

Project 12: Environmentally Sound Management of Selected End-of-Life Vehicle Batteries, Including Spent Lead-Acid Batteries (SLABs), in North America		Operating Year(s): 2013–2014
Planned Budget for two years: C\$400,000 Year 1: C\$200,000 Year 2: C\$200,000		
Strategic Priority/Objective: Greening the Economy in North America Cluster: Addressing Waste in Trade in North America		
Project Summary The first task of this project involves the development of technical guidelines on environmentally sound management for secondary lead smelters and other facilities that process SLABs, to enhance their capability to implement environmentally sound management practices, notably in Mexico. This aspect differs from previous CEC work that culminated in a report entitled “Practices and Options for Environmentally Sound Management of Spent Lead-acid Batteries within North America,” which provides high-level guidance and that is not specifically geared towards addressing smelting and other facility operations for SLABs processing. The guidelines to be developed under this project will identify best management practices at the operational level concerning the environmentally sound management of SLABs and the recovery of materials, which will enhance the occupational health and safety conditions of workers in this industry and support the creation of green jobs. The second task will focus on examining potential releases of lead from secondary lead smelters and other facilities that process SLABs, with a focus on Mexico. This information can provide an indication of the scope and magnitude of this issue, and identify opportunities for improvement that both industry and governments can consider in implementing, or requiring corrective measures. Preliminary findings can also be used for the development of technical guidelines and to prioritize issues. The third task focuses on non-lead batteries used in hybrid and electric vehicles. A review of quantities in each country, and current and prospective end-of-life technologies/mechanisms with which to protect human health and the environment, will be possible through the implementation of this project. The fourth task of the project focuses on translating and publishing the CEC report entitled, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” completed during the Sound Management of Electronic Wastes in North America initiative under the 2011–2012 Operational Plan.		
Short-term Outcomes (at halfway point) <ul style="list-style-type: none">Establish a CEC battery-experts group composed of Party representatives and Secretariat staff to advance work on the activities and tasks identified in this project.		

- By May 2014, a CEC battery-experts group will develop draft ESM technical guidelines for processors of SLABs.
- By December 2013, a number of facilities that process SLABs in Mexico will be selected to participate in a pilot study on releases of lead and other substances of concern.
- By December 2013, complete French and Spanish translation and publication of the report, entitled “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” will be available.
- By June 2014, the CEC battery-experts group will implement a preliminary identification of releases of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs. These results will help to identify measures and practices to improve the environmentally sound management of these recovery and recycling processes. This work will help and inform enhance occupational health and safety decisions, and to prevent releases of these substances to their surrounding environment.
- By August or September of 2014, the CEC battery-experts group will meet and a key group of stakeholders (e.g., industry, NGOs, and academic experts, etc.) will have an opportunity to provide input and advice on the outline of the technical guidelines identified in task 1.1, and on the report identifying potential emissions for content of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs identified in task 2.1.

Long-term Outcomes (by the end of the project)

- By May 2015, the CEC battery-experts group will finalize the technical guidelines on environmentally sound management for secondary lead smelters and other facilities that process SLABs.
- By June 2014, the CEC will complete a preliminary analysis of other types of batteries used in hybrid and electric vehicles. This analysis will help explore how these batteries are managed at their end-of-life cycle. It is expected that the project will help identify current and prospective end-of-life technologies/mechanisms that can better protect human health and the environment, and to identify potential issues that may require attention as part of future CEC work.
- By May 2015, the CEC will complete a report identifying potential emissions of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs, as described in this project.

Longer-term, environmental outcome (post project)

- Information stemming from this project will support decision-makers to consider the implementation of measures to enhance protection of workers and communities from lead emitted during the recycling of SLABs by disseminating environmentally sound management practices.

- It is expected that the project will support the adoption of practices and actions leading to a reduction of lead emissions from secondary lead smelting facilities to air, soil, and will help reduce lead exposure to workers and communities.
- This project will benefit the Parties by providing timely information on potential impacts that may be associated with non-lead batteries from hybrid and electric vehicles when they reach the end of their useful life.

Tasks necessary to reach the environmental outcome:

- 1) Develop technical guidelines on best practices for environmentally sound management for processors of SLABs.
- 2) Examine potential releases and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs, with a focus on Mexico.
- 3) Undertake a preliminary analysis of the uses, end-of-life management and potential risks of the major non-SLAB batteries that are currently in use for hybrid and electric vehicles.
- 4) Translate and publish the study, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” previously included in the Sound Management of E-waste in North America project, completed under the 2011–2012 CEC Operational Plan.

Task 1) Develop technical guidelines on best practices for environmentally sound management for processors of SLABs

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing (Target date)	Budget (activities)
1.1 Develop ESM technical guidelines which cover best practices and technologies for sound management of SLABs. <i>Note: A group of CEC Parties’ officials will periodically seek input from an ad hoc set of stakeholders with</i>	1.1.1 Draft ESM technical guidelines for processors of SLABs. 1.1.2 Finalize ESM technical guidelines for processors of SLABs. The guidelines will consider key-stakeholders’ expertise, a review of national and international literature, best practices and technologies for environmentally sound management related to resources recovery and	The ESM technical guidelines on SLABs provides the necessary foundation to significantly reduce SLAB lead exposures where needed and promote environmentally sound recycling practices within secondary lead	May 2014 (Task 1.1.1) May 2015 (Task 1.1.2)	Year 1: C\$80,000 (Task 1.1.1) Year 2: C\$90,000 (Task 1.1.2)

<i>relevant expertise as the technical guidelines are developed.</i>	recycling of SLABs. The final version will include technical guidelines on best practices and technologies for processing SLABs, and recommendations on how to implement these at the operational level.	processing activities.		
1. 2 In-person meeting in Mexico of CEC battery-experts group to garner input and assessment from key stakeholders, public and private on the draft ESM technical guidelines, and preliminary work on the report on releases of lead and on approaches to quantify releases of lead from SLABs recyclers (Task 2.1).	1.2.1. In-person meeting with key stakeholders including translation services, webinar access and logistic support.	This activity will ensure engagement of private and public stakeholders in the process of completing the technical guidelines and the report on emissions of lead and substances of concern.	August–September 2014	Year 2: C\$25,000
Task 2) Examine potential releases and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs, with a focus on Mexico				
2.1 Analysis of potential releases of lead and approaches to quantify releases of lead from SLAB processing facilities.	<p>2.1.1 A report identifying potential emissions of lead and approaches to quantify releases of lead from secondary lead smelters and other facilities that process SLABs (pyro-metallurgical/hydrometallurgical), pretreatment, and collection facilities that process or handle SLABs.</p> <p>This report will include a pilot study of emissions and approaches for estimating emissions in a number of facilities in Mexico (contingent on resources).</p>	Results can be used for site-based risk assessment and risk management efforts.	Preliminary work to be completed in Year 1 and final report to be completed in Year 2.	<p>Year 1: C\$65,000</p> <p>Year 2: C\$85,000</p>

Task 3) Undertake a preliminary analysis of the uses, end-of-life management and potential risks of the major non-SLAB batteries that are currently in use for hybrid and electric vehicles				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
3.1 Conduct a preliminary analysis of the use and end-of-life management of batteries used in hybrid and electric vehicles, including an examination of current and prospective best practices and technologies that support environmentally sound management.	3.1.1 A draft and final report that characterizes the types, content, use, and disposal of batteries used in electric vehicles, including an overview of relevant best practices, technologies and laws.	Parties can use the preliminary analysis to enhance institutional knowledge of the potential issues that may exist regarding the end-of-life management of batteries used in North American hybrid and electric vehicles.	June 2014	Year 1: C\$40,000
Task 4) Translate and publish the study, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” previously included in the Sound Management of E-waste in North America project, completed under the 2011–2012 CEC Operational Plan				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (activities)
4.1. Translate and publish the study, “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,”	4.1.1 Spanish/French translation and publication of the final version of the study reviewed and cleared by Party-leads and the Secretariat.	Parties will have an increased knowledge of the flows of used computers and monitors; and the methodology will serve to implement	December 2013	Year 1: C\$15,000

which will be completed under the Sound Management of Electronic Wastes initiative under the 2011–2012 Operational Plan.		future analysis of the flows of e-wastes in North America.		
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Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under Operational Plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

- **How does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?**

The project is directly responsive to the findings in the CEC Secretariat’s report: “Hazardous Trade? An Examination of US-generated Spent Lead-acid Battery Exports and Secondary Lead Recycling in Mexico, the United States and Canada.” It is consistent with the ensuing CEC Council’s Strategic Objectives 1 - Improved Environmental Health of Vulnerable Communities in North America; and Objective 3 - Enhanced Regional Approach to Sound Management of Substances such as Lead. Preliminary work on batteries currently used in hybrid and electric vehicles will also help to inform governments of any existing and potential current or foreseeable issues that may be associated with these types of batteries when they reach the end of their useful life. This work is primarily linked to the CEC’s Greening of the North American Economy priority.

- **Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)**

The objectives are trilateral in scope. A review of environmentally sound management practices in the secondary lead smelting and processing industry will cover and benefit from best practices and expertise from the three North American countries. How SLABs are managed is an important public health, environmental and economic issue. A consensus now exists in the scientific community that there is no “safe” threshold for blood lead levels. Lead can be absorbed into the human body and prove toxic to the nervous system, heart, kidneys, bones and reproductive organs. Lead can affect the health of workers and people in the surrounding communities, particularly with respect to fetal and childhood development. This project will provide operational guidance for environmentally sound management which the Parties and their industries can support and, by increasing the environmentally sound management of SLABs, enhance existing and ongoing measures to

protect workers and communities from the lead emitted during the recycling of spent lead-acid batteries. Additionally, this work could support efforts to enhance regulations in Mexico applicable to SLABs recycling.

- **What are the specific, clear and tangible results that will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.**

This project will provide a comprehensive and robust technical guidance document on environmentally sound management practices. It will also expand opportunities for the CEC Parties to liaise with the North American secondary lead smelting sector. The project will also serve to gather valuable information on current technology, sound management practices and will inform decision-makers on key issues regarding site-based risk assessment and management of lead. The project will allow for translation and publication of the CEC report entitled “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” completed under the project Sound Management of Electronics for 2011–2012.

Performance measures include among others:

- Completed ESM technical guidelines on SLABs;
 - Opportunities for public/private collaborative partnerships in this initiative;
 - A report identifying potential release scenarios and approaches to quantify releases of lead from smelters (pyrometallurgical/hydrometallurgical), pretreatment, and facilities that process or handle SLABs, accompanied by site-specific sampling of one or two selected facilities in Mexico (budget permitting);
 - A report characterizing end-of-life management of batteries used in North American hybrid and electric vehicles;
 - The study “Quantitative Characterization of Domestic and Transboundary Flows of Used Electronics,” translated and published in its final version;
 - Level of stakeholder interest in implementing CEC ESM technical guidelines; and
 - Delivery of the workshop to gather input on guidelines and on the report for potential releases.
- **Explain why the CEC is the most effective vehicle for the Parties to undertake the project, considering:**
 - **The value-added of doing it under the CEC cooperative program**
 - **Any other public, private or social organizations that work on such activities**
 - **Opportunities to cooperate and/or leverage resources with such organizations**

The project is directly responsive to the findings in the CEC Secretariat’s report: “Hazardous Trade? An Examination of US-generated Spent Lead-acid Battery Exports and Secondary Lead Recycling in Mexico, the United States and Canada.” No other public, private or social organization is implementing a similar scope of activities as those included in this project. Notwithstanding, the project will bring valuable

opportunities to the CEC Parties to liaise with the private sector, and with environmental nongovernmental organizations to address issues around unsound management of SLABs, and to enhance protection of workers and communities neighboring SLABs recycling facilities.

- **Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC's involvement? Where applicable, describe how the work will continue after CEC involvement ends.**

Yes. The project is expected to last for two years and proposes a clear timeline for implementation of its tasks.

- **Where applicable, identify with reasonable specificity:**
 - **Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication**

The project will build on the general ESM document on SLABs developed by the CEC Hazardous Waste Task Force several years ago. Based on this initial high-level endeavor, the project will benefit the Parties, the North American secondary lead smelting industry and key stakeholders to better protect health and environment of workers, and neighboring communities.

- **The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project**

It is anticipated that several government agencies in the three countries, the secondary lead smelting industry, and nongovernmental organizations will follow closely the implementation of this project. The target audience will participate actively in the development of the technical guidelines and in the report to identify releases of lead and other substances of concern liberated in the recycling process.

- **The beneficiaries of capacity building activities that the project may include**

Secondary lead smelting companies, government policy and decision-makers will greatly benefit from information stemming from the implementation of this project.

- **The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome**

Key stakeholders include:

- Three North American federal governments, environmental agencies, trade agencies, environmental compliance monitoring agencies,

- The secondary lead smelting industry,
- The battery manufacturing industry,
- Universities and research centers (in Mexico: *Instituto Politécnico Nacional, Universidad Nacional Autónoma de México*),
- Nongovernmental organizations, and
- Technical experts on the environmentally sound management of SLABs.

Note: *In an effort to enhance lean operations of the CEC Secretariat, documents and reports intended for publication will be available primarily online. Printed copies will be provided only upon request.*