg) of each channel is within a cost-effective range, which the scheme should determine through research and analysis, and the scheme is utilising opportunities to reduce cost, with some of the key drivers of cost including:
  - Volume/economies of scale (linking back to yield/effectiveness)

- In-kind contributions from partners (e.g., retail space, collection vessels)
- Optimising the logistics (including through capitalising on reverse logistics where possible)
- Efficient material handling and pre-processing (e.g., compaction).

- **Population coverage:** The scheme provides a reasonable level of access to the population.

The targets outlined in Section 5.3.3 underpin the above objectives.

To achieve this balance, the scheme should adopt sound management practices such as the development of key performance indicator (KPI) measures with benchmarks, obtaining channel data to measure KPIs, developing strategies to address lack of performance against KPIs.

Potential strategies include marketing campaigns to raise awareness, identifying logistical solutions to drive down transport costs, working with channel partners to identify win/win's (e.g., retailer contributions in return for the prospect of increasing footfall), expanding collection points to areas that are underserved, etc.

The initial portfolio selection and establishment of collection and logistics approaches is an important decision for the setup of the scheme. To support a sound decision on this, this study recommends cost benefit analysis (CBA) of alternative approaches, which is anticipated to take place in Tranche 4 of the PPS project. The collection options to be reviewed should include:

- Kerbside council collections (as from 1 Feb 2024) to collect plastics 1, 2 and 5.
- Expanding kerbside collections to collect other materials within the same model, i.e.:
  - Adding plastics 3, 4, 6 and 7
  - Enabling soft plastics to be collected at kerbside as per the Australian 'bag in a bin' model, and funding the additional costs
  - Adding liquid paperboard, and funding the additional costs
- Introducing separate kerbside collection (outside of council operated collections) for soft plastics or other plastic materials or composites
- Expanding takeback options through community recycling and retail drop-off for plastics 3,4,6 & 7 or products/ packaging excluded from council operated kerbside collections.

Similarly, the logistics options should include:

- The existing kerbside model with material being aggregated at MRFs and transported to processors
- A hub and spoke model with regional collection systems for non-kerbside plastics to plastic processors
- Back of house collections, which are sent direct to processors
- A combination of the above.

The scheme should also mitigate the risks of poor collection and recycling practices, by including a program to accredit/approve these service providers.

Recommendation 25: Channel management

Recommendation for PPPS (Channel management)

The scheme should select collection and logistics channels using formal methods such as CBA.

Once operational, the scheme should manage its portfolio of channels to balance material coverage, yield, cost effectiveness and population coverage.

The scheme should maintain a program to accredit/approve service providers to mitigate the risks of poor collection/recycling practices.

5.9.4 Marketing and communication strategy

An effective marketing and communication strategy is essential to meet the proposed outcomes. These include increasing consumer awareness and engagement in waste reduction and recycling activities. The Guidelines require 'clear information to household and business consumers on how the scheme works, how it is funded, and how to find the nearest collection point.

Market research that was undertaken to inform the design of the scheme concluded that it would need to 'engage consumers emotively and empower/enable them to make a difference'.[39]

Additional recommendations focused on the functional attributes that the scheme would need to deliver to be effective:

- a national approach
- clear guidelines and labelling
- ease and convenience so that little extra effort would be required from consumers
- knowledge and understanding of what happens to recycling (for those who want to know more)
- messaging that differed by target group.

The marketing and communication strategy will need to include community engagement, education, marketing and market research.

[39] Kantar (2023), Consumer attitudes to plastic packaging recycling, Report to PPPS, April

Recommendation 26: Marketing and communication

Recommendation for PPPS (Marketing and communication)

The scheme should adopt the recommendations of Kantar (2023), including that it "*engage consumers emotively and empower/enable them to make a difference"*, and employ the functional attributes that the scheme would need to deliver to be effective:

- a national approach
- clear guidelines and labelling
- ease and convenience so that little extra effort would be required from consumers
- knowledge and understanding of what happens to recycling (for those who want to know more)
- messaging that differed by target group.

Marketing and communication should include community engagement, education, marketing, and market research.

5.9.5 Research and market development strategy

The principles that underpin EPR emphasise that producers are responsible for the whole-of-life management of the product they bring to market. This includes not just collection and reprocessing, which is often the focus of many product stewardship schemes, but also sustainable design and production, distribution, use and reuse (e.g., durability, repairability etc.), as well as re-manufacturing.

Often, gaps in one or more of these steps are inhibitors in facilitating an effective 'closing of the loop' in regional circular economies.

In that context, research and development (R&D) and market development play a significant role in supporting full EPR, by identifying and supporting technologies, processes, skills and business/industry models to support closing the loops, as well as stimulating and building liquidity (i.e., active trading) in markets to support autonomous improvements.

This is especially important for the NZ economy, which is currently a significant importer of packaging material, and whose markets for recovered material are limited and incomplete. These challenges are also true for the broader region (Australia-Pacific). It is recommended that the scheme allocate an agreed amount of funding for R&D and market development. Table 24 summarises the potential methods for deploying that funding.

Table 24: R&D and market development investment options

Option	Advantages	Disadvantages
Grants program, with an application process that supports project by merit	• Simple • Fixed funding commitment	• Lack of co-investment by research partners, which also means they have less 'skin in the game'
Direct investment, where the scheme invests in research and commercialisation projects	• The scheme can focus on developing markets it can benefit from	• Does not leverage other partners' capabilities (see co-investment below)
Co-investment, i.e., direct investment but partnering with the public and private sector(s)	• Brings in a diversity of skills and intellectual property	• Risk of 'picking winners'
Innovative financing and procurement models, e.g., lending to processing projects while also providing offtake agreements for the processed material	• Scheme earns a return on investment, either through debt repayments or material resources/manufacturing inputs	• Somewhat more complex • Scheme takes on credit risks (risk of default by the debtor)

While not strictly an R&D or market development method, many product stewardship schemes provide **handling fees** (sometimes called rebates) to collectors, sorters and/or processors. Handling fees are intended to bridge the gap between existing revenue streams and what is required for commercial viability. These are usually provided as a per unit rate (e.g., $ per kg of material collected and/or processed).

Based on the findings of Tranche 2, there are high reject/loss rates across the recycling supply chain, defined as material which has been collected but is not being recycled, which can be as high as 67% in some cases. This outcome is due to issues in collection (e.g., contamination), sorting (MRFs) as well as processing. As such, the barriers to increasing recycling rates are system wide.

In response, a multi-pronged market development strategy is required to address the following barriers:

- **Split incentives:** In that Councils do not have an incentive to improve collection if there is no price signal that doing so will result in more recycling and a lower waste management bill
- **Investor confidence:** Individual investments in MRF upgrades and investment in processing capacity are not attractive unless systemic issues are also addressed, and industry capacity is starting from a low base and therefore is not proven at scale, which would be a detractor to financiers who usually look for a proven track record
- **A poor investment case:** Due to returns not being viable and there not being much upside unless, again, systemic issues are addressed.

In such a situation, a range of funding support is likely to prove most effective in addressing these wide-ranging barriers. The recommended portfolio of funding support includes:

- **Co-investment** (i.e., scheme plus private/council investment) across the whole supply chain, which is needed for any individual segment to be effective because of the interlinkages across the chain
- **Continued grant support by government**, through continuation of programs such as the Plastics Innovation Fund, Waste Minimisation Fund and Action Investment Plan, which will alleviate commercial and financing barriers until the industry reaches critical mass and is able to demonstrate a track record of investor returns
- **Innovative financing and procurement models:** allowing the scheme to be both the financier (loan provider) and off-taker, thereby benefiting from the investment through material in-lieu of just financial returns, which is likely to be more valuable
- **Handling fees:** bridging the cost gap for collectors, sorters and/or processors.

The overall advantage of these methods is that they address the systemic barriers, as well as partner with, and provide incentives to, public and private sector stakeholders to deliver outcomes in the interests of all parties. It also underpins investor confidence through financing and offtake agreements (i.e., underwritten demand).

Direct Investment is not the preferred approach in the context, due to the risk that the scheme will not benefit from the partnership and knowledge that co-investment brings.

However, as an alternative to the preferred approach, this method provides a potential complement where it is proven as likely to be effective.

Recommendation 27: Research and market development

Recommendation for PPPS (Research and market development)

To support market development, it is recommended that the scheme use a mix of co-investment (providing capital as an equity investor alongside private/council investors), and innovative financing and procurement models (providing loans which may be paid back through material offtake), while supporting the NZ Government’s continued support to the industry through grant programs and ensuring alignment with the Government’s Action Investment Plan.

5.10 Regulations

The Act provides the NZ Government the power to prohibit the sale of declared priority products except in accordance with an accredited product stewardship scheme, through a regulation under section 22(1)(a) of the WMA. This addresses one of the fundamental risks to scheme success – lack of participation by producers. This risk can be borne out in two main ways: by producers delaying the introduction of the scheme, even potentially indefinitely; as well as some producers simply not joining the accredited scheme once established (i.e., free riding).

This legislative and policy framework should also ensure that it provisions adequately for:

- Ensuring sound recycling practices (e.g., by specifying standards)
- Requiring data collection, for effective monitoring and enforcement
- Providing clear definitions, to ensure the scheme covers the required scope of sources and material types.

Recommendation 28: Enforcement

Recommendation for PPPS (Enforcement)

The Government should enforce the powers in the Waste Minimisation Act through legislative, legal and/or policy instruments and recommend any additional regulations required, to act as a credible threat of penalty in the event of free riding.

6 CONCLUSIONS AND NEXT STEPS

6.1 Key findings

The outcomes of Tranche 3 showed that while there are some themes arising out of the international review of schemes, schemes around the world adopt different approaches that are tailored to the unique market, political, social, environmental and infrastructure context of each jurisdiction.

Despite this diversity, a noteworthy theme was that US schemes tend to allow significant flexibility on how the scheme is funded (a market-based approach), while outside of the US, regulators provide more direction on the ultimate approach (e.g., levy structures etc.).

Key features of the New Zealand context are that:

- The proposed scheme is for single-use plastic packaging only whereas most other schemes cover all packaging
- There are already several complementary polices and schemes
- It is a smaller market, in terms of volume of material, than most schemes reviewed
- There is a large gap in terms of processing infrastructure.

Due to this somewhat unique context, Tranche 3 considered a variety of options for each design aspect, investigating the advantages and disadvantages of each option, before arriving at a 'Template Design'. This design contains the most 'meritorious' (e.g., best balancing of expected advantages, disadvantages and trade-offs) of potential design aspects.

Table 25: Summary of Template Design

Scheme design aspect	Recommendation
Problem statement	
Problem statement	Include clear environmental, social and economic problem statements as outlined in this report.
Scope	
Material type	Include all plastic resin codes 1, 2, 3, 4, 5, 6 or 7, singly or in combination with one or more of these plastics or any non-plastic material (except for products, which are under review by the Government in relation to single-use plastic bans; and plastic-lined metal containers).
Packaging function	Include all three levels of plastic packaging of consumer goods: primary, secondary and tertiary. This would ensure that liable producers are responsible for all the packaging they place on the market in NZ. It would also increase the recycling rate as secondary and tertiary packaging is often highly recyclable (e.g., clear plastic bags and pallet wrap) but not collected for recycling.
Packaging origin	Packaging of consumer goods which is disposed in households and away from home (e.g., cafes, workplaces). Secondary and tertiary packaging used for consumer goods generated back of house in retail premises and wholesale premises (e.g., distribution centres) is also within scope.
Packaging format	Include both rigid and flexible formats.
Reusable packaging	Include refillable consumer packaging and reusable secondary and tertiary packaging for reporting purposes but not for the levy, noting that the NZ criteria specifically excludes this.
Overall scope*	• All primary and secondary packaging of consumer goods likely to be disposed within the home and consumer packaging consumed away from home which is disposed at C&I facilities. • Excludes packaging which would be covered by the implementation of a Container Return Scheme (CRS)

Number of schemes	Global scheme design practice recommends one scheme for all consumer packaging within scope however the NZ Guidelines allow for multiple accredited schemes if collaborative arrangements are in place. Household and Commercial & Industrial (C&I) packaging could be managed within the one scheme, but with different collection channels and funding models
Objectives, outcomes and targets	
Policy objectives	Align with the General Guidelines for Product Stewardship Scheme (Guidelines), including minor wording changes to reference plastic packaging specifically. This is to improve eligibility for accreditation of the scheme.
Schemes outcomes	Include the following outcomes: • Problematic and/or unnecessary plastic packaging is eliminated in addition to those items already banned for specific sectors (e.g. single use plastic bans for PVC and Polystyrene apply only to food & grocery sector) • Quantity of single use plastic packaging placed on the market is reducing over time in per capita terms • All plastic packaging placed on the market in New Zealand is designed for recycling and has an accessible system for collection and recycling • Increased recycling rates for household and household-like plastic packaging • All New Zealand households have access to a collection and recycling service for plastic packaging • All New Zealand households have access to accurate and accessible information on how to recycle plastic packaging • Consumers are increasingly aware of the scheme and becoming more engaged in waste reduction and recycling activities. • Improved quality of recycled plastic packaging that meets manufacturers specifications • New and expanded markets for recycled plastic packaging to increase pull through demand for materials • There is a system in place to trace the quantity and quality of plastic packaging (by resin type) at every stage of the recovery chain • Reduced plastic packaging in litter.
Targets	Include relevant, time-bound, measurable targets linked to the objectives and outcomes
Liable parties and thresholds	
Definition of producer	Define producers in a similar way to the UK to include brand owners and importers placing packaging on the NZ market, subject to the agreed threshold for liable parties. Packaging suppliers would be liable to pay the levy for packaging supplied to small organisations such as cafes that individually fall below the threshold but collectively exceeds the threshold. Note that this will require new legislation to revise the WMA to allow for Levy setting.
Liable party threshold	Threshold is based on a combination of the weight (kg) of packaging placed on market and turnover. Below either of these thresholds, members would pay a fixed annual fee.
Roles and responsibilities	Producers have primary responsibility, but the scheme should define roles and responsibilities for all packaging stakeholders including the supply chain, recyclers and government.
Funding	
Funding instrument	Adopt a weight-based levy, with fee-modulation for recycling cost. The levy, cost categories and corresponding levy rates should be determined by the Product Stewardship Organisation (PSO) rather than being prescribed by government noting that this would require new legislation to enact. Instead, government should provide the underpinning principles for the levy, while the appropriate levy structure should be determined by the PSO, in a way that the operator

	deems is most likely to achieve the objectives of the scheme, while maintaining a healthy financial position.
Expenditure	Adopt a principles-based approach to expenditure. That is, the scheme should be held to account on how well it meets its objectives, outcomes and targets, instead of exactly where and how expenditure is directed.
Determining net costs	Determine the approach to material ownership and calculation of net costs for the purposes of paying service providers on a case-by-case basis by collection channel. For the kerbside channel, the regulations should embed incentives to encourage fair arms-length contracting by counterparties, including back-stop provisions if parties are unable to reach an agreement.
Governance	
Legal entity	Managed by a single entity (PSO) with a not-for-profit (NFP) structure.
Membership categories	Establish all three categories of membership (Tier 1, Tier 2 and Associate member) with different rights and obligations.[1] • Tier 1: Levy paying producer members • Tier 2: Producer members below the levy threshold • Tier 3: Associate members
Membership rights and obligations	Legal advice should be sought on the specific rights and obligations of each membership category.
Board of Directors	Drawn from Tier 1 (liable parties paying the levy) and Tier 2 (liable parties below the levy threshold) members, include independent directors with appropriate skills and experience e.g. legal, financial, governance, packaging design or recycling, and with a diverse range of perspectives e.g. Māori and local community, and an independent chair.
Monitoring and reporting	To enhance transparency and accountability, the scheme should be required to provide public annual reports, performance standards, and methods for measuring against targets. Liable parties and suppliers within the chain must report packaging material by weight and material type (including in combination materials). The scheme should also publish a strategy and roadmap that outlines how it will increase its ambition over time and how.
Risk management	
Risk management process	Identify, manage and track these risks using best practice risk management principles.
Structural elements for financial risk management	Use a combination of upfront funding, a periodic review and setting the levy to a rate required to fund long term costs to manage financial risks.
Operational framework	
Overall framework	Adopt the operational guidance outlined in the Guidelines, as well as adopting sound risks management policies and a periodic review to levy settings.
Channel management	The scheme should select collection and logistics channels using formal methods such as cost benefit analysis (CBA). Once operational, the scheme should manage its portfolio of channels to balance material coverage, yield, cost effectiveness and population coverage. The scheme should maintain a program to accredit/approve service providers to mitigate the risks of poor collection/recycling practices.
Marketing and communication	Adopt the recommendations of Kantar (2023), including that it “engage consumers emotively and empower/enable them to make a difference”, and employ the functional attributes that the scheme would need to deliver to be effective: • a national approach • clear guidelines and labelling • ease and convenience so that little extra effort would be required from consumers • knowledge and understanding of what happens to recycling (for those who want to know more) • messaging that differs by target group. Marketing and communication should include community engagement, education, marketing and market research.

Research and market development	To support market development, use a mix of co-investment (providing capital as an equity investor alongside private/council investors), and innovative financing and procurement models (providing loans which may be paid back through material offtake), while supporting the NZ Government's continued support to the industry through grant programs.
Regulations	
Enforcement	Enforce the powers in the Waste Minimisation Act through legislative, legal and/or policy instruments and recommend any additional regulations required, to act as a credible threat of penalty in the event of free riding.[2]

1: Tier 1 = Companies that meet the definition of producer and the threshold to pay the levy. Tier 2 = Companies that meet the definition of producer are below the threshold for the levy. Associate members = Other Organisations that support the scheme and whose interests are aligned e.g., government, waste and recycling industry, civil society, etc.

2: While this is a mandatory scheme, to ensure effective participation, this study recommends reinforcing the powers in the Act. This could include drafting and enacting supporting legislation or legislative instruments (e.g. regulations, rules or determinations), establishing a legal precedent, or releasing a policy. It is likely that a policy on its own risks not being effective and will require the other two types of instruments for effective enforcement.

Note*: The scope of the Template Design, with respect to packaging origin/source, is focussed on sources of household and household-like material. However, this research has identified that a broader scope that also includes business-to-business packaging has many advantages and is consistent with global precedent. Even if the scheme commences with the scope as per the Declaration of Priority Products in the Gazette, a broader scope could be phased in over time.

The study also identified potential alternatives that offer different potential advantages. Table 26 below presents a matrix of potential alternative design aspects to the Template Design. These alternatives were reviewed by the Steering Group and other interested stakeholders at workshops and have been retained in this report for completeness.

Table 26: Matrix of potential alternatives

Scheme design element	Template design	Alternative 1	Alternative 2
Problem statement	Per Section 5.1		
Scope			
Material type	• Mono-material plastic • Multi-material plastic • Bioplastic • Plastic coated fibreboard • Other composites containing plastic		
Function	• Primary (sales) packaging • Secondary (grouped) packaging • Tertiary (transport) packaging		
Origin*	• Consumer goods packaging disposed in households and away from home and associated packaging disposed at retail and wholesale premises • Excludes CRS packaging	• Template design + • B2B packaging (manufacturing, building & construction and other) • Excludes agricultural plastics although there will need to be systems in place to manage overlaps with the Green Farms scheme	• Start with Template design • Progressively phasing in additional packaging to Alternative 1 after 3-4 years
Rigid and soft	• Both		
Single and reusable	Exclude refillable packaging of consumer goods and associated reusable packaging (e.g., transport crates) with an existing recovery system at end of life	Exclude reusable B2B packaging with an existing recovery system at end of life	
Objectives, outcomes and targets	Per Section 5.3		
Liable parties & thresholds			
Definition of producer	As per UK but excluding reusable packaging		
Thresholds	Combination of turnover & weight	Turnover only	Weight only

Stakeholder roles & responsibilities	Per Section 5.5		
Scheme funding			
Funding instrument	Weight based (pro-rata)	Revenue (pro-rata)	Fee tiered by revenue
Fee-Structure (noting requirements for a change in legislation to deliver this)	Fee-modulation for recycling cost	Flat fee	Eco-modulation for recyclability & recycled content
Funding rate	Best practice review recommends this should be determined by PSO however this does not align with the current provision of the Act.	Prescribed by government	
Funding allocation	Determined by PSO	Prescribed by government	
Material ownership & payment terms	Channel by channel approach	PSO owns material and pays a gross fee to service providers (tolling model)	Service providers own material and get paid a net fee by PSO (service provider manages risk)
Scheme Governance & reporting			
Legal entity	Single entity with not-for-profit (NFP) structure		
Objects	Per Section 5.7.2		
Membership categories	Tier 1, 2 and Associate members		
Rights and obligations	Seek legal advice		
Board of Directors	Levy-paying members (Proprietary and retail brand owners and importers) and independent directors including Māori and community.	Also include on the board members representing industry associations, local government and recyclers	
Monitoring & reporting	Per Section 5.7.6		
Risk management	Per Section 5.9.1		
Operational framework			
Sound risk management	Adopt AS/NZS ISO 31000:2009 or other relevant standard		
Periodic review to levy	2-3 years	Annual	
Channel management	Undertake CBA of channel options, and active management of channels to		

	balance coverage, yield, cost effectiveness and population coverage	
Marketing & communication	Per Section 5.9.4	
Research & development	Grants, Co-investment, Handling fees, Innovative financing	Template option + Direct investment
Regulations	Per Section 5.10	

Note*: The scope of the Template Design, with respect to packaging origin/source, is focussed on sources of consumer goods sold at retail or wholesale without defining retail or wholesale. However, this research has identified that a broader scope that also includes business-to-business packaging has many advantages and is consistent with global precedent. Even if the scheme commences with the scope as per the Gazette, a broader scope could be phased in as shown in Alternative 2.

6.2 Next steps

The main next steps include:

- Conducting CBA of the recommended approach, as well as potential variants
- Include in this CBA, an analysis of the trade-offs between different channel options and how they achieve the agreed targets for the scheme.
- Utilise the evidence base of the first three tranches of the project, and the CBA (Tranche 4), to inform the recommended PPPS scheme design to be put forward at the end of the project.

In terms of the CBA options, it is noted that the Template Design includes the recommendation that the scheme determine and actively manage its portfolio of collection channels by balancing material coverage, yield, cost effectiveness and population coverage.

To help inform this determination, channel selection should be based on CBA. To understand the wide range of possible benefits and costs of different channel approaches, this research recommends including the following 'book-end' options:[40]

- **CBA Option 1 – Existing systems:** Utilise existing collection systems to collect in-scope plastics, being the current co-mingled recyclables bin at kerbside, as well as public place and drop-off collection points (community and resource recovery facilities) and commercial/industrial systems, leveraging other systems already in place (e.g., the retail network for soft plastics)
- **CBA Option 2 –Expand Plastics Recovery System:** Expand existing collection systems through either public or private providers, increase take-back/public place/community/resource recovery drop off and commercial/industrial systems and provide matching infrastructure for plastics-only sorting.
- **CBA Option 3 – Full Source Separation:** Expand the kerbside and commercial/industrial system to have 3 new bins (plastic film, rigid plastic packaging and liquid paperboard (LPB)) and provide matching infrastructure for plastics-only sorting (i.e., Plastics Recovery Facilities).

The CBA should also test sub-options for each of these three options (e.g. 1a, 1b, 2a … etc.) being:

a. **Net payment terms** with service providers, where the scheme does not own the material and therefore pays service providers a net fee, which takes into account the potential revenue earned by the service provider from the sale of materials recovered

b. **Gross payment terms** with service providers (also known as a 'tolling agreement'), where the scheme **does** own the material and therefore pays the service provider only for its operational costs, plus a reasonable profit margin

c. **A mixed-ownership model** where the scheme owns the material up to point of transfer to reprocessors, with ownership then transferred.

These sub-options are not meant to change benefits and costs per se, but how those benefits and costs are distributed among stakeholders, as well as considering who is best placed to manage the risks that come about from material ownership, both the upside and downside risks.

As such, the analysis of these sub-options should be semi-quantitative, with:

- Quantitative analysis of how the benefits and costs are distributed among stakeholders ('Distributional analysis')

[40] Bookends refers to options which sit on different ends the possible range of alternatives. This provides a type of 'boundary analysis', where the outcomes of being at each end of the range can be analysed, providing data which can be used to make inferences about what the outcomes might be for options in between that range.

- Discussion on what risk management mechanisms are available to entities that own the material, and the effectiveness of those mechanisms based on the context
- Quantitative and qualitative analysis of what this might mean in terms of risk margins and the ability to attract capital
- The system-wide risks that arise if any individual entity in the chain is not able to prudently manage risk, and how the impacts of such failures could propagate across the system.

Appendix A:
Detailed scheme reviews

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Appendix B:
Industry feedback on liable parties

The Project Team asked stakeholders to provide feedback on the following proposition.

Proposition on liable parties

The general principle that should guide the allocation of responsibility is that it should be the organisation with most control over design. This is normally the brand owner, but to ensure that imported products are covered, most EPR schemes allocate responsibility to the brand owner or first importer. This is becoming more complex due to the growth in online marketplaces.

We have recommended that the definition of liable parties for the PPPS could build on the definition proposed in the UK, noting that their EPR regulations are yet to be finalised. Under the proposed regulations, an individual business, subsidiary or group (but not a charity) is required to collect and report packaging if they meet the minimum turnover and packaging thresholds and carry out any of the prescribed ‘packaging activities’. Those defined as ‘large’ organisations must also pay a levy on the quantity of packaging they place on the market.

According to the UK Government, organisations undertake ‘packaging activities’ if they:

- Supply packaged goods to the UK market under their own brand
- Place goods into packaging that’s unbranded when it’s supplied
- Import products in packaging
- Own an online marketplace
- Hire or loan out reusable packaging
- Supply empty packaging.

The NZ legislation will need to include very clear definitions and descriptions to ensure that liable parties are clear.

Feedback from Plastics NZ

The following table lists some examples provided by Plastics NZ members that demonstrate some of the complexities, and our suggested response.

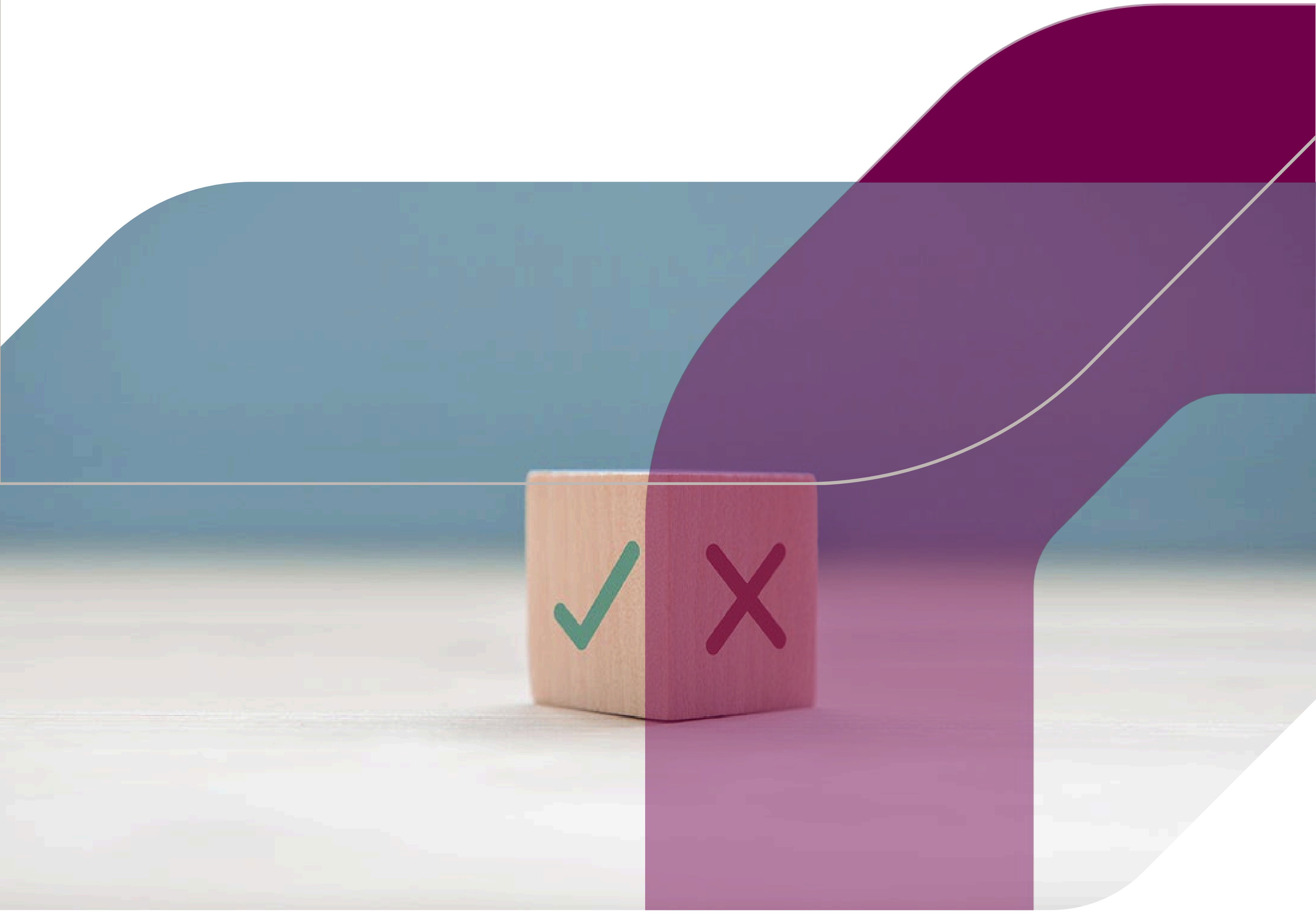
Supply chain category	Extract from UK proposal	Example cited by Plastics NZ	Suggested liable party in NZ
Brand owner	You may need to take action if packaged goods labelled with your own brand are supplied to the UK market. A brand includes any of the following: • a name • a trademark • any distinguishing mark	NZ product manufacturers selling direct to public or via retail (online & physical stores). E.g., NZ-located confectionary manufacturer makes and sells chocolate under their own brand, which is then sold through various channels.	Proprietary brand owner (excluding exports)
	You may also need to take action if you pay or license another company to do any of the following for you: • produce goods that will be sold under your brand name • pack goods that will be sold under your brand name	Retailers selling NZ-contract-manufactured/OEM products under their own brand (online & physical stores). E.g. NZ-located confectionary manufacturer is contracted to make chocolate under supermarket brand which is then sold online and in stores.	Retail brand owner

	• place your branded goods on the UK market • import goods for you		
Packaging supplier	You may need to take action if you manufacture or import empty packaging and then supply it to a business that is not classed as a large organisation. *Note: In the UK it is proposed that only 'large organisations' are liable to pay the levy; others are only required to report the quantity of packaging*	Packaging manufacturer/importer supplies off-the-shelf branded packaging to a company who fills it at point of sale. For example, compostable beverage cup with packaging manufacturers /importers logo on it.	Packaging supplier would be liable for packaging supplied to organisations below the levy threshold
		Packaging manufacturer/importer supplies off-the-shelf unbranded packaging to retailer for on-selling. E.g. unbranded zip-lock bags, empty single-use containers	Brand owner, but only for packaging within scope of the PPPS
		Packaging manufacturer/importer supplies off-the-shelf or custom unbranded packaging to another business for use in their supply chain (e.g. bags, containers, protective sleeves).	Packaging supplier would be liable for packaging supplied to organisations below the levy threshold, but only for packaging within scope of the PPPS (e.g., not protective sleeves)
		Packaging manufacturer/importer supplies branded packaging on contract basis to product manufacturer who utilises it in final product manufacture. E.g. Artisan producer contracts manufacturer to supply empty packaging with in-mold labelling showing artisan producers' brand	Brand owner
		Brand manufactures/imports empty packaging as 'product' for sale to consumers. Product packaging shows branding. E.g. 100 sandwich bags packaged in branded cardboard carton, roll of cling-film in branded carton.	Brand owner
Importers	You may need to take action if your organisation imports products from outside the UK that are in packaging and goes on to supply these products to the UK market. You may need to take action even if you discard packaging before selling the goods. You do not need to take action if you import filled packaging that is: • branded, and you've imported it on behalf of a	Wholesaler imports products for resale. E.g. Food & Beverage wholesaler imports products from around the world for resale into hospitality and retail.	Importer

brand owner that is established in the UK • unbranded, and you go on to supply it to a 'large' organisation that applies its brand before supplying it on		
	Retailer imports branded products to market for sale. E.g. Retailer imports whiteware from brand which doesn't have local office and sells.	Retailer as first importer
	Brand (offshore manufactured, local sales/distribution office) imports products to market and sells through various channels. E.g. whiteware manufacturer imports own brand and sells online direct to public from their own website, and via physical retailers and online marketplaces.	Brand owner
	Retailer 'parallel imports' branded products to market for sale. E.g. retailer imports electrical goods from brand which has local office/sales under import channel not controlled by brand, and sells.	Retailer as first importer
	Retailer imports offshore contract-manufactured/OEM products under their own brand and sells. E.g. Big-box retailer contracts offshore whiteware manufacturer to produce and brand product with retailers 'own-brand'. Retailer imports and sells products	Retail brand owner
	Raw materials distributor imports resin for sale/distribution to manufacturers.	Distributor as first importer (if B2B packaging is within scope of PPPS)
	The same model of laptop could be imported by the manufacturing brand, authorised retailers, parallel-import retailers, or from an online marketplace. The Brand-owner is 'filling the packaging' but may not be 'placing on market'. Assuming the brand has local NZ offices, are they responsible for all laptop packaging, or only the ones that they import?	See above – brand owner would only be responsible for product they place on market
	Raw materials (e.g. plastic resin, rolled foil, flour, chemicals etc) may be imported by distributor, manufacturing brand, contract-manufacturer, or via an online marketplace.	The manufacturer would only be responsible for product they place on the market in NZ – otherwise the distributor or OLM would be liable if they are the first importer

		Raw materials/ components/empty packaging is used up or converted during manufacture of the final product. Packaging for these goods is disposed of or recycled through business waste management systems.	Brand owner or importer will be liable if B2B packaging is within scope of the PPPS
		Large portion of final products are exported	Exports would be out of scope of the PPPS
Online marketplace	Under EPR for packaging, you're classed as carrying out the 'owning an online marketplace' activity if you operate a website or app that allows non-UK businesses to sell their goods into the UK. If you own an online marketplace, you may need to take action. If your organisation owns a website or app that sells goods from UK organisations only, this is not classed as carrying out the 'owning an online marketplace' activity. However, you should check if you carry out any of the other packaging activities.	NZ-owned online marketplace/app allowing non-NZ companies to sell into NZ (including drop-shipping). E.g. MightyApe, TradeMe, The Market etc.	OLM would be liable for products imported from non-NZ companies
		International online marketplace/app allowing non-NZ companies to sell into NZ (including drop-shipping). E.g. Amazon, Ebay, AliExpress etc.	As above
		We're unclear where an overseas brand with online sales into NZ sits regarding this. Are they a 'marketplace' if they are providing products from a single brand into market? Or are they an 'importer of packaged goods'?	They would be classified as the brand owner/ importer (not OLM)

Appendix C:
Sample flowcharts for determining liability



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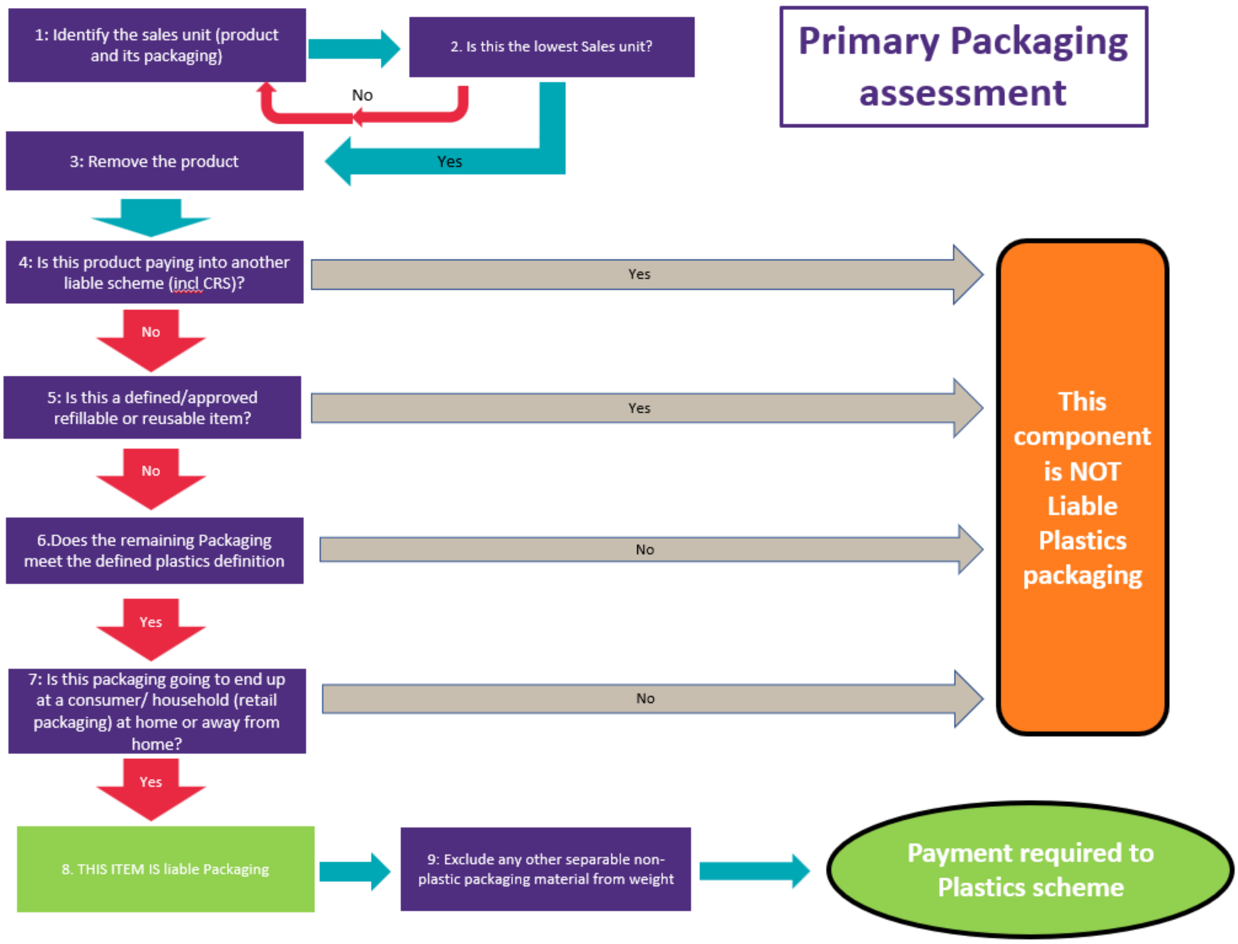
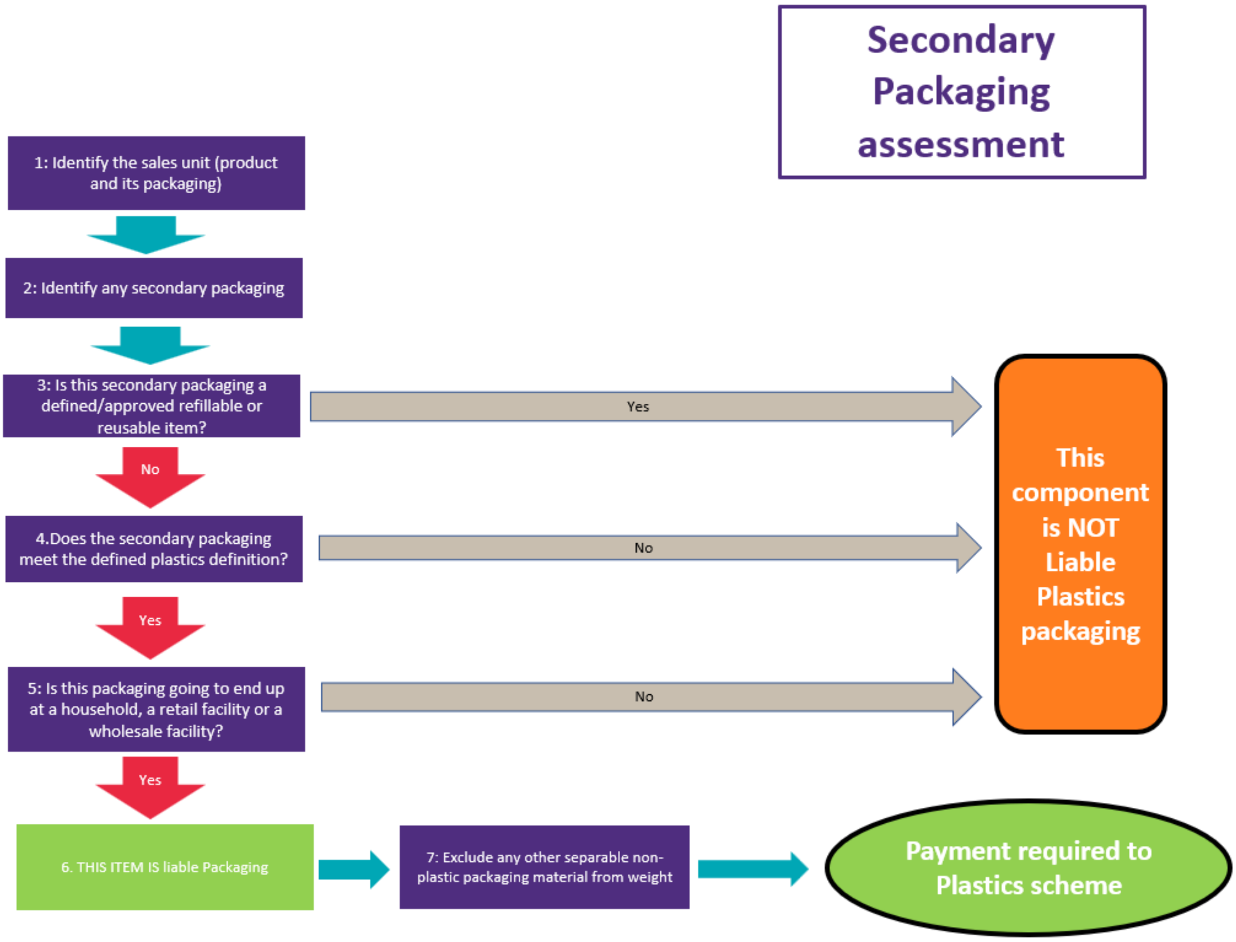
rps MAKING COMPLEX EASY A TETRA TECH COMPANY

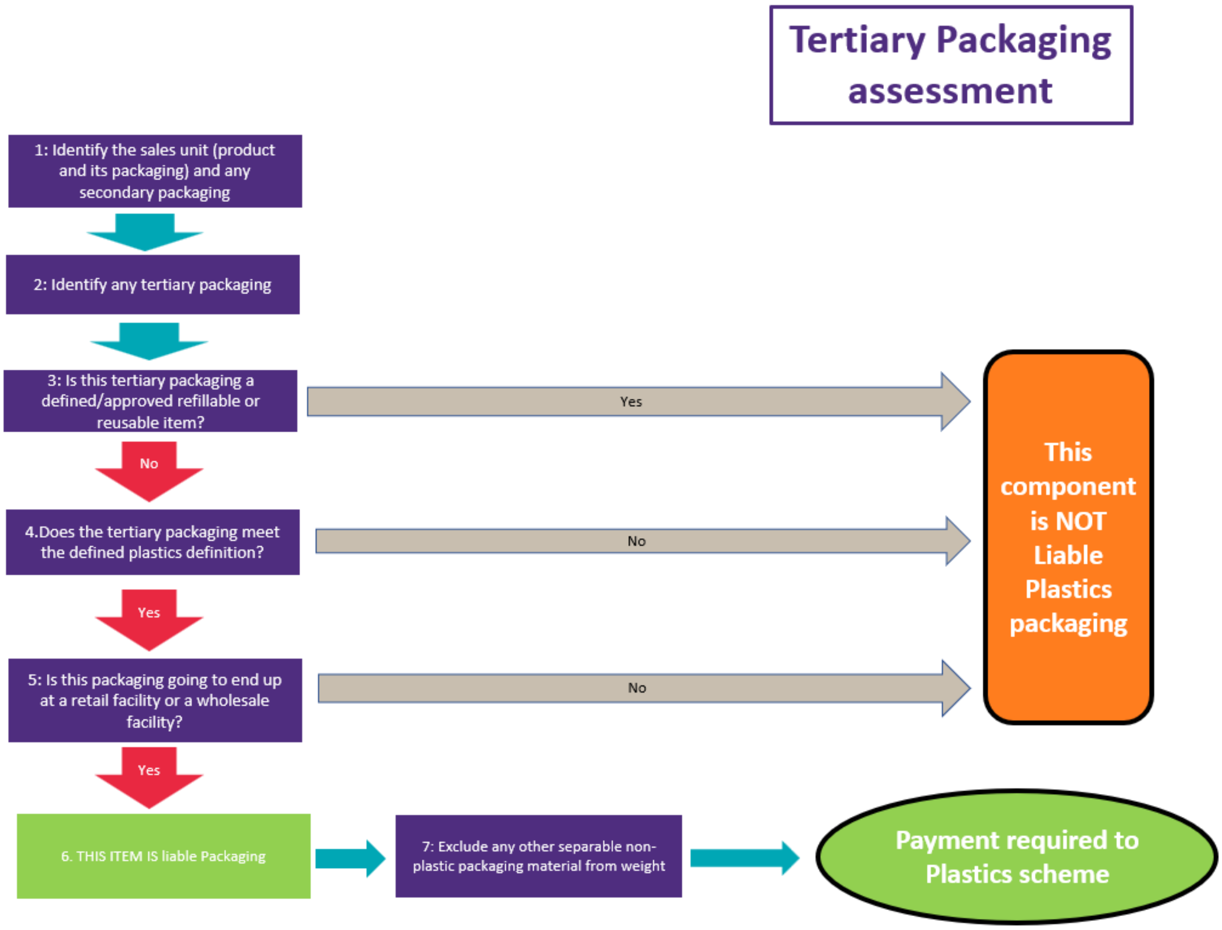
Primary Packaging Example



Secondary Packaging Example



Tertiary Packaging Example



Global scheme review

The following sections provide summaries of schemes reviewed as part of this project. This includes:

1. Schemes reviewed by the Project Team as part of Tranche 3
2. A scheme review table provided by the Client
3. Schemes reviews provided to the Client by the Australian Food & Grocery Council (AFGC), which were undertaken in 2021.

Schemes reviewed by the Project Team as part of Tranche 3

As part of the Tranche 3 research, the team reviewed schemes from:

- Europe and the United Kingdom (UK)
  - Proposed EU Regulations
  - Belgium
  - Ireland
  - Netherlands
  - Norway
  - France
  - United Kingdom
- North America
  - Alberta
  - California
  - Colorado
  - Oregon

These detailed scheme reviews area provided below.

Review of international plastics stewardship schemes: Proposed EU Packaging Regulation

Design elements		
Element	**Sub-element**	**Details**
1. Problem definition	Design	Over-packaging
	Manufacture	Use of fossil fuels (carbon intensity)
	Use	
	End of life	*Packaging is … a key environmental concern. It is one of the main users of virgin materials (40 % of plastics and 50 % of paper used in the EU is destined for packaging) and accounts for 36 % of municipal solid waste. The increased use of packaging coupled with low re-use and recycling rates hamper the development of a low-carbon circular economy. Packaging increased in recent years faster than the gross national income, which leads to soaring CO2- and other emissions, and the overexploitation of natural resources, biodiversity loss and pollution. Data … show increased use of packaging design characteristics that may inhibit recycling. Packaging is 'unrecyclable' when it cannot be separately collected or it poses challenges for state of the art sorting and recycling processes in place in the EU. From 2012 till 2020, the share of unrecyclable packaging has grown significantly. Furthermore, technically recyclable packaging is often not recycled because the processes needed for its collection, sorting and recycling are not available in practice or not cost-efficient, or the output is not of sufficient quality to meet the demand in end markets of secondary raw materials. Moreover, preliminary results of the Commission's second Early Warning Report show that many Member States are struggling to meet the recycling targets established in Article 6 of Directive 94/62/EC.*
2. Scope	Product / packaging	'*Packaging' means items of any materials that are intended to be used for the containment, protection, handling, delivery or presentation of products and that can be differentiated into packaging formats based on their function, material and design…* (Includes packaging filled at point of sale and tea/coffee bags.) The Appendix includes a list of packaging items covered by the regulations
	Geography	EU
	Sectors	All
3. Objectives	Environment – reduction, reuse, recycling, hazards	*Each Member State shall reduce the packaging waste generated per capita, as compared to the packaging waste generated per capita in 2018 by*

Design elements		
		(a) 5 % by 2030; (b) 10 % by 2035; (c) 15 % by 2040. (Article 38) *Packaging should be designed, manufactured and commercialised in such a way as to allow for its re-use or high-quality recycling, and to minimise its impact on the environment during its entire life-cycle and the life cycle of products, for which it was designed.* *Economic operators who supply products to a final distributor or an end user in grouped packaging, transport packaging or e-commerce packaging, shall ensure that the empty space ratio is maximum 40 %* (exempting e-commerce packaging - Article 21) Economic operators who place reusable packaging on the market shall ensure that a system for re-use of such packaging is in place. Reuse and refill targets are spelt out in Article 26. Recycling rate targets for plastic: • 50% by 2025 • 55% by 2030 (measured when the waste enters the recycling operation)
	Human health	The Regulation addresses impacts on human health and on the environment and on broader sustainability performance, including circularity, resulting from impacts of substances of concern on the whole life cycle of packaging, from manufacture to use and end-of life, including, waste management. *…Packaging should be designed and manufactured in a way as to limit the presence of certain heavy metals and other substances of concern in its composition.*
	Social	
	Economic / financial / governance	Aims to harmonise packaging regulations across the EU. *A circular economy of packaging will help decouple economic development from the use of natural resources, contribute to achieving climate neutrality by 2050 and halting biodiversity loss, and reduce the EU economy’s strategic dependency on many materials.*
4. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	NA
	Human health	
	Social	
	Economic / financial / governance	
5. Funding	Budget	NA
	Membership fee	NA

Design elements		
	Packaging levy – who pays the levy / thresholds	*In line with the polluter-pays principle expressed in Article 191(2) of the Treaty, it is essential that the producers placing on the Union market packaging and packaged products take responsibility for their management at their end-of life. It should be recalled that extended producer responsibility schemes need to be established, as provided for in Directive 94/62/EC, by 31 December of 2024, as they are the most appropriate means to achieve this and can have a positive environmental impact by reducing the generation of packaging waste and increasing its collection and recycling.* *…'**producer'** means any manufacturer, importer or distributor, who, irrespective of the selling technique used, including by means of distance contracts as defined in Article 2(7) of Directive 2011/83/EU, makes available packaging for the first time within a territory of a Member States on a professional basis under its own name or trademark;*
	What is the levy tied to (units, volume, weight) and why	
	Who ultimately pays the cost (cost incidence)?	
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	The regulation allows for harmonised rules for eco-modulation in EU *The Commission is empowered to adopt delegated acts in accordance with Article 58 to supplement this Regulation in order to establish design for recycling criteria and recycling performance grades based on the criteria and parameters listed in Table 2 of Annex II for packaging categories listed in Table 1 of that Annex, as well as rules concerning the modulation of financial contributions to be paid by producers to comply with their extended producer responsibility obligations set out in Article 40(1), based on the packaging recycling performance grade, and for plastic packaging, the percentage of recycled content. Design-for-recycling criteria shall consider state of the art collection, sorting and recycling processes and shall cover all packaging components.* *… modulation of extended producer responsibility fees is an effective economic instrument to incentivise more sustainable packaging design leading to better recyclable packaging while improving the functioning of the internal market. It is therefore necessary to harmonise criteria for the modulation of extended producer responsibility fees based on the recyclability performance grade obtained through recyclability assessment, while not setting the actual amounts of such fees. As the criteria should be related to the criteria on*

Design elements			
			packaging recyclability, it is appropriate to empower the Commission to adopt such harmonised criteria at the same time as establishing the detailed design for recycling criteria per packaging categories. *… There should be an incentive for economic operators to increase the recycled content in the plastic part of packaging. The most appropriate means to achieve this is to ensure the modulation of extended producer responsibility fees based on the percentage of recycled content in packaging. The fee modulation should be based on common rules for the calculation and verification of the recycled content contained in such packaging.*
		Reporting packaging data for the levy	
6.	Use of funding	Rebates for collection, sorting and reprocessing	
		Direct investment in infrastructure	
		Incentives for end-use (manufacturing)	
		Grants and commercialisation projects	
		Marketing, education and awareness campaigns	
		Auditing, reporting and compliance	
7.	Governance	Legislation	Proposed Regulation will replace the current Packaging Directive
		Legal structure	
		Board composition	
		Roles and responsibilities – PRO and local government	
		Membership	
8.	Operations	Accessibility of services - all users, national coverage (household packaging)	
		Accessibility of services – commercial packaging	
		Definition of roles and responsibilities	Producers have extended producer responsibility. Design - Roles of producers, packaging suppliers, distributers etc clearly outlined. Contracting agencies need to follow green procurement criteria (Article 57).
		Markets for recovered material	
		Safety / environmental management	*Member States shall establish an effective system of quality control and traceability of the packaging waste to ensure that the conditions laid down in paragraphs 2 and to 7 are met. That system may consist of electronic registries set up pursuant to Article 35(4) of Directive 2008/98/EC or technical specifications for the quality requirements of sorted waste. It may also consist of average loss rates for sorted waste for various waste types and waste management practices respectively, EN 87 EN*

		provided that reliable data cannot be otherwise obtained.
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	***Reduction*** *Empty space shall be reduced to the minimum necessary for ensuring the packaging functionality as follows: (a) for sales packaging, in relation to the total volume of the packaged product and its characteristics; EN 61 EN (b) for grouped and transport packaging, including e-commerce packaging, in relation to the total volume of the grouped or transported products and their sales packaging; For the purpose of assessing the compliance with this paragraph, space filled by paper cuttings, air cushions, bubble wraps, sponge fillers, foam fillers, wood wool, polystyrene, styrofoam chips or other filling materials shall be considered as empty space.* ***Reuse*** *… To promote the circularity and sustainable use of packaging, reusable packaging and systems for re-use should be incentivised. For that purpose, it is necessary to clarify the notion of reusable packaging and to ensure that it is linked not only to the packaging design, which should enable a maximum number of trips or rotations and maintaining the safety, quality and hygiene requirements when being emptied, unloaded, refilled or reloaded, but also to the setting up of systems for re-use respecting minimum requirements as set out in this Regulation. Packaging shall be considered reusable where if fulfils the following conditions: (a) it has been conceived, designed and placed on the market with the objective to be re-used or refilled; (b) it has been conceived and designed to accomplish as many trips or rotations as possible in normally predictable conditions of use; (c) it can be emptied or unloaded without damage to the packaging, which prevents its re-use; (d) it is capable of being emptied, unloaded, refilled or reloaded while ensuring compliance with the applicable safety and hygiene requirements; (e) it is capable of being reconditioned in accordance with Part B of Annex VI, whilst maintaining its ability to perform its intended function; (f) it can be emptied, unloaded, refilled or reloaded while maintaining the quality and safety of the packaged product and allowing for the attachment of labelling, and the provision of information on the properties of that product and on the packaging itself, including any relevant instructions and information for ensuring safety, adequate use, traceability and shelf-life of the product; (g) it can be emptied, unloaded, refilled or reloaded without risk to the health and safety of those responsible for doing so; EN 62 EN (h) it*

fulfils the requirements specific to recyclable packaging when it becomes waste set out in Article 6.

Recycling

All packaging shall be recyclable.

Packaging shall be considered recyclable where it complies with the following: (a) it is designed for recycling; (b) it is effectively and efficiently separately collected in accordance with Article 43(1) and (2); (c) it is sorted into defined waste streams without affecting the recyclability of other waste streams; (d) it can be recycled so that the resulting secondary raw materials are of sufficient quality to substitute the primary raw materials; (e) it can be recycled at scale. Point (a) shall apply from 1 January 2030 and point (e) shall apply from 1 January 2035. 3. Recyclable packaging shall, from 1 January 2030, comply with the design for recycling criteria as laid down in the delegated acts adopted pursuant to paragraph 4 and, from 1 January 2035, also with the recyclability at scale requirements laid down in the delegated acts adopted pursuant to paragraph 6. Where such packaging complies with those delegated acts, it shall be considered to comply with paragraph 2, points (a) and (e).

…Packaging design for recycling criteria have been established for a number of packaging formats under voluntary industry schemes or by some Member States for the purpose of the modulation of extended producer responsibility fees. In order to prevent barriers to the internal market and provide industry with a level playing field, and with the objective to promote the sustainability of packaging, it is important to set mandatory requirements regarding the recyclability of packaging, by harmonising the criteria and the methodology for assessing packaging recyclability based on a design for recycling methodology at the Union level.

… As design for recycling assessment in itself does not ensure that packaging is recycled in practice, it is necessary to establish a uniform methodology and criteria 21 Commission Decision 2001/171/EC of 19 February 2001 establishing the conditions for a derogation for glass packaging in relation to the heavy metal concentration levels established in Directive 94/62/EC on packaging and packaging waste, OJ L 62, 2.3.2001, p. 20. 22 Commission Decision 2009/292/EC of 24 March 2009 establishing the conditions for a derogation for plastic crates and plastic pallets in relation to the heavy metal concentration levels established in Directive 94/62/EC of the European Parliament and of the Council on packaging and packaging waste,

Design elements			
			OJ L 79, 25.3.2009, p. 44. EN 24 EN for assessing the recyclability of packaging in practice based on the state-of-the-art separate collection, sorting and recycling processes and infrastructure actually available in the Union. Related reporting from Member States and, where relevant, economic operators should support establishing the recyclability "at scale" thresholds and update, on this basis, the recyclability performance grades with respect to the specific packaging materials and categories. *From 1 January 2030, packaging shall not be considered recyclable if it corresponds to performance grade E under the design for recycling criteria i.e. <70% of the items is recycled (see Annex II)* ***Recycled content*** *From 1 January 2030, the plastic part in packaging shall contain the following minimum percentage of recycled content recovered from post-consumer plastic waste, per unit of packaging: (a) 30 % for contact sensitive packaging made from polyethylene terephthalate (PET) as the major component; (b) 10 % for contact sensitive packaging made from plastic materials other than PET, except single use plastic beverage bottles; (c) 30 % for single use plastic beverage bottles; (d) 35 % for packaging other than those referred to in points (a), (b) and (c). 2. From 1 January 2040, the plastic part in packaging shall contain the following minimum percentage of recycled content recovered from post-consumer plastic waste, per unit of packaging: (a) 50 % for contact sensitive plastic packaging, except single use plastic beverage bottles; (b) 65 % for single use plastic beverage bottles; (c) 65 % for plastic packaging other than those referred to in points (a) and (b);* (NB: there are exemptions for 'contact-sensitive' packaging – see p 25)
9.	Measures to address risks	Level of industry participation	NA
		Do they have sufficient funds to achieve the outcomes	NA
		Any evidence of challenges implementing and solutions	Proposal is yet to be formally adopted
10.	Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	

Main sources:

https://eur-lex.europa.eu/resource.html?uri=cellar:de4f236d-7164-11ed-9887-01aa75ed71a1.0001.02/DOC_1&format=PDF

https://eur-lex.europa.eu/resource.html?uri=cellar:de4f236d-7164-11ed-9887-01aa75ed71a1.0001.02/DOC_2&format=PDF

Review of international plastics stewardship schemes: Belgium (Fost Plus)

Design elements		
Element	**Sub-element**	**Details**
11. Problem definition	Design	Design for recycling
	Manufacture	
	Use	
	End of life	In the Cooperation Agreement: • Compliance with EU directives • Prevent packaging waste • 'An urgent social need to step up the fight against litter' High costs of treating household hazardous waste, which should be borne by producers
12. Scope	Product / packaging	Legislation definition: all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. "Disposable" ("non-returnable") items used for the same purposes shall also be considered to constitute packaging.
	Geography	3 Regions: Flanders, Wallonia, Brussels
	Sectors	Fost Plus covers household and out of home packaging. There is a separate scheme for commercial and industrial packaging (VAL-I-PAC).
13. Objectives	Environment – reduction, reuse, recycling, hazards	Objectives in the Cooperation Agreement: 1) to prevent or reduce the production or the harmfulness of packaging waste; 2) to guarantee that the proportion of reusable packaging for the same goods placed on the market does not fall in comparison with the previous year and that the total weight of oneway packaging for the same goods placed on the market is reduced in comparison with the previous year; 3) to encourage the increase in the proportion of reusable packaging placed on the market and of systems for reusing packaging, to promote and require recovery, in particular recycling, to encourage the increase in the proportion of recycled materials in the packaging placed on the market and to reduce the proportion of packaging waste in non-selective collection systems;] 4) to oblige responsible companies, by introducing a take-back obligation, to bear the full cost of collecting, recovering and disposing of packaging waste and, in the case of household packaging waste, to contribute towards the costs associated therewith.

Design elements		
		Fost Plus: Every day, we work with public and private partners to create a circular economy for household packaging, from collection among the general public to sustainable recycling in our own country. Fost Plus targets: • 95% household packaging recycling (2025) • 70% plastics recycling (2030) • 90% beverage packaging collection (2020) • 65% plastics recycling rate (2023) – above the mandatory target of 50% • 100% of packaging has a recycling solution (2025) • Vision - 100% of packaging collected
	Human health	
	Social	
	Economic / financial / governance	Make producers responsible for costs of litter and disposal of household hazardous wastes
14. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Results 2021 • 89.8% of all household packaging recycled • 98% of household packaging recyclable • 52% of plastic packaging recycled – exceeds EU goal for 2025 • 9.3 kg plastic packaging collected per inhabitant • 107,000 tons plastics recycled per inhabitant • 90% beverage recycling rate (without a CRS) • NB: under the EU Circular Economy packaging there is a standard methodology for calculating recycling rates: the recycling percentage will be calculated at a later point in the chain. Whereas the recycled quantities were previously measured upon leaving the sorting centres, this is now done when the recycling actually takes place.
	Human health	
	Social	
	Economic / financial / governance	
15. Funding	Budget	
	Membership fee	Associate members pay a one-off joining fee of EUR 12,500 (Affiliates pay the green dot levy)
	Packaging levy – who pays the levy / thresholds	Under the Cooperation Agreement the “Responsible company”, i.e. the party responsible for packaging, is defined as: a) any party that packages or has goods packaged in Belgium with a view to or when placing them on the Belgian market b) where products placed on the Belgian market have not been packaged in Belgium, any party importing the packaged goods (or that has them imported) and that does not unpack or use them itself; c) with regard to industrial and commercial packaging waste arising from products that do

		not come under a) or b), any party that unpacks or uses the packaged goods in Belgium and is thereby deemed responsible for the packaging waste generated d) with regard to service packaging, contrary to the above, any party that produces service packaging in Belgium with a view to placing it on the Belgian market, and any party that, where the service packaging is not produced in Belgium, has imported it with a view to placing it on the Belgian market, or any party that imports the service packaging and itself places it on the Belgian market, whether or not they are small retailers e) Any natural person or legal entity established outside Belgium who sells products directly to private households in Belgium by means of distance selling shall be considered to be a responsible company within the meaning of b).
	What is the levy tied to (units, volume, weight) and why	Weight Producers declare packaging composition annually and at end of year report units of each type of packaging sold. From this data input Fost Plus calculate "Green Dot" costs
	Who ultimately pays the cost (cost incidence)?	
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	Eco-modulated green dot levy based on material and recyclability – fees reflect actual costs of recycling ('the circular deficit') This complies with Directive (EU) 2018/851 which sets general minimum requirements for EPR eco-modulation: "… taking into account their durability, reparability, reusability and recyclability and the presence of hazardous substances…"
	Reporting packaging data for the levy	Members submit their annual data declaration via an online system, MyFost.
16. Use of funding	Rebates for collection, sorting and reprocessing	Under the Cooperation Agreement Fost Plus is required to cover the full costs of: • collections according to the procedures determined by the municipality or intermunicipality locally responsible for collecting household waste; • selective collection of household packaging waste streams by a regional agency; • recycling and recovery, including any shortfall in these areas; • operational information and public-awareness campaigns regarding these collections; • sorting the packaging waste collected; • disposing of residues from sorting, recycling and recovering packaging waste; • recycling, recovering and possibly disposing of packaging waste that is

		contaminated with or has contained hazardous substances; They also need to make financial contributions through a special surcharge 'for the purpose of combating litter'. Fost Plus receive revenue from sale of commodities as well as green dot levy. Fost Plus controls the data flows – funds the collection service so municipalities have to provide the data; funds the MRFs and captures waste management data and funds the recyclers/ processors. MRFS declare tonnes by material type arriving at MRF. Audit of bales to ensure quality Recyclers/Processors can decline loads which are contaminated. Municipalities charge for the blue bag – most cover the cost of the bag - 12 cents. Grey bags for waste (pay as you throw) are around €2per bag.
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	Fost Plus run TV and social media campaigns on sorting at home
	Auditing, reporting and compliance	
17. Governance	Legislation	Regions are responsible for waste management but have created joint legislation for packaging waste: Interregional Cooperation Agreement. The Agreement is administered by the Interregional Packaging Commission EU proposed reforms to the Packaging Directive - If 90% of drinks containers are not collected EU countries will need to introduce a DRS. Belgium likely to be exempt as
	Legal structure	FostPlus is a NFP accredited by the Interregional Packaging Commission.
	Board composition	27 Members representing defined sectoral groups (different categories of users, material categories and distribution) Chair and Vice-Chair are appointed by the Board alternating between the user and distribution sectors
	Roles and responsibilities – PRO and local government	Municipalities deliver the materials to the sorting centre. Fost Plus has negotiated 9-year contracts with sorting companies to help deliver high end sortation systems. Fost Plus owns and controls the material flow. Fost Plus has 9-year contracts with recyclers/processers in Belgium to maximise investment by private industry and to ensure processing takes place in Belgium.

Design elements		
		Investment in 5 new recycling plants – Contracts guarantee certain tonnages/ Households will get stickered if wrong waste put out for recycling. Municipalities are responsible for managing this
	Membership	**Affiliates** – organisations that pay the green dot levy **Associate Members** (have the right to vote at general meetings) - the 55 legal entities, federations or associations which joined the Association on 8 Dec 1995. Any physical person, legal person, federation or association who, by decision of the board of directors, may join as an Associate Member … and whose own main activity or that of its members falls under one of the following three categories: • the production or import of packaged products • the production or import of packaging material or packaging
18. Operations	Accessibility of services - all users, national coverage (household packaging)	
	Accessibility of services – commercial packaging	
	Definition of roles and responsibilities	Under the Cooperation Agreement: companies have to submit a packaging prevention plan to the Interregional Packaging Commission for approval. This responsibility can be transferred to a third party. Any company that is responsible for at least 300 tonnes of one-way packaging per year has a take-back obligation. This obligation can be transferred to a third party.
	Markets for recovered material	Most recycled in Belgium, the remainder elsewhere in EU
	Safety / environmental management	ISO9001 certified
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	There is a uniform national recycling standard. Plastics, metals and cartons (PMD) are collected in a standard blue bag for households and businesses. In 2019 the blue bag system expanded to include all plastic household packaging including flexibles. This has increased the average weight of plastic recycled per capita from 15kg to 23kg per annum. Members are provided with D4R support – Individual support at company level and collective support at product category level Fost Plus provides D4R guidelines
19. Measures to address risks	Level of industry participation	Presumably high as regulated
	Do they have sufficient funds to achieve the outcomes	

Design elements		
	Any evidence of challenges implementing and solutions	
20. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Operating since 1994 (30 years). Fost Plus claim to be a world leader and attribute this to: • the vast majority of Belgian citizens sorting their waste in a very responsible manner • an easy and efficient recovery system • clearly designated roles for citizens, producers and importers of packaged products and packaging, public authorities, municipalities and inter-municipal authorities, and the companies that collect, sort and recycle the packaging materials. Fost Plus advised the following recipes for success (from presentations to AFGC/NZFGC): • uniform collections • high end sorting systems • long term contracts to encourage private sector investment in infrastructure. • use best in class technology which is available to separate out materials and for processing. Ensure scheme allows for parallel imports/e-retail. Amazon now has agreement to pass charges on.

Main sources:

https://www.fostplus.be/en

https://www.ivcie.be/wp-content/uploads/2021/05/Cooperation-agreement-of-04-11-2008-on-the-prevention-and-management-of-packaging-waste.pdf

https://assets.foleon.com/eu-west-2/uploads-7e3kk3/252/220215_fost_plus_materiaalfiche_en.0c8f7bee38da.pdf

https://www.ivcie.be/en/the-cooperation-agreement/

https://www.fostplus.be/en/blog/european-commission-proposes-revision-of-packaging-and-packaging-waste-legislation

https://www.ivcie.be/en/function-of-the-irpc/

Review of international plastics stewardship schemes: Ireland (Repak)

Table 1: Framework for scheme review and design – Plastic Packaging Product Stewardship Scheme

Design elements

Element	Sub-element	Details
21. Problem definition	Design	Quantity of packaging placed on market
	Manufacture	
	Use	
	End of life	Packaging waste
22. Scope	Product / packaging	Household and 'backdoor' packaging made from any material: primary, secondary and tertiary. (Includes packaging filled at point of sale) Backdoor waste: Producers are responsible for waste arising from secondary and tertiary packaging which is received by a producer but is not thereafter used in the supply of products.
	Geography	Ireland
	Sectors	All
23. Objectives	Environment – reduction, reuse, recycling, hazards	Repak aims to: • reduce the amount of packaging on the Irish market • ensure that businesses are contributing to the recycling and recovery of the material they place on the market • build a true circular economy whereby packaging material is captured for re-use. Repak targets– • Recycling 65% and Recovery 75% (in 2021 achieved recycling 66% and Recovery 96%) • Plastics recycling 35% Repak members can sign the Plastic Pledge, which commits them to focus on reduction and reuse, helping to meet the recycling targets, eliminate non-recyclable packaging etc
	Human health	
	Social	Ensure the reductions in use of plastic packaging do not jeopardise our opportunities to achieve Ireland's goal of a 50% reduction in food waste by 2030.
	Economic / financial / governance	Meet producer obligations under the EU Packaging Directive
24. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Repak exceeded the EU packaging recycling targets for all materials in 2021 including plastic packaging at 31% (behind internal target of 35% but above EU target 22.5%) Annual Report 2021 EPA statistics From Lynne's notes:

Design elements		
		315,804 Tonnes of plastic waste generated per annum Plastic recycled = 97k t Plastic recovered = 210kt (WTE) Total R&R = 307k T 8KT is unmanaged
	Human health	
	Social	
	Economic / financial / governance	
25. Funding	Membership fee	
	Packaging levy – who pays the levy / thresholds	Under the waste management regulations, all businesses have obligations, the extent of which depends on the turnover and quantity of packaging that the business places on the Irish market. Under the European Union (Packaging) Regulations 2014 producers are defined as: *a person who, for the purpose of trade or otherwise in the course of business, sells or otherwise supplies to other persons packaging material, packaging or packaged products.* Those with a turnover of over 1 million Euros that place more than 10 tonnes of packaging on the Irish market are classified as **Major Producers**. Major Producers have two options – to self-regulate in compliance with their local authority or join Repak. Repak has over 3,400 members, with the full list available at https://repak.ie/members/list/ Members include: • Materials manufacturer • Converters • Distributors • Retailers • Brand holders
	What is the levy tied to (units, volume, weight) and why	• Fees charged to Regular Members shall be based on the weight of packaging material and packaging sold or supplied in the Member's business or otherwise, and shall include all packaging waste (including back-door waste) arising on a Member's premises • Fees charged to Scheduled Members shall be based on turnover, • Fees charged to Non-Major Members shall be a flat fee
	Who ultimately pays the cost (cost incidence)?	
	How is this achieved (e.g. passthrough to consumer)?	

Design elements		
	Levy – basis for any eco-modulation	Following significant groundwork on charting the costs of managing Packaging Waste for Recycling in 2020, Repak increased the detail and sophistication of the collation of this data and it's informing of Member Fees to the Scheme. Fees are per tonne based on material type, role in the supply chain and costs of recycling (refer to Annual Report 2021). Fee categories are: • Recycled plastics rigid • Recycled plastics flexible • Non recycled plastics • Beverage bottles PET • Beverage bottles other plastics Levies are paid in advance. Repak introduced a Net Necessary Costs model for plastics and composites in 2020. The model applies to statistical information on packaging materials supplied since 2020 and to fees applied to those statistics and invoiced in 2021. The model will be rolled out in 2022 to gather statistics for all recycled and non-recycled packaging materials (e.g. Paper, Plastic, Metals, Glass, Wood) and eco-modulated fees will then be applied to these packaging materials in 2023. Repak members will then be compliant with the requirements of the legislation by the required implementation date of 2023. From Lynne's notes: • In January 2021 Eco Fee Modulation was introduced for Plastics in 2021, with the fee for Plastic increasing from €114 per tonne to €117/t for recycled material and to €175/t for non-recycled material • In January 2022, the fees for recycled plastic €117 per tonne and non-recycled plastic €214 per tonne, the second step in a three step process of increases to achieve 80% of the net cost coverage over 3 years • In January 2022, the statistics reporting regime was altered to include recycled categories for all materials and expand the non-recycled plastic category to include all other non-recycled materials. • In January to March 2022, all required 2021 NNC data was collected from Recovery Operators and Costs and Incomes recorded so Net Necessary Costs could be calculated. • In May 2022 the new Member Fee Structure was approved by the Repak board for all materials in 2023, based on 80% Net Necessary Costs and including Repak overhead. • On approval, this NNC and EFM structure was communicated to all members during Summer 2022 so that budgets for 2023 can be prepared by Repak and its members.

Design elements		
		• In January 2023 the revised fee structure will be implemented based on 2022 tonnes, Non-recycled plastic €301/t
	Reporting packaging data for the levy	Each Regular Member shall provide statistical returns for each Reporting Period to Repak with the weight, type and composition of Packaging supplied and received by the Member in the Territory, including • Packaging recovered and recycled • Packaging exported from the Territory • Packaging Destined for Re-use Each Non-Major Member shall provide certified turnover data for each reporting period or calendar year. Repak has invested Euro 1 million in an online portal which captures data from 31 local authorities, collectors, recyclers, processors and the tonnages generated by producers. Note Repak measures consumption based on waste generated Repak members represent around 150kt of the plastic waste generated
26. Use of funding	Rebates for collection, sorting and reprocessing	Fees used to cover the cost of collection and recycling of the packaging that members put on the Irish market. This is achieved through funding household recycling bins, bottle banks (glass bottle collection points), business packaging waste collection and recycling centres. In 2021, Repak funded an additional €3.8m funding for the certified recycling of plastic packaging. This was targeted funding – applicable only to tonnes recycled above 2020 activity levels. The industry responded very positively to this support recycling an additional 7,291 tonnes of plastic packaging in 2021. In keeping with other developments, Repak has also improved Export Traceability and widened the net to include Operators who have not previously been asked to submit summary data. Industry is paid based on what is recycled not what is recyclable. Subsidies/ payments are set annually. Repak conducts twice annual unnannouced audits of MRFs / processors. MRFs includes validating weighbridges (note bale weight excludes humidity %) and pulling apart bales of each material to assess quality percentage.
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	Easter and Christmas campaigns, schools program, social media, etc Value €1,070,142.16

		Team Green public education campaigns - Outdoor, Radio, Digital, Social, Video, Display Value €523,427.89
	Auditing, reporting and compliance	
27. Governance	Legislation	The regulatory regime has been in place in Ireland since 1 July 1997. See European Union (Packaging) Regulations 2014 A deposit return system will be introduced from 2024 – to be run by another NFP called Deposit Return Scheme Ireland CLG, trading under the name Re-turn. The Own Resources Tax on plastic packaging was introduced on 1st January 2021. This is part of a package of EU budgetary measures agreed and then implemented by member states. The tax provides for the introduction of a levy on non-recycled packaging plastic waste at a rate of € 0.80 per kilogram. The tax is currently paid from the central fund of the Exchequer, in the same way as other own resources contributions
	Legal structure	Repak Limited is a not-for-profit organisation. It has operated for the entirety of that time (since 1997) and serves as Ireland's only approved compliance scheme for the recovery of packaging waste.
	Board composition	IN 2021 the Repak Board consisted of 13 members including 6 Repak Member representatives, elected by Repak Members, 6 independents and the CEO. The elected representatives must include: • Retail - 2 Member Directors • Brandholder - 2 Member Directors • Distributors / Wholesalers / Manufacturers / Convertors - 1 Member Director • Scheduled Members - 1 Member Director Elected Directors are appointed for a period of four years and may seek re-election. No Director may hold office for more than eight years. The Chairman is one of the Repak members.
	Roles and responsibilities – PRO and local government	Repak does not own or manage recycling facilities. Collection and waste recycling is carried out by a combination of public and private 'Recovery Operators' who are approved and funded by Repak. The collection and recycling process is carried out by private sector collectors, material recovery facility operators and local authorities (county councils). The Repak 'Recycling & Recovery' team conducts an annual contract compliance audit on the Top

Design elements		
		30 recovery operators (top 90% to verify recycling tonnages and value for money). This audit includes checks on all licenses, permits and insurances to ensure everything is up to date and relevant. In addition, all recovery operators provide monthly online reporting of recycling quantities to Repak. Recovery operators also supply relevant documentation which Repak checks on a monthly basis, to contribute to compliance auditing.
	Membership categories	Repak is funded by two types of membership – regular membership and scheduled membership. **Regular membership** is for large companies (e.g. manufacturers, importers, distributors, large retailers), and sees members pay annual fees aligned to the volume of packaging they place on the market. Business are required to determine the weights of packaging that they handle or supply, with fees calculated based on the packaging type by member type as outlined in Table 2. **Scheduled membership** is for small to medium-sized businesses (e.g. retailers, hotels, pharmacies, pubs, and restaurants), who retail directly to the consumer and are not brandholders. Scheduled members pay a fixed annual fee that is associated with turnover, with no need to submit packaging statistics. Under the Scheme Rules, **Regular Members are also required to:** • Prepare a 3-year implementation plan for the management of packaging waste arising on that Member's premises, including steps to prevent or minimise Packaging Waste • only use the services of lawfully permitted or licensed Recovery Operators, and otherwise comply with all applicable legislative requirements regarding the generation, segregation, storage, transport and disposal of Packaging Waste In 2021, of the 3,431 members 35% were regular members * and 65% were scheduled members *. Fee income from regular members remained at 95% of 2020 fee income, with the remaining 5% coming from scheduled members. See Membership Scheme Rules
28. Operations	Accessibility of services - all users, national coverage (household packaging)	Household recycling and public place bins. Soft Plastics were reintroduced for acceptance in the recycling bin in September 2021.
	Accessibility of services – commercial packaging	Packaging generated back of house that was used to bring products to market.
	Definition of roles and responsibilities	Collection and recycling of waste packaging is carried out by Recovery Operators who Repak

Design elements		
		approves and funds, to provide this service under strict contract conditions. Repak-approved Operators include private sector collectors, material recovery facility operators and Local Authorities/County Councils that are responsible for the management of local recycling facilities such as bottle banks or civic amenity centres.
	Markets for recovered material	Includes Solid recovered fuels (SRF) and Refuse derived fuel (RDF) – which can be used in the cement kiln. Waste to Energy is considered by Govt to be necessary to enable small population island communities to process their own waste and to have full transparency and traceability.
	Safety / environmental management	Quality Policy and ISO 9001 management system Repak has a Green Procurement Policy which has been built into our Quality Management System. ESG commitments see Annual Report) include climate action and support for the SDGs
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	Repak offer members their Prevent & Save program including tools and resources as well as support from their packaging technology team to help them optimise and redesign packaging. Packaging Design Guide
29. Measures to address risks	Level of industry participation	Businesses that have been trading for longer than one year are potentially liable for 'back fees'. Back fees exist to make non-compliant businesses accountable for the years that their obligation was not met. Existing membership fees have been funding their own packaging obligation for years and have in turn subsidised businesses with legal obligations but have made no contribution (i.e. free-riders). Up to six years of back fees can be charged to businesses deemed to be free-riders.
	Do they have sufficient funds to achieve the outcomes	Surplus after tax €1.9m. Membership fees net of rebate have increased by 8% to €35.5m (2020: €32.9m). The increase arises from a combination of factors, including new Member recruitment, growth in quantities of packaging placed on the market by existing Members and fee increases reflecting fee modulation.
	Any evidence of challenges implementing and solutions	
30. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	The definition of producer is broader than many PS schemes as it includes the full supply chain. This would help to capture more commercial plastic packaging as responsibilities extend to waste generated on premises. While they have exceeded the current EU target for plastics they have a long way to go to meet

Design elements	
	the next targets: 50% in 2025 and 55% in 2030 under the Circular Economy and EU Legislation.

Main sources:

https://repak.ie/
https://repak.ie/images/uploads/reports/Repak_AR_2021_1.pdf
https://repak.ie/about-us/faq/
https://www.irishstatutebook.ie/eli/2014/si/282/made/en/pdf

Review of international plastics stewardship schemes: Netherlands

The Dutch Packaging Waste Fund (Stichting Afvalfonds Verpakkingen or StAV) and Nedvang

Design elements		
Element	**Sub-element**	**Details**
31. Problem definition	Design	Design for reduction, reuse, recycling
	Manufacture	Heavy metals in packaging
	Use	
	End of life	Recycling rates, funding for recycling
32. Scope	Product / packaging	Household and B2B Packaging Waste DRS Plastic Beverage bottles and Metal Cans (as of April 1st, 2023)
	Geography	
	Sectors	
33. Objectives	Environment – reduction, reuse, recycling, hazards	Packaging Decree: • The manufacturer or importer must ensure that 51% of their plastic packaging is recycled by 2021 • packaging is designed and manufactured in such a way that recycling is facilitated; • packaging is designed and manufactured in such a way that, if the product to be packaged is suitable for this purpose, reuse of the packaging is possible; • packaging is designed and manufactured in such a way that it extends the shelf life of the packaged product as much as possible; • packaging is designed and manufactured in such a way that the weight of the packaging or the combination of the packaging and the packaged product is as low as possible; • packaging material is used as little as possible in the manufacture of packaging; • in the manufacture of packaging, recycled material is used as much as possible. • Elimination of lead, cadmium, mercury, hexavalent chromium or compounds thereof in that packaging or in a packaging component exceeds 100 ppm. Packaging Agreement between StAV and producers (see Appendix): • increase the reuse of PET in soft drink bottles; • reduction of PVC packaging by producers and importers, • reducing plastic carrier bags in the shopping channel, • material reduction of plastic packaging, • reducing plastic wrappers to addressed printed matter, and • reduce environmental pressure of metal packaging. • The Fund shall make €20m pa to go to municipalities for tackling litter.
	Human health	
	Social	

Design elements		
	Economic / financial / governance	The purpose of the Agreement is to realize a stable (financial) basis for a properly functioning waste management structure, implemented by StAV, in order to collectively comply with the legal obligations from the Packaging Decree and the Upv Decree
34. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	• 49% of plastic packaging recycled in 2021 (Dutch target 40%) – from presentation to AFGC • 80% of packaging recycled
	Human health	
	Social	
	Economic / financial / governance	
35. Funding	Budget	
	Membership fee	
	Packaging levy – who pays the levy / thresholds	Producers marketing >50,000 kg pa are liable under the Packaging Decree. Those below the threshold have no obligations unless covered by the DRS. The fees for plastic, metal, paper and cardboard, wood and glass, shall be paid annually indexed on the consumer price index as of 1 January Producer obligations are outlined in an Agreement between producer associations and the Waste Fund.
	What is the levy tied to (units, volume, weight) and why	
	Who ultimately pays the cost (cost incidence)?	
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	The rate per category of material is determined by the costs involved in collecting, separating and recycling that specific material. Part of the rate comprises the general system costs, these being the costs incurred for monitoring recycling and prevention of litter, amongst other things. These costs are evenly distributed over the categories of material. See rates
	Reporting packaging data for the levy	Producers submit a declaration to StUV via their Waste Tool. Via the online registration system WasteTool, all 355 municipalities and more than 200 recognized waste companies report to Nedvang how much of each type of material is collected and recycled each month. This is done in accordance with agreements with the VNG, which are laid down in the Packaging Implementation and Monitoring Protocol (UMP Packaging). Nedvang pass on the collected figures to the Packaging Waste Fund, which processes them in the monitoring report.
36. Use of funding	Rebates for collection, sorting and reprocessing	Municipalities and waste management companies receive compensation from the Fund.

Design elements		
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	
	Auditing, reporting and compliance	
37. Governance	Legislation	Producer responsibility for the packaging industry is laid down in the Packaging Management Decree 2014. At the request of industry associations the waste management contribution for packaging is now legally binding. The new AVV has a duration from 2023 to 2027. This provides the legal basis for the packaging waste management structure for five years. In the Packaging Framework Agreement (see English translation), the national government, the municipalities and the packaging industry have made agreements about the implementation of producer responsibility and the role of the Dutch municipalities in this.
	Legal structure	StAV and Nordvang are NFP entities.
	Board composition	The Packaging Waste Fund Directors are appointed by the obliged industry (e.g., Food, Non-Food and Retail companies). Nedvang's 'Supervisory Board' consists of representatives of organizations from the packaging industry and material organisations (5 in total).
	Roles and responsibilities – PRO and local government	Regions are responsible for waste management. The Association of Dutch Municipalities (VNG) and the Packaging Waste Fund (AFV) made new agreements for the collection and recycling of packaging waste. These are laid down in the ' Chain Agreement 2020-2029 '. This Chain Agreement includes models for the collection and/or recycling of plastic packaging waste, metal packaging waste and beverage cartons from which a municipality can choose. StAV and VNG agreed that municipalities can choose to limit their role in the recycling of plastic packaging waste to collection or to join a partnership of municipalities (which then arranges further processing). StAV reimburses the costs of sorting and marketing directly to the public authorities and private contracting parties. Nedvang BV enters into contracts with parties responsible for the transport, storage and transshipment, post-separation, sorting and recycling of mainly plastic packaging waste
	Membership	
38. Operations	Accessibility of services - all users, national coverage (household packaging)	Plastics metals and cartons (PMD) are collected from households. They are also separated from mixed waste at WTE plants.
	Accessibility of services – commercial packaging	Under recent changes producers are now also responsible for packaging waste generated by

Design elements		
		companies. This includes household-type waste (packaging) as well as other packaging. The AVV states 'According to StAV, suitable collection systems are already available on the market for packaging waste that is not comparable to household waste. … Pursuant to Article 2.11 of the Agreement, StAV can organize the collection of company packaging if there is no suitable collection system…. Packaging materials can still have a positive financial value even after they have been discarded. In such cases there is no chain deficit for these materials. StAV will conduct research into packaging materials for which there may not be a suitable intake system or a chain deficit. The results of this investigation will be shared with the minister…. Article 2.11 of the Agreement provides that StAV can proceed to offer a suitable intake system if the results of the investigation show that the current intake system is inadequate. If the collection system proves to be inappropriate, StAV will still offer a collection system for it and include the costs and revenues of this in the waste management fee. In short, StAV will implement the extended producer responsibility for all waste streams in an appropriate manner.'
	Definition of roles and responsibilities	**StAV** is responsible for the collection and recycling of packaging on behalf of the packaging industry. The companies pay a contribution per kilo of packaging which, among other things, pays for the collection and recycling activities of the municipalities. The Waste Fund also reports annually to the government on behalf of the companies on all packaging placed on the market and the recycling percentages achieved. StAV outsources part of the activities to the other 4 organizations in the waste management structure: • **Nedvang b.v.** Is responsible for the registration and reporting of all collected and recycled packaging waste (B2C and B2B) in The Netherlands and supporting the Dutch municipalities in improving their performance (quality and quantity on collection of packaging waste. • **Statiegeld Nederland** is Responsible for the management of the deposit system on beverage bottles (and cans from April 1st, 2023). • NederlandSchoon runs programs to manage and prevent litter. **The Knowledge Institute of Sustainable Packaging('KIDV')** supports companies on making their packaging more sustainable. Nedvang collects data on the collection and recycling of all packaging waste and provide the collected figures to the Packaging Waste Fund,

Design elements		
		which processes them in the monitoring report. Based on this data they also provide the Waste Fund with payment advice on the fees to municipalities and waste companies. The Packaging Implementation and Monitoring Protocol sets out the rules and requirements for all organizations and municipalities involved. For example, it states what kind of data municipalities and waste companies must provide to Nedvang, how often this must be done and what compensation is paid.
	Markets for recovered material	
	Safety / environmental management	
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	Chain Agreement 2020-2029 between StAV and municipalities
39. Measures to address risks	Level of industry participation	Participation is mandatory under the Decree. Producers in StAV are responsible for almost 97% of the weight marketed by above-threshold producers.
	Do they have sufficient funds to achieve the outcomes	
	Any evidence of challenges implementing and solutions	
40. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Second highest recycling rate for packaging after Belgium. Reasonably high recycling rate for plastics (49%). Very high level of industry engagement. Clear roles and responsibilities outlined in the Packaging Agreement between StAV and producers (codified in law) and the Chain Agreement between producers and municipalities.

Main sources:

https://www.afvalfondsverpakkingen.nl/nl/wij-zijn-stichting-afvalfonds-verpakkingen

https://www.nedvang.nl/

https://wetten.overheid.nl/BWBR0035711/2016-01-01

https://zoek.officielebekendmakingen.nl/stcrt-2022-35473.html

https://packtool.afvalfondsverpakkingen.nl/login

https://kidv.nl/raamovereenkomst-verpakkingen-2013-2022

Review of international plastics stewardship schemes: Norway

Waste Regulations and Green Dot Norway

Design elements		
Element	**Sub-element**	**Details**
41. Problem definition	Design	Excess packaging, packaging not designed for reuse or recycling, impact of hazardous components in recycling or incineration
	Manufacture	
	Use	
	End of life	Packaging waste generated by households and businesses
42. Scope	Product / packaging	**All packaging:** *Packaging means all products and disposable items, made of any materials of any nature, to be used for the containment, protection, handling, delivery from the producer to the user, and presentation of goods, including raw materials and processed goods.* *Includes consumer packaging, distribution packaging and transport packaging.* *Includes products and disposable items designed and intended to be filled at the point of sale.* Beverage packaging is excluded as its subject to a tax.
	Geography	Norway
	Sectors	Household & commercial packaging
43. Objectives	Environment – reduction, reuse, recycling, hazards	Purpose of the waste regulations: … *to reduce environmental problems caused by the use of packaging, increase reuse and recycling, and reduce environmental problems associated with packaging waste.* Under the Regulations all manufacturers must work towards waste prevention. This work must also be reported annually to the Norwegian Environment Agency. Green Dot Norway reports on behalf of its members. **Recycling targets:** • At least 30% plastic packaging apart from EPS • At least 50% EPS • At least 25% for beverage packaging take back schemes
	Human health	
	Social	
	Economic / financial / governance	
44. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Waste Regulations: … *purpose is to ensure that companies that deal with packaging waste compete on equal conditions, and that Norway achieves its binding targets under the EEA Agreement.* 2022 recycling results for plastic packaging: • 30.2% of all plastic packaging – household and commercial (except agricultural) – exceeding the target • 38.7% of business packaging

		• 80.5% of EPS – exceeding the target
	Human health	
	Social	
	Economic / financial / governance	
45. Funding	Membership fee	
	Packaging levy – who pays the levy / thresholds	Green Dot Norway invoice members after they report their packaging. Under the Waste Regulations producers that place on the market at least 1,000 kg per year of a specific type of packaging shall fund the collection, sorting, recycling and other treatment of used packaging and packaging waste through membership of a producer responsibility organisation that has been approved by the Norwegian Environment Agency. **Producer** means any entity that on a commercial basis imports packaging or packaged products to the Norwegian market, or that in Norway produces such packaging or packaged products for the Norwegian market
	What is the levy tied to (units, volume, weight) and why	
	Who ultimately pays the cost (cost incidence)?	
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	Not published
	Reporting packaging data for the levy	Producers have a choice on how they report packaging use. Data can be calculated by Green Dot Norway based on import data, or reported manually by the producer. Producers using large quantities have to report more frequently.
46. Use of funding	Rebates for collection, sorting and reprocessing	Levies pays for collection and recycling by the return companies. All collectors have an agreement with one or more return companies to finance collection.
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	Green Dot Norway run: • TV and social media campaigns to motivate people to sort correctly at home • Awards for improved packaging • Initiatives with schools They work closely with municipalities which are the “first line” communicators towards the citizens contributing to local activities that complement the national activities Green Dot Norway is doing separately.
	Auditing, reporting and compliance	
47. Governance	Legislation	Producer responsibility was previously based on voluntary agreements between the Norwegian government and industry. Alongside other

		commitments, industry pledged to achieve the EU recycling and recovery targets. The scheme is now regulated under the Waste Regulations (2017?). The main changes are new approval requirements for recycling companies and compliance scheme providers, an increased focus on waste prevention, the introduction of statutory recycling targets and a producer definition to tackle free-riders. There are also 2 non-mandatory deposit systems for PET-bottles. One is owned by breweries and handles reuse beverage containers, mainly PET, but also some glass. The other deposit scheme handles recyclable PET, PE and aluminium cans and is owned by breweries and grocery chains.
	Legal structure	Green Dot Norway is a non-profit company. It is owned by the return companies for packaging: • Sirkel Glass AS (glass) • Norsk Metallgjenvinning AS (metal) • Norsk Resy AS (corrugated cartons) • Norsk Returkartong AS (cartons) • Plasretur AS (plastics) Plastretur is owned equally by packaging manufacturers, product manufacturers and the trade. All return companies are approved by the Norwegian Environment Agency.
	Board composition	The Plasteur board includes representatives from the various owner organisations: • Norwegian Industry (2 members including current Chair) • The Danish grocery trade's Environmental Forum (2 members including current deputy Chair) • NHO Food and Drink • The association of grocery suppliers - DLF
	Roles and responsibilities – PRO and local government	Green Dot Norway manages the producer responsibility scheme for the 6 'return companies': Plastretur, Norsk Returkartong, Norsk Metallgjenvinning, Norsk Resy, Sirkel Glass and Treretur. Green Dot Norway collects license fees on behalf of the return companies. Municipalities are responsible for the packaging waste that occurs in the home, while private collectors (waste companies) collect the waste from businesses. Plastretur collects the plastic from the municipality and transports it for sorting and material recycling. The return company is also responsible for reporting the material recovery rate and traceability to the environmental authorities.
48. Operations	Accessibility of services - all users, national coverage (household packaging)	Plasretur have agreements with around 100 municipalities and IKS [municipal-owned enterprises] throughout the country, which collect household plastic from their residents.

Design elements		
	Accessibility of services – commercial packaging	Plasretur have an agreement with around 100 collectors who are obliged to accept ready-sorted plastic packaging free of charge. The collectors are responsible for any processing and sorting before the packaging is sent for material recycling. Plastretur is responsible for reporting the material recovery rate and traceability to the environmental authorities.
	Definition of roles and responsibilities	Green Dot Norway manages the producer responsibility scheme for the 6 ‘return companies’. Municipalities are responsible for the packaging waste that occurs in the home, while private collectors (waste companies) collect the waste from businesses.
	Markets for recovered material	Plastretur sends household plastic to fine sorting in Germany. Here, the plastic is sorted according to quality, before the recyclable plastic is sent on for material recycling. Contamination such as food scraps and other waste is removed and this is sent for incineration together with non-recyclable plastic.
	Safety / environmental management	Plastretur requires traceability for what is delivered to them.
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	There are requirements for reduction, reuse and design for recycling. Packaging may only be placed on the Norwegian market if it complies with the essential requirements set out in the regulations. These include limits on volume/weight. Green Dot Norway provides various guidelines and tools to help with design.
49. Measures to address risks	Level of industry participation	No data but assume this is high due to Regulations
	Do they have sufficient funds to achieve the outcomes	Unknown
	Any evidence of challenges implementing and solutions	Households not source separating their waste – putting plastics into residual waste bin. Correctly measuring recovery rates under new reporting rules – must take out losses i.e. contaminants, moisture and processing losses, product residue etc.
50. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Recycling rates achieved for plastics but below other EU countries. EPR has only been mandatory for ~ 5 years.

Main source: https://www.environmentagency.no/legislation/waste-regulations/chapter7-packaging-waste/

Review of international plastics stewardship schemes: France (Eco Embellage)

Table 2: Framework for scheme review and design – Plastic Packaging Product Stewardship Scheme

Design elements		
Element	**Sub-element**	**Details**
51. Problem definition	Design	
	Manufacture	
	Use	
	End of life	
52. Scope	Product / packaging	All household packaging
	Geography	
	Sectors	
53. Objectives	Environment – reduction, reuse, recycling, hazards	CITEO's purpose: To respond to ecological emergencies and accelerate required changes, Citeo wants to engage and support economic stakeholders to produce, distribute and consume while protecting our planet, its resources, biodiversity and the climate. CITEO's objectives include: Reduce the environmental impact of Citeo's customers' products, by embedding a circular economy and eco-design in their practices and strategies.
	Human health	
	Social	
	Economic / financial / governance	
54. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	2021 recycling rates: • 72% of household packaging • 30% plastics • 59% plastic bottles
	Human health	
	Social	
	Economic / financial / governance	
55. Funding	Funding summary	Producers pay 75% of net costs for collection and treatment of all household packaging and contribute to communication costs for municipalities (European Commission 2014, p. 71). This is raised through an eco-modulated fee set by CITEO based on the number of Consumer Sales Units (CSU).
	Packaging levy – who pays the levy / thresholds	Companies who sell products packaged and consumed by households in France or publish brochures, notices
	What is the levy tied to (units, volume, weight) and why	Weight
	Who ultimately pays the cost (cost incidence)?	
	How is this achieved (e.g. passthrough to consumer)?	

Design elements		
	Levy – basis for any eco-modulation	Eco-contribution is mandatory in France for the packaging industry, as an incentive to improve recyclability. The Modulated Eco-Contribution Scale decreases or increases the eco-contribution paid by manufacturers based on a ‘bonus-malus’ (reward-penalty) system for recyclability and recycled content. Basic rate varies for different polymers/formats. Bonuses awarded for: • Awareness raising about sorting • Reduction at source (unit weight or number) • Post-consumer recycled content Penalties awarded for: • PE or PP density >1 – 10% penalty • Dark non-detectable particularly carbon black – 50% penalty • Opaque PET, specific composites, PVC – 100% penalty The criteria used to adjust eco-contributions is determined by a working group made up of stakeholders representing all business sectors of the packaging and paper lifecycle. The mandatory contribution has proven effective in reaching higher recycling objectives.
	Reporting packaging data for the levy	The Eco contribution can be made by a range of declarations. **Fixed declaration**: Companies that place less than 10,000 CSUs per year on the market do not need to complete a detailed declaration. No figures to provide, all you have to do is connect to your customer area to attest to this and you only pay the annual fee of €80. **Simplified declaration**: This declaration is accessible to companies that place less than 500,000 CSUs per year on the market. No technical data to provide, it is based on flat rates per product family. **Declaration by consumer sales unit (CSU):** Accessible to all, each packaging reference is broken down by type and weight of materials, to which any eco-modulation (bonus and penalty) is applied. Available for all customers and mandatory from 500,000 CSUs per year placed on the market.
56. Use of funding	Rebates for collection, sorting and reprocessing	CITEO pays for reimbursement of local government net costs of collection and recycling as well as other costs.
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	
	Auditing, reporting and compliance	Operators of facilities that carry out sorting operations on household packaging waste are

		required to communicate to the Environment and Energy Management Agency the statistical data relating to the incoming and outgoing quantities processed each year. by categories.
57. Governance	Legislation	The Eco Embellage EPR system has operated in France since 1993. It has been updated and rebadged in recent years as part of a suite of circular economy initiatives. A wide-ranging anti-waste law was introduced in France in 2020 that aims to promote a 'circular economy' and has set several targets, including the recycling of 100% of plastics by 2025 and the phasing out of all single-use plastics by 2040. The Eco Contribution Regulation passed at a national level If you sell products on the French market, you are obligated to comply with the **Extended Producer Responsibility** regulation (Responsabilité Élargie du Producteur). Environmental Code since 1992 (article R.541-10 , R.543-56 and R543-208). : any natural or legal person who develops, manufactures, handles, treats, sells or imports waste-generating products or elements and materials used in their manufacture may be required to , referred to as a producer within the meaning of this sub-section, to provide or contribute to the prevention and management of the resulting waste as well as to adopt an eco-design approach for products, to promote the extension of the life of the said products by assuring all the professional and private repairers concerned as far as possible of the availability of the means essential for efficient maintenance, to support the reuse, reuse and repair networks such as those managed by the structures of thesocial and solidarity economy or promoting integration through employment, to contribute to development aid projects for the collection and treatment of their waste and to develop the recycling of waste from products. French Packaging Act In 2019, France announced plans to introduce a tax on packaging made from non-recycled plastic, which would result in products packaged in plastic not made from recycled materials costing up to 10% more.
	Legal structure	Citeo (formerly Eco Embellages) is NFP. Nearly 30 years ago, the local authorities and consumer goods companies that founded the

	company now known as Citeo, organised themselves to implement the principle of EPR. Adelphe, a subsidiary of Citeo, assists companies in the wine and spirits and pharmaceutical sectors in meeting their specific technical and regulatory requirements. Citeo is the result of the merger, in 2017, of two companies approved under the Extended Producer Responsibility schemes for household packaging (Eco-Emballages, created in 1992) and graphic papers (Ecofolio, created in 2007). 28,000 companies pay Citeo to meet their regulatory obligation. Its governance is representative of these companies and of the materials sectors involved in both the production and marketing of packaging and paper, as well as in the recovery of recycled materials. Shareholders are divided into 6 colleges. 4 colleges bring together representatives of all marketers concerned by EPR: industry, Trade, distribution and distance selling, Papers and publishers, and services. The 2 other colleges are: the Non-taxable college and the Packaging college. Trade, distribution
Board composition	Citeo’s Board of Directors has 18 directors representing shareholders and subsidiaries, as well as a State censor. The Mission Committee brings together stakeholders committed to supporting Citeo in the performance of its mission. It brings together representatives of clients, operators, environmental associations, local authorities, qualified individuals and employees. It is made up of 10 members and its role is to assess the implementation of Citeo's objectives.
Roles and responsibilities – PRO and local government	In France, household waste is handled by the public waste management service (SPGD), which is provided by the inter-municipalities. These local authorities finance the waste management service through different tax levers (taxes, fees or via the local authorities’ general budget) and collect different types of income: o Financial support within the framework of EPR sectors, o Income from the resale of materials to recyclers, o Public aid. The EPR system aims to: o Make the selective collection sector more competitive and adaptable o Optimise and harmonise the collection organisation in France and develop innovative systems, particularly in cities. o Modernise and rationalise sorting centres in France. o Develop efficient and sustainable recycling material loops, in particular

Design elements

		through the creation of new channels and the search for high value-added outlets. Material ownership stays with local government.
	Membership categories	28,000 members
58. Operations	Accessibility of services - all users, national coverage (household packaging)	100% of French people have access to sorting
	Accessibility of services – commercial packaging	
	Definition of roles and responsibilities	
	Markets for recovered material	
	Safety / environmental management	
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	**Reusable packaging:** Passed in February 2020 within the framework of the law on the fight against waste and the circular economy, several measures concerning re-use will be progressively applied from 2021. These measures aim to reach the stare of re-use being 5% of packaging placed on the market in 2023 and 10% in 2027. For example, Citeo and related entity, Adelphe, will have to invest 2% of their Eco contributions in re-use projects. Citeo experts train and advise companies and manufacturers on the issues, methods and practices to produce packaging and paper sustainably. R&D is a central element in its strategy to find solutions.
59. Measures to address risks	Level of industry participation	
	Do they have sufficient funds to achieve the outcomes	
	Any evidence of challenges implementing and solutions	
60. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	

Main sources:

https://www.citeo.com/

https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000041599099

Table 3: Framework for scheme review and design – Plastic Packaging Product Stewardship Scheme

Design elements		
Element	**Sub-element**	**Details**
61. Problem definition	Design	
	Manufacture	
	Use	
	End of life	
62. Scope	Product / packaging	The EPR scheme covers all packaging : primary, secondary, tertiary The Government will introduce an interim solution for managing **packaging waste arising from businesses.** This will be based around the current system, whereby packaging producers purchase PRNs to demonstrate recycling obligations have been met for the packaging they have placed on the market. They will develop and review options for payments for business packaging waste. Producers will be required to purchase PRNs to demonstrate that they have met their recycling obligations; this will represent a partial cost payment for the recycling of both household and business waste, as it does at present. Producers that place packaging on the market that is '**likely to end up in households'** also make a payment to the SA, to bring their contribution for the management of household packaging up to full net cost.This approach ensures that producers' full net cost obligation is met for household waste, whilst allowing for some money to continue to go directly to reprocessors, thereby ensuring they are not paying twice.3 DRS: Single-use drinks containers containing between 50ml and 3ltr of liquid will be in-scope of the DRS for England, Wales and Northern Ireland. This will include containers sold both individually and as part of a multipack and is in line with the approach taken in Scotland
	Geography	UK – 4 jurisdictions
	Sectors	All
63. Objectives	Environment – reduction, reuse, recycling, hazards	EPR will help achieve the Government's ambitious goals to protect our climate, drive green growth, and drive down unnecessary waste. **Outcomes** listed in Consultation document: • That unnecessary packaging - packaging that is not required to protect a product or excess packaging - is avoided; this will help reduce packaging and packaging waste • That opportunities to replace single-use packaging with reusable or refillable packaging increase, particularly for consumer products • That more packaging is designed to be recyclable, so packaging that cannot be recycled

		because of the material or the materials it is made from, or due to its format, will cease to be used where it can be avoided • That packaging waste recycling increases. • That the quality of packaging materials presented for recycling increases across the packaging value chain and more packaging is recycled into higher value and closed loop applications • That packaging Extended Producer Responsibility and the deposit return scheme contribute to less packaging being littered **Targets** under new EPR regulations for plastics: • 51% by 2024 • 62% by 2030
	Human health	
	Social	
	Economic / financial / governance	EPR will move the full cost of dealing with packaging waste from households away from local taxpayers and councils to the packaging producers (applying the 'polluter-pays principle'), giving producers responsibility for the costs of their packaging throughout its life cycle.
64. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	• Plastics recycling rate from households 44.2% (2021)
	Human health	
	Social	
	Economic / financial / governance	
65. Funding	Membership fee	
	Packaging levy – who pays the levy / thresholds	The current legislation puts a Packaging Recovery Note (PRN) purchasing obligation on companies that handle >50 tonnes of packaging and have a turnover of >2m GBP per year. Different types of business/activity types have different levels of responsibility in recovery and recycling: - Raw manufacturer producers (6%) - Converters (9%) - Packers/ fillers (37%) - Sellers (48%)[1] **New regulations:** Eco- modulated fees based on recyclability will be introduced from 2025. The thresholds for producer recycling obligations and disposal cost payments will be retained at £2m turnover and 50 tonnes of packaging.

[1] https://www.gwp.co.uk/guides/packaging-waste-regulations/

Design elements		
		A lower threshold of £1m turnover and 25 tonnes of packaging handled each year will be introduced. Producers who are between the two thresholds will be obligated to report the amount of packaging, by material and packaging type, that they place on the market in 2024. They will not be obligated to pay fees to cover disposal costs or meet recycling obligations. The current arrangements (the PRN system) will be retained to demonstrate recycling obligations have been met. The regulations will apply to all UK organisations that import or supply packaging i.e.: • supply packaged goods to the UK market under your own brand • place goods into packaging that's unbranded when it's supplied • import products in packaging • own an online marketplace • hire or loan out reusable packaging • supply empty packaging **Obligations will extend to manufacturers and importers of unfilled packaging for that packaging unless it is sold to a producer with a disposal cost obligation.** This will result in more packaging being reported in the system and the costs being shared more fairly among producers. **Obligated organisations include online marketplaces (OMP) that sell filled or unfilled packaging in the UK.** Reporting obligations will apply to **sellers, distributors, service providers, OMPs and importers,** and would apply to all types of packaging, including transport and delivery packaging. Large organisations need to: • pay a waste management fee (for household packaging) • pay scheme administrator costs • pay a charge to the environmental regulator • get PRNs or PERNs to meet their recycling obligations
	What is the levy tied to (units, volume, weight) and why	PRNs are issued by accredited processors when they have recovered and recycled a tonne of packaging material. These PRNs are able to be sold to producers to demonstrate that a tonne of packaging material has been recycled on their behalf, and that they are meeting legislative obligations.
	Who ultimately pays the cost (cost incidence)?	Brand owners. The government does not expect the new regulations to increase consumer prices.
	How is this achieved (e.g. passthrough to consumer)?	

Design elements		
	Levy – basis for any eco-modulation	The modulation of fees will begin in 2025. Producers will report by material category in the first year (2023); the fees producers will pay in 2024 will be calculated by apportioning the disposal costs to each material category. Brand Owners, Importers, Distributors and Service Providers may need to collate packaging information such as: • Information about the product contained within the packaging – such as food/non-food, hazardous (as defined by EN643)/non-hazardous, silicone, mastic etc. • Packaging components – the components that make up the whole packaging item and the weight of each component • Recycling disruptors – such as metal components, carbon black colouring, UV inks and varnishes etc. • Recycling enablers – such as detectable inks that allow for enhanced sorting and reprocessing • Format/packaging description – for example tub, tray, bag, box, jar, etc • Colour of material.
	Reporting packaging data for the levy	**Proposed regulation** Producers will need to report detailed data on packaging, with two key elements. First, they will need to report the amount and type(s) of packaging they have placed on the market. This will be used by the regulators to calculate their recycling obligations and hence requirements to acquire PRN/PERNs, and by the SA to determine the disposal cost fees they will pay for household packaging waste, and for managing on the go packaging placed in street bins. Second, they will need to report further details of their packaging to inform the assessment of its recyclability and to enable disposal cost fees to be modulated. The Government is developing a digital platform that will allow producers to register and report their data; relevant data will be shared with the SA and the regulators. Producers will have to report packaging data twice a year, in October and April of each year, with each data submission covering a six-month period. Recyclers need to report: • the tonnes of packaging waste received on site (by material type and grade) • the tonnes of non-recyclable or non-target packaging • the tonnes of packaging waste to be reprocessed or exported following any further cleaning and sorting processes • the tonnes of packaging materials reprocessed on site and/or sent to an onward destination site or facility.

Design elements		
66. Use of funding	• Rebates for collection, sorting and reprocessing	PRN funding expenditure flows into a broad range of categories. Information from Valpak provides a snapshot of funding flows in 2018: • Investment in infrastructure and capacity development for collection, sorting, treatment and reprocessing (33%) • Funding collection (29%) • Development of new end markets (25%) • Funding retained for future investment (9%) • Cost of complying with regulations (2%) • Developing communication strategies (1%) **Proposed EPR regulations:** Payments to local authorities and councils (local councils in Northern Ireland) for collection of household packaging waste, and on the go packaging disposed of in street bins. Payments will be based on 'necessary costs'. The SA will be required to distribute payments to LAs for the full net disposal costs of providing efficient and effective systems for managing household packaging waste and to demonstrate how these costs reflect local circumstances and policy outcomes in each devolved administration of the UK. There will be mandatory takeback scheme for the collection and recycling of fibre-based composite cups (disposable coffee cups). In England and Northern Ireland, there will be no payments for packaging waste that is littered; Scotland and Wales are considering steps to obligate producers for these costs.
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	The Government is considering the need for: • additional sub-targets to drive material back into the same or similar applications (referred to as 'closed loop' targets) • targets or obligations to incentivise the use of refillable and reusable packaging systems. Recycled content is being driven by the Packaging Tax.
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	
	Auditing, reporting and compliance	
67. Governance	Legislation	The Packaging Regulations (1997) require packaging producers (businesses that perform an activity on packaging) to take responsibility for their environmental impact and obligated producers must pay a proportion of the cost of the recovery and recycling of packaging via the

		purchase of certificates or recycling evidence, otherwise known as PRNs. **Proposed EPR regulations:** EPR will be implemented in a phased manner from 2024, focussing on payments for household packaging waste and packaging in street bins managed by local authorities, with such payments being determined from 1 April 2024. Businesses will have to pay the net cost to Local Authorities of collecting and disposing of household packaging waste, alongside continuing to contribute to packaging waste recycling through purchasing PRNs. Design is regulated through the Packaging (Essential Requirements) Regulations A **deposit return system (DRS)** is also under consideration.
	Legal structure	Independent organisations provide PRN trading / broking and compliance services. There are currently 48 compliance schemes. The largest service provider in packaging compliance in the UK is Valpak, which is part of the Reconomy Group. **Proposed EPR regulations** A Scheme Administrator (SA) will be appointed. It will start to mobilise in 2023 and will be fully operational in 2024. An indicative view from HM Treasury is that the SA is likely to be classified as being within the public sector. Government is considering options to establish the SA within the public sector, but still maintain significant industry involvement in the delivery of its functions. For roles of the SA see the Annex. Compliance schemes wishing to continue to operate after 2024 will need to apply for approval under the new EPR regulations. Compliance schemes will not undertake any functions in relation to administering disposal cost payments as obligated producers will be expected to make these payments direct to the SA. Compliance schemes will however be able to support producers with their data submissions
	Board composition	Not available
	Roles and responsibilities – PRO and local government	Local authorities manage collection and recycling
68. Operations	Accessibility of services - all users, national coverage (household packaging)	**Proposed EPR regulations** The payments local authorities will receive for household packaging under EPR will support the delivery of the UK government’s proposals for consistent recycling collections from households. Specifically, they will support improved recycling collections of packaging materials from all households meaning that households will be able to recycle more packaging materials and all households will able to recycle the same packaging materials. Recyclable plastic film and flexible packaging is to be collected for recycling from both households and businesses across the UK by 31 March 2027.

Design elements		
		In the lead up to this, existing kerbside, front of store and postal take back collections of plastic films for recycling will continue and are expected to increase in response to certainty over the timing of the introduction of this new collection requirement. Investment in new UK plastic reprocessing facilities can also be expected.
	Accessibility of services – commercial packaging	**Proposed EPR regulations** We will continue to explore payments for commercially collected packaging waste (from businesses and other organisations that pay for the collection of their waste), establishing a task force, with cross-sector representation, to develop the evidence, undertake analysis and identify options.
	Definition of roles and responsibilities	The current system for packaging has operated since 1997, but it has never covered the full costs of disposing of packaging waste. EPR will move the full cost of dealing with packaging waste from households away from local taxpayers and councils to the packaging producers (applying the 'polluter pays principle'), giving producers responsibility for the costs of their packaging throughout its life cycle.
	Markets for recovered material	
	Safety / environmental management	Reprocessors and exporters need to be accredited if they wish to issue PRNs or PERNs
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	The Government is considering targets for reduction and refill/reuse.
69. Measures to address risks	Level of industry participation	
	Do they have sufficient funds to achieve the outcomes	
	Any evidence of challenges implementing and solutions	
70. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	

Main sources:

https://consult.defra.gov.uk/packaging-extended-producer-responsibility/reforms-to-the-prn-and-pern-systems/supporting_documents/Reforms%20to%20the%20PRN%20and%20PERN%20System%20%20Consultation%20Document.pdf

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063589/epr-consultation-government-response.pdf

https://consult.defra.gov.uk/extended-producer-responsibility/extended-producer-responsibility-for-packaging/supporting_documents/23.03.21%20EPR%20Consultation.pdf

https://www.valpak.co.uk/compliance/packaging-compliance/

	2021	2022	2023	2024	2025 - 2027	2030
	ENVIRONMENT BILL ROYAL ASSENT	PLASTIC PACKAGING TAX STARTS SCOTLAND **DRS** OPERATIONAL	**EPR** PHASE 1 BEGINS CONSISTENCY ROLLOUT IN ENGLAND BEGINS	**EPR** PHASE 2 BEGINS 'REST OF UK' **DRS** BECOMES OPERATIONAL		
EXTENDED PRODUCER RESPONSIBILITY FOR PACKAGING	Consultation on EPR Development of Final Impact Assessments Launch Scheme Administrator procurement Regulate for data reporting required for phase one EPR (subject to consultation)	Producers start collecting packaging data Regulations in place for EPR	Producers report against new packaging formats SA appointed and starts to mobilise First payments made to local authorities Potential mandatory takeback of disposable cups (for large sellers) Producers compile data for phase 2 EPR (modulated fees) Producers assess packaging for recyclability	EPR phase 2 becomes operational - modulated fees and business payments start Materials specific recycling targets start	Packaging re-use targets from 2025 Recyclability labelling mandatory by end 2026/27 Potential extension of mandatory cup takeback to all sellers	Report on packaging recycling targets (2030)

Table 4: Alberta Extended Producer Responsibility Regulation

Design elements		
Element	**Sub-element**	**Details**
71. Problem definition	Design	
	Manufacture	
	Use	
	End of life	Regulation requires producers to provide minimum service standards with respect to collection from Albertan residences. Regulation also specifies minimum "material management requirements", which is the percentage of each material that a producer must recycle (Table 1 of the regulations), which at the time of writing was 50% and 25% for rigid and flexible plastics respectively from 2027[1]
72. Scope	Product / packaging	Packaging and paper products
	Geography	Alberta Province
	Sectors	Consumer
73. Objectives	Environment – reduction, reuse, recycling, hazards	Appears to focus mainly on collection and recycling
	Human health	
	Social	
	Economic / financial / governance	
74. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Minimum recycling targets not yet in force (regulation itself only introduced in 2022) but targets will come into force in 2027 and ramp up from there
	Human health	
	Social	
	Economic / financial / governance	
75. Funding	Membership fee	Regulation provides significant flexibility for producers to meet the regulations individually or through a PRO
	Packaging levy – who pays the levy / thresholds	Regulations contain a hierarchical definition of who is the producer being: • Brand holder in the first instance • Importer • Retailer.
	What is the levy tied to (units, volume, weight) and why	
	Who ultimately pays the cost (cost incidence)?	Regulations do not specify
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	No apparent eco-modulation
	Reporting packaging data for the levy	The overseeing authority, which is the non-profit organisation called Alberta Recycling Management Authority (ARMA) appointed by the

Design elements		
		regulations, has the powers to request specific reporting by producers.
76. Use of funding	Rebates for collection, sorting and reprocessing	The regulations do not appear to specify how the producers must expend funds to fulfil their obligations within the regulations.
	Direct investment in infrastructure	
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	
	Auditing, reporting and compliance	
77. Governance	Legislation	Underpinned by Alberta Recycling Management Authority
	Legal structure	ARMA is the non-profit organisation designated as the management board for the materials covered by the regulations.
	Board composition	The Board of ARMA comprises members with a background in retail, government, engineering, first nations engagement and politics.
	Roles and responsibilities – PRO and local government	ARMA appears to oversee multiple product stewardship programs as an umbrella organisation[2]
78. Operations	Accessibility of services - all users, national coverage (household packaging)	Minimum service requirements based on population defined in the regulations
	Accessibility of services – commercial packaging	
	Definition of roles and responsibilities	
	Markets for recovered material	
	Safety / environmental management	
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	
79. Measures to address risks	Level of industry participation	All producers required to participate, with the ability to exempt producers below a gross revenue threshold as defined in bylaws.
	Do they have sufficient funds to achieve the outcomes	
	Any evidence of challenges implementing and solutions	
80. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Not yet implemented.

[1]: https://www.canlii.org/en/ab/laws/regu/alta-reg-194-2022/201328/alta-reg-194-2022.html

[2]: https://www.albertarecycling.ca/about/industry-councils/

Review of international plastics stewardship schemes: California, US

Table 5: California Scheme Review (Plastic Pollution Prevention and Packaging Producer Responsibility Act)

Design elements		
Element	**Sub-element**	**Details**
81. Problem definition	Design	
	Manufacture	• Reduce production of single-use plastic packaging
	Use	
	End of life	• Support curbside and drop-off services • Targeted recycling rate
82. Scope	Product / packaging	Unlike other states (Oregon, Maine, and Colorado), California's scheme focuses on plastics specifically.
	Geography	State of California
	Sectors	Focuses on material collected through residential collection services (i.e. legislatively excludes material that "is not collected through a residential recycling collection service"). Appears to cover most plastic excluding those already in other schemes (e.g. beverage containers, agricultural) and some excluded sectors (e.g. medical), but also excluded is material that has a demonstrated recycling rate of 65% for 3 consecutive years prior to 1 January 2027.
83. Objectives	Environment – reduction, reuse, recycling, hazards	Encourage source reduction Encourage post-consumer recycled content
	Human health	
	Social	Expand access to drop-off recycling or other services where curbside currently not feasible
	Economic / financial / governance	Shifts recycling costs from consumers and local governments to plastic producers
84. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Producer responsibility plans will require a 30, 40, and 65% recycling rate after 2028, 2030, and 2032. A company is deemed to comply individually (not through a PRO) if it meets these criteria: • 5% source reduction (2013-2022) through refill, reuse or elimination • 8% source reduction through optimization, concentration, right-sizing, bulking, shifting to non-plastic packaging, light-weighting, or increasing the number of consumer uses • 75% of the packaging materials the producer sold, offered for sale, distributed, or imported meets a 30% recycling rate
	Human health	
	Social	
	Economic / financial / governance	Designed to shift costs from consumers (and local government) to producers. Unclear if there will be

Design elements		
		measured to limit the passthrough of costs from producers through product prices.
85. Funding	Membership fee	Expected to be based on relative market share (%), accounting for both number of plastic components and weight.
	Packaging levy – who pays the levy / thresholds	Exactly who is a producer is still unclear, although the Bill stipulates that PROs may collect up to $150 million from plastic resin manufacturers.
	What is the levy tied to (units, volume, weight) and why	To be determined
	Who ultimately pays the cost (cost incidence)?	To be determined, although the intent appears to be producers.
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	No apparent mention of potential for eco-modulation
	Reporting packaging data for the levy	PROs will register with the department's Recycling and Disposal Reporting System and annually provide the aggregate quantities in total weight and the number of plastic components of covered material, by covered material category: • Manufactured, sold, distributed, or imported in or into the state • Recycled.
86. Use of funding	Rebates for collection, sorting and reprocessing	PROs will use funding for: • Expanding access to or improvement of curbside collection services wherever feasible. • Expanding access to dropoff recycling services or other mechanisms where curbside collection services are not feasible, or as necessary in order to supplement curbside collection services to achieve the requirements of this chapter. • Expanding access to collection services in public spaces • Providing or facilitating deployment of innovative enhanced collection, composting, and recycling systems and innovative recycling systems within a recycling center or MRF that utilizes advanced technology, such as artificial intelligence and robotics, to improve the identification and sorting of covered materials, where feasible. • Creation of on-premises access to recycling or composting services for multifamily residences. • Funding, providing, or facilitating the efficient transport of materials from remote or rural areas to centralized sorting facilities, brokers, or viable responsible end markets.
	Direct investment in infrastructure	PROs will also use funding for: • Infrastructure or other mechanisms needed to implement a source reduction plan, including, but not limited to, investments in reuse, refill, and composting infrastructure. • Infrastructure or other activities needed to achieve recycling rates for all covered material

Design elements		
		under the plan and ensure covered material is recyclable or compostable.
	Incentives for end-use (manufacturing)	PROs will also use funding for: • Enhancing existing materials recycling or composting infrastructure by developing a quality incentive payment, grants, and other mechanisms sufficient to cover the cost of separating, processing, baling, recycling, composting, remanufacturing, and transporting desired materials that meet viable responsible end market quality specifications, or for reducing the rate of inbound contamination to composting facilities.
	Grants and commercialisation projects	See incentives for end-use
	Marketing, education and awareness campaigns	
	Auditing, reporting and compliance	
87. Governance	Legislation	Underpinned by Senate Bill No. 54 (Solid waste: reporting, packaging, and plastic food service ware) Chapter 75
	Legal structure	Bill alludes to not-for-profit entity structure
	Board composition	
	Roles and responsibilities – PRO and local government	Yet to be implemented, timeline includes: • Producers required to join PRO by 1 January 2024 • As of January 1, 2027, producers will not be allowed to sell, offer for sale, import, or distribute packaged materials in California unless the producer is identified in a Department of Resources Recycling and Recovery (CalRecycle) approved PRO plan for source reduction, collection, processing, and recycling of plastic packaging materials
88. Operations	Accessibility of services - all users, national coverage (household packaging)	Aim to expand access to drop-off recycling or other services where curbside currently not feasible
	Accessibility of services – commercial packaging	Appears to mainly cover residential and public place.
	Definition of roles and responsibilities	
	Markets for recovered material	Aim to improve markets through quality specifications
	Safety / environmental management	
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	Reuse contributes to source reduction targets
89. Measures to address risks	Level of industry participation	Requires all producers to be members of a PRO Exemption for small producers (less than $1m gross sales)
	Do they have sufficient funds to achieve the outcomes	PRO financial structures yet to be determined Anticipates that PROs are able to maintain financial reserves (up to 65% of the operating budget).

Design elements		
	Any evidence of challenges implementing and solutions	
90. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Not yet implemented.

[1]: https://www.exponent.com/article/californias-new-epr-law-targets-producers-plastic-packaging

[2]: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB54

Review of international plastics stewardship schemes: Colorado, US

Table 6: Colorado (Producer Responsibility Program For Recycling)

Design elements		
Element	**Sub-element**	**Details**
91. Problem definition	Design	• Bill places obligation on parties to "design and manage covered materials to prevent or minimize their negative environmental, social, economic, and health impacts".
	Manufacture	• Aims to provide producers access to purchased recycled materials so they can be remade into new products
	Use	
	End of life	• Reduce plastic waste • Improve recycling rate[1] • Better collect, process and market recyclable materials
92. Scope	Product / packaging	Packaging and printed paper products
	Geography	State of Colorado
	Sectors	Consumer-facing sellers of packaging and printed paper products
93. Objectives	Environment – reduction, reuse, recycling, hazards	The appointed PRO (Circular Action Alliance – see 7. Governance) will: • By Jan. 30, 2024, Circular Action Alliance will complete a statewide needs assessment to evaluate the recycling infrastructure throughout all geographic areas of the state • Develop a program plan to detail how it will implement the recycling program to best serve Coloradans and establish targets for minimum recycling rates in Colorado by 2030 and 2035
	Human health	
	Social	
	Economic / financial / governance	Aim to shift costs from consumers on to producers
94. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Outcomes will be outlined in the needs assessment, yet to be completed
	Human health	
	Social	
	Economic / financial / governance	
95. Funding	Membership fee	'Packaging dues' (discussed below)
	Packaging levy – who pays the levy / thresholds	Consumer-facing packaging sellers required to join a PRO, with exceptions for small businesses and some highly regulated packaging. Producers can also submit an individual program plan as an alternative.
	What is the levy tied to (units, volume, weight) and why	The bill outlines some principles of how the funding mechanism (called 'producer responsibility dues' rather than levy) should operate, including that is should: • Vary by type of material

		• Whether or not the material is readily recyclable • Be based on the net recycling services costs • Incentivise: – Reduced material use – Enhanced recyclability and commodity value – High levels of PCR material use – Designs for the reuse and refill of covered materials – High recycling and refill rates • Discourage practices that increase recycling or reuse costs, practices that disrupt recycling of other materials, using covered materials that are not on the minimum recyclable list
	Who ultimately pays the cost (cost incidence)?	The bill has been written to facilitate the cost of EPR to be built in to producers' wholesale prices and then spread across the supply chain
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	Requirement to eco-module to incentivise/discourage as per above
	Reporting packaging data for the levy	PROs will report in accordance with the Bill
96. Use of funding	Rebates for collection, sorting and reprocessing	PROs will provide reimbursement to the supply chain but the bill provides flexibility on how best to do that.
	Direct investment in infrastructure	Provides flexibility for the PRO to do this if beneficial to the scheme.
	Incentives for end-use (manufacturing)	Indirectly through eco-modulation
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	Required by the bill in principle but not prescriptive in this respect.
	Auditing, reporting and compliance	PRO plans and proposals must be submitted to the Department's advisory board for compliance assessment.
97. Governance	Legislation	Underpinned by House Bill 22-1355, signed by Colorado Gov. Jared Polis in 2022.
	Legal structure	Circular Action Alliance, the appointed PRO (see roles and responsibilities below) is a non-profit organisation, set up in response to the bill and other similar laws in the other states.
	Board composition	The bill establishes an Advisory Board within the Department of Public Health and Environment, with 13 voting members (3 x Local Government, Materials Recovery Facility, Hauler, environment/community organisation, packaging material supplier, manufacturer, trade organisation, retailer, composter, member with experience in environmental justice/underserved communities, landfill) and 2 non-voting members (representing Department and PRO) appointed by the Executive Director.

Design elements		
	Roles and responsibilities – PRO and local government	Appears that while the intent was to provide flexibility in selecting PROs, a PRO (Circular Action Alliance) has been 'appointed' by the Department of Public Health and Environment.[2]
98. Operations	Accessibility of services - all users, national coverage (household packaging)	Aim is to provide free and equitable recycling access for all Coloradoans
	Accessibility of services – commercial packaging	Appears to focus on consumer streams
	Definition of roles and responsibilities	The PRO is appointed by the Department, which has an Advisory board with broad representation (see 7. Governance above)
	Markets for recovered material	The bill seems to indirectly encourage end-market development as a means to reduce dues (i.e. adopts a market-based approach).
	Safety / environmental management	
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	Seemingly encouraged through eco-modulation than through direct operations
99. Measures to address risks	Level of industry participation	Requires all covered sellers of consumer-facing packaging, with some exceptions for small businesses and highly regulated packaging, to be members of a PRO.
	Do they have sufficient funds to achieve the outcomes	Bill requires the maintenance of a financial reserve that is sufficient to operate the program in a 'fiscally prudent and responsible' manner.
	Any evidence of challenges implementing and solutions	
100. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Not yet implemented.

[1]: Colorado's recycling rate in 2020 was 15%, less than half of the national average of 32% that year (https://www.recyclingtoday.com/news/colorado-epr-bill-signed-into-law/)

[2]: https://www.wastetodaymagazine.com/news/colorado-appoints-producer-responsibility-organization-epr-system/

[3]: https://leg.colorado.gov/bills/hb22-1355

Table 7: Oregon Scheme Review (Plastic Pollution and Recycling and Modernization Act)

Design elements		
Element	**Sub-element**	**Details**
101. Problem definition	Design	• Reduce non-recyclable packaging
	Manufacture	• Reduce non-recyclable packaging
	Use	
	End of life	• Encourage responsible recycling
102. Scope	Product / packaging	**To be defined on a 'collection list':** State-wide collection list will establish which materials will be collected at curbside and at depots.[2] Administrative law making with respect to these issues is due to conclude in 2023.
	Geography	Oregon State (US)
	Sectors	Producers of: • Food serviceware • Packaged items sold via physical retail sale • Packaging or packaged items sold via remote sale • Newspapers, magazines, catalogs, telephone directories and similar publications • Other printing and writing paper
103. Objectives	Environment – reduction, reuse, recycling, hazards	Optimise benefits of recycling, considering lifecycle impacts and costs.
	Human health	
	Social	Meet needs of unserved and underserved communities
	Economic / financial / governance	Protect rate payers (producer funded)
104. Outcomes achieved	Environment – reduction, reuse, recycling, hazards	Yet to be implemented, timeline includes: • Rulemaking in 2023-24 • PRO program plans due in 2024 • Producers join PRO by 1 July 2025
	Human health	
	Social	
	Economic / financial / governance	
105. Funding	Membership fee	Expected to be based on relative market share (%), with the method of calculation yet to be determined.
	Packaging levy – who pays the levy / thresholds	• **First seller** of food serviceware • **Manufacturer** of packaged items sold via physical retail sale • **Packager and shipper** for packaging or packaged items sold via remote sale • **Publisher** for newspapers, magazines, catalogs, telephone directories and similar publications • **Manufacturer/importer** for other printing and writing paper

Design elements		
	What is the levy tied to (units, volume, weight) and why	To be determined
	Who ultimately pays the cost (cost incidence)?	To be determined
	How is this achieved (e.g. passthrough to consumer)?	
	Levy – basis for any eco-modulation	Eco-modulation planned for PRO membership fees. PROs will be required to establish a graduated fee structure that is charged to members, using several mandatory criteria, including use of post-consumer recycled content. All other things being equal, producers that use post-consumer content in their covered products will pay lower membership fees.
	Reporting packaging data for the levy	Some reporting requirements will be determined through administrative rules by the Department of Department of Environmental Quality (DEQ). Otherwise, PROs will establish specific reporting requirements for their members.
106. Use of funding	Rebates for collection, sorting and reprocessing	The exact mechanism is not clear yet but local governments will receive funding for: • Implementing contamination reduction programs • Using new education resources to promote the statewide list • Additional costs for using recycled plastic in recycling and waste containers • Start-up costs for ensuring adequate collection service volume for multifamily residents • Transporting recyclables more than 50 miles to a recycling processing facility or end market • Start-up costs for expanding recycling collection opportunities (as identified in a statewide needs assessment)
	Direct investment in infrastructure	If end markets do not exist, PROs must take actions to develop alternatives for materials on the statewide collection list.
	Incentives for end-use (manufacturing)	
	Grants and commercialisation projects	
	Marketing, education and awareness campaigns	
	Auditing, reporting and compliance	
107. Governance	Legislation	Underpinned by the Recycling Modernization Act but with significant administrative rule making yet to be completed.
	Legal structure	Legal structure for PROs not yet defined.
	Board composition	
	Roles and responsibilities – PRO and local government	
108. Operations	Accessibility of services - all users, national coverage (household packaging)	Not yet operating

Design elements		
		Program will pay for expanding of recycling collection services up-front costs.
	Accessibility of services – commercial packaging	Appears to mainly cover residential.
	Definition of roles and responsibilities	
	Markets for recovered material	
	Safety / environmental management	
	Design, reuse, repair, collection and recycling standards, protocols, codes of practices	
109. Measures to address risks	Level of industry participation	Requires all producers to be members of a PRO Exemption for small producers (less than $5m revenue)
	Do they have sufficient funds to achieve the outcomes	PRO financial structures yet to be determined
	Any evidence of challenges implementing and solutions	
110. Effectiveness	How well has the initiative been in achieving its objectives? And what characteristics are enabling the results – i.e., level of industry engagement /investment; clarity of objectives/monitoring; quality of governance; use of financial incentives; investment in marketing etc	Not yet implemented.

[1]: https://www.oregon.gov/deq/recycling/Documents/recModORflyer.pdf

[2]: https://www.oregon.gov/deq/recycling/Documents/recRMAfaq.pdf

[3]: https://www.oregon.gov/deq/recycling/Documents/RMAProducerObligationsSummary.pdf

Schemes review table provided by the Client

The following page contains a scheme review table that was provided by the Client.

It compares international schemes against the NZ criteria.

Country	Model	Materials	Packaging	Source	Ownership of Material	Collection	Sorting	Processing	Litter/Public Place Recycling	Education	Funding
New Zealand	Not for Profit	Plastic Packaging only	All Plastic packaging used for consumer goods at retail or wholesale level (excluding beverage containers)	Household, commercial, public places, production							
Spain	Not for Profit - Single Service System for household packaging split in one for glass and one for plastics, beverage carton, metal and paper	All packaging	Household packaging excl glass where you have a special system for. Commercial packaging only if collected by municipalities	Household	Municipalities but the system is organizing the marketing and the income from selling the material is deducted from the costs for collection and sorting	Municipalities responsible for collection	municipalities but with influence from the system	Private Sector contracted by scheme on behalf of municipalities	Private Sector contracted by scheme on behalf of municipalities	Scheme	Fees are based on the tons of packaging marketed in the previous year. Fees are calculated to cover the cost involved in the selective pick up of packaging waste. Variable fee by plastic resin
France	Not for Profit - Single Service System with a small competitor	All packaging	All household packaging and OOH litter	Household (Commercial has a separate scheme which is just being build)	Municipalities	Municipalities responsible for collection	Municipalities	private sector contracted by municipalities	private sector contracted by municipalities	Scheme	3 tier system to reflect size of organisation, units consumed and tonnages for larger companies; several bonusses and malusses to modulate the fees
Belgium	Not for Profit - single service system split into 1 system for household and 1 system for commercial packaging	All packaging	All household packaging and OOH litter	Household (Commercial has a separate scheme)	Scheme	Municipalities responsible for collection	Private Sector - contracted by Scheme	Private Sector contracted by scheme	Private Sector contracted by scheme	Scheme	Variable fee by material and sub-material respective packaging type
Italy	Not for Profit - Combination Single Service System	All packaging	All household packaging and OOH litter	Household - drop off in public place respective kerbside in certain municipalities. Separate scheme for production waste	Scheme	Municipalities responsible for collection	Private Sector - contracted by Scheme	Private Sector - contracted by Scheme	Private Sector - contracted by Scheme	Scheme	Modulated fee based on sortability, recyclability and source
Germany	For Profit - Multiple schemes (11) but using all together the same collection infrastructure	All packaging	All household packaging and OOH litter	Household/ small commercial entities if the packaging is the same and low volume / Hospitality	Scheme	Private Sector - contracted by Scheme (municipal owned waste management companies can participate in the tendering)	Private Sector - contracted by Scheme	Private Sector - contracted by Scheme	Private Sector - contracted by Scheme	municipalities and the schemes	Competing PROS manage fees and this has led to a reduction in collection and recycling costs. Fees need to cover collection, sorting and recycling and are modulated to relate to recyclability and recycled content. (Different opinion: The reason why the fees dropped was the fact that after a 10 years contract from 1993 to 2003, the collection and sorting was called for tender for the first time. THEN, the costs dropped dramatically. from 2 billion to 1 billion. In the meantime the costs are back to 1.7 billion (plus 700 million for the DRS system). Fees can currently not be modulated as no one knows how to do this in a competitive system. Proposal is to establish a special fund for this on behalf of all 11 systems. Please read this report: https://www.iswa.org/epr-library/?v=3a52f3c22ed6#menu/kn-asset/142-76-39-5d962e85b7e346001038580d/epringermany.pdf
The Netherlands	Not for Profit - Single Service System	All packaging	All household packaging and OOH litter	Household (Commercial has a separate scheme but which is included in the Afvalfonds system)	municipalities but several municipalities have transferred it to the system	Municipalities responsible for collection	municipalities but several municipalities have transferred it to the system	municipalities but several municipalities have transferred it to the system	municipalities but several municipalities have transferred it to the system	municipalities and the schemes	Fee /KG for regular plastics and a reduced fee for easier to recycle rigid plastic. Definition of plastics reduced fee parameters not clear
Ireland	Not for Profit - Single Service System	All packaging	Household/ Commercial	Household, commercial, public places.	municipalities	municipalities	municipalities	municipalities	municipalities	municipalities and the schemes	Levies will change to eco-modulation for plastics/beverage containers

Scheme reviews provided by AFGC

The following schemes reviews were provided to the Client by the Australian Food & Grocery Council (AFGC). These were undertaken in 2021 and include:

- British Columbia, with Recycle BC continuing to service over 2 million British Columbian households (over 99%) with packaging and paper product recycling as of 2023[2]
- Maine, which has continued to progress an EPR for packaging towards implementation[3]
- Ontario, which has since transitioned to a new form of regulation as of 1 July 2023.[4]

[2] https://recyclebc.ca/about-recyclebc/

[3] https://www.maine.gov/dep/waste/recycle/epr.html

[4] https://www.northernontariobusiness.com/spotlight/ontario-manufacturers-get-ready-for-the-new-blue-box-regulation-7070943

Recycle BC (British Columbia) flexible plastics recycling program

Table 8: Scheme description and details

Scheme Name	Recycle BC
Country:	British Columbia, Canada
Years operational:	6 years (est. 2014)
Voluntary or mandatory:	Mandatory – full EPR – under the Environmental Management Act, Recycling Regulation
Summary of scheme:	The Recycle BC for residential packaging and paper products (PPP) is the first time full EPR for PPP has been implemented in Canada. Under the Recycling Regulation producers must assume financial and operational responsibility for collection and proper management of the products they sell or distribute to residents in BC. The obligation is fulfilled by producers registering with Recycle BC and filling out a report with types and quantities of packaging and paper supplied to BC residents. Under the Regulation producers must review their approved Program Plan every 5 years and submit to the government for approval. The current Program Plan (2019) includes targets for accessibility, recovery, consumer awareness etc..
Product scope/range:	Recycle BC delivers recycling services for packaging and paper to 1.87m households in British Columbia. Designated materials are generally those supplied to residents and taken home for recycling or disposal. 'Plastic bags and overwrap' can be taken to a Recycle BC depot for recycling[1]. In June 2018 a pilot program was introduced to collect a new type of material 'other flexible plastics'[2], which are mainly multi-laminated materials This is being collected from Recycle BC depots and London Drugs retail stores. The objective of the pilot is to determine the most effective process to collect and sort this material.
Liable parties/participants:	Producers i.e., organisations that supply packaging and paper products (defined in Recycling Regulation)
Governance Model description:	Recycle BC is the only PRO for paper and packaging in BC.
Scheme Administrator description:	Recycle BC is a not-for-profit organisation. Support is provided by the Canadian Stewardship Services Alliance (CSSA). The Board of Directors includes representatives of industry stewards (brand owners and retailers) and an independent member. There is a Finance & Risk Committee within the Board. An Advisory Committee comprises stakeholders including local governments, steward industry associations and the Recycling Council of BC.
Examples of collection and /or Service Providers engaged:	Recycle BC works with >175 collection partners who collect from households and recycling depots. Its supply chain is comprised of partnerships with local governments, First Nations, private companies and other not for profit organisations. The supply chain includes a collection system and post-collection system involving receipt of PPP and consolidation, transport, processing and delivery to end markets. There were 229 recycling depots in 2020. In most areas, local government continues to provide the kerbside collection service, but the list of materials has been expanded. Recycle BC has direct responsibility for kerbside recycling in 15 communities including Vancouver. Collection service providers must meet Recycle BC's collection qualification standards.

Scheme Name	Recycle BC
	GFL Environmental Inc. began oversight for the transportation, processing, marketing and reporting of materials collected across British Columbia in May 2020
Relationships:	Recycle BC has assumed responsibility for establishing a province-wide reverse supply chain for PPP in BC. Recycle BC provides a financial incentive to collectors including municipalities (see above). Recycle BC pays other service providers for transport, processing etc. The Canadian Stewardship Services Alliance (CSSA) provides administrative support (see Budget below).
Material ownership:	Varies depending on whether Recycle BC has full operational control of the pathway
How funding is raised	Producers pay a fee to Recycle BC based on packaging weight and recyclability Fees for soft plastics include: • Plastic film CAD$1.13 c/kg (AUD$1.21) • Plastic laminates CAD$1.40 c/kg (AUD$1.50) There is also the option to pay a flat fee based on the total amount of PPP supplied. Methodology for setting fees is being amended to use a Material Cost Index. Fees are not visible to consumers
Funding flows and models:	Recycle BC pays a financial incentive to local governments, First Nations and private collectors who have chosen to deliver collection services and resident education under contract. In other cases, communities have chosen to have Recycle BC directly manage kerbside services.
Mechanism to address free riding:	Recycling Regulation
Annual budget and what it funds	$101.2 million in 2019. Collection, sorting, reprocessing, education, reporting Net costs $545/tonne. Total program cost per household $22. 186,000 t collected. Budget for 2021 - CAD$134.4m (AUD$144m): • Supply chain $124.9 m (collection, sorting, transport, reprocessing etc) • Education $2 m • Program management $7.4m Recycle BC outsources to CSSA producer registration, reporting, fee invoicing, payments, audits and compliance to facilitate harmonisation for Canadian producers operating in other provinces.
Education activities & cost	Community champions, awareness campaigns, partnerships, website, social media Annual consumer research undertaken – 99% aware of a program and claim to recycle
Reporting	Annual reports published
Recycling outcomes achieved	In 2020 24% of flexible plastic supplied by members were recovered compared to a target of 22% by 2022. ‘Other flexible packaging’ was recovered as engineered fuel while they consider the best way to recycle it.. Total recovery (collection) rate for all materials supplied by members was 85.8% in 2020.
More information	Download the 2020 Annual Report here. The revised Program Plan was approved by the government in June 2019 Report to stewards 2020 – pre-reading for AGM

Table Note

(1) Plastic bags and overwrap

This item can be brought to a Recycle BC depot. Plastic bags for groceries, dry cleaning, bread, newspapers and flyers; bags for produce, dry bulk foods, pre-washed salad and frozen vegetables; outer bags for diapers and feminine hygiene products, paper towels, tissues, soft drink can flats; bags for water softener, salt, wood pellets and garden products; overwrap on mattresses, furniture and electronic equipment.

(2) Other flexible plastics trial

Other Flexible Plastic Packaging includes stand-up and zipper lock pouches, crinkly wrappers and bags, flexible packaging with seal, woven and net plastic bags, and non-food protective packaging.

Collection of Other Flexible Plastic Packaging is part of a research and development project. Recycle BC will work with Merlin Plastics on research and development to develop a viable, stable commercial process at scale for the recycling of Recycle BC's Other Flexible Plastic Packaging. To conduct this research and development, Merlin Plastics requires a clean stream of Other Flexible Plastic Packaging of sufficient quantity to run tests on the component parts of the multi-laminated material.

Maine Packaging Extended Producer Responsibility Law

Table 9: Scheme description and details

Scheme Name	Maine EPR legislation
Country:	Maine, USA
Years operational:	Recently introduced legislation (July 12, 2021)
Voluntary or mandatory:	Mandatory – full EPR – under State legislation. An Act To Support and Improve Municipal Recycling Programs and Save Taxpayer Money https://mainelegislature.org/legis/bills/getPDF.asp?paper=HP1146&item=11&snum=130
Summary of scheme	Under the new law, the Department of Environmental Protection (ME DEP) will select and contract with a stewardship organisation to operate a packaging stewardship program that will reimburse and assist municipalities in providing recycling services. Brand owners selling packaged goods must pay fees on all packaging materials to the stewardship organisation to fund the system based on the costs of recycling for each material, including infrastructure investments or resident education needed to capture materials statewide. The fee structure, to be determined by DEP rule with multi-stakeholder input, will also include financial incentives for recyclable packaging. Producers will conduct an assessment of the statewide recycling system to determine the funds needed for the program, collection and recycling infrastructure gaps in the state, and consumer education needed to ensure robust recycling. The law also provides an “on-ramp” to the recycling system for more challenging packaging materials, allowing producers to establish, fund, and operate “alternative collection programs” to facilitate reuse and recycling of these materials.
Product scope/range:	The legislation applies to all producers of packaged goods (consumer brands). It excludes beverage packaging, paint packaging and packaging intended to be used for the long-term storage or protection of a durable product and that can be expected to be usable for that purpose for a period of at least 5 years. It exempts producers where their total sale is below US$2m or one ton of packaging. A Low-volume producer is defined as a producer that sold, offered for sale or distributed for sale products contained in or using more than one ton but less than 15 tons of packaging material in total
Liable parties/participants:	Producers i.e., organisations that supply packaging and paper products (defined in the legislation)
Governance Model description:	Administration of the new law is through Maine’s Department of Environmental Protection (ME DEP).
Scheme Administrator description:	The department shall select and enter into a contract with a packaging stewardship organisation to operate the packaging stewardship program. The department shall issue a request for proposals for the operation of the packaging stewardship program by a packaging stewardship organisation. The proposals must be required to cover a 10-year operation of the packaging stewardship program by the successful bidder. The mechanism or process is to be developed with input from producers, municipalities, environmental organisations and waste management and recycling establishments. The proposals will require: o A description of how the bidder intends to establish and manage the packaging stewardship fund o A proposed budget outlining the anticipated costs of operating the packaging stewardship program, including identification of any start-up costs that will not be ongoing and a description of the method by which the bidder intends to determine

Scheme Name	Maine EPR legislation
	and collect producer payments during the initial start-up period of program operation In accordance with the requirements of the legislation, a producer or group of producers may develop and operate an alternative collection program to collect and manage a type or types of packaging material sold
Examples of collection and /or Service Providers engaged:	Producers will conduct an assessment of the statewide recycling system to determine the funds needed for the program, collection and recycling infrastructure gaps in the state, and consumer education needed to ensure robust recycling. The law also provides an "on-ramp" to the recycling system for more challenging packaging materials, allowing producers to establish, fund, and operate "alternative collection programs" to facilitate reuse and recycling of these materials.
Relationships:	The US Packaging Stewardship Institute has promoted extended producer responsibility (EPR) for packaging for the past 15 years and developed a model bill that has informed legislation introduced in eight states, including Maine, over the past two years.
Material ownership:	Not clear at this early stage
How funding is raised	A producer shall annually report to the stewardship organisation the total amount, whether by weight or volume, of each type of packaging material sold, offered for sale or distributed for sale in or into the State by the producer in the prior calendar year. The stewardship organisation shall annually disburse to participating municipalities from the packaging stewardship fund reimbursement payments for the median per-ton cost of managing packaging material that is readily recyclable and reimbursement payments for the median per-ton cost of managing packaging material that is not readily recyclable. The cost to a municipality of managing packaging material may include, but is not limited to, the costs associated with the collection, transportation and processing of packaging material, whether readily recyclable or not readily recyclable. The stewardship organisation shall make investments in education and infrastructure that support the recycling of packaging material in the State. The department shall adopt criteria for evaluation and approval or denial of investments in education and infrastructure proposed by the stewardship organisation. The department shall ensure that preference for funding is given to proposals that support the State's solid waste management hierarchy, promote a circular economy for packaging material types for which producers were required to make payments, increase the recyclability of packaging material that is not readily recyclable, and increase access to recycling infrastructure in the State. The stewardship organisation is required to deposit into the fund all payments received from producers and shall expend those funds for the following purposes: A. To reimburse participating municipalities in accordance with rules adopted by the department; B. To cover the operating costs of the stewardship organisation, which must be annually verified by a 3rd-party financial audit paid for by the stewardship organisation; C. To pay to the department reimbursement of any costs incurred by the department in adopting rules and in administering and enforcing the legislation ; and D. To support investments in education and infrastructure The payment schedule adopted must provide for a flat fee option to be assessed on a tiered basis such that a low-volume producer is required to pay no more than $500 per ton of packaging material and no more than $7,500 in total annual fees to the stewardship organisation. Fees are not visible to consumers

Scheme Name	Maine EPR legislation
Funding flows and models:	See above
Mechanism to address free riding:	Provisions in the enacted legislation
Annual budget and what it funds	The budget for the program is not yet established
Education activities & cost	The stewardship organisation shall make investments in education and infrastructure that support the recycling of packaging material in the State. The department shall adopt criteria for evaluation and approval or denial of investments in education and infrastructure proposed by the stewardship organisation.
Reporting	Beginning February 15, 2025, and annually thereafter, the department shall submit a report to the joint standing committee of the Legislature having jurisdiction over environment and natural resources matters regarding the packaging stewardship program and alternative collection programs. The report must include, at a minimum, data on the amount and type of packaging material associated with products sold into the State; data regarding how that packaging material was managed; and any recommendations for amendments to the programs implemented.
Recycling outcomes achieved	Not applicable
More information	The PRI has developed a model bill to inform legislation. This has formed the basis for legislation introduced in eight states over the past two years. It has also produced a publication EPR for packaging and paper products-policies, practices and performance. https://cdn.ymaws.com/www.productstewardship.us/resource/resmgr/1/PSI_EPR_for_PPP.pdf

Stewardship Ontario Blue Box Program

Table 10: Scheme description and details

Scheme Name	Stewardship Ontario Blue Box Program
Country:	Ontario, Canada
Years operational:	Shared responsibility model - 16 years (est. 2004) Full EPR model commences 2021
Voluntary or mandatory:	Mandatory. Under the Waste Diversion Act 2002 producers were required to contribute funding to Stewardship Ontario to offset costs to municipalities and First Nations to manage residential kerbside programs. The Blue Box Program required stewards to fund up to 50% of municipal net operating costs. The program is now shifting to a full EPR model. The Blue Box Regulation under the Resource Recovery and Circular Economy Act, 2016, requires producers to operate and pay for the collection and reuse, refurbishment and recycling of blue box materials. A transition plan for the program was approved by the Resource Productivity and Recovery Authority (RPRA) in December 2020 and Stewardship Ontario's responsibilities will carry through to end of 2025, after which the organisation will be wound up. As of July 1, 2023, when municipalities and First Nation communities start transitioning their blue box programs to the new framework, blue box producers will become fully accountable and financially responsible for collecting and recycling their blue box materials when consumers discard them.
Summary of scheme:	The Blue Box Program is Ontario's kerbside recycling program for residential packaging and printed paper (PPP). Since 2004 program costs have been shared between municipalities and industry stewards. The program is currently transitioning to a full EPR framework in which producers will eventually assume full operational and financial responsibility.
Product scope:	According to the regulation all municipalities with a population > 5,000 must collect 5 basic materials: aluminium cans, glass, newsprint, PET bottles, steel cans. Municipalities must add at least two categories of supplementary material to their Local Blue Box Recycling Services. There is a long list of options, one of which is 'plastic film' (LDPE or LLDPE). In 2018, there were 178 Blue Box Services collecting HDPE/LDPE film (71% of households)[1]. The Blue Box Regulation specifies the following material categories: 1. Beverage container material category. 2. Glass material category. 3. Flexible plastic material category. 4. Rigid plastic material category. 5. Metal material category. 6. Paper material category. 7. Certified compostable products and packaging material category. Flexible plastics have been identified as a problematic material..
Liable parties/participants:	Producers i.e., organisations that supply packaging and paper products
Governance Model description:	This is in transition The Resource Productivity and Recovery Authority (RPRA) is the regulator. It operates the registry for producers to register and report and is responsible for compliance and enforcement. It determines annual steward obligations and manages the Municipal Funding Allocation Model.

Scheme Name	Stewardship Ontario Blue Box Program
	Stewardship Ontario is responsible for implementing the Blue Box Program and the Orange Drop Program (hazardous waste) on behalf of stewards. The Board included industry representatives from both product sectors and an independent Director. The Board has decided to transition the governance of the organization to an Administrator appointed by the RPRA. The Administrator will oversee the work of Stewardship Ontario's management team as it winds up the programs.
Scheme Administrator description:	Stewardship Ontario is a not-for-profit organisation designated under the Waste Diversion Transition Act 2016 as the industry funding organisation (IFO) for the Blue Box Program. It is responsible for: • Collecting data from stewards on the weight of designated materials they supply • Determining annual steward fee rates, invoicing and collecting fees • Distributing funds to municipalities, recycling associations and First Nations communities • Seeking to support the development of markets for recycled materials • Engaging in promotion and education to support improvements in recycling Stewardship Ontario also funds and manages collection, recycling and management of materials that are considered Municipal Hazardous or Special Waste (MHSW), known to consumers as the Orange Drop program. The new EPR model for packaging is expected to be fully implemented by 2025 and Stewardship Ontario will be wound up in 2026.
Examples of collection and /or Service Providers engaged:	Municipalities, recycling associations and First Nations communities (Participating Communities) design and manage their own Local Blue Box Recycling Services, subject to the requirements set out in O.Reg.101/94. Stewardship Ontario pays 50% of their net costs.
Relationships:	Stewardship Ontario reports to RPRA. It distributes funds to municipalities, recycling associations and First Nations communities to undertake collection and recycling. Stewards (1,830 organisations in 2020) pay fees to Stewardship Ontario.
Material ownership:	Currently Local Government but presumably industry under the new EPR model
How funding is raised	Producers pay a fee to Stewardship Ontario based on packaging weight. Fees for soft plastics include: • Plastic film CAD$0.37 c/kg (AUD$0.39) • Plastic laminates CAD$0.37 c/kg (AUD$0.39) Fees are presumably not visible to consumers
Funding flows and models:	RPRA determines the Annual Steward Obligation to municipalities and their share of RPRA management and oversight costs. Participating communities report cost and performance data to RPRA. Stewardship Ontario determines the fee rates paid by stewards (see pp14-16 of the transition plan for methodology).
Mechanism to address free riding:	The Blue Box Regulation under the Resource Recovery and Circular Economy Act, 2016
Annual budget and what it funds	In 2019 total net costs of the Blue Box program were CAD$337m (AUD$362m) or $461 (AUD$495) per tonne. Industry stewards contributed $140.3m (AUD$150). The budget pays for:

Scheme Name	Stewardship Ontario Blue Box Program
	• 50% of net costs incurred by communities as a result of the Blue Box Program • Stewardship Ontario's share of the RPRA's management and oversight costs • Stewardship Ontario's Blue Box Program Management costs including promotion & education, research and development and wind-up costs[2]. The Continuous Improvement Fund (CIF) is a partnership between AMO (?), City of Toronto, Stewardship Ontario and RPRA. Its mandate is to improve effectiveness and efficiency of the Blue Box Program. It provides funds, training and technical assistance to participating communities and stakeholders. CIF is funding a trial of the Dow Hefty bag program for soft plastics in the City of London, Ontario.
Education activities & cost	Promotion and education activities are eligible for funding under the Blue Box Program and are mostly delivered by participating communities. Stewardship Ontario supports communities by providing annual province-wide promotion and education activities. Promotion and education cost $395,000 in 2020.
Reporting	Annual reports published
Recycling outcomes achieved	Total tonnes recycled in 2019 was 729,906 t or 55.3 kg/capita. Total recovery (collection) rate for all materials supplied by members was 57.3% in 2019, down from 60.2% the previous year. Data not provided on recycling rates for individual materials.
More information	Download the 2020 Annual Report here. Blue Box Program Transition & Stewardship Ontario Windup Plan (2020) Report to stewards 2020 – pre-reading for AGM Research into flexible plastic films (2012), which includes detailed cost modelling of drop-off and kerbside options

Table Note

1. Stewardship Ontario (2020), Blue Box Program Transition & Stewardship Ontario Windup Plan, p. 18

2. For a detailed financial statement see Stewardship Ontario (2020), p. 29