

Guidance For Producer Funded Recycling Collection Legislation



**The Recycling
Partnership**
Solving for Circularity

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1. Introduction

Recycling is the workhorse of the coming circular economy – the engine that will drive it forward. Recycling has the potential to capture the full value of packaging and materials, enhance the U.S. economy, create jobs, and help reduce emissions and environmental impact.

The aging and under-invested U.S. recycling system is at a critical juncture. Companies are setting ambitious packaging sustainability targets and more than 83% of Americans strongly support recycling, but the system as currently designed and funded is failing to meet these demands and provide robust streams of recycled materials for domestic supply chains.

Producer responsibility is a policy tool that directs manufacturers and brand owners to manage products and packaging from design to end-of-life. There are various producer responsibility laws for packaging and printed paper worldwide – the primary concept requires packaging producers to fund the operational, infrastructural, and educational costs of recycling. Producers could play a prominent role in bringing critically needed capital to level up a struggling U.S. residential recycling system and support a robust supply chain.

Depending on what producer responsibility model is chosen, fees collected by producer responsibility programs can provide differing levels of sustainable funding for residential recycling infrastructure, education, and operations while concurrently driving packaging innovations to improve the effectiveness and efficiency of the system.

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2. Governance

While the allocation of financial responsibility established by producer-funded recycling programs dominates much of the policy dialogue associated with these measures, the structure and responsibilities of the entities that govern the program are essential to a well-functioning and effective system.

The governance of producer-funded recycling programs is typically split between two entities: the producer responsibility organization (PRO) and the state regulatory authority. The tasks assigned to each vary widely depending on the proposals for a particular state and the details of the program. The following are considered leading practices in producer-funded program governance.

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An obligated producer is an entity (including for profit or not-for-profit) that places packaging or printed paper into the regulated market in greater quantities than the de minimis amounts. The obligation typically extends to all designated packaging and printed paper that may enter the municipal waste management system regardless of whether it is recycled, composted, or disposed of. Examples of obligated producers include:

Brand Owners – Including retail brands and take out restaurants are obligated for their packaging and printed paper that will ultimately be disposed of by the consumer (not including packaging that may stay at the retailer).

Retailers – for all packaging and printed paper related to their private label products, service packaging and printed fliers, and products they import that do not have an obligated producer. Service Packaging, or point-of-sale packaging is packaging added by a retailer and can include bags provided at checkout, packaging added at the deli, and bakery or prescription containers when the pills are removed from the original container.

E-commerce Sellers – for all packaging and printed paper from their private-label products, packaging or printed paper they add to branded products (e.g., shipping or transport packaging), and products they import that do not have an obligated producer.

The Role of the State Agency

The state regulatory authority typically has two key roles in program governance, as defined in the enabling legislation:

- 1. Ensure a level** playing field among the obligated producers; and
- 2. Monitor the overall compliance and progress** toward the goals of the program.

To ensure a level playing field, the statute should require producers to register with the PRO, which subsequently should report all registered producers to the state agency. If the PRO chooses to collaborate with the state agency to work to identify producers who are not registered, the state can initiate compliance actions and, if necessary, enforcement activity. The specific penalties for non-compliance may be stipulated in the implementing statute or may stem from the state agency's broader enforcement authority. The state agency and PRO should consider adjustments or clarifications to the legislation are more efficacious than additional compliance actions and enforcement activity. The PRO may take additional efforts to publicize the program among producers to minimize non-compliance, including reaching out to affected industries' trade associations.

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To ensure program effectiveness, the state agency typically will review and comment on the plan and ultimately approve the PRO plan prior to program initiation, pursuant to the timeline established in the legislation. The state agency will work with the PRO to establish goals and milestones throughout the plan review and approval process. The state agency also will review annual program reports to monitor progress, and where necessary, stipulate corrective actions that must be taken by the producers or PRO to bring the program into compliance with the goals of the plan or the statutory requirements. The state agency ultimately should have sole regulatory authority over the PRO.

In addition to these two primary activities, the state agency can, in some cases, serve as a central communications role with the various program participants to ensure they understand their obligations and responsibilities. The state agency also must interpret any provisions in the implementing statute that may be unclear and define how the program responsibilities align with other regulatory responsibilities that program participants may be subject to in a clear and user-friendly manner.

The Challenges of Multiple Producer Organizations

Some of the existing statutes that underpin producer funded recycling programs in the U.S. allow for individual company compliance or permit more than one organization to act on behalf of the producers. While competition among PROs is intended to create more flexibility for producers, reduce costs, and foster innovation, the implementation and oversight challenges often outweigh any potential advantages. For example, systems that allow for multiple organizations require a neutral entity to coordinate activities and allocate responsibilities equitably among the organizations to reduce duplicative services and ensure that the overall objectives of the program (e.g., recycling collection or access rates) are met. Furthermore, a competitive model allows for obligated producers to move between organizations which makes planning and cost modeling challenging for each organization. For those reasons, a single PRO model is recommended, particularly given the complexities of managing packaging and printed paper. However, if legislation allows for more than one producer organization, it should include provisions to ensure mandatory consistent coordination to overcome known implementation and oversight challenges.

Producer Responsibility Organization Structure

At a high level, the PRO, sometimes referred to as a stewardship organization or PRO, is primarily responsible for the planning, financing, and implementation of the producer-funded recycling programs

In the U.S., the vast majority of PROs are legally organized as 501(c)(3) charitable non-profits. This organizational designation is favored because it requires a greater degree of transparency of finances and auditing than other corporate structures and, due to the organizational designation for a public benefit, helps to minimize concerns regarding monopolistic or anti-competitive conduct behavior.

The PRO's board of directors should be composed of those with fiduciary responsibility to the organization and to the objectives outlined in the enabling legislation and plan. Given that most producer-funded recycling programs place those responsibilities on producers, a composition that reflects a broad representation of producers, in terms of size of annual revenue as well as use of material types, formats, and product types, is ideal. This approach to board composition also diminishes the potential for conflicts of interest that may arise in multi-stakeholder board arrangements where a board member may have a direct financial relationship with the organization. In addition, material trade associations could hold non-voting board seats to provide technical expertise. As with structures for other governing boards, committees composed of board members that focus on particular topics (e.g., finances, programs) are suggested. Board members should be elected by the stewards and serve defined terms (with a maximum number of terms stipulated) to ensure accountability.

A key question is whether it is preferable to have one organization capable of functioning in multiple states simultaneously, or separate legal entities in each state. Experience in the U.S. has demonstrated that a single organization that functions in multiple states is an effective model. For example, PaintCare operates programs in ten states and the District of Columbia, the Mattress Recycling Council runs the Bye Bye Mattress program in three states, and Call2Recycle has programs in seven states with mandatory battery recycling programs while offering collection in other states on a voluntary basis. A single, multi-state organization offers the following benefits:

- **Supports consistency among state programs**, where possible given potential statutory constraints
- **Reduces PRO administrative and operational costs**
- **Reduces enforcement costs** for the regulatory agency
- **Eases compliance for producers** by allowing for consistent fee categories and reporting requirements, including managing regional sales across state borders

The single-organization model can work in tandem with state-specific advisory councils (see below) that can provide feedback and engage with the PRO on program dynamics and state-specific challenges.

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Duties and Responsibilities of the Producer Responsibility Organization

While the specific responsibilities of the PRO vary by program and often by jurisdiction, they can be grouped into several broad categories.

PRO Responsibilities		
Financial	Planning	Engagement
<ul style="list-style-type: none"> • Define annual program needs, based on needs assessment • Set fees based on principles • Collect fees from obligated entities • Disburse funds to eligible entities to achieve plan objectives 	<ul style="list-style-type: none"> • Execute needs assessment • Develop program plan to achieve statutory goals (every 5 years) • Submit annual reports 	<ul style="list-style-type: none"> • Inform responsible entities of obligations • Involve the public and stakeholders in review of needs assessment and program plan • Maintain communications through webinars, social media, public meetings and direct outreach

Financial Management

A core function of the PRO is to determine the necessary annual program expenses based on the needs assessment and reasonable costs of delivering services, allocate those expenses through the setting of fees (eco-modulated to reflect program priorities), and disburse the funds to achieve the program objectives. To facilitate the collection of fees, the organization must develop a procedure for producers to submit required sales and related data, fee setting formula, and fee remittance procedures. The organization must also develop the operating agreements with service providers, determine granting and financial transfer mechanisms to fund the activities and investments required to implement and operate the program, and implement auditing procedures to ensure that state-specific reporting, particularly on financial transactions, is accurate.

Plan Development

A critical function of the PRO is the development of a program plan that outlines specific goals tied to overall statutory requirements and collection targets, identifies objectives and timelines, defines the activities that will be undertaken, and specifies the actors who will be engaged to achieve those goals and objectives. The program plan is typically prepared and financed by the PRO and outlines how it will comply with legislative requirements. While the PRO develops the plan, the plan should undergo some level of public and stakeholder review prior to being formally submitted to the state regulatory authority.

Needs Assessment

Prior to the production of the program plan, a needs assessment should be completed to define the investments and activities necessary to achieve the legislative goals, taking into account current levels of investment to ensure fair compensation. The scope and methodology of the needs assessment should be agreed upon and approved by the state regulatory authority and PRO prior to its implementation and reviewed by a stakeholder advisory council, where appropriate. The reasonable costs of completing a needs assessment will be funded by the PRO, either as a direct expense or reimbursement to the state regulatory authority.

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Engagement

An effective PRO governance model provides robust opportunities for engagement of stakeholders and the public in the design, functions, and operations of the producer-funded program. A myriad of strategies exist to engage stakeholders, but an identified and structured approach specified in the legislation that authorizes the program is recommended.

The PRO plays a critical role in the engagement of responsible entities and program service providers (municipalities, haulers, and Materials Recovery Facilities (MRFs) as well as providing public education to encourage participation by residents to recycle and improve the quality of what is recycled. This is of particular importance for packaging and printed paper programs that have a broad range of responsibilities and large number of direct participants. These activities typically include maintaining a website and social media presence, investing in paid and in-kind advertising, and providing education and outreach materials to community programs.

Either the PRO or the state regulatory authority may be responsible for reaching out to obligated producers and informing them of their obligation as well as the opportunity or requirement (depending on the structure of the state law) to participate in the PRO. The organization should then inform both the state and the other producers of the obligated entities that have joined the PRO. The organization should also inform all program service providers about program expectations and operations.

The preparation of the plan offers an important opportunity for program service providers, material trade associations, other stakeholders, and the general public to provide feedback on elements of the program. Leading practices for engaging those parties in review include webinars, public meetings, and direct outreach to important constituencies.

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A statutorily required advisory board or committee is an increasingly common feature of the producer-funded program landscape in the U.S. These types of boards are typically advisory and consultative and provide feedback and technical expertise to both the organization and the regulatory authority. A formal means of communicating advisory board feedback to the PRO board should be established. The responsibilities of an advisory board could include:

- **Reviewing the program plan and advise the regulatory authority;** the regulatory authority would ultimately have to approve or reject the plan
- **Reviewing annual reports and provide comments** to the PRO and the regulatory agency
- **Providing ongoing program evaluation to identify issues** that are inhibiting program success and help to identify necessary course corrections

The advisory committee members typically represent a range of stakeholder interests who can bring expertise to bear on relevant issues before the state agency. The group may include local governments, recyclers, collectors, manufacturers of different printed paper and packaging materials that use post-consumer recycled content, and environmental advocacy and environmental justice organizations, among others, who are appointed by the environmental regulatory authority. While the advisory committee may have significant communication with the PRO and may be administered by the agency, it should function as an independent body. The role of the advisory committee should be to advise and review, providing recommendations to the relevant regulatory agency or the PRO.

Material Flows in EPR for PPP Programs

Most EPR for Printed Paper and Packaging (PPP) programs involve brands and retailers, through their PROs, reimbursing municipalities for some or all of the costs of recycling collection and processing, or contracting with private companies to provide recycling services. In either instance for curbside recycling collection, the material flows rarely differ from what they are today. Collectors gather materials from households and deliver to a MRF; MRF operators sort the materials into commodities that are sold to end markets. With the ambitious collection goals required of most EPR systems, MRF operators and collectors are often able to expand business to accommodate the new requirements.

It is becoming increasingly common for recycling processing contracts in both EPR and non-EPR jurisdictions to require reporting of end market destinations or to specify that materials must be marketed to “responsible” end markets (e.g., OECD countries, or those that operate under similar standards). It is not common, to date, for brands or PROs to take ownership of the materials processed through the EPR for PPP programs, or to dictate which end markets they are ultimately sold to. As EPR for PPP develops in the U.S., policymakers are considering including provisions that allow PROs the “right of first refusal” on commodities produced by the producer-funded system. In 2021, proposed legislation in New York and Washington have included such provisions, as a reflection of a goal to have EPR help drive a circular economy for packaging.

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3. System Cost Determination

Principles

When establishing fees for producer funded packaging and printed paper programs, the PRO must estimate and account for the level of investment needed for all in-scope activities of the packaging and printed paper materials management. The level of investment needed should be defined through a needs assessment that sets the framework for a five-year investment plan. Ultimately, the needs assessment must define the system costs, including reimbursement needs, or investment of both operating and capital funds to achieve the program goals. The goals may include:

- **Meeting quantitative and/or qualitative recycling targets**
- **Achieving recycling access** that is as convenient as waste disposal
- **Driving participation and reducing contamination** through education and outreach
- **Improvements to materials recovery facilities (MRFs)**, material processing, or other infrastructure through capital investments
- **Ensuring proper oversight** through required reimbursement of state costs

Needs Assessment

Producer-funded programs must fund activities and investments that contribute directly to achieving the targets and outcomes required in the authorizing statute. A needs assessment is critical for establishing a baseline level of investment needed to comply with statutory requirements, no matter the scope of the law – shared or full producer responsibility. The needs assessment should consider local circumstances so that a solution is customized to the unique needs of the state or region. At a minimum, the needs assessment should address:

- **The infrastructure necessary to maximize** collection, sortation, and recycling of the materials covered (or potentially covered) by the program
- **The public education, outreach and engagement programs, and activities** necessary to maximize participation and minimize contamination
- **Cost estimates for addressing each of the identified needs** and achieving the goals and performance targets
- **Reasonable and regionally appropriate costs for providing recycling services**, including costs such as staffing, existing equipment and facility maintenance, potential infrastructure upgrades and MRF tipping fees

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The needs assessment should define the support and investment required to get from the initial level of performance to the statutorily required goal, but not necessarily identify the specific entities that will receive the producer funding to achieve that goal. To ensure that funds are disbursed in a fair and equitable manner, the PRO should establish a competitive process for fund disbursement and/or investments. The process should be designed to:

- **Articulate the need(s) to be filled** (education, infrastructure or otherwise) and the types of projects or investments that will be considered to fill the need(s)
- **Clearly define the application process**, including format, deadlines, funding limits, etc., or the standards/requirements for reimbursement if required in the authorizing legislation
- **Promote the availability of funds** to a broad base of sectors, organizations and entities that are eligible for funding and appropriate to meet the identified need (for more on entities, see below)

Performance Standards

Clearly defined performance standards are critical to the success of producer-funded recycling programs around the globe. However, performance standards in producer-funded systems are many and varied. Typically, standards are either specified in the authorizing legislation, or established by the PRO in its program plan.

Performance standards vary based on the particular program design and are often determined by which activities fall within the purview and authority of the obligated program participants. While numerical performance standards should vary in accordance with the existing needs and characteristics of the recycling system where a producer responsibility program is implemented, it is critically important to achieve consistency and alignment amongst such standards. The definitions and methodologies for measuring and reporting performance standards should be harmonized to the extent that is feasible in order to reduce unnecessary administrative burden and reporting costs.

Typically, such standards are enforceable in that the PRO or individual companies can face penalties or other enforcement actions for failure to achieve them. Common performance standards associated with producer-funded recycling programs include:

- **Collection rates or targets:** quantitative collection targets expressed as an overall goal or defined by material category or type, using the reported generation of covered materials as the denominator and the amount of material collected at the point of collection as the numerator
 - **Recycling rates or targets:** quantitative recycling targets expressed as an overall system goal or defined by material category or type, using the reported generation of covered materials as the denominator and the amount of material sent to end markets as the numerator; material-specific targets can be helpful in defining benchmarks and driving continual improvement. Additional preferences on “circularity” of materials can be important where environmentally preferable and feasible
 - **Collection convenience / access standards:** define the expectations related to the availability of recycling service to residents (e.g., as convenient as waste collection/parallel access)
 - **Inbound contamination rates:** measures the amount of contamination, or non-commodity material, in loads being delivered to the MRF from curbside collection routes and drop-off locations; it is recommended that the PRO’s plan define baseline and target inbound contamination rates, on a path of continual improvement
- **Commodity quality targets:** define the specifications of MRF outgoing materials; given the challenges in defining pre-program MRF quality it is recommended that the PRO’s plan define baseline and target commodity quality standards, including outbound MRF contamination rates, on a path of continual improvement

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4. Fee Determination

Once the system cost is determined, the total amount of funds needed annually must be generated. Typically, this is done by creating a fee setting formula that sets rates for the different material categories and formats that make up the covered material mix. The formula should be guided by principles designed to ensure fair application of fees across categories of materials and differentiate material categories and types based on their impacts on the cost of the recycling system as well as environmental attributes that may be considered in addition to costs (i.e., eco-modulation factors). Those principles should include:

- **Physical characteristics of the material categories and types** and the cost to collect and process each
- **Value of the material category or type** (e.g., commodity revenue from the sale of recycled materials)
- **Quantifiable environmental attributes of the material category or type**, including recyclability, incorporation of recycled content, and/or conformance with industry design for recyclability standards (see eco-modulation section below)
- **Simplified compliance for smaller producers** through a flat-fee option (see below) and de minimis exemptions

While the fee-setting formula can be developed with a long-term view, the details that determine it should be re-evaluated annually to ensure they account for current market conditions (e.g., cost and revenue), technical progress, and other emerging trends.

Base Fees

Once the investment levels, operating costs and other basic principles are established and calculated, the next step is categorizing the in-scope materials into the annually updated fee schedule. Key to the fee schedule is the definition of material categories. Defining the categories must balance the need to properly differentiate material categories and formats based on system cost and revenue with the drive to make reporting and compliance manageable. It is important to note that all packaging materials as defined in the legislation – regardless of whether they are recyclable – and are subject to a fee. The experience of existing companies reporting globally has shown that relatively simple fee categories can effectively meet both objectives by being specific enough to reflect differentiation in the recycling system costs and revenues, while not being overly complex for reporting.

An example of such classification of packaging categories is presented in the table below.

Example Categories*

Printed Paper	HDPE Bottles and Containers	Steel
Corrugated Cardboard	PP Bottles and Containers	Aluminum
Paper Packaging	PET Thermoforms	Glass
Aseptics, Cartons & Polycoat	Mono-material flexible PE	Other
Paper Laminates (less than 85% fiber)	Other Rigid Plastic (PVC, PS, etc.)	
PET Bottles and Containers	Other Film Plastic (PP, Multi-laminate)	

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Special Assessments

The sortability and recyclability of packaging materials evolve over time with technology development, investment, and infrastructure improvements. Certain material types may benefit from a special assessment to generate funds for investments that support that specific material type. For example, certain materials or formats may need specialized collection systems, or sorting and processing equipment in order to be collected and processed in the producer-funded program. In these instances, the fee-setting formula would be adjusted to add the assessment to the target material types, so that the cost is fairly distributed among all producers of the covered material type. Special assessment projects could follow the model of the Can Manufacturers Institute and The Recycling Partnership's [Can Capture Grant Program](#), or the [Polypropylene Recycling Coalition](#). These programs target investment to improve sortation and/or collection capacity to allow those materials to be brought into recycling programs. However, instead of pooling funds through a trade organization, those funds would be collected and managed by a PRO (to ensure a level playing field) with results reported as a part of the organization's activities to achieve legislated targets.

Base Fee and Eco-modulation Factors

It is important to combine a focus on simplicity, with a sufficiently differentiated fee structure to ensure that producer-funded recycling programs achieve broader environmental objectives. The factors considered can be classified in two main categories:

a. Base fee determination: the fee differentiation by material and packaging element type and characteristics including:

- i. Material use (efficiency of packaging):** fees are based on weight, as that is how flow of materials through the recycling system is measured
- ii. System cost:** based on the costs to collect and process the material type, as documented through an agreed upon methodology
- iii. Commodity revenue:** based on the end-market value to the MRF of the material type (after processing)

b. Eco-modulation based on a bonus/penalty system: in addition to the factors characterized in the base fee, the following should be considered:

- i. To incentivize desired behavior,** the fee structure should offer bonuses for:
 - 1. Conformance with industry standards for recyclability
 - 2. The use of certified recycled content that is appropriately differentiated by material category or type
- ii. Consider penalties for design choices that negatively impact the recycling system,** such as:
 - 1. Disruptors to existing recycling streams (e.g., use of PVC or oxo-degradable- plastics, or non-separable plastic elements on paper packaging)
- iii. Package elements that violate design for recyclability standards,** such as the use of dark-color plastics that result in improper sortation, high percentages of additives in certain resins, addition of non-fiber components (e.g., certain adhesives or foils) that impact fiber re-pulpability, non-ferrous closures to glass containers, etc.

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The specific eco-modulation factors used, and the level of bonus or penalty, would be decided by the PRO in consultation with industry experts as a part of the planning process in the context of the fee setting formula. It is critical to ensure that any eco-modulation factors, whether positive (bonus) or negative (penalty) should be documentable based on agreed upon guidance, such as verification of postconsumer recycled content, or industry approved design for recyclability guidance. The balancing of bonus and penalty factors is important and must be placed in context of the overall system financing needs. Given that the PRO has a defined amount of funding that must be raised through the fees, providing numerous incentives and disincentives will raise the base fees across the board and add significant administrative complexity.

Incorporating eco-modulation factors can have a positive impact on the system as a whole by reducing costs and/or increasing revenues. For example, increasing the use of recycled content and system circularity, could likely lead to an increase in material commodity revenues. Improving conformance with design for recyclability standards could also improve material revenue and reduce system costs by improving the sortability of materials and therefore their value. Reducing the presence of disruptors also can decrease system costs by making sorting more efficient and minimizing residue.

Small Producer Flat Fees

It is important to establish boundaries for fee calculation and collection methodologies. In each market analyzed, there will be a number of small packaging producers for whom the complexity of reporting outweighs the benefits of differentiated fees. For these entities, a flat fee contribution is the most efficient and effective and the prevailing approach. Depending on the program, there could be multiple levels of flat fees.

Imposing a flat fee on small producers reduces the administrative costs of data collection and reporting for these obligated producers, while still ensuring that they contribute to the program. Perhaps more importantly, the flat fees reduce administrative costs for the producer organization by avoiding excessive compliance requirements (e.g., audit, monitoring) in cases where the contribution would not be sufficient to cover these costs.

The size of a small producer will likely vary from state to state based on the size of the market and will either be specified in the legislation or defined in the PRO's plan. Small producer flat fee levels could be established as follows:

- **Determine levels of flat fees for small producers** as an option for simple reporting and fee payment
- **Provide small producers with the option to pay actual fees**, if they have the capacity and the desire to do so
- **Define small producers according to factors** such as size of the state and the state's economy
- **Consider administrative costs of managing the small generator accounts** to determine the most efficient values for the producer organization

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De Minimis Exemptions

Certain levels of packaging generation and fee contributions do not justify the administrative costs of compliance obligations or significantly affect the ability to meet statutory metrics or goals and should therefore be exempt from the obligations of the legislation. For such levels, reporting and fee payment thresholds should be established and defined either as amounts placed on the market (e.g., no reporting and fee payment obligation for producers that place under x lbs. on the market annually), or as annual sales (e.g., no obligation for producers with annual sales in the covered jurisdiction under USD x). The amounts established for the exemptions would most likely differ based on the state and size of the market. For producers under the established threshold, another option would be a simplified reporting requirement that does not require a fee payment obligation. Recent proposals for producer-funded programs have also exempted local governments and other entities.

Producer Payments

In most producer-funded recycling programs, producers remit payment to the PRO annually, based on the amount of each material type they sell into the marketplace and the fee schedule established by the organization, as per the principles, factors, and formulas discussed above.

5. Fund Disbursement

The specific activities and assets to be funded through the program will vary, depending on the situation in a given state, and the outcomes of the needs assessment. The following table provides activities that would likely be targeted by producer-funded programs:

Activity	Type of Investment	Potential Funded Entities
Access to Recycling	<ul style="list-style-type: none"> Collection infrastructure (e.g., carts or bins, trucks) Targeted outreach to launch new recycling programs, expand collection to new types of generators (e.g., multi-family buildings), or add additional materials to existing programs 	<ul style="list-style-type: none"> Municipal governments Community-based organizations Recycling service providers
Hub and Spoke Collection and Processing Systems	<ul style="list-style-type: none"> Feasibility analyses Infrastructure to enable material to be consolidated from remote locations (spokes) for efficient, centralized processing (hub) 	<ul style="list-style-type: none"> Municipal or regional governments Recycling service providers
Outreach and Education	<ul style="list-style-type: none"> General promotion to increase participation Anti-contamination programming designed specifically to improve the quality of the recycling stream 	<ul style="list-style-type: none"> Municipal governments Community-based organizations Recycling service providers Direct spending by the PRO Trade associations
Sorting Infrastructure	<ul style="list-style-type: none"> Equipment and technology to improve sorting and recycled commodity quality at MRFs 	<ul style="list-style-type: none"> Public and private sector MRF operators
Special Assessments	<ul style="list-style-type: none"> Collection, sorting, processing or redemption infrastructure and related operational costs that specifically targets a particular material category or type (e.g., drop off centers for glass or flexible films) 	<ul style="list-style-type: none"> Trade associations Municipal governments Recycling service providers Innovation fund/MRF operators
Cost of Delivering Services	<ul style="list-style-type: none"> Costs associated with operating recycling programs, including staff, vehicle maintenance, and MRF tipping fees 	<ul style="list-style-type: none"> Municipal governments

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6. Reporting

New recycling financing policies offer the opportunity to dramatically improve data collection and program evaluation. Depending on the structure of the program, the history of reporting in the state, and the details laid out in the legislation, program service providers may be required to report information directly to the state or may be required to report to the PRO who consolidates data from all program service providers and reports to the state. Any new legislation should reconcile the reporting required for evaluation of the PRO and its funded programs with that required to evaluate recycling and materials management in the state more broadly. A leading practice would be to establish an on-line reporting system that could be accessed by the state and the PRO, so that data could be compiled as needed for their different purposes.

State agencies are typically responsible for gathering and publishing program performance data and information provided by the PRO and other program service providers (local governments, haulers, and recycling facilities). The implementation of producer-funded programs enables the collection of a broad base of recycling program data, particularly if the reporting requirements and data collected are consistent from state-to-state. Better, more consistent data will contribute to better decision-making about improvements in the broader recycling system. Generally, reporting requirements are focused on quantitative measures (e.g., tons of materials collected or recycled) and reporting is required as a condition of participating in the program so that program service providers are not compensated for their services unless they are reporting appropriately on activities and progress.

In addition to providing a valuable base of information, a comprehensive reporting protocol allows both the state and the PRO to verify the material managed as it moves from collection to end markets and allows for greater accuracy and increased transparency to identify system challenges and where further investments in the system are necessary.

Reporting to PRO by Producers

Obligated producers would report their annual sales of covered materials as a part of the fee remittance process described above.

Reporting to PRO by Service Providers

The PRO should require program service providers to report key data on their activities. The data collected and reported by the PRO can then be aggregated and submitted in annual reports to the state authority and made available for public and stakeholder review to facilitate evaluation of the program and recycling system trends.

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Reporting to the Regulatory Authority

Leading practices for reporting would require the PRO and each of the program service providers to electronically report key quantitative measures to the state annually (See table below). The agency would then aggregate the data from all reports to provide a comprehensive picture of recycling in the state. Where necessary, the state may treat data as confidential and remove any individual company identifying information (e.g., industry sales data). Electronic reporting can facilitate the compilation and analysis of data for statewide reports. Depending upon the breadth of activities that are assigned to the PRO, some of the reporting could be consolidated by the PRO and then submitted to the state.

Reporting Equity	Metrics
Municipality	<ul style="list-style-type: none"> • Total households in the municipality and households served (access rates) • Education and outreach activities and materials • Program structure and parameters (e.g., municipal service, contracted service, bins, carts and/or drop-off sites, materials collected, etc.)
Recycling Collector	<ul style="list-style-type: none"> • Materials collected • Education and outreach activities • Households served • Tons of recyclables collected • Pounds collected per household served
MRF	<ul style="list-style-type: none"> • Incoming materials (tons), including covered materials and other materials • Outgoing commodities (tons, by commodity) • Residue (tons) • Inbound contamination rate and periodic outbound material quality audits • End markets
PRO / Brands	<ul style="list-style-type: none"> • Material generated / covered material sold into the market • List of producers and brands that are part of the program • Covered material recycled through producer-funded program • Education and outreach activities • Financial performance (funds collected, funds disbursed)

Reporting to the Legislature

In U.S. producer-funded recycling programs, it is commonplace for the state agency to be required to submit a report to the legislature that outlines the performance of the program, provides an overall assessment of its functioning, and identifies potential statutory changes that may be necessary to facilitate implementation.

Conclusion

Companies, communities, and policymakers across the country agree that the time is now to build a better, bolder, and broader sustainable system of recycling and, as a result, a stronger, more resilient, and circular economy – one that creates jobs, protects natural resources, and one that reimagines how we design and deliver goods to the public. Well-designed policy can help deliver on that promise.

This guidance memo is intended to provide leading practices and define key elements that are applicable to any producer responsibility programs for packaging and printed paper. Through implementation of the best practices and key elements of an effective producer-funded program, packaging can be optimized for circularity – ensuring the recyclability of packaging and its ability to be collected, sorted, and remanufactured into a new product.

This guidance memo is intended to inform and support policymakers by providing leading practices and defining key elements that are applicable to any model of producer responsibility program for packaging and printed paper.

Addendum

For Producer-Funded Recycling Collection Legislation Addendum (E-commerce Sales)

This memo serves as an addendum to the “Guidance for Producer-Funded Recycling Collection Legislation” document, exploring in detail the topic of e-commerce sales in the context of extended producer responsibility (EPR) policy for packaging and printed paper.

As e-commerce continues to expand as a sales channel in the U.S., EPR and other product-oriented environmental policy needs to specifically address the requirements, obligations, and approach to oversight and compliance that pertain to e-commerce sellers. The following document seeks to identify the key issues for e-commerce in the context of EPR for packaging and printed paper policy and offers guidance for policymakers on how to address them.

Definitions: Who Is Generally Considered an Obligated Producer?

An obligated producer is an entity, as defined in the regulatory instrument, that places packaging or printed paper into the market in quantities greater than the de minimis threshold. The obligation typically extends to all designated packaging and printed paper that may enter the municipal waste management system regardless of whether it is recycled, composted, or is disposed. Examples of obligated producers include:

Brand Owners

In some laws and proposals, brand owners assume obligations for the packaging and printed paper associated with their products sold in a direct-to-consumer transaction or via a retailer.

Retailers

In some laws and proposals, retailers assume obligations for packaging and printed paper associated with their private label products as well as point-of-sale packaging. They may also be the responsible entity for products they import that do not have an obligated producer.

E-commerce Sellers

In some laws and proposals, e-commerce sellers assume obligations for packaging and printed paper from their private label products, packaging (e.g., shipping or transport packaging) added to branded products, and packaging from products that do not have an obligated producer.

Some entities may fall into two or more of the above categories of obligated producers. In that case, the brand owner may assume responsibility for some sales while other sales are assumed by another entity. Many of the proposals before state legislatures contain a hierarchy of responsibility to determine which entities are responsible.

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Types of E-commerce Retailers Who May Have Obligations under EPR

The following is a list of broad categories for retailers that engage in commercial transactions conducted electronically, or online. It is important to note that e-commerce is a complex and evolving domain, and that a company may fall into one or more of the following categories.

Conventional Retailers

Retailers that have a physical presence with stores, warehouses, and/or fulfillment centers but also offer sales online. Conventional retailers are typically obligated for their own brand packaging (private label) and for packaging added to branded products.

E-commerce Only Retailers

Retailers that only conduct sales online and do not have a physical presence with retail stores. E-commerce only retailers may have warehouses or fulfillment centers.

Marketplace Sellers Only

Third-party sellers that sell products through a marketplace facilitator/provider that is operated by another entity. Marketplace sellers can be under de minimis thresholds that are established in the regulatory approach. Marketplace sellers may be obligated for additional packaging that is added, for example, for shipping to a household.

Marketplace Facilitator/Provider

A marketplace facilitator/provider is generally any person or entity that operates on consumer-directed electronically based or accessed platform that 1) includes features that allow for, facilitate, or enable third party sellers to engage in the sale, purchase, payment, storage, shipping, or delivery of a consumer product in the U.S.; 2) is used by one or more third party sellers for such purposes; and 3) has a contractual or similar relationship with consumers governing their use of the platform to purchase consumer products. In some cases, marketplace facilitators/providers may be the obligated producer under an EPR regulatory requirement.

E-commerce Retailers Who Also Operate a Marketplace

Retailers that conduct sales online and also operate a marketplace. This type of retailer is typically obligated for their private-label brands and may be responsible for those brands from sellers that sell through the marketplace. Marketplace sellers can be under de minimis thresholds that are established in the regulatory approach.

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Key E-commerce Issues to Address in EPR for Packaging and Paper Products (PPP) Policy

- **Ensure that e-commerce is adequately accounted for** in the legal framework
- **Define the obligated entity through a tiered approach** to ensure any entity along the sales chain is obligated for packaging associated with a product being sold in the state
- **Recognize voluntary and commercial agreements** to allow responsibilities to be shifted up or down the obligated producer hierarchy (for example, a retailer may choose to take on the obligations for a brand owner or vice versa, as certain parties may have higher levels of expertise, data, and resources)
- **Define de minimis sales thresholds** that exempt very small producers
- **Define the obligation for an e-commerce retailer** with no physical presence in the relevant jurisdiction
- **Ensure that Producer Responsibility Organizations (PROs) are aware of the regulatory requirements** for those entities engaged in e-commerce
- **Calculate the amount of packaging placed on the market in the jurisdiction** and establish a protocol to determine how much is sold in that jurisdiction via e-commerce
- **Determine how reusable e-commerce packaging may be addressed within the legal framework** and how it may differ from non-reusable packaging

Examples of How E-Commerce is Addressed in Existing EPR Programs

Clearly define and specifically address e-commerce sales and which entities are obligated and under what circumstances:

Example from Ontario

- For blue box packaging, paper, and packaging-like products, the first producer captured is the brand holder. This will capture retailers who carry their own brand-name product lines.
- If there is no brand holder in Canada, the obligation falls to the importer, if resident in Ontario. In some cases, retailers can be classified as importers or will be the obligated producer as a retailer supplying products to customers.
- If designated materials are supplied to you by an Ontario based distributor, that business would be captured as the obligated producer since it is an importer resident in Ontario.

Source: Retail Council of Canada

<https://www.retailcouncil.org/community/sustainability/overview-of-ontarios-blue-box-regulation/>

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Example from Oregon

The producer of a covered product shall be determined as follows:

→ **For items sold in packaging at a physical retail location in this state:**

- If the item is sold in packaging under the manufacturer’s own brand or is sold in packaging that lacks identification of a brand, the producer of the packaging is the person that manufactures the packaged item;
- If the item is manufactured by a person other than the brand owner, the producer of the packaging is the person that is the licensee of a brand or trademark under which a packaged item is used in a commercial enterprise, sold, offered for sale or distributed in or into this state, whether or not the trademark is registered in this state; or
- If there is no person as described above of this within the United States, the producer of the packaging is the person that imports the packaged item into the United States for use in a commercial enterprise that sells, offers for sale or distributes the item in this state.

→ **For items sold or distributed in packaging in or into this state via remote sale or distribution:**

- The producer of packaging used to directly protect or contain the item is the same as the producer for purposes of paragraph (a) of this subsection.
- The producer of packaging used to ship the item to a consumer is the person that packages and ships the item to the consumer.

→ **For all other packaging that is a covered product,** the producer of the packaging is the person that first distributes the packaged item in or into this state.

Specify the obligations, if any, for marketplace sellers and marketplace facilitators/providers:

EU Example: The EU guidelines reference the need to impose certain responsibilities on marketplaces, such as the requirement for the online marketplace to mandate and monitor sellers’ compliance with their EPR obligations (registration, reporting, fee payment). Germany and Belgium have been more advanced in requiring this in legislation. Member states have taken various approaches, from the requirement that sellers share compliance information, or that e-commerce companies are to maintain registries with EPR-related information on their members.

German Example: “New extended obligations for ‘electronic marketplaces/platforms and fulfilment service providers’: Operators of electronic marketplaces/platforms may only allow the marketing of packaging subject to system participation if producers have ensured system participation and are registered in the LUCID Packaging Register. Fulfilment service providers may only perform their activities for those companies that have fulfilled their obligation to register with the LUCID Packaging Register and met their system participation requirement.”

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Compliance and Enforcement

One significant consideration for the implementation of EPR for packaging is how compliance and enforcement are addressed for obligated entities that do not have a physical presence in the jurisdiction. Traditionally, e-commerce has posed challenges for regulatory authorities seeking to ensure compliance as those sellers were often located out of state, or even internationally with often no presence in the U.S. A **U.S. Supreme Court ruling in 2018** enabled states to require an out-of-state seller to collect and remit sales tax on sales to in-state consumers even if the seller has no physical presence in the consumer's state. Since that ruling, most states have implemented laws to collect the sales tax on remote sales thus creating an avenue to ensure that other regulatory requirements can be met.

A list of state remote sales tax requirements can be found **here**.

Recommendations for Regulatory Entities

- **Ensure procedures exist for participation** in a PRO without the need for a physical presence in the jurisdiction and that the registration process is clear and accessible.
- **Implement mechanisms for communicating** with producers that sell through e-commerce channels (including third-party marketplaces) as well as e-commerce platforms as to their obligations for e-commerce sales in the jurisdiction.
- **Establish oversight and enforcement procedures**, including coordination with other regulatory entities, to ensure e-commerce sellers are aware of their obligations.

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Interplay and Integration of Deposit Return Systems and EPR

This memo serves as an addendum to the “Guidance for Producer-Funded Recycling Collection Legislation” document, exploring in detail the topic of deposit return systems in the context of extended producer responsibility (EPR) policy for packaging and printed paper.

Introduction

Policymakers and consumer goods companies across the U.S. are looking for solutions to drive domestic manufacturing, increase recycling rates, build a circular economy, address climate change, and mitigate issues surrounding plastic pollution. When thoughtfully designed and implemented, the two most impactful policies to address those concerns are extended producer responsibility (EPR) for packaging and printed paper (PPP)¹ and deposit return systems (DRS), also referred to as bottle bills or recycling refunds. These policies can deliver high recycling rates, recycling efficiency opportunities, and significant economic and environmental benefits.

EPR aims to make producers financially responsible for the collection and recycling of their products. EPR legislation is increasingly being considered in the U.S. after decades of implementation in Canada and the European Union. During the 2021, 2022 and 2023 legislative sessions, 20 states introduced – and four states adopted – EPR legislation for packaging. DRS policies are in place in 10 states and saw significant legislative interest in 2022 and 2023, with more than a dozen states proposing new DRS policies and several program expansions proposed in existing DRS states. Additionally, three of the four states that recently adopted EPR for packaging also have long-standing DRS policies and now have an opportunity to demonstrate how these policies can integrate with each other.

DRS is a specific type of EPR for beverage packaging where consumers have a financial incentive to return beverage packaging to be recycled. Well-designed DRS – such as in Oregon, often cited as the most effective of the 10 and the program that has delivered the highest recycling rates – can achieve beverage container recycling rates of more than 80%, while the overall recycling rate for beverage containers in states without deposit return is around 30%.²

This addendum illustrates the intersection of EPR and DRS and how the two models can operate in a complementary fashion to increase recycling rates as they do in many jurisdictions around the world. The Recycling Partnership and many other groups have developed policy principles for well-designed EPR and DRS that are based on global best practices of high performing collection systems, some of which are embedded in the below table.³

¹ **The Recycling Partnership. (2021) Guidance Memo for Producer-Funded Recycling Collection Legislation, <https://recyclingpartnership.org/download/33307/?tmstv=1686172178>**

² **Reloop. (2021). Factsheet: Deposit Return Systems - System Performance, <https://www.reloopplatform.org/wp-content/uploads/2021/02/Fact-Sheet-Performance-16FEB2021.pdf>**

³ **World Wildlife Fund and American Beverage Association. (2021) WWF and ABA Joint Principles for Reducing Materials Footprint and Achieving Circularity, <https://www.worldwildlife.org/publications/wwf-and-aba-joint-principles-for-reducing-materials-footprint-and-achieving-circularity>**

This guidance memo is intended to inform and support policymakers by providing leading practices and defining key elements that are applicable to any model of producer responsibility program for packaging and printed paper.

Section 1: Well-Designed and Implemented DRS and EPR Basics

	Extended Producer Responsibility	Deposit Return Systems or Recycling Refunds
Overview:	EPR is a policy approach that requires producers (i.e., brands) of packaging and printed paper to finance the costs of recycling – from education to collection and sorting, as well as other related activities – with the goal of increasing recycling rates.	DRS is a policy approach that requires producers of beverage packaging to fund and operate a specialized, separate recycling infrastructure. Recycling Refunds, or DRS, provide an economic incentive to consumers to return used beverage packaging to be recycled. Consumers pay a small deposit when purchasing a beverage and are then refunded the deposit when the beverage package is returned.
Centralized Responsibility Organization:	In order to finance the recycling system for packaging, producers (i.e., brands) of packaging and printed paper create and manage a central producer responsibility organization (PRO) to administer the funds and support reaching the recycling goals laid out in statute.	In order to finance the recycling system for packaging, producers (i.e., brands) of packaging and printed paper create and manage a central producer responsibility organization (PRO) to administer the funds and support reaching the recycling goals laid out in statute.
Recycling Infrastructure:	EPR programs allow consumers to recycle using their existing or newly established curbside and drop-off recycling programs.	DRS programs create a redemption network and infrastructure to collect material from convenient drop-off locations and process it for sale to end markets or to re-processors for further cleaning and processing.
Sectors of Focus:	EPR programs typically focus on curbside recycling infrastructure and processing capabilities	DRS programs typically serve residential, commercial, and on-the-go consumers.
Incentivizes Better Packaging Design:	Producers pay eco-modulated fees based on what packaging they put on the market. Producer fees reflect the true sorting, recycling, and other end-of-life costs of each item – ensuring materials do not cross-subsidize each other. Those eco-modulated fees give signals to producers that packaging should be well-designed and can trigger business innovation, provided that the fees and criteria are properly defined, and the difference is large enough to incentivize change.	Producers pay into the program based on the material they sell on the market to build out convenient collection infrastructure. Fees could be set by material to reflect their true collection and processing costs net of commodity value. Fees could also be eco-modulated to reflect other environmental or performance attributes that are more difficult to quantify.

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Section 2: Rationale of Implementing EPR and DRS in Parallel

EPR offers broad-based funding to boost recycling and circularity for a wide range of packaging and printed paper and therefore can improve recycling rates system-wide. For the fragmented, often neglected recycling system in the U.S., EPR is crucial to improve overall recycling performance for cardboard, printed paper, and a wide range of paper, plastic, metal, and glass packaging. Deposit return systems have historically focused solely on beverage containers and require a separate governing organization and establishment of separate infrastructure to manage those materials. In terms of impact on full recycling, waste diversion, and circularity, well-designed EPR systems are a priority for the U.S.

DRS, or recycling refunds, offer a financial incentive to consumers to boost recovery of targeted containers above levels typically achieved with EPR alone. It creates separate streams of material that are less expensive to sort and prepare for market. Material separation leads to a cleaner, more homogenous stream, meaning that those materials are more likely to be used in closed-loop applications (i.e., recycled back into beverage containers) and can help companies achieve sustainability goals, including postconsumer content targets, whether mandatory or voluntary. As with EPR, however, the design of the DRS is critical to its success.

As a parallel collection system, the addition of DRS where curbside collection systems already exist will remove a portion of glass, aluminum, and PET bottles from the curbside collection stream. This has financial implications because of lost commodity revenue, while at the same time reducing costs associated with contamination at materials recovery facilities (MRFs) and materials lost from MRF processing to landfill. A parallel DRS can also affect commodity quality, generating higher yields of quality collected glass and PET due to less processing loss and contamination, while also improving the quality of paper bales from MRFs. Additionally, if the two programs were developed in tandem, some functions, such as baling, could be performed in the same facility to maximize efficiency and reduce costs, while maintaining quality.

Integrating the two systems requires thoughtful consideration. Collection methods, routes, and schedules, as well as MRF sortation processes, should be considered to reduce collection costs and to maximize resultant material quality and economics.

Whether the additional quantity and quality of beverage container material is worth the additional cost of a redemption system is up to stakeholders and policymakers to determine. Measures such as aggressive away-from-home recycling in EPR systems (as in Manitoba) can also boost material quantity, but this, too, comes at a cost.

In the U.S., deposit programs in states with active container deposit laws recycle anywhere from 38% to 81% of covered containers⁴ (with most over 60%), while the overall recycling rate for beverage containers in states without deposit return is around 30%.

The two policies can potentially complement each other in timing as well. DRS can scale to high recycling rates more quickly than EPR, which has a longer lead time to meet its optimal rates but results in far more tons recycled.

Legislating for well-designed, compatible EPR and DRS programs will help enable consumer goods companies to achieve their ambitious recycling rate, recycled content, and sustainability goals to spur a circular economy, and comply with existing mandatory recycled content laws around the country. Both EPR and DRS policies can reduce carbon emissions and lower air and water pollution by enabling greater use of recycled material.

⁴Container Recycling Institute. (2022). *Redemption Rates and Other Features of 10 U.S. State Deposit Programs. Bottle Bill Resource Guide.* <https://www.bottlebill.org/images/Allstates/10-state%20Summary%208-5-22r.pdf>

DRS and Reuse

As policymakers explore policies to reduce virgin plastic use while at the same time increase collection, pairing EPR and DRS can play an important role. EPR proposals are increasingly including reuse goals, so DRS could offer logistical and infrastructure support for some types of refill systems. Unlike EPR, DRS provides a return incentive through the structure of the program. DRS can facilitate the reverse distribution system needed to support greater reuse of some types of containers. In Oregon, the Oregon Beverage Recycling Cooperative (OBRC) recognized that opportunity when it created the BottleDrop Refillables program. Beer distributors who participate in the program use a standardized bottle that is collected through the redemption network and is then washed by OBRC and returned to the bottler for refilling. Eleven distributors representing more than 100 beer and cider brands participate in the program. A similar program is operated at a much greater scale by The Beer Store, the entity that operates the beer and liquor DRS in Ontario. DRS is also used as a mechanism to support reuse and refill for some types of products in British Columbia and across Europe.

Section 3: Additional Considerations for EPR and DRS in the U.S.

Collection Efficiencies and Circularity of Materials

While often operating simultaneously, DRS and EPR for PPP rely on separate collection systems and focus on different scopes of products. Successful DRS – a system with high recovery and bottle-to-bottle, or can-to-can, recycling rates, consumer convience, and operational and cost efficiencies – is dependent on consumers transporting containers to a redemption location, at which point the materials are consolidated, sorted, and marketed through a dedicated supply chain. EPR for PPP typically involves curbside recycling collection and/or a network of drop-off sites, often with materials mixed in a commingled recycling stream, that then feed into a MRF where materials are sorted and prepared for market.

Depending on the beverage containers included, a DRS may remove 10-18% of the recyclables (by weight) from a pre-existing curbside recycling system.⁵ Less material in the curbside recycling system⁵ may reduce collection efficiency and drive up per-ton costs if the same truck routes are used to capture less material.

However, EPR increases the tons of recycling collected in curbside programs and generally covers the costs of recycling and collection and processing. This means any financial loss to curbside programs from an integrated DRS program could be offset by the increased tons of materials entering the system, with the volumes collected being considered when designing routes to ensure that collection efficiency is maintained.

In most states with existing DRS, those systems predate curbside recycling collection, resulting in curbside recycling collection systems that were developed to maximize efficiency in the context of the expected curbside mix. If DRS and EPR for PPP systems are developed concurrently, recycling collection systems should be designed to ensure efficiency is maintained.

⁵ RRS interviews with industry sources. (2022).

If DRS and EPR for PPP are implemented in tandem, beverage container redemption centers can also serve as collection points for materials that are difficult to process in a MRF environment, such as flexible films, expanded polystyrene (EPS), and bulky rigid packaging. This has proven to be the case in British Columbia and other high-performing systems.⁶

Avoiding Duplicative Fees

It is important to exempt containers covered under DRS legislation from an EPR for PPP program to ensure that producers are only paying fees into one program for each package. Specifically, fees on beverage containers should be directed to the DRS program, while fees on non-beverage container packaging are paid into the EPR program.

Opportunities for Existing Program Improvements

The passage of EPR for PPP legislation in a state with an existing DRS can offer the opportunity to update the DRS to maximize efficiency and effectiveness. For example, the DRS management structure could be updated to be more akin to an industry-run producer responsibility organization (PRO), the types of beverage containers included could be expanded for maximum impact and efficiency, and mechanisms could be included to facilitate the DRS covering the cost of managing separated redeemed beverage containers that remain in the EPR for PPP system (see appendix for further discussion). And, just as EPR can be added in a state that has a DRS, a DRS can be added in a state that has EPR, particularly if the recovery of beverage containers in the EPR program is lagging.

Conclusion

EPR for PPP and deposit return systems co-exist across 26 jurisdictions around the world [see Appendix 1] and when developed thoughtfully, can be coordinated to provide robust recycling options at- and away-from-home to maximize the quality and the quantity of materials recycled. When developing EPR for PPP and DRS, or adding EPR for PPP in a state that has an existing DRS, policymakers should consider how the systems can work in tandem with each other and maximize the efficiency of programs and infrastructure, while ensuring that the resulting systems are financially sustainable. In addition, ensuring that the deposit return system has an obligated producer-driven structure similar to an EPR for PPP system will contribute to the success of both programs including making both systems more efficient and cost effective.

⁶ Find a Depot. (2022). Recycle BC. <https://recyclebc.ca/where-to-recycle/find-depot/>

Appendix 1

How DRS Works

Consumers

Individual consumer participation is key to the success of any recycling program. In a DRS, consumers pay a deposit at the time of purchase and are reimbursed the deposit value when the container is returned appropriately. The consumer may choose to return the deposit containers and redeem the deposit value themselves, donate the deposit containers to a fundraiser (schools or non-profits), or put the container in the curbside recycling bin or the trash and forfeit their deposit. If a consumer chooses to redeem their containers, they take on the cost and effort of returning containers to a redemption site, which may be an independent redemption center or a redemption location in or near a retail store. Implementing DRS alongside EPR offers a financial incentive to recycle containers from any location, not just those served by municipal recycling programs supported by EPR.

Redemption

Under a DRS, beverage producers and distributors establish a redemption network to provide consumers with convenient opportunities to redeem their deposits. U.S. systems established in the 1970s and early 1980s mandated beverage retailers to provide infrastructure and that remains the model in some of those states. Later programs focused instead on independent networks of redemption centers, separate from retail locations. U.S. programs today reflect a mix of these options. Regardless of the responsible party, the mode of redemption can range from manual counting and sorting of individual bottles and cans; automated redemption through reverse vending machines (RVMs); or drop-off programs that allow consumers to establish an account, leave bags of containers in a designated location, and receive refunds later through their online account.

While some retailers find value in operating redemption centers that drive foot traffic, generate handling fees to offset costs, and provide strong customer service, others experience detriment from allocating floor space and labor time to managing empty beverage containers, and issues with managing contamination, hygiene, and odors from residual contents of the containers. Increasingly, third-party deposit program service providers are offering systems that minimize the impact on retailers and improve the customer experience by moving redemption centers to external areas, like parking lots, and innovative collection methods (e.g., bag drops). Some deposit systems allow retailers to opt out of redemption requirements if there is a redemption center nearby. As described above, implementing DRS along with EPR could offer drop-off collection for items that are not compatible with curbside recycling systems (e.g., flexible films) near deposit container redemption centers in a network of drop-off sites or depots.

Collection and Processing

DRS also requires a network and infrastructure to collect material from the redemption network of drop-off locations and process it for sale to end markets or to re-processors for further cleaning and processing. This network typically exists entirely separate from the materials handling infrastructure that supports municipal recycling programs. Because it is source-separated, the material requires little handling to prepare it for end markets. These operations produce baled PET and aluminum and crushed glass and may be independently operated, vertically integrated with redemption

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infrastructure, or operated by beverage distributors. Brands typically own the materials and often allow these third-party service providers to market these commodities to PET, aluminum, and glass re-processors. Materials collected through an EPR for PPP program, on the other hand, are commonly sorted and prepared for market in a MRF or processing center. If EPR for PPP and DRS programs were developed in tandem, some functions, such as baling, could be performed in the same facility to maximize efficiency and reduce costs, all while maintaining quality.

Deposits in the U.S.

The first beverage container deposit program in the U.S. was adopted in Oregon in 1971, shortly after British Columbia adopted the first North American DRS in 1970. Between 1971 and 1986, 10 states and one local government in the U.S. adopted DRS, in part as a strategy to reduce litter. Since that time, one state (Delaware) and a local government (Columbia, Missouri) repealed their DRS and replaced them with comprehensive curbside recycling measures, while a new deposit program was added in Hawaii.

Typically, DRS in the U.S. places the legal responsibility of managing the beverage container redemption system on beverage distributors – the companies that supply beverages (in containers) to retailers in the state. Most of the DRS programs in the U.S. initially targeted beer and carbonated soft drinks, as those beverages made up the vast majority of beverage containers on the market at the time the laws were passed. Over the years, certain states have expanded the scope of the DRS to incorporate the range of beverages and containers in the marketplace (see table below), while Oregon and, most recently, Connecticut have increased the deposit from \$0.05 to \$0.10. Connecticut’s deposit increase goes into effect in January 2024.

Table 1: DRS Programs in the U.S.

	ME	CA	HI	OR	IA	VT	NY	CT	MI	MA
Carbonated Soft Drinks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Beer & Malt Drinks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sparkling Water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-sparkling Water	✓	✓	✓	✓			✓	✓		
Sports Drinks	✓	✓	✓	✓				as of 1/23		
Energy Drinks	✓	✓	✓	✓				as of 1/23		
Juice	✓	✓	✓	✓				as of 1/23		
Tea & Coffee	✓	✓	✓	✓				as of 1/23		
Wine	✓	* as of 1/24		** as of 1/24	✓					
Mixed Spirits	✓	*as of 1/24	✓	✓	✓	✓			✓	
Spirits (Liquor)	✓	* as of 1/24			✓	✓				

Source: Container Recycling Institute. (2022). *Redemption Rates and Other Features of 10 U.S. State Deposit Programs*. Bottle Bill Resource Guide. <https://www.bottlebill.org/images/Allstates/10-state%20Summary%208-5-22r.pdf>

Notes: Definitions of beverage categories vary from state to state.

*California’s DRS program has recently been expanded by SB 1013 to include wine and distilled spirits in boxes, bladders, pouches, or similar containers beginning on January 1, 2024.

**Oregon’s DRS program was recently expanded by SB 1520 to include wine in cans only by January 1, 2024

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System Costs & Revenues

The costs of operating a DRS can vary dramatically, depending on the configuration of and control over the redemption and collection/processing systems. Those parameters, and therefore costs, are typically influenced by enabling legislation that sets standards, such as mandatory redemption by all retailers (in the case of most older U.S. systems). How those costs are distributed can also vary dramatically, again driven by enabling legislation that may introduce subsidies or fees into the program. In the U.S., the distribution of cost is determined primarily by handling fees and the treatment of unclaimed deposits or escheats (meaning unclaimed property).

- **Handling fees:** In all but two states, Michigan and Oregon, operators of redemption sites receive a handling fee (called a processing payment in California). In California and Hawaii, the fee is paid by the state, which manages the program. In the remaining states, beverage distributors pay the fees. The fees are intended to offset the cost of redeeming containers. Distributor-funded handling fees range from a low of \$0.0225 per container to a high of \$0.055 per container, or nearly equivalent to the amount of the deposit itself. The higher the handling fee, the higher the cost of the system to distributors, but the more likely standalone redemption centers can operate at a profit.
- **Unclaimed deposits:** When a consumer chooses not to redeem their containers, they effectively forfeit their deposit. Two states (Iowa and Oregon) allow distributors to keep all unclaimed deposits. In Connecticut and New York, distributors can retain a fraction of unclaimed deposits to defray expenses. Maine distributors participating in commingling programs to reduce sorting burdens at redemption centers retain their unclaimed deposits, while other distributors pay them to the state. In Michigan, 25% of the unclaimed deposits go to retailers, with the remainder going to the state. And in the remaining states the unclaimed deposits are all paid to the state. Because state agencies in California and Hawaii manage the redemption funds and system, they retain unclaimed deposits themselves to offset operating costs.
- **Commodity / scrap value:** In the eight distributor-run DRS programs in the U.S., beverage distributors retain ownership of returned containers and retain the commodity value of the scrap material. In California and Hawaii, the independent redemption system supported by the state owns the materials and uses the value to offset costs. Even during times of high commodity prices, however, scrap values are typically not enough to offset program operating costs and handling fees.

The DRS programs with the highest cost to distributors are those that mandate handling fees and require unclaimed deposits be remitted to the state, thus driving up unreimbursed costs and reducing program revenue. Those high-cost programs include Vermont, New York, Massachusetts, Maine, and Connecticut. The systems with the lowest cost to distributors are those, like Oregon's, that do not mandate a handling fee and allow distributors to keep unclaimed deposits to fund and expand the redemption system. It is notable that the system with the lowest cost is also among the highest performing – Oregon, with an 81% redemption rate.

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Table 2: Handling Fee and Unclaimed Deposit Policies by State

State	Handling Fees in 2023	Unclaimed Deposits
CA*	Handling Fee sites: \$0.00950 Other processing payments for glass, PET, and HDPE average \$0.009	Retained by CalRecycle for program administration, program payments, and grants
CT	Beer: 2.5¢ Other beverages: 3.5¢ Liquor “Nips”: 5¢ sales fee	Shared between distributors and the State: FY 22/23: 5% for distributors FY 23/24: 35% for distributors FY 24/25: 45% for distributors FY 25/26 on: 55% for distributors
HI*	Aluminum & Bimetal: 3.4¢ Glass 8.7¢, Plastic 4¢	Retained by State Department of Health
IA	3¢	Retained by beverage bottlers and distributors
MA	Redemption centers: 3.25¢ Retailers: 2.25¢	Retained by the State for the Commonwealth General Fund
ME	5.5¢ (will be 6¢ as of Sept 1, 2023)	Retained by the State (when containers are not subject to a commingling agreement)
MI	None; no redemption centers	Shared between retailers (25%) and the State (75%) for environmental programs
NY	3.5¢	Shared between beverage distributors (20%) and the State (80%) for Environmental Protection Fund and General Fund
OR	None; Co-op funds redemption centers in partnership with retailers	Retained by distributor/ bottlers/ the Oregon Beverage Recycling Cooperative
VT	Brand-sorted containers: 4¢ Commingled brands: 3.5¢	Retained by State for clean water programs

Source: Container Recycling Institute. *Bottle Bill Resource Guide*. <https://www.bottlebill.org/index.php>

DRS will likely be more expensive to develop and operate than curbside recycling when measured on a cost-per-ton managed basis. However, if designed properly, those higher costs can be offset with unclaimed deposits and higher commodity revenues that result in programs with a lower net cost per ton of beverage containers managed.⁷ While it has not yet occurred in the U.S., if DRS and EPR were implemented concurrently, there could be additional cost savings by exploiting synergies as detailed above between the two programs in MRF and processing capacity as well as drop-off and/or depot collection.

Looking Globally: where DRS and EPR Co-exist

Twenty-six jurisdictions worldwide, including more than a dozen European countries, have implemented both DRS and EPR for PPP policies. Few if any of these were implemented simultaneously; most evolved over time as policymakers sought new or expanded approaches to improve recycling performance and circularity.

⁷RRS interviews with industry sources. (2022).

Table 3: Comparing EPR and DRS Implementation Dates and Performance Measures

Jurisdiction	Year of Implementation		2019 Performance		Deposit Amount
	DRS	PPP EPR	DRS	PPP EPR	
British Columbia, Canada*	1970	2014	82% ⁸	78% ⁹	\$0.07-\$0.15 (C\$0.10 - C\$0.20) ²
Québec, Canada	1984	2005	73% ²	64% ¹⁰	\$0.04-\$0.15 (C\$0.05 - C\$0.20) ²
Estonia	2004	2004	88% ²	56% ¹¹	\$0.11 (€0.10) ²
Finland	1996-2012**	1997	93% ²	70% ⁵	\$0.11-\$0.44 (€0.10 - €0.40) ²

*As the PPP EPR program in British Columbia continued to expand and mature, this program outperformed the DRS in both 2020 and 2021, with rates of 86% and 90% respectively, while DRS declined to 76% in these two years. Continued monitoring of data will show if changes are due to enhanced PPP program performance or attributed to the COVID 19 pandemic.

**Finland's system evolved over time to include cans (1996), PET (2008), glass (2012)

Combining EPR and DRS: Impact on Systems and Infrastructure

Processing

Deposit return systems target some of the most valuable materials in the municipal recycling stream. As a result, implementing new DRS can remove higher revenue-generating materials from existing MRFs. A recent study released by the National Waste & Recycling Association (NW&RA) found that a broad-based deposit system (targeting all beverages except milk) could result in revenue loss of upwards of \$23 per ton processed at MRFs.¹² In addition, because the fixed costs of a MRF remain the same whether the full complement of beverage containers are sorted and processed there, the processing costs per ton can increase when deposit containers are removed from the MRF stream. Taking into account decreased revenue and the increased per ton processing costs, the impact of an expansive deposit program on MRF operating costs could result in a decrease of approximately \$28 per ton, on average.

⁸Reloop Platform. (2020). European Deposit Return Systems (DRSs) for One-Way Beverage Containers: Comparison of Key Features. <https://www.reloopplatform.org/wp-content/uploads/2020/12/GDB-2020-Grid-of-Comparison-7DEC2020.pdf>

⁹Recycle BC. (2020). 2019 Annual Report: Evolution. <https://recyclebc.ca/wp-content/uploads/2020/06/RecycleBC2019-Final.pdf>

¹⁰Éco Entreprises Québec. (2020). 2019 Annual Report: Transforming curbside recycling in Quebec is our business. https://www.eeq.ca/wp-content/uploads/EEQ_19012_RA_2019_Ang_VF_VF.pdf

¹¹Extended Producer Responsibility Alliance. (2020). Inspiring Packaging Recycling. <https://www.expra.eu/uploads/Brochure%20EXPRA%202020%20last.pdf>

¹²RRS (2022), Economic Impact of Beverage Container Deposits on Municipal Recycling Processing Costs, <https://wasterecycling.org/wp-content/uploads/2022/02/2-9-22-Impact-of-beverage-container-deposits-on-municipal-recycling-Final.pdf>

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However, most of the cost and revenue impact identified in the NW&RA study is the result of less material being processed through a MRF, thereby spreading the same cost over fewer tons that generate less total revenue. This underscores the need to right-size the MRF to the expected stream or seek out additional material to process as ways to mitigate the cost impact of a DRS on MRF processing costs. An increase in the fixed cost per ton only occurs if the total tonnage throughput drops. An EPR system that expands curbside access and funds education and outreach to increase participation can offset the cost of materials moving to DRS by increasing participation in curbside recycling and the amount of curbside material, while also reducing contamination. As a result, implementing DRS concurrent with EPR for PPP could lead to a much less significant negative financial impact on MRFs as the total amount of material handled by the MRF would likely increase due to additional recycling access provided through an EPR for PPP program. Furthermore, MRFs could have a reliable, predictable funding source through EPR for PPP which would account for any changes in operating costs or revenues.

DRS policy can also address the impact of the program on MRFs by allowing for or requiring the DRS operator to pay MRFs for the net cost of processing beverage containers that remain in the MRF stream (as is done in British Columbia). Another option is to allow MRFs to redeem the deposit material that is collected through the curbside programs. Given the volume of recyclables and speed of sortation at larger MRFs, this practice may only be viable for smaller MRFs that rely on manual sorting. However, the increased use of robotics and artificial intelligence in the MRF environment may make this more feasible. Programs that allow the MRF to redeem deposit materials collected through curbside must require MRFs be audited to ensure the deposit paid matches the number of beverage containers collected, to ensure no fraud is committed by the MRF operator. The MRF operator must also be required to produce a material output that meets certain end market or processor specifications (e.g., ISRI specifications).