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Deposit Return Systems

# Fact Sheet: System Performance

In an effort to reduce litter and increase recycling, more and more jurisdictions are turning to deposit return systems (DRSs) for the recovery of beverage containers. Intended to act as an economic incentive to recycle, a deposit is a small fee charged on the purchase of certain beverage containers, which is refunded (partially or fully) to the consumer when he/she returns the empty container to a collection point.

Despite claims to the contrary by the beverage industry, international experience consistently shows that collection rates for beverage containers are significantly higher in jurisdictions that have deposit return. In Canada, provinces with deposit return programs recover an average of 80% of all non-refillable beverage containers sold, compared to an average of just 50% in provinces that recover containers through municipal curbside recycling programs. In some jurisdictions, collection rates are significantly higher at more than 95%. In the U.S., states with active container deposit laws recycle 50-89% of covered containers, while the overall recycling rate for beverage containers in states without deposit return is around 30%.[i] Nearly every European country with deposit return for single use beverages reports recycling rates of over 85%.

In addition, in most non-deposit jurisdictions in North America and Europe, collection rates for non-deposit containers tend to be over-estimated because they report on collection rather than what is actually recycled. What's more is that these rates do not account for free-riders and can sometimes include tonnage of imported recyclables.

Program performance is typically measured using the collection rate, which represents the number of containers collected for recycling in a given jurisdiction versus the number of containers sold. Assessing the performance of a DRS is straightforward since the deposit/refund allows sales and collections to be tracked to the last unit. Measuring the performance of curbside collection programs, on the other hand, is more complex because beverage packaging is collected together with other material, such as paper and non-beverage containers.

In contrast, in DRSs, collection is recycling because contamination is low and quality is high, and because these rates are reported on unit counts, not on weight.

The following table summarizes the most recently available performance data of 42 different DRSs for single-use beverage containers around the world, where data was available.

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| Jurisdiction | Data Year | Refund | | Total Return Rate |
|---|---|---|---|---|
| | | Local Currency | Euro and USD Equivalent | |
| Croatia | 2019 | 0.5 HRK | €0.066 USD$0.07 | 88.7%[ii] |
| Denmark | 2019 | 1-3 DKK | €0.13- €0.4 USD$0.15-$0.45 | 92%[iii] |
| Estonia | 2018 | €0.10 | (USD$0.11) | 90.7%[iv] |
| Finland | 2019 | €0.10-€0.40 | USD$0.11- $0.45 | 93%[v] |
| Germany | 2018 | €0.25 | USD$0.28 | 98%[vi] |
| Iceland | 2019 | 15 ISK | €0.11 USD$0.12 | 87.4%[vii] |
| Lithuania | 2019 | €0.10 | USD$0.11 | 92%[viii] |
| Netherlands | 2018 | €0.25 | USD$0.28 | 95%[ix] |
| Norway | 2019 | 1-2.5 NOK | €0.13- €0.32 USD$0.12-$0.30 | 89.5%[x] |
| Sweden | 2019 | 1-2 SEK | €0.11-€0.22 USD$0.12-$0.24 | 84.9%[xi] |
| California[xii] | 2019 | USD$0.05-$0.10 | €0.05-€0.09 | 67%[xiii] |
| Connecticut[xiv] | 2019 | USD$0.05 | €0.05 | 50%[xv] |
| Hawaii[xvi] | 2018-19 | USD$0.05 | €0.05 | 62.7%[xvii] |
| Iowa[xviii] | 2019 | USD$0.05 | €0.05 | 71%[xix] |
| Maine | 2017 | USD$0.05-$0.15 | €0.05-€0.14 | 84%[xx] |
| Massachusetts | 2019 | USD$0.05 | €0.05 | 50%[xxi] |
| Michigan | 2019 | USD$0.10 | €0.09 | 88.7%[xxii] |
| New York | 2019 | USD$0.05 | €0.05 | 64%[xxiii] |
| Oregon | 2019 | USD$0.10 | €0.09 | 85.8%[xxiv 1], |
| Vermont | 2013 | USD$0.05-$0.15 | €0.05-€0.14 | 75%[xxv] |
| Alberta | 2019 | CAD$0.10-$0.25 | €0.07-€0.17 USD$0.07-$0.18 | 85.3%[xxvi] |
| British Columbia | 2018 | CAD$0.05-$0.20 | €0.03-€0.13 USD$0.04-$0.15 | 81.3%[xxvii,xxviii] |
| Manitoba | 2016 | CAD$0.10-$0.20 | €0.07-€0.13 USD$0.10-$0.15 | 78.5%[xxix] |
| Newfoundland and Labrador | 2018-2019 | CAD$0.05-$0.10 | €0.03-€0.07 USD$0.04-$0.07 | 68.2%[xxx] |
| New Brunswick | 2018 | CAD$0.05-$0.10 | €0.03-€0.07 USD$0.04-$0.07 | 69.7%[xxxi] |
| Northwest Territories | 2018-2019 | CAD$0.10-$0.25 | €0.07-€0.17 USD$0.07-$0.18 | 83.9%[xxxii] |
| Nova Scotia | 2019-2020 | CAD$0.05-$0.10 | €0.03-€0.07 USD$0.04-$0.07 | 80.9%[xxxiii] |
| Ontario (alcohol containers only) | 2018 | CAD$0.10-$0.20 | €0.07-€0.13 USD$0.10-$0.15 | 87%[xxxiv] |
| Prince Edward Island | 2018 | CAD$0.05-$0.10 | €0.03-€0.07 USD$0.04-$0.07 | 82.5%[xxxv] |
| Quebec (beer and soft drinks only) | 2018 | CAD$0.05-$0.20 | €0.03-€0.13 USD$0.04-$0.15 | 68.5%[xxxvi] |
| Saskatchewan | 2019-2020 | CAD$0.05-$0.40 | €0.03-€0.27 USD$0.04-$0.29 | 88%[xxxvii] |
| Yukon | 2016 | CAD$0.05-$0.25 | €0.03-€0.17 USD$0.04-$0.18 | 82.3%[xxxviii] |

[1]Deposit initiators within the Oregon Beverage Recycling Cooperative (OBRC), which covers the vast majority of deposit containers sold in the state, reported a 2019 return rate of 90%.

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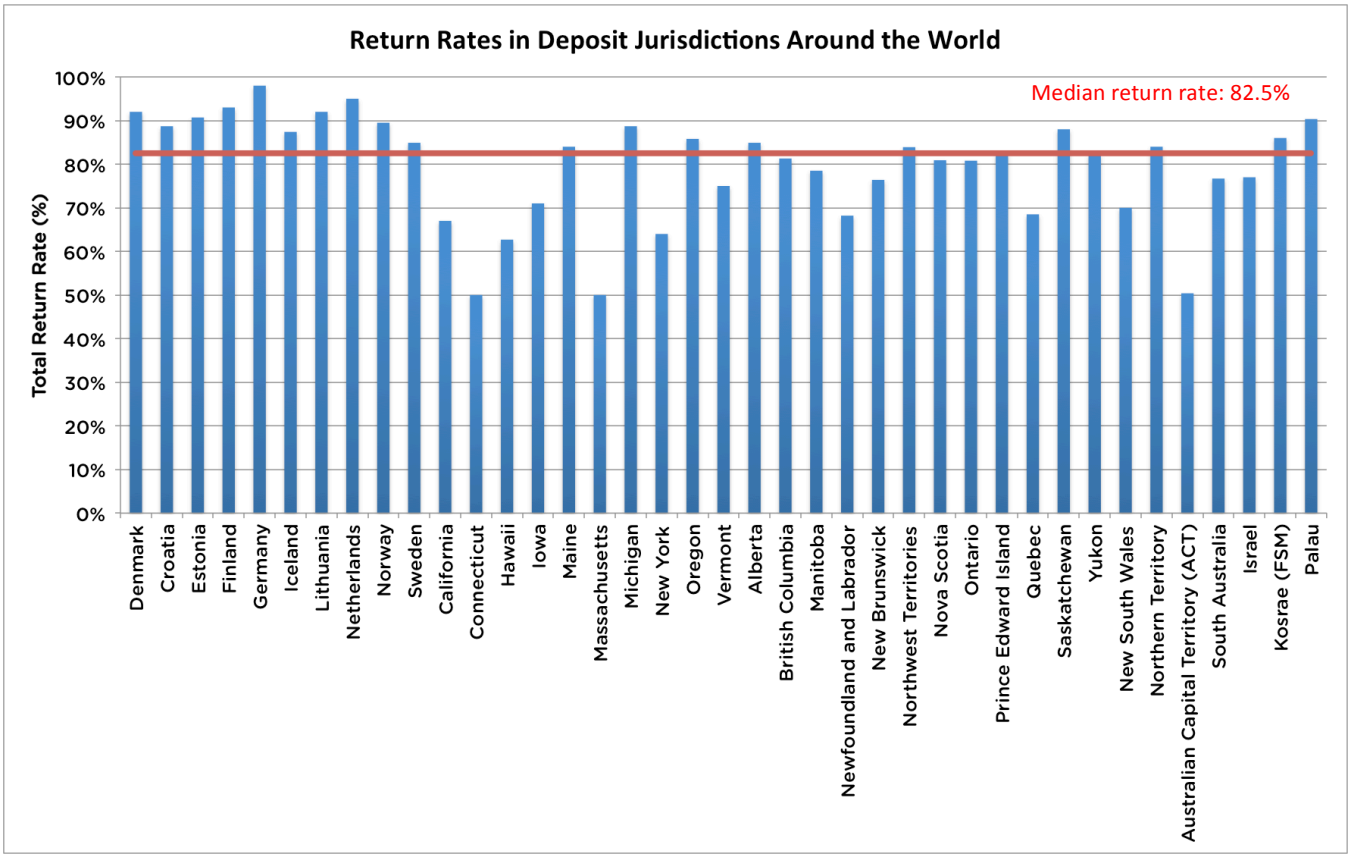
| Jurisdiction | Data Year | Refund | | Total Return Rate |
|---|---|---|---|---|
| | | Local Currency | Euro and USD Equivalent | |
| New South Wales | 2019 | AUD $0.10 | €0.06<br>USD $0.07 | 73%[xxxix, 2] |
| Queensland | 2019-2020 | AUD $0.10 | €0.06<br>USD $0.07 | 58%[xl] |
| Northern Territory | 2018-2019 | AUD$0.10 | €0.06<br>USD $0.07 | 84%[xli] |
| Australian Capital Territory (ACT) | 2018-2019 | AUD$0.10 | €0.06<br>USD $0.07 | 50.4%[xlii] |
| South Australia | 2019-2020 | AUD$0.10 | €0.06<br>USD $0.07 | 76.7%[xliii] |
| Israel | 2018 | 0.3 ILS | €0.07<br>USD$0.08 | 77%[xliv] |
| Kosrae (Federated States of Micronesia) | 2017 | USD$0.05 | €0.05<br>USD$0.05 | 86%[xlv] |
| Palau | 2018 | USD$0.05 | €0.05<br>USD$0.05 | 90.34%[xlvi] |
| Republic of the Marshall Islands | 2018 | USD$0.05 | €0.05<br>USD$0.05 | Around 85%[xlvii] |
| Pohnpei (Federated States of Micronesia) | 2017 | USD$0.05 | €0.05<br>USD$0.05 | Estimated at 60%[xlviii] |
| **Disclaimer: In general, return rates were obtained from programs operator or the government agency responsible for oversight.** | | | | |




[2]Includes returns through the DRS network and curbside council programs

## Conclusion

From North America to Australia and across Europe, global momentum for deposit return continues to grow. DRSs achieve high performance, produce higher quality recyclates, and promote the transition to a circular economy. Given these benefits and the often poor performance of multi-material curbside programs, more and more beverage companies are considering it to be the best solution to manage their empty containers in a circular way and to tackle the growing problems of land-based and marine litter.

### Endnotes

[i] Container Recycling Institute. 2013. "Bottled Up: Beverage Container Recycling Stagnates (2000-2010)." <www.container-recycling.org/index.php/publications/2013-bottled-up-report>
[ii] Ministry of the Environment of the Croatia Republic. Data provided to Reloop via e-mail correspondence April 7, 2020.
[iii] Dansk Retursystem. Årsrapport 2019. <https://www.danskretursystem.dk/wp-content/uploads/2020/03/A%CC%8Arsrapport-2019-FINAL-inkl.-grafik-06.03.2020.pdf>
[iv] Personal communication with Rauno Raal, Eesti Pandipakend OÜ, March 27, 2020.
[v] Personal communication with Tommi Vihavainen (Suomen Palautuspakkaus Oy), April 16, 2020
[vi] ACR+. January 2019. "Deposit-Refund Systems in Europe for One-Way Beverage Packaging." < https://www.acrplus.org/images/technical-reports/2019_ACR_Deposit-refund_systems_in_Europe_Report.pdf>
[vii] Personal communication with Helgi Lárusson, Managing Director at Framkvaemdastjóri, March 18, 2020.
[viii] Personal communication with Gintaras Varnas, USAD, March 25, 2020.
[ix] Personal communication with Raymond Gianotten, SRN, 7 May 2020.
[x] Infinitum. Årsrapport 2019. Available at https://infinitum.no/arsmelding-vis/27/c7d2cfa03eab48e2053906b0f40a5321/Infinitum_Arsrapport_2019.pdf
[xi] Returpack Svenska AB. "Hållbarhetsredovisning 2019." <https://pantamera.nu/wp-content/uploads/2020/05/Returpack_Hallbarhetsredovisning2019.pdf>
[xii] Redemption rate reflects direct CRV redemption. In 2018, curbside programs collected an additional 9% of CRV beverage containers sold.
[xiii] "Redemption Rates and Other Features of 10 U.S. State Deposit Programs." Document provided by Susan Collins, Container Recycling Institute. 19 August 2020.
[xiv] Before water bottles were added to the deposit system in 2009, redemption rates were higher (in the range of 65-70%).
[xv] Container Recycling Institute. Bottle Bill Resource Guide: Connecticut. Accessed from http://www.bottlebill.org/index.php/current-and-proposed-laws/usa/Connecticut
[xvi] Deposit containers collected at curbside (in Honolulu only) are already included in the statewide redemption rates.
[xvii] Personal communication with Jaylen Ehara, Hawaii State Department of Health, 17 January 2020.
[xviii] Recycling rate is 71%; estimate of 7% is through curbside and other programs.
[xix] Iowa Department of Natural Resources. 18 January 2018. "Study shows new recovery rate of containers in Iowa." Accessed from https://www.iowadnr.gov/About-DNR/DNR-News-Releases/ArticleID/1716/Study-shows-new-recovery-rate-of-containers-in-Iowa
[xx] "Redemption Rates and Other Features of 10 U.S. State Deposit Programs." Document provided by Susan Collins, Container Recycling Institute, 19 August 2020.
[xxi] ibid.
[xxii] Michigan Department of Treasury, Office of Revenue and Tax Analysis. May 27, 2020. "Bottle Deposit Information." Accessed from <https://www.michigan.gov/documents/treasury/Bottle_Deposit_Information_6-17-20_694088_7.pdf>
[xxiii] "Redemption Rates and Other Features of 10 U.S. State Deposit Programs." Document provided by Susan Collins, Container Recycling Institute, 19 August 2020.
[xxiv] Oregon Liquor Control Commission. "2019 Beverage Container Return Data." Accessed from < <https://www.oregon.gov/olcc/Docs/bottle_bill/2019_BeverageContainerReturnData.pdf>
"Redemption Rates and Other Features of 10 U.S. State Deposit Programs." Document provided by Susan Collins, Container Recycling Institute. 19 August 2020.
[xxvi] Beverage Container Management Board. Stronger Together: 2019 Annual Report. <https://www.bcmb.ab.ca/uploads/source/Annual_Reports/2020.06.09.BCMB.2019.AR.FINAL.pdf>
[xxvii] Encorp Pacific. Connecting with Consumers: 2018 Annual Report. <https://www.return-it.ca/ar2018/pdf/AnnualReport.pdf>
[xxviii] Personal communication with Brewers Distributors Limited.
[xxix] CM Consulting Inc. 2018. "Who Pays What: An Analysis of Beverage Container Collection and Costs in Canada: 2018
[xxx] Personal communication with Gordon Wall at Multi Material Stewardship Board, January 2020.

[xxxi] Encorp Atlantic Inc. Winter 2019 Journal. <http://encorpatl.ca/wp-content/uploads/2019/03/RC-Winter-Journal-2019-engl.pdf>
[xxxii] Although the Government of the Northwest Territories reports a return rate of 108.5% for glass, we have lowered this to 100% because that is the highest possible rate. This, in turn, brings NWT's reported overall return rate down from 85.4% (reported in Government of Northwest Territories. "Waste Reduction and Recovery Program 2018-2019 Annual Report." <https://www.ntassembly.ca/sites/assembly/files/td_51-192.pdf) to 83.9%.
[xxxiii] Divert NS. Future Forward: 2019-2020 Annual Report. <https://divertns.ca/assets/files/DivertNS2020AnnualReport.pdf>
[xxxiv] The Beer Store. Reuse & Recycle to Build a Cleaner Ontario: The Beer Store Responsible Stewardship 2018. <https://beerstore-wpengine.netdna-ssl.com/wp-content/uploads/2019/04/StewardshipReport2018.pdf>
[xxxv] Personal communication with Mike Cheverie, Beverage Container Program Coordinator, Department of Environment, Water and Climate Change at the Government of Prince Edward Island.
[xxxvi] Recyc-Québec. "Tableau des ventes et de la recuperation des contenants consignés (Bière et Boissons gazeuses)." <https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/statistiques-ventes-recuperation-cru.pdf>
[xxxvii] 88% return rate is the 3-year average. Taken from SARCAN 2019-2020 Annual Report, <https://issuu.com/sarcsarcan/docs/annual_report_2019-20>
[xxxviii] CM Consulting Inc. 2018. "Who Pays What: An Analysis of Beverage Container Collection and Costs in Canada: 2018.
[xxxix] Personal communication with Robert Kelman, Reloop Pacific
[xl] Personal communication with Robert Kelman, Director Reloop Pacific, 28 April 2020
[xli] Northern Territory Environment Protection Authority. October 2019. Environment Protection (Beverage Containers and Plastic Bags) Act – Annual Report 2018-19. < https://ntepa.nt.gov.au/__data/assets/pdf_file/0010/746083/2018_2019_CDS_annual_report.pdf>
[xlii] ACT Government. "ACT Container Deposit Scheme Annual Statutory Report 2018-19." Available at https://www.parliament.act.gov.au/__data/assets/pdf_file/0010/1455904/Container-Deposit-Scheme-Annual-Report-2018-19.PDF
[xliii] South Australia Environmental Protection Authority. "Container Deposits." www.epa.sa.gov.au/environmental_info/container_deposit
[xliii] Personal communication with Carmit Bardugo, Asofta Recycling Corporation, October 7, 2019.

[xlv] Kosrae State Solid Waste Management Strategy 2018-2027 (Action Plan: 2018-2022). <https://www.sprep.org/attachments/VirLib/Palau/kosrae-solid-waste-management-strategy.pdf>
[xlvi] Republic of Palau, Division of Solid Waste Management Bureau of Public Works. "Beverage Container Recycling Program Annual Report FY-2018."
[xlvi] Report provided by Alice Leney (alice@coolcard.co.nz) in April 2020 titled "Annual Report to the Nitijela for the CDL Recycling Sysm for Year 2019"
[xlvi] Personal communication with Alice Leney (alice@coolcard.co.nz), April 2020

Reloop is a broad platform of like-minded interests that share a common vision for a circular economy. The founding members of the organisation bring together industry, government, and non-governmental organisations to form a network for advances in policy that create enabling system conditions for circularity across the global economy.

With members coming from different sectors, the platform aims to work as a catalyst in order to generate economic and environmental opportunities for all stakeholders in the value chain. This includes producers, distributors, recyclers, academia, NGOs, trade unions, green regions, or cities.

Reloop is born to connect stakeholders, allow for information-sharing to inform those stakeholders, and influence decision makers to adopt policy that works towards the implementation of policies and systems that promote a circular economy.

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