

Policy Guidelines for Recycled Content Mandates

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POLICY GUIDELINES FOR RECYCLED CONTENT MANDATES

DIRECTOR'S FOREWORD

We at Reloop see closed loop recycling, sometimes known as bottle-to-bottle recycling, as an indispensable prerequisite for circular packaging. However, at the global level today, less than 10% of plastic packaging gets recycled.

The combination of low demand, low investment, and low supply of quality material has stymied the closed loop recycling for much of the last thirty years. Municipal recycling programs' exposure to market volatility has shaken this bedrock institution to its core.

It's time to send a signal to the market using government intervention. Minimum recycled content mandates require producers to use a minimum amount of recycled material in new packaging. This helps ensure a steady demand for material recycling, irrespective of the price of virgin material.

Minimum recycled content mandates are a critical policy tool to drive higher recyclable material prices and investment for recycling, address climate change, help stabilize municipal waste budgets, and enable resilient local economies.

The pursuit of state-level minimum recycled content mandates is on the rise in the US. California and Washington have recently passed recycled content bills for new packaging types. Several other states have introduced legislation and more states will likely follow.

As with any government intervention in the marketplace, unintended consequences may result if policy is not developed with possible pitfalls in mind. Both market and technical limitations can impede implementation of recycled content mandates. Likewise, producer compliance and accountability requires robust government oversight.

Reloop is well positioned to provide the necessary support and guidance to help ensure minimum recycled content requirements provide a short cut to high performing, transparent, and more equitable closed loop recycling system for packaging.

This white paper offers a framework for effective and responsible scoping of recycled content mandates by defining the markers of successful mandates and offering succinct policymaking recommendations.

As a step towards accelerating the transition to a circular economy, I'm pleased to offer these guidelines.



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INTRODUCTION

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In the past three years, recycling system conditions eroded significantly. Factors such as falling oil prices, the nearly total ban of plastic exports through the China National Sword policy and industry fluctuations related to the Covid-19 pandemic have shaken recycling programs to their core. Recycling rates on packaging are well below their potential, as Figure 1 demonstrates for beverage containers. Cities that once were paid to tip mixed recyclables now must pay more per ton for material processing than per ton sent to landfill or incineration [1]. At the same time, the urgency to address climate change and growing consumer awareness of the plastic crisis and other packaging-related problems has translated into mounting pressure for producer responsibility and accountability.

Figure 1: Beverage Container Recycling Rates



Beverage container material type

Policymakers are aware now, more than ever, of the need to stimulate investment and address deficient recycling markets. One available mechanism to decouple material recycling demand from market forces is recycled content mandates.

This market intervention legally requires producers to use a minimum amount of recycled material in their packaging. The primary goal of recycled content mandates is to drive demand for material recycling, irrespective of the price of virgin material. Exploration of recycled content mandates as a policy tool, especially for PET beverage containers, is on the rise



The primary goal of recycled content mandates is to drive demand for material recycling, irrespective of the price of virgin material.

In 2019, through the Single Use Plastic Directive, the European Union mandated that by 2025, all plastic PET beverage bottles must have 25% recycled content, and by 2030, the requirement jumps to 30% [2]. In 2020, California became the first state to require up to 50% minimum post- consumer recycled content in plastic water bottles [3]. In the first part of 2021, the states of New Jersey, Oregon, and Washington have all introduced bills.

Figure 3: Timeline of U.S. minimum content recycling requirements



RECYCLING MARKETS: A BRIEF HSTORY

For decades, systemic shortcomings have marked the recycling system. From the beginning, the system was built on an assumption of a symbiotic relationship between a dependable supply of recyclable material and ongoing demand from the manufacturing sector to create market equilibrium. Ever since then, the direct exposure of recycling programs to market conditions has undermined stability and viability. Put simply, whenever volatile commodity prices make virgin material the cheaper option, it is used instead of recyclable materials, with recycling markets undermined in consequence.

Today, a sizeable share of packaging collected by municipalities and sent to processing facilities ends up not being recycled in a closed loop, or bottle-to-bottle fashion.1 Instead, that material gets downcycled, used in applications like landfill cover or road aggregate, or – for many years – was exported abroad. Still, much of it ends up in landfills, incinerators and littered on land and in waterways. These post-consumption outcomes come with considerable economic and environmental costs including, but not limited to, additional need for virgin material mining and extraction, costly litter cleanup efforts, and lost local development and (green) job creation opportunities.2

In the same vein as the Soviet era phrase: "we pretend to work, and they pretend to pay us," until fairly recently it was easy to look away from the uncomfortable reality of systemic deficiencies, particularly when the budgetary implications were not too stark. So long as material was out of sight, it was out of mind. Over time, however, ignoring the problem became as big an issue as the market conditions undermining effective recycling; and wishful thinking prevented government intervention, and needed investment and innovation.

DEPOSIT RETURN SYSTEMS: A CRITICAL ENABLER FOR RECYCLED CONTENT MANDATES

Recycled content mandates, especially for plastic packaging, can create a recycling paradox: there isn't enough high-quality material being collected and recycled for manufacturers to meet the increased demand. This is because cost effective use of recycled material content depends on access to high volumes of uncontaminated collected material. Manufacturers need a consistent supply of clean feedstock to incorporate greater levels of recycled materials in their products and packaging. This requires an increase in both the quantity and quality of material collected.

This is where deposit return systems can play a vital role. In addition to achieving high collection rates by offering an economic incentive to recycle, by collecting and managing materials in a manner that reduces contamination and ensures high-quality output, DRSs ensure a clean stream of materials fit for bottle-to-bottle recycling, and are a key solution to solving the recycling paradox. Jurisdictions with exceedingly high bottle-to-bottle recycling rates for beverage containers consistently also have modern deposit return systems that follow best-in-class principles. The gap between governmentmandated and voluntary industry commitments to increase recycled content, and the ability to secure enough high-quality material to meet those goals, will undoubtedly increase pressure for DRS systems.

CHALLENGES

While legislative action in this area holds potential, as with any government intervention in the marketplace, unintended consequences may result if policy is not developed with possible pitfalls in mind. Both market and technical limitations can impede implementation of recycled content mandates. Effective recycling requires an optimized system of collection, sortation, processing, and end markets. The value chain is highly interdependent. Missing linkages, as well as insufficient capacity and infrastructure can undermine the potential to increase recycled content.

Furthermore, achieving recycled content is not just a question of quantity, but also quality. Maintaining purity in collected material, and avoiding contamination from non food-grade containers, is needed to enable increased uptake of recycled content. This is why most jurisdictions with exceedingly high recycling rates for beverage containers have modern deposit return systems, which are run in a complementary fashion alongside recycled content mandates [4].

KEY DEFINITIONS

- "Recycled Content": the total percentage of recovered material in a product.
- "Recycled Content Mandate": a requirement that a certain percentage of recycled material be included in certain new products and packaging.

Finally, enforcement is complicated. Unlike the legal maximum level of lead in fuel or contaminant threshold for public drinking water, there is no lab test for recycled content. Because of this, strict and careful oversight is essential to avoid the potential for loopholes or unsubstantiated industry claims.

Mandates that consider all of this are crucial to avoid unintended consequences and reduce the need to revisit any actions taken. The following set of guiding principles, designed with the specific challenges of plastic packaging in mind but applicable generally to various packaging types, offer a framework for effective and responsible scoping of recycled content mandates.

GUIDING PRINCIPLES FOR POLICY MAKERS

Effective recycled content mandates are marked by accurate and consistent measurement of recycled content; the development of robust and transparent standards around definitions and targets; and clear producer obligations on the calculation, verification and reporting of recycled material. The guiding principles presented here sketch out some of the most critical contours of legislation capable of delivering a high performing, transparent, and more equitable closed loop recycling system for packaging.



ESTABLISH CLEAR DEFINITIONS & SCOPE

The first guiding principle for recycled content legislation is establishing clear definitions and covered scope. Clear, objective definitions help to eliminate loopholes that might allow producers to report inflated recycled content numbers or navigate around using actual recycled materials.

Drawing clear legislative boundaries around included and excluded materials is also vital. It is recommended to state explicitly whether existing, non-conventional packaging types, like compostable packaging and bio-based plastics, are included. Likewise, to avoid the potential for legislative repeal or weakened efficacy, it is advised to include legislative language allowing for updates based on an evolving packaging landscape.

VOLUNTARY COMMITMENTS VS. MANDATES: WHAT'S BEST?

Voluntary procurement agreements, while laudible, can result in uncompetitive business, particularly at times when virgin resin is cheaper than recycled resin. When oil prices are low, companies not bound by content commitments can purchase cheaper virgin resin and gain a competitive edge. This results in a non-level playing field, and the loss of local economic opportunities.

By contrast, introducing minimum recycled content requirements for selected products and packaging makes the operating requirements the same for all producers. By helping ensure the continued movement of recyclables, PCR mandates provide an economic incentive to increase collection and treatment locally. This helps communities become more resilient to market fluctuations that governments cannot control, allowing them to grow their economies more sustainably. It would also prevent the loss of jobs and the closure of sorting and recycling facilities throughout America.





SET APPROPRIATE TARGETS

Minimum post-consumer recycled content mandates should be appropriately aggressive, but not technically unfeasible. While ambitious long-term goals are important, milestone targets must also be set to ensure intended outcomes and drive appropriate action and investment.

It may be better to start with a more modest target than to "go big" and fail, or set a target that does not take technical supply chain limitations into consideration. Let science, not politics, dictate targets. Here are some important steps to follow:

>> **Determine goals**: Begin by asking: what are the are the results you're hoping to achieve? What can you learn from precedents elsewhere?

>> Undertake analysis to assess viability: How much material is there? How much is realistic to expect to get back given current collection systems? How much could a best-in-class deposit system return, and what would it take to get that system in place? Are there current supply chain limitations (both in terms of quantity and quality)? How can they be mitigated? What are the infrastructure dependencies? What are some other technical capacity limitations?

>> Set targets based on analytical findings: Stated goals without specifics enable loopholes and make it possible to achieve targets on paper without achieving real results.

KEY DEFINITIONS

- "Recovered materials": materials recovered or diverted from solid solid waste, excludes materials and by-products generated from, and commonly reused within, an original manufacturing process.
- "Pre-consumer material or post-industrial material": a by-product of the manufacturing process.
- "Post-consumer material": material generated after the product is made, sold, collected and sorted.
- "Chemical recycling": the process of chemically breaking down polymers to monomers to be used as new materials or fuel.
- "Mechanical recycling": the processing of material into secondary raw material, e.g. via sortation, washing, grinding, granulating, drying - without significantly changing the chemical composition.

LESSONS LEARNED FROM EUROPE'S PCR MANDATE FOR PET BEVERAGE CONTAINERS

The European Commission Single Use Plastic Directive's PCR mandate for PET beverage containers set an important precedent. While this has subsequently influenced other jurisdictions, not every detail is worthy of replication.

First and foremost, measurement, verification and reporting standards were not developed in the legislation, but had to be developed later. Likewise, covered materials classification lacked granularity. The guidance outlined in the "Establish Clear Definitions and Scope and "Set Appropriate Targets" principles can help policymakers overcome this problem.

Finally, the EU example provides an opportunity to set a target based on more than status quo performance. It is advised that legislators consider what is possible by examining best in class collection rates, use data to model a new flow of volume, and set the target appropriately. This will yield an opportunity for continuous improvement, and optimized performance across the value chain.

DEVELOP ROBUST STANDARDS

Developing robust, harmonized standards ensures that expectations are clear and system stakeholders know exactly what is expected of them.

As most organizations treat their data as proprietary and will not share information unless required, it is essential that knowledge sharing is built into the system. Mandates should call for independent calculation, verification and reporting of recycled content.

The minimum questions to answer include:

- What are the responsibilities placed on producers?
- What is included or excluded as allowable in the calculation of "recycled content"?

• What is allowable in terms of verification processes and claims?

To ensure that compliance aligns with target outcomes, recycled content mandates should establish clear requirements on private sector recycled content certification systems.

While governments may not have the interest or ability to develop a public recycled content verification system, the proliferation of such schemes by third party companies, without strict oversight, will discourage transparency and runs the risk of diluting the meaning of compliance and compromising consistency across industry.

Likewise, without proper monitoring and regulation on recycled content certifiers, there is potential for potentially false marketing claims that bring consumer confusion [5].





As such, standards should also cover labelling requirements, regulate marketing claims and address the issue of additives. Legislating what is allowable in all of these areas will help set clear standards and ensure a level playing field.

When considering the penalties for non-compliance, it is important that the fine assessment take into consideration the market differential between the cost to use virgin versus recyclable material. If, for example, fines are set on a static per pound basis, whenever the per pound savings of using virgin material exceeds the per pound financial penalties, producers may shrewdly decide to simply pay the fine and continue using cheaper virgin material.

As with targets, harmonizing standards across jurisdictions will give government the ability to clearly measure performance and avoid a "race to the bottom."



Recycled content and design standards on recyclability work hand-in-hand to close the loop. As more products are designed for reuse, it will become more cost-effective, efficient and overall simpler to recycle and reuse more materials.

If broader policy goals include improved design standards for recyclability and non-toxicity, recycled content mandates offer an ideal opportunity to include measures for safer, more circular product design, in order to drive systems-level progress. Design standards for product recyclability and non-toxicity can be alternatively adopted as a producer requirement or as an incentive, e.g. as a precursor for higher rating by certification schemes.

Additionally, while good for the environment, recycling processes can come with serious impacts to local communities. Including environmental justice principles, at minimum, can help prevent adverse environmental impacts on poor communities and people of color [6].



FOLLOW THE WASTE HIERARCHY

A circular economy is not just one where more packaging and goods are recycled, but where source reduction is also prioritized and made possible [7]. To ensure continued progress towards waste reduction goals and single-use elimination, it is critical to promote closed loop recycling and guard against downcycling.

Chemical recycling processes which convert plastic and other materials to fuel and fuel bi-products do not constitute recycling and should not be permitted as such in recycled content mandates. The waste hierarchy (see Figure 4) is an often-used tool to prioritize waste management principles, outlining a model that segments material management solutions according to optimized environmental outcomes.



Developing policy that adheres to the waste management hierarchy will accelerate the transition to a circular economy. This may include the following legislative interventions:

- · Setting caps on single-use packaging
- Encouraging a transition to refillables
- Designing packaging for easy recycling
- Creating a robust composting industry

Establishing EPR measures and defining consequences for producers who do not invest in circular alternatives will also be a crucial step. If pursued holistically, recycled content mandates can lay the groundwork and achieve long-term source reduction goals.



- **"Environmental Justice"**: The fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies.
- "Fair treatment": The principle that no group of people, including a racial, ethnic or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies. In implementing its programs, EPA has expanded the concept of fair treatment to include not only consideration of how burdens are distributed across all populations, but the distribution of benefits as well.
 "Packaging toxicity": This term refers to the
- **"Packaging toxicity"**: This term refers to the presence of chemicals like BPA, PVC, and phthalates that leach out of packaging into the surrounding environment and people. Exposure can inhibit neurological development in children and is linked to reproductive health problems, obesity, diabetes, and some cancers.
- "Extended Producer Responsibility": A policy approach under which producers are given a significant responsibility – financial and/or physical – for the treatment or disposal of post-consumer products. Assigning such responsibility could in principle provide incentives to prevent waste at the source, promote product design for the environment and support the achievement of public recycling and materials management goals.



Figure 5: Recently introduced minimum recycled content mandates

UDISDISTION	NAME /		TABATT	COMPLIANCE STANDARDS	CTATUS
JURISDICTION	NUMBER	COVERED MATERIAL	IARGEI	AND PENALTIES	STATUS
European Commission	Directive (EU) 2019/904	Beverage containers (up to three liters volume), including caps and lids	From 2025, beverage bottles made from PET contain at least 25% post- consumer recycled plastic, and from 2030, beverage bottles contain at least 30% recycled plastic	Expected June 2021	Passed into law June 2019
California	AB 793	All plastic beverage containers subject to the California Redemption Value	Requires an average of 15% post-consumer recycled plastic in PET beverage containers with an increase to 25% by 2025 and 50% by 2030.	Producers are required to submit an annual report. There is a \$0.20 fine per pound that does not meet the minimum requirement.	Passed into law Sept 2020
Maine	LD 1467	Plastic beverage containers sold, offered for sale or distributed in the State	Requires 25% post-consumer recycled plastic by 2026 and 30% by 2031 for all beverage containers sold in Maine.	Producers are required to submit an annual report. There is a \$0.20 fine per pound that does not meet the minimum requirement.	A public hearing was held April 2021
New Jersey	S 2515	Rigid plastic containers, plastic beverage containers, glass containers, paper and plastic carryout and trash bags	Two years after enactment, recycled content must be 25% (for rigid containers) 15% requirement (for plastic beverage containers), 35% (for glass containers), 40% (paper carryout bags), 20% (plastic carryout bags), 10% (trash bags), which increases subsequently (for rigid containers and plastic beverage containers: 5% every three years until the container is 50% recycled content; 40% after 5 years for plastic carryout bags), 20% after 5 years for trash bags).	To be set in rulemaking	Referred to Committee Dec 2020, public hearing held Feb 2021
Oregon	HB 2065	An extended producer responsibility initiative that covers packaging, printing and writing paper, and food serviceware that is generally intended for single-use.	Mandates establishment of a plastic packaging recovery rate (rather than specific obligations regarding recycled content in packaging)	To be determined; post-consumer recycled content is a factor for setting eco-modulated fees	Referred to Committee Jan 2021
Washington	SB 5022	Certain household cleaning products and personal care products, plastic trash bags, certain beverages in plastic containers, dairy milk containers	For certain household cleaning products and personal care products: 15% by 2025, 25% by 2028, 50% by 2031 For plastic trash bags: 10% by 2023, 15% by 2025, 20% by 2027 For certain beverages in plastic containers, 15% by 2023, 25% by 2026, 50% by 2031 For dairy milk containers: 15% by 2028, 25% by 2031, 50% by 2036	Producers are required to submit an annual report. There is a \$0.20 fine per pound that does not meet the minimum requirement.	Passed into law April 2021

CONCLUSION

Considering the details, as well as the bigger picture, is key. Recycled content mandates are complementary to and can be developed alongside other policy interventions like extended producer responsibility, deposit return systems and single-use bans. Indeed, the long-term success of recycled content mandates may depend on supportive, tangential legislation that addresses the full range of systemic issues and creates multiple, reinforcing streams of demand for material recycling.

Harmonizing recycled content mandates through regional coordination or at the federal level holds the potential to bring increased chance of achieving targets and creating a successful system, provided that such measures reflect the guiding principles introduced above.

Long-term success... may depend on supportive, tangential legislation that creates multiple, reinforcing streams of demand for material.

The success of recycled content mandates is measured by their capability to increase demand for and prices of recyclable material, thereby promising long-term recycling market growth and stability.

As states consider this policy intervention, these guiding principles and established best-in-class models can serve as useful planning and technical tools.

The continuing unfolding of implementation of the European Commissions' Single-Use Plastic Directive and California's AB 793 gives an opportunity to watch carefully for lessons learned as a way to avoid duplicated mistakes. Effective and responsible recycled content mandates, capable of accelerating the transition to a circular economy are informed by science and built on a blueprint for continuous improvement, with environmental principles and accountability weighed above all.





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