



Plastic
Waste

Critical Considerations for Well-Designed Parallel EPR-DRS Systems for Recycling

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About The Consumer Goods Forum's Coalition of Action on Plastic Waste

The Consumer Goods Forum (“CGF”) Plastic Waste Coalition of Action was founded in 2020 with the aim of developing a more circular approach to the development and processing of plastic packaging in the consumer goods industry. The development of the Coalition builds on the CGF's 2018 endorsement of the Ellen MacArthur Foundation's New Plastics Economy. As a CEO-led group of 40+ committed and innovative retailers, manufacturers, and converters, the Coalition's vision of accelerating progress towards the New Plastics Economy is embodied by its central aims for members to work towards implementing impactful measures through multi-stakeholder collaborations that will help make circularity the norm in the industry.

The CGF Plastic Waste Coalition of Action has been exploring Extended Producer Responsibility (EPR) from its inception in 2020 with the publications of “Building a Circular Economy for Packaging. A View from the Consumer Goods Industry on Optimal Extended Producer Responsibility”, followed by “Guiding principles for ecomodulation of EPR fees for packaging” published in 2022, and “Extended Producer Responsibility (EPR) for Packaging: Design and implementation in low -and middle-income countries” in 2025.

All initiatives and action points are subject to antitrust rules and will be vetted by external counsel before implementation.

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Introduction

Members of The Consumer Goods Forum’s Plastic Waste Coalition of Action are committed to collective and individual actions to address packaging waste challenges. The coalition has a particular focus on mitigating plastic pollution and building a circular economy based on reducing avoidable packaging use, designing packaging for circularity and building reuse and recycling systems so that packaging never becomes waste.

Recycling plays a pivotal role in establishing a circular value chain for packaging materials, alongside packaging reduction and reuse strategies. By reducing the reliance on primary materials and increasing the value of end-of-life packaging, recycling incentivises collection, minimises waste, and fosters sustainable material management.

In 2022, to support the financing and setup of recycling systems, the Consumer Goods Forum developed global principles and parameters for well-designed or “optimal” EPR policies. These principles serve as a starting point for constructive multi-stakeholder engagement and dialogue in markets around the world.

This paper builds on the CGF principles for EPR at a time when we are seeing an increasing number of markets with policy mandating Extended Producer Responsibility (EPR) for packaging alongside Deposit Return systems (DRS) for recycling of beverage containers¹. For example:

In Europe, EPR will be present in all member states by the end of 2025, and elements will be harmonised in EU law by as early as 2027². Meanwhile, DRS will be mandated in most member states by 2029³ and is scheduled to be introduced in the four UK nations in 2027. Multiple EU members states already have EPR and DRS systems operating in parallel (e.g., Germany, Netherlands, Sweden, Latvia).

Similarly, in the United States, several states (e.g., California, Oregon, Maine) are working towards operating EPR and DRS systems in parallel, with more states expected to follow. EPR laws have been enacted in seven states and are under discussion in a further nine⁴. At the same time, ten states with existing DRS “Bottle Bills” are actively revisiting their legislation to modernise systems, while eight states are initiating discussions on DRS adoption⁵. See the *Exhibit 3* in the appendix for a map of key EPR and DRS policy and regulation in the United States.

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- 1 See appendix for definition and description of EPR and DRS systems.
 - 2 Under the new Packaging and Packaging Waste Regulation (PPWR), specific elements of EPR will be standardised across Member States by 2027 at the earliest, including set definitions for stakeholders and their respective obligations, modulation of financial contributions, and establishment of a register of producers
 - 3 The EU Packaging and Packaging Waste Regulation will require member states to ensure separate collection of at least 90% of single-use plastic bottles and metal beverage containers by 2029. To achieve this target, they are required to set up deposit return systems (DRSs) for those packaging formats, unless 80% collection rate is achieved in 2026. The requirements for DRS will not apply to systems already in place if the systems achieve the 90% collection target by 2029. Dairy containers are not covered by PPWR requirements but are included in some national regulation such as Sweden and Germany.
 - 4 EPR laws for packaging have already passed and are being implemented in California, Colorado, Maine, Minnesota, Oregon, Washington, Maryland. There is further momentum in Illinois, New Jersey, Rhode Island, New Hampshire, Tennessee, Hawaii, Connecticut, North Carolina, New York, Massachusetts.
 - 5 ‘Bottle Bills’ are already present in California, Connecticut, Hawaii, Iowa, Maine, Massachusetts, Michigan, NY, Oregon and Vermont. While there have been no new Bottle Bill states since 2005, draft proposals have been discussed in Florida, New Hampshire, Illinois, Rhode Island, Washington State, Maryland, New Jersey and Minnesota and discussions are expected to continue on design and/or programme reform in these and other states.

In Canada, DRS has been progressively implemented since the 1970s, starting with British Columbia. Nearly all provinces now operate both EPR and DRS systems, with nationwide EPR programmes expected to reach full operational maturity in the coming years.

In Australia, while South Australia introduced DRS in 1977, other states only began adopting similar systems in the late 2010s. EPR frameworks in Australia have been progressively developed since the early 2000s, with national consistency efforts gaining momentum, particularly through the National Waste Policy Action Plan targeting full implementation by 2030.

In low- and middle-income countries, mandatory EPR policies are introduced in only a few markets, including India and South Africa, typically without a parallel DRS system. DRS systems have not yet gained traction in low- and middle-income economies. However, Sri Lanka is exploring possible DRS introductions and Uruguay plans to implement DRS by 2026, in parallel with existing EPR legislation.

Globally, parallel EPR and DRS schemes are typically operated independently without clear guidance for policy makers, system operators and industry participants to help manage the overlaps and interactions between these schemes (both positive and negative interactions).

Purpose & Objectives

Policymakers are increasingly engaging consumer goods companies to provide input on the design and implementation of parallel Extended Producer Responsibility (EPR) and Deposit Return Systems (DRS), whether they are implemented at the same time or if one system is introduced after the other.

This paper presents key considerations, discussion points, and options for policymakers and industry stakeholders to explore when developing policies for both EPR and DRS.

Consumer goods companies are encouraged to engage with government policymakers, either directly or through associations, to explore the considerations outlined in this document and help ensure policy design leads to effective and inclusive parallel EPR and DRS systems, where this arrangement is favored by government policymakers.

The existing literature explores the benefits, risks, and design options of standalone and parallel EPR and DRS. However, it focuses on making the case for EPR and/or DRS systems, while also outlining a wide range of associated risks and design considerations.⁶

This paper does not advocate for one or the other system (or both) but rather distills the most critical considerations into three areas, alongside actionable options to ensure that combined systems deliver optimal outcomes. These recommendations align with the Consumer Goods Forum's principles for effective EPR, emphasising strong environmental outcomes, shared financial responsibility, long-term financial sustainability, and social inclusiveness and fairness.⁷

In addition to materials in scope of EPR systems, this paper focuses on beverage containers in scope of DRS systems (Includes plastic, cans, and glass; beverage cartons only in a very small number of cases).⁸

6 [OECD; The Recycling Partnership; ReLoop](#)

7 [CGF Optimal EPR principles](#)

8 The paper does not consider the specific product categories requirements (e.g., water, soft drinks, beer)

Critical Considerations and Options for Policymakers:

EPR and DRS are two models for improving the financing, management, and effectiveness of packaging collection and recycling. For those less familiar with these systems, the appendix provides an overview of their key features, including how fees are determined and allocated.

When designing EPR & DRS in parallel, three critical considerations must be prioritised:

1. **Ensure financial stability of the systems** through fee setting and other mechanisms to ensure system efficiency
2. **Apply a ‘system mindset’ to avoid unintended consequences** and increased complexity or cost to consumers and participating companies
3. **Consider social impacts**, including livelihoods, for informal waste workers

1. Ensure Financial Stability

Policymakers must prioritise financial stability when designing parallel EPR-DRS systems, ensuring that both systems remain financially viable for producers, consumers, or system operators. A key consideration is to maintain the net-cost principle, where each packaging type independently covers its costs through producer fees and revenues from material sales, mitigating risks of financial imbalance.⁹

When designing parallel EPR-DRS systems, each system should have a clear, independent scope of which packaging is covered. Fees for each system should ensure the net-cost principle applies. This principle states that fees should reflect the actual costs of collection, sorting, and recycling while accounting for revenues generated from selling collected or recycled materials. Any revenue from the sale of collected materials must be credited back to the system from which the materials originated, offsetting the collection obligation and avoiding cross-subsidisation between materials or systems. Costs from “negative value” materials (e.g. landfill or incineration fees) should also be considered in the net-cost calculation. In short, this means that each packaging type ‘pays for itself’ and the fee allocation ensures transparency and fairness while maintaining financial sustainability.

If a DRS and EPR system are introduced in parallel, there are two core impacts on financial stability compared to a system with only EPR or only DRS. Firstly, changes to revenue per tonne of collected material sold. Secondly, changes to cost per tonne of material collected.

- **Changes to revenue:** In a system with both EPR and DRS, materials with higher recycling value (e.g., PET beverage bottles, aluminum cans) typically enter the DRS system, while lower-value materials

⁹ As outlined in the [CGF Optimal EPR principles](#), financial stability is closely tied to strong environmental outcomes, cost-effective and transparent systems, shared financial responsibility, convenience for consumers, long-term financial sustainability, securing materials for closed-loop recycling, and social inclusiveness—especially in transitional markets with informal sector involvement.

(e.g., flexible plastic packaging) remain under the EPR system. As a result, the DRS system will receive higher revenue per kilo of material sold while the EPR system will receive lower revenue per kilo of material sold.¹⁰

- **Changes to costs:** Splitting materials into two streams can lead to a loss of economies of scale and lower efficiency in collection operations. For example, more routes must be covered to transport and collect material from EPR (curb-side collection or collection hubs), and DRS (reverse vending machines at retail stores or collection hubs) compared to a system with only curb-side collection.

To ensure the net-cost principle continues to apply, while improving the financial stability of the systems, several strategies could be considered:

- **Adjusting fee structures:**
 - » **Ensure producer fees, DRS deposits and other financial flows** are set at a level that meets the net-cost principle in both EPR and DRS systems, by conducting regular assessments and making necessary adjustments.
 - » **Avoid “double charging”:** Producers should not be charged fees for the same material under both EPR and DRS. Clearly defining system boundaries, accounting structures and financial responsibilities ensures that materials covered by a DRS are exempt from EPR fees, and vice versa.
 - » **Allow producers to secure material for closed loop recycling:** Ensure that producers can gain access to recycled materials from the system(s) they contribute to.
- **Increasing EPR collected volumes and their market value while improving cost efficiency:**
 - » **Increase the volume of materials collected** within the EPR scheme (e.g., by expanding the scope of materials included) to help cover the fixed costs of Producer Responsibility Organisations (e.g., administrative and office expenses), thereby improving economies of scale.
 - » **Increase the market value of collected materials** within the EPR scheme (thereby reducing net cost) by encouraging design for recycling, investing in high-quality sorting and recycling infrastructure to ensure higher-quality recyclates, and supporting end-markets for recycled material through policy support or public procurement.
 - » **Improve the efficiency of the EPR system as standalone** to reduce the costs per tonne of collection, sorting, and recycling processes, while also increasing recovery yields to ensure more material is successfully recycled, thereby limiting erosion of producer revenues from material sales of lower-value materials (e.g., flexible plastic packaging).

¹⁰ The impact of channeling materials with higher value into the DRS stream will be felt most strongly in cases where an EPR system has already been established for some time, before DRS introduction. In this case the existing EPR system's cost equilibrium will be unbalanced by loss of revenues from high value material diverting to the DRS system, placing the EPR system's stability at risk. In this case extra focus must be placed on the below actions to improve financial stability of the EPR system

- **Cross-System revenue allocation:**
 - » **Understand the cost to the EPR systems' Producer Responsibility Organisation (PRO) of collecting deposit-bearing material that accidentally ends up in the EPR stream.** To maintain the net-cost principle, both systems must align on how the EPR system should be compensated for managing deposit-bearing material – whether through transfer of unredeemed deposits, direct payment, or other mutually agreed financial mechanism. This alignment is also key during transition periods, i.e., when DRS is introduced alongside an existing EPR system.

- **Explore synergies between systems:**
 - » **Ensure convenient collection while exploring opportunities to leverage shared collection infrastructure:** The convenience and availability of DRS drop-off points is critical, to ensure consumer participation and avoid deposit-bearing material accidentally ending up in the EPR stream. Moreover, shared collection hubs can streamline the return process for both deposit-bearing (DRS) and non-deposit-bearing (EPR) packaging, such as drop-off points for materials that are difficult to sort via curbside collection (e.g., bulky packaging).
 - » **Joint consumer education campaigns:** Combine resources to deliver unified public awareness initiatives, including media campaigns, community events, and instructions at collection points, to improve collection rates and proper material sorting. This would result in lower costs, economies of scale, and improved effectiveness of consumer engagement.
 - » **Explore relevance of shared downstream recycling infrastructure:** While DRS and EPR systems may operate distinct collection mechanisms, the recovered materials can be processed and/or help supplement shared processing and recycling infrastructure, improving efficiency and supporting economies of scale across the broader system.

2. Apply a 'System Mindset'

Policymakers should adopt a 'system mindset' when designing parallel EPR-DRS systems, to minimise unintended consequences and avoid common pitfalls.

EPR and DRS in parallel increases overall complexity of waste management systems. While each system has a discrete scope, there are incidences of overlap in areas such as consumer education, or material unintentionally being disposed of in the incorrect waste stream. Common risks of parallel EPR-DRS systems include the risk of blind-spots in which material is not covered by either system, consumer confusion over how to dispose of material, and risk of inefficiencies in system design.

To avoid common pitfalls, policymakers should keep the following system design principles in mind:

- **Avoid gaps in scope:** All packaging should be in scope for either the EPR or DRS system. At the same time, systems should be designed to prevent companies from exploiting regulatory gaps between

EPR and DRS rules, ensuring that all obligated producers contribute fairly, and no entities avoid compliance. Where deposit-bearing packaging is exempt from EPR fees, EPR obligations (such as reporting and take-back responsibility) should be clearly delegated to the DRS administrator to maintain system accountability.

- **Ensure clear and consistent consumers messaging** to provide proper disposal advice and incentivise good practice and compliance. Options for consumer messaging include consumer education via aligned on-pack labelling instructions, shared messaging at point of disposal (e.g. at DRS drop-off points in retailer stores) or via media campaigns, and outreach programmes to engage demographics with typically lower compliance with correct disposal.
- **Carefully consider system governance:** Assess case-by-case whether to introduce a single governing body or separate governing entities for the EPR and DRS streams. While a single governing body (e.g., Croatia) may be better placed to align goals and optimise operations across the two systems, separate governing entities (as in vast majorities of countries) may be better placed to bring specialised expertise, incentivise competitive behaviour, and avoid conflicts of interest.

3. Consider Social Impacts

Policymakers must carefully assess and minimise adverse social impacts, including livelihoods. While this is true in all markets, including developed countries, this is especially critical in markets with immature waste management infrastructure and a high prevalence of informal workers.

In markets with high prevalence of informal workers, extensive networks of informal waste workers earn livelihoods by collecting and selling recyclable materials to local collection points. Their income is influenced by the fluctuating market value of recyclables, which depends on material demand and prices.

The introduction of DRS in such markets could disrupt existing systems by diverting high-value materials (e.g., PET bottles) directly from consumers to formal collection points. This would reduce access to valuable recyclables for informal workers, putting their incomes at risk.

In general, successful EPR systems in low- and middle-income countries are still in early stage, and DRS has not yet been implemented at scale. Policymakers must carefully consider risks to informal waste workers if introducing parallel EPR and DRS systems and are encouraged to explore strategies to mitigate social impacts while supporting further research on the topic to inform decision-making.

Policies introduced must carefully consider long-term programmes to address the needs of informal workers, consistent with local goals for social inclusion and economic development, including goals and objectives to monitor progress and encourage accountability.

Conclusion

This document provides a foundation for discussions on how to optimally design parallel Extended Producer Responsibility and Deposit Return Systems.

While this document addresses critical considerations, the complexity and potential benefits of parallel EPR and DRS systems warrant further exploration in the future, particularly in three emerging areas:

1. **Expanded scope for DRS Systems:** New pilot programmes are testing DRS and Reuse models for materials beyond beverage containers. For example, France is exploring at-scale implementation of DRS for food and also cosmetic containers, signaling opportunities for broader applications.¹¹
2. **Integration of Informal Waste Pickers:** The integration of informal waste workers into EPR and DRS systems requires careful design as more success cases emerge globally. Integration can enhance recycling efficiency and ensure equitable social outcomes, especially in markets with high reliance on informal workers.
3. **Digital DRS¹²** has generated interest,¹³ but many questions and concerns remain. While digital DRS might be part of a traditional DRS in the future, it is not ready to become a full-fledged alternative.¹⁴ While no fully proven systems are operational yet, pilots in countries such as Wales and India, along with planned digital DRS initiatives in Belgium, aim to integrate these technologies into curbside collection systems¹⁵.

For now, consumer goods companies are encouraged to engage with policymakers, to explore the critical considerations outlined in this document, namely:

1. **Ensure financial stability**
 - i. **How to ensure ‘net-cost principle’** is maintained across both systems
 - ii. **How to improve financial stability** (e.g., adjusting fee structures, increasing EPR collected volumes while improving cost efficiency, cross-system revenue allocation, leveraging synergies between systems)
2. **Apply a ‘system mindset’**
 - iii. **How to ensure scope** avoids gaps and double charging
 - iv. **How to ensure clear and consistent consumer messaging** (e.g., with aligned on-pack labelling instructions, shared media campaigns)
 - v. **What governance structure to choose** (e.g., single governing body to encourage synergies or separate governing entities for incentivising competition and specialisation)
3. **Social considerations**
 - vi. What are the **risks to informal workforce and social outcomes**
 - vii. **How to reduce risks** to informal waste pickers (e.g., integrating into the DRS system, training and community services, hybrid system design)

11 [Circul’R](#)

12 Digital Deposit Return Scheme (Digital DRS) is a digital enable model of DRS in which consumers use an app to scan QR codes on packaging to locate drop-off points, register returns, and receive refunds directly to their bank accounts or digital wallets.

13 Digital DRS has raised some promises, and some trials have shown consumers like it for ease and convenience

14 Digital DRS should only be embraced if in the right context and after a thorough risk analysis is completed to ensure that disadvantages do not outweigh the advantages.

15 [ReLoop](#); [ACR+](#)

Appendix

Explanation of Extended Producer Responsibility (EPR) and Deposit Return Scheme (DRS)

An explanation of EPR and DRS systems and flow of finances and materials is shown below, supplemented by the diagrams in Exhibit 1 (EPR) and Exhibit 2 (DRS)

Exhibit 1: Flow of finances and materials for Extended Producer Responsibility (EPR)¹⁶

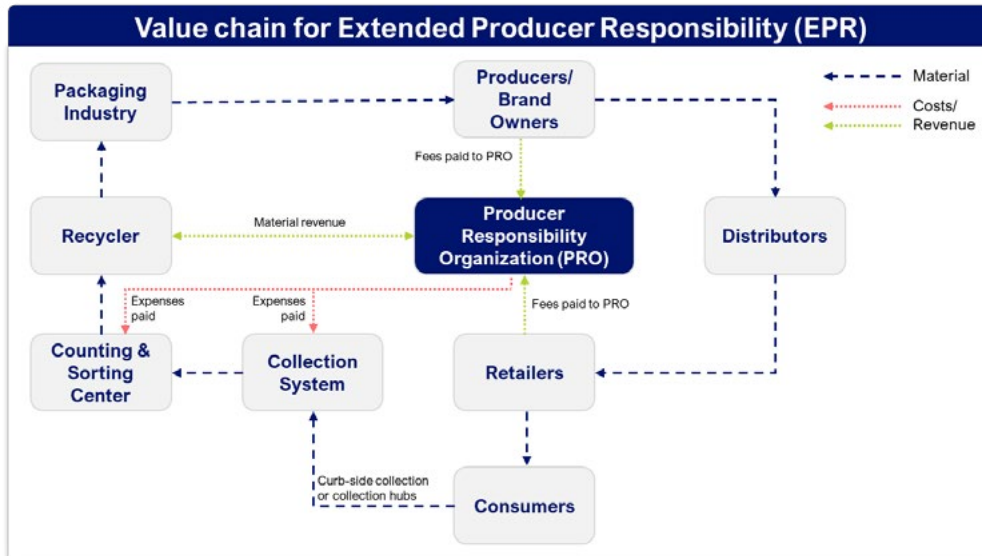
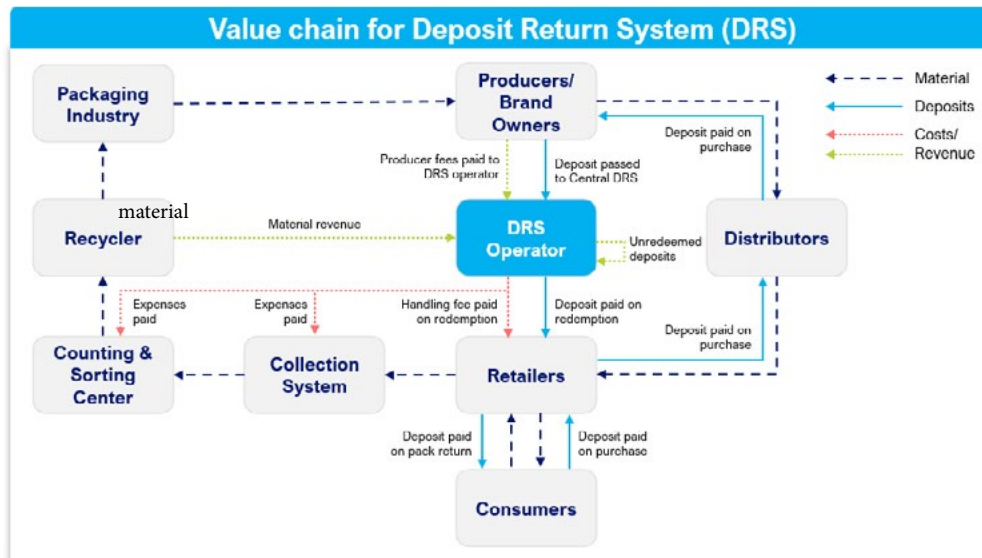


Exhibit 2: Flow of finances and materials for Deposit Return Scheme (DRS)¹⁷



16 The model shown is the dominant 'centralised' model of EPR. The PRO will either directly organise or operate waste management activities ('Operational EPR') or provide financial incentives to existing operators ('Financial EPR'), and there may be one or multiple PROs. Alternative 'decentralised' models of EPR existing in which producers have flexibility to meet EPR requirements through recovery by verified private sector service providers.

17 Depending on the DRS organisational model, the DRS operator may not exist, and its role & responsibility are decentralised across producers and distributors.

EPR and DRS are two policy approaches for supporting the financing, management, and effectiveness of packaging collection and recycling

- **Extended Producer Responsibility (EPR)** assigns producers responsibility for the entire lifecycle of plastic packaging, including collection, recycling, and disposal. Producers pay fees based on the type and amount of packaging they use, with fees often managed by a central Producer Responsibility Organisations (PROs). These organisations use the funds to support recycling systems, infrastructure, and public education by incentivising exiting operators or directly organising waste management activities¹⁸.
- **A Deposit Return Scheme (DRS)** is a type of EPR system aiming to boost recycling rates and tackling litter by incentivising consumers to return used packaging. Under this system, consumers pay a small deposit when purchasing packaged products, which they can reclaim by returning the empty packaging to designated collection points, such as reverse vending machines in retail stores or redemption centres. These schemes typically include materials which have higher value to recyclers such as PET bottles, aluminum cans, and glass containers, and products such as non-dairy beverages due to low risk of contamination of the recycling stream.

An understanding of the different financial flows of each system is helpful to understand the implications of combining the two systems

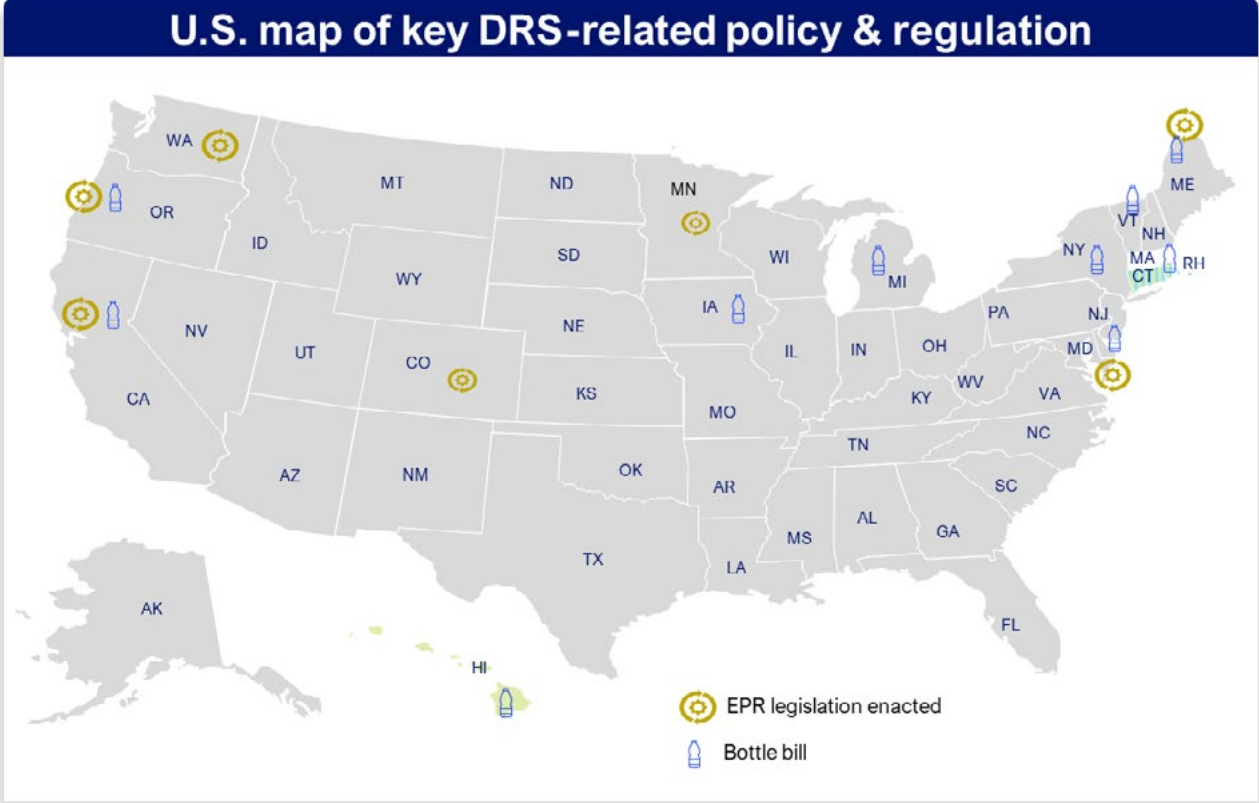
- **An Extended Producer Responsibility (EPR)** system involves fees and costs aimed at managing the lifecycle of plastic waste, typically overseen by a Producer Responsibility Organisation (PRO) or similar governing body. Producers pay fees based on the type, volume, and recyclability of their packaging, with some systems varying fees to incentivise sustainable design ('Ecomodulating'¹⁹ fees). These funds are managed by the PRO, which allocates them to cover operational costs such as collection, sorting, recycling, transportation, infrastructure maintenance. Administrative expenses, including system oversight, compliance monitoring, and public education, are also funded through these fees. The PRO ensures that funds are spent efficiently and transparently to meet recycling and environmental targets. Revenue generated from selling recycled materials is reinvested to offset costs and improve the system. In some cases, governments provide regulatory oversight to ensure accountability, while penalties and incentives further drive compliance and innovation in sustainable packaging design.
- **A Deposit Return System (DRS)** operates through a combination of consumer deposits, producer fees, and system operation costs. Consumers pay a refundable deposit when purchasing products included in the scheme, which is reimbursed upon returning the container. Unredeemed deposits usually fund system operations or environmental initiatives. Packaging producers contribute non-refundable fees based on the type and recyclability of packaging placed on the market, with higher fees for less sustainable materials. Retailers or redemption centres typically pay an upfront investment for infrastructure such as Reverse Vending Machines, and in return received a handling fee when a deposit is redeemed in store. In some markets, such as Canada, consumers also pay an unredeemable handling fee on each item of packaging purchased. System operation costs include logistics, infrastructure maintenance, and administrative expenses, partly offset by revenue from selling in-scope recycled materials such as PET plastic.

18 This paper focuses on mandatory (policy-led) EPR. In many low- and middle-income countries markets, such as Indonesia, consumer goods companies set up 'voluntary' EPR schemes. In this way a group of companies invest in improving collection and recycling infrastructure in the absence of formal policy. Voluntary EPR can take many forms and is not the focus on this paper.

19 For more information see the Consumer Goods Forum [Guiding Principles for the ecomodulation of EPR Fees](#)

U.S. Map of Key EPR and DRS Policy and Regulation

Exhibit 3: U.S. map of key DRS-related policy and regulation, as of June 2025





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