The Canadian Battery Association's British Columbia Stewardship Plan for Lead-Acid Batteries

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CBA
Canadian Battery Association
REPRESENTING THE INDUSTRY SINCE 1970

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Executive Summary

The Canadian Battery Association (CBA) estimates that members of its association sold approximately 12,000,000 kg of lead-acid batteries (LABs) in British Columbia in 2010. Approximately 85% of the LABs are sold to consumers for use in vehicles and commercial trucks. The remaining 15% are motive systems such as forklifts and golf carts and stationary systems for power storage and backup. The motive and stationary systems are not typically sold to consumers and are business-to-business transactions.

The CBA's Stewardship Program provides for a point-of-sale recovery program for consumer focused vehicles LABs and a business-to-business recovery program for commercial LABs for motive or stationary power supplies. Recovered consumer and commercial LABs will be shipped to warehouse locations using a reverse-distribution system and then bulk shipped to smelters for recycling.

The current recovery rate for consumer products in British Columbia is difficult to determine because of the complex national and international transportation network to smelters in Canada and the US. A preliminary estimate of the LAB recovery rate when adjusted for new vehicle sales is estimated to be over 90% based on data collected in the first 6 months of 2010. The CBA is compiling the data from the North American smelters to confirm and verify the recovery rates from British Columbia and with the recovery rates published by Battery Council International.

The CBA has formalized a comprehensive and convenient network of 150 retail return collection facilities that cover the urban and rural parts of British Columbia. In addition, there are the wholesale facilities of CBA members and an independent recycling infrastructure of automotive and steel recyclers that will also collect LABs throughout British Columbia.

Because of the strong commodity price for recycled lead, the CBA will not require a visible eco-fee on the purchase of LABs. The demand for lead provides sufficient economic incentive to recover LABs in urban and rural areas. Remote communities are a more difficult challenge and the CBA is working with Indian and Northern Affairs and businesses that operate in remote locations to recover and recycle LABs.

The CBA's Stewardship Program has the endorsement of top 6 manufacturers of LABs that account for more than 90% of the LAB's sold in British Columbia. The remaining 10% of LABs are sold in British Columbia by new car dealers as a component within a new vehicle or Producers with their own Stewardship Program.

1 Introduction

The Canadian Battery Association (CBA) is developing a National Stewardship Program for LABs and this Stewardship Plan is submitted to the BC Ministry of Environment under Part 2 of the Recycling Regulation. A similar Stewardship Plan has been submitted and approved in Manitoba and is in the process of being submitted to other Provinces on a voluntary basis.

1.1 Regulatory Requirements

The ***Environmental Management Act*** and the ***Recycling Regulation*** is the regulatory framework in British Columbia that requires the stewardship of lead-acid batteries.

In addition, there are a variety of Acts and Regulations that will have an influence on the development and implementation of the Stewardship Plan. Those Acts and Regulations are:

- The Canadian Environmental Protection Act
- The Transportation of Dangerous Goods Act;
- The Environmental Management Act's Hazardous Waste Regulations;

These acts and regulations will be integrated into the Stewardship Plan.

1.2 About Lead-Acid Battery Use in British Columbia

Lead acid batteries (LABs) are important in the daily lives of every person in British Columbia. LABs are used to:

- Start our vehicles, boats and recreational vehicles;
- Power our electronics, telecommunication systems and safety systems (e.g., emergency lighting, fire alarms) during power outages;
- Start commercial trucks and public transport such as buses, trains and planes; power forklifts;
- Provide back power for data centres for bank networks, computer systems,
- Store power for alternative energy applications

LABs range in size from 2 kg in a small emergency lighting system to 20 kg in an average passenger battery to thousands of kilograms in commercial applications.

Because of the wide range of LABs, the stewardship plan groups the LABs into the following 5 categories:

Category	Size (kg)	Typical Application
Sealed Lead Acid	2 – 10	emergency lighting, fire sensors
Vehicle – Passenger & Light Truck	10 – 20	start vehicles
Vehicle - Commercial Truck	30 -50	start transport trucks
Motive	30 – 300	electric forklifts, golf carts
Stationary	>300	large power supply and emergency back-up

The average life span of a LAB varies depending on their design and application. SLA, vehicle and commercial truck batteries are designed to last approximately 60 months. Motive batteries (e.g., used in forklifts, golf carts) are a different design and are expected to last 10 years while Stationary batteries that typically serve as emergency or reserve power are much larger and can last for more than 20 years.

The market for LABs in Canada is estimated to be $500 million in sales annually. Approximately, 85% of those sales are to the vehicle and commercial truck applications. The remaining 15% are for motive and stationary applications.

Statistics Canada reports the following vehicle registration for Canada and British Columbia.

Registration Category	Canada	British Columbia	% of Canada
Vehicles <4,500 kg	19,876,990	2,561,329	12.9%
Vehicles 4,500 - 15,000kg	503,505	130,611	25.9%
Vehicles >15,000kg	326,190	17,416	5.3%
Buses	85,579	9,557	11.2%
Motorcycles & Mopeds	594,866	55,627	9.4%
Trailers	5,747,291	369,333	6.4%
Off-Road, construction, farm vehicles	1,920,880	34,734	1.8%
Totals	29,055,301	3,178,607	10.9%

Source: Statistics Canada – Last Updated: 2010-02-22

Statistic Canada indicates that the ratio of registered vehicles to population has been relatively constant since the 1970s. As such, the population growth rate of BC will provide a rough estimate of the growth rate in LAB sales on an annual basis. Since 2005, the population growth rate in BC has been at a

rate of 1.4% per year and the growth rate in battery sales will be taken into account when calculating collection rates.

Assuming that the average life span of a vehicle battery is 5 years, the number of vehicle batteries sold in British Columbia is just over 540,000 units and is increasing at a rate of 1.4%/yr. If the average vehicle battery weighs 20kg, then the total weight of vehicle LABs sold in British Columbia is nearly 11,000,000 kg/yr.

Given that the vehicle LABs account for 85% of the market share based on sales information, the total weight of LABs sold in British Columbia is estimated to be in the order of 13,000,000 kg/yr.

While these figures represent a very rough estimate of sales and product growth rates, they serve as a starting point for the development of the stewardship plan in British Columbia and the estimation of recovery rates for LABs.

1.3 Population Distribution in British Columbia

One of the key challenges of a Stewardship Plan is to provide accessibility to the consumer – especially in rural and remote communities.

The population of British Columbia in 2009 according to Statistics Canada was 4.4 million people. Approximately 88% of the population live in cities, towns or Regional Municipalities with a population greater than 1,000 people.

One of the challenges of a product stewardship program in BC will be providing recovery services to the smaller rural communities. Fort Nelson on the Alaska Highway (population 4,300) and Port Clements on Haida Quaii (population 432) are important locations as they represent extreme rural location and a transportation challenge for the stewardship plan. Monitoring of the LAB recovery in these locations will provide a measure of the effectiveness of the Stewardship Program in rural and remote areas.

2 Program Administration

2.1 The Canadian Battery Association

The Canadian Battery Association (CBA) is a Federally-registered Not-for-Profit Association. The CBA has six national members that account for more than 90% of the LAB sales in Canada and British Columbia.

The CBA has three objectives:

- provide members with an efficient and effective stewardship program;
- Provide the statistical detail required by the stewardship program in a format that is common to all participants.
- ensure the service is cost-efficient, comprehensive (multi-material) consumer-focused, that includes point-of-sale return collection system.

The National Members of CBA in alphabetical order are:

- C&D Technologies Inc
  7430 Pacific Circle, Mississauga, Ontario, L5T 2A3
  Primary Contact: Mike Graper

- Crown Battery of Canada Ltd
  7430 Pacific Circle, Mississauga, Ontario, L5T 2A3
  Primary Contact: D'Arcy O'Neill

- EnerSys Canada Ltd
  61 Parr Boulevard, Bolton, Ontario, L7E 4E3
  Primary Contact: Bob Bryan

- Exide Technologies
  6950 Creditview Road, Mississauga, Ontario, L5N 0A6
  Primary Contact: Nelson Romberio

- Johnston Controls
  5757 North Green Bay Avenue, Milwaukee, Wisconsin, 53209
  Primary Contact: Gary Santori

- Power Battery Sales Ltd dba East Penn Canada
  165 Harwood Ave. N., Ajax, Ontario, L1Z 1L9
  Primary Contact: Luc Theriault

The CBA has expanded its membership to include companies that sell LABs in British Columbia. The following businesses in British Columbia (in alphabetical order) are Associate Members of the CBA:

Battery Direct® Kamloops
1440 Battle Street, Kamloops, BC V2C 2N8
Contact: Larry Squires

Battery Direct® Kelowna
#10-220 Neave Road Kelowna, BC V1V 2L9
Contact: David Blanchette

Battery Direct® Prince George
541-1st Avenue Prince George, BC V2L 2Y2
Contact: Curtis Thompson

Battery Direct® Vancouver
3981 Phillips Avenue Burnaby, BC V5A 3K4
Contact: John Vanden Broek

Battery Direct® Victoria
791 Cave Street Victoria, BC V9A 5T6
Contact: Dale & Pat Pearson

Battery Direct® Vernon
2209A - 48th Avenue Vernon, BC V1T 3P9
Contact: Paul Jackson

Edmonds Batteries Ltd.
101 – 20131 Industrial Avenue, Langley, BC, V3A 4K6
Contact: Stephen Pal or Randy White

Infinity Trading Company Ltd.
102 – 6249 – 205th Street, Langley, BC, V2Y 1N7
Contact: Ted Taylor or Laurie Taylor

Magnacharge Battery Corp.
1279 Derwent Way, Delta, BC, V3M 5V9
Contact: Greg Granholm or Justin Bakhah

OEM Battery Systems Ltd.
10 – 20075 92A Avenue, Langley, BC, V1M 3A5
Contact: John Ellis or Kelly Skaaning

Phil's Batteries and More Inc.
114 – 12332 Pattullo Place, Surrey, BC, V3V 8C3
Contact: Phil Blanchette or Arlene Bondaruk

Polar Battery Vancouver Ltd.
1258 Boundary Road, Burnaby, BC, V5K 4T6
Contact: George Schick or Judith Schick

Sota Battery Canada Ltd.
1137 – 11871 Horseshow Way, Richmond, BC, VYA 5H5
Contact: Ben Roller

The Battery Doctors
1972 Windsor Road, Kelowna, BC, V1Y 4R5
Contact: Bill Matichuk or Grant Matichuk

Vernon Battery Ltd.
4313 25th Avenue, Vernon, BC, V1T 1P5
Contact: Ray Kingdon or Sandra Patterson

The National and Associate Members of the CBA provide the majority of the wholesale distribution for consumer and commercial batteries in the Province.

Retailers such as NAPA, Canadian Tire etc., are not required to become members of the CBA because the manufacturers are already members of the CBA and the manufacturer assumes the stewardship obligations on behalf of the retailers. However, the retailers are expected to acknowledge that the manufacturer have assumed the Stewardship responsibilities on behalf of the retailer and the retailer is expected to be bound by the policies and procedures established by the manufacturer and outlined within the CBA's Stewardship Plan. Other than some of the new car dealers and some motorcycle manufacturers that import "on road" and "off road" vehicles into British Columbia and Interstate Battery Systems of Canada Inc, the CBA is not aware of any retail outlets in British Columbia that sell LABs outside the CBA's stewardship plan.

2.2 Program Goals, Objectives and Principles

The goals of the Canadian Battery Association's Stewardship Program are:

- Provide a program that is convenience to consumers and retailers of lead-acid batteries;
- Provide a National comprehensive stewardship program that meets the needs of each province;
- Promote the safe recovery, storage and transportation of lead-acid batteries.

The principles of the CBA Stewardship Program are:

- Integrate into member's Zero Waste Initiatives where possible;
- Develop solutions that can be implemented across Canada;
- Increase recycling and beneficial reuse options as dictated in the Pollution Prevention Hierarchy;
- Use Reverse Logistics to minimize transportation costs and ecological footprints;
- Develop solutions that meet corporate, social, environmental and economic goals of its members and regulatory agencies;

2.3 Organization Structure and Management in British Columbia

The CBA is managed across Canada by its Executive Director. The CBA is responsible for the overall administration of the program and the preparation of the stewardship plan.

The administrative functions of the CBA include:

- development and updating of the CBA's Stewardship Plan;
- preparing reports for regulatory agencies, Board of Directors and stakeholders;
- preparing the communication materials for the media releases;
- overseeing the budgets and contingency plans;
- undertaking stakeholder consultation and organization of Advisory Committees;
- resolving disputes and investigating complaints;
- developing annual business plans including annual strategies and actions designed to meet Performance Measures (see Section 6).

The CBA has a simple governance model. The Executive Director provides all the basic support to the Board of Directors. The CBA's Board of Directors are comprised of the six national representatives and form the voting members of the CBA. The Board of Directors are responsible for the overall development and implementation of a national recycling program for LABs.

The businesses that sell LABs in British Columbia are Associate Members of the CBA and form a BC Steering Committee. The Steering Committee ensures that Province-specific issues are reflected in the BC's Stewardship Program.

The purpose of the British Columbia Steering Committee is to:

- Identify local and provincial issues that will need to be addressed in the stewardship plan;
- Provide sales and recovery data as outlined in by CBA policy;
- Participate in events to recover lead-acid batteries in remote and rural locations.

2.4 Accountability and Transparency

Representatives from the British Columbia Steering Committee of the CBA will become an active member of Recycling Council of BC (RCBC) and participate in conferences and recycling programs.

In addition, the CBA website will have an entire section on British Columbia (www.canadianbatteryassociation/bc.ca) with a section devoted to:

- Overview of program including current recovery rates, health and safety information, location of battery recycling depots;
- Administrative information including financial information, stewardship plan in downloadable format and the current business plan for British Columbia;
- The environmental story for lead acid batteries including the fate of lead-acid batteries, electrolyte and plastic;
- Forms and procedures for CBA members; and,
- Contact information.

Finally, the CBA will publish all the relevant information with respect to the safe collection, transportation and recycling of LABs in British Columbia.

Because there is no eco-fee on LABs sold in British Columbia, the CBA feels that an independent financial audit and a Stakeholder Advisory Committee are not required.

2.5 Dispute Resolution

There are three dispute resolution stages utilized by the CBA to resolve differences between two parties.

First Stage:

The first stage is to encourage the two parties to come to a fair resolution of the issue. Should any one of the parties be unsatisfied with the outcome of this stage, they must provide in writing to the CBA that the first stage of the dispute resolution procedure has not been successful.

Second Stage:

The CBA will take an active role in the mediation between the two parties. During this stage, the two parties will have an opportunity to describe the problem to the CBA and the CBA will generate options and a recommendation for consideration by the two parties. Should any one of the parties be unsatisfied with the outcome of this stage, they must provide in writing to the

CBA that the second stage of the dispute resolution procedure has not been successful.

Third Stage:

In the event that no resolution has been reached, the CBA will appoint a qualified mediator or an arbitrator under the Arbitration Act. The cost of the mediator and the remaining costs will be borne equally by the two parties.

In the event that the CBA is a party in the dispute, then Stage 2 would be by-passed because the CBA is a party in the dispute.

2.6 Reporting and Review

The CBA will review its stewardship programs every five years and submit an updated stewardship plan to the Ministry of Environment for approval.

In addition, the CBA will prepare an annual business plan for its national and provincial programs. These business plans will be available to the regulatory agencies and will be posted on the CBA's website.

The CBA will be responsible for the regulatory reporting, consultation and writing of the stewardship plan for regulatory agencies.

2.7 Financing Mechanism

The development, implementation and general administration of the CBA Stewardship Program for Lead-Acid Batteries (LABs) will be borne by the members of the CBA through its annual membership fee.

The annual membership fee will be set to ensure that the administrative costs of the Stewardship Program for British Columbia are covered. The membership fees will be review each year.

Consumers will not be charged an eco-fee at the retail level. Eco-fees are not required because the value and demand for recycled lead provides sufficient incentive for Stewards in British Columbia to collect, transport and recycle lead-acid batteries in all parts of British Columbia.

The current price of lead is $2.10 per kg on the London Metal Exchange. An average vehicle battery weighing 20kg has approximately 14 kg of lead valued at close to $30 per battery. In addition, the secondary lead markets from LABs are crucial to the production of new lead acids batteries in North America. There

is not enough production of primary lead in the world to produce the estimated 120,000,000 lead acid batteries sold each year in North America.

Because of these market forces, there is an active industry of secondary lead recyclers that pursue the collection and recycling of LABs. To compete with independent lead recyclers, some CBA members employ several strategies to ensure the collection of LABs. The strategies used include:

- implementing a business-to-business core charge (deposit) / core credit programs at the wholesale level to encourage the return of LABs from the retailer to the manufacturer. Typically these core charges / core credits programs are $10 per automotive battery with greater amounts for larger battery sizes and they are a business-to-business program that is not passed on to the consumer..
- offering to pick up core LABs at no cost from wholesalers and consumers.
- organizing special collection of core LABs through sweeps and events that promote recycling activities of LABs. (e.g., Exide's Annual Earth Day Event)

3 Product Life Cycle Management

3.1 Product Life Cycle Management

This section summarizes the fate of the products, residuals and commodities. Lead-acid battery technology has been around for 150 years and its three basic components are all 100% recyclable. The following sections outline the fait of the lead-acid batteries and the numbers are taken from Battery Council International's brochure titled: Sustainability/Recycling.

3.1.1 Lead

Battery Council International estimates that 96% of all battery lead is recovered and recycled. The recycling of lead is essential for the battery industry as there is not sufficient virgin lead product to supply the lead-acid battery market.

Each cell of a lead-acid battery contains electrodes of elemental lead (Pb) and (PbO_2). Small amounts of antimony, tin, calcium or selenium are usually alloyed in the electrode to add strength and simplify manufacture. The lead electrodes, battery posts and lead oxide are used to manufacturer lead for new grids, parts and lead oxide.

The recovered lead is separated and put through a Reverb Furnace. The furnace recovers a high percentage of the lead and the slag is

considered hazardous waste because of the high residual lead content. The slag from the Reverb Furnace is sent to a blast furnace and the lead is extracted. Once the lead has been recovered by the blast furnace, the remaining "slag" is non-hazardous waste and can be safely disposed of in landfills.

3.1.2 Electrolyte

Sulphuric acid is the primary components of the electrolyte within the battery. The dilute sulphuric acid be reused and recycled in a variety of processes:

1. Filtered and used on site: Acid is drained from the used batteries and filtered to remove any particles. This filtered acid is then used in the Waste Water Treatment Facility at the smelter.

2. Crystallized: Acid is put through a Crystallizer and in the process turned into Sodium Sulphate. The Sodium Sulphate is sold to manufacturers of glass, detergents etc.

3. Sold to Third Parties: The drained Acid is sold without any recycling or refining, to third parties. For example to Tanneries.

4. Neutralized: The Acid is neutralized using Caustic Soda into a Non-hazardous waste that can be disposed off safely.

5. New Filter Process – (Experimental): The drained Acid can be filtered using a new process whereby the Acid can be re-used in the manufacture of new batteries.

3.1.3 Casing

The smaller SLA and transport batteries have a plastic casing while the larger industrial and commercial batteries have steel casings.

Both the plastic and steel casings are recovered and recycled into new cases for lead-acid batteries.

4 Stakeholder Consultation

The CBA undertook extensive consultation as part of the development of the Stewardship Program. The consultation focused on meetings, conference calls and direct email notifications to local governments, contractors and recycling organizations using the distribution lists of Coast Waste Management, RCBC, BC Product Stewardship Council and members of the CBA. In addition, the CBA's draft Stewardship Plan was posted on www.canadianbatteryassociation.ca for over 4 months.

Appendix 1 provides a complete summary of the consultation and the comments from stakeholders.

The four Provincial meetings held in Prince George, Kelowna, Surrey and Victoria were well attended and the webinar was only attended by two stakeholders. The public was not directly targeted by the consultation as the program does not require the use of eco-fees and hence consumers are not directly impacted by the Stewardship Program.

There were three important changes to the Stewardship Program as a result of the consultations with stakeholders.

The first important change was the need to ensure that rural and remote communities have adequate service for the collection of lead-acid batteries. The Stewardship Plan was changed to incorporate the recommendations of the BC Product Stewardship Council's draft guidelines for Rural Communities and communications have been opened with Indian and Northern Affairs Canada to form a partnership for remote First Nations communities.

Remote locations pose yet another level of complexity; however, as the use of LABs in remote locations is primarily commercial applications such as military outposts, telecommunication repeaters and navigation systems. The CBA will work with the commercial and agencies that operate the remote location to ensure lead-acid batteries are safely recovered from remote locations.

The second important change was the need for a guarantee from the manufacturers to ensure that lead-acid batteries are transported from rural communities should commodity prices decline. The national brandowners that are signatories to the CBA's Stewardship Plan understand that they have a legally binding obligation to provide a Transportation Subsidy in the event that commodity prices decline and rural communities are not adequately serviced. The CBA will monitor prices for LABs in rural communities such as Fort Nelson and Port Clements and other rural communities to ensure that LABs are collected at the end of their life. The CBA will implement a Transportation Subsidy funded by the national brandowners should the rural communities not be serviced adequately.

The third change was the need to ensure a level-playing field to ensure that lead-acid batteries are collected, stored and transported by recyclers that are in compliance with all Federal and Provincial regulations. "Fly-by-night" battery collectors and exporters of LABs in shipping containers to Asia will be actively pursued by the CBA and reported to regulatory authorities.

5 Program Performance

The CBA's programs performance will be measured and reported for BC at www.canadianbatteryassociation.ca. The following sections summarize the different performance measures and the actions used by the CBA to achieve its long-term targets.

5.1 Awareness

The key factors to the successful recovery and processing of products in a Stewardship Program are awareness of the program and support by consumers and industrial customers.

In 2008, Ipos-Reid conducted an awareness survey in BC to gain a baseline survey of the public to industry-led product stewardship programs. The 2008 study found that 62% of the respondents were familiar with the recycling of lead-acid batteries. The CBA will set a long-term target of 75% awareness of the public to the lead recycling programs and the CBA will increase public awareness by undertaking the following actions:

1. Undertake an annual consumer awareness survey to determine the level of awareness and support for the CBA's Stewardship Program and determine if the long-term targets are being met and if the communication materials need to be altered or targeted on certain sectors of the population.

2. Modify the written communication materials prepared by Battery Council International and distribute a minimum of 5,000 brochures/yr to:
   - consumers at the point of purchase;
   - return-collection and recycling facilities; and,
   - the RCBC hotline and local governments by January 1, 2012.

   The communication materials will focus on raising the awareness and support for the recycling of LABs. Further, the CBA will work with national brandowners and retailers to have the communications materials integrated into national advertizing campaigns. Finally, the CBA recognizes that there are a few French-speaking communities

in British Columbia and communication materials will be prepared in both English and French.

3. Ensure the CBA's website and Producers' websites contains current information and communication materials regarding the stewardship program for LABs in British Columbia. In addition, the CBA will establish a separate website dedicated to providing the information regarding the recycling of LABs. The website www.recyclemybattery.ca will be established by October 1, 2011 and will be the central website for consumers and industry to obtain information about the location of the return collection facilities.

4. The CBA will work with manufacturers to put standardized recycling labels on every LAB sold in British Columbia. The label will direct the consumers to the www.recyclemybattery.ca website. The label will be put on new batteries starting in 2013.

5. Work with the Department of Indian and Northern Affairs Canada and commercial operators in remote locations to ensure that they are aware of the importance of recycling LABs. The CBA will contact at least 10 commercial operators per year that have LABs in remote locations.

The CBA will contact 25 Regional Districts on an annual basis to assess the effectiveness of the outreach programs. The results of the assessment will be included in the Annual Report and used to modify the communication materials as necessary.

5.2 Program Accessibility

The BC collection system for LABs will be based on a reverse distribution program where by retailers or distributors will recover the end-of-life LABs. The following sections outline the existing reverse distribution network operated by the members of the CBA to ensure accessibility to the Program in urban, rural and remote communities.

5.2.1 Urban Communities

The CBA projects that there will be over 150 retail facilities located in urban locations for the public to drop off LABs at no charge within the first year of the program. The retail facilities include:

- automotive and steel recyclers;
- retail stores that includes the national chains like Canadian Tire, Kal Tire, NAPA stores;
- local retail outlets at Associate CBA Members;

The CBA will prepare a list of the retail locations for the public to return LABs that can be accessed through the internet at www.recyclemybattery.ca within the first year of the program implementation.

In addition, the following CBA have a minimum of 10 large warehouse operations in BC that will be operated by CBA members. These warehouse locations will be prominently featured on the CBA website for the drop off of industrial and commercial batteries at no charge. These locations will also be accessible through www.recyclemybattery.ca.

The long-term goal for urban communities is a return collection facility within 30 minutes of a consumer.

5.2.2 Rural Communities

One of the key challenges of any stewardship program is the delivery of recycling facilities in rural areas. The majority of rural communities will have some sort of return collection facility or annual event.

The CBA will work with each Regional District to identify the list of rural communities that will require some form of collection system for LABs. The location of the return collection facilities in rural areas will also be published on www.recyclemybattery.ca.

The long-term goal for rural communities is adequate coverage of rural communities as determined by the guidelines prepared by the Product Stewardship Council of BC and input from the individual Regional Districts. The CBA will assess the rural delivery of the program by working with 25 Regional Districts per year to ensure the rural communities are adequately serviced.

5.2.3 Remote Communities and Locations

Remote communities and locations are typically not accessible by public roads. Consequently, transportation of LABs from remote communities and locations will pose a challenge to the CBA because lead-acid batteries are considered as a Hazardous Waste under Provincial laws and a Dangerous Good under Federal laws.

The most common remote community will be First Nations Communities. As such, the CBA will establish a partnership in the

first year with Indian and Northern Affairs Canada to ensure that LABs in remote First Nations communities are collected stored and transported in a safe manner to recycling facilities.

Remote locations are typically commercial / industrial applications (e.g., Coast Guard lights, Telco relay stations, etc). The CBA will establish partnerships with the commercial or industrial operators to take responsibility for the recovery of LABs from their remote locations. The CBA will contact 10 remote operators per year to ensure that the LABs have been recovered from the remote locations and a CBA member is ensuring the proper storage, transportation and recycling.

The long-term goal is to ensure that all the commercial and industrial customers that use LABs in remote locations are enrolled in an adequate recycling program within the CBA's Stewardship Plan.

5.3 Product Collection

Within BC, the CBA accounts for the majority of sales and the preliminary estimate of the weight of LABs sold in British Columbia by CBA members in 2010 is 12,000,000 kg.

The LABs associated with new vehicle sales are estimated in the sales data. Statistics Canada indicates that approximately 152,830 new vehicles will be sold in BC in 2010. According to Statistics Canada approximately 66% of new vehicles sold in BC in 2006 were built in North America and will have LABs manufactured by CBA members. Vehicles imported from outside North America do not contain LABs that were manufactured by CBA members. Within the first 18 months of the implementation of the CBA's Stewardship Plan, the volumes and brandowners of LABs in new imported vehicles will be determined and factored into the program.

Stationary and motive batteries are also included in the CBA's stewardship plan. The CBA members report lower recovery rates for motive and stationary sales of LABs in 2010. The recovery rates for stationary and motive batteries is expected to be lower because these are longer-lived batteries (between 10 and 20 years) and the commercial operators of the motive and stationary batteries will ensure their recovery and recycling of these batteries when they require replacement and they may bypass CBA members when it comes time to recycle the LABs and their recovery volumes will not be reported to the CBA.

5.3.1 Collection Volumes

The CBA's Stewardship Plan is unique in that the industry has already achieved a very high recovery rate of lead-acid batteries (LABs) in North America. Battery Council International (BCI) estimates more than 96% of all battery lead is recovered and recycled in North America. BCI has been very active in the development of an effective recovery and recycling program throughout North America. Based on the preliminary data from CBA members, the British Columbia collection volumes for LABs in 2010 would have been approximately 12,400,000 kg.

The CBA is concerned that the reported recovery volumes may include double counting and inaccuracies. As such, the CBA is in the process of contacting the BC smelters to determine the volumes of recovered lead from British Columbia. The smelters that process LABs from British Columbia are:

- Metalex in Richmond, BC
- Exide's smelters in the United States;
- Teck in Trail, BC;

The CBA members will report the volume of LABs shipped every quarter. In addition, the CBA is exploring the possibility to track the volumes of LABs from British Columbia to smelters to confirm the recovery volumes reported by CBA members.

The long-term goal of the CBA is to have a comprehensive and verifiable understanding of the recycling routes for LABs within the first year of the program so that the Collection Rates are accurate. This information will also help the CBA deal with the illegal activities of the 'fly-by-night' recyclers and exporters of LABs.

5.3.2 Collection Rate

The Collection Rate will be calculated based on the percentage of the kilograms of LABs sold vs. the kilograms of LABs collected for recycling.

$$\textit{Collection Rate} = \frac{\textit{Weight of LABs Transported for Recycling}}{\textit{Number of LABs Sold}}$$

The Collection Rate will not be adjusted for population growth over the life time of the product (5 to 20 years). Collection rates will be based on sales and collection data for the same calendar year.

The Collection Targets for the next five years of the program will exceed the 75% target outlined in the Recycling Regulation; however, until the LAB recycling system in BC can be understood fully and verified, the stated Collection Rates have been sent conservatively in the following table.

Year	Estimated Sales of LABs*	Weight of LABs to be Collected	Collection Targets
1 - 2011	12,170,000	9,735,000	80%
2 - 2012	12,340,000	10,490,000	85%
3 - 2013	12,510,000	10,260,000	90%
4 - 2014	12,685,000	12,050,000	95%
5 - 2015	12,865,000	12,220,000	95%

* based on an annual growth in sales of 1.4% in vehicle battery sales

Remedial Actions

In the event that Collection Targets are not met, the CBA will identify the problems to the Ministry in the Annual Report and implement the necessary remedial actions to improve the collection rates and achieve the Collection Targets in subsequent years.

5.3.3 Post – Collection Management of Residuals

Once the LABs have been recovered by the CBA members, there are a variety of residual components that are recycled. Within the first year of the Stewardship Program, the CBA will collect the relevant information from the smelters and estimate the weight of recycled commodities and their fate within the context of the 4 R's.

This analysis will include packaging and shipping materials in addition to the components of the LABs.

5.4 Generation, Storage and Transportation

5.4.1 Generation, Storage and Transportation

In British Columbia, LABs are considered a household hazardous waste because they are designated as a product category in the Recycling Regulation. CBA members that collect LABs will follow the collection, storage and transportation requirements and within 2 years will the members of the CBA will be certified as a Certified Battery Recycling Facility.

Generation: All CBA members that recover LABs will need to have a BC Generator Registration Number. The registration threshold for LABs in British Columbia is 2,000 kg in an average 30 day period (approximately 100 vehicle batteries in an average 30 day period).

Storage: In British Columbia, CBA members must conform to the provisions of the Hazardous Waste Regulation in relation to the requirements of a Return Collection Facility plus if the return collection facility stores more than 25,000 kg of Household Hazardous Wastes must be registered as a Hazardous Waste Facility and conform Parts 2 and 3 and Sections 16, 42.3 (2) and (3) and 42.4 (1) to (6) of the Hazardous Waste Regulation.

Transportation: In British Columbia, the manifesting of shipments of 1,000 kg of core LABs within the Province is required by the Hazardous Waste Regulation and trans-boundary shipments of core LABs will be subject to the Federal Canadian Environmental Protection Act (CEPA) and the Export and Import of Hazardous Wastes Regulation under CEPA.

In addition, collectors and transporters of batteries within the CBA program will be required to follow the safe handling and transportation guidelines outlined in Appendix 2.

Within the first 18 months of the Stewardship Program, the CBA will visit all the CBA member facilities to ensure compliance to Provincial and Federal laws and CBA Guidelines and the inspections will be completed on an annual basis.

5.4.2 Training and Education of Recyclers

The recovery, storage and transportation of LABs must be done to CBA standards to ensure environmental and worker safety.
The CBA will initiate a training and education program as part of its Stewardship Program for return-collection facilities and transporters that collect, store and transport LABs in British Columbia.

5.4.3 Inspection of Recycling Infrastructure

The CBA as part of its ongoing commitment to the environment and worker health and safety will ensure the collection depots, storage facilities and transporters are following the CBA guidelines for the safe collection, storage and transportation of LABs.

Businesses that do not conform to the MoE Regulations or the CBA guidelines will be removed from the stewardship program for LABs.

5.5 Operational Efficiency

The CBA will utilize the reverse distribution system established by its members to recover LABs in urban and rural communities. The CBA members will report sales and collection volumes on a quarterly basis. These quarterly results will be published on the CBA's website so the industry can monitor the effectiveness of the program.

Within the first year of the stewardship program, the CBA will work with Indian and Northern Affairs and commercial and agencies to link the LAB recovery programs for remote communities and locations into the reverse distribution system. These programs and initiatives will also be posted on the CBA's website.

Finally, given that the recycling of LABs is a well established industry with high recovery rates, the primary operational efficiencies will be achieved by improving the efficiency of the collection and transportation mechanism. Any efficiency gained by CBA members will be posted on the CBA website as examples of how environmental impacts can be reduced by improving operational efficiency.

5.6 Quality of Service

To track customer satisfaction, the CBA will integrate into the consumer awareness program an estimate of community and partner satisfaction, number and nature of complaints, number and nature of service disruptions.

The Quality of Service will be reported in the CBA's Annual Report to the Ministry of Environment.

5.7 Management Performance

The CBA has established an ambitious program for British Columbia that is linked into a National Program for LABs.

The CBA will publish on its website, its performance measures, long-term goals and annual strategies and actions as well as the historical and current data on those metrics. In addition, the CBA will publish on its website:

- The Stewardship Plan for British Columbia;
- Annual reports to the Ministry of Environment;
- Results of its stakeholder consultations;
- Priorities, goals and targets set by the Board of Directors;
- News and events for the next three months.

The CBA's Annual Report to the Ministry of Environment will include:

- a description of the CBA's educational materials and strategies used in the previous calendar year and changes proposed for the current calendar year;
- the location of the CBA's return collection facilities in urban and rural areas and any changes in the number and location of collection facilities from the previous report and proposed changes in the current calendar year;
- the number of activities and events to recover LABs from remote communities and locations and proposed activities and events for the current calendar year;
- efforts taken by the CBA to reduce environmental impacts throughout the product life cycle and to increase reusability or recyclability of LABs at the end of the product's cycle;
- a description of how the recovered product was managed in accordance with the pollution prevention hierarchy and proposed projects to improve operational efficiency;
- the total amount of the product sold and collected by the CBA members will be used to determine the CBA's Collection rate. In addition, the CBA will work with the other Stewardship Program to prepare sales and collection rates for the industry as a whole;
- a comparison of the approved plan's performance for the year with the performance requirements and targets in the Recycling Regulation and the CBA's approved plan.

Appendix 1: Consultation Summary for Canadian Battery Association

1.1 Participants in the Public Meetings

Public Meetings Held in Prince George (March 9, 2011), Kelowna (March 11, 2011), Surrey (March 15, 2011), Victoria (March 17, 2011).

Name	Affiliation
Meegan Armstrong	Ministry of Environment
Wendy Bennett	Okanagan-Similkameen Regional District
Phil Blanchette	Phil's Batteries and More
Buddy Boyd	Gibsons Recycling Depot
Terry Burgess	Fraser-Fort George Regional District
Teresa Conner	Ministry of Environment
Dipak Dattani	City of Burnaby
Kim Day	Ridge-Meadows Recycling
Denise Dionne	Capital Regional District
Andrew Doi	Metro Vancouver Regional District
Janine Dougall	Bulkley-Nechako Regional District
Wendy Dunn	Capital Regional District
Laurie Gallant	Kitimat-Stikine Regional District
Mike Hennessy	Tire Stewardship BC
Phil Knudtson	Ministry of Environment
David Lawes	Ministry of Environment
Kristi MacMillan	Ministry of Environment
Paul Marois	Planet Earth Recycling
Peter Maurer	Enersys Canada
Maury McCausland	London Drugs
Terri McClymont	Recycling and Environmental Action Planning Society
Peter Rotheisler	Central Okanagan Regional District
Paul Shorting	Regional Recycling, Nanaimo, BC
Lynn Smirl	Ministry of Environment
Al Stanley	Kootenay-Boundary Regional District
Ted Taylor	Infinity Battery
Curtis Thompson	Battery Direct, Prince George, BC
Tracy Weldon	City of Burnaby
Petra Wildauer	Fraser-Fort George Regional District
Dan Wong	Stewards Edge

1.2 Participants in the Webinar

Nicole Kohnert, Manager Regional Engineering Services, Regional District of North Okanagan. 9848 Aberdeen Road Coldstream BC V1B 2K9

Karmen Morgan, Regional Engineering Services, Regional District of North Okanagan. 9848 Aberdeen Road Coldstream BC V1B 2K9

1.3 Written Submissions

Cathy Kenny, Solid Waste Management Coordinator, Sunshine Coast Regional District, 1975 Field Road, Sechelt, BC V0N 3A1

Table of Comments and Responses

Stakeholder Comments	CBA Response
There was a broad concern from stakeholders that the program could not be sustained if commodity prices dropped. The key concern was that the transportation networks from rural areas would stop during these periods.	While there is a strong demand for lead as a commodity at this time, the CBA recognizes that there have been brief periods of low commodity prices and rural areas could be impacted because transportation prices prevent the recovery of lead-acid batteries. The National members of the CBA will provide a written guarantee within the context of this stewardship plan that a transportation contingency fund will be established should the price of lead drop and batteries are not able to be recovered from rural communities. The stewardship plan will be updated with more information about the transportation contingency fund for rural communities.
There was considerable discussion about the problems faced with Regional Districts that have a large rural population. Has the CBA seen the draft report prepared by the BC Product Stewardship Council on Stewardship Program Rural Service Level Guidelines for durable or semi-durable goods?	No. The CBA will obtain a copy of the draft report and will incorporate the recommendations of the BC Product Stewardship Council where possible.
Is the CBA willing to partner with Local Governments, especially in rural areas?	Yes. Because of the strong concerns of the Regional Districts with extensive rural areas,

	the CBA will work with the Regional Districts to ensure there are enough return collection facilities for lead-acid batteries in rural areas.
How will the CBA define and deal with lead-acid batteries in remote communities and locations?	Remote communities pose a challenge to the CBA because lead-acid batteries are considered Provincially as a Hazardous Waste and Federally as a Dangerous Good. Recovery lead-acid batteries from remote locations will be governed primarily by the Federal Transportation of Dangerous Goods Legislation and as such the collection of waste lead-acid batteries via Marine or Air transportation will require individualized programs. The most common remote community will be First Nations. As such, the CBA has contacted the Indian and Northern Affairs of Canada to work in partnership and ensure that lead-acid batteries in remote First Nations communities are collected. Remote locations are typically commercial / industrial applications (e.g., Coast Guard lights, Telco relay stations, etc). The current program prepared by the CBA requires the commercial or industrial operator to take responsibility to recover the batteries from their remote locations. Once the batteries have been recovered from the remote locations, a CBA member will ensure the proper storage, transportation and recycling.
Some Regional Districts on the coast have many small islands with permanent residents but there is no ferry service. The CBA Stewardship Plan needs to include a provision to collect of LABs from small islands that are populated.	Without public access to the small islands by road or ferry and some sort of marina or retailer of lead-acid batteries that can store waste lead-acid batteries, the CBA expects the residents of these remote islands to return the lead-acid battery to the point of purchase or a return collection facility where the battery will be integrated into the CBA's collection, transportation and recycling infrastructure. Round-up events organized by the Community on these islands may also be an option; however the lack of public access by road or ferry will be a significant barrier. The CBA will not provide "wharf-side collection" and

	will use the same approach for remote cottages on lakes.
Will the CBA put lead-acid battery recyclers out of business?	No. Legitimate recyclers of lead-acid batteries will not be impacted by the CBA's Stewardship Plan. There are many legitimate businesses in BC that collect and sell used lead-acid batteries and the CBA supports a free-market and a "Level Playing Field" for the recycling of used lead-acid batteries. However, the CBA is also aware that there are many "fly-by-night" operations in BC that do not follow Provincial or Federal storage and transportation laws for hazardous wastes and dangerous goods. The number of "fly-by-night" operators increases as commodity prices increase and there are some illegitimate companies that export lead-acid batteries in containers to Asia without an export license from Environment Canada. The CBA will work with regulatory agencies to stop "fly-by-night" operators and illegal exporters to ensure that there is a "Level Playing Field" with respect to the collection, storage and transportation of Lead-Acid batteries.
What will the CBA do about companies and agencies that sell lead-acid batteries to non-licensed transporters and provide "cash" bribes to get access to waste batteries?	The CBA will meet with companies and agencies and explain the liability requirements for the "consignor" when transporting hazardous waste. Further, any evidence that a "cash" bribe has been used to secure a shipment of lead-acid batteries will be reported to the company and agency and every effort will be made to ensure CBA members can compete fairly on a "Level Playing Field".
Will the CBA promote the safe collection, transportation and recycling of lead-acid batteries by non-polluting companies?	The CBA is considering the adoption of a certification program for its return collection facilities. The certification program will ensure that lead-acid batteries are being collected, stored and transported safely. With respect to recycling facilities and smelters, the CBA will assume for the moment that all the lead smelters in Canada and the United States are operating within their permits. There are not

	plans at the moment to undertake an Environmental Audit of the smelters.
Regional landfill audits are recommended and a significant number of lead-acid batteries end-up at regional landfills and are subsequently redirected for recycling.	The CBA acknowledges that some lead-acid batteries are dropped at landfills by the Public. However, the Regional Districts are paid for the batteries that they collect. Consequently, lead-acid batteries at landfills are a source of income for the Regional District. With respect to the issue of landfill audits. The high recovery rate of lead-acid batteries coupled with the price for lead is expected to prevent batteries from being landfilled. A recent landfill audit in the Okanagan did not turn up any lead-acid batteries consequently the need to participate in landfill audits will be limited.

Appendix 2: Canadian Battery Association Practices for Palletizing Core Lead-Acid Batteries

Procedures

Step 1) The Department of Transportation (DOT) specifies that core batteries are to be stacked on pallets in good condition. A piece of cardboard must be placed on an empty pallet before stacking first layer of core batteries.

Step 2) A piece of cardboard must be placed between each layer and on top. Batteries should not be stacked more than 3 layers high. Each pallet may contain 50-70 core batteries total.

Step 3) Arrange batteries so that terminals do not touch that could lead to a short circuit

Step 4) Load batteries 2 layers high, then shrink wrap. Wrap tightly 3 or 4 times around, making sure to catch top of pallet to help anchor load.

Step 5) Load third layer and place honeycomb cardboard on top. Shrink wrap entire load. Wrap tightly 3 or 4 times around overlapping bottom layers.

NOTE: Full wheel weight buckets and damaged batteries should be stacked in the middle of the top layer of the core pallet.

NOTE: Damaged batteries that are not visibly leaking electrolyte should be placed in strong poly bags and properly closed with an adjustable plastic tie. Bagged batteries must also be properly secured to the pallet.

DO NOT STACK PALLETS OF BATTERIES!

Responsibility of Return Collection Facilities

- Return your core batteries and wheel weights to your battery vendor (do not sell them locally)
- Strip labels off or spray paint the warranty returns and cores to prevent theft
- Cores batteries should be palletized and ready for pick-up prior to the arrival of the truck and broken batteries placed in plastic bags provided by the manufacturer;
- Battery shipments must be tracked;
- Place DNI (Do Not Inventory) tag on top of battery pallets