

Canadian Battery Association

Annual Report to the Director

2016 Calendar Year

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June 30, 2016

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1. Executive Summary

The Prince Edward Island 2016 Annual Report summarizes the Canadian Battery Association's activities of the Stewardship for lead-acid batteries.

The data and information presented in the Annual Report includes the individual results from each of the Maritime Provinces as well as the aggregate results for the Maritimes. Because of the close proximity of the three provinces, the Maritime Provinces is essentially a sales and recycling region for lead-acid batteries and the data from one Province cannot be looked at in isolation of the other Maritime Provinces.

The following table summarizes the Stewardship results in 2016.

Products within plan	All lead-acid batteries sold in Prince Edward Island
Program website	www.canadianbatteryassociation.ca and www.recyclemybattery.ca

Topic	Summary
Public Education Materials and Strategies	<ul style="list-style-type: none"> • Phone and web based recycling information through www.recyclemybattery.ca; • Development and implementation of a National Phone App that details the Return Collection Facilities in PEI and the Maritime Provinces – download the App at www.recyclemybattery.ca ;
Collection System and Facilities	<ul style="list-style-type: none"> • CBA members visit thousands of retailers and IC&I customers in the Maritime Provinces as part of their reverse distribution system of dropping off new and collecting used lead-acid batteries (LABs); • Distributors charge a core charge of \$15 on most automotive batteries to promote the return of LABs from the retailer; • There are 7 Return Collection Facilities for the public in PEI and 7 warehouse operations for recycling of IC&I batteries located in Nova Scotia and New Brunswick; • The CBA has created table of Return Collection Facilities (RCFs) by Community to identify gaps in rural recycling options for the public – see Appendix 1;
Pollution Prevention Hierarchy and Product / Component Management	<ul style="list-style-type: none"> • all LABs collected by CBA members were sent to permitted smelters for recycling resulting in 100% compliance with Basel Convention regarding the shipment of hazardous waste to non-OECD countries; • Lead-acid batteries are 100% recyclable with: <ul style="list-style-type: none"> ○ 99% of lead in LABs recovered in smelting process and the 1% dross can be further refined in a primary lead-smelter; ○ 100% of electrolyte (H2SO4) is reused in other production processes; ○ 30% of plastic battery casings used for energy recovery and creating anoxic conditions during the smelting process; ○ 70% of plastic LAB casings recycled into new LAB casings.

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Topic	Summary
Product Sold and Collected and Recovery Rate	<ul style="list-style-type: none"> • 7.9M kg of LABs sold in the Maritimes in 2016 by CBA members– >95% market share; • In 2016 the recovery rate for lead-acid batteries for the Maritime provinces as a region was: <ul style="list-style-type: none"> ○ 68% of automotive batteries; ○ 39 % of motive batteries and ○ 2% of stationary batteries. • The recovery rate was calculated by dividing the volume of batteries recovered by the volume of batteries sold by CBA members in the Maritimes; • Detailed data of sales and recovery are available to regulators on a confidential basis; • 35% of LABs sold in PEI are recovered by private recyclers outside the CBA’s stewardship program.
Summary of Deposits, Refunds, Revenues and Expenses	<p>The CBA does not charge an Eco-Fee to the consumer.</p>

1.0 Program Outline

About the Canadian Battery Association

The Canadian Battery Association (CBA) was established in 1970 by the Canadian Manufacturers of lead-acid batteries (LABs) and in 2016 one of the Association’s focuses is on the establishment of a National Communications Strategy for LABs.

In 2015, the Stewardship Program from Interstate Battery Systems of America was merged with the CBA’s Stewardship Program to capture over 95% of LABs sold in Canada.

The CBA is now the National Stewardship Agency in Canada for LABs with approved Stewardship Programs in Prince Edward Island, New Brunswick, Manitoba and British Columbia.

Membership

The signatories to the CBA’s Stewardship Program in Prince Edward Island are summarized at <http://canadianbatteryassociation.ca/index.php/pei>. The Distributors of LABs have assumed the stewardship obligations on behalf of the retailers that sell lead-acid batteries in PEI.

Stewarded Products

The CBA Stewardship Program focuses exclusively on three types of LAB. The Starting, Lighting and Ignition (SLI) batteries are the most common LAB sold in Canada representing about 90% of all LAB sales. An automotive battery is a

typical SLI battery. The remaining batteries are motive and stationary LABs and are used in commercial applications such as forklifts and UPS systems for energy storage and emergency electronic and lighting applications.

Collection Approach

There are three factors that influence how LABs are recovered and recycled. First and foremost, LABs have a value at the end-of-life due to the inherent value of the lead. Secondly, most consumer and all commercial LABs are replaced at a commercial facility by a licensed technician. Thirdly, most CBA members have core charges on retailers and contracts with smelters that require a constant supply of recyclable LABs. As such, the CBA members utilize a 'reverse distribution' system where distributors drop off new batteries at retail and pick up the used batteries for return to the smelters.

Accomplishments in 2016

In addition to developing and implementing the Stewardship Program and data base for the Maritime Provinces, key accomplishments in 2016 were:

- Undertake a waste characterization study with a local government to determine the frequency of lead-acid batteries at the landfill. This information will help the CBA calculate an overall diversion rate from landfills.
- Development of the National Recyclepedia phone App that directs the public to the nearest return collection facility in PEI;
- Identification of small and remote communities and strategies on how to recover LABs from these communities;

2.0 Public Education Materials and Strategies

The CBA's communication strategies recognize that the majority of end-of-life lead-acid batteries (LABs) are installed, maintained and eventually removed by qualified technicians. Consequently, the education materials and strategies have a different emphasis when compared to other "consumer" products.

The CBA has three communication strategies:

- 1) Consumers. The CBA operates and maintains its website www.recyclemybattery.ca that lists the return collection facilities that will take LABs from the public.
- 2) CBA Members: the CBA has prepared technical and recycling information that can be used by its members to educate their staff and their IC&I customers on the safe collection, storage and transportation of LABs. These education materials focus on compliance to Federal and Provincial regulations that pertain to the safe collection, storage and transportation of lead-acid batteries.

- 3) Retail Stores: The manufacturers and distributors of lead-acid batteries are the primary mechanism to communicate to the retailers of lead-acid batteries. Retailers are highly motivated to return lead-acid batteries to the distributor through the reverse-distribution system because of the \$15 core-charge on lead-acid batteries.

Finally, in 2016 the CBA completed the National Phone App to help the public locate Return Collection Facilities in PEI.

3.0 Collection System and Facilities

The majority of lead-acid batteries recovered were collected in a reverse distribution system between the CBA member and their retail and IC&I customers. CBA members deliver new lead-acid batteries to retail and IC&I customers and pick up the used lead-acid batteries at the same time.

The CBA has identified 7 Return Collection Facilities (RCFs) on PEI for the recovery lead-acid batteries from the public – see Appendix 1. The majority of the RCFs for the public are retail locations. Go to www.recyclemybattery.ca to access the list of RCFs available to the public.

Appendix 1 also summarizes the communities on PEI that do not have an official Return Collection Facility.

In addition, there were 7 warehouse operations in the Maritime Provinces that refurbish and recycle industrial lead-acid batteries. Go to <http://recyclemybattery.ca/industrial-batteries> for a listing of the warehouse locations that will take industrial batteries.

4.0 Product Environmental Impact Reduction, Reusability and Recyclability

For the past 5 years, the CBA worked with Provincial government’s Hazardous Waste groups to clearly define when a “used” lead-acid battery becomes a “waste”. In 2016, the new policies were completed that will promote the refurbishing of used lead-acid batteries rather than declaring lead-acid batteries a “hazardous waste” at the end of the battery’s “primary use”.

The new policy clearly defines that a lead-acid battery is declared a “Hazardous Waste” at the distribution warehouse after the batteries have been sorted and tested. Approximately 10 to 15% of used lead-acid batteries can be refurbished and resold under this policy.

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In 2016, the CBA and other stewardship agencies undertook a Waste Characterization Study on Vancouver Island in partnership with the Capital Regional District. The study undertook 100 samples of the residential and IC&I waste stream. The Capital Regional District initiative was the third Waste Characterization study conducted by the CBA. Of the 300 waste stream samples, only one lead-acid battery weighing 5.85kg was found in the IC&I waste stream. The battery was a small sealed lead-acid battery that was likely embedded in a product that was imported from China. The brandowner of the recovered battery cannot be identified and the brandowner was not part of the CBA's Stewardship Program.

5.0 Pollution Prevention Hierarchy and Product / Component Management

All recovered LABs that cannot be refurbished are sent to recycling and smelting facilities in Canada and the USA. The primary and secondary smelters in Canada and the USA have valid permits and/or approvals. The recycling requirements and emission levels for recyclers and smelters are set by Federal, Provincial and State governments as part of their permit/approval processes for the smelter.

Battery Council International provides the following information on how the average lead-acid battery is recycled.

Material	Description	Fate
Metals	99% of lead is recovered during the smelting process	Lead ingots are sold as a Commodity on the open market.
	1% of lead from the secondary smelting process is not recovered and is contained in dross. Dross can be sent to primary smelters for further processing.	Private Landfill
	Antimony and Calcium are used to provide strength within the lead plates	Remain as an alloy of the lead after smelting.
Electrolytes	Sulphuric Acid is recovered and sold as an input to another manufacturing process.	Recycled and sold as a commodity.

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Plastics	<p>The Polypropylene Case that provides structure to most batteries.</p> <p>Stationary batteries have a clear casing made of Acrylic.</p> <p>Within each battery, Plastic Separators are used to Isolate the Positive and Negative plates in a cell.</p>	<p>About 70% of the plastic is recycled and used to make new battery casings.</p> <p>Acrylic casings are not recyclable and are burned for energy recovery.</p> <p>The Plastic Separators are burned at the smelters for energy recovery and creating an oxygen free environment during the smelting process.</p>
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6.0 Product Sold and Collected and Recovery Rate

The members of the CBA account for about 95% of the lead-acid batteries sold in the Maritime Provinces. An embedded lead-acid battery within a new product (i.e., boat, motorcycle, tractor etc) is the most common method of bringing a lead-acid battery into PEI outside the CBA’s Stewardship Plan. The volume of sales outside the Stewardship program is estimated to be less than 5% of total sales.

2016 Lead-Acid Sales & Recovery Data for the Maritime Provinces

Automotive Batteries	NB	NS	PEI	Maritimes	Canada
Sales(kg)	4,220,000	2,368,000	382,000	6,970,000	134,258,000
Sales(kg) / Capita	5.60	2.51	2.61	3.77	3.71
Recovery(kg)	2,162,000	2,528,000	49,000	4,739,000	92,792,000
Recovery(kg) / Capita	2.87	2.68	0.33	2.57	2.58
Recovery Rate	51.2%	106.8%	12.8%	68%	69%

The sales data for lead-acid batteries are skewed to the Province of New Brunswick because of 5 of the 7 distribution warehouses are located in Moncton, NB; however, the average sales/kg for Maritime Provinces was virtually identical to the Canadian average.

Used LABs are recovered by CBA members through a reverse-distribution collection system where new LABs are dropped off at the retailer by the distributor and used lead-acid batteries are picked up at the same time. The used LABs are taken back to the distributor’s warehouse where the batteries are either recharged, refurbished or declared a waste. The Maritime Provinces have 7 distribution warehouses – 5 in Moncton/Dieppe and 2 in Dartmouth.

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In the Maritimes, CBA members recovered just over 4.7Mkg of lead-acid batteries for an overall recovery rate of 68% of CBA sales. The recovery rate in the Maritimes was similar to 2015 and it equaled the National recovery rate. The remaining 35% of lead-acid batteries are recovered by private recyclers because of the positive value of lead.

All waste LABs recovered by CBA members were shipped to smelters in Canada or the USA. No waste batteries were shipped to brokers in the USA that could then ship to a non-OECD country and violate the Basel Agreement.

7.0 Summary of Deposits, Refunds, Revenues and Expenditures

The Canadian Battery Association does not charge eco-fees at the point of sale.

8.0 Plan Performance

Stewardship Plan	Results	Strategies for Improvement
1. Awareness	<p>69% of All Respondents*</p> <p>78% of Respondents that have Lead-Acid Batteries*</p> <p>80% of Respondents that have Unwanted Lead-Acid Batteries*</p> <p>*2016 BC Survey by Insights West</p>	<p>Continue to use the website www.recyclemybattery.ca to direct the public to an appropriate Return Collection Facility.</p> <p>Develop a National Call Centre that will direct the public to an appropriate Return Collection Facility in the Maritimes.</p> <p>Work with Island Waste Management Corporation to develop a “Call Centre” for the public on PEI for lead-acid battery information.</p>
2. Accessibility: <ul style="list-style-type: none"> • 30 minutes in Urban Areas; • 45 minutes in Rural Areas 	<ul style="list-style-type: none"> • 7 Return Collection Facilities (RCF) – see www.recyclemybattery.ca; • 7 warehouse operations in the Maritimes that link to the IC&I sector; • Summary of RCFs in each Community – See Appendix 1 	<p>Serviced and underserved communities were identified in Appendix 1.</p> <p>Add 5 new RCFs in rural underserved communities in 2017.</p> <p>Continue to work with private recyclers in the Maritime Provinces to share data and increase the number of designated Return Collection Facilities for rural areas on the recycling websites and phone apps.</p>

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Stewardship Plan	Results	Strategies for Improvement
3. Recovery Rate	<ul style="list-style-type: none"> - All results include Interstate Battery's 2016 Sales and Recovery data and the sales data from new car dealers; - 68% recovery for all CBA automotive type batteries; 	<ul style="list-style-type: none"> - develop an agreements with private recyclers (metal recyclers and bottle depots) to provide their data to the CBA in return for support in the awareness of battery recycling and any EH&S issues arising from the recycling of dangerous goods and hazardous wastes.
4. Generation, Storage and Transportation – 100% compliance with Federal and Provincial laws.	<ul style="list-style-type: none"> - developed compliance and emergency response program for recyclers. 	<ul style="list-style-type: none"> - expand the CBA's Environmental Management System for lead-acid batteries to recyclers on PEI.

Appendix 1: Summary of Return Collection Facilities in Prince Edward Island

Community		Population	RCFs
Charlottetown	PEI	34,562	1
Summerside	PEI	14,751	1
Stratford	PEI	8,574	0
Cornwall	PEI	5,162	0
Montague	PEI	1,895	2
Belfast	PEI	1,637	0
Kensington	PEI	1,496	0
Afton	PEI	1,222	0
Souris	PEI	1,173	0
Miltonvale Park	PEI	1,153	0
Alberton	PEI	1,135	0
North Shore	PEI	1,112	0
Malpeque Bay	PEI	1,029	0
Miscouche	PEI	869	0
O'Leary	PEI	812	0
Lady Slipper	PEI	805	0
Kingston	PEI	794	0
Tignish	PEI	779	0
Borden-Carleton	PEI	750	0
West River	PEI	741	0
Eastern Kings	PEI	702	0
Georgetown	PEI	675	0
Valleyfield	PEI	672	0
Lower Montague	PEI	665	0
Lot 11 and Area	PEI	635	0
North Rustico	PEI	583	0
Clyde River	PEI	576	0
Pleasant Grove	PEI	496	0
New Haven-Riverdale	PEI	485	0
Hampshire	PEI	420	0
Wellington	PEI	409	0
Souris West	PEI	399	0
Warren Grove	PEI	367	0
Brudenell	PEI	362	0
Ellerslie-Bideford	PEI	357	1
St. Felix	PEI	348	0
Crapaud	PEI	345	0
Brackley	PEI	340	0
Kinkora	PEI	339	0
Meadowbank	PEI	338	0
Murray River	PEI	334	0
Cardigan	PEI	332	0
Central Kings	PEI	329	0
Linkletter	PEI	320	0

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Murray Harbour	PEI	320	0
Morell	PEI	313	0
Bedeque and Area	PEI	310	0
Hunter River	PEI	294	0
Grand Tracadie	PEI	293	0
York	PEI	284	0
Abrams Village	PEI	267	0
Annandale-Little Pond-Howe Bay	PEI	262	0
Greenmount-Montrose	PEI	258	0
St. Peters Bay	PEI	253	0
Union Road	PEI	235	0
Mount Stewart	PEI	225	0
Alexandra	PEI	224	0
Tyne Valley	PEI	222	0
Winsloe South	PEI	221	1
Bonshaw	PEI	218	0
St. Nicholas	PEI	198	0
Northport	PEI	188	0
North Wiltshire	PEI	182	0
Breadalbane	PEI	173	0
Miminegash	PEI	173	0
Hazelbrook	PEI	172	0
Sherbrooke	PEI	172	0
Darlington	PEI	109	0
Lorne Valley	PEI	106	0
Victoria	PEI	104	0
Tignish Shore	PEI	73	0
St. Louis	PEI	51	1