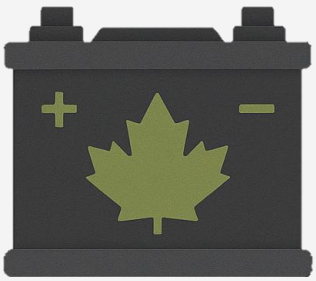
Canadian Battery Association

British Columbia

2023 EXTENDED PRODUCER RESPONSIBILITY ANNUAL REPORT



Canadian Battery Association

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1) Executive Summary

In 2023, the Canadian Battery Association (CBA) continued to deliver strong environmental performance under British Columbia's lead-acid battery (LAB) stewardship program. Through BC's proven Return-to-Retail (R2R) collection model and a network of 39 registered collection facilities, end-of-life lead-acid batteries were systematically diverted from the municipal waste stream and directed to licensed secondary smelters for closed-loop recycling.

The 2023 program data was collected retrospectively in 2025. Several CBA members experienced difficulty retrieving historical sales and recovery records for the 2023 calendar year, as the data collection occurred significantly after the reporting period had closed. As a result, the figures reported here are likely understated relative to actual program performance. Based on the data members were able to reconstruct and submit, CBA members reported total sales of 22,180,031 kilograms and recoveries of 16,377,927 kilograms in British Columbia, reflecting a recovery rate of 73.8%. On a per-capita basis, BC achieved 3.93 kg sold per person and 2.90 kg recovered per person.

Consumer awareness of LAB recyclability remained strong in 2023 based on the most recent 2022 Leger consumer survey. The survey showed 69% of respondents recognize that LABs are recyclable, and 81% of DIY battery changers know where to return them — reflecting the continued effectiveness of the return-to-retail model and its embedded consumer messaging at the point of purchase.

The CBA's collection network served an estimated 93.0% of the BC population residing in recognized census areas in 2023, as assessed using the Eunomia Index of Remoteness accessibility framework. The program exceeded its service targets in three of five accessibility tiers, including the two largest by population — Easily Accessible (99.7% served, target 95%) and Accessible communities (91.3% served, target 90%). Two tiers — Less Accessible and Very Remote — did not meet their targets, a result attributable in significant part to the reduction in the registered RCF network following amendments to BC's Hazardous Waste Regulation in 2023. In direct response to the service gap in remote and First Nations communities, the CBA in May 2023 formalized a strategic partnership with the Indigenous Zero Waste Technical Advisory Group (IZWTAG) to bring compliant LAB collection, technical guidance, and health and safety support to communities that fall outside the conventional return-to-retail network.

Environmental performance initiatives in 2023 highlighted the CBA's proactive approach to stewardship across the province. The IZWTAG partnership extended the program's reach to underserved First Nations communities. Teck Resources' carbon-capture pilot project at its Trail Operations facility became operational in December 2023, capturing approximately one tonne of CO_2 per day and reinforcing the low-carbon credentials of BC's LAB recycling infrastructure. The province also brought into force significant amendments to BC's Hazardous Waste Regulation, modernizing the collection framework and creating new pathways for remote communities to participate in hazardous waste diversion programs. At the national level, Canada's Critical Minerals Strategy continued to advance a

full-value-chain approach to battery materials, affirming the strategic importance of proven, high-performing recycling infrastructure.

The past two years have seen a substantial expansion of EPR obligations for LAB producers across Canada. As a lean national organization managing programs across multiple jurisdictions, the CBA has worked diligently to adapt its systems and processes to meet these growing obligations. The Association looks forward to continuing to work closely with the BC Ministry of Environment and Parks — strengthening reporting, deepening partnerships, and maintaining its longstanding commitment to environmental leadership in lead-acid battery stewardship.

Table 1: 2023 CBA Program Performance Summary

Regulatory requirement	Target / Report	Results	Follow-Up Action
Educational materials & strategies s.8(2)(a)	Report	Rack cards (EN/FR) at all RCF retail locations. Member-based compliance guidance distributed to retailers, haulers, and collection facilities. See Appendix 1	None
Total RCFs & changes s.8(2)(b)	Report	39 RCFs in 20 communities. Down from 253 in 2021 due to Hazardous Waste Regulation amendments. See Appendix 3.	Work with Ministry to expand compliant network.
Environmental impact reduction & recyclability s.8(2)(c)	Report	1. CBA / IZWTAG Partnership (May 2023) — CBA formalized a partnership with the IZWTAG to bring compliant LAB collection and safety support to First Nations communities across BC. 2. Teck Trail Carbon Capture Pilot (December 2023) — Teck Resources' carbon capture pilot plant at Trail Operations became operational, capturing 1 tonne of CO_2 per day from the LAB smelting process. 3. BC Hazardous Waste Regulation Amendments (August 2023) — BC Reg. 170/2023 introduced the "moderate risk waste" category for LABs, enabling temporary collection events and reducing transport barriers for remote and First Nations communities. 4. Canada's Critical Minerals Strategy (2023) — The federal strategy's first-year progress affirmed battery recycling infrastructure as foundational to Canada's minerals security, recognizing the lead-acid program's closed-loop model as a proof-of-concept for emerging battery chemistries.	

Pollution prevention hierarchy s.8(2)(d)	Report	1. Reduce environmental impacts – See above 2. Reuse – Producers refurbish usable batteries and sell as an alternative to a new battery. 3. Recycle – Once a battery is no longer usable for its intended purpose it is sent to a smelter for recycling. 4. Recovery – residuals management	None
Product sold & collected s.8(2)(e)	Report	Sold: 22,180,031 kg Recovered: 16,377,927 kg	See Table 7 for Regional District breakdown
Independently audited financial statements s.8(2)(f)	Report	N/A	N/A
Recovery rate s.8(2)(g)	Target 95%	73.9%	Reflects retrospective data limitations

2) Program Outline

The CBA is a national, non-profit industry organization (PRO) that administers the Extended Producer Responsibility (EPR) program for lead-acid batteries (LABs) in British Columbia under the authority of the Environmental Management Act Recycling Regulation [B.C. Reg. 449/2004]. The CBA acts as the appointed EPR agency on behalf of its producer members including manufacturers, distributors, and importers of LABs sold into the BC market as provided under Part 1 section 2(2) of the regulation.

Products Covered

The CBA's EPR plan covers all consumer and commercial lead-acid batteries, including automotive, powersport, AGM (absorbed glass mat), small-sealed lead-acid (SSLA), and commercial batteries such as golf cart, forklift, telecom, energy storage, and uninterruptible power supply (UPS) batteries. These products are regulated under Schedule 1 of the Recycling Regulation.

Governance

The CBA is governed by a Board of Directors representing its producer members. The Executive Director oversees day-to-day operations, regulatory compliance, member reporting, and coordination with

provincial regulators, collection partners, and recyclers. The CBA operates as a lean national organization, and over the past several years its obligations have expanded considerably as EPR requirements have multiplied across Canadian provinces. The Association has responded by strengthening its internal systems, data processes, and reporting frameworks to keep pace with this growing regulatory landscape, reflecting its ongoing commitment to transparency, accountability, and collaboration on behalf of its members and provincial partners.

2023 Board Members:

- D'Arcy O'Neill (Crown Battery of Canada) – President
- Ian Dickie (Stryten Canada Inc) – Past President
- Michael Graper (C&D/Trojan) – Treasurer
- Michael Bouchard (East Penn Canada) – Director
- JD Surrette (Surrette Battery Company)– Director
- Randy Anderson (Canadian Energy) – Director
- Steve Stack (Terrapure Environmental) – Director
- Thomas Kettinger (Clarios) – Director
- Adam Reed (Interstate Batteries) – Director
- Osman Akhi (Enersys Canada) - Director

Collection Approach

The CBA's collection system is built on a province-wide Return-to-Retail (R2R) model, supported by additional recycling facilities serving smaller, northern, and First Nations communities. Under this model, consumers return used LABs to the retail point of purchase when acquiring a replacement, supported by a core charge incentive system. Licensed transporters collect used batteries from retail locations and deliver them to secondary lead smelters or approved consolidators for recycling. In 2023, the program maintained a network of 39 registered collection facilities (RCFs) across BC, providing service coverage to approximately 93.0% of the recognized community population.

Regulatory Context and Looking Ahead

The past two years have seen a substantial expansion of EPR obligations for LAB producers across Canada, with new and evolving provincial requirements placing increasing demands on program administration and reporting. As a small national organization managing programs across multiple jurisdictions, the CBA has worked diligently to adapt its systems and processes to meet these growing obligations. The Association looks forward to continuing to work closely with the BC Ministry of Environment and Parks as it builds on this progress by strengthening reporting, deepening partnerships, and maintaining its longstanding commitment to environmental leadership in LAB stewardship across British Columbia.

3) Public Education Materials and Strategies

Overview

In BC, the CBA continues to support awareness and compliance through indirect education efforts rather than direct public outreach. Given the province's consistently high LAB recovery rate, approaching complete collection coverage, the data does not indicate a need for additional investment in large-scale consumer education campaigns.

Instead, the CBA focuses on maintaining a clear and accessible flow of information through its members and collection partners. Educational materials, including rack cards in both French and English (Appendix 1), are made available at participating member retail locations to inform consumers about safe handling, environmental responsibility, and proper recycling options.

The Association also provides updated guidance materials and compliance information to retailers, haulers, and collection facilities, ensuring that all industry stakeholders remain aligned with all regulatory bodies. These activities help sustain strong environmental performance and uphold the high level of stewardship participation already achieved in the province.

Through this ongoing member-based approach, the CBA continues to reinforce BC's success in LAB recovery while maintaining operational efficiency and regulatory compliance without duplicating educational resources where recovery outcomes are already near perfect.

Consumer Awareness

In 2023, consumer awareness of LAB recycling remained strong, reflecting the maturity of the CBA's stewardship system. 69% of consumers recognized that LABs are recyclable (based on the 2022 Leger consumer survey), while 59% know where to take unwanted batteries for proper disposal (See Appendix 2 for details).

Most consumers (80%) said they would go online to find recycling information, highlighting the value of maintaining clear digital guidance, while only 3% would discard a battery improperly. The most common reason for not recycling remains waiting to accumulate enough for a trip (36%), while 22% cited not knowing where to take their battery, down from 26% in 2020, reflecting gradual improvement in awareness of collection options.

The DIY segment—about 18% of respondents—remains a key audience for safe-handling and return messaging. Overall, the results reaffirm that CBA's return-to-retail model continues to achieve high participation, strong consumer knowledge, and near-perfect diversion of lead-acid batteries from landfill.

Waste Characterization Studies

Over the ten-year period from 2014 to 2023, LABs consistently appeared in negligible quantities in municipal waste characterization studies across British Columbia. The reported percentage of lead-acid

batteries in sampled waste streams ranged from 0.00% to 0.06%, with the 2023 provincial average being 0.00% — effectively indicating that lead-acid batteries are almost entirely diverted from disposal through established recycling systems.

The historical data show that, despite slight variations (such as the minor 0.06% presence in 2016), no upward trend of LAB disposal was observed. Instead, the consistently low figures affirm that consumer awareness and recycling access remain strong across residential and industrial sectors.

Table 2: Percentage of lead-acid batteries found in waste samples

	2023	2022	2021	2020	2019	2018	2017	2016
% of waste analyzed	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.06%

4) Collection System and Facilities

The CBA operates a province-wide return-to-retail (R2R) collection model in British Columbia, through which LABs are accepted at registered Return Collection Facilities (RCFs), made up of primarily automotive parts and battery retailers, industrial battery suppliers, and metal recyclers at no cost to the consumer. The model leverages existing commercial networks to maximize geographic reach without requiring dedicated depot infrastructure in most communities.

In 2023, the CBA's BC collection network consisted of 39 registered RCFs located in 20 communities across the province. See Appendix 3

It is important to note that the number of registered RCFs decreased significantly from earlier reporting periods, the 2022 BC Annual Report documented 253 RCFs across a much larger retail network. This reduction was driven primarily by amendments to BC's Hazardous Waste Regulation, which tightened registration and compliance requirements for battery collection facilities. A substantial number of previously participating locations that did not meet the updated requirements were removed from the registered network.

Accessibility

Prior BC annual reports assessed collection accessibility using a three-tier framework grouping communities by recycling option type — Return-to-Retail (3 km target), Other Recycling Option (6 km), and Go to Another Community (42 km). For the 2023 reporting period, the CBA adopted a substantially updated methodology developed by Eunomia Research & Consulting.

The Eunomia framework uses Statistics Canada's Index of Remoteness (IoR), a data-driven measure of geographic isolation based on proximity to service centres weighted by population, to classify all BC

census areas into five accessibility tiers. Each tier carries a distance target and a minimum population-served target calibrated to reflect realistic service expectations given population density and road travel conditions.

This approach is more granular, nationally consistent, and methodologically defensible than the prior three-tier model. Because the classification criteria, distance targets, and population benchmarks differ substantially between frameworks, 2023 accessibility figures are not directly comparable to those reported in 2022, and the comparison in Table 3 below should be understood as contextual rather than trend based.

Table 3: Comparison of Accessibility Frameworks: 2022 vs. 2023

	2022 Framework	2023 Framework
Classification basis	Recycling option availability (RTR / Other / Go to Another)	Statistics Canada Index of Remoteness (5 tiers)
Tiers	3	5
Distance targets	3 km / 6 km / 42 km	7.5 / 11.7 / 25 / 40 / 52.5 km
Population basis	2016 Census	2021 Census
RCFs in network	253	39
Overall population served	99.93% (community population)	93.0% (census area population)

The substantial difference in overall population-served percentages reflects both the reduction in registered RCFs following the Hazardous Waste Regulation amendments and the expanded scope of communities assessed under the Eunomia framework, which includes a larger number of small and remote census areas not captured under the prior methodology.

2023 Accessibility Results

The CBA's collection network served an estimated 93.0% of the BC population residing within recognized census areas in 2023 (4,650,989 of 5,000,879 people). The program exceeded its service targets in three of five tiers, including the two largest by population, Easily Accessible communities (99.7% served, target 95%) and Accessible communities (91.3%, target 90%), which together represent approximately 85% of BC's recognized community population. The Remote tier also met its target (52.6% served, target 50%). See Table 4.

In the Less Accessible tier, the program served 81.7% of the relevant population against an 85% target, a gap of approximately 3.3 percentage points. In the Very Remote tier, which encompasses sparsely populated and geographically isolated communities in northern and coastal BC, the program served 17.8% against a 25% target. Both shortfalls are attributable in significant part to the contraction of the registered RCF network following the 2023 amendments to BC's Hazardous Waste Regulation. Under the prior network of 253 RCFs, coverage in less accessible and remote communities was considerably

broader; the current network of 39 registered facilities is concentrated in larger urban and suburban centres. The CBA is committed to growing the compliant network and looks forward to working with the BC Ministry of Environment and Parks to identify practical pathways for improving accessibility in these tiers.

Recognizing the persistent gap in service to Less Accessible and remote communities, including First Nations communities, the CBA in May 2023 formalized a strategic partnership with the Indigenous Zero Waste Technical Advisory Group (IZWTAG), a BC non-profit organization specializing in zero waste program implementation for First Nations communities. The partnership is designed to bring compliant LAB collection, technical guidance, and health and safety support directly to communities that fall outside the conventional return-to-retail network and represents the CBA's most direct effort to date to address the accessibility shortfall in BC's northern and remote regions.

Table 4: Summary of Lead Accessibility Statistics for British Columbia

Census Areas	Census Area Classifications	Index of Remotenes s Thresholds	2021 Census Area Population	Service Target (minutes)	Travel Target (km/hr)	Census Area Target (km)	Target: Population Served	Population Served	% Served
67	Easily Accessible	<0.1500	3,232,416	15.0	30	7.5	95%	3,222,402	**99.7%**
156	Accessible	<0.2888	1,029,494	20.0	35	11.7	90%	939,664	**91.3%**
151	Less Accessible	<0.3898	368,780	30.0	50	25.0	85%	301,156	**81.7%**
258	Remote	<0.5532	349,847	40.0	60	40.0	50%	184,154	**52.6%**
119	Very Remote	>0.5532	20,342	45.0	70	52.5	25%	3,613	**17.8%**
751			**5,000,879**					**4,650,989**	**93.00%**

5) Product Environmental Impact Reduction, Reusability and Recyclability

Teck Resources' Carbon Capture Pilot Plant Begins Operations at Trail

In December 2023, Teck Resources announced that its Carbon Capture Pilot Plant at Trail Operations in southern British Columbia had become operational and was successfully capturing carbon dioxide. The plant separates CO_2 from the Acid Plant flue gas at Trail Operations at a rate of one tonne per day and will operate through 2024 for testing and data collection purposes as part of Teck's broader Carbon Capture Utilization and Storage program. The Trail smelter is central to the CBA's BC recycling network and it is one of Canada's primary secondary lead smelters and the downstream destination for a significant portion of end-of-life LABs recovered through BC's return-to-retail system. The carbon capture initiative, supported by BC's CleanBC Industry Fund, reflects the ongoing commitment of the LAB recycling sector to reducing the carbon intensity of smelting operations, reinforcing that LAB recycling is not only the world's most successful circular economy model, but an increasingly low-carbon one.

CBA Partners with Indigenous Zero Waste Technical Advisory Group to Expand First Nations Battery Collection (May 2023)

In May 2023, the CBA formalized a strategic partnership with the Indigenous Zero Waste Technical Advisory Group (IZWTAG), a BC-based non-profit organization dedicated to implementing zero-waste programs in First Nations communities across the province. The partnership, announced at IZWTAG Days on April 26–27, 2023, also includes BC Used Oil Management Association and Product Care Recycling, and makes all three agencies Associate Members of IZWTAG. The purpose of the partnership is to bring safe and efficient LAB collection and recycling programs to First Nations communities, communicate technical and regulatory requirements regarding regulated products, and provide on-site health and safety support to participating communities. “The proper management of lead acid batteries, with the assistance of innovative partners like IZWTAG, helps to achieve sustainability, zero waste, and pollution prevention objectives in First Nations communities,” said Colin McKean, previous Executive Director of the CBA. The partnership directly addresses one of the most persistent barriers to universal lead-acid battery diversion in BC: the difficulty of establishing compliant, cost-effective collection infrastructure in remote and rural First Nations communities that fall outside the standard return-to-retail network. By working through IZWTAG’s established relationships and training capacity, the CBA is extending the reach of its EPR program to communities that the existing RCF network does not adequately serve.

BC Hazardous Waste Regulation Amendments Modernize Collection Framework

In August 2023, the BC Ministry of Environment and Climate Change Strategy brought into force amendments to the Hazardous Waste Regulation (B.C. Reg. 170/2023), representing the most significant update to the province's hazardous waste collection framework in years. The updated regulation introduced a new category of "moderate risk waste" which authorized temporary collection events hosted by local governments or EPR programs for the first time. For remote and northern communities, including First Nations, the amendments exempt requirements to use licensed transporters and shipment manifests, making the collection, storage, and transport of moderate risk waste more practical and affordable.

Canada's Critical Minerals Strategy Affirms Role of Battery Recycling Infrastructure

In December 2022, the federal government released Canada's Critical Minerals Strategy, backed by nearly $4 billion over eight years. The Strategy launched a range of programs and initiatives to drive research and innovation throughout the critical mineral value chain, including the $1.5 billion Critical Minerals Infrastructure Fund and exploratory projects focused on battery recycling and value chain integration. While the Strategy is primarily oriented toward next-generation battery chemistries and the electric vehicle supply chain, it explicitly frames battery recycling infrastructure as foundational to Canada's long-term minerals security and recognizes that a functioning circular economy for batteries requires proven collection and recovery systems already operating at scale. The LAB program, which has achieved a closed-loop recovery rate approaching 100% in BC and across Canada, is the clearest existing proof point for that model. The CBA's return-to-retail collection network, its partnerships with licensed secondary smelters, and its ongoing waste characterization monitoring represent the kind of mature, high-performing EPR infrastructure that Canada's broader battery circular economy will need to replicate for emerging chemistries.

6) Pollution Prevention Hierarchy and Product/Component Management

Table 5: Lead-Acid Battery (LAB) Product/Component Management

Product/ Component/ Material	% of LAB by weight	Recovery efficiency	Processing Methods	Final Disposition
Lead and Lead compounds	~60-65%	~99%	Refined lead ingots and alloys (with tin, antimony). Infinitely recyclable with no quality loss.	**Recycled** **New battery plates, grids, terminals — closed loop**
Sulphuric acid electrolyte	~20–25%	~100%	Neutralized to water, or processed into sodium sulphate, or purified for reuse as battery-grade acid.	**Reuse or Recycled** **Fertilizer production, battery manufacturing, galvanizing, or water treatment**
Polypropylene casing	~5–8%	~99%	Shredded, washed, melted and extruded into PP pellets. Nearly all new battery cases in North America use recycled PP from spent batteries.	**Recycled** **New battery cases — closed loop**
Cell separators (PE/ fiberglass)	~3–5%	Energy recovery	Polyethylene separators and fiberglass mats (AGM) are currently not commercially recyclable as a material. Used for energy recovery in the smelting furnace.	**Energy Recovery** **Energy recovery in smelting process — not material recycling**

Whole Battery	**100%**	**Up to ~99%**	**Most recycled consumer product in North America. All three primary components (lead, acid, plastic) are 100% recyclable by design.**

7) Product Sold and Collected and Recovery Rate

Table 6: 2023 BC LAB Sales and Recovery Summary

Metric	2023 Results
Total Sales (kg)	22,180,031
Total Recovered (kg)	16,377,927
Recovery Rate	73.8%
BC Population (2023)	5,647,464
Sales per Capita (kg/person)	3.93
Recovery per Capita (kg/person)	2.90

Program Performance

In 2023, CBA members reported total BC sales of 22,180,031 kilograms and recoveries of 16,377,927 kilograms, resulting in a recovery rate of 73.8%. On a per-capita basis, BC achieved 3.93 kg sold per person and 2.90 kg recovered per person (based on a 2023 provincial population of 5,647,464).

The 2023 program data was collected in 2025 as part of a retrospective reporting process. Several CBA members experienced difficulty retrieving historical sales and recovery records for the 2023 calendar year, as the data collection occurred significantly after the reporting period had closed. As a result, the 2023 recovery figures are likely understated relative to actual program performance. The 73.8% recovery rate should be understood in this context: it reflects the data that members were able to reconstruct and report in 2025, not necessarily the full volume of lead-acid batteries that were collected and recycled during the year. The CBA continues to work with members to improve data retention practices so that future retrospective reporting exercises can yield more complete results.

Table 7: 2023 Recovery of Lead Batteries by Regional District

Regional District	2023 Population[1]	Estimated kg Recovered
Alberni-Clayoquot	35,585	103,198
Bulkley-Nechako	41,290	119,744
Capital	455,886	1,322,091
Cariboo	68,115	197,537
Central Coast	3,765	10,918
Central Kootenay	66,988	194,270
Central Okanagan	249,746	724,276
Columbia-Shuswap	59,821	173,484
Comox Valley	77,653	225,198
Cowichan Valley RD	94,150	273,040
East Kootenay	69,306	200,989
Fraser Valley	359,753	1,043,302
Fraser-Fort George	105,052	304,656
Metro Vancouver	3,088,190	8,955,905
Kitimat-Stikine	34,967	101,407
Kootenay-Boundary	35,023	101,568
Mount Waddington	12,141	35,210
Nanaimo	184,336	534,584
North Okanagan	99,106	287,411
Northern Rockies	5,103	14,798
Okanagan-Similkameen	94,595	274,331
Peace River	70,126	203,369
Powell River	22,280	64,613
Skeena-Queen Charlotte	20,260	58,755
Squamish-Lillooet	50,216	145,628
Stikine	730	2,118
Strathcona	52,131	151,181
Sunshine Coast	33,572	97,361
Thompson-Nicola	157,578	456,984
TOTAL	5,647,464	16,377,927

[1] Population sources: Statistics Canada Table 17-10-0152-01 / BC Stats (July 1, 2023). Regional district populations estimated proportionally using 2021 Census populations calibrated to the Statistics Canada provincial total of 5,647,464 (July 1, 2023). Sources: BC Stats, Sub-Provincial Population Estimates Highlights (July 2023); Statistics Canada Table 17-10-0152-01.

Table 8: Landfill Diversion Rate (Waste Characterization Studies)

Sample Type / Study	CBA Batteries Found (#)	CBA Batteries Found (kg)	Samples (#)	Sample Volume (kg)	CBA Diversion Rate
2023 Studies — Tetra Tech / SABC					
Regional District of Kootenay Boundary (RDKB) *Sept 6–15, 2023 · SF(14), ICI(13), DO(1), TS(8)*	0	0	36	3,614	0.00%
Cumulative Province-Wide Results (2014–2023, 16 Studies, 710 Samples)					
Residential (SF/MF)	0	0	338	35,207	100.0%
Drop-off (DO)	0	0	107	8,783	100.0%
Industrial / Commercial / Institutional (ICI)[2]	0	0	13	1,280	100.0%
Transfer Station (TS)	1[1]	0.75	41	4,076	99.98%
TOTAL (2014–2023)	1	0.75	499	49,346	99.99%

[1] *One battery fragment found during transfer station sampling (2017 study). No batteries found in any residential, drop-off, or ICI samples across all 16 studies (2014–2023).*
[2] *ICI sector first introduced in the 2023 RDKB study. Prior studies did not include ICI sampling for EPR secondary characterization.*
2023 study sectors: *SF = single-family residential; MF = multi-family residential; DO = residential drop-off; ICI = industrial, commercial & institutional.*
Source: *Tetra Tech Canada Inc., 2023 SABC Characterization Study, Technical Memo 704-SWM.PLAN03061-09, March 27, 2024 (Issued for Use). Studies 2014–2022 from prior SABC/MEM characterization reports.*

Recovery Rate Methodology

The calculation of the LAB recovery rate is based on data collected from reporting members of the CBA. Each member reports their sales and recovery volumes, which are adjusted for sales made to other CBA members to prevent double counting. Interprovincial sales are also tracked to ensure the batteries sold from one province into another province are properly attributed. Recovery data is compiled according to the province where the waste batteries were generated, allowing comparisons to be made against sales within the same jurisdiction to determine provincial recovery rates. However, accurately tracking the movement of both new and waste lead batteries presents challenges, as used batteries are often consolidated in other provinces before being shipped to secondary lead smelters for recycling.

The recovery rate below is calculated as the percentage of waste LABs recovered compared to the total number of new LABs sold in the same calendar year. Using the same year for both figures provides a consistent and accurate measure of program performance. This approach is supported by the relative stability of LAB sales across Canada, as demand for automotive, industrial, and marine batteries remains

steady from year to year. Because sales volumes do not fluctuate significantly, aligning recovery and sales data within the same reporting period minimizes distortions caused by timing differences or market variability. This ensures that the calculated recovery rate accurately represents how effectively batteries sold each year are being collected and returned for recycling.

Recovery Rate Calculation

$$Recovery\ Rate\ (\%) = \frac{Lead\ Batteries\ Recovered\ (kg)}{Lead\ Battery\ Sales\ (kg)} \times 100$$

Conclusion

The 2023 program results reflect both the resilience of British Columbia's lead-acid battery EPR program and the challenges inherent in retrospective data collection. The reported recovery rate of 73.8% is likely understated due to members' difficulty retrieving historical records from 2023 when data was gathered in 2025; the near-zero landfill diversion confirmed through waste characterization studies, however, provides independent evidence that actual collection performance remained strong throughout the year.

Two accessibility tiers — Less Accessible and Very Remote — did not meet their service targets, primarily because of the 2023 amendments to BC's Hazardous Waste Regulation and the contraction of the registered RCF network that followed. The CBA acknowledges these gaps and is actively addressing them on two fronts: working collaboratively with the BC Ministry of Environment and Parks to identify practical pathways to restore and expand compliant network coverage, and through its May 2023 partnership with the Indigenous Zero Waste Technical Advisory Group, bringing collection support and technical guidance directly to First Nations communities that the conventional network does not adequately reach.

The Canadian Battery Association and its members remain committed to maintaining strong environmental performance across British Columbia, collaborating with provincial regulators, indigenous organizations, industry partners, and retailers to ensure that all LABs are safely collected, processed, and recycled in accordance with provincial and national standards

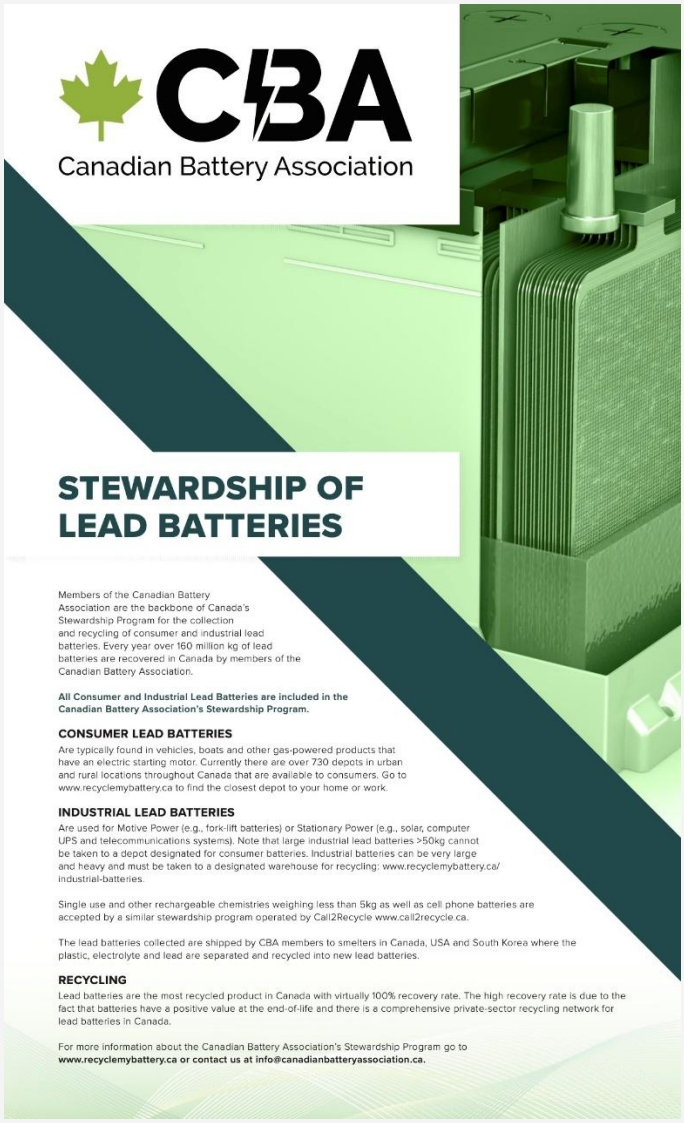
8) Program Performance

2023 Lead-Acid Battery (LAB) Sales and Recovery			
Program Metric	**Target / Report**	**Sales & Collection Results**	**Follow-Up Action**
LAB* Sales	Report	22,180,031 kg	None
LAB Recycled	Report	16,377,927 kg	None
LAB Recovery Rate	Target >90%	Recovery Rate: 73.8%	Continue to improve data collection and management.
Sales per Capita	Report	3.93 kg/person/yr	Continue to monitor and compare to other Provinces
Recovery per Capita	Report	2.90 kg/person/yr	Continue to monitor and compare to other Provinces
Landfill Diversion Rate	Report	100% - Residential See Table 8	Continue to participate in Waste Characterization Studies to corroborate recovery rates and identify priority sectors
LAB Consumer Awareness			
Per Cent Awareness based on Standardized Surveys	Report	See Appendix 2	Continue to participate in consumer awareness studies.
LAB Accessibility (Eunomia 5-Tier Framework)			
Total Number of RCFs	Report	39 RCFs in 20 communities	Work with Ministry to restore network coverage.
Easily Accessible (IoR < 0.1500)	Target: 7.5 km / 95% served	67 census areas | 3,232,416 pop | 3,222,402 served | 99.7% ✓ Target Met	Continue to work with Regional Municipalities & FNs to identify priority communities that would benefit from an RCF

Accessible (IoR < 0.2888)	Target: 11.7 km / 90% served	156 census areas | 1,029,494 pop | 939,664 served | 91.3% ✓ Target Met	
Less Accessible (IoR < 0.3898)	Target: 25 km / 85% served	151 census areas | 368,780 pop | 301,156 served | 81.7% — Target Not Met	
Remote (IoR < 0.5532)	Target: 40 km / 50% served	258 census areas | 349,847 pop | 184,154 served | 52.6% ✓ Target Met	Continuing to expand the number of RCFs especially in small communities that do not meet the Accessibility Target
Very Remote (IoR ≥ 0.5532)	Target: 52.5 km / 25% served	119 census areas | 20,342 pop | 3,613 served | 17.8% — Target Not Met	Continue to work with IZWTAG and expand the number of RCFs in remote locations and work with Provincial Government to harmonize the Hazardous Waste requirements with EPR program requirements
Overall Population Served	Report	93.0% of recognized census area population	
Other 2023 LAB Targets & Performance Indicators			
Use of Permitted Recycling Facilities	Target 100%	100% waste LABs sent to Permitted Recycling Facilities Target Met	Monitor and track progress year over year
Adherence to International Hazardous Waste Commitments	Target 100%	100% Compliance with International Requirements Target Met	Continue to monitor and work with Transport Canada and Environment Canada.
Pollution Prevention Hierarchy	Report	Lead: ~99% Recovery | Acid: Recovered | Casings: Pelletized | Separators: Energy recovery	

** Includes consumer lead batteries includes automotive, small-sealed lead, AGM batteries and powersport batteries as well as commercial golf cart, forklift, telco, energy storage and UPS batteries.*

Appendix 1: Educational Materials Example




CBA
Canadian Battery Association
GESTION DES BATTERIES AU PLOMB
East Penn Canada est un contributeur majeur au Programme de Gestion de l'Association Canadienne de L'Industrie de la Batterie pour le ramassage et le recyclage des batteries au plomb de consommation courante ainsi que pour les batteries industrielles dans toutes les Provinces canadiennes. En 2012, plus de 80 millions de kg de batteries au plomb ont été récupérés au Canada par les membres de l'Association Canadienne de la Batterie.
Toutes les batteries au plomb de consommation courante et industrielles sont incluses dans le programme de gestion de l'Association Canadienne de la Batterie.
BATTERIES AU PLOMB DE CONSOMMATION COURANTE
Elles se trouvent généralement dans les véhicules, les bateaux et autres produits à essence équipés d'un moteur de démarrage électrique. Il existe actuellement plus de 730 dépôts accessibles aux consommateurs dans les zones urbaines et rurales partout au Canada. Visitez le site www.recyclemybattery.ca pour localiser le dépôt le plus proche de votre domicile ou de votre lieu de travail.
BATTERIES INDUSTRIELLES AU PLOMB
Elles sont utilisées pour l'Énergie Motrice (par exemple, les batteries de chariots élévateurs) ou pour l'Énergie Stationnaire (par exemple, l'énergie solaire, les systèmes d'urgence pour ordinateur, et les systèmes de télécommunication). Notez que les batteries industrielles au plomb ne peuvent pas être transportées à un dépôt désigné pour les batteries de consommation courante car elles sont très lourdes et volumineuses et doivent donc être acheminées à un entrepôt désigné pour le recyclage de ce type de batteries - www.recyclemybattery.ca/industrial-batteries.
Tout autres types de pile de consommation courante pesant moins de 5 kg ainsi que les piles de téléphones portables sont acceptées par un programme de gestion similaire géré par Appel à Recycler www.call2recycle.ca. Les batteries au plomb usagées ramassées par East Penn Canada sont expédiées vers des fonderies au Canada ou aux États-Unis où le plastique, l'électrolyte, et le plomb sont séparés et recyclés.
RECYCLAGE
Les batteries au plomb sont les produits les plus recyclé au Canada avec un taux de récupération de près de 100%. Le taux de récupération élevé est dû au fait que les batteries ont une valeur économique positive en fin de vie du produit, et aussi au fait qu'il existe un réseau important de recycleurs privés pour les batteries au plomb au Canada. Il n'y a pas de frais environnementaux pour les batteries au plomb au moment de l'achat. Pour plus d'informations sur le Programme de Gestion de l'Association Canadienne de L'Industrie de la Batterie, visitez le site www.recyclemybattery.ca ou contactez-nous à info@canadianbatteryassociation.ca.


ROUTES DE RECYCLAGE DES BATTERIES AU PLOMB AU CANADA
STATISTIQUES DE RECYCLAGE
99%
98%
80%
TAUX DE COLLECTION
99%
TAUX DE DIVERSION DES SITES D'ENFOUISSEMENT
98%
CONTENU RECYCLÉ
80%
CENTRES DE DISTRIBUTION
FONDERIES
CALGARY, EDMONTON, HALIFAX, KAMLOOPS, KELOWNA, LAVAL, LETHBRIDGE, LONDON, LOWERMIN, MISSISSAUGA, MONCTON, MONTREAL, PRINCE GEORGE, QUEBEC CITY, REGINA, SASKATOON, ST. CATHERINES, ST. JOHNS, ST. CATHARINES, THUNDER BAY, TRAIL, VICTORIA, WHITEHOUSE, WINNIPEG, AND YELLOWKNIFE.
NOUS SOUTENONS, INFORMONS, ET PRÉCONISONS LA GESTION RESPONSABLE DES BATTERIES AU PLOMB D'UN OCÉAN À L'AUTRE.
LES PRODUITS LES PLUS RECYCLÉS AU CANADA
Nous recyclons toutes les formes et tailles de batteries de 1kg à 40kg
Pour les batteries de plus de 40 kg, contactez un distributeur sur www.recyclemybattery.ca/batteries-industrielles
QUESTIONS FRÉQUEMMENT POSÉES
QUEL EST LE PRODUIT LE PLUS RECYCLÉ AU CANADA?
LES BATTERIES AU PLOMB
OÙ PUIS-JE RECYCLER MES BATTERIES AU PLOMB?
RECYCLEMYBATTERIE.CA
QUELLES BATTERIES AU PLOMB ACCEPTONS-NOUS?
TOUTES BATTERIES AU PLOMB (0,5KG -> 10 000KG)
250-216-3664
admin@canadabatteryassociation.ca
www.recyclemybattery.ca
CBA
Canadian Battery Association

Appendix 2: Consumer Awareness

SABC Consumer Awareness Studies – Lead-Acid Battery Results

Question Category	Question Subcategory		2013	2016	2018	2020	2022
Currently have unwanted:	Lead Batteries		6%	8%	9%	6%	5%
Do-it-Yourself (DIY)	Change Lead Batteries		45%	40%	38%	19%	18%
Top-of-Mind Recyclables/Returnable/Safe Disposal	Lead Batteries					<2%	<2%
Knowledge Recyclable/Safe Return of unwanted lead batteries:	Among all Respondents		76%	78%	77%	74%	69%
	Among those that currently have a Lead Battery					88%	81%
	Among DIYers that change Lead Batteries					90%	88%
Knowledge of where to take unwanted lead batteries:	Among those that usually have a Lead Battery		44%	50%	51%	64%	59%
	Among those that currently have a Lead Battery		54%	72%	69%	91%	67%
	Among DIYers that change Lead Batteries		58%	68%	68%	85%	81%
Likely to do if recycle/safe disposal unknown:	Among all Respondents	Go Online				81%	80%
		Ask Family / Friend				8%	9%
		Throw Out				4%	3%
		Not Sure				4%	5%
	Among those who currently have unwanted lead batteries	Go Online				73%	75%
		Ask Family / Friend				10%	16%
		Throw Out				15%	8%
		Not Sure				1%	0%
	Among DIYers that change lead batteries	Go Online				80%	84%
		Ask Family / Friend				12%	9%
		Throw Out				6%	4%
		Not Sure				1%	1%
Question Category	Question Subcategory		2013	2016	2018	2020	2022
Usual behaviour to get rid of items	Among Those Who Usually Have lead batteries	Recycle / Return				61%	8%
		Throw Out				6%	18%
		Someone Else				28%	<1%
		Not Sure				8%	72%
	Among those	Recycle /				73%	75%

	who currently have lead batteries	Return					
		Throw Out				15%	87%
		Someone Else				15%	65%
		Not Sure				1%	72%
	Among DIYers that change Lead Batteries	Recycle / Return				84%	84%
		Throw Out				5%	80%
		Someone Else				7%	9%
		Not Sure				2%	3%
Aided Reasons for Not Recycling/Returning/Safe Disposing	Among those who have unwanted lead batteries currently or those who have thrown them away in the past	Don't know where to take				26%	5%
		Will when enough to make trip				32%	75%
		Not Convenient				11%	16%
		Didn't know it could be				8%	8%
		Can't be bothered / No time				14%	0%
		Can't get to place				8%	84%
		Plan to re-use / fix / sell				7%	9%
Lead Battery Program Convenience - DIY Products	Among all aware		75%	67%	72%	75%	71%
	Among users aware		85%	81%	81%	81%	83%
	Among DIY aware		81%	73%	77%	85%	80%
Trust in Lead Battery Program - DIY Products	Among all aware		84%	81%	84%	89%	86%
	Among users aware		85%	88%	90%	92%	90%
	Among DIY aware		85%	87%	86%	93%	89%

Appendix 3: List of Return Collection Facilities 2023

Facility Name	Address	City	Postal Code	Telephone
Motive Power Products	2188 Mason Street	Abbotsford	V2T 0J8	604-210-4650
ABC Recycling	8081 Meadow Avenue	Burnaby	V3N 2V9	604-522-9727
DC Power Group	1258 Boundary Road	Burnaby	V5K 4T6	604-294-1891
Edmonds Batteries	7152 Curragh Avenue	Burnaby	V3N 1B3	604-525-8144
HUB Power	114-4238 Lozells Avenue	Burnaby	V5A 0C4	604-420-7737
ABC Recycling	4318 Terminal Place	Campbell River	V9H 1V5	250-286-3504
Radius Recycling	5551 Duncan Bay Road	Campbell River	V9H 1N6	250-287-8748
Radius Recycling	13271 Trans Canada Highway	Cassidy	V9G 1L8	250-245-5051
Interstate Batteries	1651 Old Island Hwy	Colwood	V9B 1H9	250-391-9748
Magnacharge Batteries	1279 Derwent Way	Delta	V3M 5V9	604-525-0391
Canadian Energy	791 Cave Street	Esquimalt	V9A 5T6	250-361-3933
ABC Recycling	9631 78 Street	Fort St. John	V1J 4J8	250-785-7900
Grand Forks Bottle Depot	8058 Donaldson Drive	Grand Forks	V0H 1H2	250-442-2523
Canadian Energy	1440 Battle Street	Kamloops	V2C 2N8	250-374-8914
DC Power Group	150 Victoria Street W	Kamloops	V2C 1A4	250-434-5790
ABC Metals	3258 Hwy 97 N	Kelowna	V1X 5C1	250-765-6607
Canadian Energy	1891 Springfield Road	Kelowna	V1V 5V5	250-765-6120
East Penn Batteries	1505 Hardy Street	Kelowna	V1Y 7W9	604-455-0355
Interstate Batteries	311 Banks Road	Kelowna	V1X 6A1	250-860-3444
The Battery Doctors	1972 Windsor Road	Kelowna	V1Y 4R5	250-860-2866
East Penn Batteries	26988 56th Ave	Langley	V4W 1N9	604-455-0355
Edmonds Batteries	20131 Industrial Ave	Langley	V3A 4K6	604-534-7995

Interstate Batteries	20148 102nd Ave	Langley	V1M 4B4	604-888-3446
Canadian Energy	4848 275 Street	Langley City	V4W 0A3	604-283-9804
ABC Recycling	750-C Jackson Road	Nanaimo	V9X 1J2	250-722-0303
Canadian Energy	541 1st Avenue	Prince George	V2L 2Y2	250-564-1551
Interstate Batteries	3584 Massey Drive	Prince George	V2N 2M4	250-765-3477
ABC Recycling	10338 Willow Cale Forest Service Rd	Prince George	V2N 5T3	250-963-6766
RME Energy Ltd	21331 Gordon Way	Richmond	V6W 1J9	604-241-4470
ABC Metals	19355 54 Avenue	Surrey	V3S 8E5	604-514-9411
Edmonds Batteries	6468 King George Boulevard	Surrey	V3W 4Z3	604-596-8774
EnerSys Canada	13303 78th Avenue	Surrey	V3W 4N1	604-591-3683
Phil's Batteries and More Inc.	12332 Pattullo Place	Surrey	V3V 8C3	604-588-7445
Radius Recycling	12195 Musqueam Drive	Surrey	V3V 3T2	604-580-0251
ABC Metals	2550 Queensway Drive	Terrace	V8G 3X8	250-635-1228
KC Recycling	9350 Waneta Hwy	Trail	V1R 4W6	833-267-7365
DC Power Group	5000 Silver Star Road	Vernon	V1B 3K3	250-542-4275
Radius Recycling	307 David Street	Victoria	V8T 5C1	250-381-5865