Canadian Beverage Association
Association canadienne des boissons

BC Refrigeration Units Stewardship Plan

Annual Report to the Director

2017

Submitted to: **Director, Extended Producer Responsibility Programs**
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Executive Summary

Products within Plan	**Vending Machines, Refrigeration Coolers, Beverage Dispensing Systems operated for commercial purposes only by Canadian Beverage Association (CBA) members.**
Program website	http://www.canadianbeverage.ca/environment/stewardship/

Recycling Regulation Reference	Topic	Summary
Part 2, section 8(2)(a)	Public Education Materials and Strategies	▪ **Stewardship Plan and annual reports continue to be posted on CBA's website** ▪ **CBA to continue to provide any third-party instructions on where refrigeration units can be properly disposed for end-of-life management**
Part 2, section 8(2)(b)	Collection System and Facilities	▪ **Refrigeration units are collected by CBA members at three locations in BC** ▪ **Once collected, units destined for end-of-life management are transported to one of five processing facilities**
Part 2, section 8(2)(c)	Product Environmental Impact Reduction, Reusability and Recyclability	▪ CBA members continue to retrofit or refurbish refrigeration units throughout their lifecycle to extend their useful life in-trade. ▪ Further efforts are being undertaken to reduce environmental impacts, including: the recycling and reuse of old parts removed from units during refurbishment/repairs, as well as phasing out the use of hydroflourocarbons in refrigeration equipment
Part 2, section 8(2)(d)	Pollution Prevention Hierarchy and Product / Component Management	▪ **Refrigeration units that are collected are either refurbished/re-used or sent for recycling to metal processor in British Columbia (See table 5)** ▪ **Approximately 82% of the components in each beverage vending machine are recycled (See table 4)** ▪ **Approximately 84% of the components in each beverage cooler are recycled (See table 4)** ▪ **Approximately 75% of the components in each beverage dispensing unit are recycled (See table 4)**
Part 2, section 8(2)(e)	Product Sold and Collected and Recovery Rate	▪ **5,682 refrigeration units were introduced into trade in 2017 (See table 6)** ▪ **4,893 refrigeration units were collected in 2017 for end-of-life management, collected for refurbishment and sold third parties (See table 7)** ▪ **Collection rate for 2017 was 87.06% (See table 7)**
Part 2, section 8(2)(e.1)		▪ **All products collected in British Columbia (4,890) are collected in three locations in the Greater Vancouver Regional District**
Comparison of Key Performance Targets		

Recycling Regulation Reference	Topic	Summary
Part 2 section 8(2)(g); See full list of targets in Plan Performance		

Priority Stewardship Plan Targets (as agreed with ministry file lead)	Performance	Strategies for Improvement
Annual Collection Target: 80%	**Collection Rate: 87.06**	***(N/A exceeded target)***

Program Outline

The Canadian Beverage Association (CBA)[1] is the national industry association representing the broad spectrum of brands and companies that manufacture and distribute the majority of non-alcoholic refreshment beverages consumed in Canada.

In 2012, the CBA submitted a Stewardship Plan in accordance with Part V of British Columbia's (BC) Recycling Regulation, for beverage refrigeration units, including coolers, vending machines and beverage dispensing systems, which exhibit their branding or are owned outright by a participating CBA member beverage company. This report is the fifth annual report of the Stewardship Plan (hereafter "the Plan") and includes our program performance and collection rates for the year of 2017.

The four members participating in the Plan, include:

- Coca-Cola Refreshments Canada
- PepsiCo Beverages Canada
- Red Bull Canada
- Cott Beverages Canada (Now Refresco Group)

All beverage refrigeration units covered under this Plan are used for commercial purposes and are managed by internal process by CBA member companies and/or their distributors throughout the units' lifecycle. The products covered under the Plan include the following CBA member-owned and branded refrigeration units:

Table 1: Products covered under Stewardship Plan

Product Type	Further Description
Beverage Coolers	Countertop, 1 door units, 2 door units, 3 door units
Beverage Vending Machines	72" and 79" high machines that distribute cans and/or PET bottles
Beverage Dispensing Systems	Bar guns, Counter units, Drop-in units, Combo units

[1] www.canadianbeverage.ca

General Disclosure:

Due to system limitations and operational disruptions during the year, we disclose that there were some deficiencies in the data and supporting documentation available during the verification process.

One member's data was entirely self-reported. Another member's data was self-reported due to upgrades to IT infrastructure. One member's opening balance required restatement to reflect additional units found using updated report query to resolve system limitations.

The CBA continues to refine the program's data collection and management processes for future reports.

Public Education Materials and Strategies

The Stewardship Plan only includes commercial products managed and processed internally by CBA members and distributors. To ensure public awareness of our industry's efforts to properly manage our refrigeration units, the CBA will continue to post the Plan and annual reports on our website. The link to the website is the following: http://www.canadianbeverage.ca/environment/stewardship/.

CBA members will continue to place a notification sticker on all refrigeration units if sold to a third-party to direct the third-party to contact the CBA for instructions on where the unit can be properly disposed of at its end-of-life.

Collection System and Facilities

There has been no change in the collection system or number of facilities used from the 2016 Annual Report.

CBA members continue to operate a closed-collection network and any maintenance or refurbishments (parts replacements, etc.) are undertaken by the beverage company or its local distributor. Therefore, when a unit requires retrofitting or refurbishment, it is collected and transported by the member or distributor to their facility for further triage and maintenance.

Units are collected for end-of-life (EOL) management and refurbishment at four collection locations depending on the steward of the unit. Three collection locations are located in Metro Vancouver Regional District. Two of these locations are CBA members' own facilities, with the third location being the facility of a distributor who manages units on behalf of the steward. The fourth location is located in Brampton, Ontario.

When it has been determined that a piece of refrigeration equipment can no longer be used by the CBA member, a decision is made to remove the equipment as an asset from the company's list of assets and to have the machine recycled and processed by a contracted BC third party (referred to as a processor).

Five processing facilities were used by stewards for EOL management and four of these facilities are located in the Metro Vancouver Regional District, with the exception of one location, which is located in Brampton, Ontario. Processing facilities in British Columbia include the following locations:

ABC Recycling
8081 Meadow Avenue
Burnaby, BC V3N 2V9

Allied Salvage
11651 Twigg Place
Richmond, BC V6V 2K7

Joss Brothers Recycling Limited
12195 Industrial Rd.
Surrey, BC V3V 3S1

RYPAC Metal Recycling
11849 Tannery Rd.
Surrey, BC V3V 3W8

Product Environmental Impact Reduction, Reusability and Recyclability

Most CBA members' refrigeration units undergo more than one retrofit or refurbishment throughout their lifecycle to extend their useful life in-trade. Furthermore, CBA members increasingly use units that depreciate much slower, delaying the need for disposal. Additional efforts undertaken to reduce environmental impact include the recycling and reuse of old parts removed from units during refurbishment/repairs.

An area of continuous improvement relates to the manufacturers and beverage companies as a whole. Efforts in the industry to increase the useful life of all refrigeration equipment through enhanced durability and modular systems that can be more easily replaced and repaired will reduce the number of units managed for EOL over time.

Leadership on Halocarbon Management

CBA members actively take steps to manage halocarbons, as well as play leadership role to reduce the use of hydroflourocarbons (HFCs) in refrigeration equipment. HFCs are powerful greenhouse gases (GHGs) with global warming potentials (GWP) thousands of times greater than carbon dioxide. These chemicals were introduced for use as refrigerants and blowing agents to replace ozone-depleting substances (ODS).

As part of the CBA's efforts to address climate change, CBA member companies with facilities in BC are phasing out the use of HFCs in refrigeration units. These efforts include transitioning to natural refrigerants or refrigerants with a low GWP, and installing HFC-free insulating foam in new beverage machines.

For existing machines that still contain ODSs and HFCs, CBA members track and manage these chemicals in accordance with BC Regulation 387/99. Member companies either have their own trained, licensed technician remove refrigerants from the compressors of beverage machines or have a licensed service provider do so for them. The refrigerant is safely recovered into a container that is then returned to the supplier for reclamation or destruction.

Pollution Prevention Hierarchy and Product / Component Management

Beverage coolers, beverage vending machines and beverage dispensing system units are owned by beverage companies and placed in commercial facilities for use. Therefore, CBA members are individually responsible for the maintenance and end-of-life management. All CBA members in the Plan have internal processes, which ensure the collected product is managed appropriately as per the pollution prevention hierarchy.

Generally, if a unit breaks down in use, the machine will either be repaired on-site, or removed to a member's off-site triage facility to be repaired. When the equipment is removed, it is replaced with either a used machine or a new machine.

The average lifespan of these types of machines tends to be extensive, although maintenance and servicing is required to ensure longevity and developments in technology have increased the lifespan of machines. The following table shows the average lifespan of the different types of refrigeration equipment.

Table 2: Average lifespan of different types of refrigeration equipment

Product Type	Average Product Lifespan
Beverage Coolers – Small (countertop)	3-6 years
Beverage Coolers – Larger	13 -15 years
Beverage Vending Machines	9 - 12 years
Beverage Dispensing Systems	7 – 9 years

Before a beverage machine is recycled, the refrigerant is removed from the compressor by a licensed technician for reclamation or destruction in accordance with provincial regulations. Additionally, the oil and fluorescent lightbulbs, as well as any other useful parts, are removed to be reused or recycled. Once refrigeration units are ready for EOL management, they are shipped to intermediary scrap metal processors. Refrigeration equipment from CBA members is a very small percentage of the overall metal managed by intermediary processors. As a result, beverage refrigeration equipment is mixed with other scrap metal, including major appliances (such as washers, dryers, and freezers), car bodies and other light mixed metals (e.g. bicycle frames, barbeques, metal sheets and siding, metal doors, and shelving) from various residential and commercial sources.

The intermediary processors based within BC then sell the baled metal to downstream scrap metal processors where the equipment is shredded to recover the various ferrous and non-ferrous metals. These scrap metal processors use large electric-powered hammer mill shredders that pulverize bales of mixed metals, which are composed of automobile bodies, appliances, and other light mixed scrap metal. Once the scrap metal is pulverized into small pieces, they are then sorted by different "downstream" metal separation processes including magnets, trommels, screens, optical scanners, eddy currents, and other types of proprietary process equipment. Shredder output, which is known as "aggregate" in the industry, is an intermediate process material that contains significant amounts of valuable ferrous and nonferrous metal that is separated and sold as commodities. In total, ferrous and non-ferrous metals recovered through these operations account for approximately 75% of the inbound material.

The remaining estimated 25% of the material from the shredded equipment cannot be recovered and is commonly referred to as shredder fluff. Shredder fluff, is a mixture of largely non-metallic materials resulting from the shredding of auto bodies, appliances, and other scrap metal materials. It consists primarily of foam, fabric, plastics, rubber, tires, glass, wood, and debris materials, along with minute

amounts of remaining metallic material that is too small to be economically separated and removed from the aggregate.

This shredded fluff also consists of approximately 1% of non-recoverable ferrous and non-ferrous metals such as strips of copper or aluminum that are wrapped around parts of the equipment or metals imbedded in the insulation or plastic materials. This material cannot be recovered and is therefore sent for disposal.

Table 3: Acceptable Product End Fate Matrix

If possible, units are retrofitted or refurbished; if reuse is not possible the unit is destined for end of life management. This table only considers units sent for EOL management.

Unit	Reused	Recycle	Energy Recovery	Land Fill
Vending Machines	**N/A**	**1st Preference**	**N/A**	**X**
Cooler Units	**N/A**	**1st Preference**	**N/A**	**X**
Beverage Dispensing Systems	**N/A**	**1st Preference**	**N/A**	**X**

Table 4: Estimated Product End Fate Data for year ended December 31, 2017[2]

Unit	Reused	Recycle	Energy Recovery	Land Fill	Unknown
Vending Machines	**0%**	**82%**	**0%**	**18%**	**N/A**
Cooler Units	**0%**	**84%**	**0%**	**16%**	**N/A**
Beverage Dispensing Systems	**0%**	**75%**	**0%**	**25%**	**N/A**

[2] Units sent for EOL Management

Table 5: Processing Pathways for EOL Management

The table below demonstrates the general nature of the processing pathway which occurs once a unit can no longer be used by the CBA member company (i.e. can't be refurbished/re-used) and is sent to a third-party processor for recycling and processing. The first phase of processing consists of the unit being sent to intermediary processor in British Columbia, where the unit is baled and sold to a downstream processor located in province or elsewhere in North America. At the second phase of processing the bale is shredded to separate recyclable mixed metal components from non-recyclable mixed materials. Depending on the unit type, at least 75% of the unit's components are recycled while the remaining 16-25% of components are sent for landfill disposal.[3]

Unit	Nature of Processing	
	Phase#1 - Transfer to Intermediary Processor in British Columbia	**Phase#2 - Transfer to direct processor in British Columbia or elsewhere in North America**
Vending Machines	100% of unit components	~82% of unit components recycled (mixed metal)
Cooler Units	100% of unit components	~84% of unit components recycled (mixed metal)
Beverage Dispensing Systems	100% of unit components	~75% of unit components recycled (mixed metal)

Product Sold and Collected and Recovery Rate

The tables and information below show highlights of the Stewardship Plan for the year of 2017. In 2017, the total number of products collected was 4,893. The total number of units introduced and distributed into the province was 5,682 based on self-reporting by CBA members.

Table 6, located on the next page, shows the total number of refrigeration units at the start of Quarter 1 2017 compared to the end of Quarter 4 2017 in-trade.

[3] In response to a Ministry request to review the baseline study for the stewardship Plan, the CBA engaged Reclay StewardEdge (RSE). RSE had prepared the research for our association's original 2013 Baseline Study Report by conducting interviews with local scrap metal processors. After reassessing the baseline study and conducting additional research to ensure its accuracy, RSE confirmed in December 2017 that it "is confident the original recovery assumptions from the 2013 Baseline Study for CBA member refrigeration units remains valid and accurate." RSE's original baseline recycling rate analysis found that the average recycling rate for all refrigeration units is 83%.

Table 6: Number of units' in-trade at start of Q1 2017 and at the end of Q4 2017

	Number in-trade: start of Q1 2017	Introduced into trade: Q1-Q4 2017[4]	Removed from trade: Q1-Q4 2017[5]	**Number in-trade: end of Q4 2017**	**Net Change: 2017 Year End[6]**
Beverage Vending Machines	**7,946**	617	1,112	**7,267**	**-495**
Beverage Coolers	**26,840**	3,710	3,230	**27,472**	**480**
Beverage Dispenser Systems	**8,134**	1,355	1,278	**8,243**	**77**
Total	**42,920**	5,682	5,620	**42,982**	**62**

The Recycling Regulation defines the recovery rate as the amount of product collected divided by the amount of product generated. However, the nature of our products as long-life assets and therefore the indirect correlation between products distributed into the province and collected in the year, results in the recovery rate not being applicable.

Due to the closed-loop nature of stewards' refrigeration and vending operations, as well as the high monetary value of refrigeration units, they are directly managed and tracked throughout their lifecycle until they are sent to processors for end of life management. A small number of units annually are sold to retailers/customers for continued use and exit the Plan's tracking system. A number of units are also transferred out of province. However, stewards inform and educate retailers/customers where vending/refrigeration units can be properly managed at the end of their lifecycle. It is only when units are lost-in-trade (i.e. stolen or misplaced by customer/retailer) that they may not be properly managed (i.e. collected) at the end of their lifecycle. Therefore, the Plan's collection rate is calculated by the following:

$$\frac{\textbf{\textit{Units Collected}} \text{ (Units sold to 3rd parties, units collected for refurbishment, units sent for EOL management and units transferred to other provinces)}}{\textbf{\textit{Units Removed from Tracking System:}} \text{ (Nominator plus \# of units lost in trade and other adjustments with a net removed from trade position)}}$$

[4] Includes both new and refurbished units as well as other adjustments with a net in-trade position.
[5] Includes units sold to third-parties, collected for refurbishment, collected for EOL management or lost in trade and other adjustments with a net removed from trade position.
[6] Net change equals Q1 number in-trade plus, new in trade plus other adjustments with a net in-trade position, less units lost in trade, units sold to 3rd party, units collected for EOL management, units in refurbishment/retro-fitting, and less other adjustments.

Table 7: Collection Rate for the Year of 2017

	(a) # of Units Collected for EOL Management	(b) # of Units Sold to 3rd Party	(c) # of Units in Refurbishment	(d) # of Units Transferred to Other Provinces[9]	(e) # of Units Collected	(f) # of Units Lost in Trade (2017)	(g) Other Adjustments	(h) Units Removed from Tracking System	Collection Rate (%)
Beverage Vending Machines	697	1	116	71	885	227	0	1,112	79.59%
Beverage Coolers	1,243	86	725	829	2,883	347	0	3,230	89.26%
Beverage Dispenser Systems	733	3	188	201	1,125	153	0	1,278	88.03%
Total	**2,673**	**90**	**1,029**	**1,101**	**4,893[7]**	**727**	**0**	**5,620**	**87.06%**
Notes:					*(a)+(b)+(c)+(d)*			*(e)+(f)+(g)*	*(e)/(h)*

Table 8: Geographic Breakdown of Units Collected Based on Collection Facilities

	Beverage Vending Machines	Beverage Coolers	Beverage Dispenser Systems	Total
Metro Vancouver Regional District	882	2,883	1,125	**4,890**
Other BC Regional Districts	N/A	N/A	N/A	N/A
Other (Out-of-Province)	3	0	0	**3**

[7] Of the 4,893 units collected, 3,162 are self-reported for 2017.

Plan Performance

Summary of Program Performance Measures:

Measures	**Targets/Goal**					
	2012	2013	2014	2015	2016	2017
Collection	75% target committed to in Plan. Gather baseline collection data to confirm future year recovery rates.	Collection Target is 80% **Collection Rate:** 81%	Collection Target is 80% **Collection Rate**: 95.39%	Collection Target is 80% **Collection Rate:** 94.01%	Collection Target is 80% **Collection Rate:** 90.52%	Collection Target is 80% **Collection Rate:** 87.06%
Collection System	No specific target was committed for 2017. CBA members to continue to maintain complete reverse logistics for products retained which remain in operation or "in-trade" until end of life. For products sold to third-parties for continued use (~2% of products available at end of life), the CBA is committed to providing education and collection options.					
Consumer Awareness	No specific target was committed for 2017. CBA members to maintain current processes. Given product longevity and specificity of the market, CBA commits to continue to make third-parties aware of the stewardship program through notification on product itself and details included in purchase agreements.					
Product Life Cycle	Depends on product type (see *Pollution Prevention Hierarchy and Product / Component Management Section above)*	No specific target was committed for 2013. Depends on product type (see *Pollution Prevention Hierarchy and Product / Component Management Section above)*	No specific target was committed for 2014. Depends on product type (see *Pollution Prevention Hierarchy and Product / Component Management Section above)*	No specific target was committed for 2015. Depends on product type (see *Pollution Prevention Hierarchy and Product / Component Management Section above)*	No specific target was committed for 2016. Depends on product type (see *Pollution Prevention Hierarchy and Product / Component Management Section above)*	No specific target was committed for 2017. Depends on product type (see *Pollution Prevention Hierarchy and Product / Component Management Section above)*
Pollution Prevention Hierarchy	Target all products for collection and management	No specific target was committed for 2013.	No specific target was committed for 2014.	No specific target was committed for 2015.	No specific target was committed for 2016.	No specific target was committed for 2017.

	according to the PPH.	Target all products for collection and management according to the PPH.	Target all products for collection and management according to the PPH.	Target all products for collection and management according to the PPH.	Target all products for collection and management according to the PPH.	Target all products for collection and management according to the PPH.

APPENDIX A:

Third Party Assurance Statement for Non-Financial Information