



Community Protection and Hazardous Waste Reduction Initiative Pilot Project Proposal for Lead Acid Batteries

INTRODUCTION:

The Community Protection and Hazardous Waste Reduction Initiative (Initiative) is a two-year effort that was established and funded through a Budget Change Proposal that was approved for the 2015/16 and 2016/17 fiscal years. The Initiative is designed to effectively leverage DTSC's goal of a 50 percent reduction of hazardous waste generated in California and disposed into hazardous waste landfills by 2025. Under the Initiative, DTSC is to select up to three pilot-scale projects to reduce hazardous wastes that are generated in significant quantities, can pose substantial risks or hazards to human health or the environment, and are treated, managed, or disposed in communities that are disproportionately burdened by multiple sources of pollution. To assist in the implementation of the Initiative, an Advisory Committee has been formed, comprised of individuals with relevant and diverse expertise in issues related to hazardous waste, hazardous waste management, and the impacts of hazardous wastes on Californians.

BACKGROUND:

Extensive use of lead in a multitude of applications, both historically and in modern times, has left an environmental legacy. Although significant steps have been taken to reduce exposure to lead, sensitive populations (e.g. children, workers at lead recyclers and the communities surrounding those facilities) remain at risk from lead exposure. According to the federal Center for Disease Control, lead exposure can affect nearly every system in the body. It is an especially potent toxin for children; in fact, there is no known safe blood lead level for children.



As the evidence regarding the serious and cumulative impacts associated with lead exposure has mounted over the last 30 years, local, state and federal requirements have been implemented to reduce exposure to lead. Examples of restrictions placed on lead include the phase out of leaded automotive gasoline, elimination of lead solder in cans, limitations and abatement of lead-based paint, limitations on the use of lead in plumbing systems, and more stringent emission controls on manufacturing and recycling of lead-containing materials. However, significant uses of lead remain, and those uses bring with them potential threats to public health from lead poisoning.

Lead smelting, including the secondary smelting of lead from recycled batteries, has been identified as a significant contributor to urban lead levels (and other metals, e.g. arsenic and antimony) and has been shown to have caused contamination in areas surrounding battery recycling facilities and to environmental justice communities.



According to the US Geological Survey, the lead acid battery industry accounted for about 90% of the reported 1.6 million tons of lead consumption in the United States during 2015¹. As the single biggest on-going use of lead, a comprehensive approach is required to ensure Californians and our environment are adequately protected from threats posed by lead exposures from automotive battery production, use, management, recycling, and disposal.

Additionally, in a Department of Finance letter, dated February 17, 2016, Governor Jerry Brown directed DTSC to evaluate lead acid batteries under this Initiative, and stated that the analysis could result in identifying lead acid batteries as a “Priority Product” under its Safer Consumer Products program.

This project would build on previous federal and state efforts to reduce exposure to lead and would evaluate potential reductions in hazardous waste generation, recycling, or disposal of lead acid batteries or wastes resulting from handling of lead acid batteries.

PILOT PROJECT GOALS AND OBJECTIVES:

1. Identify and quantify (using any and all available data) the impacts on communities and the environment that are attributable to lead-acid battery manufacturing, and handling, transportation, treatment or recycling operations, as well as from illegal disposal and management of spent lead-acid batteries.
2. Review and evaluate existing statutes and regulations, or proposed legislation, which govern the manufacturing, handling, transportation, and treatment or recycling operations of spent lead-acid batteries, and assess their effectiveness in the following: preventing releases during spent battery management, preventing illegal handling and disposal, and facilitating enforcement efforts. Research and explain the lead-acid battery core deposit process.
3. Identify and evaluate control equipment and methods used at lead acid battery recycling facilities in other states and countries, and gather data to develop a comparative analysis of their effectiveness.
4. Identify existing waste management practices and source reduction opportunities and best management practices for processes that occur in lead-acid battery manufacturing, as well as in treatment or recycling of lead acid batteries.
5. Collect waste generation data to better understand the number of spent lead acid batteries being generated in California, as well as other wastes generated during manufacturing, use, and recycling of lead-acid batteries. Identify and verify the recycling rates for lead-acid batteries cited in industry and government publications.

¹ U.S. Geologic Survey, Minerals Commodities Summary: Lead (2016) (available at: <http://minerals.usgs.gov/minerals/pubs/commodity/lead/mcs-2016-lead.pdf>)



6. Compile information on research being conducted on existing or future alternative battery technologies and chemistries that could extend the operational life of lead acid batteries, or replace them in conventional vehicles starting, lighting, and ignition systems, hybrid and electric vehicle accessory systems, separate motive power systems, energy storage or other applications. Compile information on alternative batteries that could replace lead-acid batteries in some or all of their current applications and their associated potential environmental concerns.
7. Identify and facilitate the implementation of projects that would demonstrate actual reductions or the potential for reductions in hazardous waste generation, recycling or disposal of lead acid batteries or wastes resulting from the management of lead acid batteries.
8. The project will propose goals in the reduction of exposure to hazardous constituents resulting from the use and management of lead-acid batteries, or in a reduction of the volume of spent lead-acid battery generation or volume of wastes generated by recycling and treatment of lead-acid batteries.

PROJECT SUMMARY:

This project would evaluate the processes involved in lead-acid battery management, including manufacturing and distribution of lead-acid battery products, as well as the generation, collection, transportation, and treatment or recycling of spent lead-acid batteries. By evaluating these processes the project would collect information that could form the basis for future pilot projects or regulatory decisions to reduce hazardous waste and impacts to communities. Please note that while this project is not attempting to evaluate whether lead-acid batteries should be identified as a “Priority Product” under DTSC’s Safer Consumer Products program, the data collected in this project will be fully available to DTSC’s Safer Consumer Products program and will likely inform any evaluation or assessment it develops.

This proposed project includes the following elements:

1. **Data Gathering and Data Gap Assessment:** Research, and through solicitation from the lead acid-battery industry, other governmental agencies (local, state, federal as well as other nations), academia, affected communities and community advocates, and other interested stakeholders, all available information on the manufacturing, use, and recycling of lead-acid batteries by collecting data on products and hazardous waste volumes. This data would lead to a better understanding of the volume of lead-acid battery production and recycling, and potential for releases and exposures to communities from these activities, including illegal disposal. Targeted information includes the following:
 - a. Product and waste quantities and estimated materials flow;
 - b. Current status of technology and engineering related to spent lead-acid battery recycling and the potential for reduction in hazardous wastes generated in this industry;



- c. Evaluation of California's alternative management standards that govern the management of spent lead-acid batteries;
 - d. Information on regulatory programs in other State agencies, other states and countries that pertain to lead-acid batteries and lead-acid battery management.
 - e. Identify any data gaps that may exist in any of the above areas, and assess methods or strategies to fill those data gaps.
2. **Evaluation of Reduction Pilots**
Solicit for proposals from the lead-acid battery industry, other governmental agencies (local, state, federal as well as other nations), academia, affected communities and community advocates, alternative battery industry proponents, and other interested stakeholders, for pilot scale projects that have the potential to substantively reduce the generation of lead acid battery wastes, or the generation of hazardous wastes that may be generated as a result of production and manufacturing, and treatment or recycling of lead-acid batteries.
3. **Final Summary Report and Recommendations:** Based on the data that has been gathered, develop a set of project findings. Using these findings, and with input from the Advisory Committee and stakeholders, develop a set of recommended actions that DTSC and others might consider as next steps to pursue and implement waste reduction efforts, and to reduce impacts to communities.

Findings and recommendations will be provided at the conclusion of the pilot project in the Final Summary Report and Recommendations, to be submitted by June 30, 2017, to the Secretary of the California Environmental Protection Agency and the relevant legislative committees with jurisdiction over the regulation of hazardous waste.