A COMPREHENSIVE EVALUATION OF MICHIGAN'S BOTTLE DEPOSIT SYSTEM

Insights from stakeholder analysis and data trends

Tamanna Sengupta, Shelie Miller,
Shoshannah Lenski, Sakshi Venkateswaran

Report No. CSS25-29

October 2025

CENTER FOR SUSTAINABLE SYSTEMS
UNIVERSITY OF MICHIGAN

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report analyzes the effectiveness of Michigan's bottle deposit law to:

1. Understand the factors contributing to declining redemption rates,
2. Benchmark Michigan's system to identify best practices, and
3. Report insights from industry stakeholders.

By combining data analysis and perspectives from a range of stakeholders, the study provides recommendations to strengthen the bottle deposit system's role in reducing waste, supporting a circular economy, and advancing broader sustainability and recycling goals in the state.

Michigan's bottle deposit law, long regarded as a model for beverage container recycling, is challenged by declining redemption rates, facing pressure from uneven access and shifting market and consumer dynamics. While the program once achieved redemption rates above 95%, recent years have seen a steady decline, with rates falling to 70.4% in 2024. Consumers have voiced growing concerns, citing frequent machine downtime, retailer-imposed limits, and inconsistent access to redemption options.

Financial flows within the system have shifted as well. As redemption rates fell, unredeemed deposits (or "escheats") increased, providing a growing pool of revenue for the state. The Department of Treasury distributes these funds by returning 25% to retailers and directing the remaining 75% to trust funds administered by the Department of Environment, Great Lakes, and Energy (EGLE). As directed by law, EGLE spends most of these funds on environmental remediation and prevention of groundwater contamination. There is no provision that specifically dedicates funding for enhancing recycling initiatives.

In 2022, the scrap value of redeemed containers was estimated between $39 million and $65 million, with aluminum accounting for nearly 80% of that value. Material recovery facilities capture a growing number of deposit-eligible containers through curbside programs, indicating a shift in consumer behavior. About 53% of Michigan residents have access to curbside recycling programs. The co-existence of curbside collection and deposit redemption raises questions about how best to balance the two streams to best serve Michigan residents while improving recycling systems within the state.

Retailer data further underscores the uneven geography of redemption. Urban retailers are saturated with high container volumes, while rural retailers often lack the space and infrastructure to provide adequate service. These disparities mean that rural residents face greater barriers to redemption, amplifying inequities in the system. At the same time, proposals to expand the law to cover more containers and beverages, such as bottled water, raise concerns about disproportionate impacts on low-income and water-insecure communities unless paired with protective measures. The findings suggest that no one-size-fits-all approach will work, and reforms must be tailored to different geographies, retailer capacities, and consumer needs.

Stakeholders across sectors broadly agree that modernization is needed. Environmental groups and packaging producers emphasize the importance of expansion for circularity and material recovery, while retailers stress their financial and operational burdens. Distributors highlight logistics challenges, and recyclers worry about losing valuable materials from the curbside stream.

> "Expanding the scope of covered beverages, improving transparency around escheats, and reinvesting into recycling infrastructure could strengthen the system's effectiveness.

Taken together, the evidence points to clear opportunities for reform. Expanding the scope of covered beverages, improving transparency around escheat fund allocation, and reinvesting more resources directly into recycling infrastructure could strengthen the system's effectiveness. Pairing expansion with the development of redemption centers, bulk return systems, and equity safeguards would reduce the burden on retailers while ensuring fair access across communities. Aligning bottle bill reform with Michigan's Healthy Climate Plan would further amplify its environmental benefits, ensuring that the system not only reduces litter and increases recycling but also contributes meaningfully to statewide climate goals.

ACKNOWLEDGEMENTS

This project was made possible through the generous support of the Council of the Great Lakes Region, whose funding and guidance were instrumental in making this project happen. We are deeply grateful to the members of the Executive Committee, whose insights and direction helped shape the scope of this report. We also extend our thanks to the reviewers, whose thoughtful feedback and comments strengthened the final product.

We owe special appreciation to the many individuals and organizations who shared their time and perspectives through interviews. In addition, we thank all participants in the stakeholder workshop for their meaningful contributions, which enhanced our understanding of the opportunities and challenges surrounding bottle bill policy in Michigan.

Finally, we wish to acknowledge the dedicated support staff at the University of Michigan Center for Sustainable Systems, whose behind-the-scenes efforts ensured the smooth and successful execution of this project.

1. INTRODUCTION

GOALS AND PURPOSE OF THE STUDY

This study assesses the current effectiveness of Michigan's Bottle Deposit Law and explores opportunities to modernize the system in response to shifting redemption trends and stakeholder needs. Specifically, the study seeks to:

1. Understand the factors contributing to declining redemption rates,
2. Benchmark Michigan's system against other bottle bill states to identify best practices, and
3. Incorporate insights from key stakeholders including retailers, recyclers, distributors, and policy advocates to evaluate feasible policy or operational changes.

By combining data analysis with stakeholder engagement, the study provides recommendations to strengthen the bottle deposit system's role in reducing waste, supporting a circular economy, and advancing broader sustainability and recycling goals in the state.

CONTEXT

Despite widespread environmental campaigns and investments in recycling infrastructure, the most recent data indicate a decline in the national recycling rate from 34.7% in 2015 to 32.1% in 2018[1]. This decline is in part due to the rise in material contamination rates, making it harder for material recovery facilities (MRF) to meet market standards and sell the materials at a profit. This is especially true for municipalities with single stream recycling systems, where all recyclables (paper, plastic, metal and glass) go in the same bin. While this system alleviates consumer burden, it also leads to higher levels of contamination at the MRFs[2].

A report by Ball Packaging estimates that efficient recycling systems have the potential to add $6.5 billion per year of valuable materials to the US economy[3]. Achieving this requires reliable material capture streams that prioritize consumer convenience and participation, leading to higher quality and lower contamination of materials.

> "Historically, deposit laws were implemented to address the rise in litter and associated cleanup costs.

A tried and tested example of one such system is the deposit model for beverage containers, where customers are incentivized to return empty containers in exchange for value. The beverage industry primarily uses aluminum, glass and plastic for containers, and therefore packages their product in some of the most valuable material in the recycling stream. Historically, sellers would insist consumers bring back the empty containers to be reused, saving material costs. Once the disposable bottle was introduced, it provided cheaper material for beverage manufacturers, changing the game[4]. To address the resulting rise in litter and associated cleanup costs, deposit laws were implemented in US states to incentivize container returns. Although the initial objective was not focused on achieving higher recycling rates, the system produced a steady stream of high-value beverage container materials, leading to bottle-to-bottle recycling and manifesting as a circular economy. A well-performing bottle deposit system, one that is modernized to keep up with changing materials, markets and consumer behavior, can amplify these benefits. This study attempts to understand how the bottle deposit system in Michigan could adapt to improve performance and contribute to the state's recycling and circularity goals.

WHAT IS A BOTTLE DEPOSIT LAW?

Deposit return systems (DRS) are policy tools that place a small, refundable deposit on individual cans and bottles.

When consumers return the bottles and cans, their deposits are refunded. The DRS is authorized through bottle deposit laws ("bottle bills").

The ten US states with bottle bills are California, Connecticut, Hawaii, Iowa, Maine, Massachusetts, Michigan, New York, Oregon and Vermont. Michigan was the third state to implement a bottle bill in 1978 and the first to have a 10¢ deposit, versus the more typical 5¢. This move may have contributed to the state's consistently high redemption rates[5]. Michigan's bottle bill was amended to specify the distribution of unredeemed deposits toward environmental cleanup efforts and to combat fraud. However, a modernization of the law to adapt to more recent consumer behavior and market changes has not occurred. Meanwhile, redemption rates in the state have been falling, reaching an all-time low of 70.4% in 2024[6].

Bottle bill modernization can include increasing deposit values, expanding the types of beverages covered, increasing availability of redemption points, and other changes explored below. States typically carry out these changes in an effort to revive declining redemption rates. For example, after Oregon increased the deposit from 5¢ to 10¢, the redemption rate jumped from 64% in 2016 to 73% in 2017 and 87% in 2023[7].

MICHIGAN'S OVERALL RECYCLING CONTEXT

Michigan was one of the pioneers of the recycling wave across the US. It was one of the first states to have both a bottle deposit law and electronic waste recycling laws. A grassroots movement led to the creation of one of the first curbside recycling programs in the country[8]. According to data from The Department of Environment, Great Lakes, and Energy (EGLE) NextCycle Michigan Initiative, the recycling industry in Michigan supports 72,500 jobs, injecting $17 billion into the state's economy every year [9].

In 2025, EGLE announced a record high recycling rate of 25% in the state, a significant increase from the 14.25% rate in 2019. The state is forecast to achieve its target of a 30% recycling rate by 2029[10]. This marked improvement has been attributed to the renewed commitment to recycling efforts and funding in the state. For example, EGLE collaborated with stakeholders and contractors to expand curbside recycling efforts to more than 30 Michigan communities and the 2019 "Know It Before You Throw It" campaign increased recycling awareness among Michigan residents[11].

A 2023 Gap Analysis estimated that MRF capacity in Michigan increased by 95,900 tons from 2020[12]. The analysis suggested that this was a result of new MRFs coming online and not due to existing MRFs increasing capacity. Some of the identified barriers to establishing and increasing the capacity of MRFs included access to funding for new technology, staffing, and access to reliable end markets for the materials.

MRFs are processing more material and expanding their role in Michigan's recycling system. This infrastructure operates alongside Michigan's bottle deposit law, creating a recycling landscape where both curbside programs and deposit returns contribute to recovery rates. States with a deposit law generally have higher total recycling rates than those without one.

In 2022, EGLE launched the MI Healthy Climate Plan, the state's action plan to achieve carbon neutrality and transition towards a circular economy by 2050. Under The Roadmap to 2030, the Plan reinforced the goal to triple Michigan's recycling rate to 45%[13].

WHAT WE DID IN THIS STUDY

This study assessed the current state of Michigan's bottle deposit system via three major activities: literature review and benchmarking, data analysis, and stakeholder engagement through one-on-one interviews and convening a workshop for industry stakeholders.

Literature review and benchmarking

A literature review provided insights on the effectiveness of bottle bills internationally and in the United States, additional recycling efforts such as curbside recycling, and studies on consumer behavior and trends with regards to recycling.

Alongside this, recycling features and outcomes for all ten bottle bill states in the United States were compared to benchmark Michigan's system.

Data analysis

We conducted a series of data analyses to better understand Michigan's bottle deposit system, focusing on escheats disbursement patterns, material flows, and redemption trends. Using state Treasury records, retailer reports, and MRF data, we examined how unredeemed deposit funds are distributed, which retailers handle the largest volumes, and how returns have shifted between urban and rural areas since 2019. We estimated the scrap value of deposit materials, finding aluminum drives most of the system revenue. We also assessed the impact of deposit leakage into curbside recycling, highlighting revenue losses for MRFs and quality issues with mixed glass. Finally, we reviewed consumer complaint trends and identified significant gaps in publicly available data, underscoring the need for greater transparency and standardized reporting.

Stakeholder engagement

The bottle deposit system in Michigan impacts myriad stakeholders, including distributors, retailers, recyclers, local governments, state policymakers, environmental organizations and consumers. Each stakeholder has a unique role in the system and experiences the recycling process differently. There are also geographically diverse experiences within the system, particularly between urban and rural communities. Improving the system therefore requires a holistic understanding of the opportunities that can lead to maximum benefit to all involved. To explore this, the study involved in-depth conversations with key players across the value chain.

Nineteen interviews were conducted with representatives of each major stakeholder group (distributors, large retailers, small retailers, packaging producers, recyclers,

environmental organizations, policymakers). These interviews identified major issues and opportunities that were the foundation for a stakeholder workshop.

The facilitated workshop was a one-day, in-person event with nine breakout discussions dedicated to key themes that emerged from the literature review, data analysis, and individual interviews. Participants were encouraged to engage in solution-oriented debate and discussion, presenting perspectives from their industry or role in the bottle deposit system; 108 stakeholder organizations were invited to participate, using a snowball sampling approach where interviewees were asked to refer additional contacts. Attempts were made to recruit representation from all major stakeholder types and different geographic regions in Michigan. Sixty-one individuals representing 51 organizations attended, listed in the Appendix.

Three site visits were conducted to interview facility and retail workers and better understand the backend of the deposit system: a MRF, a container processing facility, and multiple retail stores.

2. MICHIGAN'S BOTTLE DEPOSIT SYSTEM

HISTORY

In the early 1970s, Michigan had issues with roadside litter, often in the form of beverage containers[14]. While bills had been proposed to introduce a deposit law in the state (especially after Oregon and Vermont implemented theirs), opposition from retailers, labor groups and the bottling industry made them unsuccessful. In 1975, a statewide survey found that 73.3% of Michigan residents supported returnable bottle legislation. In the same year, House Bill 4296 was reintroduced, requiring a 10¢ deposit on all soft drinks and beer cans. The Michigan United Conservation Club along with allies like the Ecology Center believed they could collect the signatures needed to send House Bill 4296 to the hands of Michigan voters. The campaign garnered 400,000 signatures in favor of placing the issue on the ballot[15].

Approved by voters in 1976, the state of Michigan enacted the Michigan Beverage Container Law ("Bottle Bill"), to be implemented in December 1978[16]. It requires a 10¢ deposit on carbonated beverage containers sold in Michigan, which can be redeemed by consumers upon return.

The Michigan Department of Transportation (MDOT) estimated that highway roadside litter decreased by 41% between 1978 and 1979, with litter from beverage containers decreasing by 84%[17]. The Michigan Department of Treasury officially began reporting return rates in 1990, citing a 98.2% return rate. Although earlier documentation is scarce, it is widely accepted that Michigan had a return rate of 95% in 1979[18].

There is general agreement that the state's significantly higher refund of 10¢ led to its popularity. Coupled with the MDOT analysis, there is indication that the redemption rate kept litter off the streets, and high-quality material flowing through the system, eventually promoting a recycling economy in the state.

Even so, the bottle bill continues to face criticism. A 2018 assessment estimated that the annual costs borne by distributors are about $34.91 million per year and that those borne by retailers are about $92.81 million per year[19]. The main costs to the retailers are investment and maintenance of reverse vending machines (RVM) and labor for container collection and sorting. Empty containers require valuable space and cause sanitation and hygiene issues, adding to intangible costs.

Beyond the costs, there have been reports of consumers and industry stakeholders

being unhappy with the bottle bill in recent years[20]. Some of these complaints arise from the current model of the bottle deposit system in Michigan, which has remained virtually unchanged since the 1990s. Addressing these gaps and improving the deposit system and overall waste management in the state could help achieve the MI Healthy Climate Plan goals more effectively.

HOW THE CURRENT SYSTEM WORKS

Flow of the dime

In Michigan, the deposit initiator is the beverage distributor. When a distributor sells beverages to a retailer, they charge a 10¢ deposit per container. When the retailer sells these beverages to a consumer, they pass on the 10¢ deposit charge. The consumer must return the empty container to a retail store to redeem the 10¢ deposit.

In stores with RVMs, consumers feed their containers into the machine, and they receive a receipt with redemption details. In stores without machines, employees must hand count the containers and issue a redemption receipt. Retailers are not required to accept redemptions of more than $25 per day per customer. Retailers are only required to take back containers for the specific beverages they sell but may take back any eligible container.

Distributors are responsible for picking up empty containers from retailers, which distributors carry out themselves or through a third-party service. They reimburse the dime to the store where the container was collected. The distributors are responsible for reporting the total deposit containers sold and collected to the Michigan Department of Treasury each year.

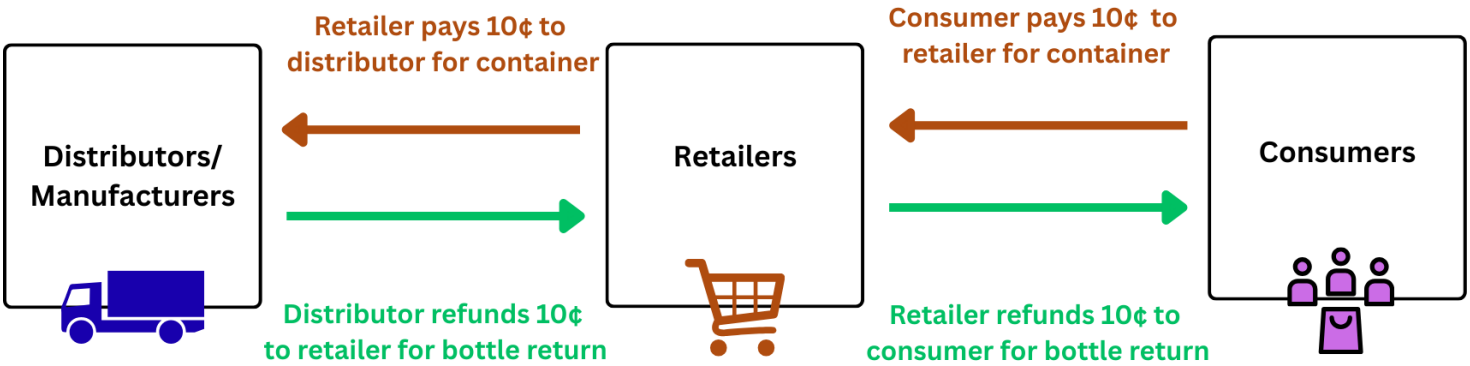

Figure 1: A representation of the flow of the dime in the Michigan bottle deposit system..

Redemption rate over time

The redemption rate measures the performance of the bottle deposit system, calculated by:

(Total Deposits Redeemed ÷ Total Deposits Issued) × 100

Prior to 2010, Michigan had redemption rates above 95%, reaching 99% in some years. In the 2010s, redemption rates started a slow decline, dropping to 89-90%. In 2020, the redemption rate dropped to 73%. Although no formal studies have been conducted on the reason behind this fall, stakeholders and news reports have theorized that it came in response to the COVID-19 pandemic. Michigan was the only state to halt all bottle deposit returns during the pandemic, citing health and safety concerns[21]. When returns reopened, consumers reported that some stores refused to reclaim bottles or placed restrictions on redemption hours or per day redemption limits. Redemption rates have not recovered and hit an all-time low of 70.4% in 2024.

Escheats data over time

When a deposit on an eligible container is not redeemed (for example, the container is put in municipal recycling or trash), the 10¢ deposit is held in escheat by the state. Initially, escheats were retained by distributors with no clear directive on how to use them. An amendment in 1989 directed the escheats to be turned over to the Department of Treasury, from which 25% of the funds were returned to retailers and 75% of the funds were deposited in the state's Cleanup and Redevelopment Fund for environmental remediation and pollution prevention[22].

In 2021, an amendment created the Bottle Bill Enforcement Fund within the Treasury. The money from this fund supports

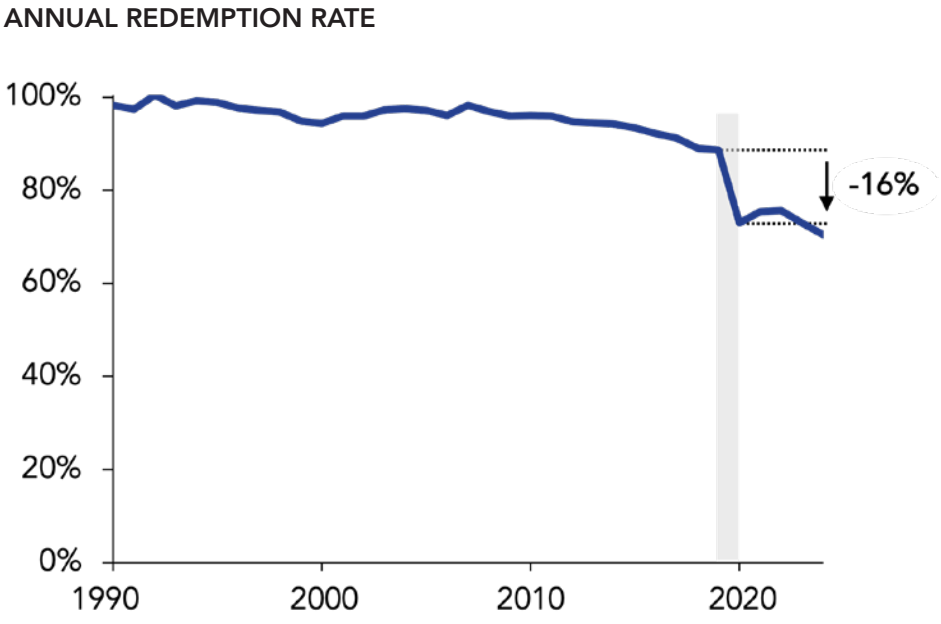

Figure 2: Year on year redemption rates in Michigan.
Data Source: Michigan Department of Treasury

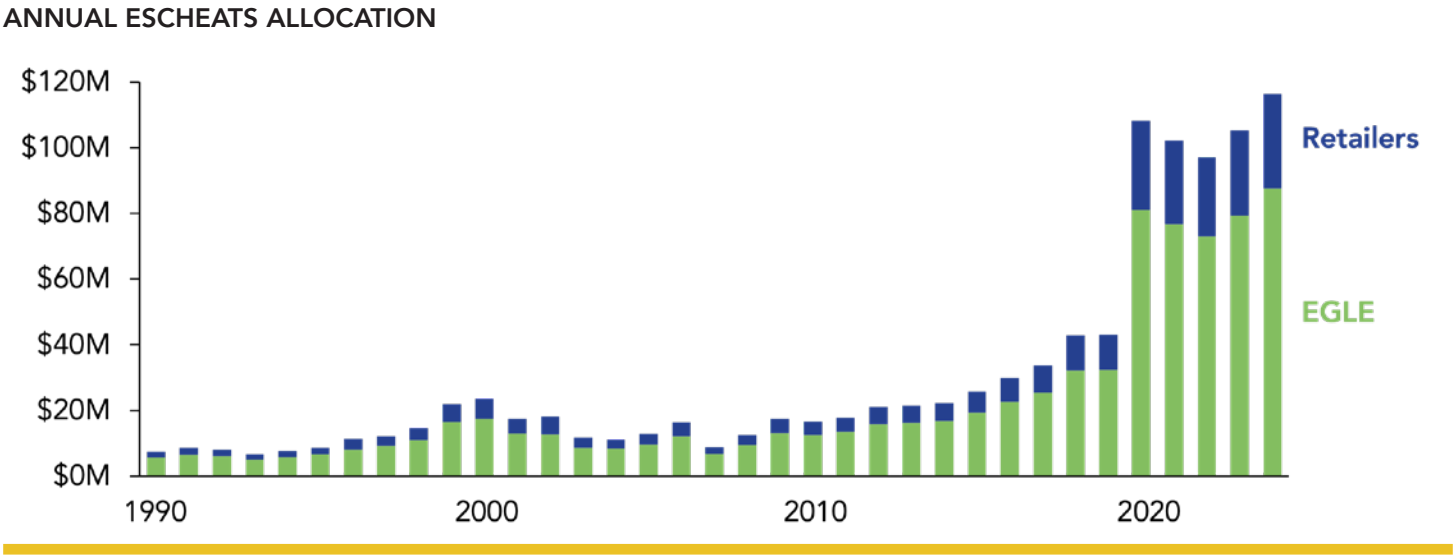

Figure 3: Year on year trends in unredeemed deposits. Data Source: Michigan Department of Treasury

the State Police Department enforcing the bottle deposit law and investigating violations of the law.

Altogether, this is the current distribution of the escheats:

- The first $1,000,000 is disbursed into the Bottle Bill Enforcement Fund.
- Of the remaining amount, 75% is disbursed to the Cleanup and Redevelopment Trust Fund administered by EGLE, such that:
  - 80% goes to brownfield site cleanups
  - 10% goes to the Community Pollution Prevention Fund
  - 10% remains in the Trust Fund
- The remaining 25% is distributed to retailers, apportioned based on the number of deposit containers sold.

Escheats increased as redemption rates dropped, with more money distributed to the Trust Fund and retailers. This "backward incentive" of stakeholders financially benefiting when the system performs poorly and the lack of reinvestment of escheats to support recycling beyond the portion distributed to retailers, are a common criticism of the current escheat system.

Distributor vs. third-party pickup

Distributors are responsible for collecting empty containers from retailers, which requires infrastructure to collect, store and process the materials. In Michigan, RVM producer TOMRA North America Inc. and materials processor Schupan Inc. came together to create UBCR LLC, a third-party pickup service contracted for this purpose. The UBCR network currently covers all retailers who work with the Michigan Beverage Association

and Michigan Beer and Wine Wholesaler Association, covering 600+ stores across Michigan[23]. UBCR services retailers who redeem at least 750,000 beverage units annually among other threshold requirements.

Smaller retailers still rely on distributors to collect returned containers from their stores. Large retailers in more remote locations such as the Upper Peninsula also fall outside of the UBCR network. As a result, non-UBCR serviced locations may face infrequent pickups and by extension more storage and hygiene issues at the store.

Consumer feedback

Consumer focused studies looking at public perception of the bottle deposit system are scarce. A few organizations conduct occasional surveys, to determine consumer support for certain policies or their experience with system components.

One environmental organization shared the preliminary results of their survey aimed at understanding how Michigan voters felt about a possible modernization of the bottle deposit system. Survey results showed strong public support for the state's current bottle deposit law and for expanding it. Eighty-one percent of respondents believe the existing law has been good for Michigan, and 71% support a proposal to expand deposits to all beverage containers under one gallon.

> "81% of respondents believe the existing law has been good for Michigan.

Support for expansion crosses demographic and political lines, with majorities in every region, income group, and party affiliation. Eighty-six percent of respondents say they would be more likely to return containers if they could redeem all of them at any store. Large majorities reject the idea that bottle returns are "not worth the hassle" or that curbside recycling should replace the deposit system. Nearly half of respondents say they would be more likely to support a legislator who backed expansion, indicating political as well as environmental benefits.

A survey by the University of Michigan Center for Local, State and Urban Policy found most Michigan residents hold positive views on recycling, with large majorities agreeing it reduces litter, protects clean water, and is worth the effort[24]. About 79% report access to at least one type of recycling service, while only 53% have curbside collection and 15% have no services at their primary residence. Participation varies regionally, with rural and Northern Lower Peninsula residents more often reporting rare or no participation. Seventy percent favor expansion of the bottle bill to include more container types. Forty-one percent prefer curbside returns.

Results from a retailer's customer survey indicate that redemption can be a routine activity for many shoppers, with over 80% returning containers during their regular grocery trips and a substantial share doing so bi-weekly or always. Convenience is a major driver, as most prefer redeeming containers where they already shop. However, operational issues such as full bins, broken or dirty machines, unpleasant odors, and limited acceptance of certain brands were frequently reported. Some participants cited forgetting to bring containers, not purchasing returnable items, or disliking the cleanliness of bottle rooms as reasons for not redeeming deposits. Open-ended feedback emphasized the need for more machines, better cleaning, and front-of-store placement to improve the experience. The data also suggests that active recyclers in other streams such as scrap dealing are more likely to redeem bottles and cans.

Escheats distribution to retailers

We obtained data from the Michigan Department of Treasury on payments made to retailers in 2022 and 2023. Retailers must file their container sales each year to receive escheats disbursements.

Most retailers received between $100-$10,000. Less than 7% of retailers received amounts above $10,000, with only 2 retailers receiving amounts higher

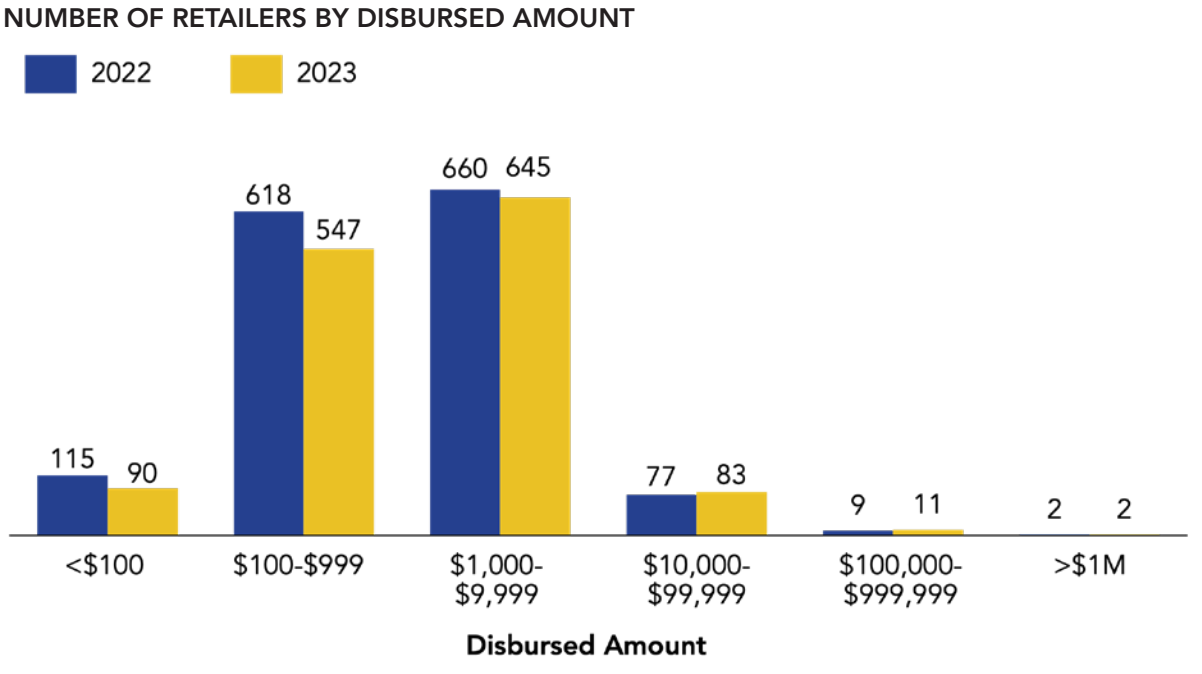

Figure 4: Distribution of bottle-bill escheat disbursements (in USD) by retailer, 2022 vs 2023. Each bar shows the number of retailers whose annual payment falls within a given range.
Data Source: Michigan Department of Treasury

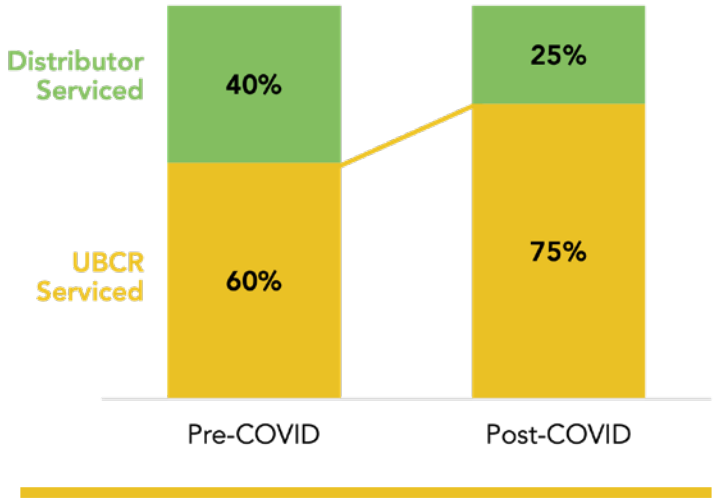

Figure 5: Share of container pickups handled by UBCR (a third-party pickup service) and those handled directly by distributors, before and after the COVID19 pandemic. Data Source: UBCR LLC

than $1 million (Figure 4). Escheats are tied to the number of deposit containers sold by a retailer, not necessarily the number of deposit containers they reclaim. Smaller retailers may lack the administrative capacity or incentive to complete the reporting process. Further analysis could examine whether escheat disbursement aligns with community needs and retailer reclamation efforts, and whether changes to the filing system could help ensure more equitable access to funds, especially for small and rural retailers.

Changing material flows at retail locations

Multiple sources of data seem to indicate a shift in redemptions from smaller retailers to larger retailers.

According to data received from UBCR, about 75% of post-COVID container pickups are carried out by UBCR (Figure 5).

A large retailer provided data on the number of beverage containers collected by their stores across Michigan. The data included the total number of containers (PET, aluminum cans and glass bottles) collected across more than one hundred stores from 2019 to 2024. The data was grouped by county, with roughly equal numbers of urban and rural counties represented.

To identify the trend in beverage unit collection for this retailer, yearly collections were normalized to a 2019 baseline (Figure 6). Each of the gray lines shows normalized bottle collections from a single county; the blue line shows the weighted average for urban and rural counties. There is substantial variability by store, yet nearly all stores show bottle returns increasing in 2020, spiking in 2021, and declining to a volume greater than pre-pandemic values. The bottle returns in rural counties increased more sharply compared to urban counties and have generally remained at a higher level. As shown in Figure 2 overall bottle returns have declined by 16% since 2019. Meanwhile, the average container returns for the major retailer increased by 13% and 29% between 2019 and 2024 for urban and rural counties respectively (Figure 6).

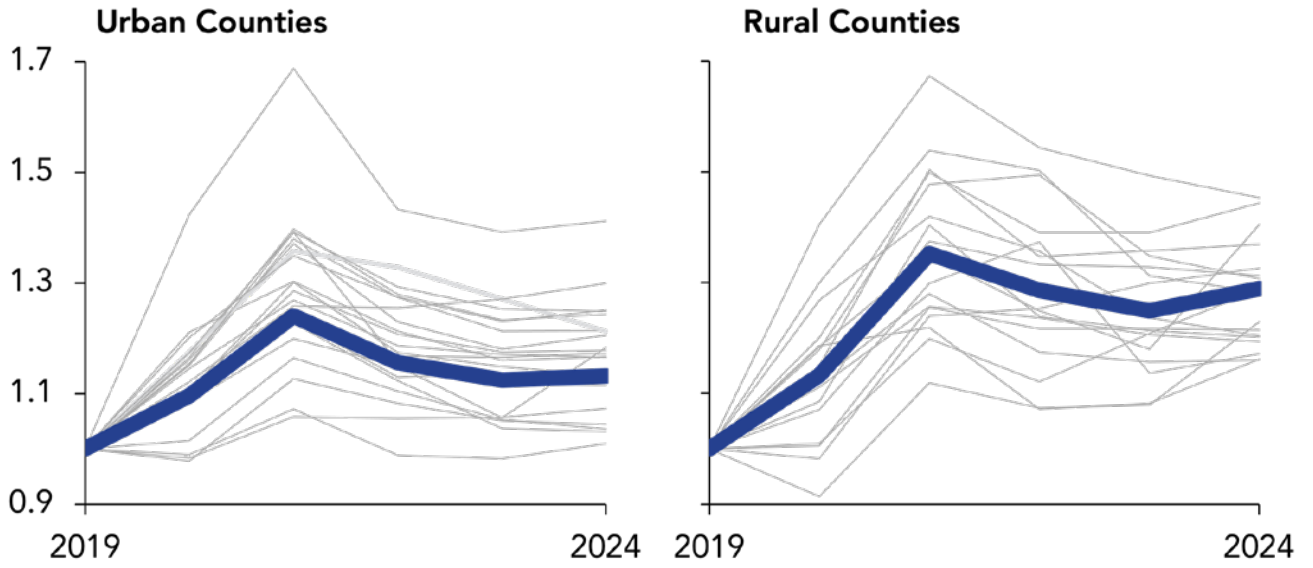

Figure 6: Trend in beverage-container returns for urban and rural Michigan counties, 2019 – 2024 (2019 = 1.0). Grey lines represent individual counties; the blue line is the average container volume weighted by each county's 2019 volume. Data Source: Private Retailer

The growing fraction of pick-ups handled by UBCR and the increased collection volumes shown in these retailer data suggest a shift in redemptions from smaller retailers to larger retailers. This evidence further aligns with increasing reports of smaller retailers refusing returns as well as a trend of larger retailers' investments in improved customer experiences in their return facilities (e.g. dedicated entrances and updated reverse vending machines).

Commodity values

To estimate the potential scale of this revenue stream, we analyzed 2022 container return volumes and applied market-based scrap price ranges gathered through scrap price indices (Table 1).

We validated the assumptions on material weights and pricing through conversations with two Michigan-based material processors.

Our analysis suggests that material processors may have recovered between $39 million and $65 million in scrap value from container redemptions in 2022:

- Aluminum generated the largest share of this value ($32.6M to $52.1M).
- PET plastic contributed $5.8M to $10.6M.
- Glass, though comprising the majority of the total collected weight, added just $0.67M to $2.2M.

Table 1: Estimated 2022 scrap-value potential of Michigan's deposit containers, by material type.

MATERIAL	WEIGHT (LB/ CONTAINER)	CONTAINERS (#)	TOTAL WEIGHT (LB)	SCRAP VALUE ($/LB)	SCRAP VALUE ($/CONTAINER)	TOTAL VALUE ($)
Glass	0.493	452,700,000	223,004,926	$0.003-$0.01	$0.001-$0.005	$669,015-$2,230,049
PET	0.042	603,600,000	25,361,345	$0.23-$0.42	$0.01-$0.018	$5,833,109-$10,651,765
Aluminum	0.033	196,170,000	65,172,757	$0.50-$0.80	$0.017-$0.027	$32,586,379-$52,138,206
Total			**313,539,028**			**$39,088,503-$65,020,020**

Commodity values vary according to the quality and purity of recycled materials. Materials recovered through the bottle deposit system generally have a higher commodity value due to segregated material streams. In contrast, the materials collected via single-stream systems are commingled and need to be separated at a recycling facility, leading to greater contamination, and are thus often lower in value.

This is particularly true for glass, where low-contaminant glass streams separated by color can have five times the value of mixed glass. In single-stream recycling, glass often leads to net loss, estimated at about $150 million per year across the US. This is largely due to conventional equipment being unable to sort and clean glass efficiently, with contaminants of paper, plastics, and other materials. Deposit return systems isolate glass from other material streams and by color (clear, green, brown, etc), increasing its value.

Material Recovery Facilities (MRFs)

MRFs are a key part of Michigan's overall recycling efforts. MRFs process materials collected from curbside recycling systems and other community collection facilities. MRFs handle mixtures of recyclables, separating them into component materials. Although they receive increasing numbers of deposit-eligible containers placed in curbside recycling bins, they only receive revenue from the scrap value; they do not receive a portion of the escheats, and they are unable to redeem the bottle deposits from these containers. Data obtained from the Kent County MRF suggests that deposit containers in curbside recycling are increasing since 2020. Without a more complete data set, it is not possible to estimate the total number of unredeemed bottles that are recycled through MRFs throughout the state or end up in a landfill.

In 2023, the Kent County MRF processed over 387,000 pounds of aluminum, of which 81.5% was Used Beverage Container (UBC)-grade aluminum. This includes cans eligible for Michigan's 10¢ deposit as well as non-eligible containers such as non-carbonated alcoholic beverages. Without knowing the fraction of eligible and non-eligible containers, Table 2 provides an upper limit for unredeemed deposit containers processed by the MRF. The UBC-grade aluminum load translates to over 10 million cans, carrying a potential deposit value with an upper threshold of $1 million. The MRF sold this material as scrap for $164,674, 16.3% of the value of what could have been obtained if it were able to redeem the full deposit.

As a result of increasing beverage containers in their recycling stream, MRFs handle more volume. On one hand, MRFs must process the additional material without additional compensation beyond the scrap value. On the other hand, aluminum has the highest scrap value and contributes significantly to the revenue of the MRF. If bottle bill redemption rates improve, MRFs could face a net loss in revenue as they lose access to this high-value material without a corresponding reduction in processing costs.

Meanwhile, additional glass from deposit containers processed by MRFs represents the opposite issue. Mixed glass recovered through MRFs is often contaminated, making it a loss-generating product on the commodities market. In some cases, it is used as landfill cover, rather than being truly recycled. As more consumers discard deposit-eligible glass into curbside bins, MRFs inherit the burden of processing low-value material that is expensive to sort and difficult to sell.

Consumer complaints related to the bottle bill

Figure 7 shows the number of official consumer complaints filed, provided by the Consumer Protection Division of the Michigan Department of Attorney General. The number of complaints significantly increased since 2019, peak-

Table 2: Financial breakdown for an annual load of used-beverage-container grade aluminum at a Material Recovery Facility.

Total aluminum load in 2023 (lb)	387,960
Deposit beverage container aluminum load in 2023 (lb) [81.5% of total load]	316,187
# of cans (at 32 cans per lb)	10,117,997
Deposit value (10¢ per can)	$1,011,800
Scrap value	$164,674
Scrap value as share of deposit value	16.3%

ing in 2023 at 293. This coincides with reports of consumer confusion during the pandemic, when returns were paused. According to informal feedback from the Consumer Protection Division, the general nature of the complaints reflects increased difficulties returning bottles to specific retailers, as well as consumer confusion around container eligibility.

Notably, the data provided represents only written consumer complaints. Customers who place phone calls are directed to send complaints in writing. The true number of complaints, therefore, may be significantly higher.

EGLE's expenditure of escheats

Treasury's public reports provide details on escheats collected and retailer disbursements but not on how funds are spent. To fill this gap, we obtained expenditure records from EGLE via a Freedom of Information Act (FOIA) request, covering fiscal years 2014–2024. These records provide appropriation-level detail on how unredeemed bottle deposits are used. Total expenditures supported by bottle bill escheats have grown substantially over the past decade, rising from about $26.3 million in 2014 to more than $114 million in 2024. The growth is especially

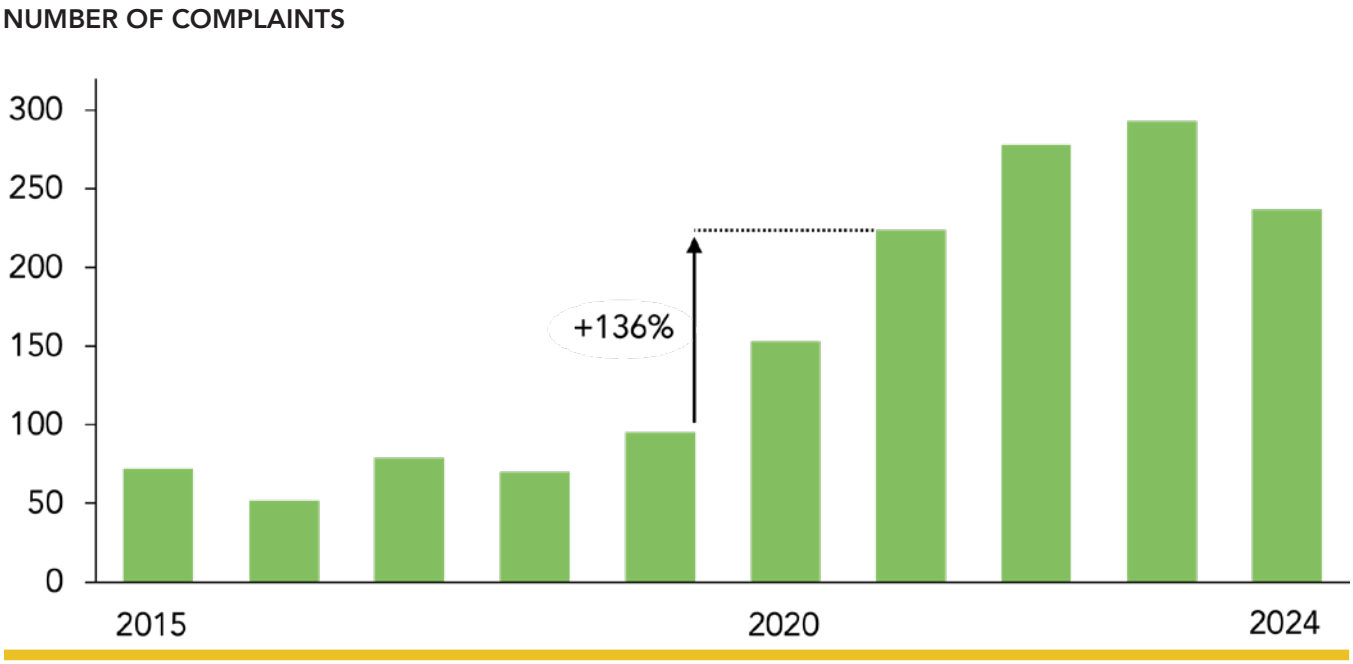

Figure 7: Number of consumer complaints related to the bottle bill from 2015 to 2024. Data Source: Michigan Attorney General's Consumer Protection Division

pronounced after 2020, when expenditures accelerated alongside declining redemption rates, which increased available escheat revenue.

Most expenditures have consistently funded environmental cleanup actions, which dominate the total (Figure 8). These were largely classified as emergency cleanups, contamination site cleanup and environmental investigations. A small but stable share since 2020 has been directed toward recycling initiatives, averaging about 2–3% of annual spending. Administrative costs make up a proportion of the budget, including facilities upkeep, unclassified salaries, IT system upkeep and building management among others.

Overall, the data show that bottle bill escheats managed by EGLE primarily support environmental cleanup with administrative costs playing a minor and diminishing role.

Bottle Bill Enforcement Fund

There is no publicly available data on the number of incidents and investigations of bottle deposit related fraud in Michigan or how the money in the Bottle Bill Enforcement Fund is used. We were unable to establish contact with the State Police Department to obtain relevant data.

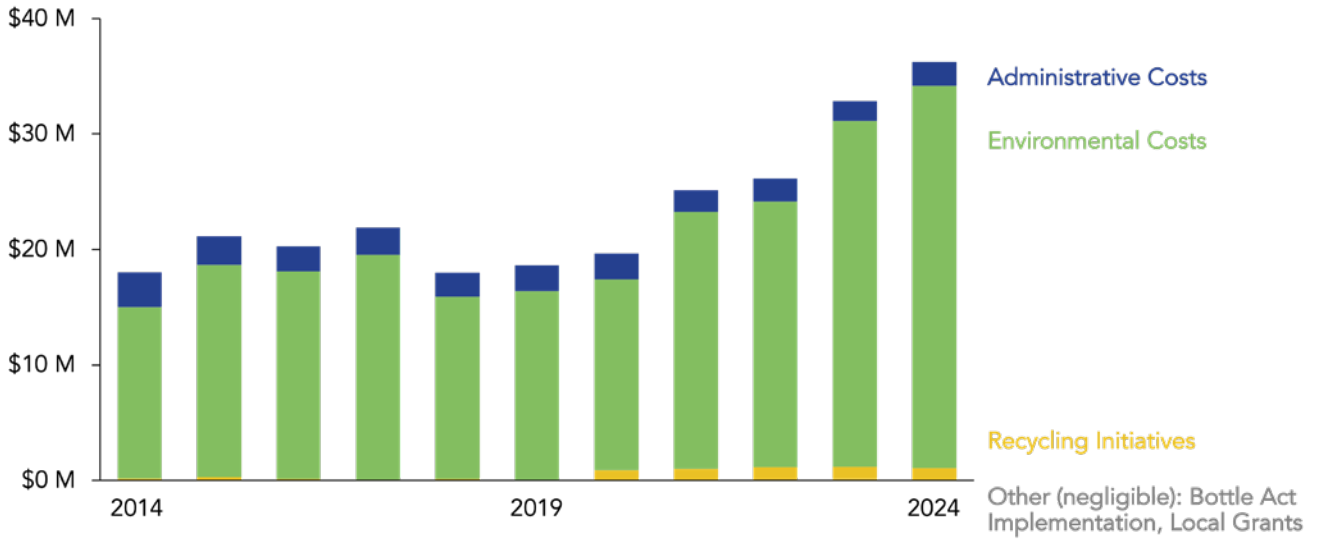

Figure 8: Trends in expenses appropriated in the bottle deposit escheats-funded Cleanup & Redevelopment Trust Fund and Community Pollution Prevention Fund. Data Source: EGLE

Data analysis summary

Data related to the bottle bill is reported by multiple entities, with varying levels of detail. Lack of a comprehensive, consolidated dataset inhibits robust analysis of the performance of the bottle deposit system. This report attempts to synthesize disparate data sources to identify recent trends and gaps in current knowledge. Some key takeaways include:

- The revenue stream from deposit container materials is between $39 million to $65 million, with about 80% of the value coming from aluminum cans.
- Multiple datasets point toward a shift in container redemption from smaller retailers to larger retailers.
- Other than the portion of escheats directed toward retailers, unclaimed deposits are largely not reinvested into the deposit system.
- MRFs handle higher volumes of recyclables since the COVID19 pandemic but are not compensated by the bottle deposit system.
- Consumer complaints related to bottle redemption have significantly increased since 2020.

3. BENCHMARKING & LITERATURE REVIEW

Ten states have bottle deposit laws, each with unique features. In this section, we explore different features of bottle bill implementation, identifying potential opportunities and cautions.

REDEMPTION SYSTEM

Redemption points

Consumers return their deposit eligible beverage containers to redemption points that sort the containers, facilitate deposit refunds, and store the containers for pickup.

In the US, redemption points are usually the retail stores at which the beverages were purchased. In recent years, most bottle bill states have also introduced redemption centers, standalone facilities established to provide greater access and efficient returns for consumers. With technological advancement, most large retailers and redemption centers have RVMs, which automate the process by allowing consumers to feed containers into the machine and receive printed receipts[25]. RVMs are less feasible for smaller retailers due to costs, lower volumes of materials, and space constraints.

Some states allow individual retailers to opt-out from accepting bottle returns if certain conditions are met. Opt-out conditions include being located near a redemption center or having beverage sales under a given threshold (CA, HI, OR, VT), being located in an area with low population density (IA), or by having an agreement with a redemption center (ME). The remaining states have both retail redemption and redemption centers with no opt-out option for retailers (MA, CT, NY).

Even though the Bottle Deposit Law allows redemption centers in addition to retail store returns, Michigan is the only bottle bill state without redemption centers. All Michigan retailers selling deposit eligible containers are mandated to accept returns.

Universal and bulk redemption

Michigan law states that retailers and distributors are only required to accept containers for the kinds of beverages they sell. They are allowed, but not required, to accept containers from brands not carried on their shelves. In some states, consumers can return empty containers to any store. Termed universal redemption, this practice is generally assumed to improve customer experience by reducing bottle refusal rates. Universal redemption is not a common practice by Michigan retailers.

> "Universal redemption – when consumers can return empty containers to any store – is not a common practice by Michigan retailers.

In addition to universal redemption, bulk redemption is a feature that can improve consumer experience. Typically, RVMs require containers to be fed one-by-one. This is time-consuming and can back up bottle rooms. In some states, consumers can drop off containers in bulk instead. This feature typically coexists with universal redemption since sorting containers is not feasible for bulk redemption.

State guidelines can allow universal and bulk redemption with payment based on weight (CA, HI). In Massachusetts and Oregon, universal and bulk redemption exist but payment is based on the number of containers instead of by weight. Some states specify that retailers can opt out of universal and bulk redemption, but redemption centers are mandated to allow them (CT, IA, VT). In Maine, collection is done by a cooperative of distributors on the basis of container type instead of beverage type or brand. Eligible beverages and containers typically have a label indicating the deposit value and the state in which the beverage was sold. Most states have guidelines preventing redemption centers from accepting containers without the state-specific label and it is one of the concerns associated with bulk redemption.

RVM technology is improving, with new lines of machinery able to process bulk deposits. One retail store in Michigan currently has a bulk RVM pilot project, although this option is not widely accessible.

FUNDS IN THE SYSTEM

Deposit value

The best performing deposit systems have a minimum deposit amount of 10¢[26]. A higher deposit value is expected to incentivize consumers to return their containers more frequently.

Michigan was the third state in the US to introduce a bottle deposit law, but the first to have a 10¢ deposit. Some states have increased their deposit value from 5¢ to 10¢ in recent years (OR – 2016, CT – 2021). In Oregon the change had a positive impact, with redemption rates rising to 91% and 85.8% in 2018 and 2019 respectively compared to 64% in 2016.

Some states have kept the deposit value at 5¢ (HI, IA, MA, NY). Others have staggered amounts determined by type of container material or sizes (CA, ME, VT).

Handling fee

Redemption points face tangible and intangible costs, including RVM purchase and maintenance, labor to attend to machines and maintain bottle room cleanliness, space for storage, hygiene issues, and potential for consumer dissatisfaction with the redemption process that could translate to a loss of business.

Every state other than Michigan and Oregon has a handling fee, a small fee paid per container to the redemption points to compensate for these extra costs. The payment of handling fees is most commonly borne by the distributor. Once the distributor receives the empty container, they are expected to refund the deposit plus the handling fee per container to the redemption point.

Some states have a universal handling fee irrespective of the type of container (NY – 3.5¢, IA – 3¢, ME – 6¢). Others have a staggered handling fee (CT – 2.5¢ for beer and 3.5¢ for all others, MA – 2.25¢ to retailers and 3.25¢ to redemption centers).

The remaining states have a handling fee along with another stream of funding, the structure of which is highly variable by state. Michigan is 100% return to retail, with retailers receiving a portion of the escheats based on beverage sales. The handling fee issue becomes important with discussions of redemption centers, since there is not currently a mechanism to fund redemption center establishment or operation. Oregon does not have a handling fee yet has redemption centers funded by the Oregon Beverage Recycling Cooperative in partnership with retailers[27].

Escheat distribution

The bottle bill states have different allocation procedures for distributing escheats. In Michigan, 75% of the amount goes to EGLE, and 25% is distributed to retailers. The latter is distributed proportionally, based on the number of deposit containers sold by the retailer.

New York and Connecticut also have a partially state-owned escheats model, with differing allocations to the state and to distributors. In other states, all the unclaimed deposits are held by the government (HI, MA, VT, CA).

In Iowa, unclaimed deposits are retained by beverage bottlers and distributors. There is no explicit guidance provided on how this money can be used. In both Maine and Oregon, the unredeemed deposits are held by distributors under a common fund housed by the commingling cooperative.

With unredeemed deposits, the question is not just who they are going to but also how the funds may be used. Some states have explicit guidance on what

activities the funds can be used for, while others have more ambiguous directives. Whether there is an ideal way to use these unredeemed deposits is a frequent and important debate.

CONTAINERS/BEVERAGE TYPES INCLUDED

Each of the bottle bill states includes a different list of deposit eligible containers. In Michigan, the law covers carbonated drinks including soft drinks, carbonated water or other nonalcoholic drinks, beer, ale or other malt drinks and mixed wine or spirit drinks. Currently, Michigan's law covers about 55% of the total beverages sold in the state. Maine has the bottle bill covering the highest percentage of bottles sold (92%), followed by CA, HI, OR (88%), NY (79%) and IA (63%). The only states with lower coverage than Michigan are VT (46%) and MA (41%). Typically, the beverages in the most expansive bottle bills include all carbonated and non-carbonated drinks except milk-based drinks.

LITERATURE REVIEW

Research consistently suggests that deposit refund systems (bottle bills) are superior recycling mechanisms to alternative waste management policies such as disposal fees, recycling standards, and recycling subsidies[28]. Comparative models show that while an advance disposal fee may encourage source reduction, it does little to promote recycling. Similarly, a subsidy for recycling increases recycling activity but can unintentionally expand overall material use by lowering production costs. By contrast, a deposit–refund system provides dual incentives: it both reduces waste generation and promotes recycling by directly linking financial rewards to proper disposal behavior[29].

The concept of Extended Producer Responsibility (EPR) has become increasingly central to modern waste policy. EPR requires producers to take on responsibility - financial or physical - for the end-of-life stage of their products. Deposit systems align neatly with EPR principles, since they transfer part of the responsibility for recovery and recycling back to producers and distributors[30]. More than forty countries now operate deposit systems for beverage packaging, and some have extended the model to cover batteries, tires, and even electronics. This demonstrates the scalability of deposit principles across product categories, suggesting their relevance for broader circular economic strategies.

Empirical studies confirm that deposit systems reduce pollution and increase recycling rates.[31] Household surveys consistently show that consumers respond strongly when the financial incentive is explicit: bottle bills tie rewards directly to the act of container return. One survey described household recycling behavior as "all-or-nothing": once a household

> "Empirical studies confirm that deposit systems reduce pollution and increase recycling rates.

adopts a disposal mode (deposit return or curbside), they typically recycle either all or none of their bottles[32]. This highlights the importance of policy design: once consumers are nudged into one system, they are likely to remain consistent users, amplifying the effects of the chosen policy instrument.

Deposit systems also have notable distributional effects, particularly for low-income populations and provide meaningful income supplements for informal recyclers such as canners, scrap dealers, and the homeless. A survey in California revealed that households earning less than $10,000 annually gained an average of $340 per year through container redemption, and that fewer than 50% of redeemed containers were returned by the original purchaser[33]. This suggests that secondary collection networks - often composed of low-income individuals - play a critical role in the overall redemption system.

Accessibility is another crucial determinant of performance. Recycling rates have been found to decline steadily as the distance to redemption centers increases, with rural residents recycling about 25% fewer bottles than urban residents[34]. However, rural respondents were more likely to use recycling centers when they were accessible. These findings suggest that consumer convenience is not merely an operational detail but a central equity issue: expanding redemption infrastructure in rural areas could significantly boost statewide redemption rates.

One frequently cited concern is the substitution effect between curbside recycling and deposit–refund systems. Critics argue that the coexistence of both programs may create inefficiencies or competition[35]. Evidence from California indicates that while curbside recycling volumes decreased slightly when deposit laws were in effect, overall recycling volumes increased[36]. A 1985 review similarly found that deposit systems outperformed curbside recycling in recovering high-value materials such as aluminum, while also improving the quality of recyclables collected by curbside programs through source separation[37]. Together, this suggests that deposit and curbside systems are not mutually exclusive but can be complementary when designed to target different material streams.

Finally, evidence shows that deposit laws covering plastic water bottles have especially high returns. A household survey found that recycling rates peak when water bottles are included in deposit laws[38]. More recently a study analyzed

New York's 2009 bottle bill expansion and found that unrecycled plastic in the state declined by 44%. Interestingly, they also observed a drop in bottled water sales (especially small-format bottles) alongside an increase in redemption rates. Consumers shifted toward larger package sizes to minimize deposit costs, yet the higher redemption share meant that total unrecycled plastic fell sharply[39]. This paradox illustrates the strength of deposit systems: even when they alter consumption patterns, they still achieve substantial environmental gains.

In sum, the literature demonstrates that deposit–refund systems consistently outperform alternative recycling policies, offer progressive social benefits, and can coexist productively with curbside programs if well designed. However, much of the existing evidence is either comparative across states or based on international experiences, with relatively little focus on the unique institutional, economic, and political context of Michigan's deposit system.

4. STAKEHOLDER ENGAGEMENT & ANALYSIS

DESCRIPTION OF ENGAGEMENT PROCESS

Stakeholder engagement to capture perspectives across the industry consisted of three phases: conducting individual interviews, participating in site visits, and convening a one-day stakeholder workshop.

Interviews

We conducted 19 interviews representing various perspectives:

- Government/policy (2 interviews)
- Environmentalist/nonprofit (2)
- Recyclers/haulers (5)
- Distributors/manufacturers (2)
- Packaging producers (3)
- Large retailers (2)
- Small retailers (3)

The semi-structured interviews attempted to capture the interviewee's experiences with the bottle deposit system, identifying what was currently working well and opportunities for improvement. A snowball sampling method was used to identify interviewees. We rely on the results from prior surveys to incorporate the consumer perspective, as survey administration was outside the scope of this project.

The interview transcripts were compiled and analyzed using NVivo 15, a qualitative data analysis software. Key themes were identified and categorized by stakeholder groups to gain insight into differences and similarities between stakeholder groups.

The top themes from the interviews provided the basis for the stakeholder workshop discussions.

Site visits

We conducted three site visits to understand bottle bill and recycling operations:

1. Schupan Inc. and TOMRA North America Inc.: Wixom, MI. A facility tour included discussion of RVM operational design, optimization of the UBCR pickup system and materials processing.
2. Meijer Inc.: Lansing, MI. Tours of two stores and a distribution facility allowed us to collect perspectives of store managers and workers about their experience with bottle returns and see the store backrooms.
3. Kent County Department of Public Works: Grand Rapids, MI. A tour of the Kent County Recycling and Education Center included an overview of their recycling system, technological advancements and material markets.

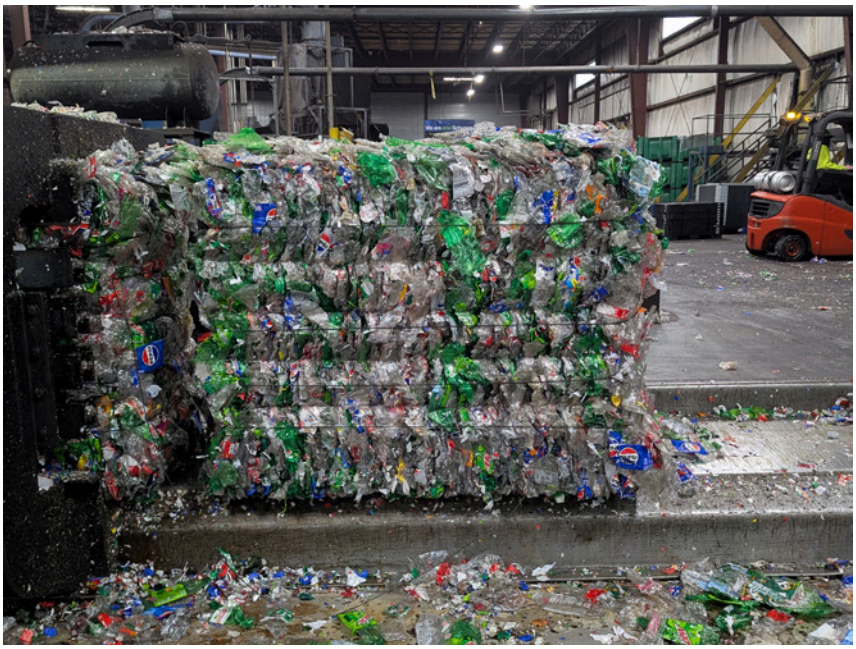

Figure 9: Visuals from the three site visits conducted at Schupan Inc., Meijer Inc. and the Kent County Department of Public Works Recycling Education Center.

Stakeholder workshop

In April 2025, a one-day stakeholder workshop convened 61 attendees from across the industry: government and policy representatives, recyclers, retailers, distributors, packaging producers, environmental organizations, community groups, and academics.

The workshop included nine facilitated discussions under three themes:

- **Key Actions/Opportunities for the Bottle Bill:**
  - Expansion of Eligible Containers
  - Alternative Redemption Options
  - Curbside and Bottle Deposit Coexistence
- **Enabling Needs for the System:**
  - Technology Advancement
  - Data
  - Funding
- **Recycling/Circularity Outside the Bottle Bill:**
  - Extended Producer Responsibility
  - Lessons from the Bottle Bill
  - Consumer Education and Engagement

Figure 10: Visuals from the multistakeholder workshop conducted at the University of Michigan Ann Arbor campus.

The breakout groups were structured to encourage solution-oriented discussions on issues identified during the literature review, benchmarking, and interview process. This section attempts to capture the diversity of viewpoints expressed during the workshop. We present opinions, perspectives, and suggestions as expressed by participants as faithfully as possible, without direct comment on their validity or feasibility.

KEY ACTIONS/ OPPORTUNITIES FOR THE BOTTLE BILL

Expansion of eligible containers

Michigan's bottle deposit law currently covers approximately 55% of beverages sold in the state. The law has not kept up with the growth of the beverage market and as a result many beverages sold today are not deposit eligible. News reports and anecdotal evidence suggest that consumers have expressed frustration about certain containers not being accepted by RVMs, not realizing that they were not deposit containers. This is also one of the major sources of consumer complaints shared with us by the Attorney General's Office.

An expansion would entail increasing the deposit eligible containers to include more beverages and container sizes. The most expansive bottle bills in the country include every carbonated and non-carbonated beverage except milk and milk-based drinks. Bottled water, today the largest selling beverage, is not included in Michigan's bottle deposit law.

Implementing this change would require an amendment to the Michigan Beverage Container Act. Such an amendment can be achieved in one of two ways: (1) a ¾ majority in the House and Senate or (2) voter referendum. Multiple bills have been proposed to expand the system in the past but failed to follow through, including the most recent effort in 2024.

To understand the feasibility and implications of expansion, we asked stakeholders for their perspectives based on their role in the system.

Interview insights

Stakeholder interviews revealed a general recognition of the potential benefits of expansion, especially in capturing more material and improving environmental outcomes. However, nearly all groups emphasized that expansion cannot succeed without significant upgrades to the current system infrastructure and funding model.

Table 3: Summary of Stakeholder Positions on Expansion of Michigan's Bottle Deposit Law

STAKEHOLDER GROUP	KEY THEMES	REPRESENTATIVE QUOTE
Large Retailers	Stated that without addressing the burden on retailers an expansion will be costly.	"Redemption rates have to increase. But collecting every water bottle that's out there in the store would be incredibly burdensome for us."
Small Retailers	Stated that an expansion would increase hygiene issues and take up space as they have to wait longer for container pickups.	"Well, we are so limited in space....to add on more would be a disaster."
Distributors/Manufacturers	Do not support an expansion without a plan for funding infrastructure to support the addition.	"We have always said expansion should not occur until there is a legitimate way to fund infrastructure."
Recyclers/Haulers	MRFs expressed concern over the diversion of material from the curbside stream, private facilities are more neutral.	"It would reduce our revenue, and it would impact us negatively. No question about it."
Packaging Producers	Support an expansion as it would lead to better quality material being captured and available for bottle-to-bottle usage.	"Water bottles are the largest beverage container segment. And then, obviously, juice and other carbonated drinks. I would think that a deposit return system would need to include those bottles."
Government/Policy	No strong position but acknowledge that the law is outdated.	"From my point of view, the biggest problem is that the statute is so seriously out of date."
Environmental organizations	Support an expansion but with a plan to handle the material and ensure that consumers are not burdened in the process.	"A sticking point is if there's an expansion how would adding a dime to water bottles impact communities that are challenged economically and have to depend on that water."

Workshop insights

At the workshop, expansion was seen as a key opportunity to improve environmental outcomes and convenience of the system, but concerns were raised about infrastructure readiness, system design, and unintended consequences especially for vulnerable communities and small retailers.

Some key challenges that came up during the discussion included:

- Operational burdens on retailers having to handle larger material volumes.
- Infrastructure limitations including lack of universal and bulk redemption.
- Potential of a financial burden on communities depending on bottled drinking water.
- All containers would need to meet specific recycling standards, risking more landfilled material if not met.

In the second half of the discussion, participants were encouraged to discuss solutions to the challenges raised.

Key Themes and Takeaways:

1. **Refill and Reuse Systems**

   Participants supported integrating refillable containers into the deposit system to promote circularity. Citing emerging policies from states like California, they proposed incentives for consumers and manufacturers to support container reuse over single-use recycling. Michigan law already permits refillables and exempts them from certain labeling rules, offering a legal pathway for integration.

2. **Redemption Centers**

   The establishment of redemption or drop-off centers was suggested to relieve pressure on retailers and improve access.

3. **Compliance**

   Participants called for clearer and more consistent guidelines for acceptable containers, particularly in small retail stores where manual returns are common. From a manufacturer perspective, design standards were also encouraged to ensure containers introduced under an expanded system are fully recyclable.

4. **Consumer Focused Measures**

   To address confusion and increase return rates, participants recommended public awareness campaigns focused on eligible container types, return locations, and system benefits. One community representative noted a perceived stigma around bottle return in certain communities, where the act of redeeming the dime may be seen as a mark of financial hardship, deterring consumers from returning containers. Targeted messaging was suggested to help normalize participation across income groups.

Summary

As reflected across interviews and workshop discussions, a key concern raised by many stakeholders was that Michigan's current bottle deposit infrastructure is not equipped to handle the additional material that expansion would bring. Stakeholders emphasized that without investments in infrastructure, expansion could create bottlenecks, increase costs, and reduce system efficiency.

Distributors expressed concerns about having to handle higher volumes without additional compensation or logistical support.

Retailers expressed concerns about the tangible and intangible costs of expan-

sion, such as limited backroom space, hygiene issues, and increased labor needs. These concerns were especially pronounced among smaller retailers with limited capacity.

Packaging producers viewed expansion favorably. They highlighted the opportunity to recover higher-quality material for bottle-to-bottle recycling, improving circularity within the system. In another discussion at the workshop around consumer education, we heard that water bottling companies are finding it hard to get enough material back to create 100% recycled bottles. Including them in the bottle bill is seen as favorable by these groups to mitigate this.

However, this presents a downside for MRFs, which risk losing valuable PET and aluminum to the deposit stream. This material diversion could impact the financial viability of municipal recycling programs that rely on the resale of high-value commodities.

Among other stakeholder groups, private recycling companies and government representatives tended to express neutral or conditional support for expansion. Environmental organizations generally supported expansion but emphasized that it must be paired with measures to minimize consumer burden and ensure equity in system access, especially for marginalized communities.

The inclusion of bottled water in an expanded deposit system was a recurring topic of concern across stakeholder groups. While nearly all other bottle bill states include bottled water under deposit legislation, Michigan does not. Several participants highlighted that placing a deposit on bottled water could disproportionately affect low-income and water-insecure households, where residents rely heavily on bottled water due to concerns about the safety of their tap water. Stakeholders stressed that if bottled water is to be included in an expansion, it must be accompanied by:

- Accessible and convenient redemption options, particularly in under-resourced areas.
- Public communication strategies to ensure understanding and ease of use.

Alternative redemption

The alternative redemption discussions focused on universal redemption, and alternative redemption strategies such as bulk redemption and redemption centers.

Universal redemption is where consumers can return their containers to any store, irrespective of whether it sells the brand. This lifts the burden on consumers to sort through the empties and risk being refused at the redemption point. Bulk redemption allows consumers to return a

bag of containers instead of feeding them one by one, saving time. Redemption centers are non-retail sites that exist to facilitate deposit container returns and collections, providing consumers with more options for return sites and taking some burden off retailers. As highlighted in Section 3 of this report, other bottle bill states have introduced alternative redemption models in recent years. We asked stakeholders for their perspectives on the feasibility of alternative redemption models in the state deposit system.

Interview insights

Among the interviewees, there was broad consensus that a bulk bag system would be most convenient for the customer. However, stakeholders had nuanced opinions on the feasibility and benefits of alternative redemption.

Workshop insights

Workshop participants explored the potential for alternative redemption systems to improve convenience, reduce retail burden, and expand consumer access. The conversation highlighted broad support for modernizing redemption beyond the current model, while also revealing questions about accountability, funding, and equity across geographies and retailer types.

Key Themes and Takeaways:

1. **Bulk and Universal Redemption**

   Two core issues emerged repeatedly: the need for bulk redemption options to handle large quantities more efficiently, and the need for universal redemption for uniformity. These were seen as critical to increasing return rates and reducing confusion, but they also introduce logistical and legal complexities.

2. **Consumer Convenience and Equity**

   Participants widely agreed that the current system is inconvenient for many consumers and burdensome for small retailers, particularly in rural or remote locations. In cities like Detroit, residents may lack vehicles, time, or retail access to return bottles, even if the deposit might be financially important. In rural areas, residents may have no curbside recycling, and limited access to redemption facilities.

3. **Funding**

   In other states, redemption centers get a handling fee per container from distributors, adding another cost to the system. The absence of a clear funding mechanism was a major barrier identified. Participants questioned how new redemption centers

Table 4: Summary of Stakeholder Positions on Alternative Redemption Strategies in Michigan

STAKEHOLDER GROUP	KEY THEMES	REPRESENTATIVE QUOTE
Large Retailers	Favorable opinion of redemption centers, stating that it would alleviate their burden.	"Absolutely, frankly, I think that that's a very viable solution to lift that burden and make a more seamless experience for the public...introducing some more sophisticated automation and speeding up that transaction would also be helpful."
Small Retailers	Support redemption centers but stress that they should be equitably located.	"The biggest question with redemption centers, of course, is, how do you fund it?"
Distributors/Manufacturers	Expressed skepticism about local redemption centers, citing concerns about fraud and funding.	"We as citizens are much less likely to make a trip to the redemption center to return our cans than we are, I think, to the store where most of us are already visiting."
Recyclers/Haulers	Mixed opinions. Some supported alternative redemption given the consumer convenience while others stated that coordination across groups to set them up would be time consuming.	"The question on redemption centers is who's going to pay for them. You're talking about brick and mortar that need to be set up. There's capital investments that need to be made."
Packaging Producers	Support alternative redemption models because they can contribute to improved consumer access and convenience, however infrastructure needs to be adequately set up,	"We've been advocating since 2020 for changes that allow and promote even not to discontinue return to retail wholeheartedly but add to it some other independent, unattached redemption, depots or bag collection, bag drop - expand the ways that people can redeem."
Government/Policy	Emphasized that alternative redemption models would need voluntary participation, since they were not mandated by law.	"Retailers or dealers under the law can accept containers for beverages they don't sell, but it's optional. I don't know if any do it."
Environmental organizations	Support alternative redemption especially in tandem with expansion to increase system capacity.	"Integrating the redemption center model into comprehensive drop-off recycling locations (also known as CHARMS) will leverage the dime to get people to visit their local comprehensive drop-off location for items like paint, batteries, household hazardous waste, and recyclables."

would be financed and operated, who would pay for them, and how the 10¢ deposit would flow through the system under alternative models. While Michigan's current system directs unclaimed deposits to the state treasury, other models were discussed as more distributor-driven (OR, CT).

4. Legal Accountability

Participants noted a lack of clarity in the law regarding which entities are responsible for pickup, processing, and funding in a decentralized system. For example, it is unclear who is obligated to collect containers from isolated communities like

Beaver Island. Language that clarifies accountability for stakeholders was suggested to mitigate these issues.

5. Opportunities for Alternate Redemption

Participants emphasized that expansion or redesign must consider regional differences, retailer capacity, and consumer preferences, such as curbside pickup or digital redemption. Others suggested that scrap yards could be integrated more formally into the system with "bottle rooms" or redemption drop-off zones. Participants discussed how technological advancements, such as automated sorting and barcode-based drop-off, could improve the consumer experience and reduce reliance on retail labor. These technologies could enable mobile, drop-off, or bulk systems that are less messy and more efficient.

Summary

Most stakeholders agree that the ability to drop off a bag of containers is easier than feeding bottles one by one at specific retail stores.

Implementing bulk and universal drop-off faces legal and financial hurdles. Michigan law does not currently mandate universal redemption which is essential for bulk drop-off to function effectively. Mandating universal redemption at retailers would require a change to the initiated law. Among government stakeholders we spoke with, one said this is a time-consuming process while the other highlighted that the law already implicitly permits universal redemption and would not require a change.

A workaround is to establish non-retail redemption centers where universal redemption and bulk drop-off are required - an option that is legally permissible but rarely implemented due to funding challenges. Another barrier is the language of the law, which directs distributors to collect empty containers from "dealers". Therefore, non-retail redemption centers would have to be defined as "dealers" to be integrated into the system.

The question of who pays emerged as the most significant barrier. Across interviews and workshop discussions, stakeholders repeatedly cited the lack of a clear and sustainable funding mechanism for new infrastructure and operations. Consensus on a feasible approach to a sustainable funding model did not emerge.

Finally, while some distributors and recyclers argued that return-to-retail is already the most consumer-friendly model, workshop participants emphasized that this often assumes access to transportation and large stores. In urban or rural communities with limited retail presence, vehicle

access, or curbside service, mobile or community-based redemption options could significantly improve access and equity. Several participants proposed allowing third-party collection services, but such systems would also depend on mandated universal and bulk redemption to operate successfully.

Curbside and bottle deposit coexistence

Michigan operates a dual system, with both curbside recycling and the deposit return system, although curbside recycling is not universally available. As redemption rates in the state dropped, more deposit containers have been showing up at MRFs. Industry stakeholders often support repealing the bottle deposit law in favor of a curbside-only model; however, the bottle deposit system has its merit, providing containers that are recycled at higher rates with better material quality. Curbside models generally tax consumers to fund the system as opposed to the deposit return where funding comes from the industry.

The bottle deposit also plays a larger role than supplying quality material. In many bottle bill states, there are informal recyclers, nonprofit groups and marginalized individuals who rely on the deposit as a source of financial support. Literature suggests these groups face issues with limitations on return amounts and an unwelcoming environment at redemption points, but it remains an important livelihood income strategy. This sector is still very understudied and the extent to which informal recycling factors into broader material management trends is unclear.

In this report, we assume that the bottle deposit system and curbside recycling system in Michigan will continue to coexist. In conversations with stakeholders, we attempted to find the intersection points between the two to maximize overall recycling potential.

Interview insights

Largely, stakeholders acknowledged that curbside and deposit systems have coexisted in Michigan for a long time and both have their advantages and contributions to recycling efforts. At the same time, some interventions are required to improve the performance of both systems.

Workshop insights

At the workshop, stakeholders discussed the coexistence of curbside recycling and Michigan's bottle deposit system, exploring how the systems currently interact, what tradeoffs exist, and what policy, funding, and infrastructure reforms could improve systemwide outcomes. The conversations revealed complex dynamics around quality, economics, access, and policy mandates especially in the context

Table 5: Summary of Stakeholder Positions on Curbside Recycling and Bottle Deposit Coexistence

STAKEHOLDER GROUP	KEY THEMES	REPRESENTATIVE QUOTE
Large Retailers	Having both systems provides consumers with a choice and provides high value material to MRFs	"You're giving your customer the choice. Having curbside allows the opportunity to continue to recycle those cans, albeit without getting that financial benefit."
Small Retailers	Having only curbside systems will improve recycling rates	"Move it to one system, curbside, because that's something you can offer statewide in every community. Do some real recycling."
Distributors/Manufacturers	Having a separate system stimulates overall recycling and impacts profitability for recyclers.	"The ease of curbside recycling is great. Curbside recycling is cheaper. It's my understanding when it has the aluminum in it, it's the most profitable commodity."
Recyclers/Haulers	Agree that systems have coexisted and need to coexist, but curbside also needs investment	"I think they can coexist. But I also think it's time that these programs work better together."
Packaging Producers	A well-run deposit system can improve the quality of non-deposit materials in the curbside system	"They can effectively coexist. In fact, a bottle deposit program can improve the efficiency of the curbside commingled system."
Government/Policy	Emphasized support for the coexistence of both systems to further material recovery in the state	"In Michigan, to grow the circular economy, we take an "all of the above" approach. Michigan is proud of our deposit law and we are proud of the progress we are making on expanding curbside recycling"
Environmental organizations	The two systems have to coexist for closed loop recycling, but it is important to acknowledge the loss of value for recyclers.	"I walk this line between supporting the bottle bill, recognizing the benefits and making sure that the systems could be upgraded to collect all the bottles at the curb if we invested in that system too."

of ongoing debates about the role of extended producer responsibility (EPR).

Key Themes and Takeaways:

1. **Quality and Quantity of Recyclables**

   Participants emphasized that returned deposit containers are generally of higher quality due to source separation, making them more valuable for closed-loop recycling. However, some participants noted that market-driven processors purchase both deposit and non-deposit material, and in practice, these materials may end up in similar end-markets regardless of origin. For glass, the economic and processing challenges persist across both systems, although it is particularly challenging for curbside recycling.

   In terms of quantity, while deposit containers make up a small portion of the total recycling stream, they

account for a disproportionate share of revenue. Any increase in bottle bill volumes raises issues for MRFs when that value is removed from their stream.

2. System Economics

A major theme was the challenge of funding. MRF operators and community representatives pointed out that the most valuable materials (aluminum and PET) are diverted through the deposit program, reducing the ability of communities to fund robust curbside systems. Some argued that while both systems extract value, that money is rarely reinvested in the system, and communities have limited access to it.

Some participants questioned the fate of the deposit when containers end up in curbside bins. In such cases, the unredeemed dime returns to the distributor or the state, without supporting the MRF that collected the material, prompting discussion about whether EPR or policy reform could redirect funds more equitably across systems.

3. Access and Equity

Participants emphasized that access is uneven across urban, suburban, and rural areas. Michigan's updates to the Solid Waste Law (Part 115 of the Natural Resources and Environmental Protection Act), often referred to as Part 115, was brought up frequently in the conversation. Passed in 2022, Part 115 establishes a new statewide framework for materials management planning, requiring counties to ensure universal access to recycling services through curbside or drop-off options. These changes aim to improve diversion and resource recovery. Participants highlighted the opportunity for county-level Materials Management Plans to identify actionable strategies to improve access to both recycling and redemption.

4. Opportunities for Reform

Despite some skepticism about dual systems, most participants agreed that the bottle bill and curbside recycling can and should coexist. Several proposed better integrations of funding, stronger consumer education to reduce contamination, and consideration of full-cost accounting that includes environmental costs, not just operational expenses. Participants also flagged the importance of community access to infrastructure in shaping system success. For example, opt-in curbside programs like in Detroit still rely heavily on outside grants to fund carts. Rural residents, in turn, may lack access altogether.

Summary

Overall, most stakeholders agree that both systems should continue to coexist. Participants voiced support for policies like Part 115 to improve transparency around recycling progress and operations, as well as build systems that are suited to the specific needs of individual communities.

Funding remained a key consideration. Bottle deposit material was highlighted to be of higher quality, meaning an increase in redemption would divert high-value materials (aluminum and PET) away from curbside streams and impact their revenue. It was noted that MRFs are currently unable to redeem the dime on deposit containers that show up in their facilities. Allowing MRFs to redeem the dim may offset some of the revenue loss, a proposal that did not receive consensus support. Finally, participants highlighted that the money made from the deposit and curbside systems are rarely reinvested in recycling and circularity in the state. For both unredeemed deposits and the value from the material sales, there is confusion from some stakeholders on where and how the money is spent.

Convenience to consumers came up in this theme as well, with distributors and small retailers stating that dropping containers in curbside is probably easier than redeeming a dime. Other stakeholder groups suggested that there is an opportunity to improve access to present more freedom to consumers to choose what they will do with containers. This would mean increasing access to curbside recycling and drop-off centers and improving redemption accessibility. Participants noted that this consideration has to span urban, suburban and rural geographies.

Ultimately, participants agreed that coexistence is possible, but current inefficiencies must be addressed through coordinated reform. EPR was repeatedly cited as a potential mechanism to fund local infrastructure and offset the loss of high-value materials from municipal streams.

ENABLING NEEDS FOR THE BOTTLE DEPOSIT SYSTEM

Technology advancement and infrastructure

When Michigan's bottle deposit law was first implemented, container returns were handled manually. This remains true for many small retailers. Over the past decade, large and medium-sized retailers have increasingly adopted Reverse Vending Machines (RVMs) to automate the process. These machines are programmed to recognize eligible materials, container types, and sizes, rejecting items that do not meet specifications. RVMs reduce the

physical burden on employees and lower the risk of injury and contamination from handling returned containers.

Despite their benefits, RVMs have limitations. The initial capital cost can be a barrier, especially for smaller stores. Maintenance issues and machine downtime are also common. When RVMs fail, stores must revert to manual returns, which can be time-consuming and unpopular with staff and customers alike.

Advances to RVMs support bottle deposit modernization, such as designs to support bulk returns. Technological advancements have also played a role in the curbside recycling system. MRFs and private processors often have robotic arms for sorting and are increasingly adopting AI-based optical sorters to maximize quality material recovery. However, the machinery is typically programmed for single component materials and MRFs can face issues when dealing with plastic film, multilayered or mixed material plastics. Automation at MRFs reduces costs but also leads to a reduction in the workforce at facilities.

Addressing some of these challenges and identifying where technological upgrades could benefit both curbside and deposit systems could help improve material recovery and consumer participation. To understand future opportunities and ongoing challenges, we asked stakeholders for their views on technological advancement in the system.

Interview insights

The interview insights revealed broad stakeholder support for technology in the bottle deposit system, particularly RVMs, AI, and sorting equipment. While recognized as essential for fraud prevention and operational efficiency, concerns remain around high costs, maintenance, and equitable access; especially for smaller retailers.

Workshop insights

At the workshop participants engaged in a discussion around opportunities to incorporate technological advancement to improve the performance of the bottle deposit system. The discussion also looked at areas to prioritize and what challenges could arise.

Key Themes and Takeaways:

1. **Technological Innovations for System Efficiency**

   Representatives from RVM manufacturing groups stated that barcode scanning remains the gold standard in processing eligible containers. Digital watermarking and AI-driven optical sorting is being explored to improve accurately capturing containers. Optimizing the transportation required to pick up empty containers

Table 6: Summary of Stakeholder Positions on Technology as an Enabling Factor for Bottle Deposit Implementation

STAKEHOLDER GROUP	KEY THEMES	REPRESENTATIVE QUOTE
Large Retailers	Concerned with RVM downtime and associated customer satisfaction risk.	"If you have a bank of 5 machines and 2 go down for whatever reason. And then, [a customer] is unable to use them, he has a frustrated experience, and he's going to associate that frustration with the brand.'
Small Retailers	RVMs are costly but helpful investments. They have frequent maintenance issues.	"The machines are almost $30,000. It does cost us a maintenance fee to keep them up and running, so they are costly, but it's a double-edged sword, you know. You either have that, or you don't have it."
Distributors/Manufacturers	Support technological advancements in RVMs and material sorting but with state supported grants	"You could take those escheats. You could create a fund and have EGLE run a grant program where when a retailer needs new RVMs they get money for the new RVMs. Or when the distributor needs a new glass crushing machine."
Recyclers/Haulers	Emphasize the benefits of AI and robotic sorting at facilities. Also state that RVMs have made it easier to capture data and prevent fraud.	"The technology incorporates needs from all the different stakeholders, right? That's why it's valuable, not just to incorporate the needs of the retailer and the consumer experience, but also starts to look at, you know, how the distributors interface."
Packaging Producers	Stress the need to continue modernization of technologies in RVMs to improve material quality and prevent fraud.	" We have companies that have invested billions of dollars in developing recycling assets and recycling technology and have put plants in place, and the biggest drawback right now is they can't get enough material."
Government/Policy	Acknowledge the need for technology to prevent fraud in the system	"Everybody uses reverse vending machines. So if you're going to automate it then common sense tells you that somehow something that designates it as a Michigan container would have to be able to be read or available to that reverse vending machine."
Environmental organizations	Support technology upgrades but acknowledge that RVMs can be a financial burden for small retailers.	"Retailers have big retailers who have a lot of costs for RVMs for the recovery and also include mom and pop shops that do not have the resources"

was another possible intervention area noted.

MRFs stated that robotics coupled with AI have been in use at facilities to appropriately sort materials by type and color although there is room for improvement. AI is also being used in curbside pickup trucks to identify contaminants, providing an opportunity to implement penalties for placing contaminants in curbside carts.

2. **Equitable and Accessible Infrastructure**

   Participants emphasized that any new infrastructure and technology advancements should take place with the consideration of equity. For example, redemption centers could be sited in areas where residents have a lack of access to curbside or that have a lower number of RVMs.

   Another consideration here was to have interventions that are at the scale of the regional requirement especially in rural areas. This could manifest as the usage of existing infrastructure to contribute to redemptions such as return hubs located in anchor institutions such as libraries or churches to improve consumer convenience. It could also be the retrofitting of RVMs or other technologies where possible to allow bulk or universal redemption. Participants also noted that technological advancements should be an endeavor to support the workforce and not replace them.

3. **Consumer Education and Outreach**

   Participants acknowledged that other forms of technology like social media also have potential to improve the system particularly by enhancing consumer awareness about the deposit system. Having grassroots outreach methods such as flyers and booths were cited to be important in tandem.

4. **Policy Interventions**

   The need for policy goals to set system standards was emphasized to have clarity on the measures of success. Among the suggestions for impactful policy interventions, participants suggested Extended Producer Responsibility laws, considering a change in the deposit amount and using county specific materials management plans to help identify infrastructure gaps.

   One consumer representative opined that consumers generally have a lack of trust in the system and there is a lack of understanding of what exactly the system wants to achieve among stakeholders. Addressing both is important.

Summary

Our interviews and workshop discussions revealed that technology plays an increasingly central role in Michigan's bottle deposit system, with RVMs being the most widely adopted technological intervention today. Any expansion of the deposit system would require these machines to be reprogrammed, which is possible but resource-intensive and time-consuming.

MRFs have also started integrating advanced technologies. Some MRFs reported the use of AI scanners on curbside trucks to detect contaminants, opening the door to penalties for improper recycling to create feedback loops that improve sorting at the household level and track behavior change. These innovations suggest a growing potential for curbside and deposit systems to not only coexist, but to complement each other through shared data and technology.

Participants in the workshop emphasized that technological advancement must be designed with consumers and communities at the center. Rather than advanced technology, changes to the bottle bill should focus on technology that is appropriate for a particular community's circumstances. A key theme was the need for greater geographic equity in infrastructure deployment. Areas with limited curbside recycling or few RVM-equipped retailers require tailored solutions. Examples include repurposing anchor institutions like libraries and churches to serve as redemption hubs. Community-based redemption centers that integrate other services such as e-waste collection were identified as promising models.

There was a shared sense that many stakeholders and consumers lack clarity on what the system is ultimately trying to achieve, and that restoring public trust will be critical for any technology-driven transformation. Education was viewed as a powerful lever to build support and improve participation while regaining trust of the system working as a closed loop.

Enhancing technology leads to greater costs, potentially exacerbating some of the existing imbalances between large and small retailers and urban and rural communities. Technological improvements should address the gaps to mitigate these issues. Alongside this, modernization must reflect local needs and existing capacities. Not every region needs the same high-end solutions.

Data

Michigan has a mandatory reporting requirement for distributors on the number of deposits initiated and redeemed each year. Apart from this, retailers are required to report on the number of deposit containers sold by them to receive their share of the unredeemed deposits. The total amount distributed to retailers is released each year, but granular details of escheats allocated by store or area are not publicly available.

RVMs track the number and types of containers processed by geographic area. However, since the machines are owned by private entities with confidentiality requirements, these data are not publicly available. There is also no publicly available data on fraudulent redemption in the state.

We asked stakeholders what data they think is important to track and what metrics they would prioritize to measure the effectiveness of the system.

Interview insights

All stakeholders we interviewed widely agreed that better data is essential to guide equitable, transparent, and responsive reforms in the state's bottle deposit system. A few metrics were cited to be important to track the performance of the system, as summarized below:

- **More frequently stated:**
  - Redemption rate
  - Container destination (redemption, curbside, litter)
  - Material volume and flows by type
  - Contamination rate
  - Recovery rate
- **Less frequently stated:**
  - Segmentation by geography, income, retailer or distributor
  - Consumer access, experience, behavior
  - Retailer costs and operational data
  - Value of recovered material

Workshop insights

At the workshop, participants discussed what forms of data they thought were missing in the system and could be tracked. They emphasized that improving data collection and transparency is critical to strengthening Michigan's bottle deposit system. While statewide redemption rates are regularly reported, participants noted that much of it is aggregated or lacks regional granularity. This makes it difficult to evaluate system effectiveness, identify gaps, or inform policy improvements.

Key Themes and Takeaways:

1. **Data Dashboard**

   Participants discussed the need for a data dashboard to track bottle bill performance and the suggested indicators it would track. including:

   - Redemption rate – containers sold vs. containers returned.
   - MRF and curbside stream composition – volume and types of deposit containers showing up in curbside.
   - Contamination rates – share of deposit containers that are unrecyclable due to contamination.
   - Landfilling rates – how many deposit-eligible containers end up in landfills.

- Litter – extent of bottle and can litter, particularly in rural areas.
- Material value – value of aluminum and other materials diverted from landfill.

2. Data Segmentation

Participants highlighted the need for more granularity in the data to better understand areas for intervention or targeted campaigns. Possible methods included:

- Geographic regions
- Distributor and retailer location
- Household income and demographics
- Consumer access– including proximity to redemption centers and hours of operation
- Consumer experience – who is participating, who isn't, and why

3. Financial Transparency

Participants highlighted the need to better understand how the economics flow in the system, including:

- Total cost and benefit of running the system and who bears it
- Quantified retailer burden including space, labor, RVM maintenance costs
- Allocation of escheats, highlighting project types and funding amounts

4. Data Sharing Requirements

Some industry representatives noted that they would be reluctant to share competitive data. Participants noted that data sharing could be made easier for all with clear legal requirements or incentives. Making reports anonymous or aggregated such that individual identifiers are removed was another suggestion.

Summary

Understanding the consumer journey was highlighted as especially important for improving redemption rates and designing interventions that are equitable and accessible. Gathering the time commitment, barriers and motivations to return containers were some ways proposed to capture this. Stakeholders also suggested considering the experience of consumers who may rely on the deposit returns for supplemental income or who live in areas with limited access to redemption infrastructure.

Examples from other cities were cited to illustrate how data can support more inclusive and socially responsive systems. For instance, "Ground Score" in Portland and "Sure We Can" in New York collect

and share data on the informal recyclers who depend on container redemption for income, ensuring their needs are not left out of policy decisions. Participants agreed that any future reform of Michigan's bottle deposit system must be grounded in data that identifies who will be affected and how, particularly vulnerable or marginalized communities.

Stakeholders raised strong concerns about transparency around escheats. There is widespread public interest in knowing how these funds are used and whether they are reinvested in the system. Stakeholders emphasized that escheats are public money, and that annual reporting should be required to ensure accountability. While industry representatives expressed concerns about releasing competitive information, participants proposed developing an anonymized reporting framework to ensure confidentiality while promoting accountability.

Michigan's deposit system has a stronger data infrastructure than other states, but it remains too opaque to fully guide system improvements. There is no one entity that collects, organizes, and disseminates annual state-wide material and recycling data. Higher resolution, county-level data is needed to make better decisions that impact specific communities. Stakeholders stressed that a more robust data framework would need to facilitate reporting from all stakeholders that are part of the system, including consumers.

Finally, most stakeholders agreed that assembling these metrics in a comprehensive data dashboard updated annually is needed for better transparency and monitoring.

Funding

Funding emerges as a common roadblock, whether it is for capacity improvements, infrastructure upgrades and monitoring and evaluation. EGLE has awarded grants to stakeholders to improve the deposit system. Recent examples include the grant for a redemption center in Beaver Island and a grant to pilot a bulk deposit RVM in the state. Nevertheless, there is a lack of a consistent stream of funding for the system.

Data regarding escheats distributions and expenditures is reported in Section 2.

We asked stakeholders what they thought were some of the hurdles to funding in the system and what could be done to overcome them.

Interview insights

All interviewees agreed the current distribution of the escheats should be revisited. They stated that the escheats are the most obvious funding source for the bottle deposit system but are directed toward environmental remediation rather than recycling. Some stakeholders mentioned

Extended Producer Responsibility models as an additional source of funding to explore.

Workshop insights

Participants discussed the financial needs of the system and potential avenues to fund it. The conversation covered the dime value, the escheats and any external grants that could support the system.

Key Themes and Takeaways:

1. **Complex flow of the dime**

   Participants questioned whether the deposit system has become unnecessarily complicated, particularly regarding who is responsible for managing the funds and how they are used. Some suggested that the transaction could be simplified to involve just the consumer and retailer, minimizing Treasury's involvement. Others pointed out that the current system doesn't make it easy for the public or key stakeholders to understand how the money flows, who benefits, and who bears the costs.

2. **No dedicated funding mechanism**

   While retailers and distributors are required by law to manage returns, they are often left to cover infrastructure and operational costs without dedicated support. For example, RVMs are seen as essential for improving customer convenience, but they represent a large capital investment, often unaffordable for smaller retailers. There is also a lack of support for increasing the capacity of MRFs and potential infrastructure investments like redemption centers. The absence of structured funding for these obligations was identified as a major system flaw.

3. **Escheats are not reinvested in the system**

   Several participants expressed frustration that the annual escheats largely go to programs like contaminated site cleanup, with little to no reinvestment into the recycling or redemption system itself. They also pointed out the lack of transparency in the use of the funds by the State. Many called for a reallocation of funds to support infrastructure, operations, and system modernization; suggesting that escheats should be directly tied to improving redemption performance rather than diverted elsewhere.

4. **Raising the deposit value**

   Some participants floated the idea of increasing the deposit from 10 cents to better align with inflation and increase return incentives. However, others worried this could lead to unintended consequences, such as

greater dependence on escheats or resistance to increasing redemption rates (since low redemption means more unclaimed funds). The group agreed that more financial modeling and system updates would be needed before making such changes.

Summary

Stakeholders across interviews and the workshop consistently emphasized that Michigan's current bottle deposit funding structure is misaligned with system needs, lacking transparency, equity, and dedicated reinvestment mechanisms. A central point of concern was the use of escheats, which are largely diverted to programs unrelated to recycling system performance or infrastructure improvements.

There was broad consensus across all stakeholder groups that the monies collected from escheats should be reinvested in improving recycling operations within the state, supporting both the bottle bill and curbside recycling programs. For the escheats distributed to retailers, bigger retailers get most of the funds. Smaller retailers are less likely to file for returns. Even when they do, they do not believe the distributions compensate for their space and labor commitments.

Many participants noted a mismatch between the original goals of the bottle bill (litter reduction) and the current realities of system operation, which now prioritize material recovery, consumer convenience, and equity. Several interviewees and workshop participants questioned whether escheats are still serving their intended purpose and called for an update to the law to reflect contemporary environmental and economic goals.

One of the most widely shared concerns was the lack of clarity around who pays for what. Stakeholders expressed diverging views on whether infrastructure should remain privately funded, or if public investment and shared cost structures are needed. Handling fees were a focal point of debate during the workshop, with stakeholders expressing divergent views on their role, adequacy, and fairness. Some participants questioned whether handling fees should be considered a public subsidy, a consumer-paid charge, or simply a cost of doing business. While other states with redemption center models typically use handling fees to support operations, participants noted that these fees are often insufficient, leading to underfunded infrastructure and increased fraud risk. One proposal involved shifting logistics responsibilities to retailers, who could be compensated via handling fees for consolidating and transporting returned containers, particularly if distributors were phased out. However, others warned that this could

simply reshuffle costs without reducing the burden on retailers, especially if they are left to negotiate with suppliers without systemic support. Ultimately, there was no clear consensus, but participants agreed that any handling fee structure must be grounded in transparent cost data and designed to ensure equitable funding across all actors in the system.

Equity emerged as a key consideration for any future funding reform. Small retailers, rural communities, and consumers without convenient redemption access were seen as disproportionately impacted by the current system, particularly where infrastructure and support are lacking. Stakeholders stressed the importance of ensuring that funding decisions reflect who participates in the system, who benefits, and who is burdened.

There was broad agreement that better cost and performance data was needed to inform funding reform. Without understanding how much the system costs to operate, who pays for it, and how escheats are used or invested, stakeholders argued that it's impossible to design a funding model that is fair, efficient, and transparent. There was broad support for annual public reporting on escheats, anonymized if needed, and for system-wide financial transparency as a foundation for improvement.

RECYCLING/CIRCULARITY OUTSIDE THE BOTTLE BILL FRAMEWORK

EPR

Extended Producer Responsibility (EPR) is gaining traction as a policy mechanism to shift the financial and environmental burden of packaging waste from consumers and municipalities onto producers. EPR is a proven policy for a variety of materials in the US, especially hazardous materials. EPR systems can be governed by mandated policies or voluntary initiatives taken by companies. So far voluntary initiatives have reportedly been unable to capture large quantities of waste products. Seven states have passed EPR policies for packaging and paper products (PPP) but unlike other countries, these programs are just getting off the ground.

Existing EPR policies vary greatly in scope and specifics. As a result, a manufacturer may have to comply with different regulations in different states. However, EPR frameworks are growing in number and becoming more rigorous.

Importantly, EPR and bottle deposit-return systems have coexisted in other jurisdictions. States like California, Maine, and Oregon now operate both, demonstrating that deposit return systems (DRS) and EPR frameworks can complement each other, leveraging the high material recovery and

Table 7: Summary of Stakeholder Positions on Extended Producer Responsibility within the Context of the Bottle Deposit System

STAKEHOLDER GROUP	KEY THEMES	KEY QUOTE
Distributors/Manufacturers	Suggest EPR may be a more scalable and forward-looking approach in place of the bottle bill.	"It's a changing world we live in. If anything, looking forward, EPR might be more of the answer, extended producer responsibility than expansion."
Recyclers/Haulers	Advocate embedding the deposit law within a broader materials management and EPR conversation for system-wide impact	"Why is the State keeping 75% of those funds? What have they done? What enables them to keep those funds when they should be reinvested in the collection infrastructure."
Packaging Producers	View EPR as a way to shift financial responsibility away from taxpayers and toward producers, enabling system-level thinking.	"And the taxpayer is still paying for the curbside system. When you move to EPR, that goes away. Then your next best step is to improve the efficiency of the entire system."
Environmental organizations	Strongly support integrating EPR to improve system funding and align recycling responsibility with producers	" But at the national level EPR systems and bottle systems are being promoted hand in hand because of the recognition of the importance and value of having the right kinds of systems to manage the right kinds of materials and having them both funded in an adequate way."

accountability of bottle bills alongside broader packaging management under EPR.

We asked stakeholders their views on introducing an EPR framework in Michigan and leveraging it to maximize recycling in the state.

Interview insights

Not all the stakeholders we spoke with addressed EPR in conjunction with the bottle bill. Of those who did, there was a general support for EPR. For the distributors, this support was for EPR in place of the bottle bill while the other groups stated that EPR must be considered along with the bottle deposit system.

Workshop insights

Workshop participants explored what EPR means in the context of recycling and how the enactment of EPR initiatives could change the recycling landscape in Michigan.

Key Themes and Takeaways:

1. **Equitable distribution of system update costs**

   Participants agreed that a well-designed EPR program would shift recycling system costs from taxpayers and municipalities to producers, with fees structured to reflect a product's full lifecycle impact. Stakeholders emphasized the need to reinvest

these fees into system improvements and not pass them on to consumers.

Workshop participants favored EPR models that incentivize more recyclable materials, improve recycling quality, and support reuse/refill systems. Several referenced Canada and Oregon as examples of EPR frameworks that support circular economy objectives.

2. Coexistence of EPR and bottle bill

Many stressed that EPR should not replace Michigan's deposit law but rather integrate with it. Oregon's model was cited as a positive example where deposits and EPR coexist to maintain control over high-quality materials and ensure reinvestment into the system.

3. Uniformity in EPR

A consistent point of agreement among workshop participants was the need for harmonization of EPR policies across states, particularly to ease the compliance burden on manufacturers and distributors. Stakeholders emphasized that aligning policy frameworks such as reporting requirements, covered materials, fee structures, and producer obligations; would enable producers to reduce administrative costs and focus more effectively on system improvement. Michigan, they suggested, should design its EPR efforts with regional coordination in mind, both to support local goals and to contribute to broader national consistency.

4. EPR to support local recycling programs

Participants saw EPR as a funding mechanism for existing or new recycling infrastructure, especially in underserved areas. This could help address municipal funding gaps caused by outdated policies or constrained budgets.

Stakeholders emphasized that a successful EPR system requires multi-stakeholder collaboration. They called for clear standards, public reporting, and trust-building processes (e.g., in-person forums) to ensure support.

Summary

Stakeholders across interviews and the workshop viewed EPR as a promising but complex opportunity for Michigan to modernize its recycling and bottle redemption systems. While the current bottle bill already reflects EPR principles by placing recovery responsibility on producers, participants stressed that a broader EPR framework could help distribute costs more equitably, provide funding, improve data transparency, and

support infrastructure investments across the state.

To design a system that is fair, functional, and future-oriented, participants emphasized the need for a comprehensive statewide needs assessment like EGLE's Gap Analysis. This should include identifying recycling system gaps, quantifying producer obligations, and determining where investments are most needed, especially in underserved or rural communities. EGLE's data collection tools and the Part 115 materials management planning process were cited as key foundations for such an assessment.

Stakeholders agreed that EPR must go beyond recycling alone. A well-designed program would incorporate upstream strategies such as reuse, refill, source reduction, and public education. Participants stressed that public education is crucial, and refill and reuse systems will only successfully work if the consumers participate.

Currently, varying EPR regulations from state to state create logistical and financial challenges. Harmonized EPR legislation could also strengthen the overall circular economy by facilitating shared infrastructure and creating clearer expectations for stakeholders across the supply chain.

Overall, there seemed to be willingness among stakeholders to explore EPR models however details of a particular model that works for Michigan would need further analysis and discussion.

Consumer education and engagement

Consumers are key to the bottle deposit system and curbside recycling works effectively. In conversations with stakeholders, we heard repeatedly that consumer perception is a gap, and this data was either not tracked by the organization or was not public. Some organizational and publicly available surveys focused on Michigan residents are discussed in Section 2 of this report. Academic literature suggests clear labels or other visualizations can help consumers identify and prepare material for recycling correctly. There has also been some evidence that running feedback programs (leaving improperly discarded containers behind with an explanation) can help. Some studies have found that informational programs have a longer lasting impact compared to incentive programs, although both are beneficial.

Michigan has implemented similar education programs recently, such as the Recycling Raccoon Squad under the 2019 Know It Before You Throw It campaign. A 2024 survey of Michigan residents showed that the Recycling Raccoons had led to nearly 66% of Michiganders knowing where to check recycling rules if needed. A similar campaign targeting

the bottle bill was started by Schupan Inc., named Take 'Em Back. The campaign was aimed at increasing Michigan's dropping redemption rates. While there is no official update on the results of the campaign, the redemption rate has only decreased since.

We asked stakeholders how they saw the role of consumers in the system and what strategies could help improve consumer education and engagement in the bottle deposit system.

Interview insights

Interviewees agreed that consumers are not completely aware of the specifics of the bottle deposit system and that has in part led to a decrease in participation. There is some disagreement over the effectiveness of public education campaigns, however there was consensus that targeted campaigns would be necessary if the system was upgraded through expansion or alternative redemption.

Workshop insights

Workshop participants discussed how consumers could be engaged to increase participation in the bottle deposit and recycling system in Michigan. Gaps and opportunities to improve the success of consumer education and engagement campaigns were touched upon.

Key Themes and Takeaways:

1. **Proactive approach to education**

   Participants noted that Michigan's longstanding deposit system has relied heavily on cultural familiarity rather than structured education. While this has worked historically, if an individual is not a Michigan native, they are generally unaware of the system. Any expansion will require coordinated campaigns to inform new users unfamiliar with deposit rules. Examples of such campaigns included having brand ambassadors or youth group ambassadors, given that many youth groups have regular can drives. Youth engagement specifically received support, including programs targeting schoolchildren through field trips and scavenger hunts.

2. **Community centered campaigns**

   A major gap identified was the lack of multilingual outreach. Participants pointed to Detroit's efforts in Spanish, Arabic, and Bengali for waste management as models. Consumer advocates highlighted that among communities, it was necessary to rely on word of mouth to be the most effective. To maximize this, culturally relevant messaging and local ambassadors were viewed as critical to reaching marginalized communities.

Table 8: Summary of Stakeholder Positions on Consumer Education to Improve Bottle Deposit Performance

STAKEHOLDER GROUP	KEY THEMES	KEY QUOTE
Large Retailers	Support automation and alternative redemption to improve the consumer experience; see value in targeted education by geography.	"So maybe if those rates could be at least characterized by county, some other normalization, perhaps populations could be targeted for some consumer education."
Small Retailers	Frustrated with consumer confusion and complaints when stores cannot accept all brands; highlights need for better public education on system limitations.	"Well, we do run into problems where customers cry out that the machine will only take what we carry, or if they buy a product somewhere else, and they can't return it with us. Well, it's an issue, because we'll not take something we don't sell."
Distributors/Manufacturers	Concerned that post-COVID changes in consumer behavior have led to a sustained decline in redemption rates; advertising campaigns had limited impact.	" The other thing I might add is the state also gave a million dollars for promotion and advertising. And what we've seen there in the markets where those commercials ran on TV and radio and billboards and social media ads, it really did not have much of an impact."
Recyclers/Haulers	Skeptical that education alone will solve redemption issues; stress the need for infrastructure and access alongside awareness campaigns.	"Education is no longer helping. You need infrastructure. And you need the availability of collection systems and programs. And we don't have it."
Packaging Producers	Support reinvesting unredeemed deposits into improving access and awareness; interested in improving consumer convenience.	"I mean, the gaps, are having broader awareness and recognition to programs that prioritize recycling and recovery."
Government/Policy	Receive frequent consumer complaints about inaccessible redemption options; recognize lack of public understanding.	"We get questions on interpretation of various provisions of the law from people, from consumer stores, dealers, and sometimes from manufacturers. I mean, they come from all over the place."
Environmental organizations	Emphasize importance of public understanding for system success; recognize consumer fatigue with in-store returns.	"Consumers are getting tired of taking those things back to the stores. And so I think that we need to get a grip on where that material is going."

The need for toolkits that contain consistent language to avoid confusion was emphasized. Participants also noted that approaches employing diverse points of intervention (signs, infomercials, social media, etc.) can be more effective than one-off mailers and press releases. In the same vein, messaging should meet people where they are. Understanding that for some people the motivator to recycle is environmental health while for others a deposit is a financial incentive will help develop targeted messaging.

3. Help the public "see" recycling

Participants stressed the value of visibility to show that returned containers

are genuinely recycled. This can be achieved through tours (in-person or virtual), videos, and storytelling. Skepticism about recycling's efficacy can undermine participation. Another aspect to transparency on system efficacy is having the data to show progress. Universities like UM and MSU were cited as important partners for data collection, curriculum development and training youth and community representatives.

Summary

Stakeholders across interviews and the workshop agreed that improving consumer interaction with the bottle deposit and curbside systems are essential for enhanced material recovery. There was disagreement about the effectiveness of education and awareness programs in achieving this. However, most stakeholders stated that consumer confusion over the specifics of the system is a frequent issue and addressing it is important especially if transformations like expansion and alternative redemption are considered.

Workshop participants highlighted the importance of investing in consistent, multilingual, and community-tailored messaging. Stakeholders also stressed that the state must track the effectiveness of education and awareness campaigns to regularly identify gaps and opportunities to improve participation. However, both nonprofit and government participants stressed that outreach is resource-intensive and requires reliable, long-term funding, something currently lacking.

Lessons from the bottle bill

As Michigan looks to modernize its recycling systems and transition toward a more circular economy, it is important to explore how the core principles of the bottle bill could be extended to other materials such as packaging, textiles, electronics, and organic waste.

This section draws on stakeholder interviews and workshop discussions to examine how lessons from the deposit system can inform broader strategies for improving material recovery, reducing waste, and designing more equitable and efficient systems across the state.

Interview insights

Interviewees emphasized that while the bottle bill delivers clear benefits for certain materials, broader recycling and circularity efforts must address more diverse waste streams and consumer needs. Many called for system-wide modernization to make recycling more equitable, efficient, and aligned with current consumption patterns.

Workshop insights

Workshop participants explored how the principles and learnings from the bottle

Table 9: Summary of Stakeholder Positions on Lessons from the Bottle Deposit System for Recycling

STAKEHOLDER GROUP	KEY THEMES	KEY QUOTE
Large Retailers	Favor municipal recycling expansion for convenience. Stress adapting systems to modern consumption and delivery models like e-commerce.	" Well, I think my dream would be to have a great municipal recycling system with the infrastructure that could manage all those materials really just based on customer convenience."
Small Retailers	Skeptical of deposit system value, suggest alternatives like centralized recycling centers. Emphasize streamlining recycling based on material type, not just product use.	"The bottle bill has served its purpose. When it came out it actually made a difference. I don't think anybody disputes that, but it's also 50 years old. We also have to recognize that what we had in 1976, as far as recycling efforts versus today, is wildly different."
Distributors/Manufacturers	See bottle bill as effective but limited; support broader, forward-looking recycling systems.	"But even though we say we have the most effective and cost effective and efficient system of the deposit states, it doesn't mean that it necessarily works, right? And I think it's interesting to question why other states have not started to enact bottle bills."
Recyclers/Haulers	Advocate for integrating deposit principles into broader EPR and recycling programs.	"In Michigan we have some fees on pesticides that go into a system that's designed to help fund the collection of those pesticides when they need to be discarded. We have deposits on lead acid batteries to ensure that those are returned to the place of retail. So, there are different experiences already."
Packaging Producers	Advocate for national or harmonized frameworks to reduce fragmentation.	"In order to sustain the mechanical recycling industry, we need access to a steady source of supply. So we are working with the groups in support of the national bottle bill, whether that turns into a national bill or not, but at least maybe some elements of that work can be developed into a framework."
Government/Policy	Recognize outdated policy frameworks and infrastructure gaps; support system modernization.	"The primary problem is there are many things that are very out of date and obviously online selling of beverages is one of them. From my point of view, it's just too bad we can't update a few things and make things easier on everybody."
Environmental organizations	Advocate for EPR, reuse systems, and policies to close the loop on more materials.	" There are five EPR programs that are EPR laws that have passed in this country but none of them have yet really started operating. They're all just kind of leveling up."

deposit law could be applied to enhance recycling of other materials and foster a circular economy in Michigan. Conversations focused on what could work in Michigan and what sectors and materials need to be incorporated into the system.

Key Themes and Takeaways:

1. **Bottle bill as a starting point**

   Participants noted that the bottle bill is one of the few truly universal recycling programs in Michigan, with infrastructure and consumer familiarity already in place. This offers a valuable foundation to build upon when designing systems for other materials. However, many participants pointed out that such infrastructure and incentives do not exist for materials like glass, textiles, or organics, despite clear demand for recovered material and opportunities for job creation.

2. **Lack of true circularity**

   Despite its success in recovering containers, the bottle deposit system was described as lacking circularity. Participants raised concerns that there are no requirements for recycled content in deposit containers, and little visibility into where collected materials end up. They emphasized the need for systemic changes that keep materials within Michigan's economy such as building processing capacity for glass and plastics in-state.

3. **Centralized equity in the system**

   There was broad agreement that future circular economy policies should prioritize equity and simplicity. Stakeholders noted that not all communities have the same access to recycling systems and warned against imposing additional financial burdens - such as deposits on everyday non-beverage items - without addressing affordability. Simplification of rules in the system were seen as essential to broader uptake.

4. **Infrastructure beyond bottle bill**

   Participants cautioned against expecting retailers to continue bearing the logistical burden of material collection for additional material types. They emphasized that bottle return sites are not waste management hubs and cannot be expected to handle other products. Instead, other solutions like distribution centers that collect a wide range of materials or enhanced curbside programs may be more appropriate for expanding circularity.

5. **Policy levers beyond the bottle bill**

   While deposit-return systems were viewed as useful tools, some participants urged the state to consider complementary or alternative policy levers, such as increasing tipping fees to disincentivize landfilling, implementing universal recycling access, and embedding circular economy principles into procurement and design requirements.

6. **Programs contextualized to Michigan**

   Participants referenced programs in other states as models that could inform Michigan's efforts. For example, California's carpet recycling program has drop-off sites in each county for carpets which are then recycled into new products. However, they cautioned that successful adaptation would require attention to local conditions, especially around economic viability, geographic reach, and consumer behavior.

Summary

Stakeholders emphasized that while Michigan's bottle deposit system is a successful, highly visible example of material recovery, it represents only partly what a circular economy could achieve. Many interviewees and workshop participants agreed that lessons from the bottle bill can be valuable foundations for expanding circularity to other material streams, including glass, textiles, organics, and electronics. However, this expansion must be accompanied by thoughtful policy design that considers the unique needs of each material, community, and stakeholder group.

A consistent theme across both interviews and the workshop was the need to move beyond a fragmented or container-specific approach to recycling. Stakeholders called for holistic systems that focus on recovering all valuable materials, regardless of whether they are covered by a deposit. Several participants questioned why Michigan continues to landfill recoverable plastics and glass, especially when manufacturers are struggling to source post-consumer content. Others pointed to missed opportunities in co-locating infrastructure, modernizing bottle bill requirements and integrating new technologies to manage hard-to-recycle materials.

5. SUMMARY/CONCLUSION

The stakeholder engagement process revealed areas of consensus, conditional support, and divergence on the future of Michigan's bottle deposit system. While perspectives varied across retailers, distributors, producers, environmental organizations, government representatives, and recycling operators, several consistent priorities emerged: improving consumer convenience, modernizing infrastructure, reinvesting escheats into the system, and embedding equity into all reforms.

The following section distills these findings into key opportunities and top recommendations to guide policy and program design.

OPPORTUNITIES WITH CONSENSUS

1. **Escheats should be reinvested in the system** – There is broad consensus on directing unclaimed deposits toward infrastructure, modernization, and efficiency improvements including possible funding for redemption centers.
2. **Consumer convenience is central to success** – There is consensus that positive user experience drives redemption rates. This includes universal and bulk redemption.
3. **Data transparency is necessary** – There is agreement that better reporting of data and tracking more indicators to measure system performance is necessary. This was seen as a benefit not only for the State and industry to target interventions but also to improve consumer trust in the system.
4. **Technology upgrades are essential for modernization** – There is widespread support for RVM improvements, AI sorting, automation, and bulk/universal redemption options to improve efficiency and reduce fraud. Reforms should be responsive to the needs of rural and low-income communities and small retailers, where the most appropriate technology may not be the most advanced technology.

OPPORTUNITIES WITH CONDITIONAL AGREEMENT

1. **Expansion of eligible containers** – Most stakeholders support adding more beverage types for consumer convenience, material recovery and environmental gains, but only if infrastructure, funding, and equity measures are in place. On including bottled water, some groups see recycling benefits, but others warn of possible burdens on low-income and water-insecure households unless paired with strong access measures.
2. **Alternative redemption models** – Many see benefits in bulk redemption, universal redemption, and redemption centers to relieve retailers, but concerns remain over funding, legal feasibility, and brand/distributor compensation.
3. **Integration with curbside** – Most want both systems to coexist but are important tradeoffs balancing revenue streams and avoiding loss of high-value material for MRFs. There is agreement that a more robust curbside system will present consumers with more choice to decide the fate of their dime.
4. **EPR** – Most stakeholders agreed on introducing an EPR policy alongside the bottle deposit system in the state to maximize material recovery and provide a source of funding; industry stakeholders support EPR as a replacement to the bottle bill. There is consensus that a good EPR policy needs to be harmonized with other states to reduce the compliance burden.

OPPORTUNITIES WITHOUT AGREEMENT

1. **Funding responsibilities** – Although there is broad consensus on reinvestment of escheats into the recycling system, no clear agreement was observed for how escheats money should be reallocated or who should bear costs for expansion, modernization, and alternative redemption.
2. **Consumer education** – there are different opinions among groups regarding what constitutes consumer convenience (retail redemption, redemption centers or curbside drop-offs). In tandem, there is disagreement over the effectiveness of public awareness campaigns in improving this rate. There is a lack of tracking consumer perceptions to effectively identify the best opportunities to encourage the public to participate in the system.

RECOMMENDATIONS

Multi-Stakeholder Advisory Group

We recommend the creation of a Multi-Stakeholder Advisory Group to guide the modernization and implementation of Michigan's Beverage Container Act. This body would include representatives from all key stakeholder groups (distributors, retailers, recyclers, environmental organizations, material manufacturers, and consumer representatives) to ensure balanced perspectives and transparent decision-making.

At present, Michigan lacks a centralized body responsible for overseeing the deposit system. Instead, responsibilities are fragmented across multiple agencies:

- The Department of Treasury administers the law.
- The Attorney General's Office handles consumer complaints.
- The State Police investigate fraud.
- EGLE manages the bulk of the escheats.

This patchwork approach has created gaps in accountability, inefficiencies in enforcement, and limited data transparency. A central advisory group can provide coordination for all bottle-deposit-related issues. Major responsibilities could include guidance on policy and implementation, recommendations for grants and funding, and setting target recycling goals.

In addition to providing stakeholder representation, the group should be paired with a designated lead agency tasked with day-to-day oversight of the bottle bill. This agency would be responsible for administering the program, publishing more comprehensive data, and enabling distribution of any available funding.

Data requirements

Stakeholder discussions showed a need for accessible, transparent and regular data. To enable this, we recommend developing a data dashboard hosted by the designated lead agency.

Key Indicators to Track:

- **Redemption Rates:** State- and county-level data, broken down by container type.
- **Material Flows:** Volumes and types recovered through deposit and curbside streams.
- **Escheats Distribution:** Public breakdown of allocations, including specific projects and fraud cases.
- **Equity Indicators:** Geographic accessibility in rural and urban areas, such as RVMs or redemption points per county.
- **Flow of Money:** Transparency on

escheats generated, recovered material value, and end markets for both curbside and deposit streams.

A data dashboard presents a low risk early-action intervention that can improve the monitoring and evaluation of system performance. It could help to establish a unified reporting framework for distributors, retailers, and MRFs so all key metrics are collected in consistent formats. This would directly feed into the dashboard, reducing data gaps and disputes.

Voluntary distributor and retailer agreement on universal redemption

Mandating universal redemption through legislation would likely be a lengthy process given the ¾ legislative approval requirement or need for voter referendum. In the interim, stakeholders could pursue a voluntary, industry-led agreement to achieve the same outcome.

While Michigan law currently states that distributors and retailers "are not required" to accept containers not sold by them, it does not prohibit them from doing so. This creates legal space for stakeholders to voluntarily extend redemption obligations. In practice, this could take the form of a commingling agreement (like those in Oregon and Connecticut), where distributors collectively agree to accept all eligible containers regardless of point of sale or brand.

Michigan is well positioned to pilot such an approach because distributors already participate in a shared third-party pickup and materials processing system. Building on this infrastructure would allow universal redemption to be implemented without a major logistical redesign.

Benefits of a voluntary agreement

- **Consumer Convenience:** Expands access by allowing returns of any container at any participating retail location.
- **Bulk Redemption Options:** Creates opportunities for high-volume returns at larger stores or designated facilities.
- **Streamlined Processing:** Centralizes sorting and processing, reducing duplication and improving material quality.
- **Legal Feasibility:** Since the current law does not ban universal acceptance, such an agreement can be implemented immediately, without legislative amendment.

A voluntary agreement could also pave the way for future standalone redemption centers and bulk drop-off.

Statewide Bottle Deposit Modernization Fund

To close funding gaps, particularly those related to technological upgrades and

infrastructure, a Statewide Bottle Deposit Modernization Fund could be established. This fund would provide targeted grants to improve recycling efforts throughout the state.

There is strong consensus among stakeholder groups that escheats should be reinvested to support recycling efforts. However, redirection of escheats requires legislative action and represents a significant barrier to system reinvestment. In the absence of escheats redistribution, alternative mechanisms can be explored to establish funds intended to enhance recycling efforts. Other bottle bill states have potential alternative funding models to explore.

Establishing a dedicated modernization fund would:

- Ensure that unclaimed deposits are recycled back into the system, closing the loop financially as well as environmentally.
- Provide support for MRFs and deposit systems to beneficially coexist.
- Provide resources for both small retailers and high-volume redemption locations, balancing equity and efficiency.
- Lay the foundation for broader system innovations, including universal redemption agreements and modernized fraud prevention.
- Signal to stakeholders and the public that Michigan's bottle bill revenues are being reinvested directly into improving performance, accessibility, and transparency.

Michigan's bottle deposit system remains one of the state's most visible recycling tools, but it would benefit from modernization and improvement. Stakeholder engagement underscores that while there is broad agreement on reinvesting escheats, upgrading technology, and improving consumer convenience, there is also recognition that no one-size-fits-all approach will work. Reforms must account for differences across urban and rural communities, small and large retailers, and the varied needs of consumers.

Looking ahead, Michigan has a clear opportunity to align its bottle bill with broader recycling and climate goals. By expanding coverage to additional beverages, strengthening transparency in fund allocation, and piloting diverse redemption models that reduce retailer burden while expanding access, the state can position its system as a leader once again. With stakeholders across sectors recognizing that reform is overdue, the path is open to design a more resilient, equitable, and effective deposit system that supports both material recovery and Michigan's Healthy Climate Plan.

REFERENCES

1 Environmental Protection Agency. Advancing Sustainable Materials Management: 2018 Fact Sheet. EPA, 2021. https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf.

2 Omer Bafail, "A DEMATEL Framework for Modeling Cause-and-Effect Relationships of Inbound Contamination in Single-Stream Recycling Programs," Sustainability 14, no. 17 (2022): 17, https://doi.org/10.3390/su141710884.

3 Ball Corporation, The 50 States of Recycling:A State-by-State Assessment of US Packaging Recycling Rates., 2023, https://www.ball.com/getmedia/dffa01b0-3b52-4b90-a107-541ece7ee07c/50-STATES_2023-V14.pdf

4 Robert Friedel, "American Bottles: The Road to No Return," Environmental History 19, no. 3 (2014): 505–27, https://doi.org/10.1093/envhis/emu061.

5 Richard C. Porter, "Michigan's Experience with Mandatory Deposits on Beverage Containers," Land Economics 59, no. 2 (1983): 177–94, https://doi.org/10.2307/3146047.

6 Emilio Perez Ibarguen, "Michigan's Bottle Return Rates Keep Falling. Is It Time for Change?," Bridge Michigan, 2025, https://bridgemi.com/michigan-environment-watch/michigans-bottle-return-rates-keep-falling-it-time-change/.

7 "Container Recycling Institute: Redemption Rates of Bottle Bill States," n.d., accessed September 1, 2025, https://www.bottlebill.org/images/Allstates/10%20states%20Redemption%20Rates%20030725.pdf.

8 "Michigan Bottle Bill · Exhibit · Give Earth a Chance: Environmental Activism in Michigan," accessed November 11, 2024, https://michiganintheworld.history.lsa.umich.edu/environmentalism/exhibits/show/main_exhibit/1970s_activism/ecology-center-and-ann-arbor-a/the-michigan-bottle-bill.

9 "EGLE Announces Record High 25% Michigan Recycling Rate, More than $11.8M in Recycling Grants," accessed September 1, 2025, https://www.michigan.gov/egle/newsroom/press-releases/2025/04/23/record-high-recycling-rate.

10 "EGLE Announces Record High 25% Michigan Recycling Rate, More than $11.8M in Recycling Grants."

11 Samuel Batali, "Michiganders Celebrate America Recycles Day," Recycling Raccoons, November 19, 2024, https://recyclingraccoons.org/michiganders-celebrate-america-recycles-day/.

12 "2023-Gap-Analysis_March-2024-Update.Pdf," n.d., accessed September 1, 2025, https://michiganrecycles.org/wp-content/uploads/2024/06/2023-Gap-Analysis_March-2024-update.pdf.

13 MI Healthy Climate Plan, n.d.

14 "Recycle Ann Arbor · Exhibit · Give Earth a Chance: Environmental Activism in Michigan," accessed September 1, 2025, https://michiganintheworld.history.lsa.umich.edu/environmentalism/exhibits/show/main_exhibit/1970s_activism/ecology-center-and-ann-arbor-a/recycle-ann-arbor.

15 "Michigan Bottle Bill of 1976 · Ecology Center History · Ecology Center," accessed July 3, 2025, https://ecologycenter.umhistorylabs.lsa.umich.edu/s/ecohistory/page/michigan-bottle-bill-of-1976.

16 Michigan Beverage Conainer Deposit Law, Michigan Legislature (1976). https://www.michigan.gov/-/media/Project/Websites/lara/lcc/Folder5/CIS_LCC_bottbill.pdf?rev=f030427c05d44acfbfebff2ecf046319.

17 "Michigan Roadside Litter Composition Study 1979," n.d.

18 Porter, "Michigan's Experience with Mandatory Deposits on Beverage Containers."

19 John Stutz and Carrie Gilbert, Michigan Bottle Bill A Final Report to: Michigan Great Lakes Protection Fund, 2000.

20 "Michiganders Sound off on Bottle Returns - Axios Detroit," accessed September 1, 2025, https://www.axios.com/local/detroit/2025/06/13/michigan-bottle-return-reactions.

21 "Bottle Bill States Container Redemption Rates Remain Low," Recycling Product News, July 11, 2022, https://www.recyclingproductnews.com/article/38856/us-beverage-container-redemption-rates-in-bottle-bill-states-remain-below-pre-covid-levels.

22 John Stutz and Carrie Gilbert, Michigan Bottle Bill A Final Report to: Michigan Great Lakes Protection Fund, 2000.

23 "Retailers," UBCR, LLC., n.d., accessed September 1, 2025, https://ubcrllc.com/retailers/.

24 "Comparing Attitudes toward Recycling Programs and Issues among Michigan Residents and Local Government Officials | Center for Local, State, and Urban Policy," accessed September 1, 2025, https://closup.umich.edu/research/mpps/comparing-attitudes-toward-recycling-programs-and-issues-among-michigan-residents-and.

25 Andrey N. Kokoulin and Dmitriy A. Kiryanov, "The Optical Subsystem for the Empty Containers Recognition and Sorting in a Reverse Vending Machine," 2019 4th International Conference on Smart and Sustainable Technologies (SpliTech), June 2019, 1–6, https://doi.org/10.23919/SpliTech.2019.8782990.

26 Reloop. Deposit Return Systems: How They Perform. 2024. https://www.reloopplatform.org/wp-content/uploads/2023/05/RELOOP_Factsheet_Performance_May2024_Web.pdf.

27 "OBRC 2023 Annual Report," Oregon Beverage Recycling Cooperative, 2023, https://obrc.com/wp-content/uploads/2024/03/About_Reports_2023_Annual.pdf.

28 Margaret Walls, "Deposit-Refund Systems in Practice and Theory," SSRN Scholarly Paper no. 1980142 (Social Science Research Network, November 23, 2011), https://doi.org/10.2139/ssrn.1980142.

29 Karen Palmer et al., "The Cost of Reducing Municipal Solid Waste," Journal of Environmental Economics and Management 33, no. 2 (1997): 128–50, https://doi.org/10.1006/jeem.1997.0986.

30 Frithjof Laubinger et al., "Deposit-Refund Systems and the Interplay with Additional Mandatory Extended Producer Responsibility Policies," OECD Environment Working Papers (Paris, France), no. 208 (December 2022): 0_1,3-5,8-58, https://doi.org/10.1787/a80f4b26-en.

31 Guangli Zhou et al., "A Systematic Review of the Deposit-Refund System for Beverage Packaging: Operating Mode, Key Parameter and Development Trend," Journal of Cleaner Production 251 (April 2020): 119660, https://doi.org/10.1016/j.jclepro.2019.119660.

32 W. Kip Viscusi et al., "Promoting Recycling: Private Values, Social Norms, and Economic Incentives," American Economic Review 101, no. 3 (2011): 65–70, https://doi.org/10.1257/aer.101.3.65.

33 Bevin Ashenmiller, "The Effect of Bottle Laws on Income: New Empirical Results," American Economic Review 101, no. 3 (2011): 60–64, https://doi.org/10.1257/aer.101.3.60.

34 W. Kip Viscusi et al., "Changes in Household Recycling Behavior: Evidence from Panel Data," Ecological Economics 208 (June 2023): 107819, https://doi.org/10.1016/j.ecolecon.2023.107819.

35 Jonathan Fisher and Paul Horton, "The Return of Returnable Bottles: A Study of Consumers' and Retailers' Attitudes and Practices Concerning Returnable Bottles," Resources Policy 5, no. 4 (1979): 279–97, https://doi.org/10.1016/0301-4207(79)90057-6.

36 Peter Berck et al., "Reduce, Reuse, Redeem: Deposit-Refund Recycling Programs in the Presence of Alternatives," Ecological Economics 217 (March 2024): 108080, https://doi.org/10.1016/j.ecolecon.2023.108080.

37 Jeffrey B. Wagenbach, "The Bottle Bill: Progress and Prospects," Syracuse L. Rev, 1985.

38 Viscusi et al., "Changes in Household Recycling Behavior."

39 "Consequences of Bottle Bills: How Bottle Deposit Return Schemes Affect Retail Prices and Lead Consumers to Larger Package Sizes - Kristopher O. Keller, Jonne Y. Guyt, 2025," accessed September 1, 2025, https://journals.sagepub.com/doi/full/10.1177/0022242925134728

APPENDIX

Organizations that Participated in the Workshop and Interviews

* Organizations that participated in interviews

Meijer Inc.*

Michigan Environmental Council*

Michigan Recycling Coalition*

Department of Environment, Great Lakes, and Energy*

Department of Treasury*

Michigan Beverage Association*

TOMRA North America*

Schupan Inc.*

Michigan Beer and Wine Wholesaler Association*

Recycle Ann Arbor*

Glass Packaging Institute*

Resource Recovery and Recycling Authority of Southern Oakland County*

Kent County Department of Public Works*

Michigan Independent Retailers Association*

Kroger Co.*

Can Manufacturing Institute*

PET Resin Association*

Walter's Market*

Heartland Marketplace*

Green Living Science

Michigan Retailers Association

WM

Michigan Petroleum Association

Container Recycling Institute

Ecology Center

Amcor Rigid Packaging

SpartanNash

Greater Laingsburg Recyclers

Breathe Free Detroit

Plastipak Packaging

The Coca-Cola Company

Public Sector Consultants

Plastics Industry Association

Michigan Association of Counties

Council of the Great Lakes Region

Marquette County Solid Waste Management Authority

Recycle Services

Bill Stough, LLC

Western Washtenaw Recycling Authority

Ann Arbor Office of Sustainability and Innovations

Michigan United Conservation Clubs

Lyondell Basell

Michigan League of Conservation Voters

Michigan State University Surplus Store and Recycling Center

National Wildlife Federation Great Lakes Regional Center

The Recycling Partnership

We The People of Detroit

Association of Plastic Recyclers

Resource Recycling Systems