

Part 4: System Financing

CONSUMER FEES

In many deposit-return jurisdictions, the bulk of system costs are paid for by the beverage industry. In Canada, however, programs have been designed in such a way to minimize or eliminate the industry's financial obligation by passing it on to customers in the form of a front-end or back-end fee. There are several examples of different fees being charged to consumers to finance the collection and recycling of beverage containers. Table 6 presents a summary of consumer fees charged in each province, by container type, as of July 2016.

TABLE 6 CONSUMER FEES BY PROVINCE & CONTAINER TYPE, AS OF JULY 2016 (CENTS/UNIT SOLD)

Consumer Fees in Cents per Unit Sold (as of July, 2016)												
Province	BC	AB	SK	MB	ON	QC	NS	NB	NL	PE	YT	NT
Type of Fee	CRF	CRF	EHC	CRF	-	-	Half-Back	Half-Back	Half-Back	Half-Back	RFF*	CHF*
Aluminum Cans	1	0	5	2			5	5	3	5	5	8
PET up to and including 1L	3	2	6	2			5	5	3	5	5	8
PET over 1L	4	10	6	2			5	5	3	5	10	10
PVC or HDPE up to and including 1L	3	2	6	2			5	5	3	5	5	8
PVC or HDPE over 1L	4	10	6	2			5	5	3	5	10	10
HDPE Milk up to and including 1L		2										8
HDPE Milk over 1L		10										10
Plastic up to and including 1L		2	6	2			5	5	3	5	5	8
Plastic over 1L		10	6	2			5	5	3	5	10	10
Polystyrene Cups (with sealed foil lid)	3	2		2			5	5	3	5		8
Polypropylene up to and including 1L	3	2	6	2			5	5	3	5	5	8
Polypropylene over 1L	4	10	6	2			5	5	3	5	10	10
Pouch up to and including 1L	0	0		2			5	5	3	5		5
Glass up to and including 1L	9	9	7	2			5	5	3	5	5	13
Glass over 1L	40	10	7	2			5	5	3	5	10	13
Drink box up to and including 500ml	1	2	3	2			5	5	3	5	5	5
Drink box 501ml to 1L	5	2	3	2			5	5	3	5	5	5
Drink box over 1L	0	8	3	2			5	5	3	5	10	10
Gabletop up to and including 500ml	0	0	3	2			5	5	3	5		5
Gabletop 501ml to 1L	0	0	3	2			5	5	3	5		5
Gabletop over 1L	6	8	3	2			5	5	3	5		10
Gabletop Milk up to and including 1L		0										5
Gabletop Milk over 1L		8										10
Bi-metal up to and including 1L	3	7	5	2			5	5	3	5	5	5
Bi-metal over 1L	0	0	5	2			5	5	3	5	10	10
Bag-in-the-Box over 1L	0	0		2			5	5	3	5		10
Wine/Spirits under 500ml							5	5	10	5		
Wine/Spirits equal to or greater than 500ml							5	10	10	10		



category not applicable
material covered under another category

* In NT, the 1 litre container for non-dairy product is included with the over 1 litre containers.

For dairy products, a one-litre container is included with the under 1 litre containers

*In Yukon, the size threshold is 750 ml. All containers of 750ml or more, regardless of contents or material, are charged 10 cents RFF.

Container Recycling Fee (CRF) in a Deposit-Return System

A Container Recycling Fee (CRF) is levied on the purchase of certain beverage containers in British Columbia and Alberta. It represents the net cost to collect and recycle beverage containers (after other revenue from unredeemed deposits and the sale of recyclable materials are used), and fluctuates annually based on actual system costs. CRFs are charged in addition to the deposit and are non-refundable.

Typically, the CRF is paid by beverage producers and passed down to retailers, who in turn pass it on to consumers. It should be noted, however, that the decisions by producers to pass on the CRF to retailers and by retailers to pass on the CRF to consumers are discretionary. Some retailers may choose not to pass on the CRF or to show it separately so that the consumer can see the charge on their receipt.

Unlike deposits, the CRF varies with the value of the material collected and the container's collection rate. Higher collection rates generate less unredeemed deposit revenue and therefore require a higher CRF. In contrast, lower collection rates generate greater unredeemed deposit revenue and therefore allow for lower CRFs.

As of July 2016, CRFs range from 0 to 40-cents per unit in BC, depending on container size and type. The fees in Alberta are lower, ranging from 0 to 10-cents per unit. In both provinces, glass containers carry the highest CRF. Some containers (e.g. gable top cartons, bag-in-box, bi-metal cans over 1L, etc.) do not carry a CRF because the revenue they generate from unredeemed deposits is high enough to cover the costs of recycling.

Environmental Handling Charge (EHC)

Used in the province of Saskatchewan, the Environmental Handling Charge (EHC) is a fee collected from the consumer on every non-refillable, ready-to-serve beverage container sold. The retailer remits the EHC to the provincial government who uses the fees to pay for the operation of the program. The EHC usually generates far more revenue than is needed to fund the system. Any surplus funds are placed directly into provincial government coffers.

As of July 2016, EHCs range from 3- to 7-cents per unit, depending on the size of the container and the material type. Unlike the deposit, this fee is non-refundable.

Container Recycling Fee (CRF) as an Industry Imposed Levy

The Manitoba CRF is different from the one in BC and Alberta in that it is imposed by Industry to collect the monies required by the stewardship law to pay 80% of net costs of municipalities. The levy is collected, monitored, and overseen by the beverage industry. It is pooled and is used to finance municipal and away-from-home recycling initiatives across the province, including

the recycling bins that Recycle Everywhere provides free of charge to municipal, IC&I, and other public space recycling partners across Manitoba.

The Half-Back System

The provinces of Nova Scotia, New Brunswick, and PEI employ a half-back system, whereby only half of the deposit paid on the purchase of non-refillable beverage is refunded to the consumer. In these systems, 50% of the non-refunded portion of the deposit— plus the revenue generated from the sale of empty containers—goes towards covering program costs, while the remaining 50% is typically used to support provincial waste reduction and recycling initiatives.

The system in Newfoundland and Labrador is similar. For alcohol containers, consumers receive a 10-cent refund based on a 20-cent deposit. However, for non-alcohol containers (as well as beer cans, importer beer bottles, and alcoholic miniatures), the deposit is 8-cents, and the refund is 5-cents; a true half-back system would provide a 4-cent refund (this is not possible due to the elimination of the 1-cent coin in 2013).

Recycling Fund Fee (RFF) and Container Handling Fee (CHF)

The recycling fund fee (RFF) and container handling fee (CHF), which are charged in Yukon and the Northwest Territories, respectively, are modeled after the half-back system in that they refund only a portion of the initial deposit paid on designated beverage containers. In Yukon, 5-cents is refunded on a 10-cent deposit (true half-back) and 25-cents on a 35-cent deposit. In the Northwest Territories, 10-cents is refunded on a 15-, 18-, 20-, or 23- cent deposit, and 25-cents is refunded on a 35- or 38-cent deposit.

Both the RFF and CHF are remitted to the provincial government who uses the funds to pay for program operation (handling, processing and transportation) and to develop and implement promotional and educational initiatives related to the program. In general, these schemes generate far more revenue than is needed to pay for the system. Surplus revenues are placed into a special fund that is kept separate from general revenues. These funds are used to subsidize the municipal curbside recycling program and other provincial environmental initiatives.

How Have Consumer Fees Changed Over Time?

For the most part, the consumer fees charged on beverage containers in Canadian programs have remained relatively constant from 2003 to 2016. The two exceptions are British Columbia (Figure 31) and Alberta (Figure 32). The reason why rates have fluctuated so much in only these provinces is that BC and Alberta set their consumer fees according to how much is needed to finance the deposit program that year. Any surplus revenues generated by one

container type cannot be used to make up the shortfall for another container type, but are used instead to lower any future CRF on that container type.¹³² Elsewhere in Canada, CRFs are fixed and support a wider range of provincial recycling initiatives.

Consumer fees may increase for a variety of reasons; for example, decreased revenues from the sale of materials (due to decreased market value for the material, or less material available to sell), or increased costs of collection, which can be affected by, for example, higher transportation costs. However, they can also go down if collection costs drop or if the revenue from unredeemed deposits increases as a result of a lower collection rate.

TABLE 7 HISTORIC CONSUMER FEES (2003-2016)

Historic Consumer Fees (2003-2016)										
Aluminum cans	BC	AB	SK	MN	NS	NB	NL	PEI	YT	NT
2003	0	0	5	2	5	5	3	n/a	n/a	n/a
2006	0	0	5	2	5	5	3	n/a	n/a	n/a
2008	0	0	5	2	5	5	3	n/a	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
2014	1	0	5	2	5	5	3	5	5	5
2016	1	0	5	2	5	5	3	5	5	8
PET over 1 litre	BC	AB	SK	MN	NS	NB	NL	PEI	YT	NT
2003	4	7	6	2	5	5	3	n/a	n/a	n/a
2006	4	2	6	2	5	5	3	n/a	n/a	n/a
2008	3	3	6	2	5	5	3	n/a	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
2014	6	7	6	2	5	5	3	5	10	10
2016	4	10	6	2	5	5	3	5	10	10
PET under 1 litre	BC	AB	SK	MN	NS	NB	NL	PEI	YT	NT
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
2014	3	3	6	2	5	5	3	5	5	5
2016	3	2	6	2	5	5	3	5	5	8
Glass 0-500 ml	BC	AB	SK	MN	NS	NB	NL	PEI	YT	NT
2003	3	5	7	2	5	5	3	n/a	n/a	n/a
2006	4	5	7	2	5	5	3	n/a	n/a	n/a
2008	5	3	7	2	5	5	3	n/a	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
2014	12	8	7	2	5	5	3	5	10	10
2016	9	9	7	2	5	5	3	5	5	13
Glass over 1 litre	BC	AB	SK	MN	NS	NB	NL	PEI	YT	NT
2003	5	8	7	2	5	5	3	n/a	n/a	n/a
2006	5	7	7	2	5	5	3	n/a	n/a	n/a
2008	5	4	7	2	5	5	3	n/a	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
2014	25	11	7	2	5	5	3	5	10	10
2016	40	10	7	2	5	5	3	5	10	13

As shown in the charts below, consumer fee fluctuations are not uniform across all container types, nor within groups of container types even if they were the same material type. Consider BC for example. For glass containers over 1-litre, fees increased from 5-cents to 40-cents per container from 2003 to 2016, which is an increase of 700% over the 13-year period. In contrast, per-container fees for glass containers 0-500ml in size increased from 3-cents to 12-cents per container from 2003 to 2012, and back down to 9-cents in 2016, which is an increase of 200% over the same period.

FIGURE 31 BRITISH COLUMBIA CONSUMER FEES BY MATERIAL (2003-2016)

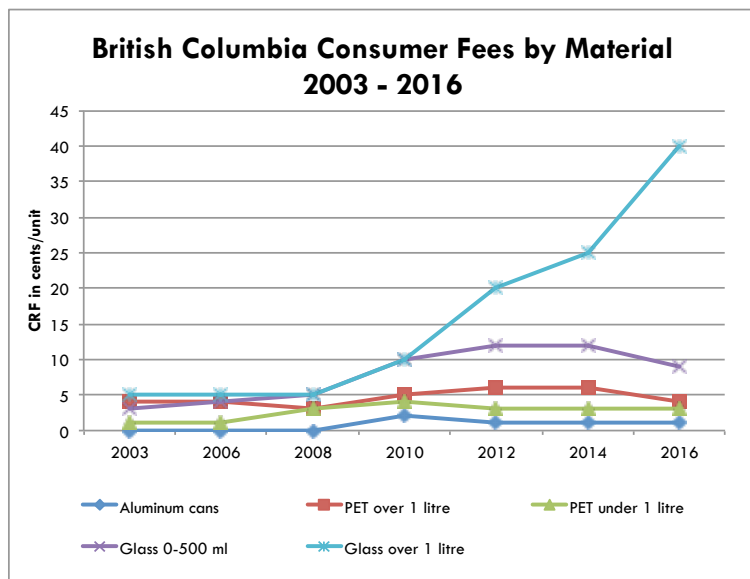
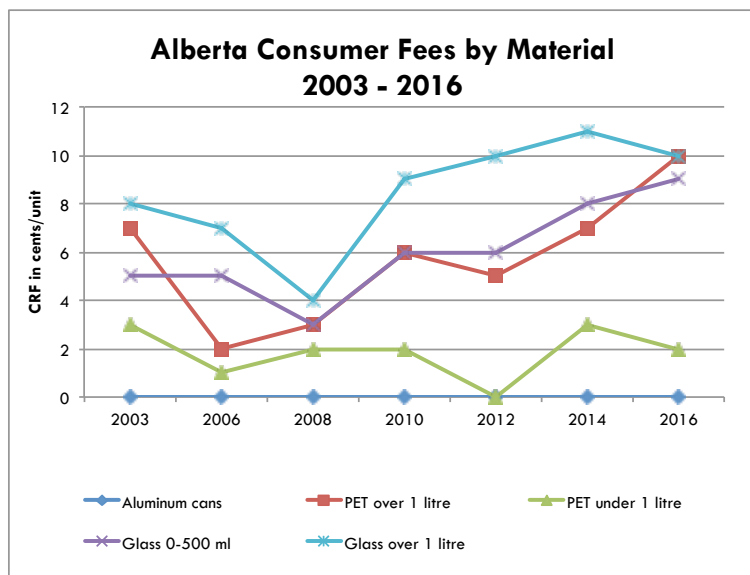


FIGURE 32 ALBERTA CONSUMER FEES BY MATERIAL (2003-2016)



DEPOSITS

In provinces with deposit-return programs, retailers are required to collect and remit a deposit from consumers on all applicable beverage containers. Intended to act as an incentive to recycle, deposits are charged on containers when they are purchased and refunded when the consumer returns the container to an authorized redemption centre or retailer. If the container is not returned, the system keeps the deposit.

In the North and in the Atlantic Provinces, only a portion of the deposit is refunded when a non-refillable container is returned (see section on 'The Half-Back System' above). The portion of the deposit not returned, in addition to any unredeemed deposits, is used to help fund the system and subsidize other provincial environmental initiatives. Typically, these deposits are indicated separately on the sales receipt. They are not a government tax and no funds from the fees are paid to government.

As of August 2016, deposits range from a low of 5-cents to a high of 40-cents per container. Table 8 shows the deposits charged on various types of beverage containers in each province, as well as the refund that is provided to consumers upon return of the container.

TABLE 8 DEPOSIT AND REFUND VALUES BY PROVINCE AND CONTAINER TYPE, AS OF AUGUST 2016 (CENTS/UNIT)

Container Type	BC	AB	SK	MN	ON	QC	NS	NB	NL	PEI	YT	NT
Containers ≤ 1L	5/5	10/10										10/10
Containers > 1L	20/20	25/25										25/25
Containers ≤ 750ml											10/5	
Containers > 750ml											35/25	
Soft-drinks						5/5						
Non-alcohol							10/5	10/5	8/5	10/5		
Metal cans < 1L			10/10								10/5	
Metal cans ≥ 1L			20/20								35/25	
Milk ≤ 1L		10/10										
Milk > 1L		25/25										
Glass ≤ 300ml			10/10								10/5	
Glass 301ml-999ml			20/20								10/5	
Glass ≥ 1L			40/40								35/25	
Plastic < 1L			10/10								10/5	
Plastic ≥ 1L			20/20								35/25	
Juice box and gabletop			5/5									
Tetra Pak & gabletop <1L											10/5	
Tetra Pak & gabletop ≥ 1L											35/25	
Wine & spirit ≤ 500ml	10/10	10/10					10/5	10/5	20/10	10/5		
Wine & spirit 501ml-1L	10/10	10/10					20/10	20/10	20/10	20/10		
Wine & spirit > 1L	20/20	25/25					20/10	20/10	20/10	20/10		
Wine & spirit ≤ 630ml					10/10							
Wine & spirit > 630ml					20/20							
Non-refillable beer ≤ 1L	10/10	10/10		10/10	10/10			10/5	10/5	10/5		
Non-refillable beer >1L	20/20	25/25		20/20*	20/20			20/10	20/10	20/10		
Non-refillable beer ≤ 500ml (in NS)							10/5					
Non-refillable beer > 500ml (in NS)							20/10					
Non-refillable beer ≤ 450ml (in QC)						5/5						
Non-refillable beer > 450ml (in QC)						20/20						
Refillable beer	10/10	10/10	10/5*	10/10	10/10	10/10	10/10	10/10	10/5*	10/10	10/10	10/10

*In SK and NL, 5-cents is retained by bottle depots in lieu of an official handling fee.

*In MN, the 20-cent deposit/refund only applies to containers 2L or larger. All containers less than 2L carry a 10-cent deposit/refund.

Effect of Inflation on Deposit Values

An important issue to consider when setting deposit and refund rates is the effect of inflation. In order to maintain the incentive for returning containers, the rates of deposit and refund must be increased periodically, in line with inflation; otherwise, the value of the deposit/refund relative to the purchase price of a beverage will decrease over time to a point where there remains little to no incentive to recycle. Adjusting for inflation is also important for program operators to be able to keep up with the rising costs of managing, processing, and transporting recyclables, which have increased significantly since deposit laws were first established.

Over the last few years, some provinces have recognized this problem and have sought to address it. Consider Alberta for example: In 2008, the province raised 5- and 20-cent deposits

to 10-cents and 25-cents, respectively. After eight years, collection rates for the three largest beverage container categories increased by approximately 8-percentage points, making it clear that deposit levels have a strong impact on a consumer's incentive to recycle. Rates for aluminum cans have increased from 80% to 88%, PET from 70% to 78%, and non-refillable glass from 86% to 92%. Yukon is also proposing changes to its deposit/refund system, which would see an increase to the surcharge on all beverage containers by 5-cents.¹³³

Still, beverage container deposits have remained relatively unchanged in most provinces. As an example, consider BC, which has the oldest beverage container deposit-refund law in Canada (and North America). The refundable deposit on carbonated soft drinks and beer containers remains at 5-cents, despite the fact that inflation has reduced the value of the nickel in 2016 to less than 1/5th of its value in 1970 (according to the Bank of Canada's Inflation Calculator, a nickel in 1970 is equivalent to 32-cents in 2016).

Because the deposit has not been indexed for inflation, the incentive for British Columbians to return beverage containers for recycling is much smaller than it used to be. To illustrate, the deposit paid on a six-pack of soft drinks in BC would be about \$1.92 today if adjusted for inflation—much higher than the 30-cents that is currently charged. The same can be said for other provincial programs whose deposit levels have stayed the same over the years, like Ontario, Québec, and New Brunswick.

CONTAINER HANDLING FEES

Container handling fees (CHFs) are per unit fees paid by beverage distributors to redemption centres (depot or retail) as compensation for receiving, paying out refunds for, sorting, and storing returned beverage containers. These non-refundable handling fees are paid directly to the redemption centres with no government involvement.

CHFs can vary by container type and depot agreement. In Alberta, for example, CHFs (2016) range from a low of 3.17-cents for aluminum cans to a high of 22.79-cents for bag-in-box containers over 1-litre. These fee rates are based on the different costs of handling and storage associated with different types of beverage containers. In BC, handling fees paid to grocers are privately negotiated and proprietary, and so are not publicly available.

In other provinces, such as Newfoundland, all beverage containers except for beer containers are charged a uniform CHF.

Table 9 represents CHFs by province and container type. It is important to note that the fees presented for BC are those awarded to depots only. Shaded areas of the table represent container categories that are not applicable to that particular province.

TABLE 9 HANDLING FEES BY PROVINCE AND CONTAINER TYPE AS OF JULY 2016 (CENTS / UNIT RECOVERED)

Province	BC	AB	SK[3]	MN	QC	NS	NB	NL	PEI	YT	NT
Aluminum Cans	3.37	3.17			2.00	4.27	4.06	4.25	4.05	2.50	2.20
PET up to 1L	5.07	4.65			2.00	4.27	4.06	4.25	4.05	4.00	2.20
PET over 1L	7.89	9.99			2.00	4.27	4.06	4.25	4.05	7.50	4.50
PVC up to 1L	5.07	5.53				4.27	4.06	4.25	4.05	4.00	2.20
PVC over 1L	7.89	11.49				4.27	4.06	4.25	4.05	7.50	4.50
HDPE up to 1L	5.07	5.53				4.27	4.06	4.25	4.05	4.00	2.20
HDPE over 1L	7.89	12.01				4.27	4.06	4.25	4.05	7.50	4.50
Polypropylene up to 1 L	5.07	5.53				4.27	4.06	4.25	4.05	4.00	2.20
Polypropylene over 1 L	7.89	11.49				4.27	4.06	4.25	4.05	7.50	4.50
Sealed Polystyrene Cups											
Polystyrene up to 1L	5.07	5.53				4.27	4.06	4.25	4.05	4.00	2.20
Polystyrene over 1L	7.89	11.49				4.27	4.06	4.25	4.05	7.50	4.50
Pouch (up to 1L in AB	4.49	4.02				4.27	4.06	4.25	4.05	4.00	2.20
Plastic up to 500ml	5.07					4.27	4.06	4.25	4.05	4.00	2.20
Plastic 501ml to 1L	5.07					4.27	4.06	4.25	4.05	4.00	2.20
Plastic over 1L	7.89					4.27	4.06	4.25	4.05	7.50	4.50
Glass bottles up to 1L	6.77	7.58			2.00	4.27	4.06	4.25	4.05	4.00	3.50
Glass bottles over 1L	7.89	12.28			2.00	4.27	4.06	4.25	4.05	7.50	3.50
Drink box up to 500ml	5.08	5.08				4.27	4.06	4.25	4.05	4.00	2.20
Drink box 501ml to 1L	5.98	5.08				4.27	4.06	4.25	4.05	4.00	2.20
Drink box over 1L		14.62				4.27	4.06	4.25	4.05	7.50	4.50
Gabletop up to 1L	6.77	6.07				4.27	4.06	4.25	4.05		2.20
Gabletop over 1L	11.03	10.43				4.27	4.06	4.25	4.05		4.50
Bag in the Box over 1L	11.27	22.79				4.27	4.06	4.25	4.05		3.50
Bi-metal up to 1L	5.08	7.08				4.27	4.06	4.25	4.05	4.00	2.20
Bi-metal over 1L	11.27	13.05				4.27	4.06	4.25	4.05	7.50	4.50
Imported beer bottles	5.08	7.58				4.27	4.06	4.25	4.05	4.00	3.50
Liquor and wine ceramic						4.27	4.06	4.25	4.05		
Sleeman bottles		6.84				4.27	4.06	4.25	4.05		
Moosehead Green Bottle		10.42				2.57					
Refillable Beer (ISB)	[1]	4.64	2,6 [4]	2.67	0.50	2.74	2.90	5 [4]	2.81	2.50	
Beer Cans		3.17		2.04							
Milk up to 1 litre											2.00
Milk over 1 litre											3.50
Milk jugs	[2]~2.7		\$420/t[5]			\$407					
Milk cartons	[2]~4.09		\$150/t			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/doz or 2.42-cents/bottle.											
[2] About 166 Depots in BC are paid a handling fee for collecting milk jugs and carton. They are paid \$2.25 per bag for jugs and \$3.00 per bag for cartons. The fee shown in the table is based on 60 units per bag.											
[3] SK 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 on refillable beer is charged at the back-end from the refund. In SK it is 5-cents at SARCAN depots and 2-cents at SLGA stores who 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.											

How Have Handling Fees Changed Over Time?

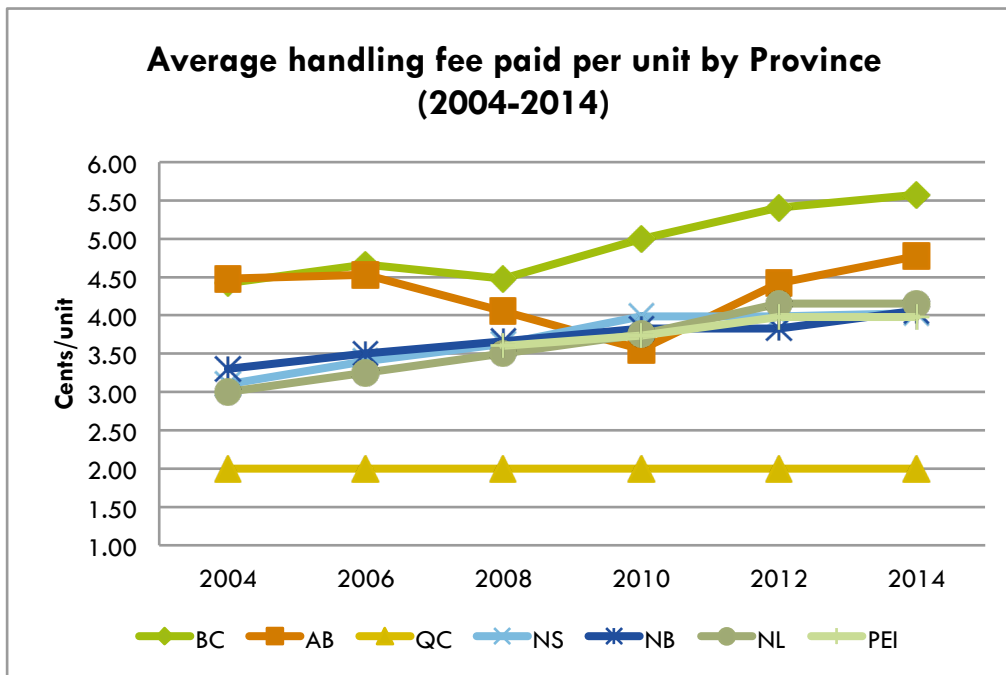
In the western provinces, where fees are pegged to the actual cost to recycle the material, fees have fluctuated up or down depending on the material and size of the container. The handling fee paid to depots for the most inexpensive to recycle container, the aluminum can, has increased very slightly from 2004 to 2016, from 3-cents to 3.37-cents in BC, and from 2.8 cents to 3.17 cents in Alberta. Rates have also increased every year or every other year for each material and size in BC. In Alberta, the fee rates for PET and small glass containers dropped in 2008 but increased again after 2010.

In Québec, CHF's have remained constant at 2-cents for all legislated containers since the program began. The Yukon and Northwest Territories have also kept the same CHF's since the start of their programs.

In the Atlantic Provinces, CHF's increased slightly every year or every other year. Specifically, in the years 2004-2016 fees in Nova Scotia increased from 3.1-cents to 4.3-cents, while New Brunswick's fees have gone from 3.3-cents to 4.06-cents. In Newfoundland and PEI, CHF's increased from 3.0-cents and 3.6-cents, to 4.25-cents and 4.05-cents, respectively over that 12 year period.

Figure 33 below shows the average handling fee paid per unit by province from 2004-2016.

FIGURE 33 AVERAGE HANDLING FEE PAID PER UNIT, BY PROVINCE (2004-2014)



BEVERAGE CONTAINER PACKAGING FEES

As of July 2016, five out of ten provinces have legislation in place requiring that industry share the costs of recycling their waste packaging and printed paper (PPP) with municipalities. Table 10 presents the percentage funding of net costs that producers pay into each program. The intention behind this is to create a financial incentive for producers to make design changes that reduce waste at the front end of the system, such as reducing the size and/or weight of packaging through material substitution or light-weighting.

TABLE 10 CURRENT PPP PROGRAMS THAT INVOLVE PRODUCERS IN FUNDING A % OF NET COSTS

	British Columbia	Saskatchewan	Manitoba	Ontario	Québec
% Net Costs Paid by Industry	100%	75%	80%	50%*	100%

*Note: The recently passed Bill 151, *Waste-Free Ontario Act* includes language that allows the Minister/Authority to increase producers' current funding cap for the Blue Box Program beyond 50%.

In each province with a PPP EPR program, the responsible agency (i.e. MMBC, MMSW, MMSM, Stewardship Ontario, and EEQ) collects fees from "stewards" (first importers, manufacturers, or brand owners) based on the amount of packaging their products contribute to the province's waste and recycling stream. Specific packaging or "stewardship" fees vary from one provincial program to another, and also by material type. Lower performing materials tend to have a proportionally higher share of the costs. As Table 11 shows, the fees can vary widely even within the same material category.

TABLE 11 2016 PACKAGING AND PRINTED PAPER STEWARDSHIP FEES (CENTS PER KILOGRAM)

Package Type	British Columbia ¹³⁴	Saskatchewan ¹³⁵	Manitoba ^{a136}	Ontario ¹³⁷	Québec ¹³⁸
Aluminum	45	24.32	-8.98 ^b	4.11	12.96
PET	31	17.54	16.80	17.50	28.03
HDPE	31	17.54	19.21	13.81	16.37
Other Plastics	54	24.62	41.18	33.32	31.61
Glass – Clear	25	13.80	7.14	3.78	18.38
Glass – Coloured	25	13.80	7.14	5.63	18.46
Steel / Bi-metal	52	15.76	13.85	6.21	15.64
Tetra Pak	52	22.47	37.86	24.93	23.70
Gabletop	52	22.47	37.86	24.93	21.19

^aThe fees in Manitoba apply only to those beverage containers that are not subject to the 2-cent CRF.

^bWhen a material fee is in the credit position, the steward receives a credit against their fees payable. This can happen when the market value of a material is so high that the revenues generated from the sale of the material exceeds the costs associated with managing it.

When comparing 2016 fee rates by province, we can see that BC charges the highest fees in nearly every material category (with the exception of glass and PET), followed closely by Québec. This is because BC is a full EPR program, meaning that stewards are responsible for 100% of program costs (starting May 2014). There is also the fact that more beverage containers in BC are covered by deposit-return legislation, which means the program loses out on economies of scale and material revenues, especially in relation to the loss of high value commodities like aluminum and PET.

The province of Québec is similar to BC in that it also requires 100% of eligible net costs to be paid by producers (although it is the municipalities that operate the system). This program began with 50% industry contributions in 2009, and increased to 80% in 2011, 90% in 2012, and finally 100% in 2013. Éco-Entreprises Québec's (ÉEQ) fee rates are developed using an Activity-Based Costing model and are based on the quantity and type of materials generated.¹³⁹ The fee structure also takes into account environmental criteria. In 2014, companies contributed approximately \$135 million¹⁴⁰ to 561 municipal agencies under the curbside recycling compensation plan (Note: There is another contribution for printed paper, which is "in-kind" and therefore not reported as a financial contribution.).

In Ontario, industry has been obligated to finance 50% of the net costs of municipal recycling programs since February 2003. (Under the recently passed Bill 151, producer's current funding cap for the Blue Box program could increase beyond 50%). Each municipality in the province that provides a blue box collection program is required to report the costs associated with running the program, tonnes collected, and revenue generated from the materials collected to Waste Diversion Ontario (WDO) via an online annual datacall. Once all the data submitted by municipalities has been verified, negotiations are conducted between Stewardship Ontario (SO) and municipalities to determine how much stewards are required to pay for that year. In 2014, the steward obligation to municipalities was \$115 million.¹⁴¹ The formula used to calculate steward fees takes into account a number of factors, such as material-specific collection rates, net costs of recycling each material, as well as a penalization factor for lower performing materials. Each year, as the costs and tonnages change, SO submits a new fee schedule that requires approval from the Minister of Environment.

Like Ontario, Manitoba's funding model (in place since April 2010) is based on a shared responsibility approach with industry. The difference is that in Manitoba, industry's contribution to the net costs of municipal recycling programs is set at a fixed rate of 80%, as opposed to 50%. Manitoba's funding model is also different in that it collects a 2-cent CRF from most non-alcoholic beverage distributors, in addition to and separate from regular PPP fees. These fees, which are typically passed down the recycling chain to consumers, are used to help finance 80% of MMSM's beverage related obligation, in addition to buying recycling bins and promoting the AfH recycling program.

Saskatchewan is the latest Canadian province to pass legislation implementing EPR for PPP. As of January 1, 2016, stewards (brand owners or first importers) of packaging, including all beverage-related consumer packaging, are obliged to finance 75% of the costs of municipal blue box recycling in Saskatchewan. As long as they are in compliance with MMSW standards, municipalities that join MMSW are eligible to receive compensation in the form of a set fee per household served.

In most Canadian PPP programs, packaging fees are levied on almost all types of containers. One exception is aluminum beverage cans in Québec, most of which are subject to deposits and therefore exempt from the municipal funding program. Only the aluminum used in non-beverage packaging such as tins of cat food, canned fish, foil, and pie plates, is subject to packaging fees. Consequently, aluminum in Québec carries a higher fee than it does in Ontario and Manitoba.

Because steward fees depend on material type and weight, per container fees can be calculated when the weight of each unit is measured. The following table (Table 12) shows 2016 fee rates for various types and sizes of containers that are more commonly found on store shelves.

TABLE 12 EXPRESSION OF FEES BY BEVERAGE CONTAINER TYPE FOR SELECT CONTAINERS (CENTS / UNIT SOLD) (2016)

Package Type		Weight (g)	BC	SK	MN	ON	QC
Gabletop	<i>2-L</i>	63	3.28	1.42	2.39	1.57	1.33
Gabletop	<i>1-L</i>	41	2.13	0.92	1.55	1.02	0.87
Gabletop	Small	14	0.73	0.31	0.53	0.35	0.30
Tetra Pak	<i>Small</i>	10.6	0.55	0.24	0.40	0.26	0.25
Bi Metal	Small	46.7	2.43	0.74	0.65	0.29	0.73
Glass	<i>473ml clear bottle</i>	228	5.70	3.15	1.63	0.86	4.19
Glass	<i>>1-L clear liquor</i>	737.2	18.43	10.17	5.26	2.79	13.55
Plastic	<i>2-L PET bottle</i>	58	1.80	1.02	0.97	1.02	1.63
Plastic	Small plastic	23	0.71	0.40	0.39	0.40	0.64
Plastic	<i>Outer milk bag – LDPE film</i>	8	0.43	0.20	0.33	0.06	0.18
Aluminum	<i>355ml can</i>	14	0.63	0.34	-0.13	1.57	1.33

*Italicized materials are based on Stewardship Ontario Blue Box Program Plan 2003.
Non-italicized materials are based on Encorp data.*

OVERVIEW OF SYSTEM COSTS AND REVENUES

In order to determine the costs of the various deposit-return programs operating in Canada, it is necessary to review income statements and other financial reports from the agencies managing those programs. Typical system costs include those associated with collection, transportation, processing, and marketing the materials, while revenues generally come from a combination of sources, such as from the sale of material collected, unredeemed container deposits, and consumer fees. This section discusses some of the factors that can impact recycling program costs and revenues, making the comparison of financial performance across programs very difficult.

System Costs

Many factors can affect program costs, including the collection rate, convenience level (i.e. collection frequency (weekly vs. biweekly), number of depots, etc.), economies of scale, and population density. This is why costs of provincial programs should not be directly compared with each other, as each program may have different operating parameters.

Programs in Manitoba, Ontario, and Québec have lower costs but collect fewer containers per capita than the deposit-return provinces. What is unknown is the cost of the away-from-home (AfH) programs. 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.

There may also 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 (see “Economic Benefits” section).

Revenue from Material Sales

Material sales revenues play an important role in helping to offset the gross costs of the program. This revenue will vary depending on the current market value of the materials collected, as well as on the types of containers collected and their respective collection rates.

In British Columbia and Alberta, where the DRS covers all material container types (excluding those for domestic beer), program revenues generated by material sales paid for 15%¹⁴² and 29%¹⁴³ of total program costs, respectively. In Ontario, where only wine, spirits, and beer containers are included under deposit-return, the amount of revenue generated from material sales, as a percentage of total system costs, is lower. This is attributable to the fact that over 90% of material collected is glass bottles, which are worth significantly less than the materials that typical deposit-return programs manage. Conversely, Québec's DRS for non-refillable containers 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.

The Role of Surplus

As discussed above, some provinces charge consumer fees on the purchase of beverage containers as a means of generating additional revenue. Consider the EHC in Saskatchewan, the half-back schemes in the Atlantic Provinces, and the CRF in the Northwest Territories. While this revenue comes from the consumer, it is not necessarily used to offset the costs associated with operating the recycling program for that year. These funds may be used to 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 PEI, all excess funds accrue to the provincial treasury. In 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 BC and Alberta, surplus revenues generated from the CRFs are used to offset the following year's recycling costs. In these provinces, surplus funds do not subsidize other programs and are adjusted regularly to reflect actual program shortfalls.

WHO BEARS THE SHARE?

In early editions of *Who Pays What*[™], we presented data on the costs associated with beverage container recycling in a way that enabled comparisons to be made on a program-to-program basis. As pointed out above, however, this approach is not the most suitable for comparing the efficiency and effectiveness of different programs as system costs (and revenues) can be affected by a myriad of program-specific factors (e.g., collection rates, convenience level, program scope, etc.), which makes meaningful comparison impossible.

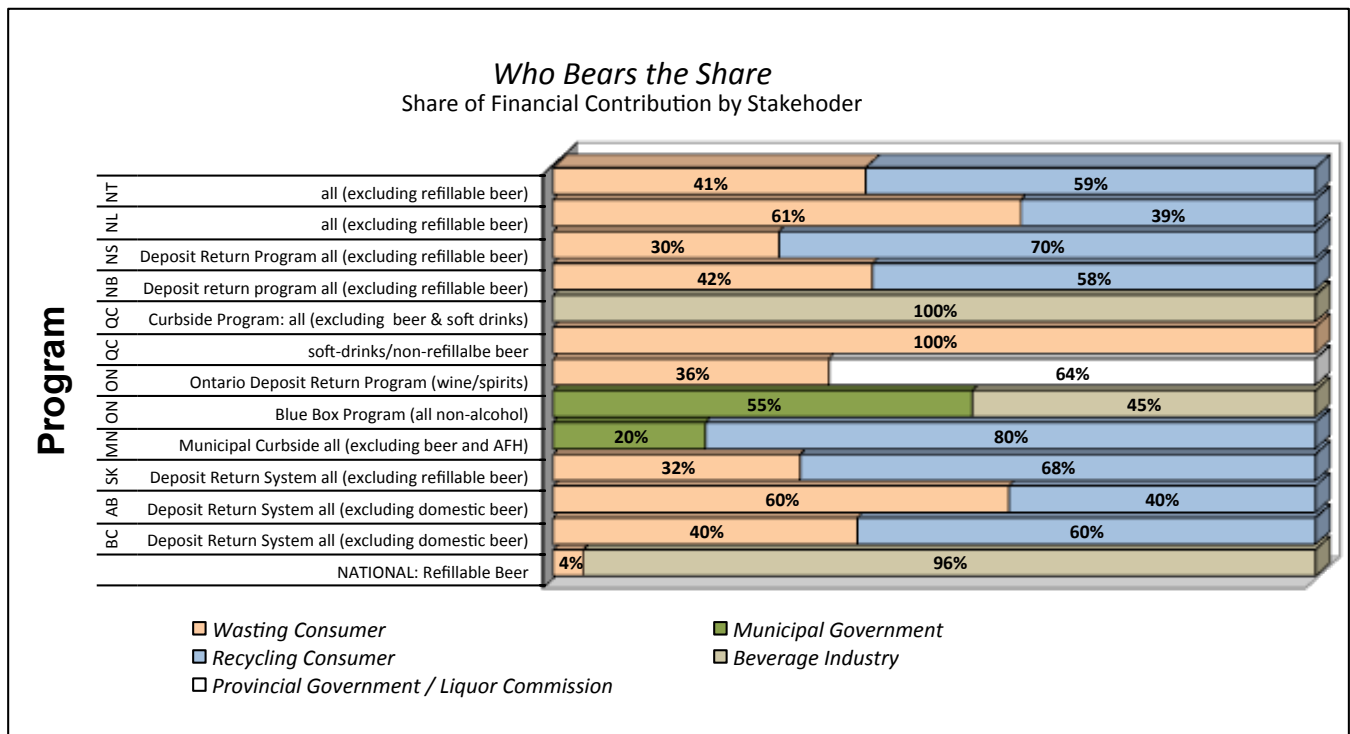
In recognition of this issue, in 2010 CM Consulting developed a new approach called "Who Bears the Share," that allows for a better understanding of how system costs are shared among the different players in each province. By identifying the share (percentage) of program costs that each stakeholder group is responsible for, this approach is intended to offer insight into the equity or fairness of the funding models used in each program.

The “share” is calculated by taking the stakeholder’s contribution and dividing that by the total amount of program funding (excluding material revenues). The formula is as follows:

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

Figure 34 shows the results of the Who Bears the Share analysis.

FIGURE 34 SHARE OF FINANCIAL CONTRIBUTION BY STAKEHOLDER, BY PROVINCE



Summary of Analysis

The *Who Bears the Share* analysis confirms that only in two provinces, Québec and Ontario, does the beverage industry pay for some portion of the costs for the collection and recycling of beverage containers. The industry pays for some costs of curbside collection because they are mandated through provincial EPR laws.

In most other provinces some or all of the system costs are also borne by the consumer. The consumer can be divided into two groups: the “wasting consumer” who does not redeem the container is paying more (per container, not necessarily overall) through unredeemed deposits; and the “recycling consumer”, who is paying through non-refundable consumer fees and halfback deposits in provinces where they are charged (BC, Alberta, Saskatchewan and

the Atlantic provinces). In addition to offsetting the costs of recovering beverage containers, a portion of these consumer fees may also be used as surplus funds for other provincial initiatives, such as waste diversion and environmental enhancement.

It is worth noting that only in Alberta, Québec, and Newfoundland do wasting consumers pay a larger share of the program costs than recycling consumers. Since 2013, Québec consumers who choose not to return their empty beverage containers bear 100% of the costs of the deposit-return program. In Alberta, wasting consumers bear approximately 60% of net program costs, whereas consumers who return their empty containers for recycling pay 40% (see Figure 35). This is because of Alberta's higher deposit levels, which translate into more revenue from unredeemed deposits. In BC, these percentages are reversed and recycling consumers pay 60% of program costs (see Figure 36). In Newfoundland, the lower recovery rate combined with the relatively high refund (in relation to the non-refundable portion) means there is a greater pool of unredeemed funds. Making wasting consumers pay a larger share than responsible consumers who ensure that their containers are recycled makes economic and environmental sense.

FIGURE 35 PERCENTAGE OF PROGRAM COSTS PAID BY WASTING VS. RECYCLING CONSUMER, BRITISH COLUMBIA (2014)

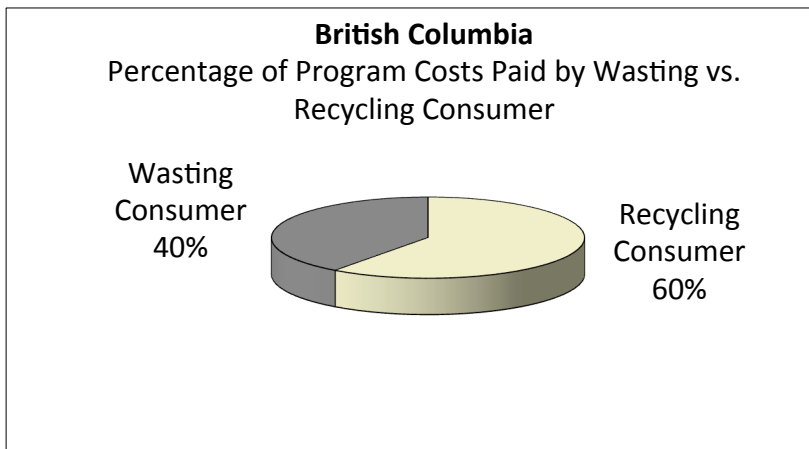
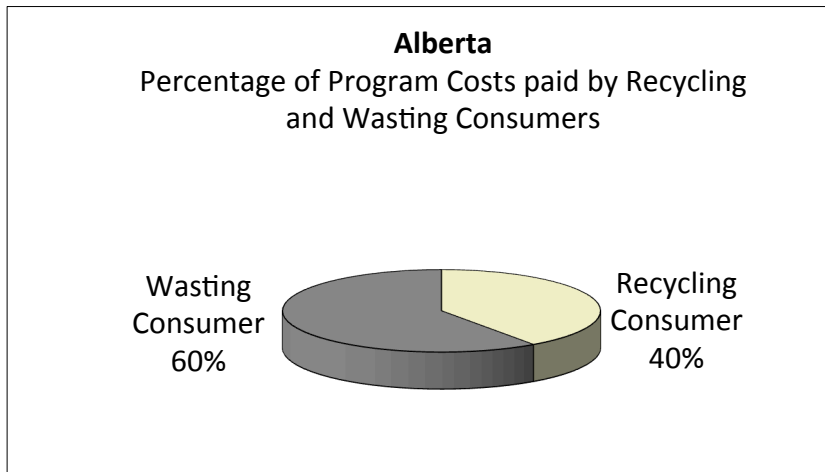


FIGURE 36 PERCENTAGE OF PROGRAM COSTS PAID BY WASTING VS. RECYCLING CONSUMER, ALBERTA (2014)



In Ontario's deposit system for alcohol beverage containers, the recycling consumer is refunded his entire deposit, so pays nothing. The wasting consumer pays 36% of the program cost and the rest is covered by the provincial liquor commission, the LCBO.

In Manitoba, Ontario and Québec, the producers or first importers of all non-deposit beverages are required to pay levies on all of their packaging sold into the residential stream. In British Columbia and Saskatchewan, this requirement applies only to milk. In Manitoba, 80% of program costs are covered by industry, through the 2-cent per unit levy applied to beverage purchases. In Ontario, the *Waste Diversion Act* mandates that industry reimburse municipalities 50% of the costs of the curbside recycling program. In Québec beverage producers (except those for non-refillable soft-drinks and beer which are on deposit) are legally obligated to finance 100% of the net costs to collect, transport, and process the materials, plus 8.55% of that amount to cover administrative costs (e.g. overhead, P&E, etc.) and the cost of collection equipment (e.g. recycling bins).¹⁴⁴

WHO PAYS WHAT?

Stakeholders

There are five (5) major stakeholder groups that fund beverage container recycling in Canada. Each group has a different role to play in the system, from the point at which a container is distributed and sold, to the point at which it is consumed and recycled.

Understanding the roles each stakeholder group plays and how economic incentives can be used to increase system efficiency is critical to informing policy development. To this end, the following section provides an analysis of the various stakeholders involved, and what their roles and responsibilities are when it comes to financing the system. Also discussed are some of the factors that impact each stakeholder group's relative contribution to total program costs, as well as observations on the fairness of the funding scheme.

The Recycling Consumer and the Wasting Consumer

The recycling consumer is the consumer who returns empty containers to an authorized redemption center or places them in a designated recycling bin (whether at home or away-from-home). Regardless of whether containers are recycled via a deposit-return or curbside program, the recycling consumer still has to pay a per unit consumer fee (i.e. CRFs, EHCs, half-back deposit) on the purchase of all applicable beverage containers. These fees, passed down to consumers by the beverage industry, are non-refundable and are used to offset system costs.

$$\frac{\text{TOTAL CONSUMER FEES PAID OUT (\$)}}{\text{TOTAL NUMBER OF CONTAINERS SOLD}}$$

The wasting consumer is the consumer who chooses not to redeem their containers for a refund. By voluntarily forfeiting their deposits, the wasting consumer bears the direct costs of his actions.

The cost to the wasting consumer is equal to the value of the unredeemed deposit, which can be anywhere between 5- and 40-cents depending on the program and/or type of container. In general, wasting consumers pay a significant portion of program costs. This “cost of wasting” is determined by the following calculation:

$$\frac{\text{TOTAL UNREDEEMED DEPOSITS (\$) + NON RETURNABLE FEE ON UNREDEEMED UNITS}}{\text{TOTAL UNREDEEMED CONTAINER (UNITS)}}$$

The percentage of program costs borne by the wasting consumer varies from province-to-province and depends on a number of factors, including the deposit value and whether beverage containers are subject to any upfront, non-refundable container fees. The higher the deposit is, the more expensive it is for the wasting consumer (higher cost of wasting), and therefore the higher share they will pay of the total program costs. Wasting consumers will also pay more when they are charged an up-front fee, as in British Columbia, Alberta, and Saskatchewan.

Table 13 shows the average cost to the recycling and wasting consumer per beverage container.

TABLE 13 EXPRESSION OF FEES BY BEVERAGE CONTAINER TYPE FOR SELECT CONTAINERS (CENTS/UNIT SOLD) (2016)

Province	Program	Recycling Consumer (Cents)	Wasting Consumer (Cents)
BC	wine /spirits / non-alcohol	4.1	10.3
AB	all (excluding domestic beer)	1.8	12.6
SK	all (excluding refillable beer)	5.3	15.3
MN	all (excluding beer)	2	2.0
ON	all non-alcohol	0	0
ON	wine/spirits (mostly glass)	0	13.9
QC	soft-drinks/non-refillable beer	0	5.6
QC	all (excluding beer & soft drinks)	0	0
NB	all (excluding refillable beer)	5.8	10.7
NS	all (excluding refillable beer)	5.2	11.2
NL	all (excluding refillable beer)	3.0	8.0
NT	all (excluding refillable beer)	5.6	14.0

Municipal Government

In Canada, waste collection, diversion, and disposal operations are the responsibility of municipal governments. Their responsibilities also extend to litter abatement. Unless the municipality adopts user-pay mechanisms or an EPR program has been put in place to shift some of the financial responsibility to producers, much of the costs associated with providing these services—including collecting beverage containers from residential, single-family and some multi-family residences—are borne directly by municipal taxpayers.

This means households generating small amounts of waste or recyclables are forced to subsidize higher producers. Paying for residential waste management by using municipal property taxes could be the wrong approach as it removes a powerful incentive to reduce waste and engage in pro-recycling behavior. It also gives consumers the impression that recycling/composting is free, which distorts costs and devalues the service.

In recognition of this problem, a number of provinces have passed EPR legislation to relieve municipalities of a set portion of the cost burden that they have historically borne for waste management. The latest province to adopt such legislation is Saskatchewan. Effective January 1, 2016, producers are required to reimburse municipalities for up to 75% of the net

costs to operate residential PPP programs, leaving them to cover the remaining 25%. In Manitoba, this portion is 20%, with the remaining 80% being financed by industry. The percentage of costs borne by municipalities in Ontario is much higher at 50%. It is worth noting, however, that the current 50% industry-funding cap could be lifted under the recently passed Bill 151, allowing for industry to pay a greater share of program costs. This, in turn, would decrease the share borne by municipal government.

BC and Québec are the only two provinces where municipalities are completely relieved of the financial burden of recycling and waste management. Québec was the first to set a precedent when it moved to 100% industry-funding in January 2013. It did this incrementally, by decreasing the percentage of the net costs borne by municipalities for multi-material recycling programs from 30% in 2010, to 20% in 2011, to 10% in 2012, and finally to 0% in 2013. BC followed suit in May 2014, with the implementation of the MMBC program.

Provincial Governments or Liquor Commissions

Most provincial governments in Canada bear no share of the costs of beverage container recycling, but Ontario is an exception. In Ontario, the costs of operating the deposit-return program for wine and spirit containers are split between the province's liquor commission—the Liquor Control Board of Ontario (LCBO)—and the wasting consumer. Specifically, the LCBO pays 4.99-cents (net) on every unit sold. This amount represents the net cost of recycling after unredeemed deposits are used to offset gross costs.

The Beverage Industry

As discussed above, industry is slowly being forced to take on an increasing share of financial responsibility for the end-of-life management of products and packaging, including beverage containers. The idea behind this is sensible: those who have the greatest ability to influence the lifecycle impacts of the product should have the greatest responsibility for recovering and recycling those same products at end-of-life. In the case of beverage containers, these are the beverage companies.

Currently, there are five provinces in Canada where industry is directly responsible for paying a certain percentage of PPP recycling costs: BC (100%), Saskatchewan (75%), Manitoba (80%), Ontario (50%), and Québec (100%). In these provinces, beverage producers or first importers of all non-deposit beverages are required to pay material-specific levies on all their packaging sold into the residential stream (In BC and Saskatchewan, this requirement applies only to milk). In Québec, if the deposit system is running a deficit, soft drink producers are required to pay a fee for every container sold into the province. Although BGE collected such fees in 2014 (to cover potential system deficits), the program generated a surplus and soft drink producers have since been reimbursed.¹⁴⁵

With respect to deposit-return programs, the only jurisdiction in which industry bears a share – albeit a very small share – of beverage container recycling costs is Québec. Whereas in other deposit-return provinces the bulk of system costs are paid by consumers through fees and

unredeemed deposits, in Quebec there is no CRF or half-back deposit system, which means that recycling consumers pay nothing. It should be noted that in the last few years the percentage of costs borne by industry has been reduced to zero because material revenue and unredeemed deposits have been high enough to cover the entire cost of the program.

The Domestic Beer Industry (Refillable Containers)

Canada's 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 bottles (ISBs). Managed collectively by brewers and founded on a DRS 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.