DEEP Public Act 21-58
Implementation Questionnaire Comments

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About Reloop Platform

Established in 2015, Reloop was founded on the belief that collaboration across sectors will deliver the policy change we need to achieve the global transition to a circular economy. The platform, which brings together agents from industry, government, and NGOs, forms a broad network that seeks to inspire and inform national policymakers, encouraging them to build policy that follows the waste hierarchy, encourages best practice, and supports innovation.

Our small, specialist team is a key influencer at a global level, making critical contributions to the development of circular economy policy across four regions – Western Europe and the UK, Central and Eastern Europe, the Pacific, and most recently, North America.

More about Reloop [here](#).

Elizabeth Balkan

Ms. Elizabeth Balkan is the Americas Director for the Reloop Platform, an international non-profit organization that brings together industry, government, and non-governmental organizations (NGOs) to accelerate the transition to a circular economy and bring about positive change at all levels of resource and waste policy (www.reloopplatform.org).

Based in the U.S., Elizabeth brings over a decade of strategy and public policy experience to Reloop and has previously served as Director of Food Waste at the Natural Resources Defense Council (NRDC). Her previous work experience also includes positions in New York City government, both at the Department of Sanitation and in the Mayor's Office, as well as a consultant with international NGOs and private sector stakeholders.

To the Connecticut Department of Energy and Environmental Protection:

On behalf of Reloop, thank you for allowing the opportunity to present comments on Public Act 21-58 and the implementation process. My name is Elizabeth Balkan, and I am the Americas Director for Reloop, an international nonprofit organization that brings together industry, government, and non-governmental organizations to accelerate the transition to a circular economy.

We were pleased to see Public Act 21-58 pass with an increase of the deposit fee and handling fee, and a broadened scope of beverage containers. With respect to the process that has been laid out today, Reloop has spent years developing expertise on deposit return and the mechanisms which produce best-in-class systems.

Repeatedly, it has been shown that DRSs is an effective way to achieve high collection rates of quality materials for recycling, reduce litter on our roads, and create more jobs in communities.

However, crucial to a successful system, is strong government oversight and enforcement of the stewardship organization proposed. While we support a centralized administrator, without transparency, clear standards, and penalties there will be little incentive to build a system that meets the 80% collection rate, or the 90%+ collection rate we see routinely in modern deposit systems globally. Experience with stewardship programs globally has consistently demonstrated that a stewardship organization that does not face financial penalties for not meeting the target, will not meet the target.

The stewardship organization plan should have clear standards and methodology laid out to ensure the target collection rate is achieved, consumer convenience is prioritized, and the organization is transparent in its reporting.

The plan should require regular reports on audited information. Regulators can use this data to ensure that the scheme is operating soundly and to measure progress against any performance targets that have been set. This also allows stewardship organizations to confidently report on the performance of the program to their customers and the public. All plans and reports should be made available to the public for comment as well.

If standards are not met, unredeemed deposit fees should be funneled back into improving the system until the targets are achieved.

In summary, the long-term success of this bill will depend on supportive policy which will hold the stewardship organization accountable to the standards set forth in Public Act 21-58.

We commend Connecticut for being one of the first to modernize its bottle bill and hope that it can serve as a model for other states as well. Below, we have addressed the implementation questionnaire published by DEEP, as well as submitted additional case studies and research that outlines Stewardship Organization best practices and safeguards that have been implemented globally. Thank you for allowing the opportunity to share Reloop's expertise.

DEEP Public Act 21-58 Implementation Questionnaire Comments

Overall Objectives
1. *Are the tentative objectives listed above the right objectives to guide DEEP's implementation of its responsibilities with respect to the Bottle Bill? Are there other objectives that should be included? Are there special considerations related to how these objectives should be balanced?*

Tentative Objectives:
- *Increase the percentage of covered containers that are redeemed and returned through the container redemption program*
- *Ensure convenient access to redemption for all Connecticut consumers, through strategies and approaches that reflect the specific needs and circumstances of individual communities.*
- *Promote economic development opportunities related to container redemption, and ensure efficient and sufficient investment in redemption infrastructure*
- *Minimize any potential fraud including cross-border redemption*
- *Facilitate a long-term solution for wine and spirit product containers*
- *Ensure that recovered materials are used for their highest and best use*

We support the objectives listed above and have additional objectives suggestions. The new handling fees, increased deposit fee, and expansion plan already address many of the objectives above, and further clarification on this process to explain how the Stewardship Organization will support these expansions is needed.

- **Customer Access & Convenience:** Convenience is listed as a tentative objection; however, public education and awareness should be included in the Stewardship Organizations responsibilities to ensure that not only do consumers have easy access to a redemption center and retailers,

but that they are aware of its purpose, operation hours, accepted materials, etc.

- **Concrete Targets and Incentive for Improvement:** The legislation outlines an 80% collection rate which is a sufficient target; however, the 80% collection rate can be improved upon if this process builds an effective system. Developing concrete, material-specific targets that the Stewardship Organization will be held to continuously improve will incentivize a better system.

- **Comprehensive Approach:** Developing a system that is easy to understand for consumers and delivers economies of scale for the system operator is critical. Also, the playing field should be level for competing beverages, by including the full range of beverages, and all common packaging material types and volumes. As new beverages come available on the market, it should be an automatic (or at least clear and simple process) to add new beverages to the deposit system.

- **DEEP Plays an Oversight and Enforcement Role:** The stewardship organization must have appropriate safeguards to ensure that there are penalties for not achieving the 80% collection rate that is outlined in the legislation. Penalties must be set high enough to incentivize compliance and system improvements investments. To ensure performance standards are met by producers & retailers, oversight should include:
  - Setting and enforcing a recycling target;
  - Mechanisms to adjust the deposit if targets are not achieved (i.e. a trigger where the deposit goes up if the target is not achieved)
  - Ensuring that consumers can conveniently redeem containers; and
  - Specific auditing and enforcement responsibilities.

- **Producer Reporting On Units Sold:** Accountability is key to program success. Reporting keeps regulators and the public informed about progress towards codified goals and helps evaluate the managing body's performance. DEEP's clarifying rules should require the central management organization to report audited, aggregated sales (per material type) and units redeemed (per material type) at least annually.

- **Create opportunities to promote the use of refillable containers.**

2. *How should DEEP apply the criteria in Section 9(a) in approving an application from a beverage stewardship organization for approval?*

Are there particular substantive or procedural criteria that DEEP should require or encourage applicants to meet?

Many of the above objectives can be transformed into criteria that a beverage stewardship organization must include for an application to be accepted. All provisions that were included in P.A. 21-58 should be outlined in the application and address how those provisions would be met.

- **Collection Rates + Targets:** As stated above, the legislation outlines an 80% collection rate; however, the 80% collection rate can be improved upon if this process builds an effective system. The Stewardship Organization must be held to continuous improvement and any application should outline how the Stewardship Organization would strive to meet the 80% target and show how they would strive to go beyond to continuously improve the program. Today, all high-performing programs have redemption rates exceeding 90% of containers sold, codified as a redemption rate target.

- **Customer Access & Convenience:** The application should also outline how the stewardship organization would address customer access & convenience. Clear expectations, such as a required amount of redemption points for the population or convenience guidelines that would require a redemption point within five miles of all residents ensure all customers will have access to a redemption point. Additionally, travel time, including access to public transportation should be included in the considerations.

- **Comprehensive Approach:** As a stewardship organization "shall obtain input" from a diverse group of CT deposit system stakeholders, this group should be formalized and serve as an advisory board as the stewardship organization process is implemented.

- **Producer Reporting on Units Sold:** For the necessary transparency, the Stewardship Organization's plan should also outline how they would cooperate with DEEP for regular and robust reporting. DEEP must lay out strict and clear expectations that the Stewardship Organization must comply with.

3. What guiding principles should govern the formation of a stewardship organization?
- **Stewardship Organization Role:** Experience shows that management of money, material, and data by a centralized administrative body equally controlled by producers, distributors, and retailers is an effective way to:

- o Optimize performance;
- o Meet legislative requirements;
- o Maintain efficiency; and
- o Provide a maximum degree of transparency
- o Reduce free-riders

- **Government Plays an Oversight and Enforcement Role:** The stewardship organization must have appropriate safeguards to ensure that there are penalties for not achieving the 80% collection rate that is outlined in the legislation. Penalties must be set high enough to incentivize compliance and system improvements investments.

- **Transparency and Accountability:** DRS Legislation should require the central management organization, or producers independently, to report audited, aggregated sales (per material type) and units redeemed (per material type) at least annually. There should also be a public registry that publishes a membership registry, which is updated regularly.

- **Producer Funded:** Extended producer responsibility (EPR) principles apply to a DRS by requiring producers to finance a DRS capable of achieving the target rate. Under this system, fees calculated by the managing organization should reflect the net system cost by material and size of the container. As such, there should be ample opportunity for both business and community stakeholders to engage with the Stewardship Organization and have diverse representation in the system.

- **Customer Access & Convenience:** The user experience matters. Returning empty containers must be part of everyday activities, requiring no extra trips to dedicated collection points. Prioritizing access, convenience, and improved customer experience means providing a network of redemption points that:
  - o Are sufficient in number in a set geographic area;
  - o Deliver a consistent customer experience;
  - o Cater to low and high-volume redeemers; and
  - o Are technology-led.

4. Given the need to approve a stewardship organization in advance of the July 1, 2022 deadline for submission of a stewardship plan, should DEEP set a specific deadline for submission of an application? Stewardship Plan Submission. DEEP is contemplating publishing a Request for Submissions for a Stewardship Plan, which would outline both required and optional elements that should be included in an approvable Stewardship Plan.

- Applications should be received no later than January 1st, 2022. All applications should be made public and include a minimum 90-day public comment period.

5. Section 9(c)(1)-(9) spells out many specific requirements that must be included in a stewardship plan in order to be approved by the DEEP Commissioner. Should DEEP clarify any of these requirements, or require specific demonstration of these elements, in the Request for Submissions? For example, should DEEP specify a timeline for achieving and exceeding the eighty per cent annual redemption rate, pursuant to Section 9(c)(1), in the Request for Submissions?

(1) Achieving and exceeding an annual redemption rate of eighty per cent by a specified timeline
   a. The redemption rate of eighty percent should be achieved by Jan 1, 2026, as seen by Oregon's model that took two years to reach an 80% redemption rate after the deposit fee was raised from 5 cents to 10 cents.
(2)achieving financial self-sustainability
   a. The Stewardship Organization should be self-funded from the beginning.
(3) achieving verifiable performance metrics for enhanced customer satisfaction with the beverage container redemption system,
   a. Ensuring that there are enough return points per residents and that redemption (suggested figure is one redemption location per 700 residents)
   b. Ensure a robust auditing system with anonymous visits and reporting system which is detailed and respects the individual company's propriety data requirements.
   c. Publicly post all registered containers in the system:
      i. The posting can list: the first importer name; product name; unit size; type; and UPC code. This up-to-date listing further improves system integrity by publicly offering the registration list and provides an opportunity for un-listed (free-rider) containers to be identified.
   d. Audit the system after one year: This is a verification check to see if there are issues specifically relating to no unique marking requirements. The DRS can be designed so that a series of audits are undertaken to measure the level of free-riders (those containers which are not registered). Further to this, the law can include text, which places a condition on producers and first importers. If the results of the audit show a high level of free-riding containers, the government may impose special labeling requirements.

(4)   adopting policies and making investments to ensure that recovered materials are returned to their highest and best use,
  a. Minimum recycled content requirements: MRC requirements help displace some of the burden municipalities and communities face by decoupling the financial health of municipal recycling programs from market-based volatility and material demand.
(5) providing a detailed description of how existing collection and redemption centers throughout the state are to be utilized as part of such beverage container stewardship program,
  a. The Stewardship Organization should include a plan on incorporating and supporting existing infrastructure and a detailed outline on how infrastructure will be expanded to achieve high levels of access for all Connecticut residents. Current and future redemption centers should have the same reporting requirements including:
    i. Number of redemption centers per population
    ii. Hours of operation
    iii. Estimated wait time for redemption
    iv. Provide educational materials and promotion of said materials
(6)   disclosing applicable rates of redemption as of the time of such plan and those projected over the next five years under the proposed beverage container stewardship program and the recommended refund value for such containers that is necessary to achieve such redemption rates,
  a. The current legislation outlines an 80% target collection rate, and this should be adhered to in the Stewardship Organization plan. The Stewardship Organization should have no authority to alter the targets set out by legislation and DEEP.
(7) identifying how the plan will yield costs to the state or any participant of said program,
  a. All unredeemed deposits should be reported upon and shown who has retained these deposit fees.
  b. All Stewardship Organization costs should be reported upon publicly
  c. All costs should be covered by the Stewardship Organization which will collect fees from its members. In the case that the 80% target is not achieved, all escheats should filter back into the system to improve infrastructure until the target is achieved.
(8)   specifying revenues that escheat to the state pursuant to said beverage container stewardship program and any projected diminishment in the state's use or collection of such revenues in the next five fiscal years beginning July 1, 2022,
No comment
(9)   identifying any legislative changes necessary to carry out such plan,
  a. The Stewardship Organization should not have any authority to change the outlined target.

6. What performance criteria should a stewardship organization need to include in its submitted plan? Are there any penalties, oversight, and accountability metrics that should be applied to a stewardship organization?

- **Continuous Improvement:** Outlining how the 80% collection rate will be achieved and how the system will continuously work to continuously improve and build more access to the system. If the 80% collection rate is not achieved by January 1, 2026, there must be strict financial penalties, a trigger to increase the deposit fee to further incentivize return, and an additional public education plan.
- **Customer Access & Convenience:** To detail (3) "achieving verifiable performance metrics for enhanced customer satisfaction with the beverage container redemption system," DEEP should outline specific criteria that would achieve customer access and convenience for all Connecticut residents. (See 3 above).
- **Government Plays an Oversight and Enforcement Role:**
  The reporting should happen on a yearly basis (by December 31 of each year) and be posted publicly on the Internet.

  DEEP must outline reporting requirements that include:
  - Number of eligible beverage containers sold
  - Number of eligible beverage containers collected for recycling
  - Collection rate (%): number of beverage containers collected in a given year, as a percentage of the number of containers sold
  - Material-specific recycling rates (%): number of beverage containers collected for recycling that were actually recycled in a given year, as a percentage of the number of containers sold
  - Recycled content (%): Utilisation of recyclates for recycled content, with verification
  - Participation rate (%): percentage of population that returns containers via the deposit system
  - Financial statements: data on system costs and revenues, audited by an independent third-party
  - Indicators related to community access (e.g. number of redemption points per capita, percentage of population living within a certain distance from a redemption point (urban vs. rural)
  - Indicators related to public communication and education (e.g. percentage of population aware of the program)

  The report should be reviewed and audited by a third-party neutral representative which confirms non-financial information such as number of redemption points available. The report should also address any weakness in the system and how this weakness will be improved in the following year.

7. *What additional parameters or requirements should the DEEP Commissioner specify, pursuant to Section 9(c)(10), to include in an approvable Stewardship Plan?*
A new stewardship plan should be required every five years and clearly address any performance weakness and strive for continuous improvement in the system. Performance reporting should be required on an annual basis.

8. *How should DEEP go about ensuring that members of the independent redemption centers community, municipal resource recovery facilities, municipal leaders, wine and spirits distributors, and reverse vending machine operators, and/or any others not specified in Section 9(c) are able to provide input on the Stewardship Plan?*
All Stewardship Plans should be available for public comment to ensure that all voices are heard during the process. Additionally, as outlined above, an advisory board of the CT deposit system stakeholders should be put in place to evaluate the Stewardship Plan prior to approval.

9. *Beyond the criteria specified in Section 65, are there any other criteria or considerations should DEEP take into account to optimize redemption center grant funding to (a) ensure equitable access to redemption, (b) support economic development opportunities in underserved communities, (c) expand consumer access to redemption, and (d) provide for compatibility of investments with a potential future transition to a stewardship organization-led redemption program?*
"Underserved communities" should be clearly defined and can therefore be prioritized as new infrastructure is being built.

10. *What are the requisite parties that should be included in such an MOA, and how can DEEP efficiently facilitate discussions among such parties?*

No comment

11. *What best practices/programs should the wine and liquor industry utilize to help them achieve the goal of collecting and processing of at least 80% of the wine & liquor containers sold in the state?*

The best practices for a deposit return system can be utilized for the wine and liquor industry as well. This includes a minimum 10 cent deposit fee, appropriate handling fees, coverage of all beverage containers etc.

Other Topics
12. *Are there other issues DEEP should consider with respect to bottle bill modernization?*

Appendix Information

The below information has been collected and detailed over years of experience working with a variety of different stakeholders to develop best in class deposit return systems globally.

Preventing and Mitigating Fraud in Deposit Return Systems

To design a better DRS with high levels of accountability at each link in the chain, it is important to determine where the weaknesses in the system may occur and what can be done to minimize their impact.

Improving Accountability in a DRS

A chain is only as strong as its weakest link, and DRSs are no different. As with most systems that deal with large sums of money, proper accountability schemes should be present to ensure that there are minimal opportunities for fraudulent behavior—actions that will not only remove funds from the system, but that will result in a shortfall of funds raised, and inaccurate environmental performance monitoring.

Issues surrounding accountability can be broken down into two broad categories:

- Under-reporting by distributors, which results in less money into the system (or front-end fraud)
- Redemption of non-deposit bearing units, which results in too much money leaving the system (back-end fraud). Examples include double redemption of the same containers; cross-border redemption; and non-deposit beverage redemption.

Enhance Accuracy of Reporting from Beverage Distributors

The DRS chain begins with the producers and first importers of non-refillable beverage containers. This is called the "deposit initiation" phase, where producers/fillers or first importers report their State or regional-only sales to a centralized agency. This is a critical part of the process because it provides sales data; deposits on each sale; administration fees, and information on the breakdown of container types to the central system operator (CSO). When sales into a State or Region are not reported, then there is no deposit charged for refund later, and no administration fees, which are also necessary to pay for the program. This may significantly affect the implementation of the program.

Specifically, first importers of beverages (producers, distributors, or retailers) that report their sales will likely experience an increase in their administration fee to help make-up for the shortfall in funds. For this reason, first importers

should be amenable to any procedures set-up to ensure accuracy and a level playing field for all sellers of deposit-bearing containers.

1. Set the value of the deposit at the right level: The higher the deposit level, a more elevated security system must be established. Lower deposit values, like USD $0.05 will reduce the incentive for fraud, especially when mandatory labeling and more sophisticated accountability systems are not available.
2. Mandate reporting of all sales into a centralized State or Regional registry: There are many deposit return laws that are written by regional governments within a federation. For example, US states (10) and Canadian provinces (11) individually regulate their deposit return system. Most of these laws target the first importer, which is the first contact to bring the beverage into the region for sale in that region. These may include producers, distributors, wholesalers, and retailers that act as the distributor.
   a. Example: In Quebec (Canada), Boissons Gazeuses Environment (BGE) – the central system administrator – on behalf of the non-alcohol beverage industry keeps an up-to-date listing of all registered beverages in Quebec, which they posted publicly online.
3. Publicly post all registered containers in the system: The posting can list: the first importer name; product name; unit size; type; and UPC code. This up-to-date listing further improves system integrity by publicly offering the registration list and provides an opportunity for un-listed (free-rider) containers to be identified.
4. Audit the system after one year: This is a verification check to see if there are issues specifically relating to no unique marking requirements. The DRS can be designed so that a series of audits are undertaken to measure the level of free-riders (those containers which are not registered). Further to this, the law can include text, which places a condition on producers and first importers. If the results of the audit show a high level of free riding containers, the government may impose special labeling requirements.

Enhance Accuracy of Reporting from Beverage Distributors
In a DRS, every empty beverage container is worth money, which is what drives their recovery. Unfortunately, valuable beverage containers can also incentivize schemes – small and large - to defraud the system. This can occur at each link in the downstream chain from the consumer to the retailer and first processors. The list below offers suggestions on how to minimize these fraudulent activities. These solutions will work collectively to strengthen the chain of accountability in any DRS.
5. Establish consumer-facing dis-incentives for fraudulent redemption: By setting daily limits on consumer-based redemption to 240

containers/day (i.e. 10 cases), non-deposit container imports will be reduced substantially. Any large-volume generators, like fundraising groups, some hotels, restaurants, and cafes (HORECA), and others that do not have back-haul arrangements with distributors, may register to have counting centers refund containers directly.

6. Implement retailer standards for reverse vending machines (RVMs) and manual take-back requirements: By ensuring that all RVMs and manual take-back meet basic standards can strengthen system accountability and security. These mandatory requirements can include: Recognizing the container and providing a refund; sorting the container for recycling; destroying the container (glass crushing; and compaction of plastic; metal and tetrapaks); and reporting with mass balance. All sellers of beverage containers must also post signage at their stores.

7. Establish a random sample audit program for collectors of containers to verify manual and automated redemption: Manual spot audits, which attempt to verify the reported count of returns with the actual amounts returned offers real time information on the level of fraudulent activity. They also identify which collectors may be inaccurately reporting.

8. Establish counting centers for container processing, audit, and verification: Counting centers offer the final stage before containers are sent to recyclers. They process all containers, which arrive from collectors; distributors; and large volume generators. These facilities must be certified by the state or regional government and perform regular audits to verify the numbers of container redeemed by material type. Counting centers should also be required to provide a mass-balance reconciliation, where the number of redeemed units is equal the total weight of the material shipped to recyclers. (i.e. the number of cans * the weight = the actual weight of material shipped to market).

Support Accountability Through a Legal Framework

Effective and fair DRSs are founded on strong legal framework, which offer flexibility for producers to operate a system in a highly competitive marketplace. This is only achievable if the law contains penalties and disincentives for non-compliance.

9. Government must introduce strict penalties on false reporting of sales by first-sellers and illegal redemption: Penalties for mis-reporting by first-importers that report to centralized agency should have their rights to distribute beverages in the region revoked.

10. The law must include program amendments if targets are not met: The backdrop law must include a provision that calls for an automatic increase in the deposit level unless an 80% redemption figure is attained by a specific date, and mandatory unique markings on containers sold

in the state or region if third-party audits show higher levels of free-riders and/or illegal redemption.

Customer Access and Convenience are Key to High Returns in Deposit Return Systems

In today's world, convenience is everything. Therefore, ensuring a collection network that is convenient not just for consumers, but for the system's logistics providers, is critical to achieving high return rates in a deposit return system (DRS). To encourage participation, the process of returning empty containers for a deposit refund should be as easy for the consumer as it was to purchase the beverage in the first place. The redemption system should also be as accessible as possible for the public, including those living in rural areas, those without automobiles or modern mobile phones, persons with disabilities, low-income individuals, and customers of delivery services. It should be designed in a way that prioritizes access to historically marginalized communities and other groups that have been denied access and/or suffered past institutional discrimination with regards to the delivery of programs and services.

User Experience Matters

Having a strong network of return points that provide easy, convenient redemption options is vital to the high recycling rates seen in best practice deposit systems. Prioritizing access and improved customer experience mean ensuring a network of redemption points that:
- Are sufficient in number in a set of geographic areas;
- Deliver a consistent, easy, clean and safe customer experience;
- Are as easy to access as going shopping
- Cater to both low- and high-volume redeemers; and
- Are technology-led.

Experience from existing DRSs around the world show that return-to-retail (R2R) systems, where retailers selling beverages become legally responsible for accepting empty containers for recycling, can best achieve all of these. R2R systems allow consumers to take back their containers when they do their shopping or, if they are consuming their beverage outside of the home, to the nearest convenient location, which may be a shop or other local hub. In other words, no extra trips or additional travel time is required to return containers, which removes the barrier of "going out of your way" to recycle.i An additional benefit is that it reduces wait times, since customers have multiple return points at which they can return their empties.

The Role of the Retailer

Of all the deposit systems in place worldwide, the highest return rates can be seen in those systems that employ a return-to-retail (R2R) model, where retailers selling beverages become legally responsible for accepting empty

containers for recycling. In addition to maximizing consumer convenience and experience, R2R is considered best practice for several reasons:

- Avoids expensive system-specific infrastructure: By leveraging existing retail infrastructure and logistics networks, R2R systems can allow for an efficient reverse logistics system. With supermarkets and shops located close to where consumers live, including in remote communities, the infrastructure for convenient container returns is already in place, avoiding the need to construct new recycling centers. This, in turn, helps to accelerate progress and allows for a quicker and more cost-efficient launch of the DRS.
- Cost-effective way to achieve targets: In general, stand-alone redemption centers or depots incur higher costs for labor, site maintenance, etc., since the cost of redemption at these return points reflects 100% of the fixed costs for the location, such as insurance, utilities, taxes, etc. In contrast, the cost of redemption at retail locations represents only a marginal increase because those costs and labor are shared among other businesses.
- Offers several benefits for retailers: Providing a convenient location where consumers can redeem their empty containers gives consumers another reason to visit retailers and spend their deposit refund at their stores. In one study, it was found that shoppers returning containers spent up to 50% more money in that store visit than those who did not return empties.[ii]

R2R models are most common in European DRSs, whereas return-to-depot (or redemption center) models—which allow consumers to return empty containers to facilities established solely for this purpose—are more prevalent in the rest of the world. The only European country that employs return-to-depot collection is Iceland. It's also worth noting that although Sweden's DRS legislation does not establish a R2R obligation, retailers in that country have established a voluntary redemption infrastructure, which continues to ensure a high level of convenience for consumers.

Recent analysis by Reloop found that the median return rate in R2R systems was 90%, compared with 76% in DRSs that employ a return-to-redemption center or hybrid model (see Figure 1). This is not surprising since a system that makes it easy for consumers to return containers and redeem their deposit is more likely to encourage them to participate and engage with the DRS than one which requires them to make extra trips. Furthermore, in terms of low incomes, a system that allows for easy returns is the best way to overcome that as people can redeem their deposits quickly and easily.
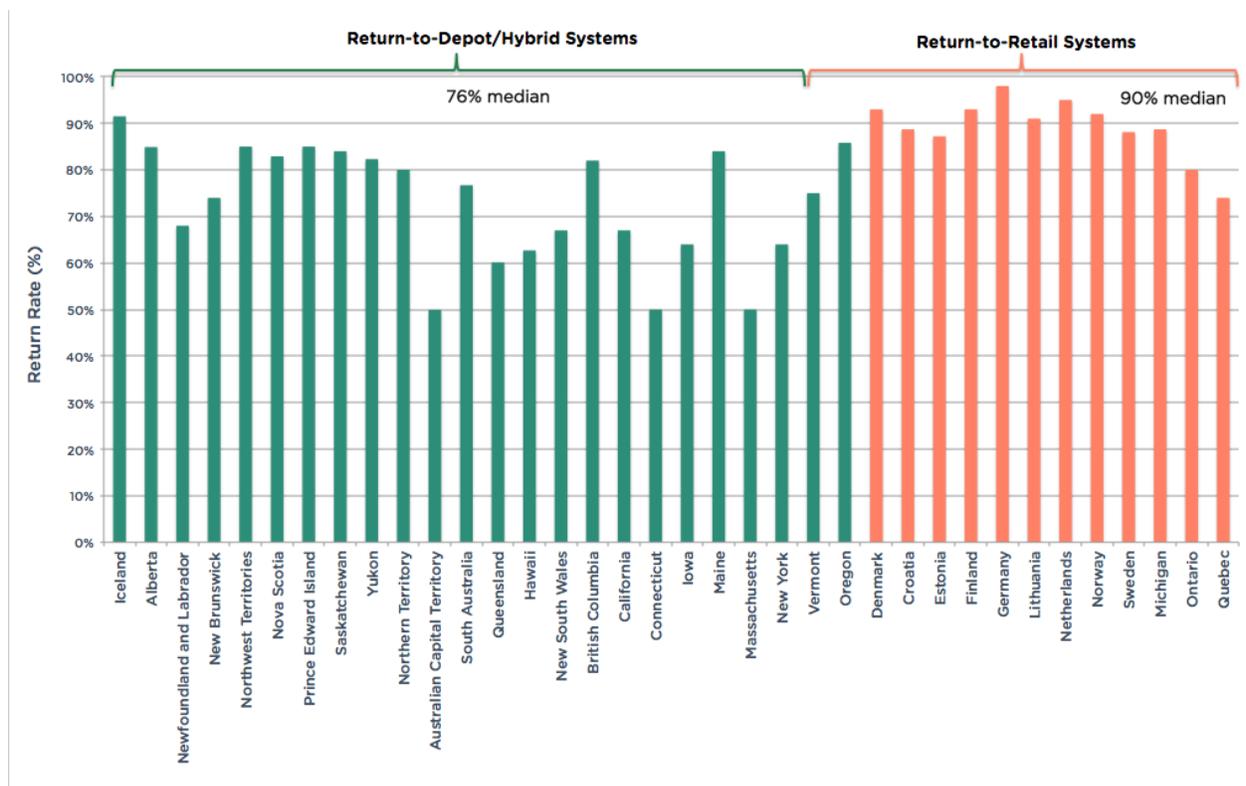
Figure 1 Latest Return Rates in Deposit Jurisdictions by Type of Redemption System1[iii]

Reporting Requirements in Best-in-Class Deposit Return Systems

Good communication, understanding, and transparency of performance are crucial to the success of any organization's efforts to improve their operations and improve public confidence in them. In the context of deposit return systems (DRSs), this is achieved through regular reporting by system operators to regulators and the public to inform them of the performance of the program so that progress against targets can be measured. Transparent performance reporting and communication of program results is also critical to building and maintaining public support for the system (the "license to operate"), which in turn will encourage participation and drive higher return rates.

Performance Reporting

Fortunately for system operators, regular and accurate reporting of performance data is easily made possible using modern RVM technology. Modern RVMs are equipped with online functionalities, which allow for the provision of accurate, reliable, and timely data to central system administrators (CSAs) on the number and types of beverage containers returned to ensure that the correct amount is refunded to both the consumer

and the retailer. Such real-time data on the quantity of containers that have been returned allows for better detection of unusual redemption patterns or large volumes, both of which could be indicators of fraud. This data, which is sent directly or indirectly through RVM vendors to DRS operators, can also be used to improve logistics planning and routing, which further increases system efficiencies.

Throughout the year, CSAs collect performance-related data from various DRS stakeholders including producers/importers, automated collection points, logistics providers, consolidation and counting centers, and recyclers. This data is reported to regulators – typically on an annual basis – who use it to ensure that the scheme is operating soundly and that the DRS operator's legal obligations are being fulfilled. This includes, for example, meeting performance targets set in the legislation, such as minimum collection and/or recycling rates, coverage targets (e.g. minimum number of redemption points), convenience/accessibility targets (e.g. minimum distance between redemption points and where consumers live), and public education targets.

While specific reporting requirements may vary by jurisdiction, best-in-class DRS legislation should specify that the following minimum information be reported:

- Number of eligible beverage containers sold
- Number of eligible beverage containers collected for recycling
- Collection rate (%): number of beverage containers collected each year, as a percentage of the number of containers sold
- Material-specific recycling rates (%): number of beverage containers collected for recycling that were recycled each year, as a percentage of the number of containers sold
- Recycled content (%): Utilization of recyclates for recycled content, with verification
- Participation rate (%): percentage of population that returns containers via the deposit system
- Financial statements: data on system costs and revenues, audited by an independent third-party
- Indicators related to community access (e.g. number of redemption points per capita, percentage of population living within a certain distance from a redemption point (urban vs. rural))
- Indicators related to public communication and education (e.g. percentage of population aware of the program)

In addition to information relating to system performance, there are other types of data that should be reported to ensure system integrity and compliance with program requirements. This includes, for example,

information specific to beverage containers being registered in the system, such as brand, flavor, container size, material, and UPC code. Such data is often necessary to ensure that containers meet the standards set out in 'design4recycling' guidelines established by the DRS operator (where applicable), which allow different materials to be part of the scheme while forbidding others.

Table 1 presents a brief overview of the types of data collected by various stakeholders involved in a DRS – including producers/importers, collection point operators, logistics providers, counting centers, and recyclers – and how frequently it should be reported to the CSA. To ensure that historical data is available and can be audited and verified upon request, there should be a requirement to maintain these records for a minimum period of 10 years.

Table 1 Data Collected and Reported to CSA by DRS Stakeholders

Data provider	Type of data	Reporting frequency	How the data is used or why it's needed
Producers / Importers	Number of beverage containers sold, by barcode	Weekly / biweekly / monthly	This data is needed to calculate collection and recycling rates
	A "beverage container attributes list" for each eligible beverage container placed on the market. In general, the list should include the following information: • Barcode • Supplier name	When a new product is planned for launch or whenever there are changes to the list	This data is needed to ensure registered containers meet 'design4recycling' guidelines

	• Product name • Product group • Material • Color of material • Height (with cap) • Largest diameter • Weight (empty) • Volume		
	Proof of compliance with design4recycling specifications and/or other requirements related to materials used on the container (bottle, cap, label, etc.)	When a new product is planned for launch or whenever there are changes to an existing eligible product	This data is needed to ensure registered containers meet 'design4recycling' guidelines
Automated Collection Points / RVM Supplier	Number of eligible containers collected, by barcode	Weekly / biweekly / monthly	This data is used to determine the appropriate level of reimbursement (deposit + handling fee) to the collection site. It's also used to calculate the collection rate. In a modern DRS this data is collected via a RVM with online connectivity. The RVM supplier has returns

			data for each collection point, verifies them, and then reports the data to the DRS operator or its clearinghouse service provider. While data reporting to the DRS operator typically follows a format defined by the operator, the way in which data is collected and sent from the RVMs is defined by the RVM supplier, which means that a conversion of the retrieved data is usually necessary before forwarding it to the DRS operator.
Logistics Provider	Amount of material (i.e., used beverage containers, bags) collected from collection points and delivered to the consolidation and counting centers, by collection point	Weekly / biweekly / monthly	This data is needed to maintain the transparency of the system and to reimburse haulers for their services.
Consolidation & Counting Centers	For each manual collection point, the number of eligible containers processed by	Weekly / biweekly / monthly	The DRS operator needs this data to reimburse manual collection points for the deposits paid out, plus the appropriate handling fees

	industrial RVMs, by barcode/bag ID (the bag ID links the bag to the collection point)		
	Weight and/or volume of beverage containers/bags received and processed from automated collection points	Weekly / biweekly / monthly	
	Weight of baled materials shipped to recyclers This DRS operator needs this data to invoice recyclers for the feedstock material delivered	Weekly / biweekly / monthly	The DRS operator needs this data to reimburse the industrial counting of the manually collected containers
Recyclers	Weight of feedstock material received from the consolidation and counting centers	Weekly / biweekly / monthly	This data will be used by the DRS operator for reconciliation with delivery data from consolidation and counting centers

Below are a few case studies that illustrate how data is collected and reported to CSAs in DRS jurisdictions that follow best-in-class principles.

Data Confidentiality
As with any data management system, the importance of data confidentiality and integrity in a DRS cannot be understated. Because of the potentially sensitive nature of the data that several stakeholders in the DRS are sharing/receiving, it is important to ensure that certain data (e.g. sales data from specific beverage suppliers) are protected and that privacy is maintained. Below are some examples of how this can be done:

- **Handling of sales data:** DRS operators, including management staff and employees, that are handling this information must be bound by confidentiality. Sales data should only be used for the calculation of EPR fees and for the reconciliation of sales and returns figures. Reporting of collection rates to regulators and the public should only be done at a high level (i.e., by packaging type) to not expose data at a brand/producer level.
- **Handling of returns data:** For containers returned via RVMs, return data should only be available to appointed data service providers, which are typically the RVM suppliers. The DRS operator should define data handling requirements, and data transferred to and from the RVMs must be secured and encrypted. With respect to customer data and deposit/refund transactions, the DRS operator should comply with relevant data protection rules in that jurisdiction. As for individual producers, they should not be able to access or receive any data regarding to their competitors' products or packaging. DRS operators should be bound to confidentiality through a signed membership agreement, which clearly prohibits the disclosure of commercial data.
- **Handling of data related to logistics and processing:** Records related to the weight of material collected from various collection points (and baled material by tonnage) should be used for the purpose of audits and reporting to DRS operator and should not be used for commercial purposes outside the scope of the scheme. Before having access to such data, stakeholders should sign a data utilization agreement and declare that such data will not be used commercially.

Marketing and Awareness Building
As noted earlier, regular reporting to regulators is important to help ensure regulatory compliance with DRS requirements and to track progress against targets. However, to build and maintain public awareness and support for the system, it's also critical that DRS operators invest in public education efforts to communicate program successes, such as:

- Results of the scheme
- Jobs created through the DRS
- Impacts of the DRS on littering rates
- How the DRS helps to protect and preserve scarce natural resources

A DRS operators' public-facing annual reports and marketing campaigns should explain the overall intentions of the DRS, the coverage of the scheme, what constitutes an eligible empty container, and the planned and existing collection point infrastructure. DRS operators should use traditional communication channels as well as social media to get its messaging across.

To incentivize investment in such efforts, regulators may consider obligating the DRS operator to spend a certain percentage of annual turnover on public relations activities. In Lithuania, for example, the DRS operator is required by law to spend 1% of its annual turnover on public information campaigns to promote the DRS.[iv] Significant investments in marketing and public communications are especially important during the design of a DRS and prior to its launch. In the early years of a DRS, the revenue from unredeemed deposits is typically higher than in later years, which can serve to fund public awareness activities.[v] As more and more people become informed of the scheme, spending on marketing and communications can be reduced.

Socioeconomic Benefits

In many places with DRS, consumers who return their empty beverage containers for recycling have a choice of what to do with their refunded deposits. They can either keep it for themselves (e.g., in the form of a cash refund, credit to an online account, store credit), or they can choose to donate it to a charity. The latter could be done through an option on reverse vending machines (RVMs) to donate to one or a selection of registered charities, or by donating empty containers directly to a charitable organization, who would then return the containers to a collection point to collect the deposits. In some places, deposit refunds can also donate indirectly, such as through the purchase of charity lottery tickets.

Since the near total shut down of businesses, schools, and other institutions around the world in March 2020, many charities and other social purpose organizations have reported a drastic rise in demand for their services from vulnerable communities due to COVID-19 (e.g., food banks, women's shelters, organizations supporting isolated seniors, mental health crisis lines, etc.). At the same time, they're seeing a decrease in their revenues and a drop in the number of volunteers they can rely on. The pandemic has been particularly difficult for organizations that normally organize group-based fundraising events, like galas and walkathons. On top of declining revenues, these organizations are incurring

new expenses for things like personal protective gear and the technology needed to work from home.

There is no doubt that charities and other non-profits would benefit from the additional revenues that could be derived from a DRS, particularly during a time when more disadvantaged people are relying on those organizations.

Additional Information can be accessed:
- [What We Waste](#)
- [Handling Fees](#)
- [Cost Savings for Municipalities](#)
- [Impact on Job Creation](#)
- [Global Deposit Book](#)

[i] TOMRA. (2021). "Rewarding Recycling: Learnings from the World's Highest Performing Deposit Return Systems." Accessed 20 April 2021 from https://www.tomra.com/en/collection/reverse-vending/deposit-return-schemes/whitepaper

[ii] "Profiling Shoppers in Norway, Finld and Holland." TNS Gallup. 2003. As cited in TOMRA WHITE PAPER.

[iii] Reloop Platform analysis

[iv] TOMRA. (2021). "Rewarding Recycling: Learnings from the World's Highest Performing Deposit Return Systems." Accessed 20 April 2021 from https://www.tomra.com/en/collection/reverse-vending/deposit-return-schemes/whitepaper

[v] TOMRA. (2021). "Rewarding Recycling: Learnings from the World's Highest Performing Deposit Return Systems." Accessed 20 April 2021 from https://www.tomra.com/en/collection/reverse-vending/deposit-return-schemes/whitepaper