

Who Pays What

An Analysis of
Beverage Container
Collection and Costs
in Canada



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Ten years ago, CM Consulting published the first version of *Who Pays What*[™], which documented the collective efforts in beverage container reuse and recycling in Canada for the first time. Since then, much has changed.

Over the last decade, Canada has become a global leader in beverage container collection and recycling. Together, Canadian provinces collect approximately 73%–75% of their aluminum cans, 80%–83% of non-refillable glass, and 58%–62% of PET plastic beverage bottles.

In total, including all the other container types, such as other plastic bottles, juice boxes, gable top containers, pouches, and bi-metal cans, Canadian provinces collected approximately 67% of all the non-refillable beverage containers sold in 2010. (All data is based on calendar or fiscal year 2010).

Refillable beer bottles continue to be collected at a rate of 98%, which brings the total collection rate for all beverage containers up to 72%. This rate is about twice that of the United States.

We have evolved

Our deposit-return programs have evolved by gaining efficiencies from on-site and on-truck compaction, accounting system streamlining, anti-fraud measures, reduced sorting, and greater levels of automation, all of which support cost reductions. In total, deposit-bearing containers were collected at a rate of 84% in 2010.

Our residential curbside programs are also expanding to accept a wider variety of containers and to offer recycling in more public spaces. Recycling efforts that focus on away-from-home container discards are being launched in Manitoba, Quebec, and Ontario. In total, non-deposit bearing containers were collected at a rate of approximately 50%–54% nationally in 2010.

Good for our economy

Canada also enjoys the economic benefits derived from our success in beverage container collection and recycling. In 2010 alone, approximately \$143 million worth of revenue was generated from the sale of

nearly 1.4 million tonnes of empty beverage containers sold to recyclers in Canada or abroad.

Canadian jobs are also directly linked to our success in collection and recycling. For each tonne of container material collected, processed, and recycled, labour is required. If the containers are clean, most will remain in Canada to be used by Canadian secondary processors and manufacturers. The benefits for these industries and Canadians include reduced energy required in manufacturing processes, lower emissions, and consistent access to Canadian-sourced raw material.

The next step

As programs move forward to further increase collection, special attention should be placed on ensuring that the quality of material collected is not compromised to the point where it is no longer valuable domestically. Indeed, recycling must be organized to make sense both environmentally and economically.

Quality standards in sorting and processing should be set high enough by program operators and regulators to maintain a competitive secondary commodity marketplace for the supply of containers; to reduce the risk associated with commodity trading; and to provide an opportunity for Canadian and local manufacturers to increase their use of recycled-content plastic, glass, and aluminum.

CM Consulting looks forward to the next decade of recycling in Canada. We will continue to provide a clear and concise picture of the different models—their effectiveness and costs.

I trust you will find this report useful. Please do not hesitate to contact me if you require other data or further analysis.

Respectfully yours,



Clarissa Morawski
Principal

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Introduction

A Primer

Both the collection and recycling of empty beverage containers continue to progress throughout Canada, and these initiatives generate considerable interest. Why? Beverage bottles and cans are ubiquitous, and proper recycling initiatives also set the stage for expanded recycling efforts for other products and materials consumed by Canadians on a regular basis.

Beverage container recycling programs in Canada are varied. Every program is different, and each one has specific design features that address the goals of the program. In assessing these initiatives, we must acknowledge how varied the data are, despite the common aspects of these programs.

Who Pays What— An Analysis of Beverage Container Collection and Costs in Canada aims to report, clarify, and offer essential insight into the field of beverage container collection and recycling programs. By providing current data and discerning analysis and by identifying a number of trends in beverage container collection and recycling, the report offers a comprehensive examination of container reuse and recycling programs in Canada today.

Developed by CM Consulting, *Who Pays What*™ features the most recent collection and cost data concerning beverage container collection programs—information that is thoroughly researched and clearly organized.

This 2012 report is the fifth edition of *Who Pays What*™. Published biannually, it is embraced as an essential resource for professionals in the beverage industry and recycling field. *Who Pays What*™ is a valuable tool and dependable reference guide that can ease the decision-making process.

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Abbreviations

| | |
|---------------------|---|
| AB | Alberta |
| ABCRC | Alberta Beverage Container Recycling Corporation |
| ABCC | Alberta Beer Container Corporation |
| ADC | Alberta Dairy Council |
| ABDA | Alberta Bottle Depot Association |
| AfH | away-from-home |
| BC | British Columbia |
| BCMB | Beverage Container Management Board |
| BDL | Brewers Distributor Limited |
| CBCRA | Canadian Beverage Container Recycling Association |
| CHF | container handling fee |
| CRF | container recycling fee |
| ÉEQ | Éco Entreprises Québec |
| EFW | energy from waste |
| EHC | environmental handling charge |
| GJ | gigajoule |
| HDPE | high-density polyethylene |
| IC&I | industrial, commercial, and institutional |
| IWMC | Island Waste Management Corporation |
| LDB | Liquor Distribution Branch (BC) |
| MB | Manitoba |
| MEBCalc™ | Measuring the Environmental Benefits Calculator |
| MRF | material recovery facility |
| MMSM | Multi-Material Stewardship Manitoba |
| MtCO ₂ e | metric tonnes of carbon dioxide equivalent |
| NB | New Brunswick |
| NFL | Newfoundland and Labrador |
| NS | Nova Scotia |
| ON | Ontario |
| PEI | Prince Edward Island |
| PER | processing efficiency rate |
| PET | polyethylene terephthalate |
| PPP | printed paper and packaging |
| PS | polystyrene |
| PVC | polyvinyl chloride |
| QC | Quebec |
| R2R | return to retail |
| RFF | recycling fund fee |
| RRFB | Resource Recovery Fund Board Inc. |
| RQ | Recyc-Québec |
| SD | soft drink |
| SO | Stewardship Ontario |
| SK | Saskatchewan |
| TBS | The Beer Store (aka Brewers Retail, Inc.) |
| US | United States |

What's New!



Performance Measurements

The introduction of producer responsibility legislation for a broader range of materials, which include printed paper and packaging, has changed the landscape of beverage collection programs in Canada.

Contributing a share to the financing of beverage container collection in non-deposit jurisdictions has given way to an array of industry-lead, away-from-home recycling initiatives and to changes in the way that packaging is collected and processed.

As collection methods expand to include a wider variety of materials from curbside and away-from-home recycling programs, so too does the spectrum of the quality of collected material. The increasing amount of non-recyclables collected and the contamination of the material as a consequence of collecting different sorts of material mixed together necessitate new ways of evaluating performance measurements. See the section "Measuring Performance" for details.

British Columbia

From October 2011 to March 2012, the Ministry of Environment undertook a regulatory review process on the prescriptive measures of the beverage container law. The stakeholder review focused on three parts of the law: 1) deposit level, 2) mandatory return to retail (R2R), and 3) the reuse and recycling requirement.

The review suggests limited stakeholder interest in dismantling the mandatory R2R system but interest in possible government exemptions where sufficient depot capacity exists, on a case-by-case basis. Most stakeholders support the mandatory provision for recycling, while other businesses proposed loosening the requirement to include energy from waste where recycling markets do not exist. Finally, there was significant support for a one-tier deposit value of 10 cents. Many stakeholders supported the one-tier measure as a way not only to improve current collection but also to simplify the entire system and make it easier for consumers to return their bottles while, at the same time, reducing the time spent sorting. Retailers and brand owners of non-alcoholic drinks support keeping existing deposit levels in place (5 and 20 cents).

The province is likely to announce a decision on whether it will amend the existing beverage regulation sometime in the second half of 2012.

Schedule 5: Packaging and Printed Paper (PPP) Program

In May 2011, the *Recycling Regulation* was amended to include Schedule 5, which defines the packaging and printed paper product (PPP) category. This product category excludes beverage containers subject to the deposit-return program.

The stewardship program plan for this product category is due to the Ministry of Environment by November 19, 2012, and implementation of the approved program is to commence by May 19, 2014. The stewardship program must address PPP from residential premises, and municipal property that is not IC&I property. Examples include sidewalks, plazas or town squares available to the public, and parks (which are municipal property).

Multi-Material British Columbia (MMBC) is a not-for-profit agency established to develop, submit, and implement a stewardship plan for packaging and printed paper. MMBC's intention is to assume the role of a stewardship agency (like Stewardship Ontario in Ontario, Fost Plus in Belgium, or Duales System Deutschland in Germany) in order to discharge the obligations of brand owners and first sellers.

Alberta

In late 2008, the Province of Alberta raised the deposit values of 5 cents to 10 cents and of 20 cents to 25 cents. After three years, collection rates for the three largest beverage categories have consistently improved by approximately 13 percentage points. Aluminum rates rose from 75% to 89%, PET from 67% to 79%, and non-refillable glass from 77% to 90%.

Saskatchewan

After signing a new 4-year operating contract with the government, SARCAN Recycling is set to celebrate 25 years of operations in 2013.

In October 2011, SARCAN opened its new processing plant in Saskatoon. The plant has modern bailing, discharge conveyer systems, and in-floor handling, which make this environmentally friendly plant (it is built with low-flow water systems, special insulation, and over 13,000 tonnes of recycled construction materials) more efficient than

previously existing facilities. The resulting expanded capacity will help deal with ever-increasing volumes of material.

SARCAN's recently renegotiated service contract with the province is worth 5.48 cents per unit collected, including all non-refillable beverage containers.

Manitoba

Manitoba's new paper and packaging program commenced on April 2010. At that time, Multi-Material Stewardship Manitoba took over responsibility for financing 80% of the residential recycling system from the now-defunct Manitoba Product Stewardship Corporation (MPSC).

At the same time, the Canadian Beverage Container Recycling Association (CBCRA) was formed by the beverage industry to take responsibility for the recovery of beverage containers in all collection channels. The fees it collects from the beverage producers are used to fund the recovery of beverage containers by MMSM in the residential sector, finance away-from-home recycling bins, and pay for the province-wide "Recycle Everywhere" program.

The program has been and continues to be financed using a 2-cent CRF (container recycling fee) on every single-serve sealed beverage sold (excluding domestic beer). In most cases, these levies are passed on directly to consumers, just like the recycling fees in BC and AB.

CBCRA is considering a shift to a differential fee by material type in the future, which will potentially see the aluminum cans CRF drop. Container materials that are more costly to handle, such as glass and PET, may see a CRF increase.

Both MMSM and CBCRA have been actively implementing their respective programs, which include a new promotion and education program, Recycle Everywhere; new and expanding away-from-home collection initiatives; and ongoing financing and tracking of the residential recycling program offered by municipalities.

Quebec

In June 2012, Quebec's environment minister released a 5-year strategic plan for Recyc-Québec, the government organization responsible for waste management policy implementation and oversight.

Among the six actions outlined in the plan is a step to "modernize" the deposit-return program. Specifically, before the end of 2012, the value of the deposit will increase from 5 to 10 cents on all deposit-bearing cans and PET and glass containers for beer, soft drinks, and all energy drinks.

In his announcement, the minister also addressed the issue of other bottles and cans, for example, those used for water, wine, spirits, juice, and other new-age beverages not currently covered in the deposit-return program. He suggested that his government will "study the feasibility of broadening the deposit system to similar containers," and, because a program expansion requires a change in legislation, the government will formulate a proposal after a "thorough assessment has been made of impacts on stakeholders and of the respective performance delivered by the deposit and curbside recycling systems."

Nova Scotia

The Resource Recovery Fund Board (RRFB) is working on a pilot project for the Enviro-Depot™ system aimed at reducing sorts at depots and cost cutting through decreased transportation from fewer pickups at depots.

PEI

PEI will be investigating how empty beverage containers are being managed at major special events in the 2012–2013 fiscal period.

Since the ban on non-refillable beer and soft drinks was lifted at the beginning of 2008, the refillable non-alcoholic beverage container has disappeared from store shelves in PEI.

Provincial Collection Rates: All Containers

Figure 1 shows the collection rate for each province. Ontario and Quebec are represented with two columns, one for the containers covered under deposit-return legislation and one for those containers that are collected through the municipal system. The Manitoba column includes beer bottles and cans on deposit. What the percentages clearly show is that deposit jurisdictions have higher collection rates than those that rely on municipal recycling.

Figure 1: Provincial collection rates: All beverage containers, 2010

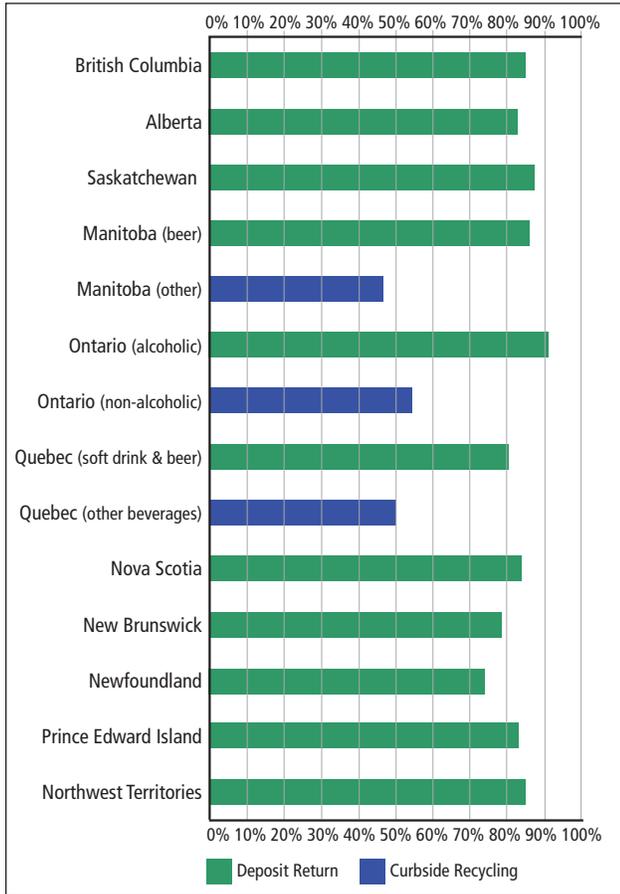
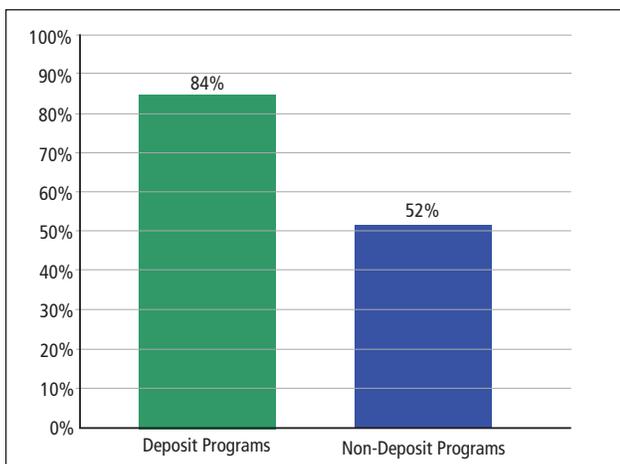


Figure 2 represents total collection rates for deposit-return and curbside programs for beverage container collection.

Figure 2: Total beverage container collection rates for deposit and non-deposit programs, 2010



Measuring Performance

Measuring beverage container recycling is not an exact science. When a deposit is paid, the refund systems offer an opportunity to track sales and collection to the last unit. In general, the material collected is sorted by type and colour early on, so contamination plays a minor role.

Multi-material collection systems, on the other hand, make measurement more difficult because beverage containers are handled mixed in with other containers, so it is impossible to know exactly how many were collected. In addition, because multi-material collection systems measure collected material based on weight versus unit, any contaminate mixed in with the material further weakens the precision of measurements of actual recycling performance.

The central Canadian provinces of Manitoba, Ontario, and Quebec have hybrid programs, through which deposits cover some of the beverage containers and a parallel multi-material system collects the rest. To provide a comprehensive understanding of performance, we considered all of the available data and applied reasonable and important assumptions to estimate the collection rate of beverage containers alone. These are in Appendix A.

In the last decade, multi-material collection methods have expanded to include a wider array of materials from curbside and away-from-home recycling programs. Single-stream collection is on the rise, and this, too, negatively impacts the quality of material sent for recycling. The unintended consequences are that more non-recyclables are collected and paper and containers contaminate each other, resulting in primary and secondary processors having to deal with greater costs, lower yield rates, more material to dispose of, and increased equipment downtime and maintenance. These downstream losses necessitate rethinking how we measure recycling performance.

In this edition of *Who Pays What 2012*, we have attempted to provide transparent performance measurements that identify not only how many containers are collected but also what percentage of those containers are recycled. We define these new performance indicators as follows:

| DEFINITIONS OF PERFORMANCE RATES | |
|---|---|
| COLLECTION RATE | The amount of material collected (by weight or by unit) that is shipped to the recycler by the primary processor (e.g., the MRF) compared to the amount of beverage container material placed on the market in that jurisdiction, excluding exports. The weight of caps, labels, and glue should be considered in both the numerator and denominator if material is measured by weight. |
| PROCESSING EFFICIENCY RATE (PER) | The percentage of material received by the recycler from the primary processor that is used in the recycling process (excluding EFW) compared to material shipped to the recycler. (This is a measure of contamination.) |
| RECYCLING RATE | The amount of material used in the recycling process (excluding EFW) compared to the weight of beverage containers placed on the market in that jurisdiction, excluding exports. |

The collection rate is the rate that is typically used, and it usually represents the number of units collected versus the units that are sold in a jurisdiction. In multi-material programs, however, the collection rate typically represents the weight of beverage containers shipped from the primary processor or sorter to the recycler (e.g., to PET reclaimers, glass beneficiators, or aluminum smelters).

Accounting for Contamination

Weight-based reporting also includes the weight of contaminants that have found their way into the load as a result of mixed collection. These contaminants include contents (left-over liquids in the container) and other materials, such as rocks, other plastics, and metal bits.

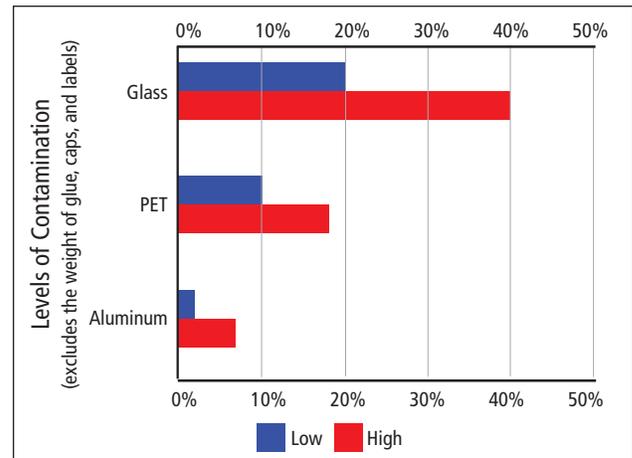
To determine a recycling rate, we apply the processing efficiency rate (PER) to the collection rate. This procedure is required only for reported collection rates measured in weight (Manitoba, Ontario, and non-carbonated beverage containers in Quebec). Collection rates that are reported in units will remain the same because they are based on counting each unit, not on weight.

To determine what are reasonable PER estimates, we considered recently published rates from industry and engaged in interviews with recyclers that process beverage container material from central Canada.

The PER is important because it identifies weaknesses in the system, showing, for example, when beverage container material is accounted for as recycled but, in fact, was not. What was actually measured was the weight of unusable contaminants that were sent to disposal after secondary processing.

Figure 3 describes the range of contaminant levels (low and high rates) that are common today in loads of material shipped from primary processors (MRFs).

Figure 3: Contamination rates from multi-material collection (by weight)



Caps, Glue, and Labels

All bales of beverage containers shipped for recycling from curbside or deposit-return systems will experience yield loss due to the caps, labels, and glue that remain on the bottles after sorting. It is important that both collection (the numerator) and sales (the denominator) include or exclude the weight of caps, labels, and glue in a consistent manner.

Process Loss

A level of yield loss will occur simply as a result of the recycling process. PET bottles, for example, may lose from 9%–15% by weight of material in the system. These losses are mostly fines, which can be sold as a by-product.

Tetra Pak container recycling uses 65% of the container by weight to produce pulp to manufacture tissues and similar products. The remaining 35% is a mix of aluminum and plastic, which can be fabricated into lower-end composite products such as plant pots. Typically, most of the non-pulp material is considered process loss because it is disposed of after separation from the pulp.

These process losses are not considered in this report, but they will be further investigated by CM Consulting in the future.

Recycling Rates

The recycling rates in deposit-return programs are not affected by processing efficiency because these rates are

based on a unit count, not on weight. Recycling rates for non-deposit, multi-material systems will decrease by the level of contamination in the reported tonnes. The PER rates used in this report to estimate the recycling rates for PET, aluminum, and glass were the most efficient of the ranges provided by industry (i.e., the ones showing “low” contamination rates).

Figure 4 provides a comparison between collection rates and recycling rates for aluminum, PET, and glass bottles in multi-material collection systems.

Figure 5 and Table 1 show recycling rates for aluminum, PET plastic, and glass beverage containers in Canada.

Table 1: Estimated recycling rates for aluminum cans, non-refillable glass bottles, and PET bottles, 2010

| | Aluminum Cans | Non-Refillable Glass | PET Bottles |
|-----------------------------------|---------------|----------------------|-------------|
| British Columbia | 89% | 93% | 78% |
| Alberta | 89% | 90% | 79% |
| Saskatchewan | 92% | 87% | 83% |
| Manitoba (beer) | 81% | N/A | N/A |
| Manitoba (other) | 47% | 36% | 45% |
| Ontario (alcohol) | 80% | 88% | 48% |
| Ontario (non-alcoholic beverages) | 56% | 55% | 43% |
| Quebec (soft drinks and beer)* | 66% | 77% | 70% |
| Quebec (other beverages) | - | 59% | 40% |
| Nova Scotia | 86% | 82% | 82% |
| New Brunswick | 78% | 78% | 79% |
| Newfoundland | 67% | 64% | 74% |
| Prince Edward Island | 86% | 71% | 89% |
| Northwest Territories | 88% | 82% | 85% |

Figure 4: Comparing collection rates and recycling rates from multi-material collection systems

*In Quebec, rates do not include the deposit-bearing containers collected through the residential recycling program, which is estimated at 6-7 percent points more in total.

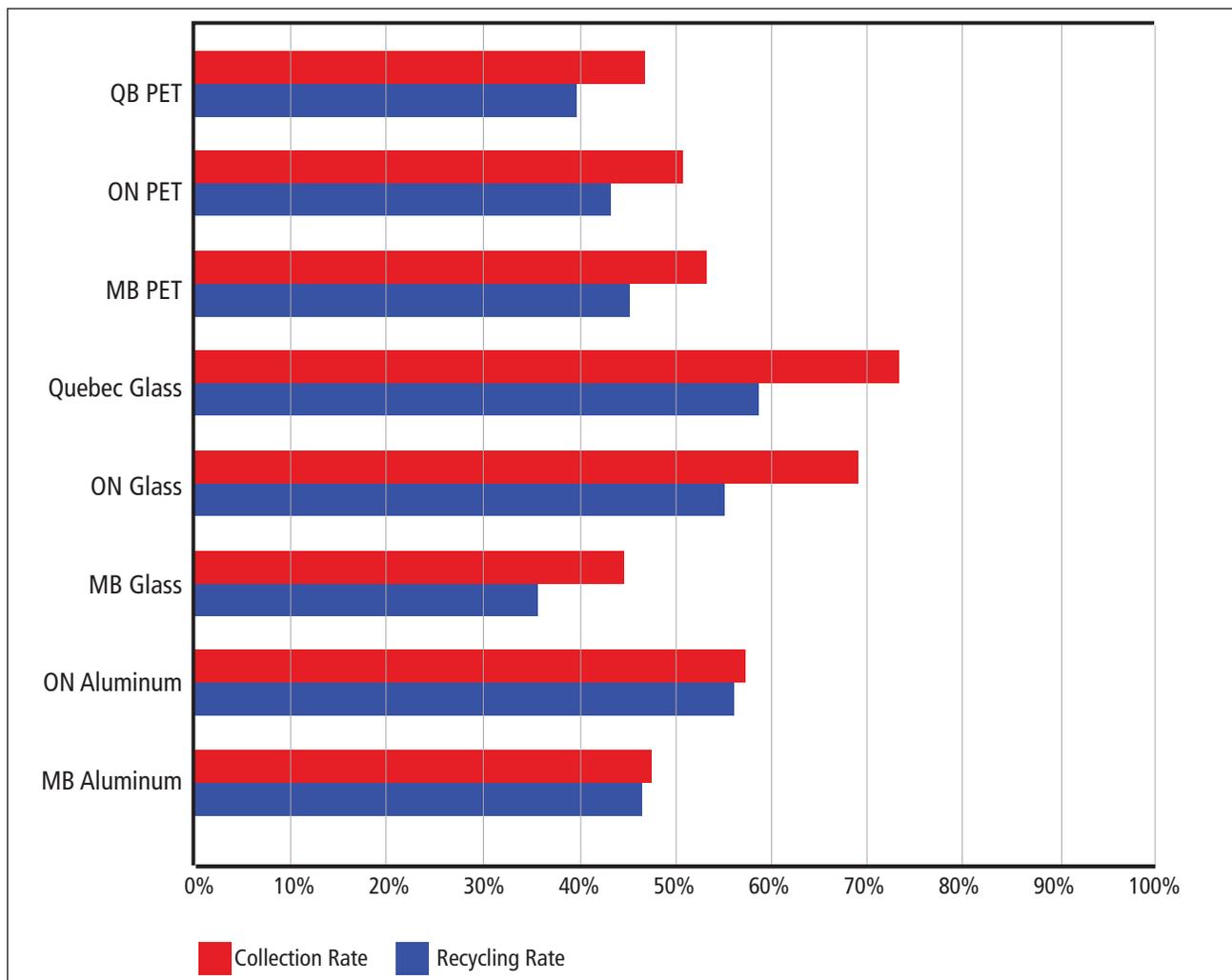
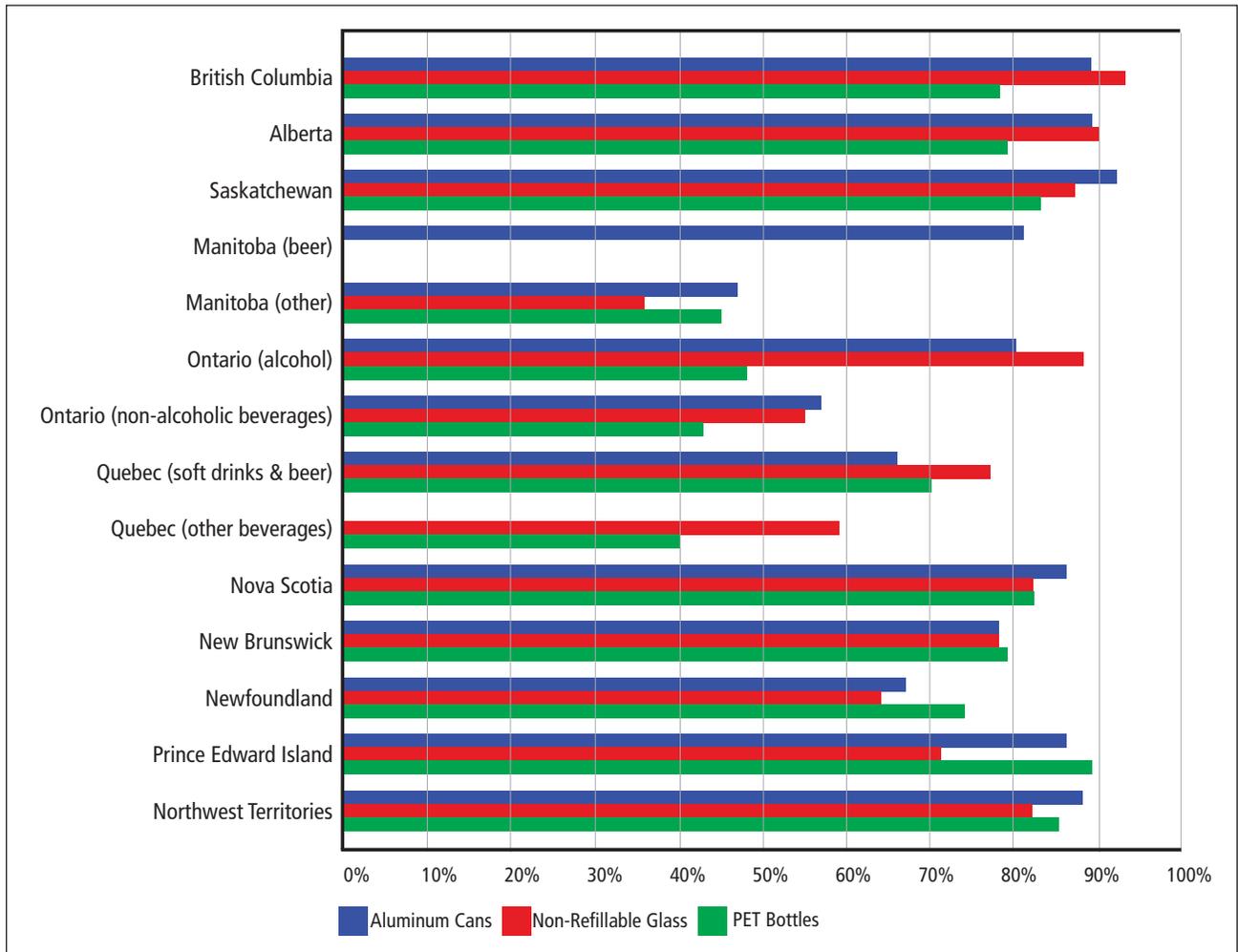


Figure 5: Beverage container recycling rates by material, 2010



Part I: Program Details

1.1 Cross-Canada Beverage Program Operators

In Canada, although each provincial program is unique, in general, there is a responsible entity (“steward”) as well as a program operator. Operating agencies facilitate operations, reporting, and financing of the collection service. Program operators are either

- an industry group representing beverage brand owners and first importers (BC, AB, QC, NB);
- a provincial crown agency (NS, NFL, YK, NWT);
- the provincial government directly (PEI);
- a contracted third-party organization (SK); or
- municipalities (MB, ON, QC).

For the most part, the Canadian beer industry collectively manages the collection of all its refillable containers and, in some provinces, of non-refillable domestic containers as well.

In New Brunswick and Ontario, provincially owned and operated liquor commissions or boards (NB Liquor and the

LCBO, respectively) are responsible for administering the program for wine, spirit, and imported beer containers. Both agencies contract the program operations out to third-party companies.

In British Columbia, Alberta, and New Brunswick, incorporated not-for-profit organizations were set up to act on behalf of distributors of beverages, and these organizations both administer and operate the collections program.

In Saskatchewan, SARCAN Recycling (a not-for-profit organization) is contracted by the provincial government to undertake the responsibility of fulfilling the collection requirements under the program for all beverage containers, except refillable beer containers.

In Manitoba, Ontario and Quebec, for the beverage containers not on deposit, municipalities operate the Blue Box system. In Ontario and Quebec, brand owners and first importers of those beverage containers pay a portion of the net operating costs. In Manitoba, these costs are funded by industry and passed on to retailers and then to consumers via the 2-cent container recycling fee on all non-alcoholic beverage containers.

Table 2: Cross-Canada used beverage container steward agencies and program operators, western Canada (updated June 2012)

| Province | British Columbia | | | Alberta | | Saskatchewan | | Manitoba | |
|------------------|--------------------------------|---|-------------------------|-------------------------------------|--|--------------------------------|---|--------------------------------|---|
| | DEPOT & RETAIL | | CURBSIDE & DEPOT | DEPOT | | DEPOT & RETAIL | DEPOT | RETAIL & DESIGNATED LICENSEES | CURBSIDE* |
| Beverage Type | Domestic Beer | Non-Alcoholic Beverages, Wine, Spirits, Imported Beer | Milk | Beer | Non-Alcoholic Beverages, Wine, Spirits, Milk | Refillable | Non-Alcoholic Beverages, Wine, Spirits, Beer in Non-Refillable Containers, Milk (voluntary) | Beer | Non-Alcoholic Beverages, Wine, Spirits, Milk |
| RESPONSIBILITY | | | | | | | | | |
| Steward | Brewers Distributor Ltd. (DBL) | Encorp Pacific (Canada) | Encorp Pacific (Canada) | Alberta Beer Container Corp. (ABCC) | Alberta Beverage Container Recycling Corp. (ABCRC) | Brewers Distributor Ltd. (DBL) | | Brewers Distributor Ltd. (DBL) | Canadian Beverage Container Recycling Assoc. (CBCRA) |
| Program Operator | Brewers Distributor Ltd. (DBL) | Encorp Pacific (Canada) | Municipalities & Depots | Brewers Distributor Ltd. (DBL) | Alberta Beverage Container Recycling Corp. (ABCRC) | Brewers Distributor Ltd. (DBL) | SARCAN | Brewers Distributor Ltd. (DBL) | Municipalities & Multi-Material Stewardship Manitoba (MMSM) |

Notes:

*Where municipalities are responsible for container collection, only residentially generated material is available to be collected. Away-from-home consumption and consumption in the commercial sector rely on voluntary recycling efforts by commercial generators and managers of public space waste generation. Manitoba’s beverage program also targets away-from-home container recovery.

In Quebec, the soft-drink and beer industries operate their own program for empty carbonated drink and beer containers.

In Nova Scotia and Newfoundland, provincial crown agents manage the program for all non-refillable containers.

In Prince Edward Island, Yukon, and the Northwest

Territories, the provincial government oversees and manages the program for all non-refillable beverage containers. Operations are contracted out to the private sector.

These tables provide an overview of the collection system and its responsible stewards and operating agencies, by province and beverage type.

Table 3: Cross-Canada used beverage container steward agencies and program operators, central Canada and Nova Scotia (updated June 2012)

| Province | Ontario | | | Quebec | | | Nova Scotia | | |
|-------------------------|----------------------|--|-------------------------------|-----------------------------|---------------------------------------|--|-----------------|---|------------------------|
| | RETAIL | | CURBSIDE | RETAIL | | CURBSIDE | DEPOT | DEPOT | CURBSIDE |
| Beverage Type | Beer | Wine, Spirits | Non-Alcoholic Beverages, Milk | Beer | Carbonated Beverages, | Energy Drinks, Water, Juice, Wine, Spirits, Milk | Refillable Beer | Non-Alcoholic Beverages, Wine, Spirits, Non-Refillable Beer | Milk |
| RESPONSIBILITY | | | | | | | | | |
| Steward | The Beer Store (TBS) | Liquor Control Board of Ontario (LCBO) | Stewardship Ontario | Quebec Brewers Assoc. (QBA) | Boissons Gazeuses Environnement (BGE) | ÉcoEntreprises Québec (ÉEQ) | Beer Industry | Resource Recovery Fund Board (RRFB) | Atlantic Dairy Council |
| Program Operator | The Beer Store (TBS) | The Beer Store (TBS) | Municipalities | Beer Industry | Beverage Industry | Municipalities | Beer Industry | Resource Recovery Fund Board (RRFB) | Municipalities |

Table 4: Cross-Canada used beverage container collection managing agents for New Brunswick, Newfoundland, PEI, and the North (updated June 2012)

| Province | New Brunswick | | | Newfoundland | | Prince Edward Is. | | | Yukon | | Northwest Terr. | |
|-------------------------|-----------------|------------------------------------|-------------------------|--------------------|---|---------------------------------|---|-------------------------------------|----------------------------------|---|----------------------------------|---|
| | DEPOT | | | RETAIL * AND DEPOT | DEPOT | DEPOT | | CURBSIDE | DEPOT | | DEPOT | |
| Beverage Type | Refillable Beer | Wine, Spirits, Non-Refillable Beer | Non-Alcoholic Beverages | Refillable Beer | Non-Alcoholic Beverages, Wine, Spirits, Non-Refillable Beer | Refillable Beer | Non-Alcoholic Beverages, Wine, Spirits, Non-Refillable Beer | Milk | Refillable Beer | Non-Alcoholic Beverages, Wine, Spirits, Non-Refillable Beer | Refillable Beer | Non-Alcoholic Beverages, Wine, Spirits, Non-Refillable Beer, Milk |
| RESPONSIBILITY | | | | | | | | | | | | |
| Steward | Beer Industry | Alcool NB Liquor | Encorp Atlantic | Beer Industry | Multi Materials Stewardship Board (MMSB) | Beer Industry | Dept. of Environment, Energy & Forestry | Island Waste Managem't Corp. (IWMC) | Beer Industry | Community Developm't Operations and Programs, Yukon Gov't | Beer Industry | Gov't of the Northwest Terr. (GNWT) |
| Program Operator | Beer Industry | Rayan Industries | Encorp Atlantic | Beer Industry | Multi Materials Stewardship Board (MMSB) | Brewers Distribu-tion Ltd.(BDL) | Dept. of Environment, Energy & Forestry | Island Waste Managem't Corp. (IWMC) | Brewers Distribu-tion Ltd. (BDL) | Community Developm't Operations and Programs, Yukon Gov't | Brewers Distribu-tion Ltd. (BDL) | Gov't of the Northwest Terr. (GNWT) |

* In Newfoundland and Labrador, refillable beer bottles can be taken back to breweries, convenience stores, and gas stations where refillable beer is sold. Provincial liquor stores do not accept back any containers for deposit. Green Depots will also accept refillable beer containers but will refund only half the deposit and use the other half as their own handling fee.

1.2 Away-from-Home Collection

When curbside programs were conceived in the late 1980s, the marketplace for packaging was very different in terms of both the packaging material used and the places packages were being discarded. The last two decades have also seen an upsurge in the number of containers consumed on the go or away from home. This trend has led to an increase in the amount and a broader range in the type of scrap beverage container material collected, as well as an expansion in the number of places containers are discarded.

For jurisdictions that do not have deposit return, establishing a comprehensive away-from-home program in conjunction with residential (single-family and multi-dwelling) programs is necessary to achieve higher levels of performance. Away-from-home recycling covers all points of generation away from people’s residences, including public spaces, commercial establishments, transit routes, and events’ venues.

Table 5 highlights some of the many locations that encompass away-from-home.

Table 5: Away-from-Home collection locations

| Location Category | Examples |
|--------------------------|---|
| Public Spaces | Parks, streets, transit stops, greenways, and other common spaces |
| ICI Recycling | Bars, restaurants, hotels, shopping malls, convenience stores, offices, gas stations, other workplaces, and some multi-residential units (with private waste service) |
| Government | Municipal and provincial government buildings, arenas, libraries, public day-cares, community centres, and other areas under government jurisdiction |
| Educational Institutions | Colleges, universities, elementary and secondary schools, and other educational institutions |
| Special Events | Outdoor music festivals, sporting events, concerts, parades, fairs, markets, and other events |

How Much is Generated Away-from-Home?

The question of how many beverage containers are discarded away from home is critical to assessing collection rates and designing recovery programs. There is little comprehensive research on the subject, but several estimates are currently being used for analysis. Table 6 provides some sample estimates of the away-from-home percentage share of the total.

In central Canada, where beverage container collection relies predominately on municipal curbside recycling, overall collection rates are substantially lower than in deposit-return jurisdictions. In Canada, the amalgamated collection rate for all beverage containers in deposit-return programs is 84% compared with an estimated 52% in non-deposit systems.

What Is Being Done to Recycle Beverage Containers Away from Home?

In an effort to address this shortfall through new stewardship laws, some regulators are mandating targets specific to beverage containers. In Manitoba, for example, the *Packaging and Printed Paper Regulation and Guidelines* provides a 75% recovery target for beverage containers.

In Quebec, industry has formed a committee, “the Table” (La Table pour la récupération hors foyer) to optimize the away-from-home collection of recyclable materials.

Manitoba’s Canadian Beverage Container Recycling Association (CBCRA), made up of the grocery sector and beverage companies, is a new not-for-profit corporation based in Manitoba. CBCRA is focused on implementing and financing the recovery of beverage containers from all channels, and it has an away-from-home collection program to help achieve the 75% target.

The program is partially financed through a 2-cent container recycling fee (CRF) collected by CBCRA from beverage distributors and passed through to consumers. This fee finances 80% of beverage recycling in the municipal curbside system, supports away-from-home recycling by purchasing bins and financing the province-wide “Recycle Everywhere” promotion and education campaign, and funds material tracking, best practice pilots, and technical support to municipalities and other IC&I partners.

Several pilot studies sponsored by the beverage industry

Table 6: Away-from-home market share estimates

| Source | Share Estimate By container type | Methodology |
|--|---|---|
| <i>Understanding Beverage Container Recycling: A Value Chain Assessment prepared for the Multi-Stakeholder Recovery Project</i> , prepared for the Businesses and Environmentalists Allied for Recycling (BEAR), by RW Beck, with Franklin Associates, Tellus Institute, Boisson & Associates, Sound Resource Management, 2002 | 63% for PET bottles; 13% for aluminum cans; 34% for glass bottles | Figures for PET and aluminum are based on carbonated soft-drink point of sale data from Container Consulting, Inc. (assumed to be indicative of alcoholic and non-carbonated beverages). Sales at vending machines, venues, and convenience stores are assumed to be consumed away from home, while sales at food stores are assumed to be consumed at home. Figures for glass are RW Beck estimates based on an understanding of the types of beverages packaged in glass. |
| American Beverage Association | By total: 30%–34% | Methodology is not publicly available. |
| <i>Mise en Marché et Recupération des Contenants de Boissons au Québec</i> , prepared for Recyc-Québec by François Lafortune, - January 2008 | By beverage type Milk: 5% Soft drink: 17% Juices: 22% Wine/Spirits: 22% Water: 50% | Based on BEAR report methodology. See above. |
| <i>Australian Beverage Packaging Consumption, Recovery and Recycling Quantification Study</i> , prepared for the Packaging Stewardship Forum of the Australian Food and Grocery Council by Clare Davey, September 2008. | By container material Glass: 25% Aluminum: 25% Plastic: 45% By container material | Based on sales. Containers purchased at grocery stores considered to be consumed "at home." At-home sales are then subtracted from total sales and the remainder is considered consumed "away from home." |
| <i>Independent Review of Container Deposit Legislation in New South Wales</i> , prepared by Stuart White for the Institute for Sustainable Futures, University of Technology, Sydney, 2001 | Glass: 55% Aluminum: 75% PET: 30% | Based on waste audits conducted in 116 Australian "government areas." Household curbside and garbage streams were analysed to determine the share of beverage containers consumed at home. The "at-home" share was then subtracted from the overall share to determine the "away-from-home" share. |

have been done in locations across Canada, for example, in Richmond, British Columbia; in the Sarnia and Niagara region, Ontario; and in Halifax, Nova Scotia. In June 2012, the Quebec-based organization, the Table, released a three-year report documenting the results of its activities. The findings show that dedicated recycling bins along with effective signage can result in higher collection rates for beverage containers.

In Quebec, depending on the location of the pilot, average collection rates varied from 52% to 81%.

In Richmond, BC, the study demonstrated that the beverage container portion of the garbage stream dropped from 2.1% to 1.5%. The study also found that recyclable non-beverage containers found in the garbage stream decreased by 25% between the two audit periods.

The Sarnia results show that, in the convenience stores, parks, and arenas where bins were placed and monitored, the beverage container collection rate, overall, was 77%. The rates were at least 73% in all cases. The follow-up audit in the parks showed a 73.5% increase in collection rate.

In the Niagara study, beverage container collection was shown to be an average of 65% in the follow-up audits. That represents a 35% increase over collection in the baseline audits.

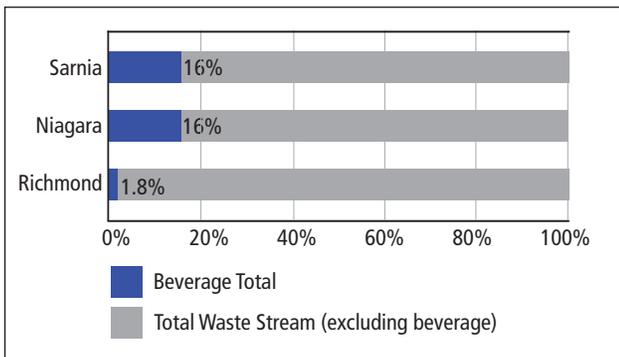
The study in Halifax showed that, by placing bins and signage along the Halifax Harbourwalk, those implementing the pilot project could collect approximately 95% of the containers discarded in the area.

How Much of the Waste Generated Away from Home Is from Beverage Containers?

Although each of the studies showed that collection of beverage containers in away-from-home locations such as parks was enhanced by the addition of bins and signage, it is important to point out the difference in the findings between Richmond, a city where all beverage containers bear a deposit, and Sarnia and Niagara, where curbside collection is the primary driver of beverage-container recycling.

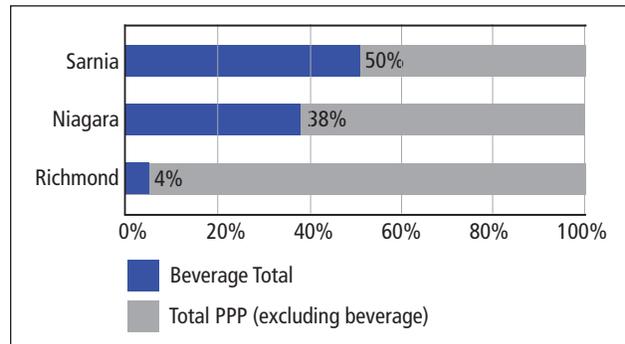
In Sarnia and Niagara, combined results of the baseline and follow-up audit show that recyclable beverage containers made up over 15.7% and 16.2%, respectively, of the total waste stream. PET beverage containers alone were over 8% of the stream in each of the pilots. In Richmond, the combined baseline and follow-up totals show that recyclable beverage containers make up less than two percent (1.8%) of the total waste stream. The portion of the away-from-home waste stream that is beverage containers is significantly lower in the deposit jurisdiction.

Figure 6: Beverage containers as a percentage of total combined waste and recycling streams in away-from-home locations (by weight)



Expressed as a percentage of the total printed paper and packaging (PPP) waste collected away from home in the combined waste stream, beverage containers make up 50% and 38% in Sarnia and Niagara, respectively, and 4% in Richmond by weight.

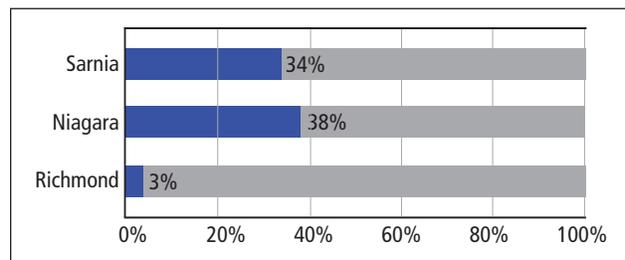
Figure 7: Beverage containers as a percentage of PPP in combined waste and recycling streams away from home (by weight)



With the costs of recycling and waste management more closely linked to the volume of material than to its weight (i.e., more volume equals more collection), the beverage containers collected as part of the total away-from-home waste can be presented by volume as well.

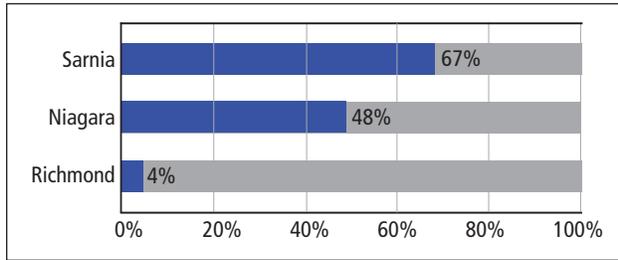
In Sarnia and Niagara, beverage containers make up 34% and 38%, respectively, of the away-from-home combined waste and recycling streams when assessed by volume. In Richmond, beverage containers make up only 3% by volume. These data demonstrate that, where deposit programs exist, beverage containers make up only a small part of the AfH waste and recycling stream; whereas, in places without deposit programs, they make up a large part.

Figure 8: Beverage containers as a percentage of total combined waste and recycling streams in away-from-home locations (by volume)



As a percentage of the PPP in the combined away-from-home waste stream, beverage containers are a full 67% and 48% in the Ontario pilots, by volume, and only 4% in Richmond.

Figure 9: Beverage containers as a percentage of PPP in combined waste and recycling streams in away-from-home locations (by volume)



Who Pays for Away-from-Home Recycling?

In general, costs of recycling away-from-home waste are borne by the entity (public or private) that is responsible for waste management at the location in question. For example, recycling in an office building is the responsibility of the property manager or owner, and recycling in a school is the responsibility of the school. In the case of publicly owned and serviced areas, such as parks, city arenas, and municipal buildings, recycling is financed directly by the municipality.

These main costs include collection, processing, and bin acquisition and maintenance. The costs of collecting and processing waste from away-from-home locations are difficult to determine because they rely entirely on the agreements between the generator and the service provider. There is very little data on these costs.

The new away-from-home programs that are being initiated by the beverage industry in the provinces of Quebec and Manitoba are supporting recycling by contributing bins, technical support, and best practices research, as well as promotional and educational materials. The actual costs of collection are left to the generator or property manager or owner.

It is worth noting however, that, in some cases in Ontario, Quebec, and Manitoba, where away-from-home recycling is the responsibility of the municipality, the beverage industry may be contributing funds to help cover these costs, specifically when away-from-home recycling is considered part of the residential stream and covered as part of industry's stewardship obligation. This is especially the case where municipalities collect away-from-home materials from parks and streetscapes.

1.3 Collection Rates

Refillable Beer Bottles

Monitoring the collection rates for refillable beer bottles is done by provincial operating agencies and the Brewers Association of Canada.

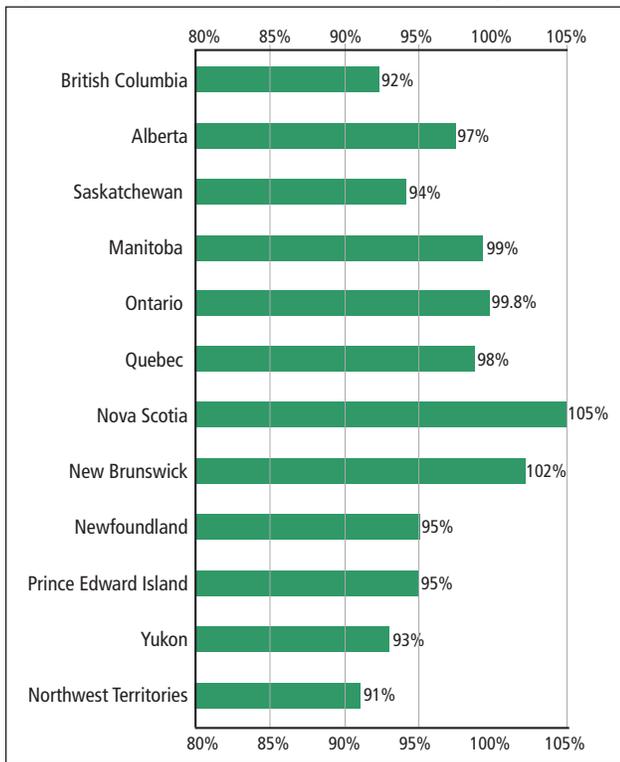
Other forms of refillable bottles exist and are entirely managed by industry. These include large refillable water bottles and several small brands of bottling for alcoholic and non-alcoholic beverages like milk and soft drinks. These collection rates are not reported or available to the public.

Table 7 summarizes the collection rates for refillable beer bottles collected through brewer-run provincial systems. The data presented are for operating year 2010. The Brewers Association of Canada has an industry standard bottle (ISB), which is a highly efficient and environmentally preferable method of packaging beer. Consistently high collection rates, combined with multiple uses (usually about 15 trips), make the refillable beer bottle Canada's beverage packaging success story.

Table 7: Refillable beer bottle recovery rates by province, 2010

| British Columbia | Alberta | Saskatchewan | Manitoba | Ontario | Quebec | Nova Scotia | New Brunswick | Newfoundland | Prince Edward Is. | Yukon | Northwest Terr. |
|------------------|---------|--------------|----------|---------|--------|-------------|---------------|--------------|-------------------|-------|-----------------|
| 92% | 97% | 94% | 99% | 99.8% | 98% | 105% | 102% | 95% | 95% | 93% | 91% |

Figure 10: Provincial refillable beer bottle recovery rates, 2010



Non-Refillable Containers

Monitoring the collection or recycling rate for beverage containers in Canada is done annually on a province-by-province basis. In all deposit-return jurisdictions, collection rates are based on units returned divided by the units sold in that year. Measuring beverage container collection in jurisdictions that collect multi-materials mixed together is

complex because there are limited generation or collection data from these businesses. Rarely are waste composition studies done in the commercial and private sector. Estimating a collection rate outside of the residential system, for public spaces, venues, and other point of consumption requires assuming a collection rate for container collection from “away-from-home” locations. (In this case, assumed collection rates are 40% for aluminum in Ontario and 30% for aluminum in Manitoba and 25% for PET in Ontario and 20% for PET in Manitoba.)

In Quebec, it was determined by using waste composition studies in MRFs that there are some deposit-bearing containers being collected through the residential recycling program. In this case, even though these soft-drink and beer containers are being collected, they are not accounted for in the deposit-return program rate of 68%. Including deposit-bearing containers collected in the residential recycling program in the collection rate will increase that rate in Quebec to approximately 74%.

The table below summarizes the collection rates for the various categories of non-refillable containers collected through the provincial systems, as well as for refillable beer containers. The data presented are for the operating year 2010.¹

Figure 11 shows the provincial collection rates for 2010 for non-refillables as a category. This 2010 snapshot shows how deposit jurisdictions have higher rates of return than non-deposit jurisdictions.

Table 8: Beverage container collection rates by province and material, 2010

| | BC | AB | SK | MB (beer) | MB (other) | ON (alcoholic) | ON (non-alcoholic) | QC (soft drinks & beer) | QC (other beverages) | NS | NB | NL | PE | NT |
|-----------------------|-----|-----|-----|--------------|---------------|-------------------|-----------------------|----------------------------|-------------------------|------|------|-----|-----|-----|
| Aluminum Cans | 89% | 89% | 92% | 81% | 48% | 80% | 57% | 66% | - | 86% | 78% | 67% | 86% | 88% |
| Non-Refillable Glass | 93% | 90% | 87% | - | 45% | 88% | 69% | 77% | 73% | 82% | 78% | 64% | 71% | 82% |
| PET Bottles | 78% | 79% | 83% | - | 53% | 48% | 51% | 70% | 47% | 82% | 79% | 74% | 89% | 85% |
| Other Plastics | 78% | 71% | 83% | - | N/A | - | N/A | - | - | 27% | 79% | 24% | 12% | 85% |
| Bi-Metal | 66% | 84% | N/A | - | N/A | - | 62% | - | N/A | 112% | - | 55% | 52% | 37% |
| Gable / Tetra Pak | 60% | 65% | 55% | - | 20% | 32% | N/A | - | 43% | 72% | 79% | 61% | 48% | 63% |
| Other | 45% | - | - | - | 0% | - | - | - | - | - | 41% | - | - | - |
| TOTAL Non-Refillables | 84% | 82% | 86% | 81% | 54% | 82% | 54% | 68% | 50% | 79% | 73% | 65% | 80% | 84% |
| Refillable Beer | 92% | 97% | 94% | 99% | - | 100% | - | 98% | - | 105% | 102% | 95% | 95% | 91% |
| TOTAL CONTAINERS | 85% | 83% | 87% | 87% | 46% | 91% | 54% | 80% | 50% | 84% | 79% | 74% | 83% | 85% |

¹ Operating years vary: e.g., January 1 – December 31, 2010; April 1, 2010 – March 31, 2011; and May 1, 2010 – April 30, 2011.

Figure 11: Provincial collection rates for all non-refillable beverage containers, 2010

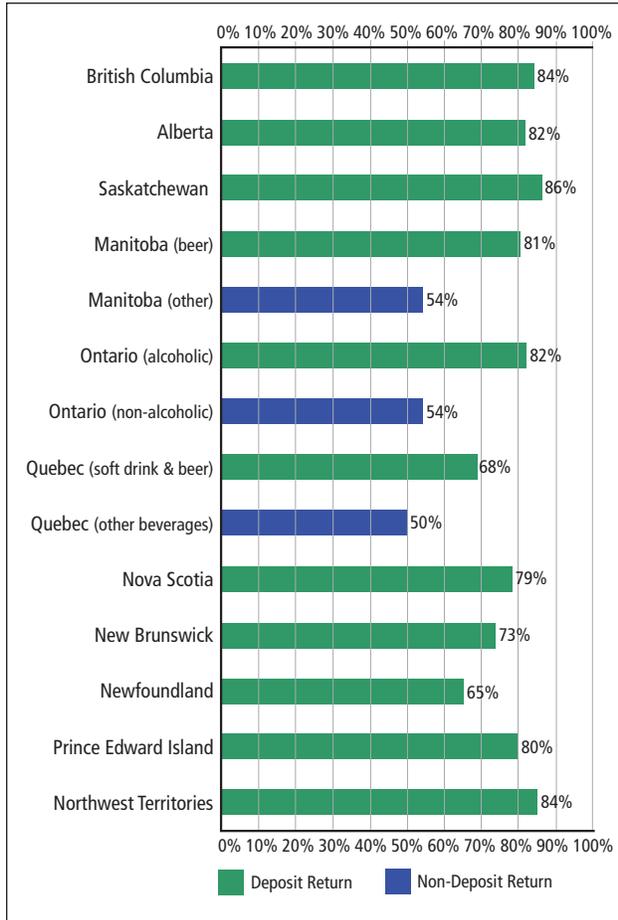
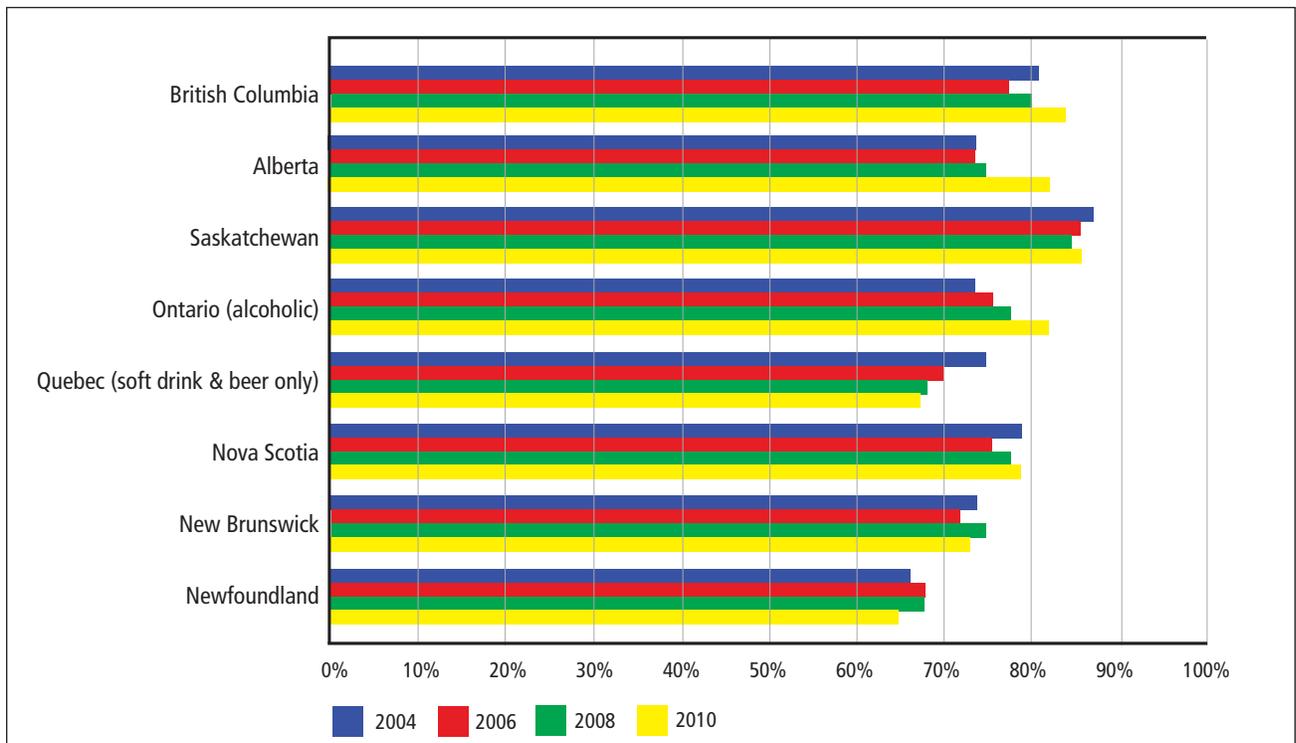


Figure 12 shows the rates for non-refillables over a 6-year span for each province. The greatest increase in non-refillable collection rate was experienced in Alberta, where a deposit increase took effect in 2009. The rate climbed from 75% to 82% from 2008 to 2010. British Columbia also showed an increase: higher return rates for aluminum cans and glass bottles helped to raise the total non-refillable collection rate there from 80% to 84%. The rates for non-deposit programs are not presented due to insufficient data in previous years.

In Quebec, the rates for the soft-drink and beer program remain the same as those for 2008 at 68%, significantly lower than the 75% posted in 2004. (Note: including deposit-bearing containers collected through residential recycling adds an additional 6%–7% to the 68% collection rate.) With a deposit increase set to take effect in 2012, it is expected that the rate will increase.

Rates in Saskatchewan, Nova Scotia, New Brunswick, and Newfoundland have remained steady since 2004.

Figure 12: Total non-refillable collection rates by province, 2004–2010



The following charts provide material summaries of collection rates for each of the non-refillable beverage container categories across Canada. In some cases, a collection rate will not appear for the province because the data is either not available or not applicable.

Aluminum Cans

Figure 13 shows the collection rate for aluminum cans by province in 2010. Significantly higher collection rates are found in jurisdictions with deposit-return programs in place.

Ontario and Manitoba, at 57% and 48% respectively, show the lowest collection rates for non-alcoholic beverage cans in the country. Quebec has a 5-cent deposit on aluminum beer cans, half the value of the deposit for most of the other deposit jurisdictions. This deposit may explain why Quebec’s collection rate is 66%, lower than other deposit jurisdictions, which, for the most part, have collection rates of at least 80% and, in some cases, even over 90% for aluminum cans.

Rates in Quebec, Saskatchewan, and New Brunswick are gradually decreasing.

Figure 13: Used beverage container (UBC) collection rates for aluminum cans by province, 2010

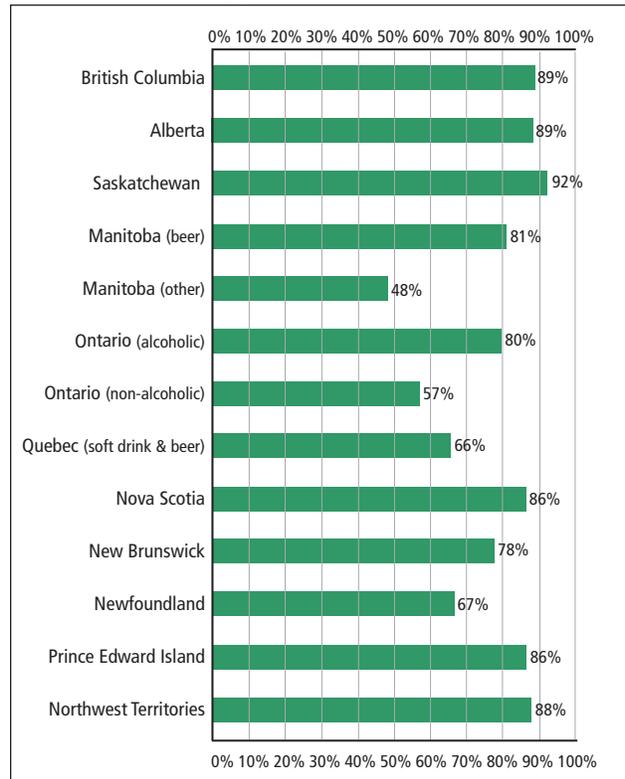
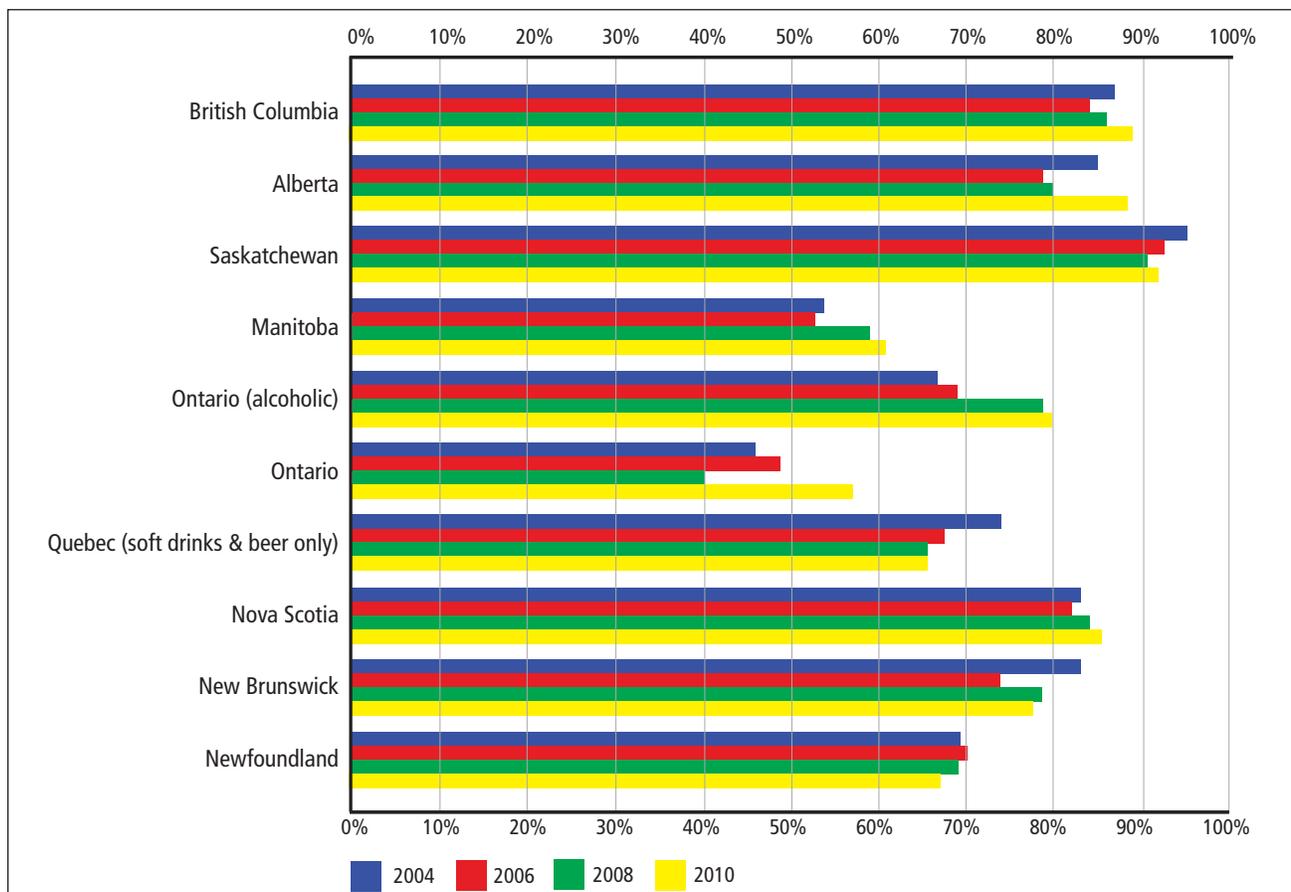


Figure 14: Total aluminum can collection rates by province, 2004–2010



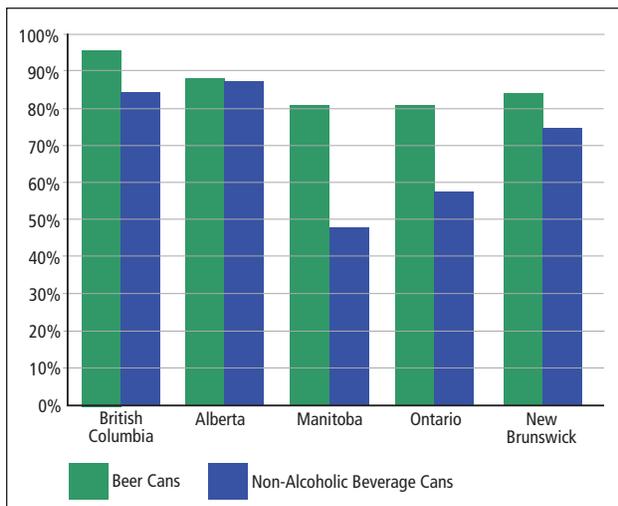
In the provinces of British Columbia, Alberta, Manitoba, New Brunswick, and Ontario, beer cans are handled separately from cans for non-alcoholic beverages. Also, in British Columbia and Alberta, beer cans carry a higher deposit (10 cents), and non-alcoholic beverage cans carry a lower deposit (5 cents). In addition, in Manitoba and Ontario, only beer cans carry a 10-cent deposit and non-alcoholic beverage cans are recovered through municipal curbside programs.

Table 9 and Figure 15 provide collection rates for 2010 by can type: beer versus non-alcoholic beverage can.

Table 9: Provincial collection rates of aluminum beer and non-alcoholic beverage cans, 2010

| | British Columbia | Alberta | Manitoba | Ontario | New Brunswick |
|------------------------------------|------------------|---------|----------|---------|---------------|
| Beer cans | 95% | 89% | 81% | 80% | 83% |
| Non-alcoholic beverage cans | 84% | 88% | 48% | 57% | 74% |

Figure 15: Provincial collection rates for aluminum beer versus non-alcoholic beverage cans, 2010



Non-Refillable Glass

Like other container material, non-refillable glass is returned at the highest rate in the deposit jurisdictions. It should also be noted that collection rates in Ontario, Manitoba, and Quebec do not account for yield losses due to contamination, so the actual recycling rate is lower than the collection rate.

Historically, most programs have kept fairly consistent collection rates for non-refillable glass from 2004–2010. In Ontario, the drop from 2006 to 2008 is accounted for by the fact that the 2006 rate included only non-refillable glass from beer bottles, which were under deposit, but, in 2008, the rate included newly added glass from wine, spirit, and cooler bottles, which were initially collected at a lower rate in the early years of the program (2007, 2008). The 2010 rate shows that the rate has since recovered because the enlarged category of glass from alcoholic beverage containers is now being collected at a high rate.

Figure 16: Provincial collection rate for non-refillable glass bottles, 2010

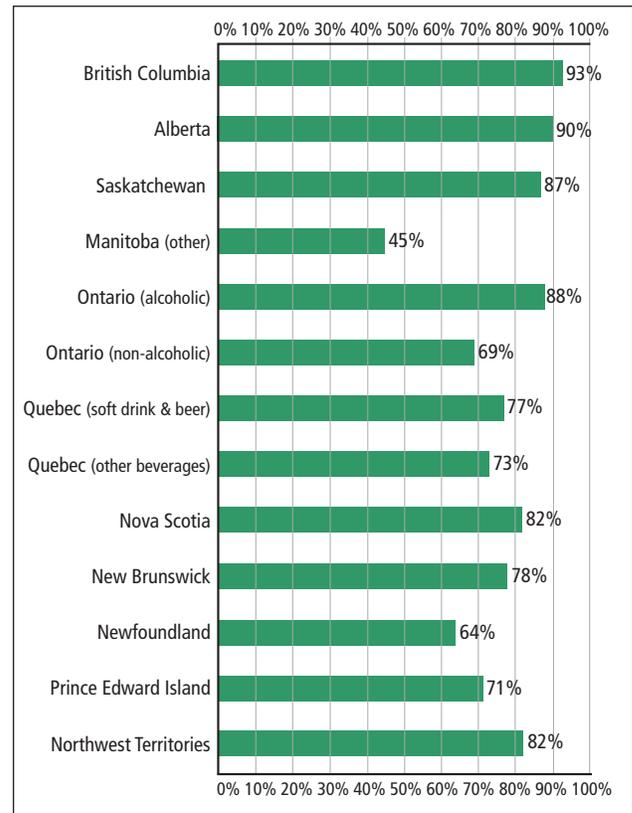


Figure 17: Total collection rates for non-refillable glass bottles, 2004–2010

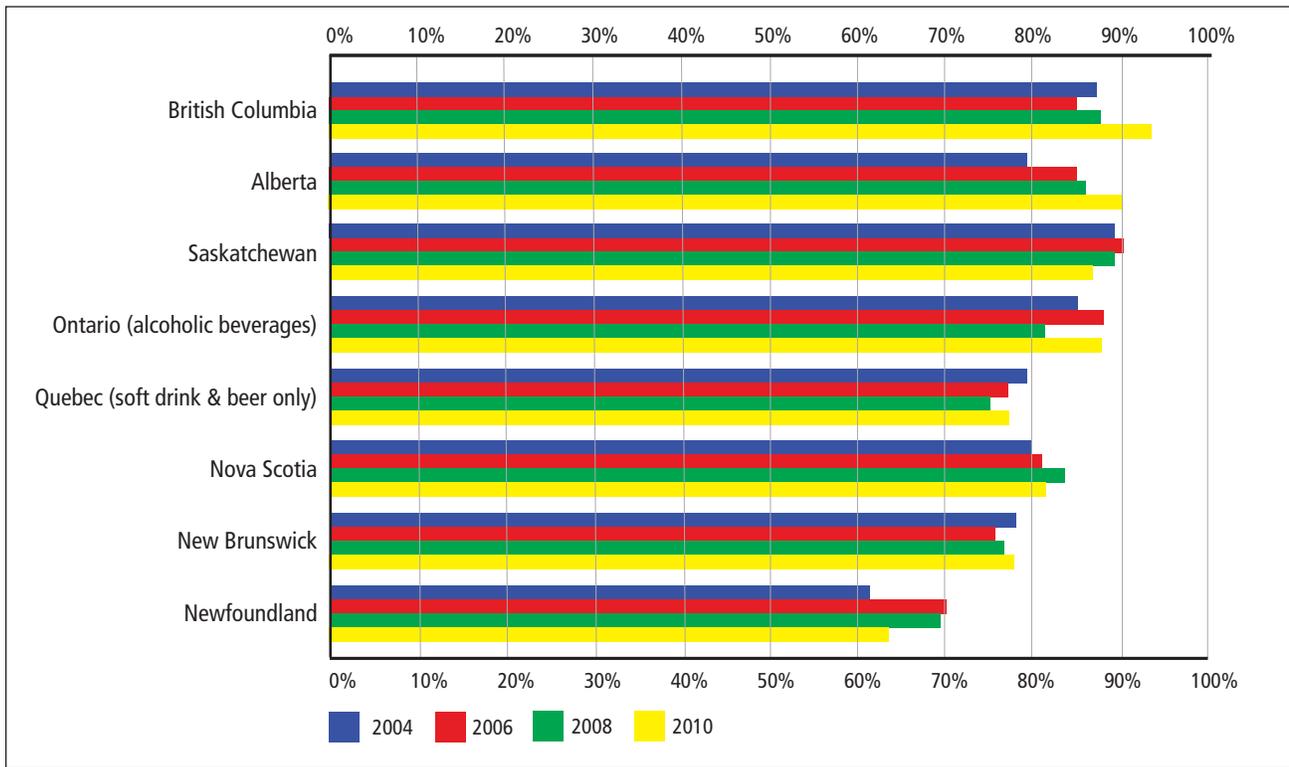
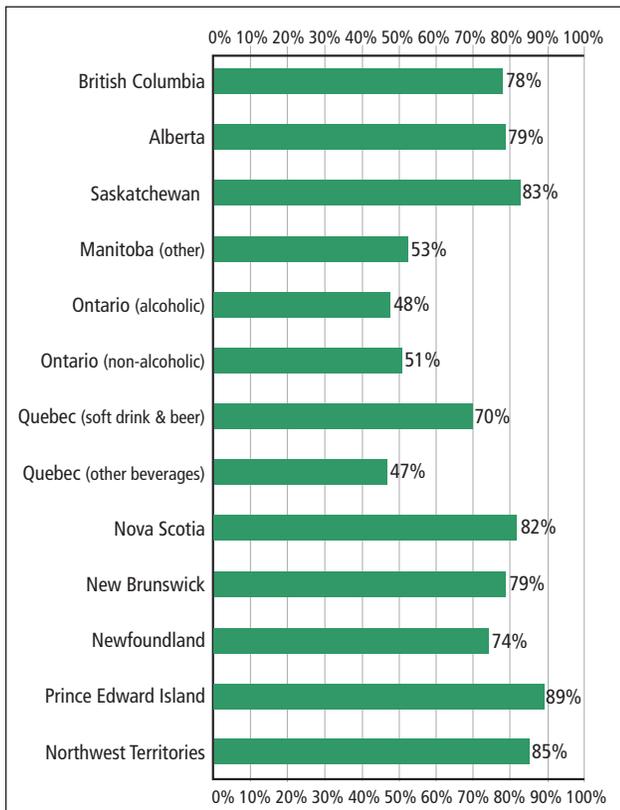


Figure 18: Provincial collection rates for PET bottles, 2010



PET Bottles

In most jurisdictions, PET bottles show a lower collection rate than aluminum cans and glass bottles. Like the other materials, PET is collected at a higher rate in the deposit jurisdictions.

In general, PET rates are increasing in BC and Alberta. Rates in Saskatchewan, Nova Scotia, and New Brunswick have been relatively consistent over the six years.

Gable Top and Tetra Pak Cartons, Bi-Metal Cans, and Other Plastics

Gable top and Tetra Pak cartons, bi-metal cans, and other plastics have, in general, seen gains across the board, with the highest collection rates occurring in the three western provinces and the Atlantic Provinces. Because the bi-metal and other plastics categories of containers are so small (in terms of units sold each year) relative to the other categories of containers, there tends to be a greater degree of fluctuation in rates year over year.

The following three figures (20, 21, and 22) provide the provincial collection rates for gable top and Tetra Pak cartons, bi-metal cans, and beverage containers made from other plastics.

Figure 19: Total collection rates for PET bottles, by province, 2004–2010

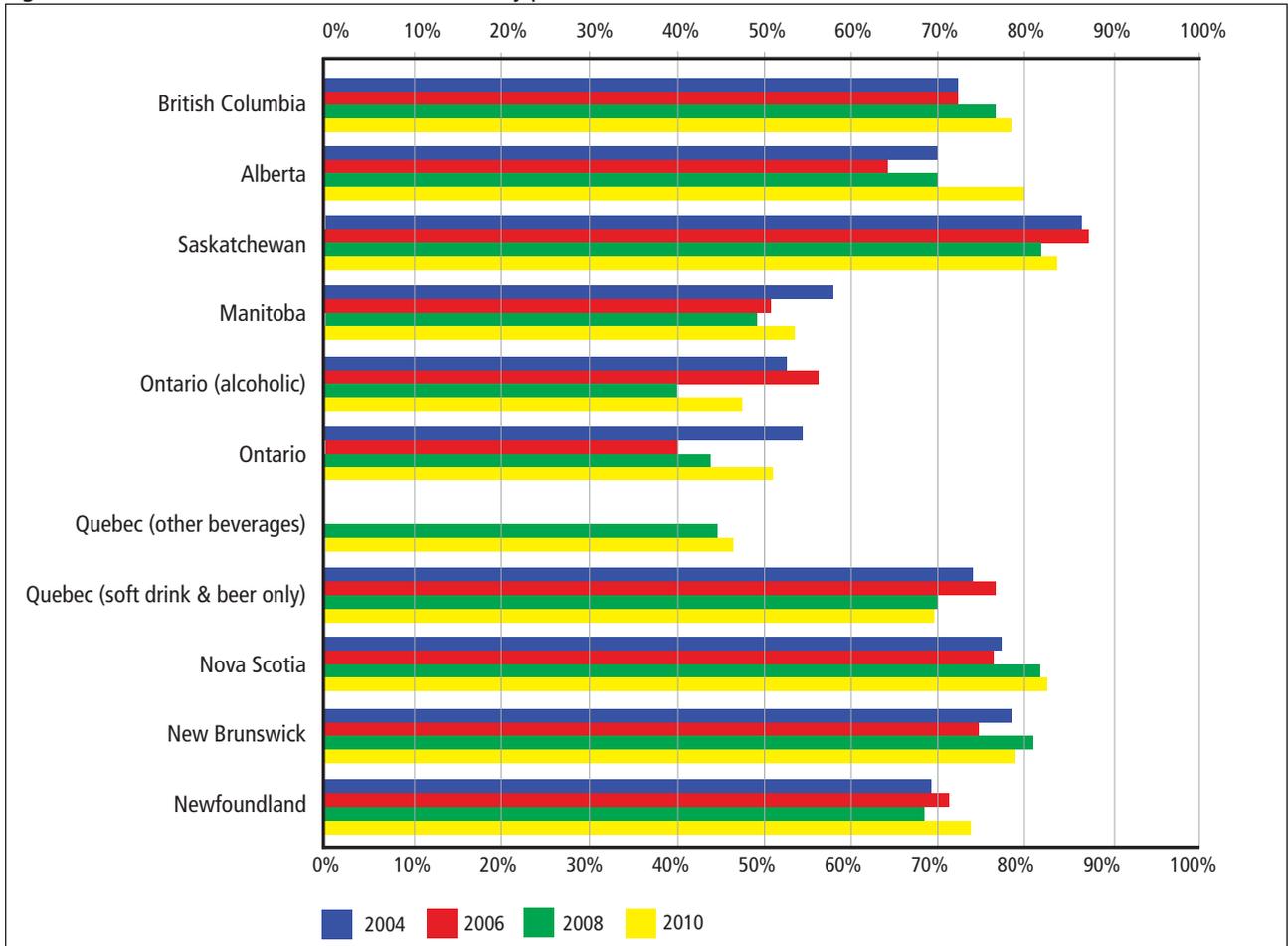


Figure 20: Provincial collection rate for gable top and Tetra Pak cartons, 2010

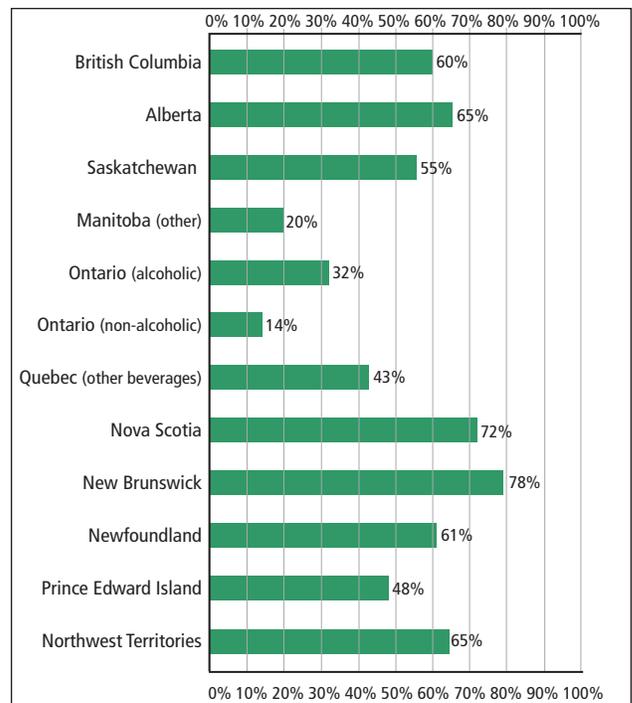


Figure 21: Provincial collection rates for bi-metal cans, 2010

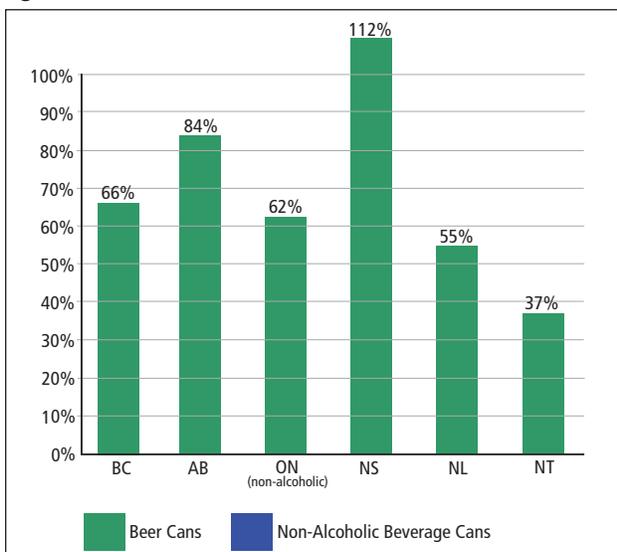
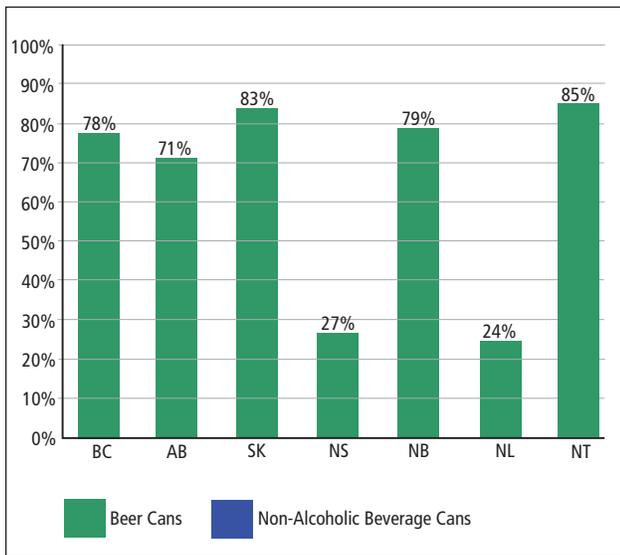


Figure 22: Provincial collection rates for other plastics, 2010



Milk Containers

Monitoring the collection rates of milk container packaging varies by province and may be based on waste audit data or on actual sales and unit collection. Additionally, data may be extrapolated from the collection rates of a more wide-ranging material group (for example “aseptic” packaging, which includes Tetra Pak and gable top containers). Where multi-material collection takes place, the collection rate for the entire category of products is the same and no distinction is made between, for example, milk containers and orange juice containers.

It should be noted that milk jugs made from HDPE make up a greater share of the marketplace in western Canada. Jugs in Ontario are under a deposit-return program through Becker’s and Mac’s stores. All associated data is proprietary. There are very few jugs in Quebec and the Atlantic provinces. Overall, milk jugs have a much higher collection rate than cartons. This difference may be attributable to several factors, including a strong secondary market for HDPE jug material.

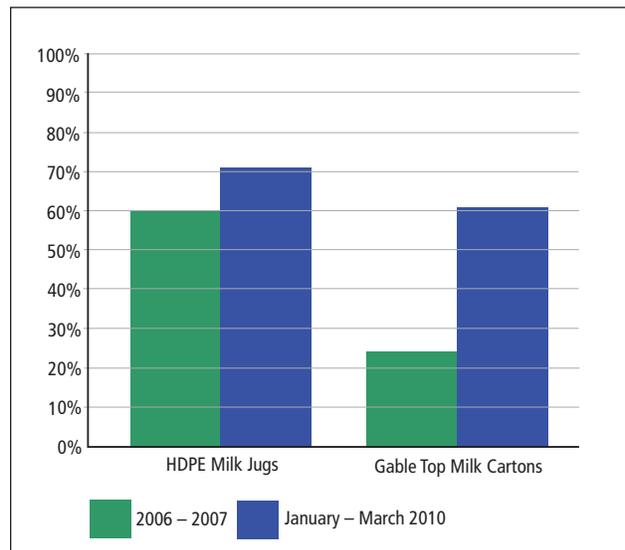
British Columbia’s Milk Container Recycling Program has experienced significant growth by increasing the number of participating depots from 117 in 2007 to 166 at the end of 2011. Although this increase in the number of depots is significant, so too is the rise in the amount collected per depot. Specifically, the overall collection of 2,317 kilograms of plastic milk jugs and polycoat milk containers in 2008 increased to 3,671 kilograms in 2010. In total, the program collected 128% more material in 2010 than it did in the first year of the program in 2007. Due to insufficient data on the specific type of milk packaging recycled, a

collection rate that distinguishes jugs from gable top containers, for example, is not available.

In June 2009, Alberta introduced deposits on containers for milk and related milk-substitute beverages. The program reports by material rather than by contents, so there are no specific collection rates for milk containers. The rate for HDPE containers, the largest portion of the milk container market in Alberta, is approximately 71%. Most of the rest of milk containers are gable top, which are collected with Tetra Pak containers and have a combined collection rate of 65%.

These numbers are consistent with research from 2010 that shows that, for the first 3 months of 2010, rates for milk jugs and gable tops were 71% and 60% respectively. Figure 23 shows the average collection rates for milk HDPE jugs and gable top containers for 2006–2007 compared to rates for the first three months of 2010.

Figure 23: Collection rates of HDPE jugs and gable top milk cartons before and after deposits were applied to milk containers in Alberta



In Saskatchewan, SARCAN is contracted through the Unified Dairy Recycling System to provide a voluntary collection and recycling system for plastic milk jugs and paper milk cartons. A variable rate paid to recyclers for milk jugs is based on 80% of the salvage value for that month. The average for a 12-month period ending in June 2012 is approximately \$420/tonne. The rate for gable top containers is \$150/tonne.

In Manitoba, Ontario, and Quebec, milk containers are collected mostly curbside through the Blue Box program. No specific data on collection is available.

In Nova Scotia, milk containers are recycled via curbside Blue Box collection. Nova Scotia dairies, through a stewardship agreement with the Nova Scotia government, support the recycling of fluid milk packaging throughout the province. The Atlantic Dairy Council reports that, in 2005, after five years of the program, the recycling rate for milk packaging has increased from 22.5% to 47.3%. Data received from Nova Scotia Environment states that the collection rates for 2010–2011 are 64.2% for gable top cartons and 85.4% for HDPE milk jugs.

In Newfoundland, milk containers are not under deposit but can be recycled at one of 37 Green Depots.

In PEI and New Brunswick, milk containers are recycled through the curbside Blue Box program.

In the Northwest Territories, as of February 15, 2010, *The Beverage Container Regulations* under the *Waste Reduction Act* were amended to include all containers for milk and milk supplements excluding those with infant formula or milk products in containers less than 30 ml. These containers now carry a 10-cent deposit for containers up to and including 1 litre and a 25-cent deposit for containers over 1 litre in size.

The results of the first full year of the program show a collection rate of 25% for the small and 61% for the large milk containers.

1.4 Program Summaries by Province

British Columbia

Program Scope and Targets

Beverage Container Stewardship Program

The province-wide deposit-refund program began under the *Litter Act* in 1970 for carbonated soft drinks and beer, and it expanded to include any ready-to-serve beverage sold in a container that is sealed by its manufacturer excluding milk, milk substitutes, rice milk, soya milk, flavoured milk, infant formulas, meal replacements, or dietary supplements.

This regulation was repealed in 2004, and most of its provisions are now in Schedule 1 of the *Recycling Regulation*, which required that existing stewardship agencies submit revised stewardship plans consistent with the regulation by October 2008.

The regulation establishes a minimum goal of a 75% collection rate and requires that redeemed containers be either refilled or recycled.

Milk packaging is collected voluntarily through both municipal curbside recycling programs and the province's 166 bottle depots. There are no collection targets for milk containers.

Supporting Regulatory Framework

The province-wide program began in 1970 with the *Litter Act*, which made British Columbia the first jurisdiction in North America to establish a mandatory deposit-refund system for soft-drink and beer containers as a litter control initiative. In 1997, province enacted the *Beverage Container Stewardship Program Regulation*, which replaced the outdated *Litter Act*.

The new regulation expanded the deposit-refund system to include all ready-to-serve beverages sold in containers and sealed by their manufacturer, with the exception of containers for milk and milk substitutes.

In October of 2004, the *Recycling Regulation* consolidated all BC stewardship regulations including the *Beverage Container Stewardship Program Regulation* into a single regulation.

Summary of Initiative

The Beverage Container Recovery Program was expanded on October 1, 1998 and targets brand owners or first importers (stewards) of all non-refillable beverages (excluding milk products) that are sold in the province of British Columbia. Prior to the expansion, only carbonated soft-drink containers were regulated under a deposit-return program. The expansion added containers for bottled water, juice, new age drinks, and alcohol.

With the enactment of the *Recycling Regulation* in 2004, stewards were required to submit stewardship plans, which described the development and operation of the beverage container program. The plans also outline how the program provides consumers with an efficient and convenient system for collecting and recycling beverage containers.

All beverage containers carry a deposit based on their size.

Currently, there are two stewardship agencies in British Columbia representing beverage manufacturers.

Encorp Pacific (Canada) represents brand owners of non-alcoholic beverages, wine, spirits, some ciders, and coolers, as well as beer manufacturers. Encorp return centres include 172 independent depots and thousands of retail outlets. Encorp manages about 71% of recovered beverage containers province-wide.

Brewers Distributor Ltd. (BDL) is the second steward. It represents brand owners of domestic coolers, beers, and ciders, and it collects the containers of both these domestic distributors and of outside distributors who import these beverages. Brewers Distributor Ltd. provides for retail returns at a total of 1,258 locations including 655 private liquor stores, 197 government-run liquor stores, 229 rural agency stores, and 177 independent depots. Brewers Distributor Ltd. manages about 29% of recovered beverage containers province-wide.

Collection Mechanism

Beverage containers are redeemed at depots, retail outlets, and Liquor Distribution Branch (LDB) stores. Brewers Distributor Ltd. provides for retail returns at a total of 1,258 locations. Seventy-eight percent of British Columbia's population lives within two kilometres of a BDL return depot.

Encorp return centres include 172 independent depots and thousands of retail outlets. Encorp is now testing compaction machines in some of its outlets, which will see

the system gain efficiencies by transporting more materials per truck, resulting in far less fuel used per tonne transported.

Independent transporters collect the containers and take them to about 12 processing sites across the province.

Processors receive bags of mixed containers and prepare them for the appropriate recycling market by sorting, crushing, and baling the glass, aluminum, plastic, and other materials.

In the case of all domestic beer, cider, and coolers, the Brewers Distributor Limited collects these containers from LDB stores, licensees, cold beer and wine stores, agency stores, and about 28 depots. In general, other bottle depots will also accept empty domestic beer containers, but they will discount part of the refund as a handling fee. Empty containers are back-hauled to the various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Milk containers are accepted without a refund at 166 bottle depots as part of a voluntary program financed by the dairy industry and administered through Encorp Pacific. However, the majority of milk jugs are collected through municipal recycling programs.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency)

The Beverage Container Recovery Program in British Columbia is funded through revenues generated from the sale of material, revenues from unredeemed deposits, and a container recycling fee (CRF) paid at the point of purchase by consumers.

Container recycling fees are charged based on the net cost of collection and recycling specific container types; with the unredeemed deposit, and any material revenue deducted from gross costs to arrive at the net cost. Fees are re-evaluated every year and rounded up to the nearest penny. For example, if the net system cost to recover an aluminum can is \$0.0095, the container recycling fee will be \$0.01 per can.

The container recycling fee varies depending on the value of the material and the collection rate for a particular container. For example, high collection rates generate less unredeemed deposit revenue and, therefore, a higher container recycling fee, while lower collection rates generate greater unredeemed deposit revenue and lower

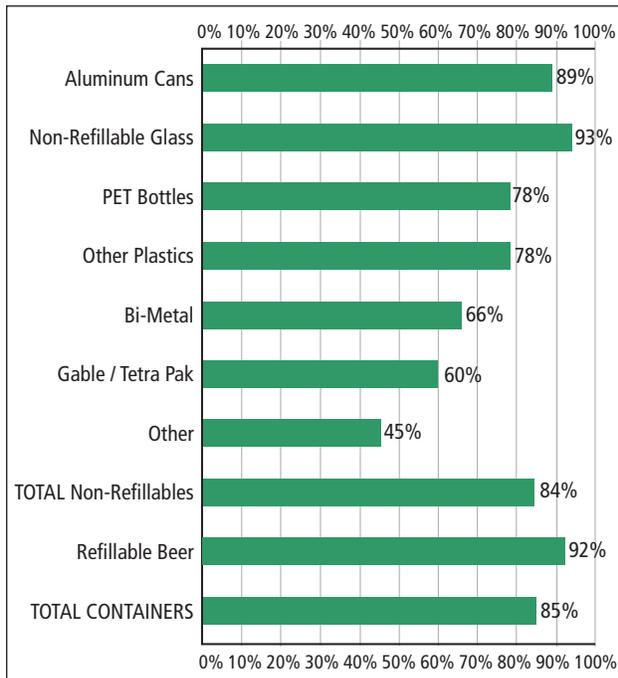
container recycling fees. In 2010, the CRF range from no fee to \$0.20 per unit depending on the size and material used for the container. Some containers, like drink pouches, do not carry a fee because their collection rates are low enough that the unredeemed revenue covers their collection cost, thereby not requiring a CRF.

Since the implementation of the container recycling fee (CRF), the beverage industry (except for the domestic beer industry) bears no direct costs associated with the operation of the Beverage Container Recycling Program. These costs have been transferred to the product consumer or user. Individual brewers internalize their stewardship (collection, transporting, refilling, and recycling) costs.

Collection Rates

British Columbia's total non-refillable container collection rate is 84%, and its total container collection rate is 85%. This represents an increase of 4 percentage points since 2008.

Figure 24: British Columbia collection rates by material, 2010

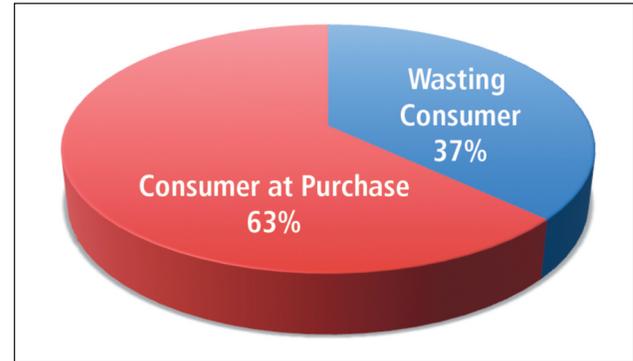


Who Bears the Share?

The following chart shows which stakeholder group pays for British Columbia's deposit-return system for all beverage containers excluding domestic beer, as a percentage of total program funding (net of material revenues).

The wasting consumer pays for 37% of the program by not redeeming deposits, and 63% is from the consumer who pays a non-refundable container recycling fee at the point of purchase.

Figure 25: Funding of British Columbia's deposit-return system for all containers excluding those for domestic beer, 2010



Alberta

Program Scope and Targets

Alberta Beverage Container Recycling Program

This province-wide program began in 1972 and expanded to include all beverages in 1989. A further expansion in 1997 included Tetra Pak and gable top containers. On May 1, 2001, the exemption for domestic beer containers was lifted from the *Beverage Container Recycling Regulation*. Domestic beer containers were added to the program on Nov 15, 2001. The inclusion of domestic beer in the regulation did not result in any real changes to the system, except that domestic beer producers came to be treated the same as other beverage producers in terms of program compliance, reporting, and legislated aspects such as the handling fees paid to depots.

On November 1, 2008, provincial amendments came into force, increasing deposit levels to 10 and 25 cents. On June 1, 2009, Alberta became the first province or state in North America to add milk and milk products to the deposit schedule.

There are no collection targets set out in the regulation; however, the government has encouraged a target of 85%.

Supporting Regulatory Framework

The program is regulated under the *Environmental Protection and Enhancement Act* and the *Beverage*

Container Recycling Regulation. The regulation expired in October 2007 and was amended with new deposit levels, which came into force November 2008.

The Beverage Container Management Board (BCMB) took over regulatory authority for the program in 1997, supported by the *Beverage Container Management Board Administrative By-Law*, the *Beverage Container Management Board Fee By-Law*, and the *Beverage Container Management Board Administrative Compliance By-Law*.

Summary of Initiative

The province requires beverage producers and brand owners to operate a common collection system to recover containers from the bottle depots and retail locations for beer.

The Beverage Container Management Board (BCMB) administers the *Beverage Container Recycling Regulation*.

The Alberta Beer Container Corporation (ABCC) acts as a Collection Service Provider (CSP) for beer manufacturers and is responsible for ensuring that beer containers are collected, transported, processed, and recycled as per the requirements of the regulation. ABCC directly manages the collection of refillable beer containers and subcontracts the management of beer that is in non-refillable containers (all one-way glass and PET beer containers) to the Alberta Beverage Container Recycling Corporation (ABCRC).

The Alberta Gaming and Liquor Commission (AGLC) represent the producers of alcohol. AGLC uses ABCRC to manage its wine and spirit containers and the Alberta Beer Container Corporation (ABCC) to manage its beer containers. ABCC is responsible for ensuring that all beer containers are collected, transported, processed, and recycled as per the requirements of the regulation. ABCC subcontracts the management of beer that is in non-refillable containers (all one-way glass and PET beer containers) to ABCRC.

Collection Mechanism

Consumers may return empty containers to privately owned and operated registered "universal" bottle depots (216 province-wide) and collect a refund. There are also 61 "Class D Beer Depots" that accept only beer containers and offer consumers a refund.

Bottle depots collect and sort the containers for the Alberta Beverage Container Recycling Corporation

(ABCRC), which represents non-beer beverage distributors, and for the Alberta Beer Container Corporation (ABCC), which represents brewers.

ABCRC and ABCC pick up and transport containers to two processing facilities in the province where the materials are prepared for recycling end markets. Refillable beer bottles are sent to brewers.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency.)

The Alberta Beverage Container Recycling Program is funded through revenues generated from the sale of collected material, revenues from unredeemed deposits, and revenues collected through the application of a container recycling fee (CRF) paid at the point of purchase by consumers.

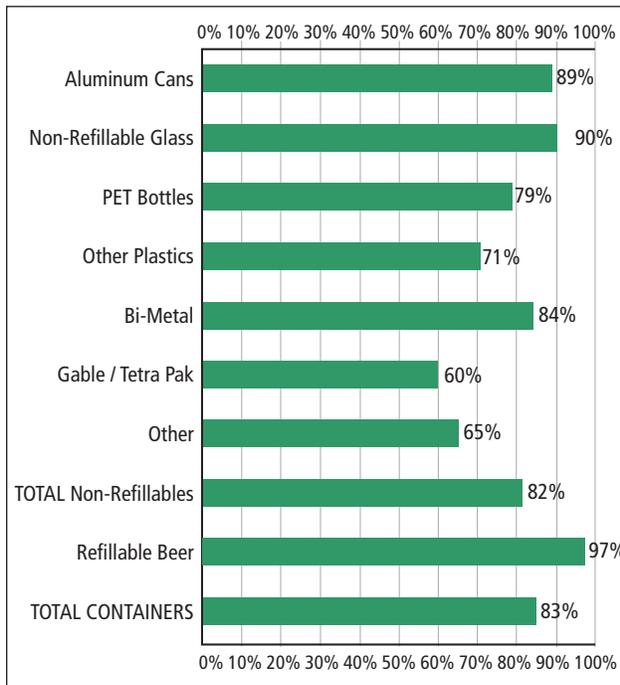
The CRF varies depending on the value of the material and the collection rate for a particular container. For example, high collection rates generate less unredeemed deposit revenue and, therefore, a higher container recycling fee, while lower collection rates generate greater unredeemed deposit revenue and lower container recycling fees. In 2010, the CRF ranged from zero to \$0.10 per unit depending on the size and material used for the container. Aluminum cans do not carry a fee because high material revenue and unredeemed deposits cover the collection costs. Gable top cartons, drink boxes, and bag-in-the-box containers over 1 litre also do not carry a fee because the unredeemed deposit revenue is high enough to carry the costs of collecting these materials.

Since the implementation of the container recycling fee (CRF), the beverage industry bears no direct costs associated with the operation of the Beverage Container Recycling Program. These costs have been transferred to the product consumer or user. Individual domestic brewers internalize their stewardship (collection, transporting, refilling, and recycling) costs.

Collection Rates

For the calendar year of 2008, Alberta had a non-refillable containers collection rate of 75% and a total containers collection rate of 77%. These rates are at the low end for deposit-return jurisdictions. On November 1, 2008, the province increased the level of its deposits from 5 cents to 10cents and from 20 cents to 25 cents. For the calendar year of 2010, the non-refillable rate is up to 82% and the total container collection rate is up to 83%. These data reflect percentage point increases of 7 and 6 points respectively.

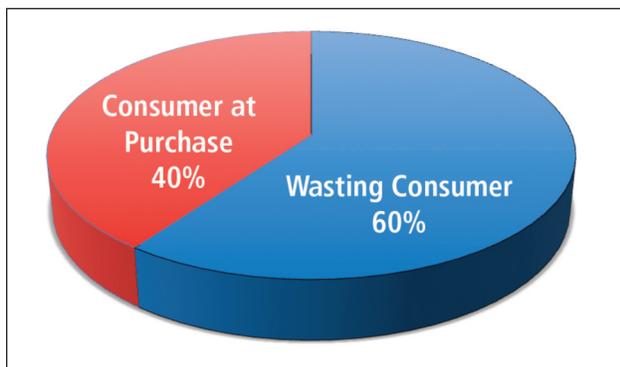
Figure 26: Alberta collection rates by material, 2010



Who Bears the Share?

In Alberta, wasting consumers pays for 60% of the program by not redeeming their containers for a refund. The remaining 40% contribution is from the consumer who pays a container recycling fee (CRF) at the point of purchase. Because of the deposit increase, the wasting consumer is now contributing a greater share (60%) than in the previous years.

Figure 27: Funding for Alberta's deposit-return system for all containers excluding those for domestic beer, 2010



Saskatchewan

Program Scope and Targets

Beverage Container Collection and Recycling Program

This province-wide program was established in 1988 and expanded to include Tetra Pak and gable top containers in 1999. All beverage containers are included under the regulation. So the program collects containers of any liquid that is a ready-to-serve drink excluding milk, milk substitutes, flavoured milk, infant formulas, meal replacements, or dietary supplements. Beverage containers of dairy products are collected under the Unified Dairy Recycling System.

Unified Dairy Recycling System

The Unified Dairy Recycling System (UDRS) is a program whereby the dairy industry in Saskatchewan contracts with SARCAN Recycling to provide a voluntary collection and recycling system for plastic milk jugs and paper milk cartons via beverage container depots. The original province-wide program was launched in 1999 and upgraded to the current program in February 2001. There are no official targets set out in the program.

The provincial targets for containers covered under the milk container program are 75%. There are no specific targets for the beverage container program.

Supporting Regulatory Framework

Beverage container recycling was initially legislated under the *Litter Control Act* (1978) and the *Designated Container Regulations* (1990). A 1999 amendment to the *Litter Control Act* added Tetra Pak and gable top containers.

The new *Environmental Management and Protection Act* of 2010 repeals and regulates matters formerly covered by the *Litter Control Act* and the *Environmental Management and Protection Act* of 2002, whose "Litter Control" section (amended in 2009) was also relevant to the collection of beverage containers.

Summary of Initiative

The Saskatchewan Association of Rehabilitation Centres (SARC) has a recycling division known as SARCAN Recycling, which administers the program. SARCAN operates under contract to the Saskatchewan Ministry of Environment.

This ministry designates containers that can be collected for recycling and establishes the value of the deposit and the environmental handling charge (EHC) that consumers pay when purchasing a beverage.

The retailer passes the collected revenue through to the distributor and then to the Ministry of Finance.

When returning the empty non-refillable container to one of SARCAN's 71 depots, the consumer is refunded the full deposit.

The environmental handling charge is not refunded to the consumer but is used by the provincial government to offset SARCAN's contract cost and to contribute to general revenues. The EHC is not the same as a depot handling fee. In fact, in Saskatchewan, there is no official handling fee because SARCAN and its depots are paid an annual grant (\$21,778,000 million in fiscal 2011–2012,) which SARCAN uses to fund the operating costs of its depots along with the costs of transporting, processing, and marketing recycled materials.

Collection Mechanism

Containers are returned to 71 province-wide depots in the 63 communities. Depots sort and flatten the containers, which are picked up by SARCAN trucks, taken to SARCAN processing facilities, and sent to recycling end markets. SARCAN depots will also accept rinsed milk containers on a voluntary basis but offer no deposit for them.

Refillable beer containers are returned to Saskatchewan Liquor and Gaming Commission (SLGC) stores, hotels, and four depots. All SARCAN depots keep a 6-cent portion of the 10-cent refund as a handling fee. Refillable bottles are sorted and sent back to Brewers Distributor Ltd. for the full refund and for washing and refill.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency.)

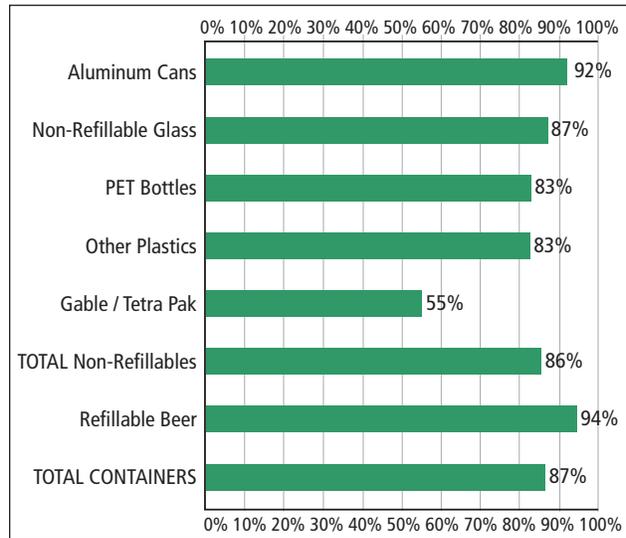
The program is funded through revenue generated from the sale of empty beverage containers and by a provincial grant awarded to SARCAN. SARCAN is also paid a handling fee for all milk containers collected through its depots or through municipalities on a per tonne basis.

In 2011–2012, the beverage container recycling contract was worth \$21.8M. The provincial government raises revenue through the environmental handling charge, which ranges from \$0.03 to \$0.07 per unit sold. Excess funds generated by the provincial government are put into general revenues.

The financial responsibility is borne by the consumer through the environmental handling charges. Also, consumers who choose not to return their containers contribute revenue through the unredeemed deposit. The beverage industry bears no financial responsibility for operating the program.

SARCAN and 21 other recycling service providers are contracted to collect and process milk containers and are

Figure 28: Saskatchewan collection rates by material, 2010



paid \$150 per tonne for the gable top dairy containers and approximately \$420 per tonne (the actual dollar amount varies based on value of the material) for plastic milk jugs. The dairy industry funds these costs plus management and advertising through a levy on all large milk containers.

Specifically, 1- and 2-litre containers have a 1-cent fee per container while units larger than 2 litres have a 2-cent fee per container.

Collection Rates

Saskatchewan has a non-refillable container collection rate of 86% and total container collection rate of 87%, the highest rates in the country.

Who Bears the Share?

In Saskatchewan, the consumer pays for 68% of the program with the EHC (environmental handling charge). The remaining 32% contribution is from the wasting consumer's forfeited deposits.

Figure 29: Funding of Saskatchewan's deposit-return system for all containers excluding refillable beer containers, 2010



Manitoba

Program Scope and Targets

The Packaging and Printed Paper Stewardship Regulation of the Waste Reduction and Prevention Act

Under this regulation, a province-wide program, run by the Manitoba Product Stewardship Corporation, was established in 1995 to encourage and help finance the expansion of convenient and efficient residential recycling services across Manitoba.

A new Packaging and Printed Paper Stewardship Regulation under the Waste Reduction and Prevention Act (WRAP) was registered on December 22, 2008. The packaging and printed paper sectors responded by establishing a new program, run by Multi-Material Stewardship Manitoba, which officially began on April 1, 2010. The program is funded by brand-owner levies on all packaging and printed paper. The beverage industry, at the same time, created CBCRA, which takes responsibility for the recovery of all beverage containers both at home and away from home. The recovery of beverage containers is funded through a 2-cent per unit container recycling fee (CRF), which is charged to the beverage steward but which, in most cases, is passed on to the retailer and from there to the consumer.

The November 2008 WRAP guideline identifies a beverage container recovery target of 75%.

Refillable and non-refillable beer containers are collected through a separate deposit-refund program administered and operated by the beer industry.

Supporting Regulatory Framework

Both the MMSM and CBCRA programs operate under the *Packaging and Printed Paper Stewardship Regulation of 2008*, a regulation under the *Waste Reduction and Prevention Act*.

Summary of Initiative

In September 2009, the Minister of Conservation for the Province of Manitoba approved a program plan for packaging and printed paper collection in the province. The new initiative would replace the previous program that financed municipal recycling.

This new program is modelled after the industry-funding programs currently operating in Ontario and Quebec, in which stewards (brand owners or first importers) of packaging, including all beverage-related consumer packaging, must finance a portion of the costs associated with the residential recycling program. In Manitoba's case,

that portion is 80%.

The program commenced on April 1, 2010. CBCRA has responsibility for all beverage container recovery and funds the residential collection through MMSM.

For the at-home or "residential" portion, industry is responsible for contributing funds to cover 80% of the program costs. Multi-Material Stewardship Manitoba (MMSM) is the organization formed to design and operate the enhanced residential recycling program, which provides all Manitoba residents with "reasonable" access to recycling on a province-wide basis.

The away-from-home program targets municipalities and businesses that generate beverage containers. These could include libraries, community centres, golf courses, arenas, events venues, and other establishments. The Canadian Beverage Container Recycling Association (CBCRA), which is comprised of beverage producers and distributors (excluding beer), is tasked with enhancing both at-home and away-from-home collection to meet the overall 75% recovery target for beverage containers.

The program has been and continues to be financed using a 2-cent CRF on every non-alcoholic beverage sold. In most cases, these fees, which are charged to producers, are passed on to retailers who, at their discretion, pass them directly to consumers, as are the recycling fees in BC and AB.

The CBCRA program establishes partnerships with each generator. CBCRA buys the bins, provides technical support and best practices information, and finances the province-wide promotion and educational campaign called "Recycle Everywhere." Participating generators get new recycling bins and free educational materials from Recycle Everywhere to support their recycling programs. In return, they must pay for their recycling program and use a registered program processor for this service. These generators or their processors receive all the revenue from the PET and aluminium collected.

The registered processors agree to report the weight of container material shipped to market, and, because registered program processors manage all of Manitoba's collected containers, their reports should capture all the collected containers.

But not all containers are beverage containers. The tricky part is extracting the beverage containers (by weight) from everything else that gets shipped to market, such as plastic ketchup bottles, glass pickle jars, and aluminum cat food tins. A PET bale, for example, is comprised of PET from non-bottle sources. Specifically, the PET thermoform containers used to package fruits and vegetable would be

included, as would some additional plastics and contaminants.

CBCRA has conducted and continues to conduct audits of the Manitoba material being shipped to ascertain what the typical composition is related to beverage containers. For the purposes of this report, we used a series of composition estimates based on percentages provided by a number of Ontario processors that were interviewed for this report.

Refillable and non-refillable beer containers are collected through a voluntary deposit-return program administered by the beer industry.

Collection Mechanism

Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recycling services. Generally, containers are collected, transported to material recovery facilities, sorted, baled, and shipped to their respective end markets for recycling. Not all beverage containers are collected through all municipal programs. For the most part, PET, glass, aluminum, and steel containers are collected in most programs, whereas aseptic, gable top, HDPE, and other less common containers are collected in approximately 90% of the programs.

The CBCRA's program, which includes the away-from-home collection of beverage containers, will focus its efforts on public spaces (e.g., parks and streets); IC&I locations (e.g., gas bars, restaurants, convenience stores, and shopping malls); government buildings; educational institutions; and special events.

Refillable and non-refillable beer containers are collected via beer vendors, the Manitoba Liquor Commission, and rural agency stores. Brewers Distributor Ltd. collects these empty beer containers and back-hauls them to various distribution centres where recyclables are baled and sent to market. Refillable bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency.) Under the previous model, the municipal recycling program was funded by consumers and municipalities. More specifically, consumers paid a 2-cent levy on all non-refillable, non-beer containers, which was used to finance 80% of the municipal recycling programs.

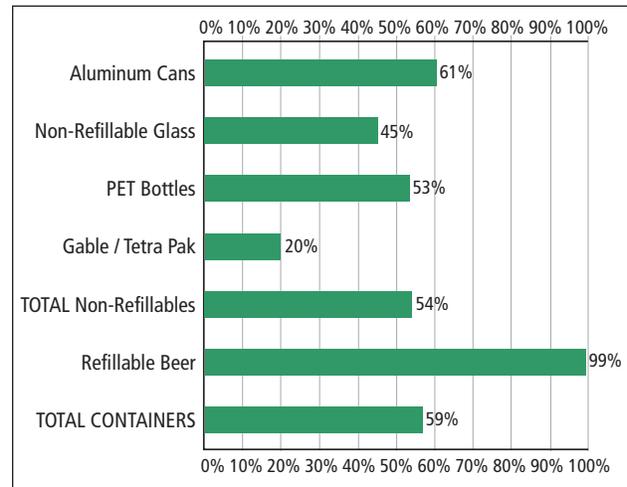
Under the new program, stewardship levies or fees are determined based on a number of factors including

program costs, recovery rates, and a penalization factor for materials whose collection rate is performing poorly. Beverage container collection will be almost entirely financed through a 2-cent container recycling fee (CRF), which is voluntarily paid by beverage stewards (excluding those for domestic beer) and then passed through to the consumer. In 2011 (the first full year of the program), the CRF raised approximately \$5.3M, which will be used for both municipal curbside and away-from-home collection.

Collection Rates

Manitoba has a non-refillable container collection rate (excluding beer cans) of 54%; the rate is 81% for beer cans and 99% for refillable bottles.

Figure 30: Manitoba collection rates by material, 2010

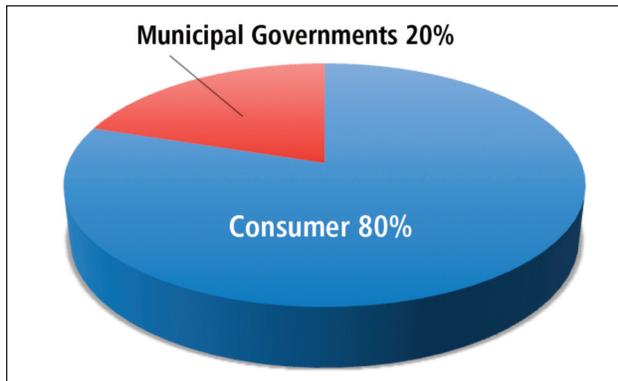


Who Bears the Share?

In Manitoba, the 2-cent CRF, which is charged to all beverage producers except those producing beer and normally passed on to the retailers who normally pass it on to consumers, funds up to 80% of the residential recycling programs, which may also include some public away-from-home recycling costs.

The funds also support the Recycle Everywhere campaign, technical support and best practices research, and bin procurement. Assessing who pays what portion of the away-from-home program cannot be determined because the costs borne by generators are not available.

Figure 31: Funding of the Manitoba municipal curbside recycling program for all containers excluding those for beer, 2010



Ontario

Program Scope and Targets

Municipal Blue Box Program

This province-wide, regulated, residential curbside recycling program has been in place since 1994, when it was instituted under Ontario's *3Rs Regulations* (Reduction, Reuse, Recycling). The first citywide program was implemented even earlier, in 1987.

Most food and beverage containers, like those made from glass, PET, aluminum, and steel, are mandated to be included in the program. Other containers, such as Tetra Pak and gable top cartons and HDPE bottles, may be added to the program voluntarily. Wine and spirit containers were recently placed on deposit, but they too may be added voluntarily to municipal blue box programs.

In 2004, the Minister of Environment announced a 60% province-wide residential waste diversion target. In October 2009, the Minister of Environment announced his intention to set targets and timeframes in the amended legislation for material generated in both the residential and IC&I sectors (e.g., in away-from-home locations).

Two sections of the *3Rs Regulations* (102/94 and 103/94) mandate IC&I recycling for most commercial sectors and for some basic recyclables (excluding multi-laminate containers). The law has been in place since 1994. The ministry has recently been enforcing the regulation.

Regulations also call for 40% of sales of soft drinks to be refillable, dropping to 30% if a 60% collection rate for non-refillable bottles is achieved. However, the refillable market share for soft drinks is less than 1%, and the

government is considering repealing the refillable quota. Consequently, the government has not enforced the requirements since their implementation.

Refillable and non-refillable beer containers are collected through a separate program administered and operated by Brewers Retail Inc. (The Beer Store).

In February 2007, a new deposit-return program for all wine, spirits, and imported beer, called the Ontario Deposit Return Program (ODRP) came into force. The Liquor Control Board of Ontario (LCBO) is responsible for the program and has contracted collection (including return-to-retail collection for licensees), processing, and marketing responsibilities to The Beer Store.

Plastic milk jugs holding over 2 litres are required to carry a deposit and are redeemable by consumers. Few retailers maintain a deposit-return program for these large milk jugs (other than Becker's and Mac's), as most milk in Ontario is sold through plastic pouches and gable top cartons.

Supporting Regulatory Framework

Beverage-specific regulations are legislated under the *Environmental Protection Act* (1990). These are *Refillable Containers for Carbonated Soft Drink* (*Regulation 357*), *Containers* (*Regulation 340*), *Disposable Paper Containers for Milk* (*Regulation 345*), and *Disposable Containers for Milk* (*Regulation 344*). All these regulations have been consolidated in the *Revised Regulations of Ontario* (1990), often abbreviated R.R.O. 1990.

In addition, the municipal recycling regulations are legislated under the *Environmental Protection Act* of 1990. Specific regulations of relevance include *Regulation 101/94 (Recycling and Composting of Municipal Waste, 1994)* and *Regulation 103/94 (Industrial, Commercial, and Institutional Source Separation Programs, 1994)*.

The Waste Diversion Act (2002) is recent legislation under which the Blue Box and other stewardship programs are regulated. See *Regulation 273 (Blue Box Waste, 2002)*. The *Blue Box Program Plan, 2003* is not a regulation but a minister-approved program plan under *the Waste Diversion Act*.

There is no law mandating that all wine and spirits sold under the LCBO be placed on deposit. The Ontario Deposit Return Program (ODRP) is a voluntary program implemented by the provincial government, which is responsible for the LCBO.

Summary of Initiative

Municipal authorities operate multi-material curbside programs in place for recovering beverage containers and other packaging and printed paper materials.

Municipalities with over 5,000 people are mandated to offer curbside collection services for at least aluminum, steel, PET, and glass containers. Municipalities may also voluntarily offer recycling services for aseptic, gable top, HDPE, and other containers. About 98% of the Ontario population have access to curbside or depot recycling services.

In February 2003, Ontario brand owners and first importers, known as “stewards” of Blue Box materials, were mandated to finance 50% of the program net costs.

Waste Diversion Ontario (WDO) was established in 2002 “to develop, implement, and operate waste diversion programs” for a wide range of materials that include Blue Box waste. WDO oversees the implementation of the new Blue Box financing program and collects annual cost and collection data from municipal authorities. Municipal authorities are responsible for all program operations.

Stewardship Ontario (SO) is the not-for-profit agent representing affected industry stewards. SO collects fees from its members and pays out monies to municipalities.

As of February 2007, wine and spirits were added to the existing deposit-return program for beer. The program operations are undertaken by The Beer Store on contract to the provincial ministry responsible for the Liquor Control Board of Ontario (LCBO).

Refillable and non-refillable beer containers are collected through a voluntary deposit return-to-retail program administered by The Beer Store. The Beer Store is Ontario’s primary distribution and sales channel for beer products. All brewers whose beer products are sold through The Beer Store fund the system.

More than 86% of the population live within 5 km of a beer container redemption point, of which there are 437 beer stores, 44 breweries, 141 retail partner stores, 5 additional LCBO stores, 77 northern agency stores, and 113 empty bottle dealers (small independent depots contracted in more remote locations where beer retailers are not available). Consequently, there are a total of 817 points of return for empty domestic beer bottles. ODRP containers can be returned at 773 locations, due to the fact that the 44 breweries that redeem beer bottles do not take back wine and spirit containers.

Collection Mechanism

Beverage containers from the residential sector are collected via curbside recycling or depot drop-off centres. Municipalities collect or contract out the collection of recyclables. Generally, containers are collected, transported to material recovery facilities, sorted, baled, and shipped to their respective end markets for recycling. PET, glass, aluminum, and steel containers are regulated to be collected in all programs, whereas Tetra Pak, gable top, HDPE and other less common containers are not regulated and are collected in fewer programs.

Wine, spirit, and beer containers, as well as any associated packaging, are collected through 437 beer stores, 34 breweries, 141 retail partner stores, 77 northern agency stores, 5 additional LCBO stores, and 131 empty bottle dealers. The Beer Store trucks collect these empty beer containers and back-haul them to various distribution centres where recyclables are sent to a processing facility for sorting, baling, and shipping to market. Refillable bottles are sent back to the brewers for washing and refill.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency.)

The multi-material municipal recycling program, which also collects beverage containers, is funded by municipalities and stewards. Stewards of packaging, paper, and printed paper are brand owners or first importers and publishers.

Each year, Waste Diversion Ontario conducts a tonnage and financial data call, asking municipalities to determine the total net program costs. From these data, along with material generation estimates, Stewardship Ontario determines “fair” levies to charge stewards based on the type of material sold into the Ontario marketplace. New levy schedules are released annually. Stewards pay levies in quarterly increments.

In 2010, stewards contributed \$89.4 million to municipalities. This amount includes other required external program elements, program delivery, administration, and GST.

The ODRP program is financed through unredeemed deposits and government revenue. The Beer Store (TBS) is contracted to collect and market all ODRP containers (including those from licensees), as well as to administer and monitor the program. TBS receives a service fee in cents per unit.

The fee per container, 80% of which is collected on large glass bottles, has decreased since the beginning of the program. In 2007, the fee was 10.5 cents. A new contract, in effect in February of 2012, sets the fee at 10.15 cents for 2012.

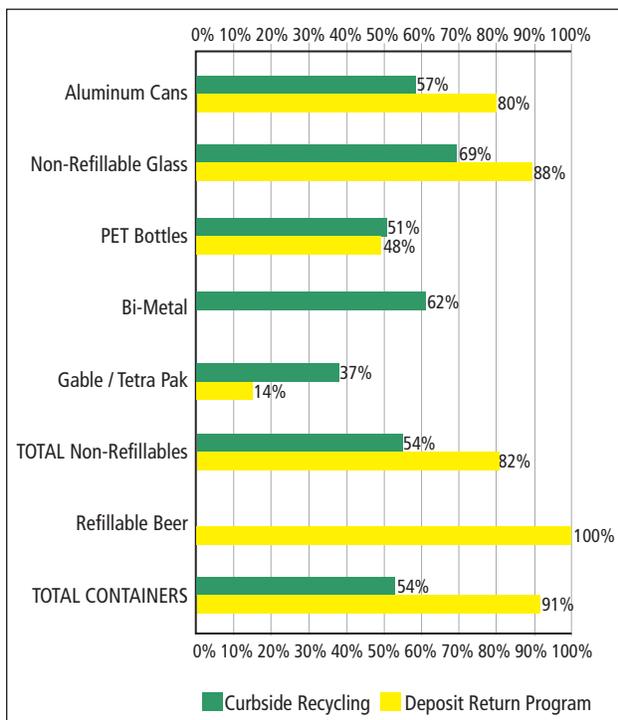
Collection Rates

Ontario has a hybrid collection system in which beverage containers are recovered via two streams. All containers for alcoholic beverages are returned for deposit refund via The Beer Store's Packaging Recovery Program and the Ontario Deposit Return Program (ODRP). All other beverage containers are collected via the provincial Blue Box program.

Those containers returned through the deposit programs show a total collection rate of 91%. This rate is higher than that achieved in other deposit programs in the country because of a combination of the high collection rate for the refillable beer bottle (99.8%) and a high market share for that bottle in the province (62% of all beer containers sold). The collection rate for non-refillable alcoholic beverage containers and beer containers alone is 82%.

Non-alcoholic beverage containers collected via the municipal system show an overall collection rate of approximately 54%.

Figure 32: Ontario collection rates by material, 2010



Who Bears the Share?

The two programs in Ontario are funded by different funders. The municipal curbside system is funded by municipalities (55%) and industry stewards (45%). Industry also contributes an additional 5% to finance continuous improvement programs. This funding structure is going to change to 100% financing by the industry stewards as per policy direction from the Ministry of Environment. For the ODRP, 34% of the cost is borne by the wasting consumer while the other 69% comes from the Liquor Control Board of Ontario (LCBO), which is a crown corporation of the province.

Figure 33: Funding for the Ontario municipal Blue Box program, collecting all except beverage containers for alcohol, 2010

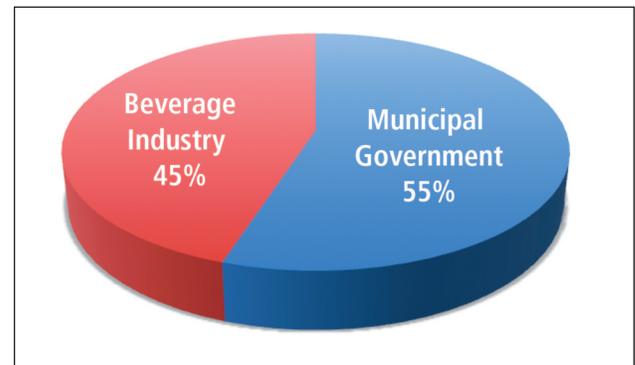
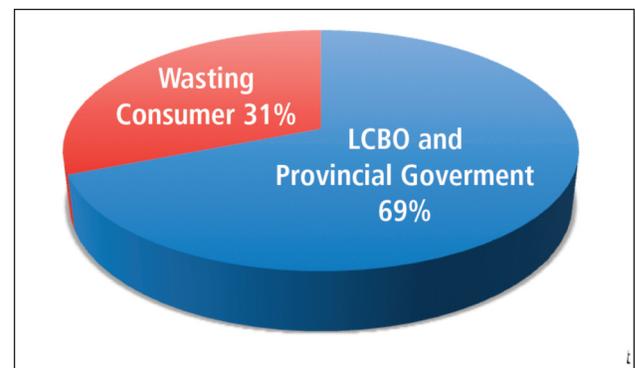


Figure 34: Funding for the Ontario Deposit Return Program, collecting all alcoholic beverage containers, 2010



Quebec

Program Scope and Targets

The *Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Soft Drink Containers* (January 2011) and the *Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Beer Containers* (January 2011). The province-wide program regulated by these two agreements has been in place since 1984. All non-refillable soft-drink and beer containers are managed through a deposit-return program. (Soft drinks and all beverages that contain carbonated water with essence of flavour are included.)

In March 2005, through an amendment to the *Environment Quality Act*, the province created a legal obligation for stewards of packaging and printed materials to fund municipalities up to 50% of the net cost for curbside recycling. In terms of beverage containers, the obligation extends to all except those for soft drinks and beer—beer containers are on deposit—as well as to any associated packaging materials (e.g., cases). The proportion covered by industry is increasing and will be 100% in the year 2013. (Note: In the case of soft drinks, the cases, and any material other than the container itself, are subject to this legislation.)

The collection target for soft-drink containers was 73% for the twelve-month period ending December 31, 2010.

For beer containers, the collection target was 75% for the twelve-month period ending December 31, 2010.

Supporting Regulatory Framework

The programs are regulated under the *Environmental Quality Act*.

Recyc-Québec took over regulatory authority for the program in 1990, supported by *An Act Respecting the Société Québécoise de Récupération et de Recyclage*.

In addition, the beer and soft-drink industries are legislated under *An Act Respecting the Sale and Distribution of Beer and Soft Drinks in Non-Returnable Containers* and the *Beer and Soft Drinks Distributors' Permits Regulation*.

The program details for soft-drink containers are set out in an industry-government agreement called the *Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Soft Drink Containers*. The agreement was first reached on December 1, 1999 between the Ministère du Développement Durable, de L'Environnement et des Parcs; the Société Québécoise de Récupération et de

Recyclage (Recyc-Québec); and the Association des Embouteilleurs de Boissons Gazeuses du Québec Inc., Boissons Gazeuses Environnement (BGE) and its registrants. The beer industry has its own agreement: *Agreement Relating to the Consignment, Recovery and Recycling of Non-Refillable Beer Containers*. The recent agreements for both industries were reached (separately) with the same partners on January 1, 2011.

In November 2004, the government of Quebec adopted the *Regulation Respecting Compensation for Municipal Services Provided to Recover and Reclaim Residual Materials*, which institutes a new municipal compensation regime of 50% of the net program costs as of March 1, 2005. This regulation obligates all beverage producers (including milk producers) to fund curbside recycling. Soft-drink and beer containers packaging is exempt from this program; however, all other related packaging (e.g., boxboard and film plastic) is covered in the regulation. The compensation increases yearly and will be at 100% in 2013.

In November 2009, the province issued its official policy on residuals management, which stated that the province would evaluate the deposit-return program and the residential recycling program. Should the performance of curbside collection for non-deposit beverages match that of the deposit-return system, Quebec may consider eliminating the deposit. In addition, should the beer and soft-drink industry not attain a rate of 70%, the province may consider a deposit increase.

In June 2012, Quebec's environment minister released a 5-year strategic plan for Recyc-Québec, the government organization responsible for waste management policy implementation and oversight.

Among the six actions outlined in the plan is a step to "modernize" the deposit-return program. Specifically, before the end of 2012, the value of the deposit will increase from 5 to 10 cents on all deposit-bearing cans and PET and glass containers for beer, soft drinks, and energy drinks.

The minister also reported on the government's intention of studying the feasibility of program expansion for similar containers currently not on deposit, such as water, sports drinks, and juice cans and bottles.

Summary of Initiative

The program is overseen by Recyc-Québec, a crown agency responsible for the promotion and development of the reduction, reuse, recovery, and recycling of containers and packaging.

Boisson Gazeuses Environnement (BGE) administers the program on behalf of the soft-drink industry. Boissons Gazeuses Environnement took over this role from Recyc-Québec on December 1, 1999.

Refillable beer containers are collected voluntarily by the beer industry.

The program is based on a return-to-retail collection system, with over 40,000 licensed grocers, service stations, pharmacies, and other retail outlets acting as redemption points for containers. Anyone that sells these containers must accept them back for redemption.

CONSIGNaction is a program initiated by BGE to increase the collection of soft-drink and beer deposit containers consumed away from home through launching awareness programs as well as subsidizing the installation of recovery bins and other infrastructures. The program targets small and medium-size locations that are more likely to generate larger amounts of empty containers from on-site beverage consumption. Convenience stores, restaurants, schools, golf courses, offices, events, and other venues are offered a pick-up service. CONSIGNaction manages four dedicated trucks that collect bags of deposit-bearing containers. About 30,000 bins at 15,000 locations were installed by BGE across Quebec over the years, of which 3,000 clients are served by BGE's trucks for a full refund. The program successfully collects about 2.6% of the annual returns (an estimated 20M empty containers).

All other beverage containers, including those used for wine, spirits, water, non-carbonated flavoured drinks, juices, and milk are collected through municipal curbside collection programs available throughout most of Quebec.

Other recycling initiatives are pursued by those outside government or the beverage industry. For example, the non-profit organization called La Table pour la récupération hors foyer, the Table in English, was formed in 2007 by various stakeholders from the public, private, and voluntary sectors. Its mission is to initiate, develop, and implement large-scale programs to increase away-from-home recycling. By early 2011, the organization had helped over 2,700 restaurants and bars introduce or enhance their recycling programs, and it estimates that about 41% of all bars, restaurants, and hotels currently have recycling programs in place.

The Table finances new recycling bins for its municipalities, bars, restaurants, and hotels.

Collection Mechanism

Soft-drink and beer containers are returned to over 40,000 grocers, service stations, pharmacies, and retailers. Upon return, consumers are provided with a full refund.

Distributors are required to collect redeemed containers from the vendors. Approximately 70% of returned containers are managed through reverse vending machines (RVMS) using dedicated transport by distributors. A significant portion of the remaining 30% of redeemed soft-drink containers are collected using the same trucks that deliver full goods (reverse logistics). These containers are sent to a processing centre where the containers are prepared for market. Refillable beer bottles are sent back to the brewers for washing and refill. The beer industry also subcontracts collection of its non-refillable bottles and cans to Recycan Inc.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency.) Return incentives paid to retailers (2 cents per unit) fund the retail collection portion of the program. Funding for the return incentives is generated from unredeemed deposits. Distributors pay directly for transportation and processing, but these costs are offset by revenue from the sale of materials (e.g., the sale of cans, plastic, and glass). Consequently, if material revenue is high enough, it may completely cover those costs. This information is proprietary; therefore, actual system costs are unavailable.

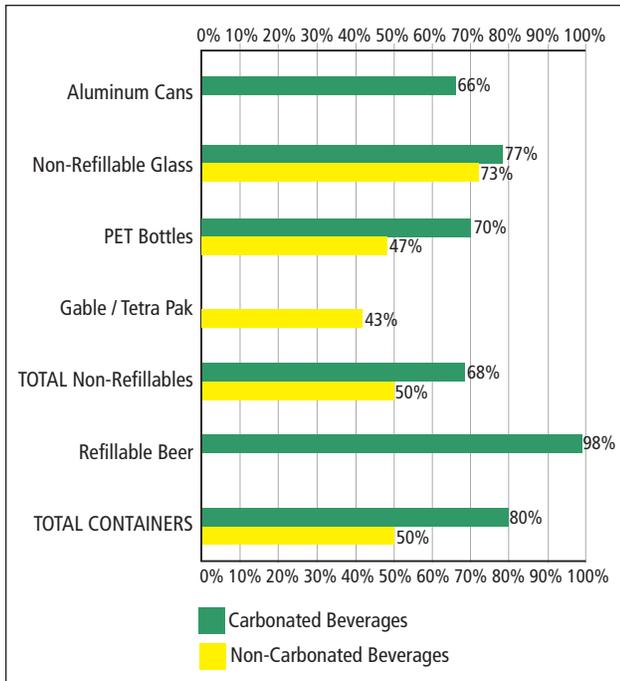
Collection Rates

Quebec has a hybrid collection system in which beverage containers are recovered via two streams. The containers of all carbonated beverages (including beer, soft drinks, and carbonated energy drinks) are collected in a return-to-retail deposit program. All other beverage containers are collected via municipal Blue Box programs

The containers collected in the return-to-retail program have an overall collection rate of 80%. (The rate includes data for refillable bottles.) The containers collected via the municipal Blue Box program are collected at a rate of approximately 50%.

Figure 35 shows the rates for both of these systems. Like Ontario, Quebec has a high rate of use and collection for the refillable beer bottle.

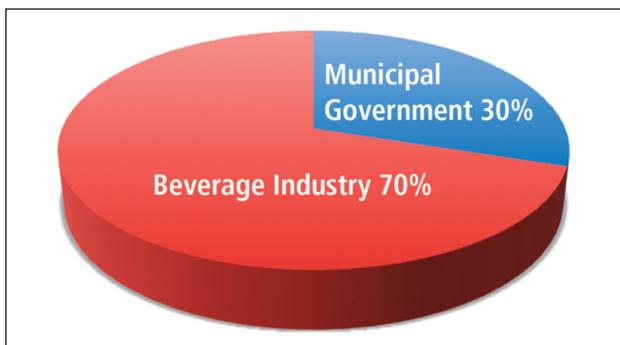
Figure 35: Quebec collection rates by material, 2010



Who Bears the Share?

The two programs in Quebec are funded via different streams. Collect Sélective Québec, the municipal curbside program, receives about 30% of its funding from the municipalities and the other 70% from the beverage industry. It is anticipated that industry will be responsible for 100% of program financing as of 2013.

Figure 36: Funding of Quebec’s curbside collection program for all beverage containers excluding those for beer and soft drinks, 2010



The deposit-return program for beer and soft drinks is almost entirely funded by the wasting consumer. Because the cost data are proprietary, the actual share of costs is unavailable. Depending on the various program expenses and material revenues, who assumes what percentage of the cost can change, but, in general, the wasting consumer bears the lion’s share.

Nova Scotia

Program Scope and Targets

Nova Scotia Deposit-Refund System

This province-wide program has been in place since April 1996. Most beverage containers are included as the regulation defines the beverages covered as any liquid that is a ready-to-serve drink, excluding milk, milk products, soya milk, or concentrates. The policy of the Resource Recovery Fund Board Inc. (RRFB) further clarifies that infant formulas, rice milk, as well as certain dietary and meal replacement beverages that meet specific policy criteria are not subject to a deposit.

There are no provincial targets for containers recovered under the program; however, a 2006 amendment to the *Environment Act* has mandated a new disposal target of 300 kilograms per person per year by 2015.

Nova Scotia Milk Packaging Stewardship Agreement

Launched in February 2000, this agreement is a voluntary arrangement between Nova Scotia Environment (formerly Nova Scotia Environment and Labour), the Nova Scotia Solid Waste Management Regions, and the Atlantic Dairy Council. The program funds the collection of all milk packaging through province-wide municipal curbside (blue bag) programs.

Supporting Regulatory Framework

The program is legislated under the *Solid Waste-Resource Management Regulations* made under Section 102 of the *Environment Act* (1994–1995).

The Resource Recovery Fund Board Inc. (RRFB) was created under these same regulations to assume administrative authority for the program.

Summary of Initiative

The Resource Recovery Fund Board Inc. (RRFB) was incorporated in 1996 to administer major components of the Nova Scotia Solid Waste-Resource Management Strategy (1995). The board, operating as RRFB Nova Scotia, was tasked with five mandates, one of which was to develop and operate a deposit-refund system for beverage containers.

The program model is the half-back system, which contributes to covering program costs and other diversion initiatives as required under regulation and as directed by the Minister of Environment.

Distributors of deposit-applicable beverage products must

register with RRFB in order to sell these products legally in Nova Scotia or distribute them into the province. They must also report on and remit directly to RRFB, on a monthly basis, applicable deposit amounts on units sold.

From the distributor’s sale of product to the retailer down the chain to the retailer’s sale of product to the consumer, it is a cost-recovery exercise. Retailers are required by regulation to show the deposit amount charged on the sales receipt and to display a notice identifying the location of the nearest depot where a beverage container can be redeemed for a refund.

RRFB Nova Scotia established a province-wide Enviro-Depot™ network to accept redeemable beverage containers from consumers.

Collection Mechanism

There are currently 83 privately owned and operated Enviro-Depot™ locations in Nova Scotia. Each owner or operator must sign a standard form agreement with RRFB Nova Scotia to become an Enviro-Depot™.

Consumers may bring their empty redeemable beverage containers directly to any Enviro-Depot™ for a 5- or 10-cent refund (depending on container type and size). The depot sorts containers by type and colour, storing them in bulk bags or tubs. RRFB arranges collection of full bags and tubs from the depots and transports them to the nearest of three regional processing centres (RPCs). Plastic, aluminum, and glass are all marketed by the RRFB.

Note: All Enviro-Depot™ locations are required to also accept leftover paint and any other material designated by RRFB from time to time. Some individual operators also accept cardboard, newsprint, metals, and automobile or marine batteries, but these materials are accepted at each owner’s own discretion.

Enviro-Depot™ operators have a separate arrangement with the breweries to accept refillable domestic beer bottles from consumers. These containers are sorted and sent back to the brewers for washing and refill.

Program Financing

(Note: All dollars or cents presented in this report are in Canadian currency.)
Deposit-Refund System

The Nova Scotia program is a half-back system in which half of the 10- or 20-cent deposit is refunded to the consumer. The remaining half of the deposit and revenues generated from the marketing of these container materials are used to pay for program costs, and these costs include

a the handling fee (per container) paid to Enviro-Depot™ operators.

Due to the fact that not all beverage containers sold in the province end up being returned for a refund, a portion of these excess funds (unredeemed deposits) are mandated to be distributed to municipalities to help offset the cost of their waste-diversion initiatives.

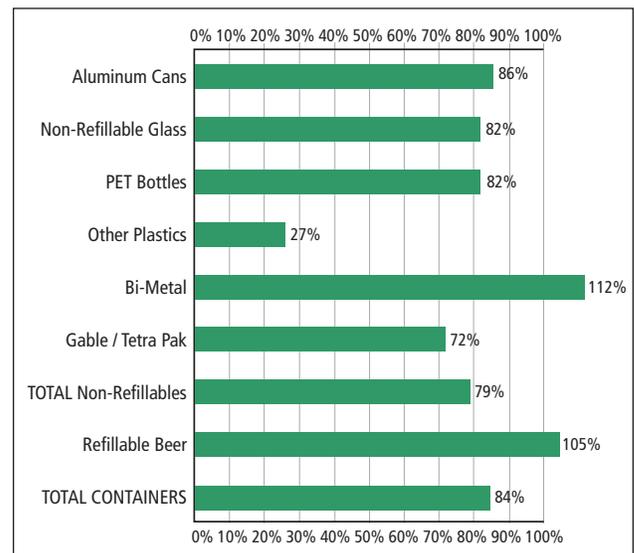
Nova Scotia Milk Packaging Stewardship Agreement

The Atlantic Dairy Council currently contributes \$407 per tonne to municipalities to offset the costs of recovering and recycling milk packaging. This amount equates to an industry cost of less than 1 cent per milk container sold in Nova Scotia.

Collection Rates

Nova Scotia has a non-refillable container collection rate of 79% and an overall container collection rate of 84%. In both these categories, these rates are the highest in the Atlantic Provinces.

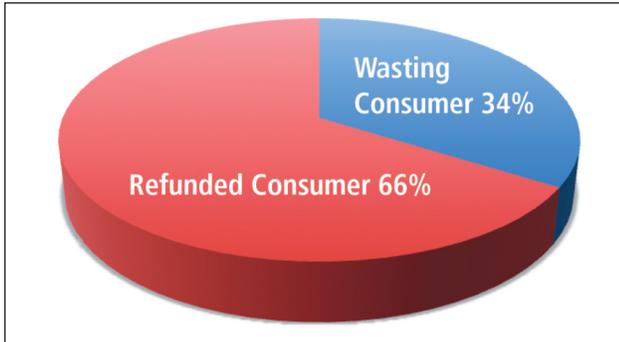
Figure 37: Nova Scotia collection rates by material, 2010



Who Bears the Share?

Nova Scotia’s half-back deposit-return system is funded in part by wasting consumers (34%), who do not return their containers for the refund, and in part by the refunded consumers (66%), who do return their containers for the refund but receive only half of their deposit back.

Figure 38: Funding of Nova Scotia’s deposit-return program for all containers excluding refillable beer containers, 2010.



New Brunswick

Program Scope and Targets

New Brunswick Beverage Container Recovery Program
This province-wide program was established in 1992. The regulation covers all ready-to-drink, non-refillable beverage containers up to a size of 5 litres. Containers for milk and milk products and unpasteurized cider are exempt.

The regulation also covers refillable beer bottles, which are redeemed for full deposit and sent back to brewers for refilling.

The regulation does not specify any targets, though the Department of Environment has an unofficial target of 80% collection for designated containers.

Supporting Regulatory Framework

The program is legislated under the *Beverage Containers Act* (1991) and the *General Regulation—Beverage Containers Act* (1992).

Summary of Initiative

The Department of Environment oversees the program. Distributors are required to recover their containers. The Department of Environment registers distributors of containers sold in the province.

Encorp Atlantic is responsible for managing the collection of non-alcoholic beverage containers on behalf of the brand owners.

New Brunswick Liquor (Alcool NB Liquor) is responsible for the collection of liquor containers (wine, beer, spirits, and coolers), and it contracts the transportation and processing of these containers to Rayan Investments.

Collection Mechanism

There are 75 individually owned and operated depots in the province (as of December 2011). All depots must be licensed with the New Brunswick Department of Environment. Consumers bring used beverage containers directly to these depots, where they are sorted.

Encorp Atlantic organizes the collection of all non-alcoholic beverage containers from the depots, sends materials for processing, and markets these materials. Rayan Investments organizes the collection of all alcoholic beverage containers (mostly glass) from the depots, sends materials for processing, and markets these materials. Refillable beer bottles are sorted and sent back to the brewers for washing and refill.

Program Financing

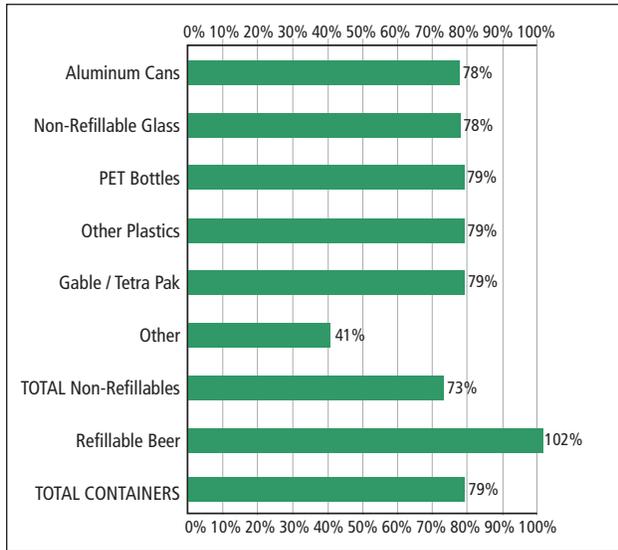
(Note: All dollars or cents presented in this report are in Canadian currency.)
New Brunswick operates a half-back system in which half the deposit is not refunded. Fifty percent of this half-back revenue, plus the revenue generated from the unredeemed deposits and from the sale of recycled containers, is used to pay for the program. Costs include a handling fee per unit to redemption centres.

The remaining 50% of the half-back revenue goes into the province’s Environmental Trust Fund and is used for beautification, conservation, and other environmental projects. The Department of Environment manages the fund.

Collection Rates

New Brunswick has a non-refillable container collection rate of 73% and total container collection rate of 79%. Both numbers represent a decrease from 2008 and are lower than the rates achieved by most other Canadian deposit jurisdictions.

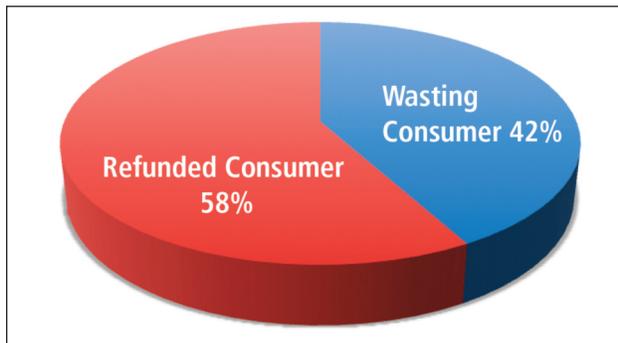
Figure 39: New Brunswick collection rates by material, 2010



Who Bears the Share?

New Brunswick's half-back, deposit-return system is funded in part by wasting consumers (42%), who do not redeem their containers for a refund, and in part by refunded consumers (58%), who do return their containers but receive only half of their deposit.

Figure 40: Funding for New Brunswick's deposit-return program covering all containers except refillable beer containers, 2010



Newfoundland and Labrador

Program Scope and Targets

Provincial Beverage Recycling Program

This province-wide program has been in place since 1997. The regulation covers all ready-to-drink beverage containers (excluding those for milk and infant formula, as well as refillable bottles and containers holding more than 5 litres).

Supporting Regulatory Framework

The program is regulated under the *Environment Protection Act* (2002) and the *Waste Management Regulation* (2003).

Summary of Initiative

The program, which began in 1997, requires that deposits be paid on all regulated beverage containers.

Consumers pay either 8 cents on containers of non-alcoholic beverages or 20 cents on containers of alcohol, and they receive 5 cents or 10 cents back when these containers are returned to one of the 71 Green Depots or satellite and mobile recycling units.

The Multi Materials Stewardship Board (MMSB) is a crown corporation established pursuant to the *Environmental Protection Act*. This board manages the Used Beverage Container Deposit Recycling Program, the Used Tire Recycling Program, and the Newfoundland and Labrador Waste Management Trust Fund in the Province of Newfoundland and Labrador and is mandated to support and promote the protection, enhancement, and wise use of the environment through waste management programs.

Collection Mechanism

Consumers bring containers to one of 39 main depots, 17 sub depots, or 15 mobile collection services within the province. Currently, 88% of the province's population is within 20 kilometres of one of these depots. The Multi Materials Stewardship Board arranges for collection from the depots to one of three processing plants in Newfoundland and Labrador, where material is processed and shipped to end markets.

Brewers operate an independent deposit-return system. Refillable beer bottles are exempt from the depot system under the *Waste Management Regulations*. The containers are handled through an independent return-to-retail system. Refillable beer bottles are sold through corner stores and two Brewers Retail Inc. (BRI) stores in St. John's. Beer is sent to 27 wholesalers who then deliver to

the corner stores and the BRI outlets. Containers are fully refunded at these locations.

The wholesalers are paid a handling fee for the empties that are picked up at the retailer. MMSB is not responsible for the management or administration of refillables.

Program Financing

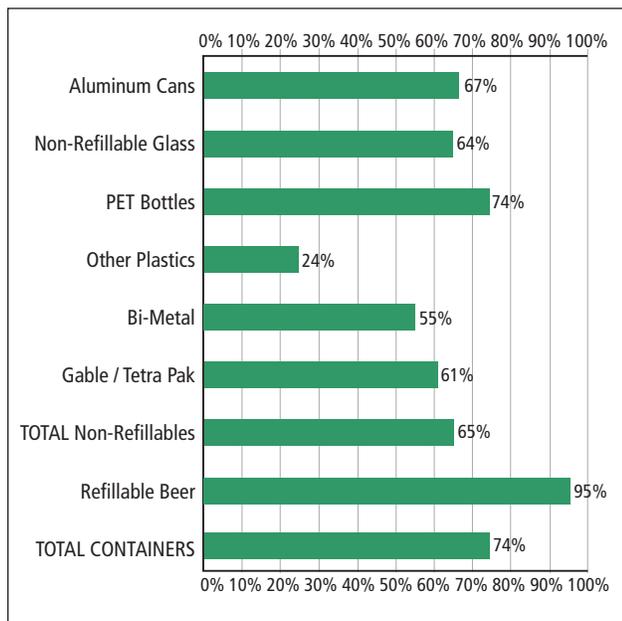
The program is funded through revenue generated from the sale of empty beverage containers and by unredeemed deposits.

The program also uses part of the revenue generated from the non-refunded portion of the deposit to offset costs. In Newfoundland and Labrador, the system is similar to a half-back program in principle, but it provides a 5-cent refund of the 8-cent deposit on containers of non-alcoholic beverages and a 10-cent refund of the 20-cent deposit for containers of alcohol. Excess revenue is placed in the province's Waste Management Trust Fund.

Collection Rates

Newfoundland and Labrador show a non-refillable container collection rate of 65% and an overall container collection rate of 74%. Both percentages have decreased from 2008 and represent the lowest collection rates of deposit material in the country. This finding may be attributable, in part, to the fact that the program is newer than those in other provinces as well as to the geographic and population distribution challenges that the province has.

Figure 41: Newfoundland and Labrador collection rates by material, 2010



Prince Edward Island

Program Scope and Targets

Prince Edward Island Beverage Container Recycling Program

This province-wide program has been in place since May 3, 2008. The program covers all ready-to-drink beverage containers except those used for dairy products, milk substitutes, or nutritional supplements.

Prior to the introduction of this program, there was a provincial mandate that all carbonated soft drinks and beer were to be packaged in refillable containers (effectively banning one-way containers for these beverages). The mandate dated back to 1973 for beer and 1984 for soft drinks.

In 1992, the program placed a half-back deposit on all non-refillable wine, spirit, and cooler containers.

Late in 2007, the government repealed the law prohibiting non-refillable beer and soft-drink containers on the island. On April 15, 2008 the Minister of Environment, Energy and Forestry announced an expanded program designed to manage all the new one-way containers that would replace refillables.

There are no official targets for these materials in the regulation.

Supporting Regulatory Framework

The program was regulated under the *Environmental Protection Act* (1988) and the *Litter Control Regulations* (1992). As of May 3, 2008, a new deposit-return program is mandated under the *Beverage Containers Act* (2008), formerly known as Bill 14.

Summary of Initiative

All non-refillable beverage containers are subject to a deposit. The program is a half-back system similar to those in the other Atlantic Provinces.

There are 10 province-wide depots that will serve as collection centres.

The program is overseen and administered by the province. In addition, the Island Waste Management Corporation (IWMC) operates and maintains the Waste Watch program, a mandatory province-wide waste management system in which residents, visitors, and businesses separate the waste they produce at the source into 3 streams: marketable recyclable material, compost, and waste.

Through this program, all non-beverage containers and containers used for milk are collected and recycled.

All island residents have access to the Waste Watch recycling program, which is funded through a per household charge.

Collection Mechanism

All non-refillable beverage containers subject to deposits can be returned to 10 province-wide depots for a half refund.

Containers used for milk and other exempted beverages are collected through the province’s Waste Watch curbside recycling program available to all island residents.

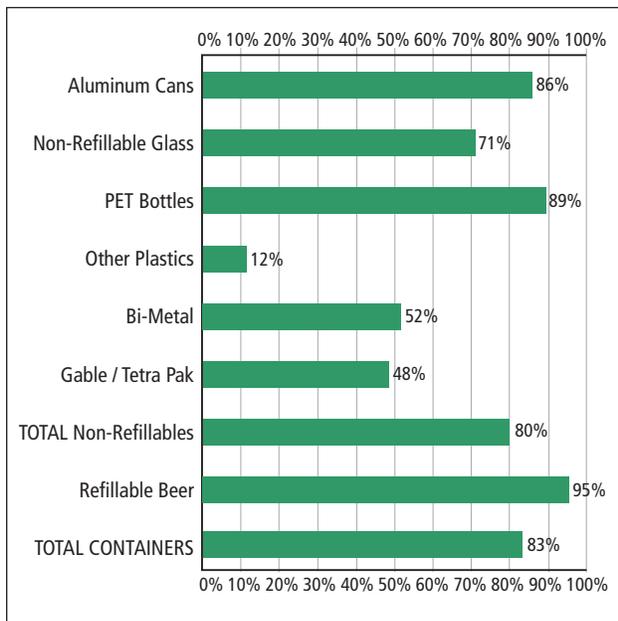
Program Financing

Prince Edward Island operates a half-back system on all non-refillable beverage containers, so half of the deposit is not refunded. Unredeemed deposits and half-back revenue accrue to the provincial treasury.

Collection Rates

Prince Edward Island has a non-refillable container collection rate of 80% and a total container collection rate of 83%. These rates are average for a deposit-return jurisdiction.

Figure 42: Prince Edward Island collection rates by material, 2010–2011



Yukon

Program Scope and Targets

The program began in 1992 with the *Beverage Container Regulation*, which is under the *Environment Act*. The original regulation covered only aluminum cans and refillable beer bottles. The regulation has been amended twice. In 1996, glass and plastic containers were added, and, in 1998, the regulation was again expanded to include tin and Tetra Paks. All ready-to-serve beverages except milk and milk products are now included.

Supporting Regulatory Framework

The *Beverage Container Regulation* of 1992, under the *Environment Act*, set out the initial deposit-return program. Amended in 1996 and in 1998, *The Recycling Fund Regulation*, under the *Environment Act*, establishes the fund from which the program is to be financed.

Summary of Initiative

The regulation covers all glass, plastic, steel, aluminum, and Tetra Pak containers of ready-to-drink beverages other than dairy or dairy substitutes.

When purchasing beverages, the consumer pays a deposit, which includes a refundable portion and a non-refundable recycling fund fee (RFF). Consumers receive a refund when they return the empty containers to a registered recycling depot. The non-refundable RFF, which is similar to the non-refundable portion of the Atlantic Provinces’ half-back scheme, is collected by the retailer and goes into a recycling fund that is administered by the government but kept separate from the Yukon’s general revenues.

Money from the fund helps registered recycling centres pay their collecting, processing, and shipping costs. The fund is also used to promote container returns, improve recycling facilities at community depots, and pay part-time wages for depot staff. Operation of the recycling programs has been transferred from Environment Yukon to the Department of Community Services. Environment Yukon is still in charge of making any regulatory amendments.

Collection Mechanism

Consumers take containers to one of 17 depots in the territory to receive the refund portion of the initial surcharge. The depots send containers to one of two processing facilities in the territory that processes the containers further and sell the container material into the commodities markets.

Program Financing

The retailer collects a deposit, which includes a refundable portion and a non-refundable recycling fund fee (RFF) at the point of purchase. The RFF goes into a recycling fund that is administered separately from the government's general revenues and is used solely for recycling purposes.

The recycling fund pays out a handling fee to the depot and a processing fee to the processing facility. The fund also pays for transportation, education, improvements to depots, and the "Recycling Club," a youth recycling promotion organization.

Collection Rates

In 2008, Yukon had an overall container collection rate of 78%. Collection rate data for 2010 were not available in time for the publication of this report.

Northwest Territories

Program Scope and Targets

The *Beverage Container Regulations*, under the *Waste Reduction and Recovery Act*, came into force in November of 2005. These regulations cover any sealed beverage containers made of metal, plastic, paper, glass, or other material and containers made from a combination of materials, as long as they contain or contained a beverage that is ready for consumption.

As of February 15, 2010, The *Beverage Container Regulations* under the *Waste Reduction and Recovery Act* were amended to include all containers for milk and milk supplements excluding those with infant formula or milk products in containers less than 30ml.

Supporting Regulatory Framework

The *Beverage Container Regulations*, under the *Waste Reduction and Recovery Act*, establish the laws and the funding for the program.

Summary of Initiative

The program is overseen by the Department of Environment and Natural Resources (ENR). The ENR administers the program by enforcing the act and the regulations, coordinating and supporting local depots and regional processing centres, coordinating public information, improving the program, and undertaking audits or checks on distributors, importers, stores, depots, and processing centres.

At the point of purchase, the customer is charged a deposit and a non-refundable consumer handling fee (CHF). The CHF is used to pay for the program. The consumer receives the deposit back upon returning the container to a licensed depot.

Collection Mechanism

People take containers to one of 27 licensed depots to receive the refundable deposit back.

The depots collect, sort, and bag the containers and ship them to a processor, where materials are further processed and sold back into the commodities market.

As of March 31, 2010, 28 NWT communities had licensed depots. These communities comprise 98% of the population of the Northwest Territories. There are three processing centres, one in each of Yellowknife, Hay River, and Inuvik.

Program Financing

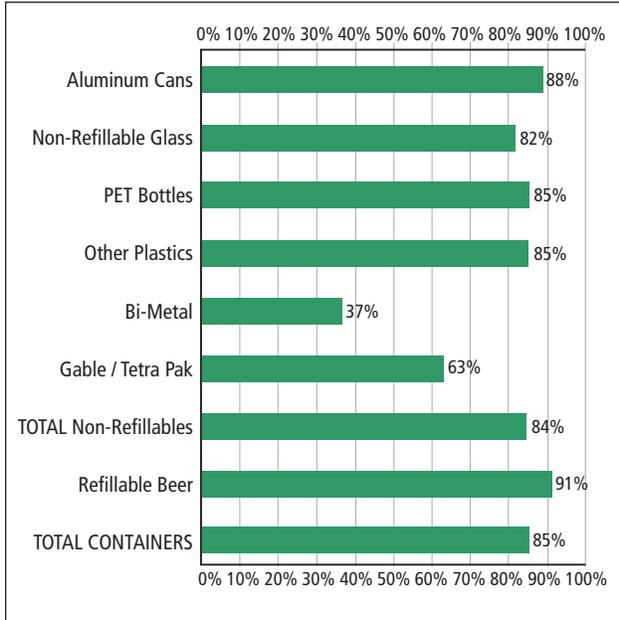
Money generated from the Beverage Container Program goes into the Environment Fund and is used to pay for program expenses, which include the refundable deposit payments, the handling fees of the processing centres and depots, transportation and storage costs, minor equipment purchases, and other administration costs. All program revenue and expenses come out of the Environment Fund. The Environment Fund is a special-purpose fund created under the act, and, as such, it is separate from the general government account.

Excess revenue from the program stays in the Environment Fund and is used to improve the program and implement other waste reduction and collection programs and initiatives.

Collection Rates

The Northwest Territories has a non-refillable collection rate of 84% and an overall container collection rate of 85%.

Figure 43: Northwest Territories collection rates by material, 2010



Part II: Environmental Benefits from Reusing and Recycling Beverage Containers

Traditionally, the measurement of waste and recycling has been based on the weight of material disposed of or diverted. More recently, however, recycling measurements are being expanded to comprise factors such as the amount of energy saved and the reduction in greenhouse gas emissions from reuse and recycling. These new measurements provide a much more comprehensive understanding of the environmental and economic impacts of beverage container diversion.

Both Environment Canada and the US Environmental Protection Agency have undertaken extensive life-cycle analyses that measure the inputs and outputs, from cradle to grave, of various materials. The results can be applied to beverage container diversion in order to quantify the environmental benefits associated with container recycling programs. The following tables summarize the results. Note: Some tonnage information from some provinces is not available in this report. Therefore, provincial totals should not be compared with each other.

CM Consulting calculated the total avoided emissions (and equivalent cars off the road) by multiplying the tonnage recovered by container type with an emissions reduction factor for each material type. These emissions reduction factors were provided by Environment Canada's *Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions: 2005 Update Final Report*.

Further, CM Consulting calculated the total avoided energy (and equivalent barrels of oil avoided), by multiplying the tonnage recovered by container type with an energy savings factor for each material type provided by Environment Canada's *Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions: 2005 Update—Final Report*.

All container-specific tonnage collected by province and container type and the multipliers used are available in appendix B to this report. To receive a copy of the appendix B and of all the associated supporting data for this section, please contact CM Consulting at info@cmconsultinginc.com or call 416-682-8984.

Table 10: Summary of the environmental benefits from reusing and recycling beverage containers in Canada, 2010

| Saved Energy in (GJs) | Aluminum | Steel | PET | HDPE | Glass Recycling | Glass Reuse | Total GJs Saved | Avoided Crude Oil Extraction (in barrels) | Value of Crude Oil Saved |
|---|------------------|---------------|------------------|----------------|-----------------|------------------|-------------------|---|--------------------------|
| British Columbia | 973,190 | 2,257 | 1,018,461 | - | 121,615 | 195,825 | 2,311,349 | 378,910 | \$29,786,083 |
| Alberta | 1,049,969 | 3,543 | 1,018,175 | - | 61,706 | 206,241 | 2,339,634 | 383,547 | \$30,150,600 |
| Saskatchewan | 231,656 | 722 | 281,534 | 29,492 | 16,469 | 97,295 | 657,166 | 107,732 | \$8,468,827 |
| Manitoba | 236,717 | - | 161,662 | 33,563 | 9,234 | 91,049 | 532,225 | 87,250 | \$6,858,718 |
| Ontario | 1,568,724 | 3,606 | 1,762,846 | 169,360 | 321,867 | 1,696,710 | 5,523,113 | 905,428 | \$71,175,723 |
| Quebec | 975,025 | - | 1,662,308 | - | 179,838 | 1,488,584 | 4,305,756 | 705,862 | \$55,487,778 |
| New Brunswick | 142,487 | 1,917 | 170,961 | - | 19,151 | 107,650 | 442,166 | 72,486 | \$5,698,144 |
| Nova Scotia | 179,393 | 4,008 | 370,480 | 19,097 | 12,102 | 138,073 | 723,152 | 118,550 | \$9,319,177 |
| Newfoundland | 80,371 | 542 | 125,064 | - | 4,381 | 146,750 | 357,109 | 58,542 | \$4,602,025 |
| Prince Ed. Is. | 30,239 | - | 44,918 | - | 2,416 | 23,065 | 100,638 | 16,498 | \$1,296,906 |
| Yukon | 11,594 | - | - | - | 1,229 | 3,070 | 15,893 | 2,605 | \$204,817 |
| Northwest Terr. | 16,449 | - | - | - | 1,240 | 3,507 | 21,195 | 3,475 | \$273,138 |
| TOTAL | 5,495,814 | 16,595 | 6,616,410 | 251,511 | 751,247 | 4,197,819 | 17,329,396 | 2,840,885 | \$223,321,937 |
| Avoided Crude Oil Extraction (in barrels) | 900,953 | 2,721 | 1,084,657 | 41,231 | 123,155 | 688,167 | 2,840,885 | | |
| Value of Crude Oil Saved | \$70,823,923 | \$213,861 | \$85,264,912 | \$3,241,195 | \$9,681,235 | \$54,096,811 | \$223,321,937 | | |

Notes and sources on multipliers used:

- All tonnage data are based on reported tonnes by program and container types. (For tonnage data contact CM Consulting directly.)
- Refillable bottles tonnage is based on an average container weight of 263 grams multiplied by the number of units recovered and further by 14/15, which represents an average of 15 individual trips per refillable bottle. For the remaining 15th trip (the last trip), it is assumed that the glass is being recycled.
- Source for avoided energy and emission multipliers:
Determination of the Impact of Waste Management Activities

on Greenhouse Gas Emissions: 2005 Update—Final Report, Environment Canada & Natural Resources Canada, October 2005.

- GHGs per car per year 5.1: Source is www.epa.gov/cleanenergy/energy-resources/calculator.html (accessed June 21, 2012).
- One barrel of crude oil is equal to about 6.1 GJ of energy: Source: is the Advanced Manufacturing Office (formerly the Industrial Technologies Program) of the US Department of Energy's Energy Efficiency and Renewable Energy branch.
- The value of a barrel of crude oil on June 21, 2012 was \$78.61: Source is www.bloomberg.com.

Part III: Reuse, Recycling, and Use of Recycled Content

3.1 Reuse and Recycling by Container Material

While the market crash of 2008 had a huge impact on the value of recyclable commodities in Canada, in most cases, even though revenues were down, the material was able to move as it had in the past. In some cases, municipal curbside collection programs did have difficulty selling their container commodities due to insufficient quality, as buyers were increasingly discriminating when it came to contamination levels. In general, deposit-return programs provide the highest quality of material commodities and earn the highest per tonne price when compared to programs collecting containers that are commingled with other materials.

Since the crash, plastic and aluminum prices seem to have recovered to their pre-crash levels.

Empty containers are bought and sold like any other commodity. Markets vary depending on how much of a commodity is available and the consistency of its supply. The quality (the amount of contamination) is also a factor.

The following is a description, by material, of the supply and market for empty beverage containers collected in Canada. Included is a discussion of the recycling process and of the end uses for recycled beverage container material.

Aluminum Cans

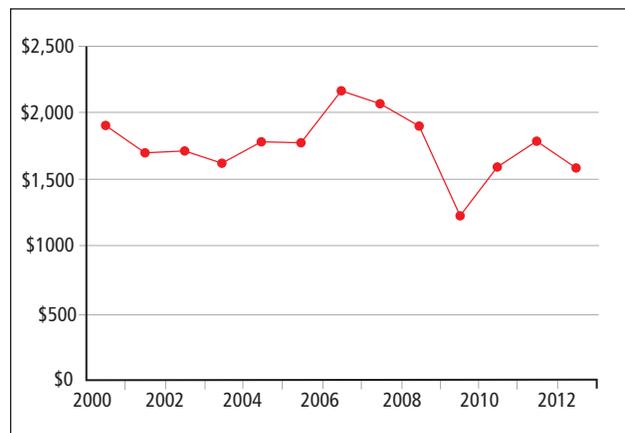
Cans are the most common beverage containers in Canada. Over 6 billion cans were sold in the country in 2010.² In each province, the aluminum can is the most popular non-refillable beverage container in terms of market share.

The collection rate for aluminum varies sharply between provinces in which cans are covered under deposit laws and those in which they are collected in Blue Box programs. Ontario and Manitoba are the only provinces that do not offer deposits for soft-drink cans. In these two provinces, the collection rates for the cans of non-alcoholic beverages are approximately 57% and 48% respectively. No other province has a collection rate for non-alcoholic beverage aluminum cans that is less than 66%.

Because aluminum cans have a higher value than other empty beverage containers, they are a desirable commodity to the collectors and sellers of recycled materials. In Ontario, aluminum cans had an average monthly value of about \$1,532 per tonne in the three-year period between 2009 and 2011.³ That represents a value per can of about 2.1 cents.

Aluminum has always been the most valuable beverage container from a material perspective. The following chart shows the value for aluminum from Ontario's municipal system for the years 2000–2012 (the 2012 figure is an average of results for the first five months of the year). As is the case with the value of other beverage container materials, the price of aluminum dropped in 2009 and appears to be recovering, although the value is down for the first five months of 2012.

Figure 44: Value of one tonne of aluminum based on Ontario municipal collection figures, 2000–2012



Used beverage cans (UBCs) are crushed, compacted into biscuits, and transported to aluminum markets where they are melted down and reformed into rolled stock. New aluminum cans are punched out from these sheets at a can production plant, and the offcuts or in-house scraps are all recycled. The whole process of recycling an empty can into a new full can could take as few as 60 days.

Most Canadian UBCs are sent to aluminum smelters in the United States, for example, in Kentucky, Tennessee, and Oswego, NY.

Glass Bottles

Calculating the collection rate for glass beverage containers is extremely challenging when bottles are collected through municipal recycling programs. In these jurisdictions, beverage and food container glass is reported together. In addition, collection rates, on their own, do not account for losses incurred in processing nor do they consider the end-use applications, which, in the case of glass, have very different environmental benefits.

For example, utilizing recovered glass as road aggregate has a much lower environmental benefit than using the same glass to manufacture new bottles or fibreglass.

The province with the highest collection rate for non-refillable glass beverage containers is British Columbia at 93%. Manitoba, with no deposit-return regulation on non-refillable glass (outside of imported beer), has the lowest collection rate in the country at approximately 45%.

The value of recycled glass reflects the method of collection used. There are two main glass collection systems in Canada.

The first sorts the material at the point of collection by colour type (flint, green, brown, or mixed colour). This method provides the recycler with a colour-specific load that is free of contamination. Colour-sorted glass bottle loads may or may not require additional processing depending on their overall quality.

The second method uses a multi-material collection system. The additional handling and truck compaction in this method results in a significant amount of breakage. The recycled glass is also of a lower quality and value.

A tonne of clear glass from Ontario's municipal recycling system (a multi-material collection system) was worth about \$26 CDN in 2012.⁴ The value of recycled glass in provinces that sort this material at the point of collection is higher because the glass is of a higher quality.

In systems that collect glass with other materials, about 20%–40% of the collected glass is sent to landfill and is often used as landfill cover. Another 20% is marketed as glass fines used for low-end applications, such as producing aggregate material or a sandblasting base. The remaining 40%–60% is usable by either the bottle industry or fibreglass companies. Glass is crushed into small pieces (known as cullet) and used to make new bottles or fibreglass.

Most of the glass collected in western Canada is recycled into fibreglass at a facility in Alberta. In addition, an end market also exists for paint beading in Saskatchewan. In Manitoba, most glass is used for fill in roadways.

In Ontario, the majority of wine, spirit and beer container glass collected is sold to Owens-Illinois for bottle-to-bottle manufacturing or to Owens Corning for fibreglass production. Most of the glass collected in Ontario's curbside program is used to produce fibreglass insulation or glass bottles, as a sandblasting medium, or as drainage material.

Most of the glass from the Maritimes is being shipped to Owens-Illinois in Montreal for bottle-to-bottle recycling.

In northern Canada (Yukon and the Northwest Territories), glass is crushed and used as an alternative daily cover at landfills or as a gravel substitute. Some also ends up as sandblasting material.

Refillable Beer Bottles

The refillable beer bottle is the most recovered beverage container in the country. The countrywide collection rate is approximately 98%. No province shows a rate of less than 91%.

Refillable beer bottles are sent back to brewers for washing and refill. Brewers estimate an average "trippage" rate of 15 times. The term "trippage" refers to the number of servings one refillable bottle offers. In many countries around the world, refillables are more commonplace for a wide variety of beverages including water, soft drinks, milk, beer, and wine. Glass bottles can achieve trippage rates of 50 times, and thick, refillable PET bottles can achieve trippage rates of 20 times.

Scuff marks on the plastic and erosion rings on glass bottles increase with every use. The lower trippage rate on refillable Canadian beer bottles may perhaps be explained by the importance of bottle aesthetics, which is a critical element of successful marketing when refillable beer bottles compete with one-way beer bottles.

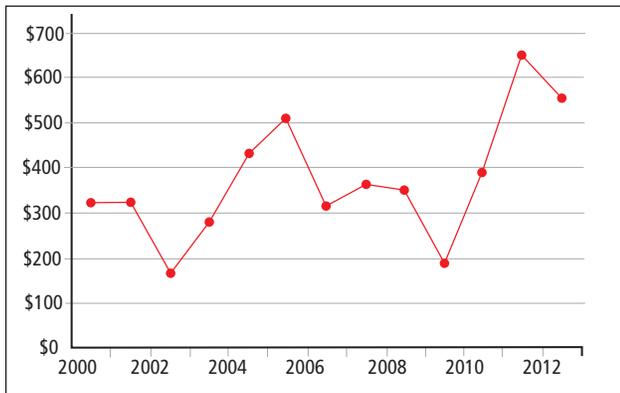
Life-cycle analysis consistently shows that the refillable bottle is far superior to non-refillables in terms of saved energy and avoided pollution.

PET Plastic Bottles

It is challenging to estimate sales and collection rates for PET in Canada because many provinces report PET within the plastic category as a whole. Plastic, at 33% of the market, is the second most common material used for non-refillable beverage containers on a unit-sold basis.

The average monthly value for a tonne of mixed PET from Ontario's municipal system was \$410 for the three-year period of 2009–2011.⁵ The low in 2009 was \$187, but the value rebounded to \$652 for 2011. So far in 2012, the value has dipped slightly to \$553.

Figure 45: Value of one tonne of PET based on Ontario municipal collection figures, 2000–2012



Clear PET containers are baled, shredded, and flaked. Plastic flake may be turned into a fibre that can be used to make fleece clothing and carpet underlay or new bottles for detergent, motor oil, and other non-food products. Increasing numbers of PET bottles from deposit-return programs are melted down and made into new beverage bottles. Recent data⁶ suggest the following North American end-use consumption of recycled PET: 38% fibre, 13% strapping, 22% food and beverage bottles, 19% sheet and film, and 6% non-food bottles. A very small percentage becomes engineered resin or other materials.

In British Columbia, plastic goes to Merlin Plastics in Delta, British Columbia. PET from Saskatchewan and Manitoba goes to US and Canadian processors that flake the material. Some PET from Manitoba is made into plastic lumber for railway ties. Ontario and Quebec PET is brokered into the market with varied end destinations. In the Atlantic Provinces, most plastic goes to Novapet Inc. located in Amherst, Nova Scotia. PET from the Northwest Territories is shipped to markets in British Columbia and Alberta.

HDPE Plastic Jugs

HDPE is generally reported as part of the plastics category, which sometimes does and sometimes does not include PET. In some jurisdictions, the reporting of plastics collection includes the collection non-beverage containers as well. For this reason, it is impractical to attempt to report specific collection rates for HDPE.

Mixed HDPE from Ontario's municipal system was reported to be worth \$449 per tonne as a monthly average for the three-year period of 2009–2011.⁷ The value has been increasing rapidly though, from \$320 in 2009 to \$464 in 2010 to \$562 in 2011. In the first five months of 2012, it reached an average value of \$635 per tonne value.

High-density polyethylene (HDPE) milk jugs and juice containers are baled, chipped, and washed. The clean chipped plastic is melted at high temperatures and formed into pellets. The pellets are used as resin feedstock for the manufacture of non-food containers, plastic formed products, furniture, and toys.

HDPE markets are often the same as PET markets and follow similar geographical flow patterns. (See the section "PET Plastic Bottles.")

Steel and Bi-Metal Cans

Steel and bi-metal cans make up a very small share of the beverage container market. Steel cans collected in Ontario's Blue Box program were worth \$229 per tonne averaged out monthly over 2009–2011.⁸ It should be noted though that the 2009 value of \$89 per tonne brings that figure down significantly. The average for the full year of 2010 was \$263, and it was \$335 in 2011.

Steel beverage containers are crushed, baled, and transported to steel markets. There, they are melted down with other scrap metal, which can then be used as construction rebar or in other steel products. Steel is generally sold locally to steel brokers in both the United States and Canada.

Tetra Pak Boxes

Tetra Pak cartons or drink boxes are made up of paper, an aluminum lining, and a plastic coating. They are usually reported as part of a wider "polycoat" or "aseptic and gable top packaging" category. For this reason, it is impossible to quantify sales, returns, and collection rates specifically for Tetra Paks. For the larger category though, collection rates are calculated to be over 50% in each of

the deposit provinces and 32% or less in Ontario and Manitoba.

Tetra Pak cartons are hydro-pulped and separated into different material types. The resulting paper pulp (about 65% of the recycled material) is used to make tissue. The remaining aluminum and plastic mix (about 35% of the recycled material) can be used to manufacture durable products like pallets and paper core plugs, but most end markets currently do not use the aluminum and plastic mix for value-added products. Tetra Pak material is sent to paper mills in the United States, China, and Korea for pulping and tissue production.

Gable Top Cartons

Gable top cartons used for juice and milk are made up of “polycoat” a lightweight, high-grade paperboard sandwiched between two thin layers of polyethylene film. Generally, gable top containers are reported with Tetra Paks, as part of a larger category of collected material. Collection rates for this category are calculated to be over 50% in each of the deposit provinces and less than 35% in Ontario and Manitoba.

Polycoat is converted into new material by hydro-pulping, which uses a combination of heat, water, and agitation to break down the material to produce pulp or raw fibre. This pulp can be used as feedstock to make new paper products, such as corrugated medium (the inner layer of corrugated cardboard), linerboard, household tissue products, and fine paper. The small amount of residual polyethylene can be screened off for use in other plastic and composite materials.

Most gable top material is sent to facilities in the United States or offshore to China and Korea for tissue production.

Poly Pouch Containers

Poly Pouch containers are made of composite layers of plastic, including low-density polyethylene, and aluminum foil. The technical description of a typical Poly Pouch container might break down this layered structure into an outside PET layer, ink that is printed on the inside of the PET layer, an adhesive or aluminum foil adhesive layer, and an inside LLDPE sealant. These pouches are a small portion of the beverage container market today but are rapidly becoming more popular because they are seen to have a small environmental footprint.

Because the pouches are made from very little material, they take up minimal space in landfill. They are also

extremely light for the amount of material they can hold, so the carbon footprint associated with their transportation is comparatively small. According to a recent study by the Packaging Machinery Manufacturers Institute (PMMI) trade association, “when compared to bottles, pouches require a fraction of the shipping infrastructure, which saves on fuel. The beverage volume transported in a truckload of quart-sized pouches would require nine trucks of glass or plastic bottles.”⁹

Because of these environmental benefits, products sold in these packages receive very high marks on environmental scorecards used by some retailers to decide which products to sell. The desirability of this type of packaging for retailers is the reason the PMMI expects pouches to show the greatest growth as packaging over the next decade.¹⁰

Traditional recycling methods via the aluminum or plastics recycling markets are not available, as this material is a contaminant in both processes. Several recycling agents—primarily in provinces that mandate that all beverage containers get recycled (as opposed to their being used as landfill or incinerated)—are currently sourcing a permanent market for recycling this material. Test batches are being sent to North America, Europe, and Asia.

Cups

There is another type of container that is used almost exclusively away from home and is not covered by deposit-return regulation in any of Canada’s provinces or territories—cups. Most of the beverage container regulations define the beverage container as one that is “sealed by the manufacturer,” which exempts cups that contain coffee, tea, juice, or soft drinks and are sold at quick-serve establishments or events such as festivals and sporting matches. The polystyrene or paper-based, plastic-lined coffee cup is the most common and the most debated of these cups.

With the launch of Ontario and Quebec’s industry-funded municipal recycling program, retailers or brand owners of these cups are required to pay levies to support the municipal recycling of these containers. However, although industry is financially supporting recycling via municipal programs, very few programs are actually accepting and recycling these materials.

The idea of using a tax or a bylaw to try to keep disposable coffee cups from going to landfill has been considered by some city councillors in Vancouver¹¹ and in Toronto. In 2008, an attempt was made by some on the

Toronto City Council to apply a 25- to 30-cent tax on disposable coffee cups. The proposal was stalled by intense opposition from the coffee retail lobby.

In December 2009, the Regional Chairs' Committee of Nova Scotia Solid Waste-Resource Management, a committee dedicated to minimizing the production of solid waste, recommended to the Nova Scotia Environment Minister that a levy be charged on disposable cups.¹² The committee is made up of elected municipal officials and co-coordinators from each of the province's seven regions. The proposal supported a levy on these cups so as to raise revenue for the municipalities to run their recycling programs.

Cups Are Recyclable

Polystyrene cups are recyclable where polystyrene recycling facilities exist. There is a challenge with recycling polystyrene cups. The associated cost of shipping, given they have a large volume to weight ratio, is very prohibitive.

In general, these cups are commingled with other polystyrene materials collected in expanded recycling programs and shipped to facilities in Ontario, the United States, and overseas.

The primary polystyrene recycling plant in Ontario, the CPRA (Canadian Polystyrene Recycling Association) in Mississauga, has recently closed, and the recycling part of its business has been sold to a private facility in Port Hope. The Port Hope facility, however, will not be accepting and processing "dirty" polystyrene, which could mean that foam coffee cups will not be accepted and recycled in Ontario any more.

Paper cups can be recycled by some paper mills either on their own, mixed with gable top containers, or mixed in with boxboard material. Depending on the end use (which is usually tissue) the yield rate¹³ is about 80%.¹⁴ A homogeneous mix of cups with low levels of contamination provides the greatest yield rate.

Wax-coated cups used for cold beverages provide greater recycling and composting challenges because of the wax.

Cups Are Compostable

Paper cups can also be composted. Cups with a poly-based liner can go into municipal compost. The liner is generally screened out of the final product.

In August 2006, Cereplast, Inc., a maker of proprietary bio-based resins, the packaging company MeadWestvasco, and the Solo Cup Company announced a new biogenic liner incorporating starch and poly lactic acid. The liner can withstand heat of 220 degrees (Fahrenheit) and can biodegrade "quickly, completely, and safely, without leaving any plastic residue in commercial and municipal composting facilities."¹⁵

Are Cups Being Recycled or Composted?

Coffee-cup recycling became a Canadian first on Earth Day, April 22, 2002 when, as part of Tim Hortons Anti-Litter Campaign, the company announced a joint venture with the Westmorland-Albert Solid Waste Corporation (WASWC), a wet-dry facility in Moncton, NB, to reduce litter and recycle used coffee cups.

Tim Hortons placed recycling bins for "hot beverage containers" at the drive-thrus and inside stores at 25 locations. The WAWSC compost facility screened out the plastic liner, shredded the remainder, and used it as a bulking agent in the compost. Shortly thereafter, WASWC began recycling instead of composting the cups, marketing the end product with boxboard and cardboard. In 2004, over 1 million coffee cups were diverted from landfill.¹⁶

In Prince Edward Island, the Island Waste Management Corporation (IWMC) accepts paper cups in the green bin program and composts them. It does not accept polystyrene lids.

Many municipalities in Nova Scotia, for example the Municipality of the District of Lunenburg, encourage citizens to put the coffee cups into a green cart to be collected and processed with compost. They request that the lids go in with recyclable plastics. The largest city in Nova Scotia, Halifax, does not compost or recycle coffee cups.¹⁷ The city's recycling sorting guide asks that cups go into the garbage.¹⁸

Several Ontario municipalities also promote placing cups once containing hot beverages in green bins or blue boxes for recycling or composting. These communities include Owen Sound (cups recycled with other paper packaging), Essex-Windsor County (cups recycled with mixed paper),

and the Halton Region (cups placed in green carts for composting), to name a few. Stewardship Ontario is actively working with processors in Virginia and Wisconsin to try to find a cost-effective way to recycle the paper generated by these cups. SO is also encouraging more communities to accept laminated paper cups in their Blue Box programs so that the partnerships with the US processors can recycle more material at a lower price.¹⁹

Tim Hortons now has a cup-recycling program in 400 outlets in Canada, mostly in Ontario and the Atlantic provinces. The company plans to expand the program chain wide, eventually.²⁰

Starbucks provides a description of the company's recycling efforts on its corporate website. It plans to make 100% of all Starbucks' paper and plastic cups recyclable and to have front-of-the-house recycling available in all locations by 2015.²¹ In April 2011, Starbucks began a program that accepts laminated cups at all stores in BC.²² Starbucks has also been hosting an annual "coffee cup summit" since 2009. The meeting brings together representatives from all facets of the paper and plastic cup value chain, including municipalities, raw material suppliers, cup manufacturers, retail and beverage businesses, recyclers, NGOs, and academic experts. The goal is to find permanent solutions to the issue of coffee-cup recycling.

3.2 The Use of Recycled Content in Beverage Containers

Although the *Who Pays What* report concentrates on the collection of used beverage containers, it is important to take note of the fact that some of these containers contain recycled content before they are filled and delivered.

It is estimated that manufacturing glass from recycled glass uses 35% less energy than making glass from raw materials. Using recycled aluminum instead of virgin ore to make a new can requires 95% less energy. And making new bottles from recycled PET uses 30% less energy, the equivalent of about 11 barrels of oil per tonne of plastic produced.²³

Glass

Bottle-to-bottle recycling is the most efficient use for recycled glass beverage containers. Today's glass beverage containers in Canada have about 50% recycled content. The beer industry's standard bottle has a higher content rate of 60%–65%. Globally, the recycled content percentage is lower than in Canada because there is simply less recycled glass available to bottle manufacturers elsewhere. According to a study by Owens-Illinois, a manufacturer of glass containers for food and beverages, the demand for quality cullet in North America exceeds its current availability by approximately 1 million tons.²⁴

PET

The leading beverage manufacturers use a small percentage of recycled PET in their PET bottles, and they have made commitments to increase this percentage over the next few years. Much of the recycled PET available to manufacturers is going into other containers, such as those for non-beverage products, and this fact affects the supply available for bottle-to-bottle recycling.

Aluminum

A typical aluminum can in North America is made up of a significant amount of recycled aluminum. The exact amount is difficult to pinpoint because each supplier uses a different amount and, sometimes, different standards to define the amount of recycled content in the product.

According to the recent *Waste & Opportunity* report, aluminum cans made in the United States and Canada contain 68% recycled product.²⁵ What is unclear is whether or not that figure includes only aluminum from used beverage cans. According to ISO standards, the recycled aluminum content of a can includes all recycled content, not just that from can-to-can recycling. Industry experts estimate that most cans today contain approximately 67% recycled aluminum.

Part IV: Financing

4.1 Consumer Fees

In many deposit-return programs, the beverage industry pays for the bulk of the system costs. In Canada, however, programs have evolved in a way to minimize or eliminate the industry's financial obligation and to pass it on to customers in the form of a front-end or back-end fee. Currently in Canada, there are several different examples of consumer-based fees that are charged to beverage consumers and used to finance the collection systems.

Container Recycling Fee (CRF)

The CRF is currently being charged in British Columbia and Alberta. It represents a portion of the net cost per unit. The container recycling fee varies depending on the value of the material being collected and the collection rate for a

particular container. For example, high collection rates generate less unredeemed deposit revenue and therefore require a higher container recycling fee while lower collection rates generate greater unredeemed deposit revenue and allow for lower container recycling fees. The fees range from no fee to \$0.20 per unit in BC and from no fee to \$0.10 per unit in Alberta, depending on the size and material used for the container. Some containers, like small gable top containers, do not carry a fee because they generate considerable revenue from unredeemed deposits, due to lower collection rates.

Manitoba's CRF (instituted April 1, 2010), a 2-cent fee per unit sold, is pooled and used to finance municipal and away-from-home recycling initiatives.

In all cases, the CRF is paid by beverage distributors and passed through to retailers and generally on to consumers.

Table 11: Provincial consumer fees in cents per unit sold and by container type, as of June 2012

| Province | BC | AB | SK | MB | ON | QC | NS HALF BACK | NB HALF BACK | NF HALF BACK | PEI HALF BACK | YK | NT* |
|--|-----|-----|-----|-----|----|----|--------------------|--------------------|--------------------|---------------------|-----|------|
| Type of Fee | CRF | CRF | EHC | CRF | - | - | | | | | RFF | CHF* |
| Aluminum Cans | 1 | 0 | 5 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| PET (up to and including 1 L) | 3 | 0 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| PET (over 1 L) | 6 | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| PVC or HDPE (up to and including 1 L) | 3 | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| PVC or HDPE (over 1 L) | 6 | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| HDPE Milk (up to and including 1 L) | | 3 | | | | | | | | | | 5 |
| HDPE Milk (over 1 L) | | 5 | | | | | | | | | | 10 |
| Plastic (up to and including 1 L) | | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Plastic (over 1 L) | | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Polystyrene Cups (with sealed foil lid) | 3 | 3 | | 2 | | | 5 | 5 | 3 | 5 | | |
| Polypropylene (up to and including 1 L) | 3 | 3 | 6 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Polypropylene (over 1 L) | 6 | 5 | 6 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Pouch (up to and including 1 L) | 0 | 1 | | 2 | | | 5 | 5 | 3 | 5 | | 5 |
| Glass (up to and including 1 L) | 12 | 6 | 7 | 2 | | | 5 | 5 | 3 | 5 | 5 | 10 |
| Glass (over 1 L) | 20 | 10 | 7 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Drink Box (up to and including 500 ml) | 6 | 1 | 3 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Drink Box (501 ml to 1 L) | 6 | 1 | 3 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Drink Box (over 1 L) | 0 | 6 | 3 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Gable Top (up to and including 500 ml) | 0 | 0 | 3 | 2 | | | 5 | 5 | 3 | 5 | | 5 |
| Gable Top (501 ml to 1 L) | 0 | 0 | 3 | 2 | | | 5 | 5 | 3 | 5 | | 5 |
| Gable Top (over 1 L) | 6 | 3 | 3 | 2 | | | 5 | 5 | 3 | 5 | | 10 |
| Gable Top Milk (up to and including 1 L) | | 0 | | | | | | | | | | 5 |
| Gable Top Milk (over 1 L) | | 3 | | | | | | | | | | 10 |
| Bi-Metal (up to and including 1 L) | 6 | 8 | 5 | 2 | | | 5 | 5 | 3 | 5 | 5 | 5 |
| Bi-Metal (over 1 L) | 0 | 0 | 5 | 2 | | | 5 | 5 | 3 | 5 | 10 | 10 |
| Bag-in-the-Box (over 1 L) | 0 | 0 | | 2 | | | 5 | 5 | 3 | 5 | | 10 |
| Wine/Spirits (under 500 ml) | | | | | | | 5 | 5 | 10 | 5 | 5 | 10 |
| Wine/Spirits (equal to or greater than 500 ml) | | | | | | | 10 | 10 | 10 | 10 | 10 | 10 |

* In NWT, the 1-litre container for non-dairy products is included with the containers over 1 litre .
For dairy products, a 1-litre container is included with the containers under 1 litre.

Category not applicable

Material covered under another category

Fees have no relationship to the environmental profile of the container type and will fluctuate annually based on the actual system costs.

Environmental Handling Charge (EHC)

Currently being charged in Saskatchewan, the EHC is fee collected on every non-refillable beverage container sold. The funds are collected by the provincial government and used to pay for the operation of the program. The EHCs range from \$0.03 to \$0.07 per unit sold, depending on the size of the container and the material used for it. The EHC usually generates far more revenue than needed to fund the system. Excess funds are put into Provincial general revenues.

The Half-Back System, Recycling Fund Fee (RFF), and Container Handling Fee (CHF)

The half-back system is being used in Nova Scotia, New Brunswick, Newfoundland and Labrador, and Prince

Edward Island. In this system, half of the deposit paid on a non-refillable beverage container is refunded, and half supports recycling initiatives.

The recycling fund fee (RFF) and container handling fee (CHF), which are currently being charged in Yukon and the Northwest Territories, are modelled after the half-back system in that they both offer only a portion of the initial deposit as the refund. In the case of Yukon, 5 cents is refunded on a 10-cent deposit and 25 cents on a 35-cent deposit. In the Northwest Territories, 10 cents is refunded on a 15- or 20-cent deposit, and 25 cents on a 35-cent deposit. In both cases, surplus revenues are placed into a special fund that is kept separate from general revenues.

Funds are used to pay for the operation of the program. These schemes always generate far more revenue than needed to fund the system. Excess funds are used to subsidize the municipal curbside recycling program and other provincial environmental initiatives.

Table 12: Historic consumer fees by material, 2003–2012

| Aluminum Cans | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
|------------------|----|----|----|----|----|----|----|-----|-----|-----|
| 2003 | 0 | 0 | 5 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 0 | 0 | 5 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 0 | 0 | 5 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 2 | 0 | 5 | 2 | 5 | 5 | 3 | 5 | 5 | 5 |
| 2012 | 1 | 0 | 5 | 2 | 5 | 5 | 3 | 5 | 5 | 5 |
| PET (over 1 L) | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 4 | 7 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 4 | 2 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 3 | 3 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 5 | 6 | 6 | 2 | 5 | 5 | 3 | 5 | 10 | 10 |
| 2012 | 6 | 5 | 6 | 2 | 5 | 5 | 3 | 5 | 10 | 10 |
| PET (under 1 L) | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 1 | 3 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 1 | 1 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 3 | 2 | 6 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 4 | 2 | 6 | 2 | 5 | 5 | 3 | 5 | 5 | 5 |
| 2012 | 3 | 0 | 6 | 2 | 5 | 5 | 3 | 5 | 5 | 5 |
| Glass (0–500 ml) | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 3 | 5 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 4 | 5 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 5 | 3 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 10 | 6 | 7 | 2 | 5 | 5 | 3 | 5 | 5 | 10 |
| 2012 | 12 | 6 | 7 | 2 | 5 | 5 | 3 | 5 | 5 | 10 |
| Glass (over 1 L) | BC | AB | SK | MB | NS | NB | NF | PEI | YK | NWT |
| 2003 | 5 | 8 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2006 | 5 | 7 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2008 | 5 | 4 | 7 | 2 | 5 | 5 | 3 | - | n/a | n/a |
| 2010 | 10 | 9 | 7 | 2 | 5 | 5 | 3 | 5 | 10 | 10 |
| 2012 | 20 | 10 | 7 | 2 | 5 | 5 | 3 | 5 | 10 | 10 |

Historic Consumer Fees

Consumer fees have remained constant in all but two provinces in Canada. Only British Columbia and Alberta have changed fee rates in the reporting period from 2003 to 2012. The reason rates have fluctuated in only these provinces is that consumer fees are charged in Alberta and British Columbia according to how much is needed to finance the deposit program but not other environmental programs. Elsewhere, fixed fees support a wider range of provincial recycling initiatives.

Rates will change for a variety of reasons; for example, fluctuations in fees may be caused by a drop in the revenue from materials, forcing the rates to go up, or the cost of collection may go up, forcing rates to go up. Rates may go down if costs drop or if the value of unredeemed deposits increases due to a decline in collection. Table 12 provides a historical perspective on consumer fees, for selected materials, in the programs that had them between 2003 and 2012.

Figures 46 and 47 show fluctuations in the consumer fees charged by British Columbia and Alberta for selected materials.

Figure 46: Historic consumer fees in British Columbia, 2003–2012

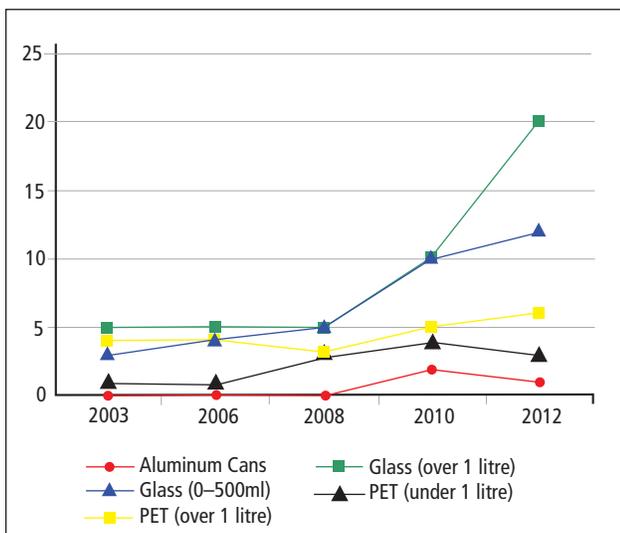
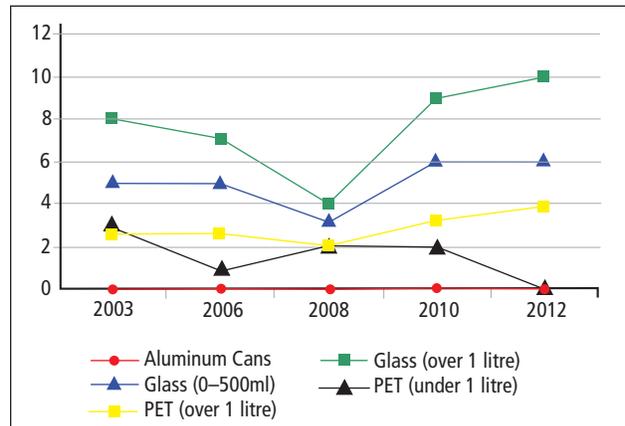


Figure 47: Historic consumer fees in Alberta, 2003–2012



4.2 Deposit Levels

In provinces where deposit-return systems exist, deposits are paid on beverage containers at the point of purchase. Generally, these deposits are indicated separately on the sales receipt. Consumers receive a full refund if they return the container to the appropriate collection centre (retail or depot).

In some jurisdictions for certain containers, depots keep part of the refund as their handling fee, thus reducing the refund for consumers. In the North and in the Atlantic provinces, only a portion of the deposit is refunded when a non-refillable container is returned. Usually, about half of the deposit is not returned and is used to pay for the system and subsidize other provincial environmental initiatives. (Note: In NFL, 5 cents are refunded on an 8-cent deposit.)

Past versions of this report have shown only the deposit levels. Now *Who Pays What* presents a table (Table 13) showing the deposit level and the refunded portion of that deposit.

4.3 Container Handling Fees

A handling fee is the fee charged per unit collected by the collection agent (depot or retail). In general, the same handling fee is charged for all container types. However, in western provinces (BC and AB), handling fees range from a low of 3.02 cents (for aluminum cans in AB) to a high of 19.75 cents (for Tetra Pak containers over 1 litre in AB). These varied fees are based on the costs of handling and storage. Handling fees in some provinces have and continue to experience small increases year after year. In British Columbia, handling fees for grocers are privately negotiated and are proprietary. The handling fees presented on Table 14 for BC represent those fees awarded to depots only.

Table 13: Deposit and refund levels by province and container type, (as of June 15, 2012)

| Deposit Refund | BC | AB | SK | MB | ON | QC | NS | NB | NF | PEI | YK | NWT |
|--|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Container Type | Cents in Canadian Currency | | | | | | | | | | | |
| Containers (up to 1 L) | 5/5 | 10/10 | | | | | | | | | | |
| Containers (over 1 L) | 20/20 | 25/25 | | | | | | | | | | |
| Carbonated Beverage Containers | | | | | | | | | | | | |
| Non-Alcoholic Beverage Containers | | | | | | | 10/5 | 10/5 | 8/5 | 10/5 | | |
| Metal Cans (under 1 L) | | | 10/10 | | | | | | | | 10/5 | 15/10 |
| Metal Cans (1 L and up) | | | 20/20 | | | | | | | | 35/25 | 20/10 |
| Milk (up to 1 L) | | 10/10 | | | | | | | | | | 15/10 |
| Milk (over 1 L) | | 25/25 | | | | | | | | | | 35/25 |
| Glass Bottles (up to 300 ml) | | | 10/10 | | | | | | | | 10/5 | 20/10 |
| Glass Bottles (301 ml to 999 ml) | | | 20/20 | | | | | | | | 10/5 | 20/10 |
| Glass Bottles (1 L and up) | | | 40/40 | | | | | | | | 35/25 | 20/10 |
| Plastic Bottles (less than 1 L) | | | 10/10 | | | | | | | | 10/5 | 15/10 |
| Plastic Bottles (1 L and up) | | | 20/20 | | | | | | | | 35/25 | 20/10 |
| Juice Boxes and Gable Top Cartons | | | 5/5 | | | | | | | | | 15/10 |
| Tetra Paks (up to 1 L) | | | | | | | | | | | 10/5 | |
| Tetra Paks (1 L and up) | | | | | | | | | | | 35/25 | |
| Wine & Spirit Containers (up to 500 ml) | 10/10 | 10/10 | | | | | 10/5 | 10/5 | 20/10 | 10/5 | 15/10 | 35/25 |
| Wine & Spirit Containers (501 ml to 1 L) | 10/10 | 10/10 | | | | | 20/10 | 20/10 | 20/10 | 20/10 | 35/25 | 35/25 |
| Wine & Spirit Containers (over 1 L) | 20/20 | 25/25 | | | | | 20/10 | 20/10 | 20/10 | 20/10 | 35/25 | 35/25 |
| Wine & Spirit Containers (up to 630 ml) | | | | | 10/10 | | | | | | | |
| Wine & Spirit Containers (over 630 ml) | | | | | 20/20 | | | | | | | |
| Beer Cans & Bottles (up to 1 L) | 10/10 | 10/10 | | 10/10 | 10/10 | | 10/5 | 10/5 | 10/5 | 10/5 | 10/5 | |
| Beer Cans & Bottles (over 1 L) | 20/20 | 25/25 | | 20/20 | 20/20 | | 20/10 | 20/10 | 20/10 | 20/10 | 10/5 | |
| Beer Cans (up to 450 ml in QC) | | | | | | 5/5 | | | | | | |
| Glass Beer Bottles (450 ml and over in QC) | | | | | | 10/10 | | | | | | |
| Beer Containers (over 450 ml in QC) | | | | | | 20/20 | | | | | | |
| Refillable Beer Bottles | 10/10 | 10/10 | 10/4* | 10/10 | 10/10 | 10/10 | 10/10 | 10/10 | 10/5* | 10/10 | 10/10 | 10/10 |

* In SK 6 cents and in NF 5 cents are retained by bottle depots in lieu of an official handling fee.

Table 14 presents handling fees by province and container type, as of March 2010. Shaded areas of the table represent container categories that are not applicable to that particular province.

Historic Handling Fees

In the Atlantic Provinces that use handling fees (NS, NB, NFL, and PEI), the rates have increased slightly from 2004 to 2010. These provinces use the same fee regardless of container type. NS fees have gone from 3.1 cents to 3.99 cents. NB fees have gone from 3.3 cents to 4.059 cents. NFL fees have gone from 3.0 cents to 4.15 cents, and PEI fees are up from 3.6 to 3.975.

Quebec's handling fee has remained constant at 2 cents per container, regardless of material type.

4.4 Ontario, Quebec, and Manitoba Beverage Container Packaging Fees

The provinces of Ontario, Quebec, and Manitoba have legislation in place mandating that a percentage of funding for municipal recycling come from industry. The Ontario program began funding municipalities at a rate of 50% in February 2003. The Quebec program began funding municipalities at a rate of 50% in March 2005, and this rate will increase yearly to reach 100% by 2013.

Manitoba's program began in April of 2010 at a rate of 80% funding for municipal recycling programs. The program in Manitoba also includes some funding for recycling bins and for promoting the away-from-home recycling of beverage containers.

Although Manitoba is following a model similar to Ontario's, for beverage containers, funding will be different. More specifically, most non-alcoholic beverage distributors will continue submitting the 2-cent container

Table 14: Handling fees paid in provinces in cents per unit recovered (as of June 15, 2012)

| Province | BC | AB | SK ³ | MB | QC | NS | NB | NF | PEI | YK | NWT |
|--------------------------------------|--------------------|-------|---------------------------------|------|-----|--------------------|-------|----------------|-------|-----|-----|
| Aluminum Cans | 3.26 | 3.02 | | | 2 | 3.99 | 4.059 | 4.15 | 3.975 | 2.5 | 2.2 |
| PET (up to 1 L) | 4.9 | 4.076 | | | 2 | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| PET (over 1 L) | 7.61 | 8.782 | | | 2 | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| PVC (up to 1 L) | 4.9 | 5.79 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| PVC (over 1 L) | 7.61 | 11.36 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| HDPE (up to 1 L) | 4.9 | 5.79 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| HDPE (over 1 L) | 7.61 | 10.6 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| Polypropylene (up to 1 L) | 4.9 | 5.79 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Polypropylene (over 1 L) | 7.61 | 11.36 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| Polystyrene (up to 1 L) | 4.9 | 5.79 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Polystyrene (over 1 L) | 7.61 | 11.36 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| Pouch (up to 1 L in AL) | 4.35 | 4.08 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Plastic (up to 500 ml) | 4.9 | | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Plastic (501 ml to 1 L) | 4.9 | | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Plastic (over 1 L) | 7.61 | | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| Glass Bottles (up to 1 L) | 6.53 | 6.48 | | | 2 | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 3.5 |
| Glass Bottles (over 1 L) | 7.61 | 10.4 | | | 2 | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 3.5 |
| Drink Boxes (up to 500 ml) | 4.9 | 4.54 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Drink Boxes (501 ml to 1 L) | 5.98 | 4.54 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Drink Boxes (over 1 L) | | 19.75 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| Gable Top Cartons (up to 1 L) | 6.53 | 5.64 | | | | 3.99 | 4.059 | 4.15 | 3.975 | | 2.2 |
| Gable Top Cartons (over 1 L) | 10.65 | 9.42 | | | | 3.99 | 4.059 | 4.15 | 3.975 | | 4.5 |
| Bag-in-the-Box Containers (over 1 L) | 10.88 | 20 | | | | 3.99 | 4.059 | 4.15 | 3.975 | | 3.5 |
| Bi-Metal Containers (up to 1 L) | 4.9 | 6.76 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 2.2 |
| Bi-Metal Containers (over 1 L) | 10.88 | 12.35 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 7.5 | 4.5 |
| Imported Beer Bottles | 4.9 | 6.48 | | | | 3.99 | 4.059 | 4.15 | 3.975 | 4.0 | 3.5 |
| Liquor and Wine Ceramic Containers | | | | | | 3.99 | 4.059 | 4.15 | 3.975 | | |
| Sleeman Bottles | | 5 | | | | 3.0 | 4.059 | 4.15 | 3.975 | | |
| Moosehead Green Bottles | | | | | | 2.568 | | | | | |
| Imported Beer Containers (up to 1 L) | | 6.48 | | | | 3.99 | 4.059 | 4.15 | 3.975 | | |
| Imported Bi-Metal Beer Cans | | 6.76 | | | | 3.99 | 4.059 | 4.15 | 3.975 | | |
| Refillable Beer Containers (ISB) | ¹ | 3.974 | 2.6 ⁴ | 2.67 | 0.5 | 2.735 | 2.899 | 5 ⁴ | 2.814 | 2.5 | |
| Beer Cans | | 3.02 | | 2.04 | | | | | | | |
| Milk Containers (up to 1 L) | | | | | | | | | | | 2.0 |
| Milk Containers (over 1 L) | | | | | | | | | | | 3.5 |
| Milk Jugs | ~2.7 ² | | \$420 per tonne ⁵ | | | \$407 per tonne | | | | | |
| Milk Cartons | ~4.09 ² | | \$150 per tonne | | | | | | | | |

Container included in another category

Category not applicable

¹ In BC, bottle depots independently negotiate handling fees directly with the beer industry. The average rate is about 29 cents per dozen or 2.42cents per bottle.

² The tilde (~) indicates an approximation. About 166 depots in BC are paid a handling fee for collecting milk jugs and cartons. They are paid \$2.25 per bag for jugs and \$3.00 per bag

³ Saskatchewan does not charge handling fees. SARCAN depots are paid a contracted rate per year, which is generated through the environmental handling charge (EHC).

⁴ In SK and NL, a handling fee charged on refillable beer containers is charged at the back end, i.e., it is taken from the refund. In SK it is 6 cents at SARCAN depots and 2 cents at SLGA stores, which also receive an additional subsidy of 2.6 cents per ISB bottle from BDL. In NL it is 5 cents.

⁵ In SK, a variable rate paid to recyclers for milk jugs is based on 80% of the salvage value for that month. The average for a 12-month period ending in June 2012 is approximately \$420/tonne.

recycling fee (CRF), which is passed through to consumers in most cases. These funds are being used to finance 80% of the municipal recycling costs, in addition to an away-from-home recycling campaign and some bins used at away-from-home locations.

In Ontario and Quebec, regulated industries are brand owners, the first importers of packaging and paper, and

publishers of printed paper. In Ontario, targeted materials are "packaging" and "printed papers," and, in Quebec, they are "containers and packaging," "printed matter," and "written media."

In Ontario, through a municipal data call, information on both cost and tonnage is collected. From that data call, Stewardship Ontario (the industry funding organization

representing affected stewards) determines who pays how much. The formula used to determine the fees utilizes a combination of factors, which include the collection rates, net cost, and a penalization factor for lower performing materials.

Each year, as the costs and tonnages change, Stewardship Ontario submits a new fee schedule that requires approval from the Minister of Environment. In 2010, approximately \$93 M was distributed to municipalities, plus an additional amount that was used for research, market development, and program management costs.

In Quebec, because a data call process is not yet in place, negotiated net costs are determined by both the Association of Municipalities and Éco-Entreprises Québec (EEQ). For 2010, the contribution was up to \$59.4 M (Note: There is another contribution for printed paper, which is “in-kind” and therefore not reported as a financial contribution.)

Table 15 shows packaging fees in Ontario and Quebec, and also includes Manitoba. However, it should be noted that these fees in Manitoba apply only to those beverages that are not part of the 2-cent CRF program. For this reason, Manitoba fees are highlighted in grey.

Here are the fee schedules for 2012 (based on operational costs from 2010).

Table 15: Fee schedules for stewardship packaging and printed paper levies (in cents per kg), 2012

| Package Type | Ontario | Quebec | Manitoba |
|-------------------|---------|--------|----------|
| Aluminum | 2.00 | 11.07 | 0.80 |
| PET | 16.24 | 27.66 | 24.62 |
| HDPE | 13.60 | 22.25 | 21.64 |
| Other Plastics | 27.23 | 46.39 | 34.22 |
| Glass (clear) | 3.27 | 4.43 | 6.22 |
| Glass (coloured) | 3.83 | 5.00 | 6.22 |
| Steel / Bi-Metal | 5.54 | 12.60 | 9.06 |
| Tetra / Gable Top | 18.76 | 29.30 | 31.77 |

All containers will carry a fee in Ontario, including containers made from aluminum, which, up until 2010, accrued a credit against other levies charged to a brand owner.

In Quebec, most aluminum cans are part of the deposit-return program and therefore exempt from the municipal funding program. Consequently, aluminum in Quebec carries a higher fee than it does in Ontario and Manitoba. The aluminum that carries a packaging fee is used in non-beverage packaging such as cat food cans, tins of canned fish, foil, and pie plates.

Because levies are based on different material types, per container fees can be calculated when the weight of each unit is measured. The following table (Table 16) represents an expression of the 2010 fee schedule by container type for specific volume units for Ontario, Quebec and Manitoba.

Table 16: Levies by beverage container type in Canadian cents per unit sold, 2012

| Beverage Container | Weight in Grams | Ontario | Quebec | Manitoba (non-beverage) |
|------------------------------|--------------------|---------|--------|----------------------------|
| Gable Top 2 litre | 63 | 1.18 | 1.85 | 2.00 |
| Gable Top 1 litre | 41 | 0.77 | 1.20 | 1.30 |
| Tetra Pak small | 10.6 | 0.20 | 0.31 | 0.34 |
| Tetra Pak large | 42 | 0.79 | 1.23 | 1.33 |
| Bi-Metal small | 46.7 | 0.26 | 0.59 | 0.42 |
| Bi-Metal large | 144 | 0.80 | 1.81 | 1.30 |
| Glass 473 ml (clear bottle) | 228 | 0.75 | 1.01 | 1.42 |
| Glass 750 ml (clear bottle) | 335 | 1.10 | 1.49 | 2.08 |
| Plastic 2-litre PET bottles | 58 | 0.94 | 1.60 | 1.43 |
| Plastic 600 ml PET bottle | 30 | 0.49 | 0.83 | 0.74 |
| Aluminum 355 ml aluminum can | 14 | 0.03 | 0.15 | 0.011 |

Figures 48 and 49 show historical fluctuations in these levies for Ontario and Quebec.

4.5 System Costs and Revenue

In order to determine the costs of deposit-return programs in Canada, we must review income statements from the various operating agencies.²⁶ In general, this income includes revenue from the sale of empty containers collected, unredeemed deposit revenue, and revenue from a consumer fee charged up front or as an unrefunded portion of a deposit.

The Role of Material Revenue

Material revenue plays an important role in helping to offset the gross costs of the system. For each program, this revenue varies based on a recycling initiative’s level of performance, the types of containers that are being collected, and their respective commodity value.

In British Columbia and Alberta’s deposit systems, which manage all material container types (excluding those for domestic beer), program revenues generated by material sales offset 16% and 23% of total program costs respectively.

In Ontario’s deposit-return program for wine and spirits, the share of revenue as a percentage of cost is lower still, as over 96% of the tonnage of the materials collected are glass bottles, which are worth significantly less than the materials that typical deposit-return programs manage.

Figure 48: Historic stewardship levies in Ontario by material type, 2003–2012

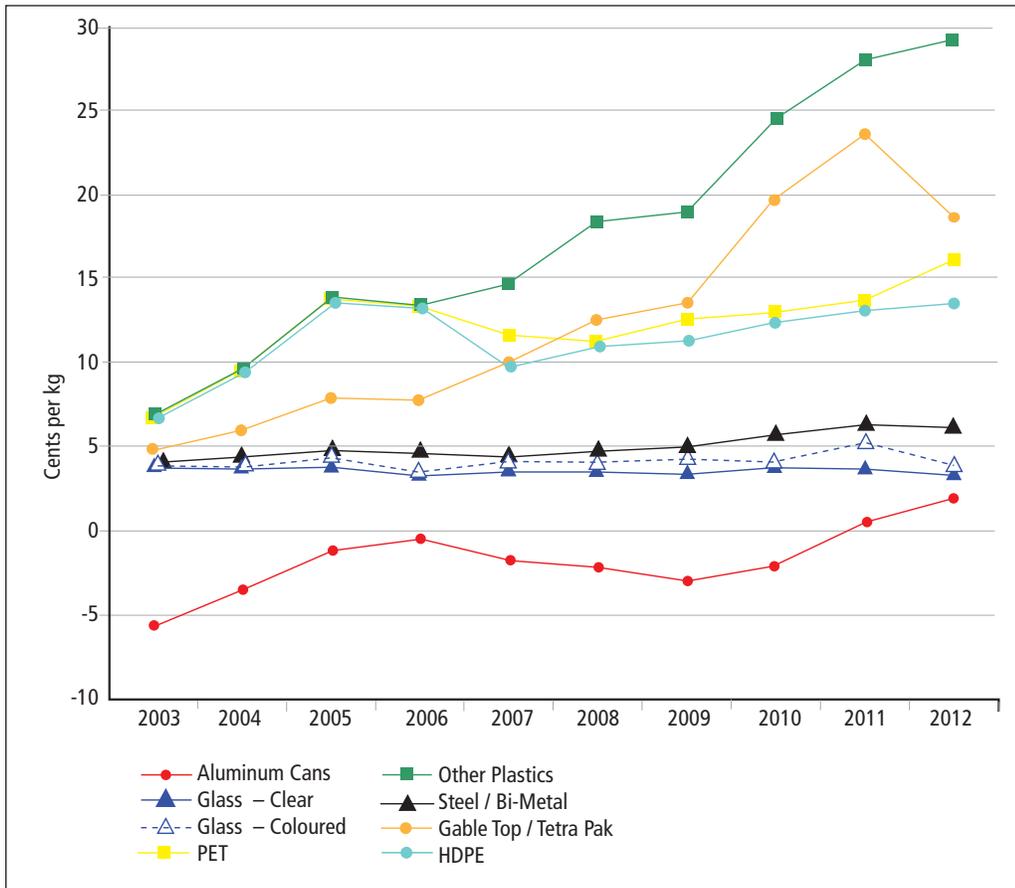
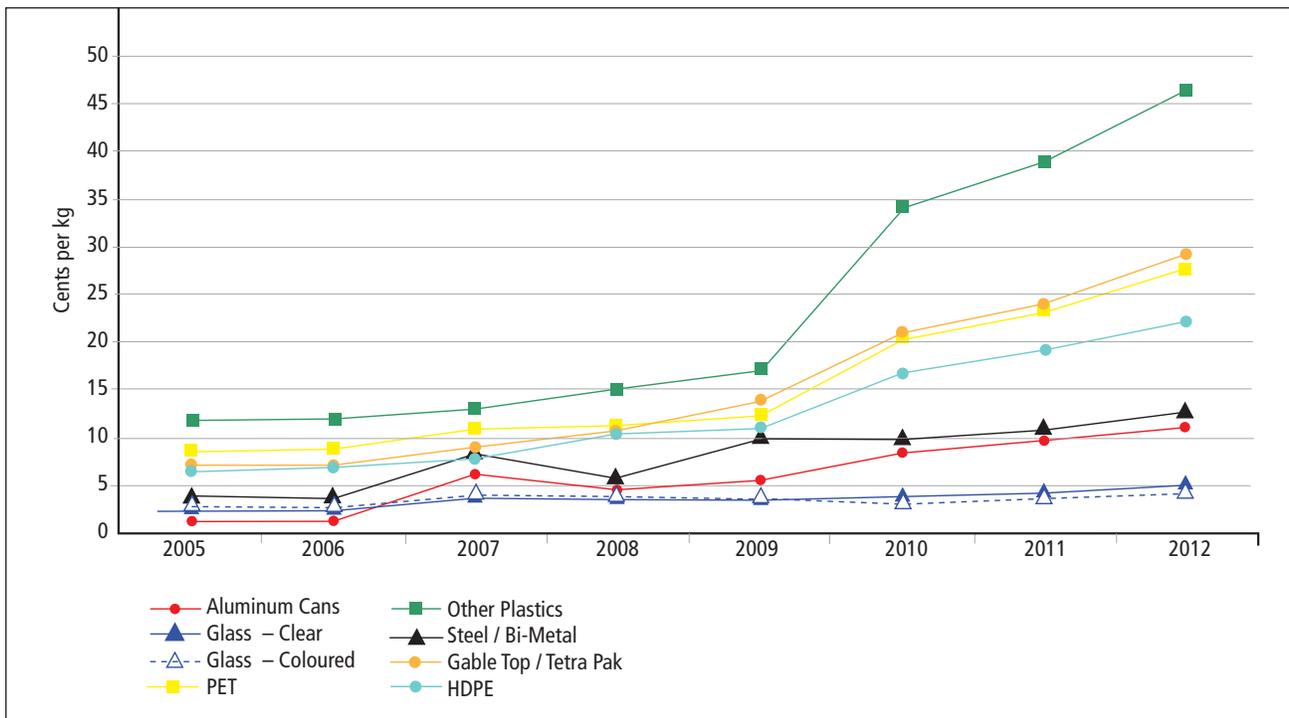


Figure 49: Historic stewardship levies in Quebec by material type, 2005–2012



Conversely, Quebec's non-refillable deposit-return program manages mostly PET and aluminum cans, with only a minor amount of material coming from the non-refillable glass bottles used for beer or for non-carbonated juices. In this case, revenue is relatively higher due to a high resale value for every container collected.

Comparing Costs

Comparing the costs on a program-to-program basis cannot be done unless various program variables are equalized. These include, for example, the collection rate, level of convenience, economies of scale, and population density, all of which affect program costs.

Consider, for instance, the per capita cost of Saskatchewan's program, which is about \$21 per person. Saskatchewan has the overall highest performance rate in the country. British Columbia's cost is \$19.5 per person, and Alberta's program costs \$22.8 per person.

Prince Edward Island, with its tiny population of fewer than 150,000 people, had a per capita cost of \$18.72 per person.

At the other end of the scale, programs in Manitoba, Ontario, and Quebec have significantly lower collection and recycling rates and a higher degree of municipal funding. Thus, at face value, the cost per capita will be lower. What is unknown is the cost of the away-from-home program currently running. These costs must include collection and processing charges, the municipal share of recycling costs for beverage containers, and the incremental costs that would be incurred to achieve higher collection and recycling rates.

The Role of Surplus

There are several programs in Canada that use consumer fees to generate additional revenue. Consider the environmental handling charge (EHC) in Saskatchewan,

the half-back schemes in the Atlantic Provinces, and the consumer handling fee in the Northwest Territories. Although this revenue may be generated from the beverage container consumer, it does not necessarily mean that it is being used to offset the system costs associated with operating the beverage container recycling program for that year. These funds may subsidize other provincial programs or contribute to a province's general revenues.

For example, in New Brunswick, some of the half-back revenue generated is placed in the Environmental Trust Fund, which is used for beautification and conservation, among other things. In Nova Scotia, some of half-back revenue is distributed to municipalities to help offset the cost of their waste diversion initiatives.

In Saskatchewan and Prince Edward Island, all excess funds accrue to the provincial treasury. In the Yukon, funds generated by the recycling fund fee (RFF) go into a recycling fund administered separately from the government's general revenues and used solely for recycling purposes. In the Northwest Territories, funds generated by the program go into an environment fund that is separate from the government's general account.

In British Columbia and Alberta, surplus funds gathered because of the container recycling fees (CRF) are used to offset the following year's recycling costs. The CRF funds do not subsidize other programs and are adjusted up and down regularly to reflect actual program shortfalls.

Indirect Costs

There may be indirect costs associated with beverage collection programs, and these costs, which are seldom accounted for, may impact consumers or municipalities. Indirect costs might include the costs incurred by consumers when they drive containers to a depot or the costs incurred by municipalities for disposal and litter abatement. These costs are not currently part of this report's analysis.

Part V: Who Bears the Share?

Previous to 2010, the *Who Pays What* report provided an analysis of the beverage container recycling costs born by various stakeholders, and it presented these costs per unit in a side-by-side chart comparing ten provincial programs. Because programs vary so much in terms of costs and related variables, however, the data related to actual costs did not warrant being presented in this comparative manner in this report. Our current analysis, then, determines a more important factor: the share of financial responsibility rather than the actual cost of programs.

CM Consulting introduced this new approach, called “who bears the share” in 2010. This analysis identifies the share of the program costs that each stakeholder group picks up. The share is simply a function of the contribution relative to the total outside funding contribution (not including material revenues):

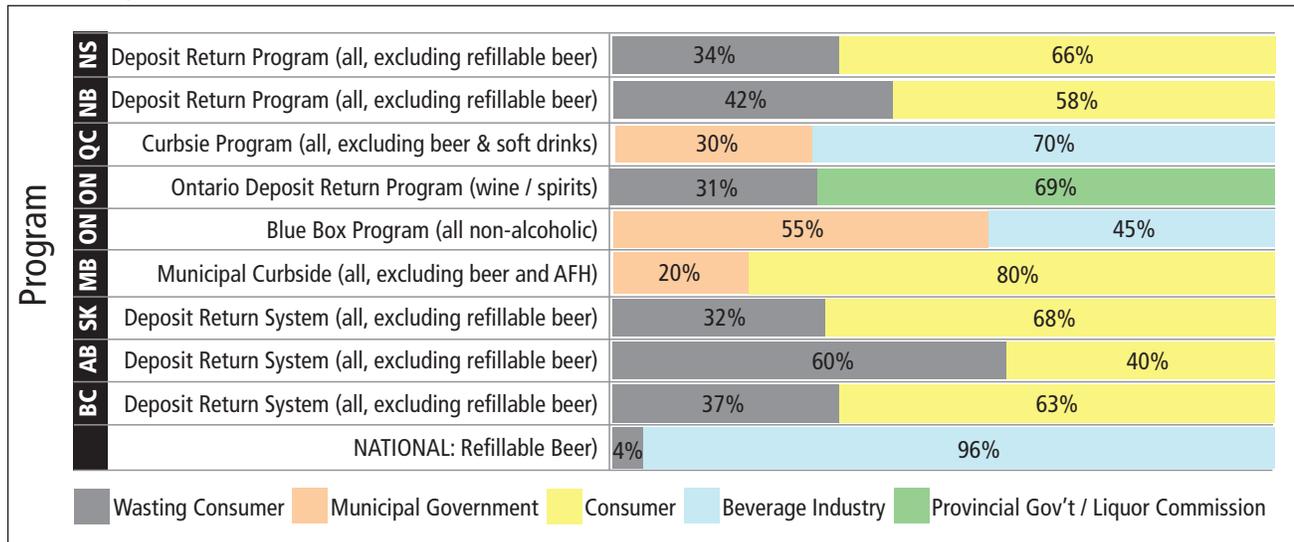
$$\frac{\text{STAKEHOLDER TOTAL CONTRIBUTION (\$)}}{\text{TOTAL PROGRAM FUNDING (\$)}}$$

The “who bears the share” approach provides a perspective on the balance of financial responsibility for beverage container recycling and is an indicator of the equity of each province’s system. Five different stakeholder groups fund these recycling programs.²⁷ They are

- Wasting Consumers
- Consumers
- Municipal Governments
- The Beverage Industry
- Provincial Governments or Liquor Boards

Each stakeholder brings its own level of responsibility and direct involvement in the distribution, sale, point of consumption, recycling, and disposal of beverage containers. So it is crucial to understand the roles each stakeholder plays in the system and how economic incentives can drive system efficiency and inform policy development. The following pages provide an overview of these stakeholders and the costs each bears and present observations on the fairness of the funding scheme.

Figure 50: Who bears the share: Financial contribution to beverage container collection and recycling programs by stakeholder, 2010



5.1 Who Pays What?

The Wasting Consumer

“Wasting consumers” choose not to redeem their containers for a refund. Likely, they put these containers into garbage bins from which even scavengers are not able to collect them so as to redeem deposits. Consequently, the deposits of wasting consumers end up being voluntarily forfeited and are used to offset program costs.

For the wasting consumer, this cost is equal to the value of the deposit, anywhere from 5 cents to 40 cents depending on the program and container type. In general, wasting consumers contribute a large share of program revenue. The “cost of wasting” varies from province to province depending on the deposit level and whether there is any

up-front, non-refundable container fee. It is represented as a per unit cost, determined by the following calculation:

$$\frac{\text{TOTAL UNREDEEMED DEPOSITS (\$)} + \text{UP-FRONT CRF ON UNREDEEMED UNITS}}{\text{TOTAL UNREDEEMED CONTAINER (UNITS)}}$$

These levels of contribution will vary year to year and are dependent on levels of program performance. The better a program performs, the more containers are returned for a refund and the lower the share provided by the wasting consumer. The amount of the deposit is also a factor because the higher the deposit value, the higher the cost of wasting and the greater the share of the total contribution that is borne by the wasting consumer. Wasting consumers will also pay more when they are charged an up-front fee, as in BC, AB, and SK.

Table 17 provides the average cost of wasting per beverage container.

Table 17: Average cost of wasting per beverage container, 2010

| BC | AB | SK | ON | QC | NB | NS |
|---|--|--|---|--|--|--|
| Wine, spirit, and non-alcoholic beverage containers | All (excluding domestic beer containers) | All (excluding refillable beer containers) | Wine and spirit containers (mostly glass) | All (excluding beer & soft-drink containers) | All (excluding refillable beer containers) | All (excluding refillable beer containers) |
| 10.39 | 12.20 | 15 | 14 | 0 | 10.22 | 10.16 |

The Recycling Consumer

Over the years, as industry assumes more responsibility for collection programs, businesses have organized externalized consumer fees that retailers charge upon purchase. These fees get pooled and used to help offset program costs.

In British Columbia, Alberta, and Manitoba, a container recycling fee (CRF) is used as another source of revenue to offset program costs. In these programs, all CRF revenue is used for container collection and recycling, and fees are readjusted annually. (Manitoba is working towards annually adjusted fees.)

In Saskatchewan, the environmental handling charge (EHC) is applied to all beverage container sales (except refillable beer containers) and used to pay for program costs. Excess funds are placed into the province’s general revenue.

In the Atlantic Provinces and the North, only a portion of the deposit is refunded, which effectively means charging a consumer fee at the point of purchase. Surplus funds are

used by these governments to finance other waste diversion initiatives and environmental programs.

Consumer fees are effectively user fees. Irrespective of how that consumer chooses to dispose of containers, every consumer pays the same amount. By paying a fee up front, consumers receive no financial incentive to recycle.

These average per unit cost paid by the recycling consumer is a function of the total fees paid divided by the number of containers purchased:

$$\frac{\text{TOTAL FEES PAID (\$) ON CONTAINERS}}{\text{TOTAL UNITS SOLD}}$$

Table 18 provides a summary of the average cost per unit paid by recycling consumers in those provinces where consumers help finance the collection and recycling system.

Table 18: Average per beverage cost paid by recycling consumers, 2010

| BC | AB | SK | MB | NB | NS |
|---|--|--|---------------------------------|--|--|
| Wine, spirit, and non-alcoholic beverage containers | All (excluding domestic beer containers) | All (excluding refillable beer containers) | All (excluding beer) containers | All (excluding refillable beer containers) | All (excluding refillable beer containers) |
| 4.3 | 2.06 | 5.30 | 2 | 5.15 | 5.19 |

Municipal Government

Municipal governments are the local governments (of towns, counties, cities, and other sub-provincial regions) responsible for recycling, litter abatement, and the disposal of residents' waste. These services are financed directly by the municipal property taxes paid by property owners.

Most agree that it is inappropriate for taxpayers to finance the end-of-life management of products and packaging because having them do so provides no direct incentive for them to follow proper recycling behaviour. In Ontario, Quebec, and Manitoba, municipalities cover a portion of the costs of recycling beverage containers from residential, single-family and some multi-family residences.

The municipal share in Quebec is expected to decline over the next few years as both provinces are poised to shift to 100% industry responsibility.

The Beverage Industry

As programs develop to capture beverage containers through curbside recycling programs and away-from-home collection systems, industry is being mandated to help finance these programs and, eventually, take them over, thereby achieving 100% industry responsibility.

Currently, Ontario, Quebec, and Manitoba are the only provinces where industry directly picks up a share of the program costs. More specifically, industry pays directly based on the amount and type of packaging that was sold into the residential marketplace.

Quebec's deposit-return program is also, ultimately, a cost to industry, but this cost is low or may actually run a profit because wasting consumers and material revenue make up the shortfall. It is assumed that, at a performance level in the mid 70s (i.e., 74%–76%), the program "pays for itself." Actual program costs are not available, but reasonable estimates can be obtained.²⁸

The Quebec government has announced that it will increase the deposit before the end of 2012. This change will likely impact the recycling rate, which will affect when the program can pay for itself.

Provincial Governments or Liquor Commissions

In Ontario's deposit-return program for wine and spirit containers, costs are split between the province's liquor commission (the LCBO) and the wasting consumer. The liquor commission pays about 7 cents per unit (net) sold for the program. Consumers that return their containers bear no share of the financial burden.

The Domestic Beer Industry (Refillable Containers)

The Canadian domestic beer industry is unique in North America. Set up as a voluntary initiative, its collection and reuse of refillable beer containers relies on the existence of industry standard refillable bottles (ISBs), a system that the brewers collectively manage. Founded on a deposit-return system managed by the retailer, the program allows brewers to share standard bottles and self-finance their distribution and reverse distribution. Although the industry receives some unredeemed deposits to help offset costs, this revenue is minimal because the return rates are so high.

5.2 Summary of Analysis

The "who pays what" analysis confirms that, in British Columbia, Alberta, Saskatchewan, Manitoba, Nova Scotia, Newfoundland, New Brunswick (for liquor), Yukon, and the Northwest Territories, the beverage industry bears no costs associated with running the provincial collection and recycling programs.

In most of these provinces, some of the system costs are borne by the consumer who chooses not to return containers—the "wasting consumer." It is appropriate for wasting consumers to take on a larger share than the responsible consumers who ensure that their containers are being recycled.

Of these provinces, only in Alberta does the wasting consumer pay a larger share of the program costs (60%) than the recycling consumer. The higher deposit levels in Alberta mean that the wasting consumer is forfeiting more

money by not recycling containers, which in turn provides more funding to offset total program costs.

Recycling consumers pay the rest of the program costs through consumer fees in British Columbia, Alberta, Saskatchewan, Nova Scotia, Newfoundland, and New Brunswick. Some portion of these consumer fees may also be used as surplus funds for other provincial initiatives, such as waste diversion and environmental enhancement.

In Ontario's deposit-return program for alcoholic beverage containers, Quebec's program for beer and soft-drink containers and all refillable beer return systems throughout Canada, the rest of the program costs are covered by industry or by provincial liquor commissions.

In Ontario and Quebec, the producers or first importers of all beverages (including milk but excluding soft drinks and beer) are required to pay levies on all their packaging sold into the residential stream. In 2010, this revenue was used to finance about 45% and 70%, respectively, of Ontario and Quebec's total net costs of curbside recycling.

In Ontario and Quebec, municipal government pay for large portions of the municipal curbside program. These costs are borne by taxpayers. The share taken on by industry is growing to 100% in Quebec by 2013, and it will likely increase in Ontario in the future, too. This shift will mean the burden on municipal governments (and therefore on taxpayers) will be reduced to zero for recycling, but municipalities will continue to cover 100% of the garbage and litter clean-up costs.

Part VI: Provincial Contact and Data Sources

| PROVINCE | CONTACT | PHONE/FAX | LOGO |
|------------------|---|---|---|
| BRITISH COLUMBIA | Encorp Pacific (Canada) Neil Hastie, President and CEO 206–2250 Boundary Road. Burnaby, British Columbia V5M 3Z3 | Phone: (604) 473-2400 Fax: (604) 473-2411 |  www.encorpinc.com |
| BRITISH COLUMBIA | Brewers Distributor Limited 1711 Kingsway Avenue Port Coquitlam, British Columbia V3C 0B6 | Phone: (604) 927-4051 Fax: (778) 284 2875 |  www.bdl.ca |
| ALBERTA | Brewers Distributor Limited Ted Moroz, President 11500 – 29th Street East. Calgary, Alberta T2Z 3W9 | Phone: (403) 531-1000 Fax: (403) 531-1025 |  www.bdl.ca |
| ALBERTA | Alberta Beverage Container Recycling Corporation Guy West, President and General Manager 3617 Ogden Road. S.E. Calgary, Alberta T2G 4N6 | Phone: (403) 264-0170 Fax: (403) 264-0179 |  www.abcrc.com |
| ALBERTA | Beverage Container Management Board Jason London, Director of Operations #100, 8616 – 51 Avenue Edmonton, Alberta Canada T6E 6E6 | Phone: (780) 424-3193 Toll Free: 1-888-424-7671 Fax: (780) 428-4620 |  www.bcmb.ab.ca |
| SASKATCHEWAN | Brewers Distributor Limited Ray Vandale, Manager of Operations 400 Dewdney Avenue East P.O. 3057 Regina, Saskatchewan S4P 3G7 | Phone: (306)-924-9667 Fax: (306)-352-3739 |  www.bdl.ca |
| SASKATCHEWAN | SARCAN Recycling Kevin Acton 111 Cardinal Crescent Saskatoon, Saskatchewan S7L 6H5 | Phone: (306) 933-0616 Fax: (306) 653-3932 |  www.bdl.ca |
| MANITOBA | Brewers Distributor Limited Barry Booth, Manager of Operations Unit 300-1370 Sony Place Winnipeg, Manitoba R3T 1N5 | Phone: (204)-958-7930 Fax: (204)-772-6538 |  www.bdl.ca |

| PROVINCE | CONTACT | PHONE/FAX | LOGO |
|----------|--|--|--|
| MANITOBA | Multi Materials Stewardship Manitoba Karen Melnychuk 283 Bannatyne Avenue, Suite 200, Winnipeg, Manitoba R3B 3B2 | Phone: (204)-953-2010 Toll Free: 1-877-883-5828 Fax: (204) 953-2013 | www.stewardshipmanitoba.org/ |
| MANITOBA | Canadian Beverage Container Recycling Association, Ken Friesen, Executive Director 283 Bannatyne Avenue, Suite 200, Winnipeg, Manitoba R3B 3B2 | Phone: (204)-371-6641 Toll Free: 1-855-644-7400 | www.cbcr-aacrb.org |
| ONTARIO | The Beer Store Ted Moroz, President 5900 Explorer Drive Mississauga, Ontario L4W 5L2 | Phone: (905) 361-1005 Toll Free: 1-800-387-1314 Fax: (905) 361-4289 | www.thebeerstore.ca |
| ONTARIO | Stewardship Ontario Lyle Clarke, Executive Vice-President 1 St. Clair Ave. West, 7th Floor Toronto, Ontario M4V 1K6 | Phone: 416-323-0101 Fax: 416-323-3185 | www.stewardshipontario.ca |
| ONTARIO | Waste Diversion Ontario Michael Scott, Executive Director 4711 Yonge Street, Suite 1102 Toronto, Ontario M2N6K8 | Phone: (416) 226-5113 Toll Free: 1- 888-936-5113 Fax: (416) 226-1368 | www.wdo.ca |
| QUEBEC | Boissons Gazeuses Environnement Édouard Darche 100, rue Alexis-Nihon , Bureau 406 St. Laurent, Québec H4M 2N9 | Phone: (514) 747-7737 Sans Frais: 1-877-226-3883 Fax: (514) 747-3606 | www.bge-quebec.com |
| QUEBEC | Association des Brasseurs du Québec Phillipe Batani, Executive Director 2000, rue Peel , Bureau 888 Montréal, Québec H3A 2W5 | Phone: (514) 284-9199 Fax: (514) 284-0817 | www.brasseurs.qc.ca |
| QUEBEC | Recyc-Québec Réal Brossard 141, avenue du Président-Kennedy, 8e étage Montréal, Québec H2X 1Y4 | Phone: (514) 352-5002 Sans Frais: 1-800-807-0678 Fax: (514) 873-6542 | www.recyc-quebec.gouv.qc.ca |

| PROVINCE | CONTACT | PHONE/FAX | LOGO |
|-------------------------|--|--|---|
| QUEBEC | Éco Entreprises Québec Maryse Vermette, Président 1600 boul. René-Lévesque Ouest Bureau 600, Montreal, Québec H3H 1P9 | Phone: (514) 987-1491 Sans Frais: 1-877-987-1491 Fax: (514) 987-1598 |  www.ecoentreprises.qc.ca |
| NEW BRUNSWICK | Encorp Atlantic Inc. Pierre Landry, General Manager Box 65 Moncton, New Brunswick E1C 8R9 | Phone: (506) 532-7320 Toll Free: 1-877-389-7320 |  www.encorpatl.ca |
| NEW BRUNSWICK | NB Liquor Peter Slipp 170 Wilsey Road P.O. Box 20787 Fredericton, New Brunswick E3B 5B8 | Phone: (506) 452-6826 Fax: (506) 462-2024 |  www.nbliquor.com |
| NEW BRUNSWICK | Rayan Investments Murray Cruikshank, President 1635 Berry Mills Road, Moncton, New Brunswick E1E 4R7 | Phone: (506) 858-1600 Fax: (506) 852-9102 | |
| NEWFOUNDLAND & LABRADOR | Multi Materials Stewardship Board Paul Russell P.O. Box 8131 , Station A St. John's, Newfoundland A1B 3M9 | Phone: (709) 757-3686 Fax: (709) 753-0974 |  www.mmsb.nf.ca |
| NOVA SCOTIA | Resource Recovery Fund Board William Ring, Chief Executive Officer 14 Court Street Suite 305 Truro, Nova Scotia B2N 3H7 | Phone: (902) 895-7732 Toll Free: 1-877-313-7732 Fax: (902) 897-3256 |  www.rrfb.com |
| PRINCE EDWARD ISLAND | Ministry of Environment, Energy & Forestry John Hughes, Director of Special Projects Jones Building, 4th & 5th Floors 11 Kent Street, P.O. Box 2000 Charlottetown, Prince Edward Island C1A 7N8 | Phone: (902) 368-5474 Phone: (902) 386-5884 Fax: (902) 368-5830 |  www.beveragecontainers.pe.ca |

| PROVINCE | CONTACT | PHONE/FAX | LOGO |
|------------------------------|--|---|---|
| PRINCE EDWARD ISLAND | Island Waste Management Corporation Gerry Moore, CEO 110 Watts Ave. Charlottetown, Prince Edward Island C1E 2C1 | Phone: (902) 894-0330 Toll Free: 1-888-280-8111 Fax: (902) 894-0331 |  www.ismc.pe.ca |
| YUKON | Environment Yukon Government of Yukon Monti Patterson, Community Operations Supervisor Community Development Operations and Programs Community Development Branch Yukon Government Administration Building 2071 Second Ave, Y1A 1B2 Whitehorse, Yukon. | Phone: (867) 667-5269 Fax: (867) 393-6258 |  www.environmentyukon.gov.yk.ca |
| NORTHWEST TERRITORIES | Department of Environment and Natural Resources Government of the Northwest Territories Diep Duong, Solid Waste Specialist P.O. Box 1320 Yellowknife, Northwest Territories X1A 2L9 | Phone: (867) 873-7178 Fax: (867) 873-0221 |  www.gov.nt.ca |

Information and Data Sources

| | | |
|-------------------------|---|--|
| British Columbia | Sales and collection data (non-alcoholic & alcoholic beverage containers) | <i>Encorp Pacific (Canada) Annual Report 2010</i> http://www.return-it.ca/ar2010/index.html |
| | Financials (non-alcoholic beverage containers and wine, spirit, and import beer and cider containers) | <i>Encorp Pacific (Canada) Annual Report 2010</i> http://www.return-it.ca/ar2010/index.html |
| | Collection tonnage (domestic beer containers) | <i>Brewers Distributor Limited 2010 Annual Stewardship Report</i> http://www.env.gov.bc.ca/epd/recycling/bev/reports/pdf/brewers-2010.pdf |
| Alberta | Sales and collection data (domestic beer containers) | <i>BCMB 2010 Annual Report</i> http://www.bcmb.ab.ca/bcmb.2010-annual-report.v.1.0/ |
| | Financials and sales and collection data (non-alcoholic beverage containers and wine, spirit, and imported beer containers) | <i>Alberta Beverage Container Recycling Corporation 2010 Annual Report</i> http://www.abcrc.com/ar2010/ |
| | Sales and collection data (refillable beer containers) Milk container tonnage | <i>BCMB 2010 Annual Report</i> http://www.bcmb.ab.ca/bcmb.2010-annual-report.v.1.0/ |
| | Collection tonnage (domestic beer containers) | <i>Brewers Distributor Limited 2010 Annual Stewardship Report</i> http://www.env.gov.bc.ca/epd/recycling/bev/reports/pdf/brewers-2010.pdf |
| Saskatchewan | Financials and sales and collection data (non-refillables) | <i>SARC Annual Report, 2010–2011</i> http://www.sarcSAR-CAN.ca/links/Annual Report 2010-2011.pdf |
| | Collection tonnage (refillable beer containers) | <i>Brewers Distributor Limited 2010 Annual Stewardship Report</i> http://www.env.gov.bc.ca/epd/recycling/bev/reports/pdf/brewers-2010.pdf |
| Manitoba | Sales and collection data | <i>Multi-Material Stewardship Manitoba Annual Report 2010</i> http://www.stewardshipmanitoba.org/mmsm/whats_new.php |
| | Collection tonnage (beer containers) | <i>Brewers Distributor Limited 2010 Annual Stewardship Report</i> http://www.env.gov.bc.ca/epd/recycling/bev/reports/pdf/brewers-2010.pdf |
| Ontario | Municipal recycling costs and fee information | Stewardship Ontario 2010 data year http://www.stewardshipontario.ca/stewards/what-we-do/blue-box/fees-and-payments |

| | | |
|------------------------------------|--|---|
| Ontario | Sales and collection data (beer containers, not including those of imports not listed with TBS) | <i>Responsible Stewardship 2010–2011: Setting the Standard in Materials Management</i> , by The Beer Store http://www.thebeerstore.ca/tbs-environmental-report.html |
| Quebec | Municipal recycling costs and fee information Municipal collection of beverage containers | “Schedules of Contributions” from Éco-Entreprises Québec http://www.ecoentreprises.qc.ca/anglais/tarif.html |
| | Sales and collection data (soft-drink & non-refillable beer containers Collection data (bi-metal & gable top container curbside pickup) | “Consignation: Statistiques de ventes et de récupération” from Recyc-Québec http://www.recyc-quebec.gouv.qc.ca/client/fr/programmes-services/consignation/statistiques.asp |
| | Sales and collection data (refillable beer containers) | <i>Brewers Association of Canada—2010 Annual Statistical Bulletin</i> http://www.brewstats.ca/ |
| Nova Scotia | Financials and sales and collection data (non-refillables) | Resource Recovery Fund Board 2010–2011 |
| | Sales and collection data (refillable beer containers) | <i>Brewers Association of Canada—2010 Annual Statistical Bulletin</i> http://www.brewstats.ca/ |
| New Brunswick | Sales and collection data (non-alcoholic beverage containers) | Encorp Atlantic 2010 |
| | Sales and collection data (liquor containers) | NB Liquor |
| | Sales and collection data (refillable beer containers) | <i>Brewers Association of Canada—2010 Annual Statistical Bulletin</i> http://www.brewstats.ca/ |
| Newfoundland & Labrador | Financials and sales and collection data (non-refillables) | Multi Materials Stewardship Board 2008–2011 |
| | Sales and collection data (refillable beer containers) | <i>Brewers Association of Canada—2010 Annual Statistical Bulletin</i> http://www.brewstats.ca/ |
| Northwest Territories | Sales and collection data (all beverage containers) | <i>Waste Reduction and Recovery Program: 2010–2011 Annual Report</i> , December 2011 http://icarenwt.ca/uploads/files/beverage/waste_reduction_and_recovery_program_2010-2011_annual_report_final_-_december_9,_2011.pdf |

Appendix A

Methodology for Calculating Collection Rates in Manitoba, Ontario, and Quebec

In the spirit of continuous improvement, we welcome comments on and sharing of any new information that will help to refine these estimates in future editions of *Who Pays What*.

Assumptions for Manitoba

- **Sales and recovery of aluminum cans for non-alcoholic beverages** is based on an assumption that 97% of aluminum sales and collection reported by MMSM are for beverage cans.
- It is assumed that **all aluminum cans sales are reported to MMSM**.
- The **aluminum can collection** comes from the values reported by MMSM (2010), assuming that 97% of the aluminum collected is from beverage cans.
- Collection is then further increased by what is assumed to be collected away from home and through private buy-back channels. We estimated that **20% of the aluminum sold is available for collection outside of the residential sector, and 30% of that amount is collected**.
- When assessing **PET beverage bottle sales** reported by MMSM, we assume that 70% of PET bottles sold are beverage containers. This is equal to 113 PET beverage units per person per year, which is slightly lower than the median rate of other provinces (125 units per capita). As such, it is possible that the rate reported in MB may be slightly overstated.
- **Collection of PET** is based on the assumption that **approximately 70% of a PET bale is comprised of PET beverage containers**. This is a decrease (from 85%) from the previous report (2010), which used 2005 Ontario waste composition data. The downward trend from 85% to 70% is consistent with PET beverage container lightweighting and an increase in the collection of PET thermoform packaging, which is also included in PET bales sold today. (The percentage of thermoform packaging in loads is highly variable,

between approximately 0% and 20% per PET bale.) The vast majority of Manitobans have access to PET thermoform recycling (CPIA, 2011), but this does not imply that thermoform PET is actually collected for recycling currently. The 70% assumption is based on conversations with Ontario MRF operators.

- **The PET bottle collection rate is further increased** by what is assumed to be collected away from home. We estimated that **50% of the PET bottles sold are available for collection outside of the residential sector, and 20% of that amount was collected in 2010**. (Winnipeg's away-from-home program is commencing in 2012.)
- **The collection rate for glass, Tetra Pak, and gable top beverage containers is based on the residential rate reported by MMSM for 2010**. Away-from-home sales and recovery are not included in this summary.

Assumptions for Ontario

- **Sales and recovery of aluminum cans for non-alcoholic beverages** is based on an assumption that 97% of aluminum sales and recovery reported by Stewardship Ontario are beverage cans.
- It is assumed that **all aluminum cans sales are reported to Stewardship Ontario**. This is further supported by the high per capita consumption rate for Ontario (143 cans per person per year).
- The **aluminum can collection** is largely from the values reported by Stewardship Ontario (2010), assuming that 97% of aluminum collected is from beverage cans.
- Can collection is further increased by the amount assumed to be collected away from home and through private buy-back channels. We estimated that **20% of the aluminum sold is available for collection outside of the residential sector, and 40% of that amount is collected**.
- **PET beverage bottle sales** are based on the median per capita rate of PET bottle consumption for nine Canadian provinces (125 PET bottles per year per person).
- Rates for the recovery of PET are based on the assumption that **approximately 70% of a PET bale is comprised of PET beverage containers**. This is a

decrease (from 85%) from the previous report (2010), which used 2005 Stewardship Ontario waste composition data. The downward trend from 85% to 70% is consistent with PET beverage container lightweighting and an increase in the collection of PET thermoform packaging, which is also included in PET bales sold today. Note: approximately 58% of Ontarians have access to PET thermoform recycling (CPIA, 2011). Source: The 70% assumption is based on conversations with Ontario MRF operators.

- **The PET bottle collection rate** is further increased by what is assumed to be collected away from home. We estimated that **50% of the PET bottles sold are available for collection outside of the residential sector, and 25% of that amount is collected.**
- **The collection rate for glass, Tetra Pak and gable top non-alcoholic beverage containers is based on the rate reported by Stewardship Ontario for 2010.** The away-from-home sales and recovery rates are not included in this summary.

Assumptions for Quebec

- **PET and glass beverage bottle sales for non-deposit beverage bottles** (e.g., juice, sports drinks, and water) are based on data from the residential waste composition study from ÉEQ and Recyc-Québec (2006–2009). These weight values (in kgs) were applied to average unit-to-weight estimates by container type and size derived from actual 2010 data from British Columbia.
- **Added to the residential sales figures are sales assumed to be made away from home for PET and glass bottles.** These are approximately 22% of wine and spirits sold away from home and 50% of water bottles sold away from home. (Source: Mise en Marché et Récupération des Contenants de Boisson au Québec, Recyc-Québec, January 2008.)
- **Collection values for PET and glass are derived using the residential waste composition study** from ÉEQ and Recyc-Québec (2006–2009).
- **Added to the PET collection values** are containers collected away from home. For **PET bottles collected away from home, the rate is assumed to be 25%.**
- The collection values for **glass, Tetra Pak, and gable top non-alcoholic beverage containers** are based on the rate reported by the waste composition study done for ÉEQ and Recyc-Québec (2006–2009). Away-from-home sales and recovery rates are not included in this summary.

Footnotes:

- ¹ Operating years vary: e.g., January 1 – December 31, 2010; April 1, 2010 – March 31, 2011; and May 1, 2010 – April 30, 2011.
- ² For sales data please contact CM Consulting directly at (416) 682-8984 or clarissa@cmconsultinginc.com
- ³ http://stewardedge.ca/pdf/pricesheet/2012/05_2012.pdf
- ⁴ Average This calculation is an average of based on values for the first 5 months of 2012; pdf
- ⁵ See http://stewardedge.ca/pdf/pricesheet/2012/05_2012.pdf
- ⁶ See the 2010 *Report on Post Consumer PET Container Recycling Activity*, produced by the National Association for PET Container Resources (NAPCOR): http://www.napcor.com/pdf/2010_Report.pdf
- ⁷ See http://stewardedge.ca/pdf/pricesheet/2012/05_2012.pdf
- ⁸ See http://stewardedge.ca/pdf/pricesheet/2012/05_2012.pdf
- ⁹ "Pouches get popular," *Canadian Plastics*, April 18, 2010, <http://www.canplastics.com/issues/story.aspx?aid=1000368256>.
- ¹⁰ "Pouches get popular," *Canadian Plastics*, April 18, 2010, <http://www.canplastics.com/issues/story.aspx?aid=1000368256>.
- ¹¹ "Heat's on disposable cup," The Vancouver Province, September 16, 2008, <http://www.canada.com/theprovince/news/story.html?id=22000024-1b7d-4359-85bd-79506ffbbde7>.
- ¹² Cara Allen, "Tim Hortons would not support cup tax or surcharge," *The Queens County Advance*, April 11, 2010, <http://www.theadvance.ca/Living/Food/2010-04-11/article-997452/Tim-Hortons-would-not-support-cup-tax-or-surcharge/1>.
- ¹³ "Yield rate" refers to the percentage of material that is actually recycled.
- ¹⁴ This figure is based on a conversation with a technical contact at Atlantic Packaging
- ¹⁵ Press release from Cereplast, MeadWestvasco, and Solo Cup Company, August 7, 2006: <http://www.bpiworld.org/Content/Documents/Document.aspx?DocId=36532>
- ¹⁶ See the Westmorland-Albert website: <http://www.westmorlandalbert.com/emain.html>
- ¹⁷ CBC News, "Nova Scotians back green coffee-cup tax: Poll," CBC, March 8, 2010, <http://www.cbc.ca/consumer/story/2010/03/08/ns-coffecups-jat.html>.
- ¹⁸ See <http://www.halifax.ca/wrms/documents/WhatGoesWhere11.pdf>
- ¹⁹ Stewardship Ontario, *2011 Annual Report: The Circle of Sustainability* (Toronto: Stewardship Ontario, 2012), http://www.stewardshipontario.ca/sites/default/files/SO_2011_AR_WEB_2.pdf
- ²⁰ See <http://www.timhortons.com/ca/pdf/2009CSR.pdf>
- ²¹ Starbucks Canada, *Environmental Sustainability* (accessed July 16, 2012), http://www.starbucks.ca/en-ca/_Social+Responsibility/Enviormental+Stewardship.htm
- ²² Melissa Goveas, "Starbucks Coffee Company kicks off coffee cup recycling across BC," *Canada Newswire*, April 21, 2011, <http://www.newswire.ca/en/story/799403/starbucks-coffee-company-kicks-off-coffee-cup-recycling-across-bc>
- ²³ Amy Galland, *Waste & Opportunity: US Beverage Container Recycling Scorecard and Report*, 2011 (San Francisco: As You Sow, 2011), p.8: http://www.asyousow.org/publications/2011/Waste&Opportunity2011_20110913.pdf
- ²⁴ Joe Cattaneo, "Clear intentions: Glass container manufacturers set 50 percent recycled content goal," *Waste Age*, May 1, 2009, p. 3: http://wasteage.com/Recycling_And_Processing/glass-recycled-content-goal-200905/index1.html
- ²⁵ Amy Galland, *Waste & Opportunity: US Beverage Container Recycling Scorecard and Report*, 2011 (San Francisco: As You Sow, 2011), p.8: http://www.asyousow.org/publications/2011/Waste&Opportunity2011_20110913.
- ²⁶ For operating data, revenues, and costs, please contact CM Consulting directly at (416) 682-8984 or info@cmconsultinginc.com.
- ²⁷ Retailers may also be contributors to these programs in Quebec, British Columbia, and Ontario (especially for containers of alcohol). In all cases, however, retailers are provided with a fee for service for collection, so they are not considered as financial contributors to these programs. The economics of retail costs is driven by many factors including throughput, technology, and labour.
- ²⁸ For operating data, revenues and costs please contact CM consulting directly at (416) 682-8984 or clarissa@cmconsultinginc.com