Recommendations for Managing Plastic Packaging Waste in Washington

Prepared for the Washington State Department of Ecology

DRAFT

August 14, 2020

Table of Contents

Authors

This report was authored by Cascadia Consulting Group, Eunomia Research & Consulting, Full Circle Environmental, and MORE Recycling. We have taken due care in the preparation of this report to ensure that all facts and analysis presented are as accurate as possible within the scope of the Study. However, no guarantee is provided with respect to the information presented, and Cascadia Consulting Group, Eunomia Research & Consulting, Full Circle Environmental, and MORE Recycling are not responsible for decisions or actions taken based on the content of this report.

Glossary of Key Terms and Acronyms

Commercial sector	Waste generators that include private commercial businesses, industrial operations, and institutions.
Consumer Packaged Goods (CPG) companies	Also called brand owners or fast-moving consumer goods (FMCG) companies, these companies make consumer products that are sold quickly and at relatively low cost, including packaged foods and beverages, toiletries and personal care items, and other consumables. Some of the largest CPGs include Coca-Cola, Nestlé, Proctor & Gamble, General Mills, Unilever, PepsiCo, AB InBev, Johnson & Johnson, and L'Oréal. (For purposes of packaging regulation in programs around the world, these firms are often considered the producer or manufacturer of both the packaging and product contained in the package.)
Deposit return system (DRS)	Also called container deposit systems or "bottle bills," these laws place a refundable deposit on beverage containers which is returned to consumers when they return empty containers to a redemption location. Ten states and one territory (Guam) in the U.S. have DRS covering 28 percent of the population. DRS programs account for 47 percent of all beverage containers recycled in the U.S. [1].
Extended Producer Responsibility (EPR)	A mandatory type of product stewardship that includes, at a minimum, the requirement that the manufacturer's responsibility for its product extends to post-consumer management of that product and its packaging. There are two related features of EPR policy: (1) shifting financial and management responsibility, with government oversight, upstream to the manufacturer and away from the public sector; and (2) providing incentives to manufacturers to incorporate environmental considerations into the design of their products and packaging.
Materials Recovery Facility (MRF)	Also sometimes called a recycling processor, an establishment primarily engaged in sorting fully or partially mixed recyclable materials into distinct categories and preparing them for shipment to recycling markets. There are also recovery facilities that focus on specific materials, such as plastic recovery facilities (PRF) or container recovery facilities (CRF).

Plastic packaging	For the purposes of this study, "packaging" means material used for the containment, protection, handling, delivery, or presentation of goods by the producer for the user or consumer, ranging from raw materials to processed goods. Packaging includes, but is not limited to, all of the following: (A) Sales packaging or primary packaging intended to constitute a sales unit to the consumer at the point of purchase and most closely contains the product, food, or beverage. (B) Grouped packaging or secondary packaging intended to brand or display the product. (C) Transport packaging or tertiary packaging intended to protect the product during transport.
Polyethylene (PE) film	An inclusive term for flexible plastic material made from high-density polyethylene (HDPE), low-density polyethylene (LDPE), or linear low-density polyethylene (LLDPE).
Polyethylene terephthalate (PET)	A clear, strong, and lightweight plastic that is widely used for packaging food and beverages, especially convenience-sized soft drinks, juices, and water. Coded as plastic resin #1.
Post-consumer resin (PCR)	A type of recycled content that comes from material generated by households or commercial facilities as end users of a product or package which can no longer be used for its intended purpose. This includes returns of material from the distribution chain **Invalid source specified.**.
Producer	An organization or company that is a resident, and a brand owner, first importer, or franchisor that supplies designated packaging to consumers in a jurisdiction where producer responsibility obligations have been regulated.
RCW/WAC	Revised Code of Washington/Washington Administrative Code
Residential sector	Waste generators that include single-family and multifamily residences or households.
Sent for reprocessing	Refers to tons of baled recyclable commodities that are sold by MRFs to reprocessors to process into resin feedstock and sell to manufacturers. We have avoided using the term "sent for recycling" since some of the material sent from MRFs will be lost during reprocessing and not end up being recycled.

Executive Summary

In 2019, the Washington Legislature passed the Plastic Packaging Evaluation and Assessment law (Chapter 70.380 RCW), which directed the Washington State Department of Ecology to hire an independent third-party consultant team to study how plastic packaging is managed in Washington and assess various policy options to meet the goals of reducing plastic packaging waste, including through industry initiative or plastic packaging product stewardship, or both.

The consultant team has developed draft policy recommendations to propose to Ecology based on best practices and programs research, analysis of available data on current plastic packaging use and management in Washington, and stakeholder consultation. The recommendations focus on policy approaches that include sustainable funding sources and that respond to the Legislature's goals in ways that do not further burden state and local government agency budgets or lead to greater inequity in cost allocations for residents and businesses.

There are **three primary recommendations, which are best implemented through legislative action in combination**. Additionally, there are two recommendations covering interim policy options for legislative consideration that could potentially be implemented in advance of—or during the transition period following—legislative adoption of the primary recommendations. Three additional recommendations cover policy actions that advance the legislative goals in ways that are complementary to the primary policy recommendations. Finally, there are two recommendations covering agency activities that should not require legislative action to implement.

Primary Recommendations

1. **Extended Producer Responsibility Policy Framework for All Packaging**
2. **Deposit Return System for Beverage Containers**
3. **Recycled Content Requirements for Plastic Packaging**

These policies have demonstrated the greatest potential to advance the legislative goals of Chapter 70.380 RCW. These policies create feedback loops between producers of plastic packaging and those involved in its collection and management after it has served its useful purpose. These policies use economic incentives and outcome-based regulatory principles to solve problems related to both the supply of and demand for plastic packaging, and they are designed to ensure that plastic packaging management systems are supported with sustainable funding sources.

Advancing these goals requires addressing issues across the lifecycle of plastic packaging, so these three primary policies are best implemented in combination. Also, as the current systems for managing plastic packaging waste in Washington State are integrated with management of

all packaging material types, likewise these primary policies are recommended to cover packaging of all material types.

Interim Recommendations

4. **Producer Registry and Packaging Reporting**
5. **Recycled Content Requirements for Plastic Beverage Containers**

These policies represent components of the primary policies recommended that could potentially be implemented on their own, as a first step toward legislative adoption of the full suite of primary recommendations.

Complementary Recommendations

6. **Recycled Content Requirements for Trash Bags**
7. **Ban on Problematic and Unnecessary Plastic Packaging**
8. **Standard for Customer Opt-in for Foodservice Packaging and Accessories**

These policy actions advance the legislative goals of Chapter 70.380 RCW in ways that are complementary to the primary policy recommendations. The scopes and anticipated impacts of these policies are narrower than those of the primary policy recommendations.

Recommendations for Agency Action

9. **Strengthen Data Collection on Final Destinations of Materials Sent for Reprocessing**
10. **Support Development and Adoption of Reusable Packaging Systems**

These recommendations cover activities undertaken by the Department of Ecology that should not require legislative action to implement. They may, however, require reallocation or additional allocation of resources to the agency.

Introduction

Background

In 2019, the Washington Legislature passed the Plastic Packaging Evaluation and Assessment law (Chapter 70.380 RCW), which states that producers of plastic packaging should consider the design and management of their packaging in a manner that ensures minimal environmental impact, and that producers should be involved from design concept to end-of-life management to incentivize innovation and research to minimize environmental impacts.

Per the law, the Washington State Department of Ecology (Ecology) hired an independent third-party consultant team to study how plastic packaging is managed in Washington and assess various policy options to meet the following goals:

- Plastic packaging sold into the state is 100 percent recyclable, reusable, or compostable by January 1, 2025.
- Plastic packaging sold into the state incorporates at least 20 percent post-consumer recycled content by January 1, 2025.
- Plastic packaging is reduced when possible and optimized to meet the need for it.

The consultant team was tasked with "**making recommendations to meet the goals of reducing plastic packaging waste, including through industry initiative or plastic packaging product stewardship, or both."** The law required the consultant team to consider the following when making recommendations:

- Implications and reality of meeting the above goals, including the needed system to support recycling and composting this much packaging.
- Consistency with federal Food, Drug and Cosmetic Act (21 U.S.C. Sec. 301 et. seq.)
- Recommended infrastructure necessary for the complete management of plastic packaging in the state according to the waste management hierarchy.
- Regulatory changes that would be required to achieve any of the recommendations, which may include regulatory changes pertaining to the following:
    - Washington Utilities and Transportation Commission-governed waste systems
    - Local recycling contract systems
    - Statute and rule updates including RCW 81.77, RCW 70.95, WAC 480-70, WAC 173-350

The team was also tasked with identifying legislative options to meet plastic packaging goals that can be established and implemented by January 1, 2022, as well as within two to five years.

In *Moving Washington Beyond Waste and Toxics*, the State's solid and hazardous waste plan, the State affirmed its intention to shift from a waste diversion focus and take a **sustainable materials management approach**, considering **production and use phases of materials rather than just end-of-life**. In developing recommendations, the consultant team also considered how policy options aligned with this approach.

To inform the development of these recommendations, the consultant team conducted the following research and assessment:

- Compiled data on plastic packaging use, disposal, and management in Washington (Task 1 report: *Plastic Packaging in Washington: Assessing Use, Disposal, and Management*).
- Collected data and interviewed plastic manufacturers and recyclers about current and potential use of recycled content in Washington (Task 2 report: *Recycled Content Use in Washington: Assessing Demand, Barriers, and Opportunities*)
- Researched policy and technology options from around the world to manage plastic packaging (Task 3 report: *Successful Plastic Packaging Management Programs and Innovations*).
- Collected data and input and consulted with stakeholders on recommendations and considerations for managing plastic packaging in Washington (Task 4 report: *Plastic Packaging Management Study Stakeholder Consultation Process* - forthcoming)

The recommendations for meeting plastic packaging management goals submitted in this final report of the Plastic Packaging Management Study build on and were informed by the findings documented in these four preceding research and assessment reports.

The Plastic Packaging Management Study was undertaken during a time of unprecedented economic and social disruption due to the COVID-19 pandemic, which has altered consumption patterns, disrupted both virgin and recycled materials commodity markets, and led to a spike in demand and disposal of single-use plastic products and packaging. It is difficult to predict what long-term impact, if any, COVID-19 will have on the landscape for plastic packaging management. Where possible and applicable, the short-term impacts and potential long-term considerations were discussed in Study reports and in recommendations.

The fiscal impacts of the economic crisis created by the COVID-19 pandemic were also considered, with the recognition that the Washington State Legislature will face many competing priorities for diminished resources in the next two to five years. The recommendations presented below focus on policy approaches that include sustainable funding sources and that respond to the Legislature's goals in ways that do not further burden state and local government agency budgets or lead to greater inequity in cost allocations for residents and businesses.

Regulating Plastic Packaging for Environmental Benefit

The goal of sustainable materials management policies in Washington State, as described in the State's most recent solid and hazardous waste plan—*Moving Washington Beyond Waste and Toxics*—including those addressing the management of plastic packaging, is to reduce environmental and human health harms. Evaluation of environmental harms related to packaging requires review of the full lifecycle, not just its end-of-life, since most of the environmental impacts occur before a product is even used. The impacts related to sourcing of material feedstocks, presence of toxics or hazardous materials, intended use, and end-of-life management should all be considered as part of a sustainable materials management approach to regulation of plastic packaging [2].

Designing packaging to be reusable, recyclable, or compostable does not guarantee that it will have lower environmental impacts compared with a material that is not. Studies by the Oregon Department of Environmental Quality (Oregon DEQ) demonstrate that choosing materials to reduce environmental impacts by relying singularly on attributes such as recyclability and compostability can lead to unintended negative environmental impacts. And while higher recycled content generally yields lower environmental impacts when choosing packaging made of the same material (e.g., both made from PET), recycled content by itself is not a good predictor of lower environmental impacts when considering packaging made from different materials (e.g., PET and glass) [3].

While Chapter 70.380 RCW focused on plastic packaging specifically, policies focused exclusively on one material type would cause market distortions and could lead to unintended consequences due to potential packaging substitutions with materials whose impacts are unknown, poorly understood, or which have higher lifecycle impacts. For this reason, the consultant team developed recommendations in accordance with the principle that regulation of plastic packaging should seek to achieve net environmental benefits and therefore should be expanded to include consideration of all packaging so as to avoid unintended consequences and higher environmental impacts as a result of regulation.

In addition, while recyclability and compostability indicate that a material has the potential to be recycled or composted, requiring that all plastic packaging achieves these attributes—on its own—does nothing to ensure that materials are effectively collected, properly sorted, or successfully reprocessed into a new product.

Recyclability, in particular, is not an end goal itself, but rather a means to achieving the larger goal of reducing the lifecycle impacts of the production and consumption cycle and delivering environmental benefits. For recycling of plastic packaging to deliver environmental benefits, collected materials must be reprocessed and used in new products and packaging in place of virgin resins to reduce resource extraction and prime plastic production overall. Moreover, plastic recycling itself must be done in a manner that protects human health and the environment. In accordance with the legislative intent stated in Chapter 70.380 RCW, the consultant team assumed that, **to qualify as recyclable, plastic packaging must be shown to have been recycled—in practice and at scale—safely and with environmental benefit.**

Primary Recommendations

Research on policy and technology options from around the world to manage plastic packaging (Task 3 report: *Successful Plastic Packaging Management Programs and Innovations*) found that the following three policies have demonstrated the greatest potential to advance the explicit legislative goals of Chapter 70.380 RCW. These policies create feedback loops between producers of plastic packaging and those involved in its collection and management after it has served its useful purpose. These policies use economic incentives and outcome-based regulatory principles to solve problems related to both the supply of and demand for plastic packaging, and they are designed to ensure that plastic packaging management systems are supported with sustainable funding sources that do not further burden state and local government agency budgets.

Advancing these goals requires addressing issues across the lifecycle of plastic packaging, so these three primary policies are best implemented in combination. Also, as the current systems for managing plastic packaging waste in Washington State are integrated with management of all packaging material types, likewise these primary policies are recommended to cover packaging of all material types.

1. Extended Producer Responsibility

Recommendation

1. **Establish an extended producer responsibility policy for all packaging with a framework that makes producers responsible for achieving specific management and environmental outcomes for the packaging they supply into the residential sector in Washington State.**

This policy should allow for the use of deposit return systems (DRS) for beverage containers or other packaging in support of reuse, recycling, and reduction of overall packaging production. (*Recommendation 2 addresses deposit return systems.*)

This policy should include or be linked to recycled content requirements. (*Recommendation 3 addresses recycled content requirements for plastic packaging.*)

Rationale

The authorizing legislation for this study (Chapter 70.380 RCW) stated that producers of plastic packaging should consider the design and management of their packaging in a manner that ensures minimal environmental impact, and that producers should be involved from design concept to end-of-life management to incentivize innovation and research to minimize environmental impacts. **Extended Producer Responsibility (EPR) is the policy approach designed to realize this legislative intent.**

No other policy approach has demonstrated the potential to simultaneously address the multiple challenges facing the state and local governments, residents, and businesses in the management of plastic and other packaging. These challenges must be addressed through a policy approach that holds producers accountable for achieving goals they have repeatedly set (and failed to achieve) voluntarily, provides sustainable funding and stimulates the investments needed to expand and transform the recycling system, and creates linkages and feedback loops between the supply of recyclable packaging material collected through local government recycling programs and the demand for recycled content by packaging producers.

EPR policy can address all levels of the waste management hierarchy – the EPR regulatory framework can apply to performance targets set for many aspects of packaging impacts and can drive waste prevention and reuse, as well as recycling.

An **outcomes-based approach** in EPR policies provides producers with flexibility on how to design and implement the system while encouraging innovation and continuous improvement. **Producers must meet prescribed performance objectives** but have the flexibility to pursue system design changes that achieve these objectives in the most cost-effective and efficient manner possible. EPR also **allows for the use of economic incentives** in the form of eco-modulated fees **to drive environmentally preferable packaging design** and incorporation of recycled content, as well as to use recyclable and less complex or disruptive packaging such as multilayer, multimaterial packaging.

While an EPR policy approach may be beneficial to regulation of plastic packaging in the commercial sector as well as the residential sector, the current regulatory framework in Washington State establishes a clear differentiation between regulation of recyclable material generated from each and places commercially generated recyclable materials outside of the jurisdiction of municipal solid waste management regulations. The precedent for EPR policy for packaging in other jurisdictions is also largely contained to the residential sector. While this may change in the future, **the consultant team recommends focusing on regulation of residential sector packaging** in the near term.

Policy Design Considerations

For Washington State, moving to an EPR framework for plastic packaging would most logically be achieved by including plastic packaging as part of a larger residential EPR system covering all packaging as well as paper, as these materials are already generally collected together as part of residential recycling services offered by local governments. This makes EPR for residential packaging and paper more complicated than for other materials (such as solar panels, paint, mercury-containing lights, and electronics), as the policy is being imposed on a widespread existing system.

Because EPR for packaging and paper has been implemented in other jurisdictions around the world, there is much policy and implementation experience to draw from. The approach adopted in Washington should build upon the successes of existing programs and incorporate lessons learned to improve implementation efficiency and effectiveness. A recent review of EPR policies conducted by the Organization for Economic Co-operation and Development (OECD) concludes that outcomes-based approaches with robust performance standards and reporting requirements, clear defininitions of the materials and producers covered, and mechanisms for effective enforcement are critical to the design of well-functioning EPR systems. An outcomes-based approach to EPR policy provides producers with flexibility on how to design and implement the system while encouraging innovation and continuous improvement in striving to meet prescribed performance standards in the most cost effective and efficient manner possible.

Below are elements of EPR system design that should be incorporated into regulation for EPR for plastic and other packaging and paper in Washington:

Full producer funding and individual producer liability. Producer responsibility should encompass both financial and operational responsibility for managing packaging waste and its impacts, and for meeting the obligations and performance standards established under the EPR policy. Producers should be held individually responsible for meeting the requirements of the policy, although they should be granted the ability to collaborate through a producer responsibility organization (PRO) in order to meet their obligations if they choose to do so.

Apply EPR across all packaging and paper types. Although Chapter 70.380 RCW is focused on mangement of plastic packaging, applying EPR across all packaging types is essential for avoiding unfair market distortions and potentially negative unintendend consequences that may arise from treating certain materials and products differently than others. All existing EPR programs across the world address a product type (such as beverage containers, waste electronics and electrical equipment, or paint) rather than a specific material type or attribute; packaging should be treated in the same way. Also, because the current systems for collecting plastic and other packaging waste from the residential sector for recycling are largely integrated

with collection of all recyclable paper, it is recommended that the EPR policy cover paper of all types.

Clearly define the roles and responsibilities of all stakeholders. A clear definition of "producer" is especially important and clarification as to whether a *de minimis* exemption applies (such as for producers of less than a certain annual quantity of covered products). This will reduce confusion and free-riding. A *de minimis* provision will also ensure that small businesses within the state are not unduly burdened.

Create progressively increasing material-specific performance standards. Progressively increasing performance targets should be set at a sufficiently stringent level to stimulate system improvements and innovation from the start, and phased in to drive continuous improvement toward achieving the overarching environmental objectives. In addition to recycling targets, targets could include other lifecycle assessment metrics to reduce overall environmental and human health impacts, including carbon emissions/intensity. The recently suggested CleanScore from the Center for Sustainable Infrastructure—which incorporates multiple lifecycle attributes into an index score to demonstrate overall relative environmental impact—offers one example of the basis on which performance standards for plastic and other packaging could be set in the future [4]. Stringency in mandatory standards reduces the need to regulate other more prescriptive measures.

Performance standards for recycling must be material-specific—instead of or in addition to overall targets for all packaging and paper—to avoid creating perverse incentives that preference collection and recycling of heavier materials over lighter ones. These material-specific targets should be granular enough to help ensure that recycling rates for all materials can be increased above status-quo levels and that rates of easy-to-recycle materials do not obscure the recycling rates of hard-to-recycle materials. However, they should not be too granular that measurement and reporting become impractical and/or excessively cost-prohibitive. At a minimum, plastic packaging recycling targets should be split into rigid and flexible plastics, with the potential for separate targets for beverage containers as is the case for polyethylene terephthalate (PET) bottles in the European Union under the Single-Use Plastics Directive and is being considered in Ontario.

Targets set in enabling legislation should include a mechanism for increasing the targets over time, and there should be penalties for producers that do not demonstrate compliance for their covered products, individually or collectively.

Material-specific performance targets have been adopted for the Recycle BC EPR program in British Columbia. Note that the targets for British Columbia do not include beverage containers because those are regulated and managed separately under a deposit return system.

British Columbia: Non-Beverage Residential Packaging and Paper EPR Recovery Rate* Targets (Recycle BC 2019 Plan)

Target Category	Base Recovery Rates (2017)	Target Recovery Rate	Year to Achieve Target
Paper	87%	90%	2020
Plastic	41%	50%	2025
Rigid Plastic	50%	55%/60%	2022/2025
Flexible Plastic	20%	22%/25%	2022/2025
Glass	72%	75%	2020
Metal	66%	67%	2020

** Recovery rate is defined in Section 1 of the Recycling Regulation of British Columbia as "the amount of product collected divided by the amount of product produced, expressed as a percentage."*

Material-specific recycling targets have also been adopted by the European Commission as part of the Waste Framework Directive and will be applicable to all EPR programs for packaging in Member States, which will be mandatory across all E.U. Member States by 2023. Material-specific recycling targets are being developed as part of the regulatory overhaul of the EPR program for packaging and paper in Ontario, which is transitioning to full producer responsibility by 2026.

Along with material-specific recycling targets, the policy must include a clear definition of what is considered "recycled" and how it is to be measured, and how the calculation is to be done. Recycling activities should be defined based on what is reprocessed back into new products (i.e., discounting process losses and contamination), in alignment with the definitions and rules for recycling rate calculations recently developed by the European Commission [5].

Require registration and reporting by producers. In order to ensure transparency of materials placed on the market and accurate accounting of recycling rates and other performance standards, the State must set the methodology and define the materials reporting categories for which producers must report their supply. Although producers should be allowed to use a PRO to compile and submit reports on their behalf, the state regulatory agency should have direct line of sight and ability to audit data provided by all individual producers. This is the model under development in Ontario for producer reporting requirements as part of the province's transition to full producer responsibility for residential packaging and paper. Reporting at this level will allow for a better understanding of what changes may be necessary to material categories over time, and to track the effectiveness and efficiencies of collection and management systems.

Create collection/accessibility standards to ensure convenient, equitable access for all residents. An EPR policy should ensure that the producer-funded system provides convenient, consistent, and equitable opportunities for recycling for all residents throughout the state, including residents in both single-family and multifamily dwellings. These accessibility standards should be established in the regulation as one of the outcome-based performance metrics that producers are obligated to achieve.

Carefully consider the level of operational responsibility and control that municipalities wish to retain. Existing packaging EPR programs allow producers differing degrees of flexibility with respect to how services are provided and what materials are collected and processed. A packaging EPR system in Washington should provide municipalities with the option to be involved in the collection, similar to the hybrid model used in British Columbia, in which municipalities can provide the services themselves or through their contracted service providers in accordance with consistent service standards. This allows municipalities to realize the economic efficiencies and cost savings of operating or contracting for recycling, trash, and organics collections alongside each other, while providing producers some involvement in collection system designs and enabling greater standardization of collection services. EPR policy in Washington will also need to address how service is to be provided to residents in areas where solid waste service is delivered by private haulers regulated by the Washington Utilities and Transportation Commission (WUTC) to ensure that service is equitable and convenient compared to areas where service is provided by local governments and contracted haulers.

Payment mechanisms between producers and municipalities, and between producers and service providers in WUTC-regulated areas, need to be carefully considered as part of discussions on operational responsibility for collection. The policy needs to be clear on system boundaries, that is, the types of costs that producers will be expected to cover.

Transfer responsibility for post-collection and processing to producers. Beyond providing collection services, municipalities should not have any operational responsibility for sorting and marketing collected materials, which should become the responsbility of producers (or a PRO). Materials collected from residents in WUTC-regulated areas with producer funding should also become the responsibility of producers, and collection service providers should be required to deliver these materials to facilities operating under agreements with producers. Centralizing post-collection sorting and marketing activities allows for greater investments in technology due to the economies of scale that result from handling larger volumes of material. Additionally, transferring this responsibility protects municipalities from market risk on sales of materials. Producers should be required to conduct fair, competitive procurement processes and should be expected to utilize existing infrastructure where it is reasonable to do so, and to invest in additional infrastructure where it is needed to achieve the accessibility standards and performance targets.

Empower and sufficiently fund a regulatory agency to carry out rigorous oversight and enforcement. An outcome-based EPR policy requires strong oversight to ensure compliance. The agency charged with oversight must have the dedicated resources to conduct compliance monitoring, and must have real enforcement powers to bring producers into compliance as needed. Given the resource constraints facing the state, dedicating funding for this may be a challenge. In a growing number of EPR systems, producers are being called upon to provide funding for these activities through registration or reporting fees. This approach can be an effective way to finance oversight and enforcement but funding must be protected for the sole use of policy enforcement and the state regulatory agency's oversight activities must be sufficiently insulated from influence or pressure from those producers being regulated.

Necessary Infrastructure

Producers will be responsible for financing and/or directly developing additional infrastructure determined necessary for achieving legislated service requirements and performance standards.

In order to meet collection/accessibility standards, producers will need to pay for and/or provide **expansion of residential collection service infrastructure** (assuming statewide standards adopted are higher than current standards in some parts of the state). It is assumed that service expansions will be required in numerous areas throughout the state related to curbside, multifamily, and drop-off recycling collection services.

In order to meet collection/accessibility standards and material-specific performance standards, producers may also need to develop **additional collection infrastructure/programs for certain packaging materials**. It is assumed that additional collection infrastructure/programs may be needed for polystyrene foam packaging, plastic film and flexible packaging, and potentially for beverage containers or other packaging covered under a DRS if included as part of the EPR system. All collection system activities will need to be developed in consultation with local governments, who will retain authority to act as service providers directly or through contracted haulers in their jurisdictions.

In order to meet progressively increasing material-specific performance standards phased to drive continuous improvement, producers will need to fund and/or develop **additional sorting infrastructure for plastic packaging**. This will be determined by producers in consultation with existing sorting system stakeholders, and may include one or more of the following:

- Additional positive sorting of rigid plastic packaging types at primary MRFs.
- Development of secondary MRF to sort residuals for additional capture of recyclable packaging not separated during primary MRF sortation.
- Development of additional specialized sorting facility (PRF/CRF) focused on additional sortation of plastic packaging not separated during primary MRF sortation.

Also to meet material-specific performance standards, as well as to reprocess collected materials into feedstock needed to meet recycled content requirements (if included in EPR policy or adopted separately), producers may need to fund and/or develop **additional reprocessing/reclaiming infrastructure for plastic packaging**. This will be determined by producers in consultation with service providers and may include one or more of the following:

- Development or expansion of mechanical recycling operations that provide new/additional regional reprocessing capacity and/or that reprocess additional types of plastic packaging.
- Development or expansion of chemical recycling operations that support polymer-to-polymer reprocessing.

Associated Changes to Existing Regulations

In addition to development of new regulatory language following legislative policy action, changes may be needed to 70.95.010 RCW, including listing producers separately as responsible for plastic and other packaging and paper. Changes may also be needed to Chapter 70.95 RCW related to requirements for what local governments must include in their solid waste management plans (.080, .090, .092) in terms of collection service standards and designated materials so that they are in alignment with EPR policy requirements.

Changes may be needed to Chapter 81.77 RCW and WAC 480.70 to address how packaging and paper may be collected for recycling from residents in Washington Utilities and Transportation Commission (WUTC)-regulated areas to ensure that all residents receive service in accordance with the accessibility standards established. Specifically, the collection or transportation of covered materials collected in the form of source separated recyclable materials from residences could be exempted from the provisions of the chapter (similar to the exemptions already granted for cities and counties that provide these services under sections .020 and .130). Alternatively, additional regulations could be developed that stipulate how producers must fulfill their obligations in accordance with the provisions of Chapter 81.77 RCW and WAC 480.70. Changes would also likely be needed to clarify that residential recycling collection service provided by certificate holders must be provided in accordance with the accessibility standards required under the EPR policy and that materials collected must be delivered to designated facilities operating under the EPR system.

In order to be eligible to receive funding for recycling collection through the EPR system, local governments with contracted collection service will need to adjust their contracts to align with collection service standards and establish requirements related to delivery and ownership of collected recyclables. These changes can be made to new or existing contracts during the transition phase, or the implementation timeline can be set to allow for phasing in of local jurisdiction participation based on contract expiration timelines.

2. Deposit Return System for Beverage Containers

Recommendation

2. **Either as part of an extended producer responsibility system or as a separate program, establish a deposit return system (DRS) for beverage containers.**

This policy could be included as an explicit, mandatory component of an EPR policy for packaging; it could be included as an optional or conditional component of an EPR system; or it could be established through a separate policy.

Regardless of how the policy is structured, it should establish that beverage producers are responsible for implementation and accountable for achieving performance standards adopted.

Rationale

Beverage containers make up a substantial proportion of plastic packaging waste in Washington and are significantly under-recovered. Polyethylene terephthalate (PET) bottles, which are predominantly beverage containers, represent one-quarter of all rigid plastic packaging waste generated in Washington. Currently, only approximately one-third of PET bottles are effectively collected and sent for reprocessing [6]. Washington is not alone in under-recovery of PET bottles. Nationally, the recycling rate for PET sits at just 28.9 percent [7].

DRS policies for beverage containers are proven to be effective in achieving high rates of return and recycling in other jurisdictions. PET container recovery rates in the ten U.S. states with DRS programs for beverage containers averaged 63.1 percent in 2017 [1]. Under the well-designed deposit return system in Alberta, 80 percent of PET and HDPE beverage containers were recycled in 2018 [8]. In Norway, 88.6 percent of PET beverage containers were returned for recycling through the deposit return system in 2018 [9]. Under Oregon's DRS, the latest material-specific recyling rates are not reported but ther overall return rate in 2019 was over 90 percent [10].

DRS policies also have the potential to facilitate increased use of refill/reuse models. In Oregon, the producer-run DRS reintroduced a refillable bottle program (once a common model for beverage containers) in 2018 and has stated its intention to recruit more brands and beverage types to participate [10]. Although Oregon's refillable program currently covers only glass bottles, DRS systems in other countries, such as Germany, have piloted the inclusion of select plastic bottles, and a German-based plastic bottle and equipment manufacturing joint

venture recently announced the introduction of a refillable PET bottle containing up to 35 percent recycled PET available for use in deposit return systems [11].

Plastic beverage containers represent the most readily recyclable resin type with a clear, unmet demand for use as recycled content. According to a recent report from the National Association for PET Container Resources (NAPCOR), the trade association for the PET packaging industry in North America, there is not enough recycled PET supply or processing capacity in the U.S. to meet brand owners' stated commitments. The report states that current collection volumes could only support a ten percent recycled content commitment by consumer packaged goods companies (CPGs) [12], though many companies have pledged to meet much higher targets in the next few years. One plastics recycling expert estimates that the U.S. would need a PET recycling rate of at least 70 percent to meet future demand [13].

DRS programs are proven to provide quality feedstock to support recycled content use in new beverage containers which leads to overall reduction in use of new raw materials. Recyclers prefer PET sourced from DRS programs rather than curbside programs due to material quality and volume, and according to NAPCOR Executive Director Darrel Collier, "beverage container deposit programs are essential to preserve the supply of post-consumer recycled PET" [14].

Plastic beverage containers are commonly consumed outside the home and represent a substantial portion of litter and marine/beach debris. An assessment of the presence of plastic packaging in litter cleared from roadways in Washington, conducted as part of the Task 1 report (*Plastic Packaging in Washington: Assessing Use, Disposal, and Management*), suggests that plastic beverage containers are the second most prevalent plastic packaging type in roadway litter by weight, representing approximately one-third of all plastic packaging cleared as part of state-funded litter clean-up activities [6]. No other system globally has proven more effective at capturing this ubiquitous container stream.

DRS policies are proven to reduce litter through economic incentives for collection/return. A meta-analysis of government-funded studies conducted before and after implementation of DRS policies in seven states showed consistent reductions in beverage container litter and in total litter [15].

Policy Design Considerations

Under deposit return systems, a deposit is paid by the retailers to the producers and by the consumers to the retailers when purchasing beverages. After consumption, the consumer returns the empty beverage container under a defined redemption route and is refunded the deposit. The producers (typically operating collectively through a PRO) refund the redemption infrastructure provider for the deposit and pay a handling fee to compensate for their costs.

A DRS policy for beverage containers can be designed to operate alongside a curbside recycling collection system, either operated as government-managed service (such as is currently in place in Washington) or under an EPR policy.

A well-designed DRS should emulate high-performing, low-cost systems from across the world to achieve return rates in excess of 90 percent, reduce waste to landfill and litter, guarantee quality feedstock for recycling, and deliver broad benefits across stakeholders participating in the system.

Characteristics of DRS policies that consistently achieve high redemption rates (in excess of 80 percent) include the following elements:

- **Targeted**: Establish a 90 percent return rate requirement—in line with the current performance of best-in-class DRS systems for used beverage containers; other performance standards can be set as well, such as minimum requirements for use of refillable containers.
- **Engaging incentive**: Set the deposit at a level that will incentivize consumers to return their containers, $0.10 or higher, with mechanisms to increase the deposit level if recycling targets are not met, as in Oregon, which increased its deposit from $0.05 to $0.10 after two years of lower recycling rates.
- **Convenient**: Establish convenience standards to ensure that the return network is sufficient in number and location to enable consumers to return empty containers as part of their everyday activities.
- **Comprehensive**: Include all beverage types, preventing free-riders and making the program simple for consumers to understand.
- **Accountable**: Require that the latest information technology is deployed to ensure the accurate tracking of return rates, to allow correct payments, and to mitigate fraud.
- **Transparent:** Require that producers report on total supply, return and recycling rates, return system infrastructure and convenience, and system operating costs and revenues, including the value of unredeemed deposits and how they were used to improve the return and recycling system.
- **Flexible**: Provide producers sufficient control to put in place the most cost-efficient system to meet the 90 percent target.

As with the outcomes-based approach to EPR policy for packaging and paper described in Recommendation 1, an outcome-based DRS policy requires **strong oversight by a regulatory agency** to ensure compliance. The agency charged with oversight must have the dedicated resources to conduct compliance monitoring, and must have real enforcement powers to bring producers into compliance as needed.

Necessary Infrastructure

For DRS implementation, new infrastructure will be needed to for consumers to redeem beverage containers for their deposits. The specific needs would depend on the convenience requirements established in the policy and would be the responsibility of beverage container producers to dvelop. Examples of possible new collection infrastructure include dedicated redemption centers, reverse vending machines or other collection mechanisms at existing retailers, and mobile dropsites and kiosks for collecting bagged materials such as those used in Oregon, New York, and Maine.

Sorting and reprocessing facilities associated with the DRS would likely also be needed and would be developed through producer initiative.

Associated Changes to Existing Regulations

Changes may be needed to Chapter 70.95 RCW, including listing producers separately as responsible for beverage containers (.010).

Changes may also be needed related to requirements for what local jurisdictions must put in their solid waste management plans (.080, .090, .092) in terms of collection service standards and designated materials so that they are in alignment with DRS policy requirements.

3. Recycled Content Requirements for All Plastic Packaging

Recommendation

3. Establish and implement requirements related to recycled content for all plastic packaging supplied into the state that producers must meet.

This policy could be included as an explicit, mandatory component of an EPR policy for packaging or it could be established through a separate policy.
(*Recommendation 1 addresses EPR policy.*)

Regardless of how the policy is structured, it must provide clear definitions of plastic packaging and recycled content, establish the methodology for calculations, define what and how producers must report and demonstrate compliance, and require third-party verification of claims.

Rationale

Chapter 70.380 RCW authorizing this Study included increasing recycled content in plastic packaging as a primary policy goal. The displacement of virgin resources through use of recycled content is where most of the environmental benefits of recycling occur, so driving greater use of recycled content is a primary motivation for collecting materials for recycling.

Increasing recycled content in plastic packaging results in reduced negative environmental impacts when compared against the same material with lower or no recycled content. However, when comparing different packaging materials against each other, plastic packaging results in lower lifecycle environmental impacts compared to other packaging materials in many applications, regardless of recycled content [16]. Therefore, requiring higher recycled content in plastic packaging is likely to lead to greater environmental benefits compared to prohibiting the use of plastic packaging entirely.

In absence of requirements, market demand for recycled content from a variety of plastic packaging types is very low; post-consumer resin (PCR) is uncompetitive because virgin plastic material is often cheaper due to structural issues and market failures that subsidize the extraction of natural resources and externalize the costs of virgin plastic production.

Policy Design Considerations

While EPR has been adopted and implemented in several other jurisdictions around the world, these systems so far have only dealt with the supply side of the recycling system. EPR, without associated requirements to use recycled content obtained from that system, may result in a very efficient and optimized collection system without realizing the full benefits of a circular economy. Conversely, a recycled content policy covering all plastic packaging would be best served by working in tandem with a supply-side policy framework such as that described in Recommendation 1. Recycled content requirements for plastic packaging may also be more efficiently administered as part of an overall EPR policy framework, though they could be established through a separate policy.

As with the other outcomes-based policy approaches included as primary recommendations, effective policy design related to recycled content requirements should build on best practices and lessons learned from similar policies adopted in other jursidictions and should adhere to outcome-based governance principles. Key elements of the recommended policy approach include:

Set recycled content requirements for plastic packaging that producers must meet in order to sell products into the state. Requirements should increase over time and/or establish a method for increasing targets in the future that does not require a change to state statute. Do not allow exemption from requirements linked to achieving a specific recycling rate. Requirements must be consistent with the Federal Food, Drug and Cosmetic Act (21 U.S.C. Sec. 301 et. seq.).

Consider separate targets for rigid and flexible plastic packaging to drive markets and technology investments for recycled content for both formats.

Clearly define who is responsible for meeting the requirements. As with EPR policy, it is important to provide a clear definition of "producer" and also to clarify whether and at what level a *de minimis* exemption applies to reduce issues with free-riding and reduce the regulatory burden on small producers.

Clearly define what counts toward requirements and describe how the calculation will be conducted. To stimulate market demand for recycled content produced from residential and commercial recycling programs, only post-consumer resin (PCR) should be counted toward requirements. Chemical recycling processes that take plastics back to base monomers should be counted only when used as feedstock for new plastic packaging.

Require registration and reporting by producers and ***require producers to provide verification of recycled content claims*** through third-party certification or chain of custody

documentation. This requirement will increase transparency and reliability of reported outcomes and will reduce the burden on the enforcement authority to verify claims made by regulated producers.

Consider aligning verification requirements with existing voluntary initiatives under development such as GreenBlue's Recycled Material Standard (RMS) or the Assocation of Plastic Recyclers (APR) PCR Certification Program.

Empower and sufficiently fund a regulatory agency to carry out rigorous oversight and enforcement. As with other outcome-based EPR policies recommended, recycled content requirements will require strong oversight to ensure compliance. The agency charged with oversight must have the dedicated resources to conduct compliance monitoring, and must have real enforcement powers to bring producers into compliance as needed. As noted in Recommendation 1, relying on dedicated funding generated from state tax revenue may be challenging given the economic crisis facing the state at this time. To address this, the policy could require producers to pay a registration or reporting fee as part of compliance requirements to cover the costs of oversight and enforcement.

Necessary Infrastructure

Additional collection and sorting infrastructure will likely be needed to provide a reliable supply of recyclable material needed to achieve recycled content targets. Additional domestic capacity for plastics reprocessing and production of food-grade PCR is also needed.

If recycled content requirements are linked to EPR policy, this additional infrastructure development will likely be funded by producers.

In the absence of EPR, this responsibility will likely fall to local governments and ratepayers. With recycled content requirements in place, increased demand and corresponding increased commodity values may offset infrastructure investments, but this approach also exposes local governments or their local collection and sortation service providers to market risks on such investments. If investments in necessary infrastructure are not made as a result, lack of supply may be used by producers as justification for requests for waivers from requirements.

Associated Changes to Existing Regulations

No changes to existing regulations are expected to be necessary for implementation.

Interim Recommendations

While a fundamental reimagining of the materials management system for plastic and other packaging is needed for a circular economy, there are several options that could be implemented separately and in advance to lay a foundation for a broader system transformation in the next few years. The two policies presented in this section represent components of the primary policies recommended above that could potentially be implemented on their own, as a first step toward legislative adoption of the full suite of primary recommendations.

4. Producer Registry & Packaging Reporting

Recommendation

4. **Establish a packaging registry to enable efficient, reliable accounting of the amounts, types, and attributes of packaging sold into the state. Require producers to register and report the amounts, types, and attributes of packaging sold into the state, including declarations of recycled content, in order to be allowed to sell their products into the state.**

Rationale

The authorizing legislation for this study (Chapter 70.380 RCW) called for "an assessment of the amount and types of plastic packaging currently produced in or coming into the state by category." Without a requirement that producers report these details to the State, it is impossible to undertake such an assessment.

In jurisdictions where EPR for packaging and recycled content requirements have been adopted, data collection to develop a list of obligated producers and quantify the packaging supply has been the first step in the program development process. Gathering data during an interim period while EPR and/or recycled content policy is being developed could help expedite the implementation timelines for such policies and can help better forecast estimated costs and benefits of these proposed policies compared to current conditions.

Data gathered on the number of producers and the relative quantities of packaging supplied would help inform the establishment of *de minimis* levels in relevant policies and determine the impact of *de minimis* exemptions.

Policy Design Considerations

Require reporting by individual producers on packaging supplied into Washington State, either directly or through a trade association, but with data broken down to the individual producer level. Although this data must be kept confidential and protected, the state regulatory agency should have direct line of sight and ability to audit data provided by all individual producers. This is the model under development in Ontario for producer reporting requirements as part of the province's transition to full individual producer responsibility for residential packaging and paper.

Require producers to report on quantity of packaging supplied into the state, broken out by product and material type, ideally reported by weight and by unit. Producers should also be required to break out the quantity reported by sector (residential/commercial) and describe how this sector allocation was estimated. Allow for estimation of quantity at the state level based on per capita allocation of national sales/supply data, if state-level data is not available.

Require reporting by producers on PCR content of packaging supplied. As with the requirement above, this reporting could be managed through a trade association, but reported data should be broken down to the individual producer level. Consider requiring reporting on total PCR content for each type of packaging supplied in pounds and as percent of total pounds of packaging supplied for each type.

If implemented immediately, it is likely that third-party certification of PCR content claims could not be required because the systems for this are still in development. However, consider requesting such certification on a voluntary basis or offer an incentive, such as a discount on the initial registration fee, for providing it.

Require producers to pay a registration fee to producers to cover the costs of developing and overseeing the registry. The fee must be dedicated to administration of the registry and protected from redirection to other uses. Set a tiered fee schedule per producer and/or per packaging type reported, based on annual company revenue. Consider a preliminary fee exemption for small producers, such as those reporting less than one ton of packaging supplied into state, until a final *de minimis* threshold can be established based on producer reporting.

Consider housing the registry under the Recycling Development Center (the Center) within the Department of Ecology. The collection of data needed to support development of local and regional processing and markets for recyclable materials is a primary goal of the Center as is collaboration with packaging producers to increase the ability of their packaging and products to be reduced, reused, or recycled.

Necessary Infrastructure

The agency tasked with overseeing the packaging registry will need to develop the registry mechanism and database to manage information reported, including protocols for managing confidential information.

Ecology will need to revise the forms used for data reporting by regulated recycling facilities and the annual recycling survey and will need to devote additional staff time and resources to ensure compliance with reporting requirements.

Associated Changes to Existing Regulations

No changes to existing regulations are expected to be necessary for establishment of a producer registry for reporting purposes.

5. Recycled Content Requirements for Beverage Containers

Recommendation

5. **Implement minimum recycled content requirements specifically for plastic beverage containers in line with those passed during the 2020 legislative session (ESHB 2722).**

These requirements can be included within more comprehensive recycled content requirements legislation, as recommended under Recommendation 3, or can be adopted and implemented separately while EPR and/or broader recycled content policy is under development.

Rationale

As noted in Recommendation 3, increasing recycled content is among the most important actions for reducing the environmental impacts of plastic packaging. Beverage containers make up a substantial portion of plastic packaging supplied into Washington (PET bottles alone represent one-quarter of all rigid plastic packaging), so an increase in recycled content in those will have a major impact.

In early 2020, the Washington House and Senate passed ESHB 2722/SB 6645, a bill relating to minimum recycled content requirements for plastic beverage containers. The bill was vetoed by the governor due to concerns about its fiscal impact amid the COVID-19 pandemic, but the bill would have required that beverage containers sold in Washington have a minimum of ten percent post-consumer recycled plastic content by 2022, progressively increasing to 25 percent in 2025 and 50 percent in 2030.

This bill was supported or unopposed by major stakeholders, including waste haulers and beverage producers, as well as local governments and environmental nonprofits, and could presumably be passed again.

Major beverage companies have already made voluntary commitments to achieve similar rates of PCR recycled content in beverage containers, but these efforts need support from the State to ensure a level playing field and to induce the investments needed across the plastic recycling chain to achieve these goals.

Policy Design Considerations

The policy should build on the language of ESHB 2722/SB 6645 but **add a clear definition of post-consumer recycled content**. The definition of post-consumer recycled content from the International Organization for Standardization (ISO 14012:2016:7.8.1.1) is "a type of recycled content that comes from material generated by households or commercial facilities as end users of a product or package which the consumer determines to no longer be useful for its intended purpose. This includes returns of material from within the distribution chain."

The policy should also **require producers to provide verification of recycled content claims**, through third-party certification or chain of custody documentation. This requirement will increase transparency and reliability of reported outcomes and will reduce the burden on the enforcement authority to verify claims made by regulated producers. To ease the regulatory burden of this requirement and aid in compliance, consider aligning the verification requirements with existing voluntary initiatives under development such as GreenBlue's Recycled Material Standard (RMS) or the Association of Plastic Recyclers' (APR) third-party certification endorsements.

As with other recommendations for policies involving requirements that must be met by producers, with compliance demonstrated through producer reporting, it is recommended that the policy **require producers to pay a registration fee as part of compliance to cover the costs of oversight and enforcement** activities carried out by the designated state regulatory agency.

Necessary Infrastructure

As noted in Recommendation 3, additional collection and sorting infrastructure will likely be needed to provide a reliable supply of recyclable material needed to achieve recycled content targets, especially for the higher levels required by 2030 under ESHB 2722/SB 6645.

Associated Changes to Existing Regulations

No changes to existing regulations are expected to be necessary.

Complementary Recommendations

The policies recommended in this section advance the legislative goals of Chapter 70.380 RCW in ways that are complementary to the primary policy recommendations. The scopes and anticipated impacts of these policies are narrower than those of the primary policy recommendations.

6. Recycled Content Requirements for Trash Bags

Recommendations

6A. Adopt minimum post-consumer recycled content requirements for plastic trash bags.

6B. Require state procurement of plastic trash bags to be limited to products sold by companies that are in compliance with the post-consumer content requirements.

Rationale

Due to efficiencies of protection and light weighting of packaging, the use of PE film continues to grow and so its presence in the waste stream is also expected to grow. PE film is mechanically recyclable and has viable collection infrastructure (via return-to-retail and reverse logistics), and there is desire by consumers for recycling options for this material. However, currently there is very weak demand for recycled PE film, especially from mixed retail and consumer-return sources. In order to achieve environmental benefits from recycling PE film, more market demand for and use of PE film as PCR recycled content is needed.

Under ESSB 5323 passed into law in 2020, Washington State now requires 20 percent post-consumer recycled content in reusable plastic carryout bags and that will increase to 40 percent in 2022 [17]. The law's primary aim, however, was to reduce the overall use of plastic carryout bags, so it is expected that the impact on demand for PE film as PCR recycled content will be relatively small.

Trash bags are not considered "packaging" and so would not be covered by recycled content requirements for packaging, but use a significant amount of virgin plastic and are an excellent application for PCR PE film from mixed retail and consumer-return sources; a recycled content mandate would also reduce the net environmental impacts of trash bags.

Requiring PCR recycled content in trash bags will drive the use of PE film collected for recycling, which will, in turn, stimulate market-driven development of collection infrastructure. This positive feedback loop has been proven feasible and shown to create demand pull for post-consumer recycled PE film in California, where a recycled content requirement for plastic trash bags has been in place since 1993.

According to national industry data, annual trash bag generation is equivalent to approximately 18 pounds per capita. For Washington State, that equates to approximately 65,790 tons. A requirement for 30 percent PCR, assuming a 20 percent yield loss on tons sent for reprocessing, could create demand for approximately 23,680 tons of post-consumer PE film, which represents approximately one-third of PE film tons currently disposed.

Policy Design Considerations

Include all plastic trash bags, with no exemption for specific millimeter thickness. The specification of a minimum mil thickness threshold for PCR requirements has resulted in a loophole in the California law, with many producers of trash bags manufacturing bags just under the mil thickness threshold in order to avoid the requirement.

Set recycled content targets that increase over time and/or establish a method (outside of legislation) for increasing targets in the future. Targets should be set to meet or exceed the requirements currently in place in California (30 percent PCR).

As with other recycled content policies, the policy must ***clearly define what counts as post-consumer recycled content, how calculations are to be conducted, and how compliance will be verified***.

Require registration and reporting by producers and ***require producers to provide verification of recycled content claims*** through third-party certification or chain of custody documentation. As noted in Recommendation 3, this requirement will increase transparency and reliability of reported outcomes and will reduce the burden on the enforcement authority to verify claims made by regulated producers. Consider aligning verification requirements with existing voluntary initiatives under development such as GreenBlue's RMS or APR's third-party certification endorsements.

Empower and sufficiently fund a regulatory agency to carry out rigorous oversight and enforcement. As with other recycled content policies recommended, consider requiring producers to pay a registration fee to cover the costs of oversight and enforcement.

Require state procurement to be limited to compliant bags. A similar policy (RCW 43.19A.022) is already in place for procurement of office paper.

Necessary Infrastructure

No additional infrastructure is expected to be needed immediately, as commercial collection of PE film is already in place to some degree and is responsive to market signals for expansion. Specifically, reverse logistics systems for PE film collection are already in place for most large grocers and large retail chains. Customer-facing collection systems will need to be built out and additional collection systems will be needed for small-to-mid-size commercial generators of PE film without their own reverse logistics operations, but demand pull (in the form of higher commodity prices for post-consumer PE film bales) would create market-driven investment in this infrastructure, which existed previously in many Washington State locations before the Chinese ban of scrap plastic imports and the collapse of virgin resin prices.

Trash bag producers may need to support expansion of residential collection infrastructure (building on the existing voluntary return-to-retail system or in coordination with an EPR system) and invest in resident engagement in order to generate sufficient PCR to meet the increased requirement by 2025, if supply from the commercial sector is not sufficient.

Associated Changes to Existing Regulations

No changes to existing regulations are expected to be necessary for adoption of a recycled content requirement for plastic trash bags.

Linking the recycled content requirement to state procurement practices will likely require changes to Chapter 43.19A RCW, Chapter 39.26.255 RCW, Chapter 200.300.085 WAC, and Department of Enterprise Services Policy No. POL-DES-255-00.

7. Ban on Problematic and Unnecessary Plastic Packaging

Recommendation

7. **Ban plastic packaging identified as problematic or unnecessary through public-private initiative.**

Rationale

The U.S. Plastics Pact—a public-private partnership, in which Ecology is a founding partner—has a stated intent to develop a list of problematic and unnecessary plastic packaging by December 2021, with a goal to eliminate identified materials by 2025.

Research on policy and technology options from around the world to manage plastic packaging (Task 3 report: *Successful Plastic Packaging Management Programs and Innovations*) generally found material- and product-specific bans to be relatively inefficient/ineffective at driving systemic change and sometimes resulting in negative unintended consequences, partly because bans tend to be initiated by government, without complete information about potential responses to bans, and with the potential to lead to material substitutions with unintended consequences that increase overall environmental impacts. However, adoption of bans based on a list of materials developed and broadly agreed upon through public-private initiative could avoid some of these issues and would make it more feasible to achieve elimination of the problematic and unnecessary plastic packaging identified.

Voluntary effort by producer members of the U.S. Plastics Pact alone cannot eliminate these materials completely, so the State could advance the Pact's goals by mandating elimination by all producers through legislative action. Mandatory elimination creates a level playing field and corrects for the potential of voluntary initiative to disadvantage companies that would take action.

Policy Design Considerations

Ideally, the list of problematic or unnecessary plastic packaging to ban will be the result of a consensus-based public-private initiative so that it has broad support among stakeholders and potential impacts of the bans have been addressed. If the U.S. Plastics Pact is not able to finalize a list or if it is not sufficiently robust, the State could nonetheless proceed with implementation of a ban based on its learning through participation in the dialogue.

Necessary Infrastructure

No changes to existing infrastructure are expected to be necessary for implementation.

Associated Changes to Existing Regulations

No changes to existing regulations are expected to be necessary for implementation of a ban on problematic or unnecessary plastic packaging, so long as appropriate consideration has been made for items that are deemed medically necessary or otherwise essential under existing laws.

8. Standard for Customer Opt-in for Foodservice Packaging and Accessories

Recommendation

8. **Establish a statewide standard for customer opt-in for non-essential disposable foodservice packaging and accessories.**

Rationale

Non-essential disposable foodservice packaging and accessories—such as condiment packets, plastic cutlery, and straws—are often included in takeout and delivery orders by default, resulting in significant waste of unwanted plastic packaging and foodservice accessories. Establishing a statewide standard for customer opt-in would provide clarity and guidance to businesses for when these items should be provided to customers and would stimulate standardization of ordering systems and order preparation protocols to involve verification of customer opt-in for inclusion of these items in orders. A bill related to this issue was introduced in the most recent legislative session (HB 2656) but did not advance.

Policy Design Considerations

For disposable foodservice packaging and accessories, the State should ***establish a statewide standard requiring customer opt-in for inclusion of non-essential disposable foodservice packaging and accessories***—such as condiment packets, plastic cutlery, and straws—in takeout and delivery orders. This could involve providing model ordinance language to local governments or adopting a statewide requirement for customer opt-in practices by foodservice businesses.

The policy should cover orders placed through third-party takeout ordering/delivery services.

Necessary Infrastructure

No changes to existing infrastructure are expected to be necessary for implementation.

Associated Changes to Existing Regulations

No changes to existing regulations are expected to be necessary for implementation.

Recommendations for Agency Action

The recommendations in this section cover activities undertaken by the Department of Ecology that do not require legislative action to implement. They may, however, require reallocation or additional allocation of resources to fund agency implementation.

9. Strengthen Data Collection on Destinations of Materials Sent for Reprocessing

Recommendation

9. **Clarify, expand, and more effectively collect data requested from regulated recycling facilities on the final destinations of materials sent for reprocessing.**

Rationale

The authorizing legislation for this study (Chapter 70.380 RCW) called for "an assessment of the final disposition of all plastic packaging sold into the state, based on current information available at the department." Review of information reported by regulated recycling facilities to Ecology revealed significant gaps in data needed to conduct such an assessment. Gaps included both incomplete or non-response to explicitly requested data as well as gaps due to lack of inclusion or lack of clarity in data request issued by the Department.

Although Ecology does not have authority to regulate recyclable commodities and therefore cannot conduct the level of oversight needed to verify reporting of the final disposition of plastic packaging (such as conducting audits or inspections), it does have authority to request additional information from regulated recycling facilities and can improve its current data collection forms and activities to increase the availability and reliability of information provided.

Policy Design Considerations

To more effectively collect data on the final destinations of materials sent for reprocessing, Ecology should ***make adjustments to the format and content requested in annual recycling reports required from regulated recycling facilities*** under WAC 173-350-210. Specific recommended changes include:

- Expand the list of material type definitions to include additional categories of plastic packaging (ideally aligned with the categories used in this Study).
- Clarify and expand final destination reports and specifically request that reporting on material destinations for materials sent for reprocessing be provided separately for each receiving company/destination, and include the location (city, state/province, and country) and total tons sent to that location for each unique material type reported.
- Request reporting of estimated average contamination of material sent for reprocessing and composting for each unique material type reported.

Necessary Infrastructure

Ecology will need to revise the forms used for data reporting by regulated recycling facilities and the annual recycling survey and will need to devote additional staff time and resources to ensure compliance with reporting requirements. Ideally, Ecology should also develop an online data reporting portal and associated database for securely managing confidential data that facilitates more efficient data reporting, analysis, and compliance monitoring.

Associated Changes to Existing Regulations

Changes to reporting forms and establishment of additional reporting requirements by the Department of Ecology are already authorized under WAC 173-350-210 so no changes to existing regulations are expected to be needed.

If it is found that regulated recycling facilities do not readily comply with the revised reporting requirements or provide requested information in a manner that is difficult to interpret or verify, legislative action may be necessary to compel more complete and verifiable reporting from regulated recycling facilities and others involved in handling recyclable materials in the state, and to dedicate additional State resources to the data collection and verification effort.

10. Support Development and Adoption of Reusable Packaging Systems

Recommendations

10A. Prioritize support for development and adoption of reusable packaging systems that facilitate safe, scalable transitions from single-use packaging through existing state grant funding and agency programs and staff.

10B. Identify and eliminate potential barriers to adoption of reusable packaging systems in existing state and local regulations.

10C. Identify opportunities for support of reusable packaging systems through public procurement.

10D. Consider future adoption of statewide requirements related to use of reusable foodservice and packaging systems.

Rationale

While this approach would necessarily require shifting funds away from other areas of need, prioritizing the support for reuse using existing State grant funding and agency programs and staff has the potential to move the agency's focus higher up waste management hierarchy at a time when allocation of additional tax revenue for grant funding and agency staffing is unlikely.

Reusable packaging systems that align with contemporary consumption patterns and newly available technologies are emerging but not yet commercialized or fully developed for implementation at scale [18]. More state support for development and adoption would help bring the most promising models closer to widespread implementation in Washington.

While it is assumed that the design and development of reusable packaging systems will be primarily led by the private sector, the public sector (especially through food safety regulations and public procurement policies) already has involvement in regulation and procurement and can direct that involvement to support reusable packaging.

Restaurants and the foodservice industry overall are highly impacted by the COVID-19 pandemic. While research reaffirms that reusable packaging can be at least as sanitary as disposable items and that reusable packaging delivers important environmental benefits, reusable packaging systems are currently not broadly available at reasonable cost compared to single-use options. For this reason, requirements on their use are not recommended at this time but should be further considered for adoption within two to five years.

Policy Design Considerations

Prioritize funding provided for projects that advance or adopt safe, scalable transitions from single-use plastic and other packaging through Waste Reduction and Recycling Education (WRRED) grants, Public Participation Grants (PPG), and Local Solid Waste Financial Assistance (LSWFA) grants.

Conduct a review of state and local ordinances and regulations to assess if any interfere with the development and adoption of reusable packaging systems. Where barriers are identified, consider pursuing statewide policy to address those barriers while addressing the concerns of local governments.

Assess where opportunities exist to support reusable packaging systems through public procurement. Where identified, work with the Department of Enterprise Services to establish guidance, incentives, or requirements for selection of reusable options.

Study options for future adoption of statewide incentives or requirements related to use of reusable foodservice and packaging systems that reduce consumption of single-use plastic packaging and reduce the cost burden of providing these items on restaurants and other foodservice businesses. Note that all policies must be consistent with the federal food, drug and cosmetic act (21 U.S.C. Sec. 301 et. seq.).

Necessary Infrastructure

Changes may be needed to grant funding guidelines and application forms.

Associated Changes to Existing Regulations

The Department of Health is already considering food safety code changes to allow customer-provided reusable takeout containers; these changes are expected to be adopted in October 2020, and would go into effect July 2021.

Other state or local food safety code or other regulatory changes may be needed to remove barriers to adoption of new models of reusable packaging systems – more research will be needed in this area as new models arise.

References

[1] Container Recycling Institute, "Bottle Bills - Benefits & Challenges," 17 July 2019. [Online]. Available: https://nerc.org/documents/Webinars/Bottle%20Bills--Benefits%20and%20Challenges/Bottle%20Bills%20Overview.pdf.

[2] Tembo Paper, "Designing Better Packaging End-of-Life Strategies: An Interview with Nina Goodrich," 19 June 2020. [Online]. Available: https://www.tembopaper.com/news/designing-better-packaging-end-of-life-strategies-an-interview-with-nina-goodrich.

[3] J. Vendries, T. Hawkins, J. Mosley, T. Hottle, D. Allaway, P. Canepa, J. Rivin and M. Mistry, "The Significance of Environmental Attributes as Indicators of the Life Cycle Environmental Impacts of Packaging and Food Service Ware," State of Oregon Department of Environmental Quality, Portland, Oregon, 2018.

[4] Center for Sustainable Infrastructure, "From Waste Management to Clean Materials: A 2040 Blueprint for Pacific Northwest Leadership," May 2020. [Online]. Available: centerforsi.org/wp-content/uploads/2020/06/CSI-Clean-Materials-Report.pdf.

[5] European Commission, "Commission Implementing Decision (EU) 2019/665 of 17 April 2019 amending Decision 2005/270/EC establishing the formats relating to the database system pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste," OJ L 112, 26.4.2019, p. 26–46 , [Online]. Available: https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:32019D0665.

[6] Cascadia Consulting Group, "Plastic Packaging in Washington: Assessing Use, Disposal, and Management," 2020. [Online]. Available: https://www.ezview.wa.gov/Portals/_1962/Documents/PlasticsPackaging/Plastic%20Packaging%20in%20Washington_08052020.pdf.

[7] NAPCOR, "2018 PET Recycling Report," December 2019. [Online]. Available: https://napcor.com/news/domestic-processing-of-rpet-surges-amid-flat-recycling-rate/.

[8] Alberta Beverage Container Recycling Corporation, "2018 Sustainability Report," 2018. [Online]. Available: https://www.abcrc.com/assets/ABCRC-Sustainability-Report-2018.pdf.

[9] Infinitum, "2018 Annual Report," 2018. [Online]. Available: https://infinitum.no/file/27/a40179d6890780d5260c405147ecd9ce/Infinitum_annual_report_2018_spreads.pdf.

[10] Oregon Beverage Recycling Cooperative, "2019 Annual Report," 2019. [Online]. Available: https://www.obrc.com/Content/Reports/OBRC%20Annual%20Report%202019.PDF.

[11] J. Paben, "Producers release reusable RPET bottle," Resource Recycling, Inc., 5 August 2020. [Online]. Available: https://resource-recycling.com/plastics/2020/08/05/producers-release-reusable-rpet-bottle/#:~:text=Packaging%20companies%20have%20rolled%20out,that%20wash%20bottles%20for%20refilling..

[12] NAPCOR, "2018 PET Recycling Report," NAPCOR, December 2019. [Online]. Available: https://napcor.com/purchase-report/.

[13] J. Johnson, "NAPCOR: U.S. Lacks Recycled PET to Meet Consumer Brands' Pledges," Plastics News, 29 August 2019. [Online]. Available: https://www.plasticsnews.com/news/napcor-us-lacks-recycled-pet-meet-consumer-brands-pledges.

[14] NAPCOR, "Trade Associations Align in Support of Beverage Container Deposit Programs," NAPCOR, 20 April 2020. [Online]. Available: https://napcor.com/news/manufacturing-container-focused-trade-associations-align-in-support-of-beverage-container-deposit-programs/.

[15] Container Recycling Institute, "Litter studies in bottle bill states," Container Recycling Institute, [Online]. Available: http://www.bottlebill.org/index.php/benefits-of-bottle-bills/litter-studies-in-bottle-bill-states.

[16] M. Mistry, D. Allaway, P. Canepa and J. Rivin, "Material Attribute: RECYCLED CONTENT - How well does it predict the life cycle environmental impacts of packaging and food service ware?," State of Oregon Department of Environmental Quality, 2018. [Online]. Available: https://www.oregon.gov/deq/FilterDocs/pcr.pdf.

[17] 66th Legislature, "ESSB 5323: Plastic Bags--Retail Establishments," 2020. [Online]. Available: lawfilesext.leg.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/Senate/5323-S.SL.pdf#page=1.

[18] Ellen MacArthur Foundation, "Reuse: Rethinking Packaging," 2019. [Online]. Available: https://www.ellenmacarthurfoundation.org/assets/downloads/Reuse.pdf.

[19] King County Responsible Recycling Task Force, "Recommendations to Achieve a Responsible Recycling System," 10 January 2019. [Online]. Available: https://kingcounty.gov/~/media/depts/dnrp/solid-waste/about/planning/documents/task-force-final-recommendations.ashx?la=en.

[20] King County Responsible Recycling Task Force, "Extended Producer Responsibility Policy Framework and Implementation Model: Residential Recycling of Packaging and Paper Products in Washington State," March 2020. [Online]. Available: https://www.kingcounty.gov/~/media/depts/dnrp/solid-waste/about/planning/documents/task-force-EPR-policy-framework.ashx?la=en.

[21] M. Mistry, D. Allaway, P. Canepa and J. Rivin, "COMPOSTABLE - How well does it predict the life cycle environmental impacts of packaging and food service ware?," State of Oregon Department of Environmental Quality, Portland, Oregon, 2018.

[22] Rexius Compost & Organics, Dirt Hugger, Recology Organics Oregon, Republic Services Pacific Region Compost, Lane Forest Products, Deschutes Recycling Compost Facility, Pendleton Sanitary Service Inc., Rogue Compost and Waste Pro, "A Message from Composters Serving Oregon: Why We Don't Want Compostable Packaging and Serviceware," [Online]. Available: https://static1.squarespace.com/static/5a7a30710abd046ac76433a4/t/5c8fd9084785d38b6cf60fe9/1552931082908/compostable_packaging_update_3-15.pdf.

[23] R. Lifset and T. Lindhqvist, "Producer Responsibility at a Turning Point?," *Journal of Industrial Ecology,* vol. 12, no. 2, pp. 144-147, 2008.

[24] Q. Schuyler, B. D. Hardesty, T. Lawson, K. Opie and C. Wilcox, "Economic incentives reduce plastic inputs to the ocean," *Marine Policy,* vol. 96, no. https://doi.org/10.1016/j.marpol.2018.02.009, pp. 250-255, 2018.

[25] B. D. Hardesty, C. Wilcox, Q. Schuyler, T. Lawson and K. Opie, "Developing a baseline estimate of amounts, types, sources and distribution of coastal litter - an analysis of US marine debris data," 23 October 2017. [Online]. Available: https://marinedebris.noaa.gov/sites/default/files/publications-files/An_analysis_of_marine_debris_in_the_US_FINAL_REP.pdf.