

Fact Sheet: System Performance

- **Countries, states, and provinces that have implemented deposit return systems (DRS) consistently achieve higher collection rates for beverage containers than those that rely solely on municipal curbside collection programs.**
- **In general, the higher the deposit/refund value, the higher the return rate.**
- **The highest return rates can be seen in systems that use a return-to-retail approach, where retailers selling beverages become legally responsible for accepting empty containers for recycling**

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 82% of all non-refillable beverage containers sold, compared to just 46% in Ontario where non-alcohol containers are recovered 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%.¹ 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.

TABLE 1 LATEST RETURN RATES IN DRS JURISDICTIONS WORLDWIDE

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	2019	€0.10	(USD\$0.11)	87.2% ^{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}	2016	USD\$0.05	€0.05	64% ^{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, xxv}
Vermont	2013	USD\$0.05- \$0.15	€0.05-€0.14	75% ^{xxvi}
Alberta	2019	CAD\$0.10- \$0.25	€0.07-€0.17 USD\$0.07- \$0.18	85.3% ^{xxvii}
British Columbia	2019	CAD\$0.05- \$0.20 ^{xxviii}	€0.03-€0.13 USD\$0.04- \$0.15	82% ^{xxix, xxx}
Manitoba	2016	CAD\$0.10- \$0.20	€0.07-€0.13 USD\$0.10- \$0.15	78.5% ^{xxx}
Newfoundland and Labrador	2019	CAD\$0.05- \$0.10	€0.03-€0.07 USD\$0.04- \$0.07	68% ^{xxxii, xxxiii}
New Brunswick	2018-19	CAD\$0.05- \$0.10	€0.03-€0.07 USD\$0.04- \$0.07	74% ^{xxxiv, xxxv}
Northwest Territories	2018-2019	CAD\$0.10- \$0.25	€0.07-€0.17 USD\$0.07-	85% ^{xxxvi}

Jurisdiction	Data Year	Refund		Total Return Rate
		Local Currency	Euro and USD Equivalent	
			\$0.18	
Nova Scotia	2018-2019	CAD\$0.05-\$0.10	€0.03-€0.07 USD\$0.04-\$0.07	83% ^{xxxviixxxviii}
Ontario (alcohol only)	2019	CAD\$0.10-\$0.20	€0.07-€0.13 USD\$0.10-\$0.15	80% ^{xxxixxl}
Prince Edward Island	2019	CAD\$0.05-\$0.10	€0.03-€0.07 USD\$0.04-\$0.07	85% ^{xlxlii}
Quebec (beer and soft drinks only)	2019	CAD\$0.05-\$0.20	€0.03-€0.13 USD\$0.04-\$0.15	74% ^{xlxliii}
Saskatchewan	2019-2020	CAD\$0.05-\$0.40	€0.03-€0.27 USD\$0.04-\$0.29	84% ^{xlxiv}
Yukon	2016	CAD\$0.05-\$0.25	€0.03-€0.17 USD\$0.04-\$0.18	82.3% ^{xlxlv}
New South Wales	2019	AUD \$0.10	€0.06 USD \$0.07	73% ^{xlvi , xlvi}
Queensland	2019-2020	AUD \$0.10	€0.06 USD \$0.07	60.1% ^{xlvi}
Northern Territory	2019-2020	AUD\$0.10	€0.06 USD \$0.07	80% ^{xlxi}
Australian Capital Territory (ACT)	2019-2020	AUD\$0.10	€0.06 USD \$0.07	49.9% ^l
South Australia	2019-2020	AUD\$0.10	€0.06 USD \$0.07	76.7% ^{li}
Israel	2018	0.3 ILS	€0.07 USD\$0.08	77% ^{lii}
Kosrae (Federated States of Micronesia)	2017	USD\$0.05	€0.05 USD\$0.05	86% ^{liii}
Palau	2018	USD\$0.05	€0.05 USD\$0.05	90.34% ^{liv}
Republic of the Marshall Islands	2018	USD\$0.05	€0.05 USD\$0.05	Around 85% ^{lv}
Pohnpei (Federated States of Micronesia)	2017	USD\$0.05	€0.05 USD\$0.05	Estimated at 60% ^{lvi}

Disclaimer: In general, return rates were obtained from programs operator or the government agency responsible for oversight.

FIGURE 1 LATEST PERFORMANCE DATA FOR DEPOSIT RETURN SYSTEMS WORLDWIDE

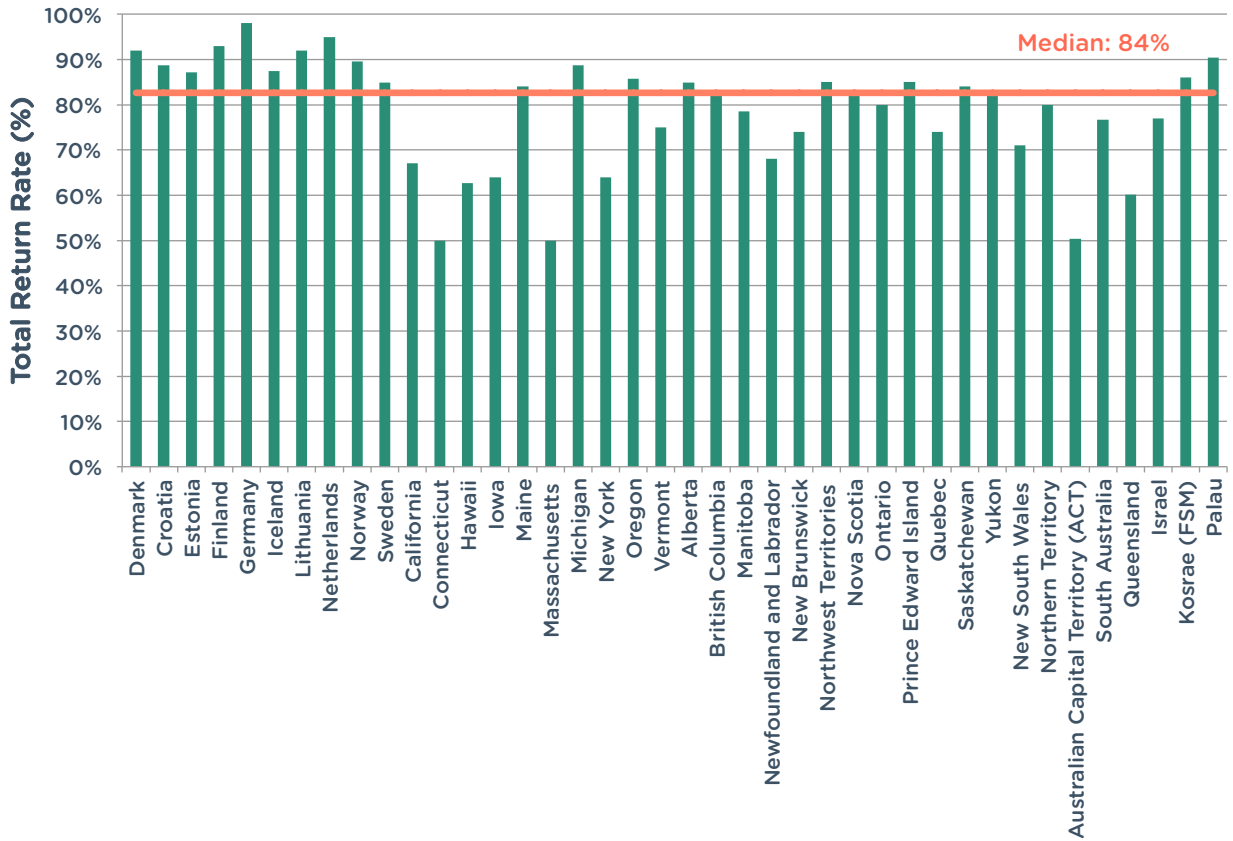


FIGURE 2 LATEST RETURN RATES IN DRS JURISDICTIONS BY TYPE OF REDEMPTION SYSTEM

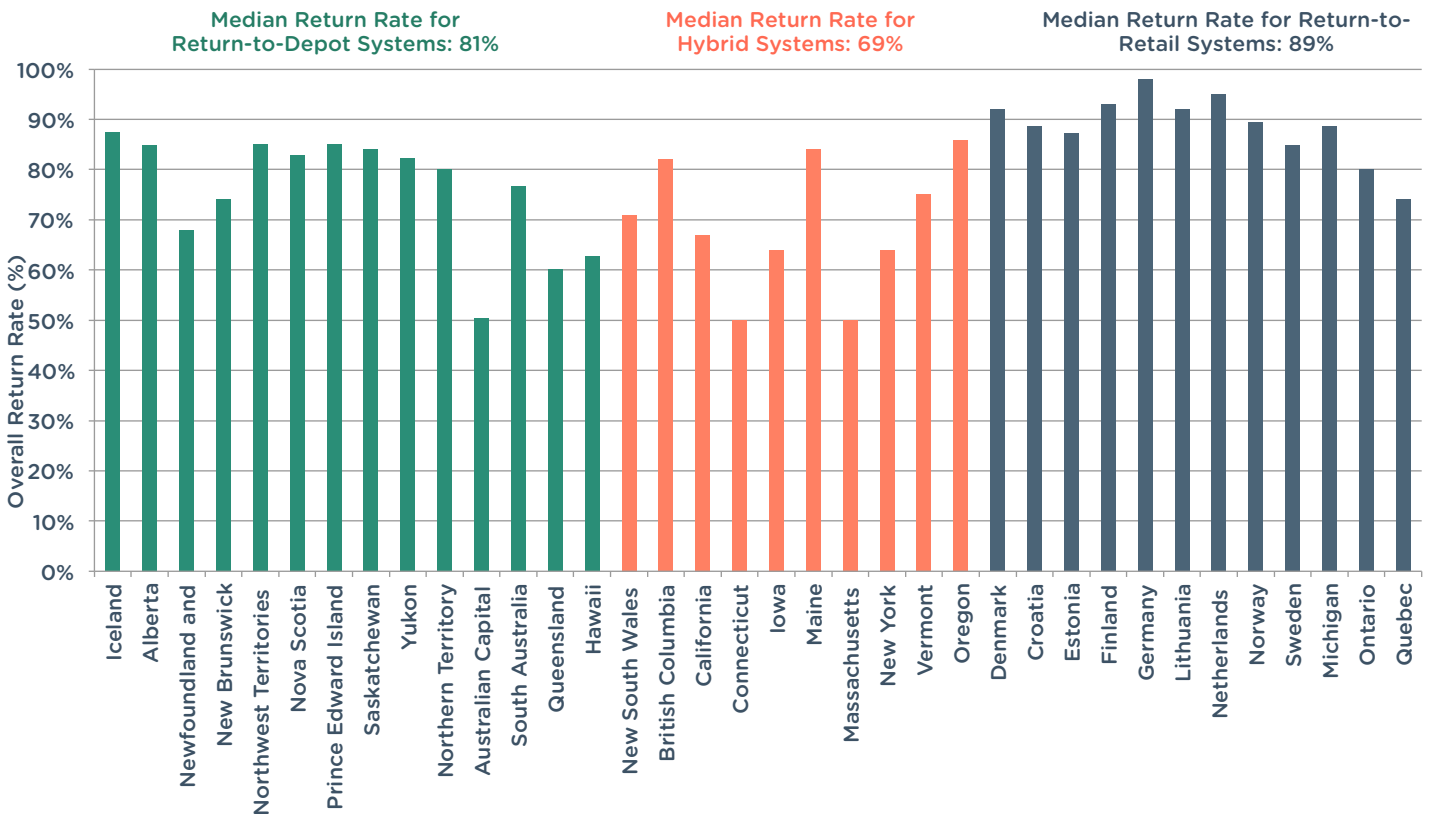
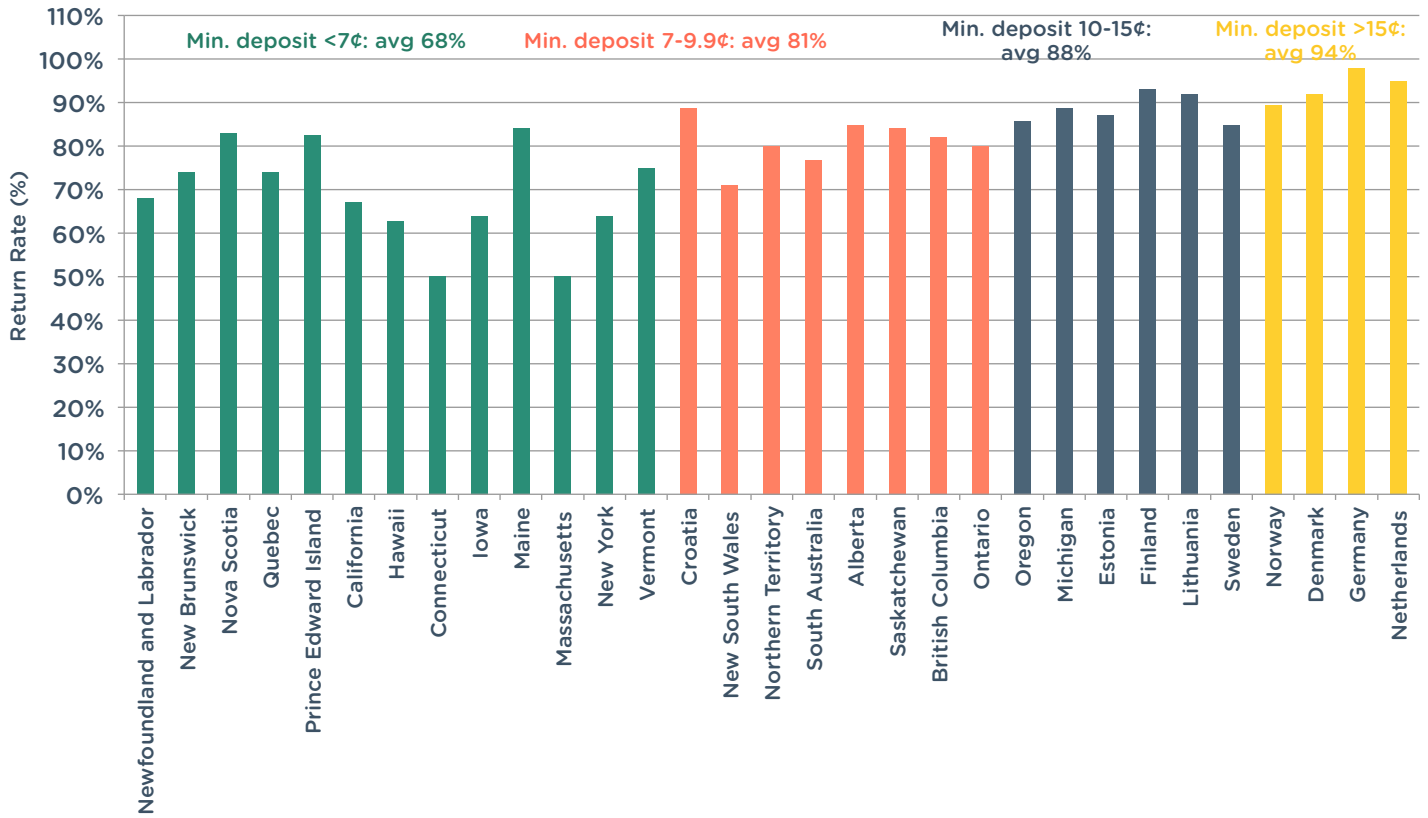


FIGURE 3 LATEST RETURN RATES IN DRS JURISDICTIONS BY MINIMUM DEPOSIT AMOUNT (USD)



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%8Arappport-2019-FINAL-inkl.-grafik-06.03.2020.pdf>>
- ^{iv} Personal communication with Rauno Raal, Eesti Pandipakend OÜ, September 15, 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, USAID, 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} "Redemption Rates and Other Features of 10 U.S. State Deposit Programs." Document provided by Susan Collins, Container Recycling Institute, 19 August 2020.
- ^{xx} *ibid.*
- ^{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>
- ^{xxv} 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%.
- "Redemption Rates and Other Features of 10 U.S. State Deposit Programs." Document provided by Susan Collins, Container Recycling Institute. 19 August 2020.
- ^{xxvii} CM Consulting. *Who Pays What 2020*.
- ^{xxviii} On November 1, 2019, Encorp Pacific, BC's DRS system operator, raised the deposit on all non-alcoholic beverage containers under and including 1L from 5¢ to 10¢. Then, on October 1, 2020, deposits on beverage containers over 1L decreased from 20¢ to 10¢. This means that all containers registered in BC's DRS now have a unified deposit of 10¢.
- ^{xxix} Encorp Pacific (Canada). 25 Years: 2019 Annual Report. <https://www.return-it.ca/ar2019/pdf/Encorp_AR2019_AnnualReport.pdf>
- ^{xxx} Personal communication with Brewers Distributors Limited.
- ^{xxxi} CM Consulting Inc. *Who Pays What 2020*.
- ^{xxxii} If refillable containers are included, Newfoundland's total return rate is actually 75% in 2019 (refillable beer containers were returned at a rate of 97%).
- ^{xxxiii} Personal communication with Gordon Wall at Multi Material Stewardship Board, September 2020.
- ^{xxxiv} If refillable containers are included, New Brunswick's total return rate is actually 75% in 2018/19 (refillable beer containers were returned at a rate of 97%).
- ^{xxxv} CM Consulting. *Who Pays What 2020*.
- ^{xxxvi} CM Consulting. *Who Pays What 2020*.
- ^{xxxvii} If refillable containers are included, Nova Scotia's total return rate is actually 84% in 2018/19 (refillable beer containers were returned at a rate of 97%).
- ^{xxxviii} CM Consulting. *Who Pays What 2020*.
- ^{xxxix} If refillable containers are included, Ontario's total return rate is actually 83% in 2019 (refillable beer containers were returned at a rate of 97%).
- ^{xl} CM Consulting. *Who Pays What 2020*.

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- ^{xli} If refillable containers are included, PEI's total return rate is actually 86% in 2019 (refillable beer containers were returned at a rate of 97%).
- ^{xlii} CM Consulting. *Who Pays What 2020*.
- ^{xliii} CM Consulting. *Who Pays What 2020*.
- ^{xliiv} CM Consulting. *Who Pays What 2020*.
- ^{xliiv} CM Consulting. *Who Pays What 2020*.
- ^{xlivi} Personal communication with Robert Kelman, Reloop Pacific
- ^{xliiii} Includes returns through the DRS network and curbside council programs
- ^{xliiii} Container Exchange (CoEX). "Annual Report 2019-2020." <<https://containerexchange.com.au/wp-content/themes/coex160620/annual-report/dist/img/ce-report.pdf>>
- ^{xlix} Northern Territory Environment Protection Authority. 18 September 2020. Environment Protection (Beverage Containers and Plastic Bags) Act - Annual Report 2019-20. <https://ntepa.nt.gov.au/__data/assets/pdf_file/0004/946093/cds-2019-2020-annual-report.pdf>
- ⁱ ACT Government. "ACT Container Deposit Scheme Annual Statutory Report 2019-20." Available at <https://www.exchangeforchange.com.au/who-we-are/publications-and-reports.html>
- ⁱⁱ South Australia Environmental Protection Authority. "Container Deposits." www.epa.sa.gov.au/environmental_info/container_deposit
- ⁱⁱ Personal communication with Carmit Bardugo, Asofta Recycling Corporation, October 7, 2019.
- ⁱⁱⁱ 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>>
- ^{liii} Republic of Palau, Division of Solid Waste Management Bureau of Public Works. "Beverage Container Recycling Program Annual Report FY-2018."
- ^{liii} 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"
- ^{liii} Personal communication with Alice Leney (alice@coolcard.co.nz), April 2020