Canadian Beverage Association
Association canadienne des boissons

BC Refrigeration Units Stewardship Plan

Annual Report to the Director

2021

Submitted to: **Director, Extended Producer Responsibility Programs**
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June 29, 2022

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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 locations in BC ▪ Once collected, units destined for end-of-life management are transported to one of two 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 hydrofluorocarbons 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 4) ▪ 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	▪ 4,658 refrigeration units were introduced into trade in 2020 (See table 6) ▪ 3,724 refrigeration units were collected in 2020 for end-of-life management, collected for refurbishment and sold third parties (See table 7) ▪ Collection rate for 2020 was 85.75% (See table 7)
Part 2, section 8(2)(e.1)		▪ All products collected in British Columbia are collected in two locations in the Metro Vancouver Regional District
Comparison of Key Performance Targets		
Part 2 section 8(2)(g); See full list of targets in Plan Performance		

Recycling Regulation Reference	Topic	Summary
Priority Stewardship Plan Targets **(as agreed with ministry file lead)**	**Performance**	**Strategies for Improvement**
Annual Collection Target: 80%	**Collection Rate: 85.75%**	One member has a fully revised tracking system, which has provided additional insight into machinery and provided opportunity for even better management.

Program Outline

The four members participating in the Plan, include:

- Coca-Cola Canada Bottling Limited
- Coca Cola North America
- PepsiCo Beverages Canada
- Red Bull Canada

In the 2020 report, the same four members participated.

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	Counter units, Drop-in units, Combo units

General Disclosure:

This is the first self-assessed report conducted by the Canadian Beverage Association on behalf of its members. The same process was followed as in previous years. The results continue to show strong stewardship of refrigeration equipment.

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/[1].

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

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 five collection locations depending on the steward of the unit. The collection locations are located in the Metro Vancouver Regional District.

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, which are located in the Metro Vancouver Regional District. These facilities include the following locations:

ABC Recycling
8081 Meadow Avenue
Burnaby, BC V3N 2V9

[1] CBA will be launching a new website in the late summer of 2022. This report may not be available through the same pathway, but will be posted in a prominent location on the same website at canadianbeverage.ca

Jim Galbraith Trucking LTD
23617 16 Avenue
Langley, BC V2Z 1K8

RYPAC
11849 Tannery Rd
Surrey BC V3V 3W8

Carrier Enterprises
Suite 101 26868 56 Avenue
Langley, BC V4W 1N9

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

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 hydrofluorocarbons (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, 2021[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 2021. In 2021, the total number of products collected was 3,724. The total number of units introduced and distributed into the province was 4,658.

Table 6, located on the next page, shows the total number of refrigeration units at the start of Quarter 1 2021 compared to the end of Quarter 4 2021 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 remain valid and accurate."

Table 6: Number of units in-trade at start of Q1 2021 and at the end of Q4 2021

	Number in-trade: start of Q1 2021	Introduced into trade: Q1-Q4 2021[4]	Removed from trade: Q1-Q4 2021[5]	**Number in-trade: end of Q4 2021**	**Net Change: 2021 Year End[6]**
Beverage Vending Machines	**4,028**	291	-650	**3,850**	**-359**
Beverage Coolers	**22,137**	3,960	-3,292	**23,228**	**668**
Beverage Dispenser Systems	**4,080**	407	-401	**4,343**	**6**
Total	**30,245**	4,658	-4,343	**31,421**	**315**

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:

Units Collected (Units sold to 3rd parties, units collected for refurbishment, units sent for EOL management and units transferred to other provinces)

Units Removed from Tracking System: (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/retrofitting, and less other adjustments.

Table 7: Collection Rate for the Year of 2021

	(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 (2020)	(g) Other Adjustments	(h) Units Removed from Tracking System	Collection Rate (%)
Beverage Vending Machines	-304	0	-211	-57	**-572**	-78	0	**-650**	88.00%
Beverage Coolers	-598	-12	-1,607	-575	**-2,792**	-500	0	**-3,292**	84.81%
Beverage Dispenser Systems	-141	-5	-37	-177	**-360**	-41	0	**-401**	89.78%
Total	-1,043	-17	-1,855	-809	**-3,724**	-619	0	**-4,343**	**85.75%**
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	515	2,205	178	**2,898**[7]
Other BC Regional Districts	N/A	N/A	N/A	N/A
Other (Out-of-Province)	N/A	N/A	N/A	**N/A**

[7] This number does not include units sold to third parties, transferred to other provinces, or lost in trade.

Plan Performance

Summary of Program Performance Measures:

Measures	**Targets/Goal**								
	2012	2013	2014	2015	2016	2017	2019	2020	2021
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 Target is 80% **Collection Rate:** 71.89%	Collection Target is 80% **Collection Rate:** 86.46%	Collection Target is 80% **Collection Rate:** 85.75%
Collection System	No specific target was committed for 2021. 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 2021. 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*	No specific target was committed for 2013. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2014. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2015. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2016. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2017. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2019. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2020. Depends on product type (see *Pollution Prevention*	No specific target was committed for 2021. Depends on product type (see *Pollution Prevention*

	Section above)	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*	*Hierarchy and Product / Component Management Section above)*
Pollution Prevention Hierarchy	Target all products for collection and management according to the PPH.	No specific target was committed for 2013. Target all products for collection and management according to the PPH.	No specific target was committed for 2014. Target all products for collection and management according to the PPH.	No specific target was committed for 2015. Target all products for collection and management according to the PPH.	No specific target was committed for 2016. Target all products for collection and management according to the PPH.	No specific target was committed for 2017. Target all products for collection and management according to the PPH.	No specific target was committed for 2019. Target all products for collection and management according to the PPH.	No specific target was committed for 2020. Target all products for collection and management according to the PPH.	No specific target was committed for 2021. Target all products for collection and management according to the PPH.