

Commission to Advance Lithium-Ion Battery Safety in Maryland

SB 532/Ch. 949, 2024 and HB 468/Ch. 950, 2024



Final Report and Recommendations November 25th, 2025

Submitted to:
The Office of Governor Wes Moore
Maryland General Assembly

Message from the Chair



On behalf of the Commission to Advance Lithium-Ion Battery Safety in Maryland, it is my privilege to present the Commission's final report. The State of Maryland recognizes that there are many important challenges that its citizens face because of the growing risks associated with the improper use, storage, and disposal of rechargeable batteries. These risks have contributed to a rapid increase in serious incidents within Maryland and nationwide, which have resulted in serious injury, loss of life, and significant property damage.

This report reflects more than a year of work by 20 leading experts representing fire safety, HAZMAT response, environmental agencies, energy and utilities, automotive manufacturing, waste and recycling, automotive recycling, battery manufacturing, and battery recycling. I extend my sincere appreciation to each member of the Commission for volunteering their time, expertise, and commitment. The Commission also gratefully acknowledges the subject-matter experts who provided invaluable insights throughout this process. Finally, I would like to recognize Penny Doty of the Office of the State Fire Marshal, whose diligence ensured the Commission met its targets and deadlines, and Director Michael Cox of the Maryland Fire and Rescue Institute, who generously provided workspace and support for the Commission's efforts.

This report provides a comprehensive examination of battery-related safety challenges spanning consumer electronics, micromobility devices, motor vehicles, and utility-scale applications, as well as downstream issues related to battery collection and end-of-life management. It offers legislative recommendations and best practices that will help ensure Maryland remains a leader in both battery adoption and public safety.

It is our hope that this document, and its accompanying appendices, serves as a useful resource for Maryland and other jurisdictions working to address the complexities of lithium-ion battery safety. Given the rapid pace of technological, regulatory, and industry developments, this report represents a foundation rather than an endpoint. Policymakers, first responders, industry professionals, and the public must continue collaborating to stay ahead of emerging challenges, and Maryland's battery safety policies must continue to evolve accordingly.

Sincerely,

A handwritten signature in blue ink that reads "Emil Nusbaum". The signature is fluid and cursive, with a long horizontal stroke at the end.

Emil Nusbaum, Esq.
Chair, Commission to Advance Lithium-Ion Battery Safety in Maryland

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EXECUTIVE SUMMARY

Background:

The State of Maryland is a national leader in developing clean energy initiatives and policies. With the rapid proliferation of lithium-ion batteries in consumer products, electronics, vehicles, and utilities, the risk of battery-initiated fire events has significantly increased. Battery-initiated fires, depending on the battery type, size, condition, and application can start violently and may be difficult or impossible to extinguish using traditional fire suppression techniques. Due to increasing risks to the public, first responders, and businesses, the Maryland General Assembly passed a law establishing the Commission to Advance Lithium-Ion Battery Safety in Maryland (the Commission). Over the course of a year, the Commission was charged with researching, analyzing, evaluating, and providing recommendations to the Maryland General Assembly on lithium-ion battery policies that promote safety, collection, reuse, and recycling.

Commission Process:

In compliance with the authorizing law (Senate Bill 532/Ch. 949, 2024 and House Bill 468/Ch. 950, 2024), the Commission convened its first meeting in October 2024. The Commission's process involved two primary phases: a fact-finding period in which members conducted research and received presentations from leading experts and a synthesis period focused on developing final recommendations and preparing the final Commission report. The Commission met regularly and held 19 meetings, heard from 17 experts across multiple topic areas, and conducted 4 site visits. The statutorily required interim report was submitted to the Legislative Policy Committee on December 1, 2024, and the Commission obtained a quorum and unanimously voted to approve the final report on November 25, 2025.

Key Legislative Recommendations:

While lithium-ion batteries are the focus of the Commission's recommendations, it is important to recognize that lithium-ion batteries are not the only batteries that pose safety and fire risks. The Commission recommends the following seven legislative recommendations:

- 1) The Commission recommends that the Maryland General Assembly enact four extended producer responsibility programs. These programs will encourage responsible battery collection, improve public awareness, reduce the financial burden of collection and recycling on taxpayers and government agencies, encourage design for reuse and recycling, and promote end-of-life management that protects the environment. The following extended producer responsibility (EPR) programs are recommended:
 - Small and medium-format battery EPR (as an update to the State's existing battery laws)
 - Small and medium-format battery embedded device/electronics EPR (as part of an update to the State's electronics EPR law)

- Electronic nicotine, cannabis, and other substance delivery systems (including e-cigarettes and vaporizers) in addition to single-use substance delivery system product bans and/or deposit systems
 - Vehicle traction batteries including hybrid-electric vehicle traction batteries and large-format vehicle traction batteries
- 2) The Commission recommends that the Maryland General Assembly provide funding to the Maryland Fire and Rescue Institute to develop and distribute comprehensive training for responding to “energetic” battery-initiated events.
 - 3) The Commission recommends funding for the acquisition of specialized personal protective equipment and tools to allow first responders to safely respond to and mitigate battery-initiated events. Battery collection and processing costs, that are not covered by relevant EPR provisions, should be funded as well.
 - 4) The Maryland Department of the Environment (MDE) currently covers the costs of collecting, storing, and recycling compromised batteries recovered from an event. MDE should receive dedicated funding to support the final disposition of batteries not covered by an EPR program.
 - 5) Regular review and consideration of national model code provisions for incorporation into Maryland state and local regulations.
 - 6) The Commission recommends that the Maryland General Assembly require manufacturers or distributors of medium-format batteries contained in micromobility devices to only sell batteries certified by recognized third-party standards bodies, where applicable.
 - 7) The Commission recommends that the Maryland General Assembly extends the mandate of the Commission for an additional two years to allow for continued research and review of:
 - Battery risks at the Port of Baltimore, roads, rail and tunnels throughout Maryland
 - Impacts of battery risks on insurance providers and insurance coverage availability
 - Maryland’s current waste classifications for lithium-ion batteries and how they affect collection, storage, and recycling as well as how this could be better addressed in the permitting and regulation of solid waste facilities
 - The integration of pending federal regulations and emerging third-party standards

Conclusions:

As the use of batteries continues to expand across consumer, transportation, and commercial applications, it will become increasingly important for Maryland to adopt best practices, standards, and policies that mitigate risk while protecting life and property. Due to the diversity of battery types, chemistries, and rapidly evolving technologies, a uniform “one-size-fits-all” approach is neither practical nor effective. Different battery applications require different safety practices, and first responders, environmental response agencies, and the public must have access to proper education, resources, and training to understand and safely manage these differences.

1. INTRODUCTION

1.1 Context:

Lithium-ion batteries are the predominant form of rechargeable battery and are used across a wide range of consumer, transportation, and commercial applications.¹ Lithium-ion batteries are a transformative technology that have enabled the proliferation of affordable technologies that require energy storage to operate. Consumer electronics, tools, appliances, micromobility devices, motor vehicles, commercial equipment, and utilities all use lithium-ion batteries. Because these batteries vary significantly in chemistry, design, and form factor, their safety characteristics and risks also vary substantially. As global demand for energy storage continues to grow (with some projections estimating a 25 percent annual increase in demand through 2030), it is essential that policymakers understand both the benefits and challenges associated with this rapid adoption.²

Lithium-ion batteries have become essential to modern life, but their widespread use also increases the likelihood of battery failures, including thermal runaway, fires, and hazardous off-gassing events. Although there is no single national reporting system for lithium-ion battery incidents, available data suggests a rising trend in battery-related fires. The U.S. Consumer Product Safety Commission (CPSC) reported more than 25,000 overheating or fire incidents associated with consumer products between 2012 and 2017.³ More recent data illustrates growing concerns. From 2022, the New York City Fire Department has reported over 800 fires caused by lithium-ion batteries, resulting in 30 deaths and more than 400 injuries.⁴ These events highlight the urgent need for updated safety practices, standards, and public education.

Maryland policymakers, regulatory agencies, fire departments, industry stakeholders, and the public must work collaboratively to mitigate the risks associated with lithium-ion battery fires. Effective policy must account for the diversity of battery chemistries and applications, the rapidly evolving nature of battery technology, and the operational realities faced by first responders and environmental agencies.

1.2 Commission Mandate:

Recognizing the growing risks posed by lithium-ion batteries and their expanding use across many different product lines and industry sectors, the Maryland General Assembly enacted legislation that was signed into law in 2024 establishing a Commission to Advance Lithium-Ion Battery Safety in Maryland (the Commission).⁵ The law establishing the Commission charged the Commission with conducting a comprehensive study for the purpose of making legislative, regulatory, programmatic, or other recommendations regarding:

- Best practices, standards, and guidelines to prevent, detect, and suppress lithium-ion battery fires in:
 - Consumer and transportation applications
 - Utility applications, including a review of the National Fire Prevention 855 Standards for Grid Scale Storage and Safety
- Preventing, detecting, and suppressing lithium-ion fires at recycling facilities
- Reusing, recycling, and decommissioning lithium-ion batteries
- The viability of extended producer responsibility for lithium-ion batteries
- Training, education, and other information to better inform the public and first responders regarding lithium-ion battery safety
- Any other global issues the Commission may consider useful for enhancing the safety and reuse of batteries in the State.⁶

The Commission’s membership comprised a diverse set of experts that provided technical, public safety, environmental, and operational expertise throughout the Commission’s work.

Member Name and Affiliation	Commission Membership Seat
Emil Nusbaum, Automotive Recyclers Association (Commission Chair)	Representative of the vehicle dismantling sector
Alo Taiwo, Pepco Holdings Inc.	Representative of a public utility in Maryland
Vincent Baker, Howard County Fire and Rescue, Office of the Fire Marshal	Representative with background in emergency response appointed by the President of the Maryland Association of Counties

David Black, Maryland State Firefighters Association Safety Committee	Citizen representative designated by the President of the Maryland State Firefighters Association
Marc Boolish, PRBA - The Rechargeable Battery Association	Representative of a lithium-ion battery manufacturer, or trade group representative, appointed by the Director of the Maryland Energy Administration (MEA)
Ivan Browning, Montgomery County Fire and Rescue Service	Representative of the Metropolitan Fire Chiefs Association designated by the President of the Metropolitan Fire Chiefs Association
Kenneth Bush, Office of the State Fire Marshal	The State Fire Marshal or the Fire Marshal's designee
Michael Cox, Maryland Fire and Rescue Institute	Representative of the Maryland Fire and Rescue Institute (MFRI) designated by the Director of the Maryland Fire and Rescue Institute
Geoffrey Donahue, Maryland Department of the Environment, Office of Emergency Preparedness and Response	Representative of the Maryland Department of the Environment (MDE) appointed by the Secretary of the Environment
Garrett Fitzgerald, Montgomery County Department of Environmental Protection	Representative with background in climate, clean energy, and infrastructure appointed by the President of the Maryland Association of Counties
Haley Kotzker, Maryland Energy Administration	Representative of the Maryland Energy Administration (MEA) appointed by the Director of the Maryland Energy Administration
Kitty McIlroy, Maryland Recycling Network	Representative of the Maryland Recycling Network
Christopher Neidhart, Montgomery County Fire and Rescue Service	Representative of the Professional Firefighters of Maryland designated by the President of the Professional Firefighters of Maryland
Chris Pilzer, WM	Representative of the Maryland Delaware Solid Waste Association
Shatorah Roberson, Tessa Sanchez, Tesla	Representative of a vehicle propulsion battery manufacturer appointed by the Director of the Maryland Energy Administration (MEA)
Nicholas Rodricks, Bureau of Solid Waste Baltimore County	Representative with background in public works appointed by the President of the Maryland Association of Counties
Ginny Rogers, Maryland Department of Natural Resources	Representative of the Power Plant Research Program appointed by the Secretary of Natural Resources
Justin Short, Recycled Materials Association	Representative of a battery recycling trade group
Robert Whittlesey, Ion Storage Systems, Inc.	Representative of the grid scale battery energy storage industry
DeAndre T. Wilson, Maryland Public Service Commission	Representative of the Public Service Commission appointed by the Chairman of the Public Service Commission

1.3 Commission Process:

The Commission convened its first meeting in October 2024 and developed a multi-phased process to effectively fulfill its statutory mandate. This process included:

- 1) Preliminary factfinding for the purpose of surveying and understanding the existing legal issues, standards, and environment related to batteries
- 2) Expert presentations and technical briefings
- 3) Site visits and field observations
- 4) Identifying best practices and drafting the final report

1.4 Overview of Commission Meetings:



Fig 1: Timeline and overview of the Commission's activities

#	Date	Main Presentation/Topics	Speakers/Discussants
1	10/2/2024	Selection of chair by the Commission Review of HB. 468	Acting State Fire Marshal Jason M. Mowbray, Office of the State Fire Marshal
2	11/7/2024	Worked on commission process and review of existing policies, resources, and challenges Worked on drafting Interim Report to the Maryland General Assembly	

3	11/15/2024	Site visit to Shady Grove Transfer Station, Montgomery County Maryland	Ivan Browning, Montgomery County Fire and Rescue Service Jon Monger, Montgomery County Department of Environmental Protection
4	11/22/2024	Development and approval of Interim Report	
5	12/5/2024	Technology, hazards, and incidents involving lithium-ion batteries	James Milke, Ph.D, FSFPE, University of Maryland
6	12/18/2024	Site visit to WM recycling facility in Elkridge, MD	Christopher Pilzer, WM
7	2/6/2025	Vehicles containing batteries, risks, best practices, and standards development Extended producer responsibility	Brian Engle, President, NAATBatt International; Chair, SAE Battery Standards Steering Committee Marc Boolish, PRBA
8	3/6/2025	End-of-life vehicle dismantling, high-voltage vehicle certification, best practices for battery removal, recovery, and highest and best use Battery recycling, transportation and logistics	Andy Latham, Salvage Wire Danielle Spalding, Cirba Solutions
9	4/10/2025	NFPA status and existing fire codes Utility scale battery energy storage systems	Kenneth Bush, Office of the State Fire Marshal Mike Simpson, AES Corporation
10	5/8/2025	Second life batteries and battery reuse Lessons learned from battery-initiated events: cleanup, recovery, collection, and storage	Freeman Hall, B2U Storage Solutions Inc. Geoffrey Donahue, Maryland Department of the Environment
11	6/5/2025	Extended producer responsibility Identifying gaps, best practices, and recommendations	Marc Boolish, PRBA Emil Nusbaum, Automotive Recyclers Association
12	8/14/2025	Port of Baltimore briefing	Fred Dolbow, U.S. Coast Guard
13	9/18/2025	Overview of factfinding results and development of recommendations	Emil Nusbaum, Automotive Recyclers Association
14	9/25/2025	Site visit to the Port of Baltimore	
15	10/30/2025	Development of final report	
16	11/7/2025	Development of final report	
17	11/14/2025	Development of final report	
18	11/21/2025	Development of final report	
19	11/25/2025	Final review and approval of report	

2. Consumer and Transportation Applications

2.1 Introduction:

Lithium-ion battery technology can be found in the devices and products that allow Maryland's citizens to work, relax, and travel. From handheld devices, power tools, e-bikes, scooters, and electric and hybrid vehicles, lithium-ion batteries power the way we interact with the world. Widespread adoption of battery containing objects has been accompanied by a rise in incidents involving thermal runaway, fire, off-gassing, and hazardous disposal practices. These events affect not only consumers but also firefighters, transportation systems, businesses, recycling facilities, and multi-family residential buildings.

As battery technologies continue to evolve faster than existing regulatory frameworks and industry standards, Maryland faces an urgent need to modernize its oversight, public-safety guidance, and battery collection infrastructure. The following findings reflect the Commission's assessment of current risks, best practices, code gaps, and national trends. The accompanying findings and recommendations aim to establish consistent statewide standards, enhance public education, improve incident reporting, support local jurisdictions, and strengthen training needed to safely work with lithium-ion batteries across consumer and transportation environments.

2.2 Findings and Recommendations

Finding 1 -- Code Updates:

The 2024 editions of the International Building Code (IBC), International Fire Code (IFC), and NFPA 1 emphasize enhanced sprinkler protection and separate storage requirements for micromobility devices.

Recommendation:

State legislation should require the adoption of the most recent editions of the IBC, IFC, and NFPA 1. Codes should be reviewed regularly and updated as new editions become available.

Finding 2 -- Best Practices for Safe Use & Storage:

Multiple agencies have issued best-practice guidance for the use, charging, and storage of lithium-ion batteries. Best practices include:

- Use only manufacturer supplied chargers.
- Properly recycle damaged defective and recalled (DDR) batteries and collect them at specific DDR collection sites with specialized containers and staff.
- Charge and store batteries in areas separated from living spaces that have adequate ventilation and climate control.
- Do not charge or store batteries/micromobility devices in egress paths.
- Store devices in code-compliant garages when possible.
- Follow general safety measures when using batteries such as avoiding overcharging, deep discharging, exposure to heat or extreme cold, short-circuiting, or physical damage.

Recommendation:

Provide funding for a statewide public-education campaign, which includes materials for local jurisdictions. Education efforts should address safe use, storage, transport, and recycling practices. Education efforts should prioritize consumers, workers, businesses, schools, and multi-family residencies. This funding should be exclusive of funds derived from EPR covered manufacturers that are obligated to fund educational public awareness initiatives.



Fig. 2: Montgomery County lithium-ion battery safety demonstration

Finding 3 -- Specialized Storage Hazards:

Improper storage of lithium-ion batteries increases the risk of ignition, toxic off-gassing, and secondary fire events. Risks are highest in living areas, egress paths, unprotected spaces, and locations lacking proper labeling.

Recommendations:

- Adopt code requirements that batteries be stored in cool, dry, ventilated, non-combustible storage.
- Require labeling and hazard placards for facilities storing batteries.
- Limit battery storage to those areas identified within fire/building codes.
- Establish state grants to allow for the procurement of DDR storage infrastructure/containers that comply with NFPA 855.
- Require early-warning detection systems (e.g. gas monitors) in residential and commercial storage areas.

Finding 4 -- Transportation Risks:

Lithium-ion batteries pose unique risks during transportation. Although federal regulations exist (DOT, IATA, IMDG),⁷ enforcement capacity and emergency-response support at the state level remain limited. DDR units in transit pose significant hazards.

Recommendation:

- State adoption and enforcement of DOT/IATA/IMDG guidelines.
- Require certified packaging and hazard placards.
- Special handling permits for DDR batteries.
- Shipment quantity limits and routing controls for congested corridors.

Finding 5 -- Firefighter Response Challenges:

Lithium-ion battery fires require specialized tactics and equipment. Responders face risks including electrocution, inhalation of toxic gases, heavy-metal exposure, burns, and explosions.

Recommendation:

Provide dedicated funding to the Maryland Fire and Rescue Institute (MFRI) to develop and distribute comprehensive training for first responders. Training should be accessible statewide for EMS, fire, and rescue personnel and be updated regularly in accordance with NFPA, IBC, and IFC revisions. Provide grants for PPE and specialized tools needed to safely mitigate and respond to battery-initiated events.

Finding 6 -- High Recycling Costs:

Ensuring recycling and disposal of damaged or collected lithium-ion batteries after fires, collisions, or other incidents requires specialized handling, resulting in significant safety and financial burdens for responding agencies. *See Section 6 for more information on EPR programs.*

Recommendations:

- Designate a single state agency as the point of contact for retrieval and recycling of batteries involved in incidents.
- Establish a battery disposal cost recovery fund for situations where a battery not covered by EPR programs is safely collected and recycled.
- Provide financial support or incentives for recycling facilities to modernize and reduce fire risk.

Finding 7 -- State Legislative Action Elsewhere:

Several states have enacted laws governing lithium-ion battery safety, including restrictions on uncertified micromobility batteries.

Recommendations:

- Prohibit the sale of lithium-ion batteries for use in micromobility devices that do not meet recognized third-party standards or certification, where applicable. For example, NY Gen Bus L § 495-A (2024), prohibits the sale of lithium-ion batteries used in micromobility devices unless the batteries contained within are certified by a third-party standards body.
- Continue monitoring legislation and regulatory activities in other states and present model options for Maryland's consideration.

Finding 8 -- Inconsistent Data & Reporting:

The severity and frequency of lithium-ion battery-initiated fires within Maryland is not entirely known as different agencies utilize different reporting systems to capture data related to lithium-ion based incidents.

Recommendation:

Enact legislation defining and requiring the reporting of lithium-ion incidents to a single statewide database. Funding is needed to maintain records, analyze data, and disseminate findings.

Finding 9 -- Lack of Protected Space for Micro-Mobility Devices:

Current building code does not provide any protected space for micro-mobility devices.

Recommendation:

Develop qualifying criteria and enact legislation requiring protected storage areas in new multi-family buildings, with emphasis on fire-rated construction.

Finding 10 -- Electric Vehicle Supply Equipment (EVSE)/EV Chargers Installation Hazards:

Installing electric-vehicle supply equipment (EVSE) in structures with limited ventilation or confined parking areas can complicate firefighting operations during lithium-ion battery events.

Recommendation:

Update or enhance code requirements governing EVSE and energy-storage installations to address ventilation, separation, and fire-protection needs.

Finding 11 -- Lack of Detection Equipment Funding:

Sensitive, single-use, colorimetric detection kits are effective for identifying early-stage battery issues, but they are not included in most first-responder operating budgets. Without replacement funding, first-responders face preventable exposure risks.

Recommendation:

The Commission recommends a detection equipment reimbursement program. This program should provide cost recovery for single-use detection tools through a state-administered fund, ensure replacement kits are available on a rolling basis (with minimum stock levels per department), and designate resources through state appropriations supplemented by industry fees.

Finding 12 – Inadequate DDR Storage Facilities

Most fire departments lack safe, code-compliant facilities for storing DDR batteries prior to being recycled. Current practices create risk of reignition events.

Recommendations:

The Commission recommends establishing a DDR storage infrastructure grant program. This program should:

- Provide matching grants for interim storage facilities.
- Ensure compliance with NFPA 855 while adopting state code amendments that address DDR-specific needs.
- Allocate capital funds for the development of regional hubs.
- Require design approval by state fire authorities.

Alternatively, the Commission recommends DDR storage infrastructure (collection containers and/or covered storage for DDR batteries and battery devices) along with collection, processing/recycling costs be funded by applicable EPR laws.

Finding 13 – Lack of Facility Signage:

Facilities that store lithium-ion batteries above certain thresholds often lack uniform signage, leaving emergency responders without critical situational awareness when responding to a battery-initiated fire event.

Recommendation:

The Commission recommends adopting a standardized facility identification requirement. This should:

- Mandate uniform statewide signage for facilities above defined thresholds.
- Enforce compliance through local inspections.
- Provide funding assistance for smaller facilities.
- Integrate with the existing NFPA 704 marking system and indicate when DC current exceeds a defined threshold.

Finding 14 – Lack of Transparency in Damaged, Defective, and Recalled Battery Recycling:

Companies involved in DDR battery logistics, packaging, recycling, and disposal often fail to include required safety and regulatory information in sales documentation.

Recommendation:

The Commission recommends legislation or rulemaking for mandatory transparency in DDR recycling documentation. This should require companies to include all current regulatory references and safety parameters in sales literature, prohibit expired permits, and establish penalties for non-compliance.

Finding 15 – Barriers to Collaboration in Fire Investigations:

Current Fire Code does not explicitly permit fire investigators to collaborate with private industry experts during investigations, limiting technical knowledge sharing.

Recommendation:

The Commission recommends a fire code amendment for collaborative investigations. This will authorize joint investigations between public and private experts, set protocols for evidence handling, and provide liability protections for approved experts. This will provide substantial benefits for public safety and will allow first responders to adapt to a rapidly changing environment.

Finding 16 – Charging Hazards in Multi-Family Buildings:

In multi-family residential buildings, residents often charge and store e-bikes and e-scooters in entryways due to lack of alternatives, creating fire hazards and blocking egress routes.

Recommendation:

The Commission recommends a micromobility charging safety requirement. This should mandate dedicated, fire-rated charging rooms in all newly constructed multi-family buildings, require separation from living areas and egress paths, and provide exceptions for medical transportation devices.

3. Prevention, Detection, and Suppression of Lithium-ion Battery Fires at Recycling Facilities

3.1 Introduction

Over the past twelve months, Maryland has experienced a sharp increase in lithium-ion battery-initiated events at recycling and materials recovery facilities. These battery-initiated events have led to smoke events, fires, and many near-miss incidents. Single-stream recycling centers, packaging and paper processors, transfer stations, metals recyclers, electronics recyclers, battery recyclers, wood, organics, and concrete recovery facilities have all been affected by the increase in improperly discarded batteries. Improperly discarded batteries pose substantial risks to employees, first responders, facility infrastructure, and Maryland's overall recycling and materials management capacity. Adjacent consequences may involve workers' compensation claims and the availability of commercial insurance.

Recycling facilities across the State are being forced to adapt their operations to account for batteries improperly entering their processing streams. Many facilities are incurring substantial capital expenditures to purchase new technologies to sort through material and detect the presence of batteries. New fire safety technologies are also being deployed to remove batteries from incoming processing streams as well as suppressing fires before large-scale thermal events.

In addition to maintaining close working relationships with local fire departments, the State should evaluate and incorporate emerging technologies that improve early detection and prevention of battery-initiated events. Technologies currently being deployed at facilities include thermal imaging, x-ray scanners, curbside collection cameras, and advanced fire suppression equipment.

A full and comprehensive approach must integrate technology upgrades, public education, and clear battery handling and drop off locations. This will provide substantial public benefits that will reduce the likelihood that batteries will enter recycling facilities and create unsafe conditions.



Fig. 3: Keeping LIO batteries out of the recycle stream is vital to future safety and sustainability of Maryland

THE FACTS

An overheating battery can go from 212°F to 1,800°F in the blink of an eye. (Source: [Clemson University](#).) When batteries ignite, they can throw off flames reaching temperatures of over 2000°F. (Source: [National Institute of Standards and Technology](#).)



**250+
FIRES IN 7
MONTHS**

In the first seven months of 2025, there were more than **250 fire incidents at waste and recycling facilities across the U.S. and Canada**—more facility fires than any other period on record. (Source: [Ryan Fogelman](#))



**\$22
MILLION PER
FACILITY**

Catastrophic losses caused by fires at waste processing facilities have **risen 41% in the last five years**, with the average catastrophic loss causing \$22 million in damage. (Source: [Recycle.com](#))



**89+
DEATHS IN
THE US**

Since 2020, there have been at least **89 deaths directly related to lithium-ion battery incidents** in the United States, nearly a 50% increase from 2015-2019! (Source: [UL Solutions](#))

Fig. 4: BatterySafetyNow.org infographic on waste and recycling facility fires ⁸

3.2 Findings and Recommendations

Finding 1 – Improper Disposal of Lithium-Ion Batteries:

Lithium-ion batteries and battery embedded products are frequently discarded improperly in municipal solid waste and recycling streams. Batteries of all chemistry types are being placed in curbside and commercial collection containers and are subsequently delivered to materials recovery facilities (MRFs), transfer stations, and other recycling and waste facilities. This improper disposal creates very significant fire risks.

Recommendation:

The Commission recommends that legislation be enacted that requires comprehensive education, mitigation, and enforcement measures to prevent the disposal of lithium-ion batteries and battery embedded products in curbside, residential, and commercial containers. These efforts can be funded through an EPR program. *See Section 6 for more information on EPR programs.*



Fig. 5: Montgomery County lithium-ion battery safety demonstration

Finding 2 -- Need for Adoption of New Technologies at Recycling Facilities:

Reducing the risk of lithium-ion battery fires at MRFs and other recycling facilities requires integrating and deploying new emerging technologies that can identify batteries within recycling and waste streams for the purpose of detecting thermal anomalies before ignition occurs. Facilities across Maryland are experiencing increased operational and capital constraints associated with these hazards

Recommendations:

- Allocate resources for public education campaigns, support local collection and mitigation efforts, and provide state-level assistance for x-ray and thermal detection technology as well as advancements in related research and development.
- The integration of RFID into medium and large batteries would improve detection efforts; procurement should be coordinated as needed.
- Containment technologies such as fire blankets, PPE, and fire suppression systems will help improve safety efforts at facilities. Additionally, thermal imaging technology can be utilized to detect the presence of batteries entering facilities at scales.
- Establish minimum standards and best practices for PPE, gloves, tongs, and lithium-ion battery safety in facilities.
- Promote formal collaboration between recycling facilities and local first responders for comprehensive safety reviews – improving response outcomes and coordination.
- Enact legislation enforcing penalties when lithium-ion batteries are mishandled at all types of recycling sites, including single stream (packaging and paper), organics processors, and metal, battery and electronics recyclers.

Finding 3 -- Need for Improved Public Education on Safe Battery Recycling:

The public lacks a clear understanding of where and how to properly discard lithium-ion batteries and battery embedded products. This gap contributes to fires and hazardous exposures across public and private curbside systems, drop-off locations, and transfer stations. This type of educational initiative can be supported by an EPR program. *See Section 6 for more information on EPR programs.*

Recommendations:

- Improve identification of lithium-ion batteries at curbside and consumer drop-off locations
- Address safety and risks concerning the modification of products.
- Create uniform procedures for identifying, managing, and reporting DDR batteries and battery embedded products, along with protocols for handling lithium-ion fire, off-gassing, overheating, leaking, or smoking events.
- Collaborate with municipalities and commercial clients to identify lithium-ion batteries at public drop off facilities, transfer stations, in containers, and at the curbside.
- Provide training and ensure proper identification of lithium-ion batteries in containers and in intake areas.
- Promote unified public messaging amongst recycling processors, first responders, municipalities, haulers, and lithium-ion battery manufacturers.
- Establish clear collection points across the State, accompanied by public training and educational initiatives (funded and established in part through EPR programs).

4. Utility Applications

4.1 Introduction

With utility-scale battery energy storage system (BESS) deployment mandated under HB 910 (2023), which was recently expanded through the Next Generation Energy Act (SB 937/HB 1035, 2025) and the Renewable Energy Certainty Act (SB931/HB1036, 2025), energy storage has become a core component of Maryland’s long-term energy strategy. As the State moves towards procurement and deployment of utility-scale BESS, consistent statewide safety standards are needed to address the unique risks associated with lithium-ion technologies.

Despite significant progress, gaps in Maryland’s current regulatory framework prevent safety oversight from fully aligning with the State’s aggressive energy storage goals. To ensure responsible deployment, Maryland must develop and operate its expanding fleet of BESS with robust protections for public safety, environmental stewardship, and systems reliability.

4.2 Findings and Recommendations

Finding 1 – Wait for Existing Groups to Finish Development of BESS System

Decommissioning Standards:

In 2021, the Power Plant Research Program (PPRP) issued a report recommending several measures for improving the siting and safety of BESS, including requiring decommissioning plans that outline cost estimates, funding mechanisms, and contingency procedures for damaged batteries. In addition, the Maryland Public Service Commission has recently filed proposed energy storage regulations as part of its Energy Storage Rulemaking (RM85). The Maryland Public Service Commission, in collaboration with PPRP, are conducting a multi-agency effort to consider decommissioning requirements that align with NFPA 855 for battery energy storage systems in Maryland. This includes bonding requirements for energy storage systems of 20 megawatt-hours (MWh) or greater, based on estimated decommissioning and site-restoration costs minus projected salvage value, with true-ups conducted every five years. This effort will help to make future recommendations that may require regulatory or legislative action from the General Assembly.

Recommendation: The Commission recommends that the General Assembly defer final action on establishing a uniform statewide framework for decommissioning utility-scale lithium-ion BESS until ongoing state agencies develop a regulatory framework. Forgoing any action will help ensure alignment with emerging consensus standards, reduce the risk of conflicting multi-agency efforts, and support a consistent regulatory approach.

Finding 2 – Decommissioning Requirements for Utility-Scale BESS Vary Significantly Across Maryland Counties and Municipalities:

In the absence of uniform statewide standards, local decommissioning requirements remain highly inconsistent. While some counties have detailed, explicit decommissioning plan requirements for storage systems, others have none. This patchwork of state and local rules and standards risks creating uncertainty and could ultimately hinder the State's broader energy storage goals. This could result in inconsistent local permitting practices, uncertainty for developers, and potential long-term environmental and public safety concerns.

Recommendation:

The Commission recommends that the General Assembly take no legislative actions until ongoing state multi-agency efforts and studies led by PPRP have been completed. Deferring actions at this time will help inform the General Assembly of any future regulatory or legislative actions that will ensure consistency, public safety, environmental protection, and long-term financial and operational accountability across all jurisdictions – thereby preventing gaps where local requirements are absent or insufficient.

Finding 3 – Existing Maryland Statutes Do Not Provide Clear of Comprehensive Direction Regarding Decommissioning Requirements for Utility-Scale BESS Systems:

Current Maryland law does not establish definitive decommissioning requirements for transmission, or distribution connected, lithium-ion energy storage systems. The absence of statutory direction may lead to uneven local permitting practices, uncertainty for developers and operators, and long-term environmental or public safety risks.

NFPA 855 requires a comprehensive decommissioning process that includes de-energizing, disconnecting, and proper packaging and transportation of lithium-ion battery energy storage systems (BESS). In addition, companies must also follow the U.S. Department of Transportation's Hazardous Materials Regulations (HMR) and the Resource Conservation and Recovery Act (RCRA) to ensure safe disposal.

The Maryland Public Service Commission has recently filed energy storage regulations as part of its Energy Storage Rulemaking (RM85), that incorporate NFPA 855, including siting, safety, and decommissioning. Once these regulations are effective, all front-of-the-meter (FTM) and behind-the-meter (BTM) energy storage systems will be required to comply with these regulations and NFPA 855 standards, and battery energy storage system owners will be required to consult with the Authority Having Jurisdiction (AHJ) prior to decommissioning.

Recommendation:

The Commission recommends that the General Assembly defer enacting any legislation establishing a uniform statewide framework for the decommissioning of utility-scale energy

storage systems. Forgoing any action will help ensure alignment with emerging consensus standards and regulations, reduce the risk of conflict with state multi-agency efforts, and support a consistent regulatory framework.

Finding 4 -- NFPA 855 Enforcement Gaps:

NFPA 855 currently functions as a consensus-based standard, limiting enforcement and creating inconsistent application across jurisdictions. NFPA 855 (the second edition (2023)) dealing with the Standard for the Installation of Stationary Energy Storage Systems, provides mandatory requirements for, and explanations of, the safety strategies and features of BESS systems. Applying to all energy storage technologies, the standard includes chapters for specific technology classes. NFPA 855 is currently on a 3-year update cycle.

Recommendation:

Commission recommends adoption of NFPA 855 into state law. This would make the standard enforceable, provide compliance guidance to facilities and authorities, and assign oversight to the State Fire Marshal's Office.

5. Collecting, Reusing, Repurposing, and Recycling Lithium-ion Batteries

5.1 Introduction

Proper handling of lithium-ion batteries at end-of-life, or when they become used, removed, or otherwise reach the end of their first service life, is becoming increasingly important. Determining whether a battery should be reused, repaired, repurposed, remanufactured, or recycled has major implications for vehicle repair markets, electric vehicle affordability, critical-mineral recovery, manufacturing, and environmental outcomes.

Because batteries vary widely in chemistry, size, weight, condition, and use cases, the pathways for collection, reuse, repurposing, remanufacturing, and eventual recycling differ substantially. Small and medium-format batteries typically move directly into recycling and waste streams once

they no longer function or are discarded with the products that contain them. In contrast, vehicle traction batteries often retain significant remaining capacity and may support multiple post-vehicle lifecycles.

Policymakers must therefore tailor guidance and regulation by battery type, recognizing that each follows a distinct trajectory before ultimately being recycled for materials recovery and environmental protection.

5.2 Small and Medium-Format Batteries

The U.S. Environmental Protection Agency (EPA) classifies small-format batteries as energy storage devices under 11 pounds and medium-format batteries as those between 11 and 25 pounds with 300 to 2000 watt-hour ratings.⁹ The typical lifecycle of these batteries will include their manufacture, distribution/sale, and collection and recycling once they no longer work or are discarded.

Small and medium-format batteries are less likely to be evaluated for reuse, repair, remanufacture, and repurposing and should go to a battery recycling or electronics recycling facility for materials recovery. The most substantial challenges for dealing with small and medium-format batteries comes from educating the public on the risks these batteries pose when improperly discarded and where to send or drop off these batteries or battery embedded products so that they are properly recycled. These types of batteries are challenging to recover and collect for recycling because of the disaggregation amongst the various users and possessors of these batteries along with the fact that they may be embedded in electronic devices. *For more information on how small and medium format batteries should be handled, please see Section 6 on extended producer responsibility programs.*

5.3 Large-Format Vehicle Traction Batteries

Large-format vehicle traction batteries must be handled differently from small and medium-format batteries. According to the Argonne National Laboratory, between 10 and 15 million end-of-life vehicles are retired from service each year.¹⁰ A majority of these vehicles are processed by automotive recycling facilities, scrap processing facilities, and automotive shredding operations.

For example, the largest automotive recycling company in the U.S. processes over 700,000 end-of-life vehicles annually.¹¹

Automotive recyclers, scrap processors, and automotive shredding facilities are the largest collective owners of end-of-life vehicles and have processed hybrid and electric vehicles since their introductions. Consequently, automotive recyclers are the primary facilitators that are removing vehicle traction batteries and supporting their reuse, repair, remanufacturing, and recycling.

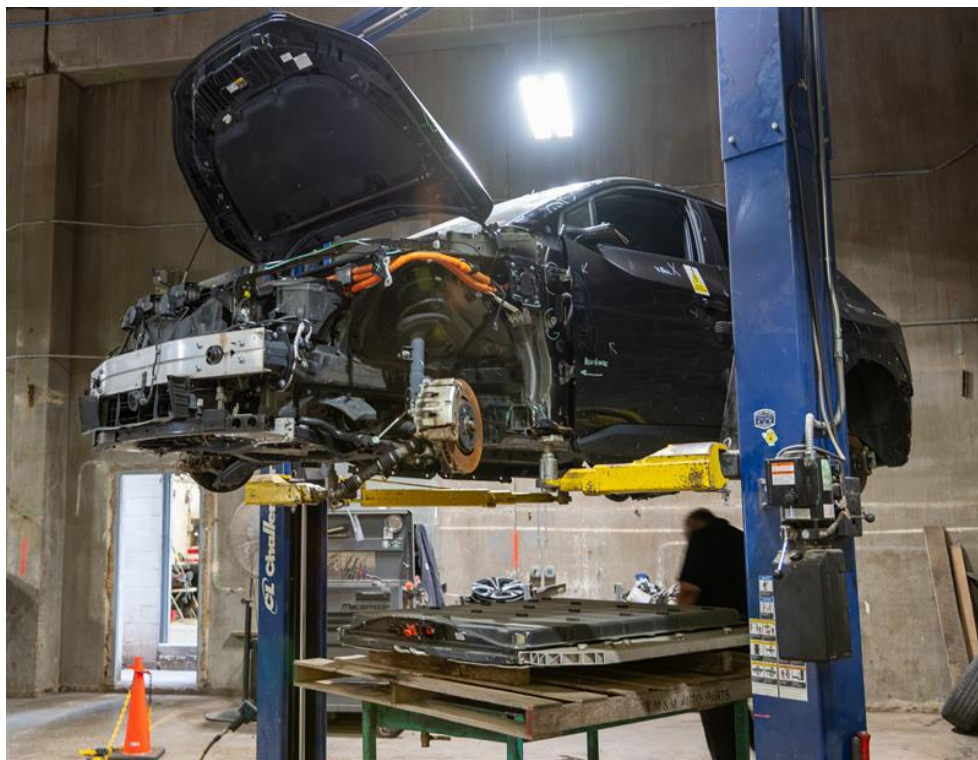


Fig. 6: Electric vehicle battery removal at a certified high-voltage automotive recycling facility

The Commission recommends that the General Assembly adopt a policy recognizing (that when deemed safe) vehicle traction batteries should be reused, repaired, remanufactured, repurposed, and recycled consistent with Argonne National Laboratory and the Automotive Recyclers Association's Battery Material Use Hierarchy (Fig. 7). Prioritizing battery second life applications

and repurposing reduces the carbon footprint associated with manufacturing new batteries and advances a circular economy.¹²

The domestic battery recycling industry is nascent and developing. Therefore, the General Assembly should clearly state (in order of priority) the most preferred pathway an end-of-life vehicle battery takes. This would promote vehicle traction battery recycling by preventing the international export of end-of-life vehicles containing batteries, which also reduces the risk of fires at port facilities.

To effectuate a successful battery material use hierarchy, the public needs transparent battery information such as state of health and state of charge. The current lack of accessible battery state of health and state of charge information has created safety issues for those working with vehicle traction batteries, uncertainty for regulators looking to make sure that facilities are safely working with and storing batteries, and for commercial transport and shipping companies that ship used vehicles that may contain compromised batteries. Furthermore, without this information, batteries may default to premature recycling and materials recovery or be exported abroad – thereby depriving battery recycling facilities of much needed feedstock.

In order of best environmental outcome to least, vehicle traction batteries will be: (1) reused as originally intended and unmodified; (2) repaired or remanufactured for original reuse; (3) repurposed for secondary applications; and (4) recycled for raw materials for manufacturing. By knowing the preferred highest and best use for lithium-ion batteries, policymakers will be able to make better decisions that when creating legal frameworks governing vehicle traction batteries.

BATTERY MATERIAL USE HIERARCHY

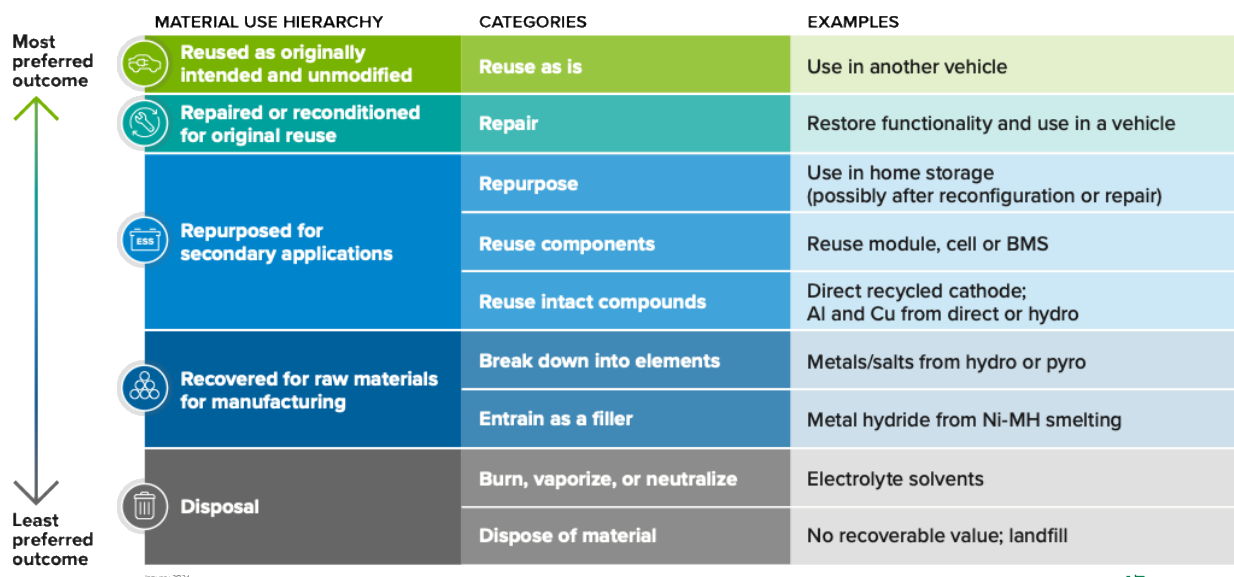


Fig. 7: Battery Material Use Hierarchy

1) Reused as originally intended and unmodified

Vehicle traction batteries can be put to their highest and best use by serving as replacements for vehicles with damaged batteries. The need for replacement vehicle traction batteries will become more important as the global supply chain sees increased demand for batteries and the materials needed in their manufacture. Automotive recyclers have the largest readily available supply of electric vehicle batteries that can be used as vehicle replacement parts, which can help insulate the U.S. from market volatility as it relates to the supply of electric vehicle batteries, their materials and components. Battery reuse (when deemed safe through testing) also has the potential to promote vehicle electrification by providing affordable replacement batteries. Best practices such as battery inspection and testing should occur prior to reusing a vehicle traction battery.

This scenario requires the lowest level of energy output and reduces the need for newly manufactured battery units. The General Assembly has an opportunity to promote reuse of vehicle traction batteries by adopting policies that require state of health and state of charge data to be made accessible to all vehicle owners.

2) Repaired and remanufactured for original reuse

The next best use for vehicle traction batteries is to reuse them as a vehicle replacement part after being repaired or remanufactured. In cases where a battery pack's modules and/or cells need to be repaired or remanufactured prior to reuse in a vehicle, access to battery chemistry and diagnostic information is required. Access to battery information must exist if vehicle traction batteries are to be safely repaired and remanufactured for reuse in a vehicle. Depending upon the extent of the cost to restore the battery to full functionality, either repair for original use or repurposing for secondary applications may be a best-case alternative to reuse.

3) Repurposed for secondary applications

Vehicle traction batteries can also be used for applications other than vehicle repairs. The management consulting firm, McKinsey & Company defines second-life batteries as electric vehicle batteries that no longer meet electric vehicle performance standards but that can be reused in stationary energy storage applications such as maintaining a utility's power reliability at low cost.¹³

B2U Storage Solutions Inc., a leading repurposer of second-life electric vehicle batteries, estimates that by 2030, there will be two million electric vehicle batteries available for repair, repurposing, and recycling annually. Of this population, 335,000 batteries will be prime candidates for repurposing.¹⁴ These numbers are expected to increase significantly each year. Vehicle traction batteries can, and do serve, as strategically important power storage devices helping to more effectively power the U.S.'s critical infrastructure. Companies like B2U are mitigating risks in their second-life systems by installing battery energy storage systems at strategically chosen sites, utilizing certifications, and conducting real-time battery performance monitoring, and using climate controls.¹⁵

Besides B2U, other companies such as Redwood Materials and Moment Energy are also repurposing electric vehicle batteries for use in stationary energy storage. Redwood Energy has deployed a 12-MW/63 MWh microgrid at their facility in Reno, Nevada.



Fig. 8: B2U Storage Solution’s second-life energy storage systems

4) Recycled for raw materials

When batteries can no longer provide safe or effective energy storage, they should be recycled to recover lithium, nickel, cobalt, copper, and other materials. The Zero Emission Transportation Association estimates that by 2027, “200,000 metric tons of EV batteries in the U.S.... are expected to reach the end of their initial service life.”¹⁶ End-of-life vehicle traction batteries will eventually need to be recycled when they can no longer serve as energy storage devices and these batteries should be recycled for critical minerals recovery. It is important that these batteries be recycled to prevent improper disposal and landfilling of vehicle traction batteries.

5.4 Findings and Recommendations

Finding 1 – Adoption of the Battery Material Use Hierarchy:

When possible, vehicle traction batteries should be reused, repaired, remanufactured, and repurposed before being recycled.

Recommendation:

The General Assembly should incorporate the battery material use hierarchy in legislation governing the electric vehicle battery lifecycle. This will increase access to affordable zero-emission transportation, promote electrification efforts, and increase the number of vehicle traction batteries that can be recycled by reducing battery and vehicle exports.

Finding 2 – Access to Battery State of Health and State of Charge Data:

Those working with batteries including automotive recycling facilities, vehicle repair shops, vehicle shippers, tow truck operators, first responders, and state enforcement agencies lack information on whether a battery is in a safe and stable condition. The lack of information on vehicle traction battery condition (especially when a battery is outside of a vehicle) poses significant risks to those working with potentially compromised batteries.

Recommendation:

The General Assembly should require vehicle manufacturers to supply state of health and state of charge information when the battery is contained within the vehicle and when the battery is removed from a vehicle. This will assist in promoting a circular economy for batteries and provide for safe handling, safe storage, and safe shipping of electric vehicles and their batteries.¹⁷ The European Union’s Battery Regulation already has adopted similar requirements and requires manufacturers to make battery state of health and state of charge data available for the purposes of safety and battery circularity.¹⁸

Finding 3 – Need for Training, Tooling, and PPE:

Safety is the number one priority for those working with batteries that are to be removed from vehicles. Facilities should obtain proper training, tools, and PPE. Working with end-of-life vehicles containing high-voltage vehicle batteries poses risk of serious injury and or death.

Recommendations:

The General Assembly should enact legislation requiring those working with vehicles containing high-voltage vehicle traction batteries to acquire training and any applicable certifications. For example, the Automotive Recyclers Association (ARA) and the Recycled Materials Association

(ReMA) provide high voltage vehicle training and certifications.^{19,20} The State should also consider providing grants to facilities working with high-voltage vehicles to promote training and the acquisition of tools and PPE.

6. Extended Producer Responsibility

6.1 Introduction

The Organization for Economic Co-operation and Development (OECD) defines extended producer responsibility (EPR) as, “*a policy approach that makes producers responsible for their products along the entire lifecycle, including at the post-consumer stage...EPR generates funding from producers that help to pay for the collection, sorting, and recycling of waste products.*”²¹

While there are regulatory and state nuances on whether, or when, a battery becomes a waste, the Commission finds that there is a substantial statewide cost to collect, transport, and recycle end-of-life batteries and battery embedded devices. Therefore, the Commission recommends that the General Assembly should enact EPR laws specifically tailored for: (1) small and medium-format batteries (as an update to Maryland’s 1994 legislation), (2) electronic nicotine and cannabis devices, (3) battery embedded products; and (3) designated end-of-life responsibility requirements for vehicle traction batteries found in electric and hybrid-electric batteries.

These EPR programs will ensure that batteries of all formats, shapes, sizes, and applications are managed in accordance with best environmental practices while reducing costs to the State and supporting public education surrounding proper battery collection.

State Battery EPR Initiatives - 2026 Outlook

Updated November 18, 2025

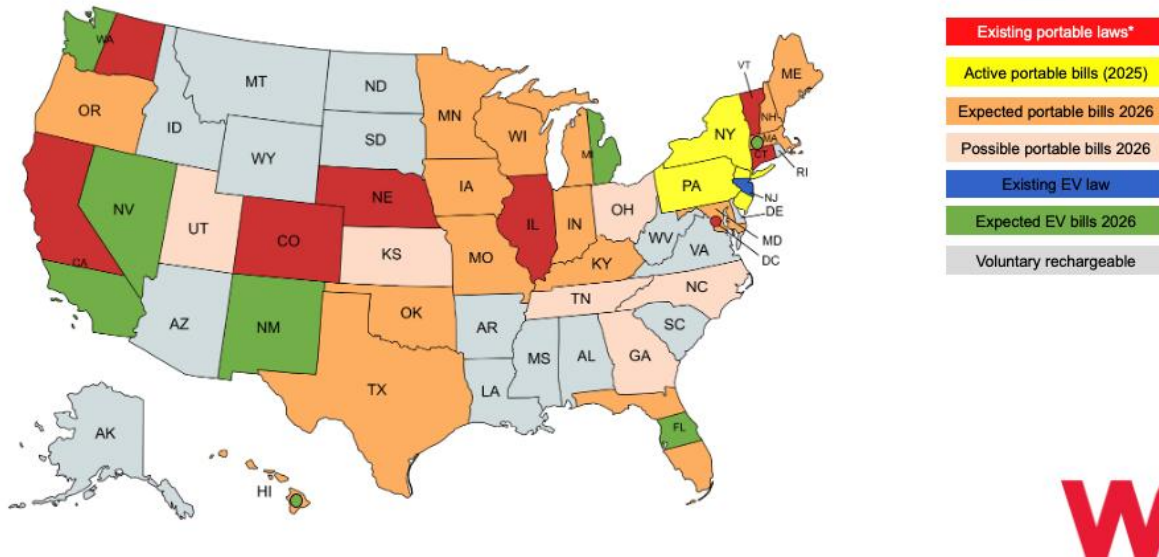


Fig. 9: State battery extended producer responsibility policy environment

6.2 Small and Medium-Format Battery Programs

Maryland law currently requires the modernization of its 1994 battery EPR law. These existing frameworks are not funding a comprehensive statewide recycling program for their respective battery products, thus collectors are left to either fund these recycling programs or dispose of these products. These laws were intended to require manufacturers to have a recycling and management program in place for non-removable batteries, Ni-Cd, and small-sealed lead acid (SSLA/Pb) batteries.²²

As of September 2025, eight jurisdictions have passed mandatory lithium-ion battery collection and recycling laws as part of an all-battery collection program funded by producers. California, Colorado, Connecticut, Illinois, Nebraska, Vermont, Washington, D.C., and Washington State have all passed small and medium-format battery laws that created EPR programs for batteries weighing less than 25 pounds. Washington, D.C. has been actively collecting batteries since 2023, and other jurisdictions with EPR laws will begin their collection at varying times beginning in 2026.

The Commission recommends that the General Assembly enact legislation consistent with best practices from the eight state laws that have adopted EPR for these battery types. Included within the Appendix is illustrative legislation that is consistent with existing laws and can be updated with the most recent lessons learned and best practices.

The scope of EPR laws should include all makes and models of small and medium-format batteries and battery devices, rechargeable and non-rechargeable (single-use), as referenced under the following U.S. EPA Sustainable Management of Electronics and Batteries Working Session, *Kick-off: Current Landscape and Conversation Track Overview for All Battery Types Meeting, dated March 19, 2024*.²³ Covered batteries should include the following single-use chemistries: alkaline, carbon-zinc, silver oxide and lithium metal, as well as rechargeable chemistries such as lithium-ion (including lithium polymer), nickel-cadmium (Ni-Cd), Nickel-metal hydride (Ni-MH), Nickel-zinc (Ni-Zn), and small sealed lead acid.

The following battery types should be covered under an EPR law: AAA, AA, A, up to D, 9-volt, wafers, buttons, coins, etc. These types of batteries are used in the following consumer products:

- Small Format Consumer Electric and Portable Batteries and Battery Devices
 - Single Use (Primary): Removable or embedded in electronics and electric devices, such as watches, hearing aids, cameras, key fobs, toys, portable radios, flashlights.
 - Rechargeable (Secondary): Removable or embedded in electronics and electric devices, such as phones, computers, appliances, small uninterruptable power supplies (UPS), power tools, and power banks.
- Medium Format Batteries and Battery Devices:
- Rechargeable: Outdoor power equipment, portable power stations and E-Mobility including e-bikes and e-scooters.

Small and medium format battery EPR laws utilize producer-financed battery stewardship organizations (BSO) to manage all aspects of the collection program. These programs must be state-approved and also require ongoing state oversight and annual reports. A BSO submits a plan

to the state for approval and once approved, is authorized to establish a collection network in the state for both public and private sector collectors. Battery producers must join a BSO in order to sell their products in the state.

Small and medium-format battery EPR programs require plan submission, state oversight, annual reports, convenience metrics, performance goals and continuing improvement. The plans are, at this time, all EPR programs in that the producers finance and internalize the cost of collection and recycling without charging a point-of sale fee to consumers. These EPR programs are consistent with models operating in other areas of the world, such as, but not limited to the European Union.

EPR programs have demonstrated their effectiveness although performance differs by region/country and collection rates take time to increase as consumers become more aware of the programs. It is important to note that even in markets where battery collection has been a reality for more than 20 years, collection rates still range from 25% to 70%.

6.3 Electronic Nicotine and Cannabis Device Programs

For electronic nicotine, cannabis and other substance delivery systems, including for cigarette, marijuana or other substance electronic vapes and pens, the Commission recommends that Maryland consider enacting standalone EPR legislation for this type of material. These device types require their own EPR framework because “traditional recycling systems [and even most recycling systems for battery and battery devices/electronics] weren’t designed to handle this complex, hybrid product due to the combination of residual hazardous chemicals from vaping liquids, plastic casings, electronic components and the lithium-ion batteries.”²⁴ The improper entry of these product types into the existing recycling ecosystem has resulted in significant increases in fire risk. The issue of electronic vaporizers entering solid waste and recycling streams has become so significant that the term, “vape effect” has been used to describe the alarming rise in facility fires, which is estimated to have caused \$2.5 billion in damages in 2024.²⁵ Improperly discarded single-use vape batteries, which contain lithium-ion cells, are a primary cause of these fires.

The General Assembly should consider adopting legislation similar to AB 3059, which was introduced in New York State.²⁶ AB 3059 would require vape manufacturers to create and submit

“plans regarding the collection, transportation and recycling of electronic cigarettes.”²⁷ This type of legislation would help ensure that the millions of electronic vaporizers do not enter existing recycling streams.

For reference, the following are examples of emerging, successful vape collection and recycling programs that could be replicated in Maryland and supported by permanent funding set in place under a statewide EPR program:

- “Call2Recycle is Canada’s leading organization for the collection and recycling of batteries and battery-powered products. As a trusted steward for more than 400 members including producers of single-use and rechargeable batteries, Call2Recycle fulfills regulatory obligations while advancing a circular economy. The organization manages several leading programs, including *Recycle Your Vapes* for battery-powered vapes and e-cigarettes [a new collection program] in Québec.”²⁸
- In Colorado, there is a new Boulder County Vape Aware Program²⁹ where Boulder County Public Health is working to make sure these devices are not improperly disposed of. Boulder County, City and County of Broomfield, and Town of Erie residents can dispose of vape waste for free at participating Vape Aware locations. Accepted items are:
 - All vape devices
 - Cartridges and pods
 - Vape Batteries
 - E-liquid
 - THC devices are not accepted

6.4 Battery Embedded Products

Battery Embedded devices require additional legislative focus, and are recommended to be incorporated as covered products, as part of a set of updates to the State’s existing, outdated electronics EPR law, the Statewide Electronics Recycling Program (“SERP”)/Covered Electronic Device Takeback Program (enacted in 2005).³⁰ See Attachment 1, for a more detailed background on the shortcomings of the existing law and recommendations for updating it, mainly to establish a producer funded, statewide collection and recycling program for these devices, as the current

program does not provide funding, thus electronics and battery devices are widely disposed across the State. Existing municipal and private sector collection programs are able to accept battery embedded devices and have them recycled (and some do), however, since there is a negative cost to do so and no funding provided under a state EPR program, many local governments and other collectors are disposing of these items.

6.5 Vehicle Traction Battery Programs

Vehicle traction batteries (also referred to as propulsion batteries) are batteries found within motor vehicles that are utilized to propel a motor vehicle. With a rapid increase in the number of electric, plug-in-hybrid, and hybrid-electric vehicles on Maryland roadways, with over 148,000 registered EVs and over 24 EVs per 1,000 people, it will become increasingly important to consider what happens to vehicle traction batteries when they become used and/or are removed from the donor vehicle.³¹ When end-of-life vehicles containing vehicle traction batteries are removed from service, these batteries themselves are not at end-of-life. They must be safely removed, stored, evaluated, and transported prior to being reused, repaired, repurposed, remanufactured, or recycled.

Due to their size, energy capacity, and potential to inflict serious bodily harm and/or death because of electrocution or thermal runaway, it is critically important that these batteries be managed responsibly. Furthermore, in many cases, the Commission found that the costs to remove, store, and recycle these batteries can place a substantial cost burden on existing commercial facilities and state agencies. In cases where the market fails to successfully allow for dispositioning of batteries, a designated responsibility framework must exist to ensure that batteries are not being disposed of in a manner that threatens public safety, increases fire risks, or creates environmental harm.

Throughout the Commission's fact-finding, the Commission became aware of numerous cases where large-format electric vehicle and hybrid-electric batteries were stranded at landfills and commercial businesses due to the high cost associated with their transport and recycling. Costs of recycling vehicle traction batteries are likely to increase due to manufacturers transitioning away from cobalt and nickel battery chemistries in favor of batteries utilizing cheaper commodity inputs.

Over the last few years, several states have passed or introduced legislation creating a system for original equipment manufacturers to cover the costs of recovery and recycling of vehicle traction batteries. New Jersey was the first state to pass legislation governing end-of-life vehicle batteries and states such as California, Washington State, New Mexico, Nevada, Florida, New York, and Massachusetts have also introduced legislation that would leverage the existing automotive recycling ecosystem while providing a safeguard that would make sure that batteries do not remain stranded. The Commission recommends that the General Assembly enact legislation specifically addressing the need for a responsible party backstop for vehicle traction batteries.



Fig. 10: Examples of stranded vehicle batteries improperly discarded at a public landfill

6.6 Findings and Recommendations

Finding 1 -- EPR Programs are Needed for Small and Medium Batteries:

The improper disposal of batteries is causing an increase in battery-related fires across Maryland.

Recommendation:

The General Assembly should enact EPR laws for small and medium-format batteries (as an update to the State's existing battery laws) and electronic cigarette and cannabis devices.

Finding 2 – Battery Embedded Products Require Updates to the State's Electronics Recycling Laws:

Battery embedded products are causing many of the same risks and issues as small and medium format batteries.

Recommendation:

The General Assembly should update the State's existing electronics recycling EPR law to include battery embedded products as covered devices to account for the risks associated with battery embedded products improperly entering recycling and waste streams.

Finding 3 – Vehicle Traction Responsibility Must Differ from Traditional EPR Programs:

Vehicle traction batteries require a responsibility program that recognizes and utilizes the existing automotive recycling infrastructure while requiring original equipment manufacturers – or other responsible parties - to pay for the collection and recycling of batteries that would create a cost for the possessor of the battery (whether a commercial entity, individual, or state agency).

Recommendations:

The General Assembly should enact legislation for vehicle traction batteries that includes:

- Battery Management Hierarchy: Promote the highest and best use of end-of-first-life batteries that includes reuse, repair, remanufacturing, and repurposing before recycling.
- Battery Transparency: Vehicle owners/secondary handlers need battery transparency and access to easily interpretable and accessible battery state of health and condition data when

the battery is within the vehicle and when the battery is removed from a vehicle. This information impacts vehicle values, safety, regulatory enforcement, waste classifications, and the battery management hierarchy.

- **Utilize Existing Legal Ownership Structures:** A successful battery ecosystem leverages the existing end-of-life vehicle reuse and recycling pathways. Entities must maintain the right to acquire vehicles containing batteries while having the right to try and put batteries to their highest and best use in batteries according to the battery management hierarchy. When that is not possible, the manufacturer or other responsible producer should cover the costs of recovery, transport, and recycling.
- **End-of-Life Management:** There is a need to establish an end-of-life management program that gives vehicle owners a safety net to have a responsible manufacturer or producer pay for the costs of battery retrieval and ensure proper recycling at the vehicle owner's discretion.
- **Access & Training:** Increase training and available educational materials for facilities that can safely handle high-voltage vehicle batteries.

7. Areas Needing Additional Attention and Study

The law authorizing the establishment of the Commission took effect on June 1, 2024, and remains effective for a period of 1 year and 7 months, which ends on December 31, 2025. Due to the vast scope of the Commission's mandate, rapidly changing battery technologies, and the need for increased factfinding and study, the Commission recommends that the General Assembly extend the mandate of the Commission for 2 years. This extension of the mandate will allow for the Commission to continue researching, analyzing, and making recommendations to the General Assembly and Governor on the most recent developments on lithium-ion battery safety and policy. It is important that the State continues to stay at the cutting edge of battery-related policy and safety so that the State can improve individual and commercial safety, reduce environmental harm, promote a circular economy, and provide first responders with resources to safely address battery fires. The Commission anticipates the need for continued work on the following topics.

7.1 Port of Baltimore fire safety risks

Maryland is in a unique situation in that the Port of Baltimore (The Port) is amongst the busiest ports in the United States by tonnage and number of containers handled.³² The Port is also an important economic driver for the State's economy representing \$70.3 billion and is responsible for more than 20,000 direct jobs and over 223,000 indirect jobs statewide.³³ In addition to the economic impact, the Port sees enormous daily volumes for the import and export of motor vehicles and is the busiest U.S. vehicle-handling port in the country. Over 700 acres at the Port are used to facilitate the logistics of vehicle storage and transport.³⁴ With the rise in vehicles containing lithium-ion batteries, and the occurrence of several high-profile vehicle-initiated ship fires, it is critical that the Commission receive additional time to review the risks to the Port and those that work there. This need was further highlighted during the Commission's August 14, 2025, meeting when the United States Coast Guard gave a presentation on "*Lithium-Ion Battery Maritime Concerns*." Therefore, the Commission recommends the extension of the Commission's mandate to allow for continued study of this critically important issue.

7.2 Include additional representatives to provide expertise

The Commission recommends including additional Commission members representing the Maryland Port Administration, the Maryland Department of the Environment, Land and Materials Administration, the Maryland Department of Transportation, commercial vehicle shippers, and representatives from the property casualty and commercial insurance industries. These representatives were not included in the original Commission mandate, and their expertise would be beneficial to continued activities of the Commission.

7.3 Evaluation and incorporation of new standards and policies currently in development

The State of Maryland has been at the forefront of jurisdictions leading on lithium-ion battery policy through the creation of the Commission. The desire to develop effective policy surrounding lithium-ion batteries that emphasizes safety, environmental best practices, collection, reuse, and recycling is not only happening in Maryland but is also taking place across U.S. states, leading third-party standards bodies, various trade associations, and within the federal government. There are several standards and studies currently in development from the National Fire Protection Association (NFPA), SAE International, Solid Waste Association of North America (SWANA) Lithium-Ion Battery Workgroup and Battery Resources,³⁵ the Recycled Materials Association's (ReMA) Lithium-Ion Battery Workgroup,³⁶ the Automotive Recyclers Association's (ARA) Certified Automotive Recycler Program³⁷ that are seeking to provide those within the battery value chain with strategies to mitigate risk and promote safe and responsible battery handling. Furthermore, the U.S. Environmental Protection Agency (EPA) is continuing to work on its initiative to develop and create Battery Collection Best Practices and Extended Producer Responsibility Framework under its Sustainable Management of Electronics and Batteries Workgroup.³⁸ It is recommended that the Commission have the opportunity to review these resources once they are published and updated over time.

7.4 Research and evaluate state waste classification laws as they pertain to the collection, storage, and recycling of batteries

Battery collection, storage, and recycling of end-of-life batteries frequently involves the need to comply with state and federal laws pertaining to waste. In some cases, this may have an impact on the ease of which batteries are and can be recycled. The Commission recommends that a member of the Maryland Department of the Environment, Land and Materials Administration be added to the Commission as a member to evaluate existing state waste laws and their effects on battery collection, storage, and recycling. Additionally, a review of facility permitting requirements for any facility receiving batteries voluntarily or involuntarily.

8. Conclusion

Maryland is at an important moment in addressing the growing safety, environmental, and operational challenges posed by lithium-ion batteries. As battery use accelerates across consumer, transportation, industrial, and utility applications, the State must adopt forward looking policies and best practices that prioritize public safety, support first responders, and strengthen collection and recycling infrastructure. The Commission’s recommendations provide a comprehensive, practical framework for mitigating risk, improving harmonization across jurisdictions and standards, and advancing the adoption of emerging clean energy technologies. As technologies, standards, best practices, and infrastructure improve and adapt, it will be important for the public, policymakers, first responders, industry, and environmental agencies to work together.

9. **APPENDIX**

9.1 Additional Resources

U.S. Environmental Protection Agency (EPA)/National Efforts

- [Battery Collection Best Practices Toolkit](#)
- [Voluntary Battery Labeling Guidelines](#)
- [EPA Announces Plan to Modify and Expand the RCRA Universal Waste Rule for Lithium Batteries and Solar Panels \(bdlaw.com\)](#)
- [Rechargeable Battery Recycling Act](#) (PDF) – See Section 104. Requirements for the language SWA attorneys provided guidance so that federal rules would supersede any state rules, as batteries are defined in the EPA’s [Universal Waste Rule](#).
- [Setting Consumer Standards for Lithium-Ion Batteries Act \(H.R. 1797\) - GovTrack.us](#) – this is the bill passed in May 2024 related to batteries in personal mobility devices, including electric bicycles

Consumer Education Programs

- [Skip the Bin Turn Your Batteries In](#) (NWRA)
- [New Jersey Avoid the Spark Be Battery Safety Smart Program](#)
- [South Carolina Be Battery Smart Program](#)
- Metropolitan Washington Council of Governments (GOC) Battery Campaigns/Press:
 - [Go Recycle FY 2024 Batteries Can Spark Fires](#) Campaign (with attached PDF)
 - COG [March 21, 2024 Presentation](#) on Program Resources

State Programs – Small and Medium Format Batteries

- [California Battery Stewardship Rulemaking](#) (non-embedded)
- [California Covered Battery-Embedded Products Rulemaking](#)
- [Colorado Battery Stewardship Programs Act](#) (2025)
- [Connecticut EPR for Consumer Batteries Act](#) (2025)
- [D.C. Battery Stewardship Program](#)
- [Illinois Battery Stewardship Act](#) (2024)

- [Maryland Commission to Advance Li-Ion Battery Safety Act \(2024\)](#)
- [Nebraska Safe Battery Collection and Recycling Act \(2025\)](#)
- [Vermont Battery Stewardship Program](#)
- [Washington Battery Stewardship Rulemaking](#)

State Programs – Example Small and Medium Format Battery Devices / Electronics EPR

Laws

- [California Covered Battery-Embedded Products Rulemaking](#)
- [Oregon E-Cycles Program](#)
- [Illinois Consumer Electronics Recycling Act](#)
- [Connecticut Electronics Recycling Law](#)

State Programs - Rechargeable Batteries

- [Florida Battery Recycling and Disposal](#)
- [Maine Rechargeable Battery Recycling Program](#)
- [Minnesota Rechargeable Batteries Recycling](#)
- [New Hampshire Rechargeable Battery Disposal Ban \(2024\)](#)
- [New York Rechargeable Battery Recycling \(as amended by \[2025 NY S73\]\(#\)\)](#)
- [North Carolina Li-Ion Battery Disposal Ban \(Dec 1, 2026\)](#)

State Programs - EV / Hybrid

- [Hawaii EV Battery Recycling and Reuse Work Group Act \(2025\)](#)
- [Illinois End-of-Life EV and Battery Electric Storage Systems Act \(2024\)](#)
- [New Jersey Electric and Hybrid Vehicle Battery Rulemaking](#)

State Programs – Battery Storage

- [Nevada AB 493 \(2025: includes recycler reporting requirements for distributed generation systems or utility-scale solar projects, including battery storage facilities\)](#)
- Texas [HB 3228](#) & [HB 3229 \(2025: includes recycler reporting and financial assurance requirements for solar and wind components, including battery energy storage systems\)](#)

Industry Best Practices

- [Automotive Recyclers Association Electric and Hybrid Vehicle Technology Guide for Certification and Training](#)
- [Solid Waste Association of North America's \(SWANA\) Lithium-Ion Battery Workgroup](#)
- [Recycled Materials Association \(ReMA\) Battery Resources](#)
- [Why Battery Testing is Critical for the Transition to Electric Vehicles](#)
- [Suppliers Partnership for the Environment EV Battery Recycling Resources for Recyclers/Dismantlers](#)

9.2 PRBA Model Language for Small and Medium-Format Extended Producer Responsibility

***** Commission Note: Bill drafters should also consider recent state legislative developments and Maryland's existing laws and definitions. *****

Section 1. Short title.

This act shall be known and may be cited as the Safe Battery Collection and Recycling Stewardship Act.

Section 2. FINDINGS AND PURPOSE.

- (1) It is in the public interest of the citizens and businesses of _____ to encourage the recovery and reuse of critical minerals and metals that replace the output of mining and other extractive industries.
- (2) Without a dedicated portable battery stewardship program that is convenient for businesses and consumers and consistent with such programs in other states, battery user confusion regarding proper disposal options will continue to persist.
- (3) Ensuring the safe and proper handling, recycling, and end-of-life management of used portable batteries prevents the release of toxic materials into the environment and removes materials from the waste stream that, if mishandled, may present safety concerns to workers, such as igniting fires at solid waste handling facilities, including materials recovery facilities (MRFs). For these reasons, batteries should not be placed into commingled recycling containers or disposed of via traditional garbage collection containers.
- (4) Jurisdictions around the world have successfully implemented battery stewardship laws that have helped address the challenges posed by the end-of-life management of portable batteries. Because it is difficult for businesses and consumers to differentiate between types and chemistries of batteries, it is the best practice for battery stewardship programs to collect all portable battery types and chemistries.

Section 3. DEFINITIONS.

The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

- (1) "Department" means the (name of state) Department of
- (2) "Battery-containing product" means a product that contains or is packaged with rechargeable or primary batteries that are covered batteries. A "battery-containing product" does not include a covered device as defined by the (state e-waste statute).
- (3) "Battery stewardship organization" means a producer that directly implements a battery stewardship plan required under this chapter, or one or more organizations each with five or more producers designated by a group of producers to implement a battery stewardship plan required under this chapter.
- (4) "Collection rate" means a percentage, by weight, of covered batteries that a battery stewardship organization collects that is calculated by dividing the total weight of primary

and rechargeable batteries collected during the previous calendar year by the average annual weight of primary and rechargeable batteries that were estimated to have been sold in the state by all producers participating in that approved battery stewardship plan during the previous three calendar years.

- (5) “Covered battery”:
- (a) Means a portable battery and a medium format battery.
 - (b) Does not include:
 - (i) A battery contained within a medical device, as specified in Title 21 U.S.C. Section 321(h) as it existed as of the effective date of this section, that is not designed and marketed for sale or resale principally to consumers for personal use;
 - (ii) A battery that contains an electrolyte as a free liquid;
 - (iii) A lead-acid battery weighing more than 11 pounds;
 - (iv) A lead acid battery subject to the provisions of _____, the (name of state) _____ Act;
 - (v) A battery in a battery-containing product that is not intended or designed to be easily removable from the battery-containing product;
 - (vi) A battery that is being recalled for safety reasons; and
 - (vii) A battery designed to power a motor vehicle, part of a motor vehicle, or a component part of a motor vehicle assembled by, or for, a vehicle manufacturer or franchised dealer, including replacement parts for use in a motor vehicle.
- (6) “Easily removable” means designed by the manufacturer to be removable by the user of the product with no more than commonly used household tools.
- (7) “Environmentally sound management practices” means practices undertaken in connection with this act that: (a) comply with all applicable laws and rules in place to protect workers, public health, and the environment; (b) provide for adequate recordkeeping, tracking, and documenting of the fate of materials within the state and beyond; and (c) include comprehensive liability coverage for a battery stewardship organization, including environmental liability coverage that is commercially practicable.
- (8) “Large format battery” means:
- (a) A rechargeable battery that weighs more than 25 pounds or has a rating of more than 2,000 Watt-hours; or
 - (b) A primary battery that weighs more than 25 pounds.
- (9) “Medium format battery” means the following primary or rechargeable covered batteries:
- (a) For rechargeable batteries, a battery weighing more than 11 pounds or having a rating of more than 300 watt-hours, or both, but weighing no more than 25 pounds and having a rating of no more than 2,000 Watt-hours;
 - (b) For primary batteries, a battery weighing more than 4.4 pounds but not more than 25 pounds.
- (10) “Motor vehicle” means a self-propelled mechanical device with a vehicle identification number (VIN) manufactured primarily for transporting people or property on public streets, roads and highways, excluding devices that run on stationary rails or tracks or fly.
- (11) “Portable battery” means the following primary or rechargeable covered batteries:
- (a) For rechargeable batteries, a battery weighing no more than 11 pounds and having a rating of no more than 300 Watt-hours;

- (b) For primary batteries, a battery weighing no more than 4.4 pounds.
- (12) "Primary battery" means a battery that is not capable of being recharged.
- (13) "Producer" means the following person responsible for compliance with requirements under this chapter for a covered battery or battery-containing product sold, offered for sale, or distributed in or into (name of state):
 - (a) For covered batteries:
 - (i) If the battery is sold under the brand of the battery manufacturer, the producer is the person that manufactures the battery;
 - (ii) If the battery is sold under a retail brand or under a brand owned by a person other than the manufacturer, the producer is the brand owner;
 - (iii) If there is no person to which (a)(i) or (ii) of this subsection applies, the producer is the person that is the licensee of a brand or trademark under which the battery is used in a commercial enterprise, sold, offered for sale, or distributed in or into (name of state), whether or not the trademark is registered in (name of state);
 - (iv) If there is no person described in (a)(i) through (iii) of this subsection within the United States, the producer is the person who is the importer of record for the battery into the United States for use in a commercial enterprise that sells, offers for sale, or distributes the battery in (name of state);
 - (v) If there is no person described in (a)(i) through (iv) of this subsection with a commercial presence within (name of state), the producer is the person who first sells, offers for sale, or distributes the battery in or into (name of state).
 - (b) For covered battery-containing products:
 - (i) If the battery-containing product is sold under the brand of the product manufacturer, the producer is the person that manufactures the product;
 - (ii) If the battery-containing product is sold under a retail brand or under a brand owned by a person other than the manufacturer, the producer is the brand owner;
 - (iii) If there is no person to which (b)(i) or (ii) of this subsection applies, the producer is the person that is the licensee of a brand or trademark under which the product is used in a commercial enterprise, sold, offered for sale, or distributed in or into (name of state), whether or not the trademark is registered in (name of state);
 - (iv) If there is no person described in (b)(i) through (iii) of this subsection within the United States, the producer is the person who is the importer of record for the product into the United States for use in a commercial enterprise that sells, offers for sale, or distributes the product in (name of state);
 - (v) If there is no person described in (b)(i) through (iv) of this subsection with a commercial presence within (name of state), the producer is the person who first sells, offers for sale, or distributes the product in or into (name of state);
 - (vi) A producer does not include any person who only manufactures, sells, offers for sale, distributes, or imports into (name of state) a battery-containing

product if the only batteries used by the battery-containing product are supplied by a producer that has joined a registered battery stewardship organization as the producer for that covered battery under this chapter. Such a producer of covered batteries that are included in a battery-containing product must provide written certification of that membership to both the producer of the covered battery-containing product and a battery stewardship organization of which the battery producer is a member.

- (14) "Program" means a program implemented by a battery stewardship organization consistent with an approved battery stewardship plan.
- (15) "Rechargeable battery" means a battery that contains one or more voltaic or galvanic cells, electrically connected to produce electric energy, designed to be recharged.
- (16) "Recycling" is as defined in (name of state)_____ Act.
- (17) "Recycling efficiency rate" means the ratio of the weight of covered battery components and materials recycled by a program operator from covered batteries to the weight of those covered batteries collected by the program operator.
- (18) "Retailer" means a person who sells covered batteries or battery-containing products in or into this state or offers or otherwise makes available covered batteries or battery-containing products to a customer, including other businesses, in this state.

Section 4. REQUIREMENT THAT PRODUCERS IMPLEMENT A STEWARDSHIP PLAN.

Beginning January 1, 20XX:

- (1) Each producer selling, offering or making available for sale, or distributing covered batteries or battery-containing products in or into (name of state) shall participate in an approved (name of state) state battery stewardship plan through participation in and appropriate funding of a battery stewardship organization; and
- (2) A producer that does not participate in a battery stewardship organization and battery stewardship plan may not sell, offer or make available for sale, or distribute covered batteries or battery-containing products covered by this chapter in or into (name of state).

Section 5. ROLE OF RETAILERS.

- (1) Beginning July 1, 20XX, a retailer may not sell, offer or make available for sale, or distribute a covered battery or battery-containing product unless the producer of the covered battery or battery-containing product certifies to the retailer that the producer participates in a battery stewardship organization whose plan has been approved by the Department.
- (2) A retailer is not in violation of the requirements of subsection (1) of this section and is not subject to penalties under section 12 of this act as long as the website made available by the Department under section 12 of this act lists, as of the date a product is made available for retail sale, a producer or brand of covered battery or battery-containing product sold by the retailer as being a participant in an approved plan or the implementer of an approved plan.

- (3) Retailers of covered batteries or battery-containing products are not required to make retail locations available to serve as collection sites for a stewardship program operated by a battery stewardship organization. Retailers that serve as a collection site must participate in an approved stewardship plan and comply with the requirements for collection sites, consistent with section 9 of this act. Retailers shall not work directly with independent parties as specified in section 18 unless the independent party is under an agreement with an approved battery stewardship organization.
- (4) A retailer may not sell, offer or make available for sale, or distribute covered batteries or battery-containing products, unless those batteries are marked consistent with the requirements of section 14 of this act. A producer of a battery containing product must certify to the retailers of their product that the battery contained in the battery-containing product is marked consistent with the requirements of Section 14 of this act. A retailer may rely on this certification for the purposes of compliance under this subsection.
- (5) A retailer selling or offering covered batteries or battery-containing products for sale in (name of state) may provide information, provided to the retailer by a battery stewardship organization, regarding available end-of-life management options for covered batteries collected by a battery stewardship organization. The information that a battery stewardship organization must make available to retailers for voluntary use by retailers must include, but is not limited to, in-store signage, written materials, and other promotional materials that retailers may use to inform customers of the available end-of-life management options for covered batteries collected by a battery stewardship organization.
- (6) Retailers, producers, or battery stewardship organizations shall not charge a specific point-of-sale fee to businesses and consumers to cover the administrative or operational costs of a battery stewardship organization or the battery stewardship program.

Section 6. STEWARDSHIP PLAN COMPONENTS.

- (1) By July 1, 20XX, each battery stewardship organization must submit a plan for covered portable and medium format batteries to the Department for approval. The Department must review and may approve a plan based on whether it contains the following components:
 - (a) Lists and provides contact information for each member producer, battery brand, and battery-containing product brand covered in the plan;
 - (b) Proposes performance goals, consistent with section 7 of this act, including establishing performance goals for each of the next three upcoming calendar years of program implementation;
 - (c) Establishes collection goals for each of the first three years of implementation of the battery stewardship plan that are based on the estimated total weight of primary and rechargeable covered batteries that have been sold in the state in the previous three calendar years by the member producers participating in the battery stewardship plan;
 - (d) Describes how a battery stewardship organization will make retailers aware of their obligation to sell only covered batteries and battery-containing products of producers participating in an approved plan;
 - (e) Describes the education and communications strategy being implemented to effectively promote participation in the approved battery stewardship program and

- provide the information necessary for effective participation of businesses, consumers, retailers, and others;
- (f) Lists promotional activities to be undertaken, and the identification of business and consumer awareness goals and strategies that the program will employ to achieve these goals after the program begins to be implemented;
 - (g) Describes how the public education and outreach components of the program under section 10 of this act will be implemented;
 - (h) Describes how a battery stewardship organization will make available to collection sites, for voluntary use, signage, written materials, and other promotional materials that collection sites may use to inform battery users of the available end-of-life management options for covered batteries collected by a battery stewardship organization, and informing businesses, consumers and battery collection sites that automotive lead acid batteries should be returned to retail locations where these batteries are sold;
 - (i) Includes collection site safety training procedures related to covered battery collection activities at collection sites, including appropriate protocols to reduce risks of spills or fires and response protocols in the event of a spill or fire, and a protocol for safe management of damaged batteries that are returned to collection sites;
 - (j) Describes how the program will collect all covered battery chemistries and brands on a free, continuous, convenient, visible, and accessible basis, and consistent with the requirements of section 9 of this act, including a description of how the statewide convenience standard will be met and a list of collection sites, including the addresses of collection sites;
 - (k) Describes the criteria to be used in the program to determine whether an entity may serve as a collection site for discarded batteries under the program;
 - (l) Identifies proposed sorters, transporters, processors, and facilities to be used by the program for the final disposition of batteries and how collected batteries will be managed in an environmentally sound manner at facilities operating in compliance with human health and environmental protection standards that are broadly equivalent to or better than those required in the United States;
 - (m) Details how the program will help (name of state) achieve the target recycling efficiency rate, calculated consistent with section 11 of this act, of at least 60 percent for rechargeable batteries and at least 70 percent for primary batteries;
 - (n) Describes the method to establish and administer a means for fully funding the program in a manner that equitably distributes the program's costs among the member producers that are part of a battery stewardship organization. For producers that elect to meet the requirements of this chapter individually, without joining a battery stewardship organization, the plan must describe the proposed method to establish and administer a means for fully funding the program; and
 - (o) Describes the financing methods used to implement the plan, consistent with section 8 of this act.
- (2) The Department shall review a stewardship plan for compliance with this chapter and shall approve, disapprove, or conditionally approve a plan within 120 days of receipt of a plan. The Department may approve multiple plans sharing, on an equitable basis, the costs of implementing elements of the plans that benefit all approved plans from battery

stewardship organizations, or a producer that directly implements a battery stewardship plan, as applicable. If the Department disapproves a stewardship plan submitted by a battery stewardship organization, the Department shall explain how the stewardship plan does not comply with this chapter and provide written notice to a battery stewardship organization within 30 days of disapproval. A battery stewardship organization may resubmit to the Department a revised stewardship plan within 60 days of the date the written notice was issued, and the Department shall review the revised stewardship plan within 90 days of resubmittal. If a revised stewardship plan is disapproved by the Department, a producer operating under the stewardship plan shall not be in compliance with this chapter until the Department approves a stewardship plan submitted by a battery stewardship organization that covers the producer's products.

- (3) A battery stewardship organization must submit a new plan to the Department for approval:
 - (a) If there are significant changes to the methods of collection, transport, or end-of-life management of covered batteries under section 9 of this act that are not provided for in the plan. The Department shall identify the types of significant changes that require a new plan to be submitted to the Department for approval. For purposes of this subsection, adding or removing a processor or transporter under the plan is not considered a significant change that requires a plan resubmittal; and
 - (b) No less than every five years.
- (4) A battery stewardship organization must provide plan amendments to the Department for approval:
 - (a) When proposing changes to the performance goals under section 7 of this act based on the up-to-date experience of the program;
 - (b) When there is a change to the method of financing plan implementation under section 8 of this act. This does not include changes to the fees or fee structure established in the plan;
 - (c) When the Department approves more than one stewardship organization, and performance goals for each stewardship organization are impacted accordingly; or
 - (d) When adding or removing a processor, as part of a quarterly update submitted to the Department.
- (5) A battery stewardship organization must notify the Department on a quarterly basis if a producer begins or ceases to participate in a battery stewardship organization. This quarterly notice, if required, must include a current list of the producers and brands participating in the plan.
- (6) No earlier than five years after the initial approval of a plan, the Department may require a battery stewardship organization to submit a revised plan, which may include improvements to the collection site network or increased expenditures dedicated to education and outreach if the approved plan has not met the performance goals under section 7 of this act.

Section 7. STEWARDSHIP PROGRAM COMPONENTS—PERFORMANCE GOALS.

- (1) Each battery stewardship plan must include performance goals that measure, on an annual basis, the achievements of the program, including:
 - (a) The quantities of batteries collected;
 - (b) Public awareness; and

- (c) Public convenience and accessibility of the program.
- (2) The performance goals established in each battery stewardship plan must include, but are not limited to:
 - (a) Target recycling efficiency rates of at least 60 percent for rechargeable batteries and at least 70 percent for primary batteries; and
 - (b) Goals for convenience and accessibility that meet or exceed the minimum requirements established in section 9 of this act.
 - (c) A battery stewardship organization is not authorized to reduce or cease collection, education and outreach, or other activities implemented under an approved plan based on achievement of program performance goals.

Section 8. STEWARDSHIP PROGRAM COMPONENTS—FUNDING.

- (1) Each battery stewardship organization must ensure adequate funding is available to fully implement approved battery stewardship plans, including the implementation of aspects of the plan addressing:
 - (a) Covered battery collection, transporting, and processing;
 - (b) Education and outreach;
 - (c) Program evaluation; and
 - (d) Payment of the administrative fees to the Department under section 12 of this act. The fees shall be allocated between battery stewardship organizations, as applicable.
- (2) A battery stewardship organization implementing a battery stewardship plan on behalf of producers must develop a system to collect charges from participating producers to cover the costs of plan implementation.
 - (a) Each battery stewardship organization is responsible for all costs of participating covered battery collection, transportation, processing, education, administration, Department reimbursement, recycling, and end-of-life management in accordance with the requirements of this act and environmentally sound management practices.
 - (b) Each battery stewardship organization must equitably share the cost of reimbursing local governments and solid waste or recyclables handling facilities for demonstrable and reasonable costs incurred as a result of a local government facility or solid waste or recyclables handling facility serving as a collection site for its program including, but not limited to, associated labor costs and other costs associated with accessibility and collection site standards such as storage.
 - (c) A battery stewardship organization shall at a minimum provide collection sites with appropriate containers for covered batteries subject to its program, training, signage, safety guidance, and educational materials, at no cost to the collection sites.

Section 9. STEWARDSHIP PROGRAM COMPONENTS—COLLECTION AND MANAGEMENT REQUIREMENTS

- (1) Each battery stewardship organization implementing a battery stewardship plan must provide for the collection of all covered batteries, including all chemistries and brands of covered batteries, on a free, continuous, convenient, visible, and accessible basis to any person, business, government Department, or organization. Except as provided in subsection (2)(b) of this section, each battery stewardship plan must allow any person, business, government Department, or organization to deliver each chemistry and brand of covered battery at each collection site that counts towards the satisfaction of the collection site criteria in subsection (3) of this section.
- (2) Each battery stewardship organization implementing a battery stewardship plan must provide as follows:
 - (a) For each collection site utilized by the program, a battery stewardship organization must provide suitable collection containers for covered batteries that are segregated from other solid waste or make mutually agreeable alternative arrangements for the collection of batteries at the site. The location of collection containers at each collection site used by the program must be within view of a responsible person and must be accompanied by signage made available to the collection site by a battery stewardship organization that informs customers regarding the end-of-life management options for batteries provided by the collection site under this chapter. Each collection site must meet applicable federal, state, and local regulatory requirements while adhering to the operations manual and other safety information provided to the collection site by a battery stewardship organization.
 - (b) That medium format batteries may only be collected at household hazardous waste collection sites or other staffed collection sites that meet applicable federal, state, and local regulatory requirements to manage medium format batteries.
 - (c) For damaged and defective batteries:
 - (i) Damaged and defective batteries are to be collected only at collection sites staffed by persons trained to handle and ship those batteries.
 - (ii) Each battery stewardship organization must equitably share the cost of providing for collection of damaged and defective batteries in each county of the state, either through collection sites or collection events, with qualified staff as specified in (c)(i) of this subsection. Collection events should be provided periodically throughout the year where practicable but must be provided at least once every three years at a minimum, in each county in which there are not permanent collection sites providing for the collection of damaged and defective batteries.
 - (iii) As used in this subsection, "damaged and defective batteries" means batteries that have been damaged or identified by the manufacturer as being defective for safety reasons, that have the potential of producing a dangerous evolution of heat, fire, or short circuit, as referred to in 49 C.F.R. Sec.173.185(f) as of January 1, 2023, or as may be established by the Department by rule to maintain consistency with federal standards.
- (3) Each battery stewardship organization implementing a battery stewardship plan must provide as follows:
 - (a) A battery stewardship plan that ensures statewide collection opportunities for all covered batteries. Battery stewardship organizations shall coordinate activities with

other program operators, including other covered battery collection and recycle programs and electronic waste recyclers, with regard to the proper management or recycling of collected covered batteries, for purposes of providing the efficient delivery of services and avoiding unnecessary duplication of effort and expense. Statewide collection opportunities must be determined by geographic information that considers permanent collection sites. A program may rely, in part, on collection events to supplement the permanent collection services required in (b) and (c) of this subsection. However, only permanent collection services specified in (b) and (c) of this subsection qualify towards the satisfaction of the requirements of this subsection.

- (b) Within two years of approval of a battery stewardship organization plan for portable batteries, each battery stewardship organization must provide statewide collection opportunities that include the provision of:
 - (i) At least one permanent collection site, collection service, or collection event for every 30,000 residents of a county; and
 - (ii) At least one permanent collection site, collection service, or collection event within a 15-mile radius for at least 95% of all [name of state] residents.
- (c) Within two years of approval of a battery stewardship organization plan for medium format batteries, a battery stewardship organization must provide statewide collection opportunities that include the provision of:
 - (i) At least 10 permanent collection sites in (name of state) during the initial five-year plan period;
 - (ii) Reasonable geographic dispersion of permanent collection sites throughout the state;
 - (iii) After the initial five-year plan period, a permanent collection site in each county of at least 200,000 persons, as determined by the most recent federal census; and
 - (iv) Service to areas without a permanent collection site. A battery stewardship organization must ensure that there is a collection event at least once every three years in each county of the state which does not have a permanent collection site. Such collection events must provide for the collection of all medium format batteries, including damaged and defective batteries.
- (4) Each battery stewardship organization implementing a battery stewardship plan must:
 - (c) Use existing public and private waste collection services and facilities, including where cost-effective, mutually agreeable, and otherwise practicable, battery collection sites that are established through other battery collection programs, services, transporters, consolidators, processors, and retailers.
 - (d) Use as a collection site for covered batteries any retailer, wholesaler, municipality, solid waste management facility, household hazardous waste facility, or other entity that meets the criteria for collection sites in the approved plan up to the minimum number of sites required for compliance with subsection (3) of this section, upon the submission of a request by such entity to a battery stewardship organization to serve as a collection site. Battery stewardship programs may use additional collection sites in excess of the minimum required in subsection (3) of this section

as may be agreed between a battery stewardship organization and the collection site.

- (e) Use as a site for a collection event for covered batteries any retailer, wholesaler, municipality, solid waste management facility, household hazardous waste facility, or other entity that meets the criteria for collection events in the approved plan up to the minimum number of sites required for compliance with subsection (3) of this section, upon the submission of a request by such entity to a battery stewardship organization to serve as a site for a collection event. Battery stewardship programs may use additional sites for collection events in excess of the minimum required in subsection (3) of this section as may be agreed between the battery stewardship organizations and the collection sites.
 - (c) A battery stewardship organization may issue a warning, suspend, or terminate a collection site or service that does not adhere to the collection site criteria in the approved plan or that poses an immediate health and safety concern.
- (5) Battery Stewardship Programs:
- (a) Are required to provide for the collection of loose covered batteries.
 - (b) Are not required to provide for the collection of battery-containing products.
 - (c) Are not required to provide for the collection of batteries that:
 - (i) Are not easily removable from the product other than by the manufacturer; and
 - (ii) Remain contained in a battery-containing product at the time of delivery to a collection site.
 - (d) Are not required to provide for the collection of batteries still contained in a covered device as defined by the [reference to state e-waste law, if applicable].
 - (e) Are not required to provide for the collection of batteries or battery-containing products being recalled for safety reasons. A battery stewardship organization may seek reimbursement from the producer of a recalled battery or battery containing product for the costs incurred in collecting, transporting, and processing such batteries and products.

Section 10. STEWARDSHIP PROGRAM COMPONENTS—EDUCATION AND OUTREACH REQUIREMENTS.

- (1) Each battery stewardship organization must carry out promotional activities in support of plan implementation including, but not limited to, the development:
 - (a) And maintenance of a website;
 - (b) And placement of advertisements for use on social media or other relevant media platforms;
 - (c) Of promotional materials about the program and the restriction on the disposal of covered batteries in section 15 of this act to be used by persons including but not limited to retailers, government agencies, waste and recycling collectors, and organizations;
 - (d) And distribution of collection site safety training procedures that are in compliance with state law applicable to collection sites to help ensure proper management of covered batteries at collection sites; and
- (2) Each battery stewardship organization must provide:

- (a) Battery user-focused educational promotional materials to each collection site used by the program and accessible by customers of retailers that sell covered batteries or battery-containing products; and
 - (b) Safety information related to covered battery collection activities to the operator of each collection site, including appropriate protocols to reduce risks of spills or fires, response protocols in the event of a spill or fire, and response protocols in the event of detection of a damaged or defective battery.
 - (c) Educational materials to the operator of each collection site for the management of recalled batteries, which are not intended to be part of collection as provided under section 9 of this act, to help facilitate transportation and processing of recalled batteries.
- (4) A battery stewardship organization may seek reimbursement from the producer of any recalled battery for expenses incurred in the collection, transportation, or processing of those batteries.
 - (5) Upon request by a retailer or other potential collector, a battery stewardship organization must provide the retailer or other potential collector educational materials describing collection opportunities for batteries.
 - (6) If multiple battery stewardship organizations are implementing plans approved by the Department, the battery stewardship organizations may coordinate in carrying out their education and outreach responsibilities under this section and must include in their annual reports to the Department under section 11 of this act a summary of their coordinated education and outreach efforts.

Section 11. REPORTING REQUIREMENTS.

- (1) By June 1, 20XX, and each June 1st thereafter, each battery stewardship organization must submit an annual report to the Department covering the preceding calendar year of battery stewardship plan implementation. The report must include:
 - (a) After five years of implementation of an approved battery stewardship plan, a covered battery producer or battery stewardship organization shall hire an independent third party to conduct a one-time assessment of the battery stewardship plan and plan operation. The assessor shall examine the effectiveness of the battery stewardship plan in collecting and recycling covered batteries. The independent assessor shall examine the cost effectiveness of the plan and compare it to that of collection plans or programs for covered batteries in other jurisdictions.
 - (b) A summary financial statement documenting the financing of the battery stewardship organization's program and an analysis of program costs and expenditures, including an analysis of the program's expenses, such as collection, transportation, recycling, education, and administrative overhead. The summary financial statement must be sufficiently detailed to provide transparency that funds collected from producers as a result of their activities in (name of state) are spent on program implementation in (name of state). Battery stewardship organizations implementing similar battery stewardship programs in multiple states may submit a financial statement including all covered states, as long as the statement breaks out financial information pertinent to (name of state);
 - (c) The weight, by chemistry, of covered batteries collected under the program;

- (d) A calculation of the recycling efficiency rates, as measured consistent with subsection the definition of recycling efficiency rate as found in section 3 of this act.
 - (e) For each facility used for the final disposition of batteries, a description of how the facility recycled or otherwise disposed of batteries and battery components;
 - (f) The weight and chemistry of batteries sent to each facility used for the final disposition of batteries. The information in this subsection (1)(f) may be approximated for program operations in (name of state) based on extrapolations of national or regional data for programs in operation in multiple states;
 - (g) The collection rate achieved under the program, including a description of how this collection rate was calculated;
 - (h) The estimated aggregate sales, by weight and chemistry, of batteries and batteries contained in or with battery-containing products sold in (name of state) by participating producers for each of the previous three calendar years;
 - (i) A description of the manner in which the collected batteries were managed and recycled, including a discussion of best available technologies and the recycling efficiency rate;
 - (j) A description of education and outreach efforts supporting plan implementation including, but not limited to, a summary of education and outreach provided to battery users, collection sites, manufacturers, distributors, and retailers by the program operator for the purpose of promoting the collection and recycling of covered batteries, a description of how that education and outreach met the requirements of section 10 of this act, samples of education and outreach materials, a summary of coordinated education and outreach efforts with any other battery stewardship organizations implementing a plan approved by the Department, and a summary of any changes made during the previous calendar year to education and outreach activities;
 - (k) A list of all collection sites and an address for each listed site, and an up-to-date map indicating the location of all collection sites used to implement the program, with links to appropriate websites where there are existing websites associated with a site;
 - (l) A description of methods used to collect, transport, and recycle covered batteries by a battery stewardship organization;
 - (m) A summary on progress made towards the program performance goals established under section 7 of this act, and an explanation of why performance goals were not met, if applicable; and
- (2) The weight of batteries or recovered resources from those batteries must only be counted once and may not be counted by more than one battery stewardship organization.
 - (3) In addition to the requirements of subsection (1) of this section, with respect to each facility used in the processing or disposition of batteries collected under the program, a battery stewardship organization must report:
 - (a) Whether the facility is located domestically, in an organization for economic cooperation and development country, or in a country that meets organization for economic cooperation and development operating standards; and

- (b) What facilities processed the batteries, and for domestic facilities a summary of any violations of environmental laws and regulations over the previous three years at each facility.
- (4) If a battery stewardship organization has disposed of covered batteries through energy recovery, incineration, or landfilling during the preceding calendar year of program implementation, the annual report must specify the steps that the battery stewardship organization will take to make the recycling of covered batteries cost-effective, where possible, or to otherwise increase battery recycling rates achieved by the battery stewardship organization.
- (5) A producer or battery stewardship organization that submits information or records to the Department under this chapter may request that the information or records be made available only for the confidential use of the Department, the secretary of the Department, or the appropriate division of the Department. The secretary of the Department must consider the request and if this action is not detrimental to the public interest and can otherwise be restricted in accordance with the policies and purposes of the (name of state) Right-to-Know Law (state statute), the secretary must grant the request for the information to remain confidential.

Section 12. FEE AND DEPARTMENT ROLE.

- (1) Each battery stewardship organization submitting a battery stewardship plan, revision or amendment, shall pay fees to the Department, as follows:
 - (a) Plan review fee - A battery stewardship organization shall pay a one-time plan review fee, in the amount of XX thousand dollars at the time the battery stewardship organization submits a first-time plan to the Department for approval.
 - (b) Annual or resubmittal fee
 - (i) Prior to June 1, 20XX, and every other June 1st thereafter, the department shall identify the costs it incurred under this section and set a fee schedule for plan submissions that is adequate to reimburse the department's full costs of administering this chapter.
 - (ii) The total amount of the annual fees collected under this section shall not exceed the amount necessary to reimburse costs incurred by the department to administer this section.
- (2) The responsibilities of the department in implementing, administering, and enforcing this chapter include, but are not limited to:
 - (a) Reviewing submitted stewardship plans and plan amendments and making determinations as to whether to approve the plan or plan amendment;
 - (i) The Department must provide a letter of approval or conditional approval for the plan or plan amendment if it provides for the establishment of a stewardship program that meets the requirements of sections 6 through 10 of this act;
 - (ii) If a plan or plan amendment is rejected, the department must provide the reasons for rejecting the plan to the battery stewardship organization. The battery stewardship organization must submit a new plan within 60 days after receipt of the letter of disapproval; and

- (iii) When a plan or an amendment to an approved plan is submitted under this section, the department shall make the proposed plan or amendment available for public review and comment for at least 30 days;
- (b) Reviewing annual reports submitted under section 11 of this act within 90 days of submission to ensure compliance with that section;
- (c) Ensuring public awareness by:
 - (i) Maintaining a website that lists producers and their brands that are participating in an approved battery stewardship plan, and that makes available to the public each plan, plan amendment, and annual report received by the department under this chapter;
 - (ii) Upon the date the first plan is approved or conditionally approved, posting on its website a list of producers and their brands for which the department has approved a plan. The department must update the list of producers and brands participating under an approved program plan based on information provided to the Department from battery stewardship organizations; and
 - (iii) Publishing a list of all battery stewardship organizations and fee-based collection and mail back programs outlined in section 18 of this act.
- (d) Providing technical assistance to producers and retailers related to the requirements of this chapter and issuing orders or imposing civil penalties authorized under section 13 of this act where the technical assistance efforts do not lead to compliance by a producer or retailer.

Section 13. PENALTIES AND CIVIL ACTION PROVISIONS.

- (1) Any person who violates any provision of this act is liable for a civil penalty of \$2,500 per violation, except that the failure to pay a fee under this act shall cause the person who fails to pay the fee to be liable for a civil penalty that is double the applicable fee.
- (2) The penalties provided for in this section may be recovered in a civil action brought by the department. Any penalties collected under this section in an action in which the department has prevailed shall be deposited into the (name of state), _____ Fund, to be used in accordance with the provision of the (name of state)_____.
- (3) The department may institute a civil action for an injunction, prohibitory or mandatory, to restrain violations of this act or to require such actions as may be necessary to address violations of this act.
- (4) The penalties and injunctions provided in this act are in addition to any penalties, injunctions, or other relief provided under any other State law. Nothing in this act bars a cause of action by the State for any other penalty, injunction, or other relief provided by any other applicable law.
- (6) No penalty may be assessed on an individual or resident for the improper disposal of covered batteries as described in section 15 of this act in a noncommercial or residential setting.

Section 14. MARKING REQUIREMENTS FOR BATTERIES.

- (1) Except as provided in subsection 2 of this section, beginning January 1, 20XX, a producer or retailer may only sell, distribute, or offer for sale in or into (name of state) a covered

battery, or battery-containing product that contains a battery that is designed or intended to be easily removable from the product, if the battery is marked with:

- (a) An identification of the producer of the battery;
 - (b) An identification of the chemistry of the battery; and
 - (c) An indication that the battery should not be disposed of as household waste.
- (2) The requirements described in subsections 1(a) and 1(c) of this section do not apply to a battery that can fit entirely, in any orientation, into the small parts cylinder described in 16 CFR §1501.4. In this case, the marks required in subsections (1)(a) and 1(c) shall be placed on the packaging of the battery or battery-containing product.
- (3) The department may amend, by rule, the requirements of subsection (1) of this section to maintain consistency with the labeling requirements or voluntary standards for batteries established in federal law.

Section 15. GENERAL BATTERY DISPOSAL AND COLLECTION REQUIREMENTS.

Effective January 1, 20XX:

- (1) All persons must handle unwanted covered batteries through one of the following options:
 - (a) Delivery to the collection sites established by or included in the programs created by this chapter; or
 - (b) For covered batteries generated by persons that are regulated generators of batteries covered under federal or state hazardous or solid waste laws, management in a manner consistent with those laws.
- (2) A fee may not be charged at the time unwanted covered batteries are delivered or collected for management.
- (3) All covered batteries may only be collected, transported, and processed in a manner that meets the standards established for a battery stewardship organization in a plan approved by the Department, unless the batteries are being managed as described in subsection (1)(b) of this section.
- (4) A person may not place covered batteries in waste containers for disposal at incinerators, waste to energy facilities, or landfills.
- (5) A person may not place covered batteries in or on a container for mixed recyclables unless there is a separate location or compartment made available and designated for the covered battery that complies with local government collection standards or guidelines.
- (6) An owner or operator of a solid waste facility may not be found in violation of this section if the facility has posted in a conspicuous location a sign stating that covered batteries must be managed through collection sites established by a battery stewardship organization and are not accepted for disposal.
- (7) A solid waste collector may not be found in violation of this section for a covered battery placed in a disposal container by the generator of the covered battery.

Section 16. PRIVATE RIGHT OF ACTION.

- (1) A battery stewardship organization implementing an approved plan may bring a civil action or actions to recover costs, damages, and fees, as specified in this section, from a producer who sells or otherwise makes available in (name of state) covered batteries or battery-containing products not included in an approved plan in violation of the

requirements of this chapter. An action under this section may be brought against one or more defendants. An action may only be brought against a defendant producer when the stewardship program incurs costs in (name of state), including reasonable incremental administrative and program promotional costs, in excess of \$1,000 to collect, transport, and recycle or otherwise dispose of the covered batteries or battery-containing products of a nonparticipating producer.

- (2) A battery stewardship organization may bring a civil action against a producer of a recalled battery to recover costs associated with handling a recalled battery.
- (3) A battery stewardship organization implementing an approved stewardship plan may bring a civil action against another battery stewardship organization that under performs on its battery collection obligations under this chapter by failing to collect and provide for the end-of-life management of batteries in an amount roughly equivalent to costs imposed on the plaintiff battery stewardship organization by virtue of the failures of the defendants, plus legal fees and expenses.

Section 17. ANTITRUST.

- (1) Producers and battery stewardship organizations acting on behalf of producers that prepare, submit, and implement a battery stewardship program plan pursuant to this chapter and who are thereby subject to regulation by the department are granted immunity from state laws relating to antitrust, restraint of trade, unfair trade practices, and other regulation of trade and commerce, for the limited purpose of planning, reporting, and operating their battery stewardship program, including:
 - (a) The creation, implementation, or management of a battery stewardship organization and any battery stewardship plan regardless of whether it is submitted, denied, or approved;
 - (b) The determination of the cost and structure of a battery stewardship plan; and
 - (c) The types or quantities of batteries being recycled or otherwise managed pursuant to this chapter.

Section 18. COLLECTION OF BATTERIES INDEPENDENT OF A BATTERY STEWARDSHIP PROGRAM

Nothing in this act shall prevent or prohibit a person from offering or performing a fee-based collection or mail back program for covered portable batteries or medium format batteries independently of a battery stewardship program, provided that such person meets the following requirements:

- (1) Such person must notify the Department, on an annual basis, of their intent to offer a collection or mail back program;
- (2) Such person's services must be performed, and such person's facilities must be operated in compliance with all applicable federal, state, and local laws and requirements, including, but not limited to, all applicable U.S. Department of Transportation regulations, and all applicable provisions of the (name of state) Environmental _____;
- (3) Such person must make available all batteries collected by such person from its (name of state) customers to a battery stewardship organization implementing a plan approved under this act; and

- (4) After consolidation of portable or medium format batteries at the person's facilities, the costs for transporting such batteries to a battery stewardship organization's designated sorters or processors shall be at a battery stewardship organization's expense. A battery stewardship organization may refuse to accept batteries from any such person if the department is notified of the reason for such refusal.

Section 19. Prohibition on Disposal

Beginning on January 1, 20XX, no person may dispose of or burn a covered battery in a solid waste disposal facility. Such a battery may be disposed of only by delivery to a collection site or collection event operated under a battery stewardship plan under this act, unless the battery is regulated as hazardous waste.

Section 20. SEVERABILITY.

If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected.

Section 21. EFFECTIVE DATE.

This act takes effect upon becoming law.

10. End Notes

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- ¹ *What is a Lithium-ion Battery and How Does it Work?*, Clean Energy Institute, University of Washington, <https://www.cei.washington.edu/research/energy-storage/lithium-ion-battery/> (Last visited Oct 29, 2025).
- ² Jakob Fleischmann et al., *Battery 2030: Resilient, Sustainable, and Circular*, McKinsey & Company (Jan. 16, 2023), <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/battery-2030-resilient-sustainable-and-circular> (last visited Oct. 29, 2025).
- ³ Douglas Lee, *Status Report on High Energy Density Batteries Project* (Feb. 12 2018), U.S. Consumer Product Safety Commission, https://www.cpsc.gov/s3fs-public/High_Energy_Density_Batteries_Status_Report_2_12_18.pdf (last visited Oct. 29 2025).
- ⁴ Rebecca Jacobson & Eva Liu, *Lithium-ion battery fires: FDNY on the growing risks*, NFPA Journal (Aug. 8, 2025), <https://www.nfpa.org/news-blogs-and-articles/nfpa-journal/2025/08/08/lithium-ion-battery-fires-fdny> (last visited Oct. 29, 2025).
- ⁵ Md. Senate Bill 532 (2024) (enacted as 2024 Md. Laws ch. 949) (Commission to Advance Lithium-Ion Battery Safety in Maryland), https://mgaleg.maryland.gov/2024RS/Chapters_noln/Ch_949_sb0532E.pdf (last visited Oct. 29, 2025).
- ⁶ *Id.*
- ⁷ U.S. Dep’t of Transp., Pipeline & Hazardous Materials Safety Admin., *Transporting Lithium Batteries*, PHMSA, <https://www.phmsa.dot.gov/lithiumbatteries> (last visited Nov. 19, 2025).
- ⁸ National Waste & Recycling Foundation, “The Facts,” BatterySafetyNow, <https://batterysafetynow.org/facts>
- ⁹ U.S. Env’tl. Prot. Agency, *Battery Collection Best Practices*, Background, EPA (Aug. 22, 2025), <https://www.epa.gov/electronics-batteries-management/battery-collection-best-practices#background>
- ¹⁰ B.J. Jody et al., *End-of-life Vehicle Recycling: State of the Art of Resource Recovery from Shredder Residue*, Argonne National Laboratory, Energy Systems Division, 1, (September 2010). <https://publications.anl.gov/anlpubs/2011/02/69114.pdf>
- ¹¹ LKQ Corporation, 2021 Sustainability Report, 24. <https://www.lkqcorp.com/wp-content/uploads/2022/05/2021-LKQ-Sustainability-Report-FINAL.pdf>
- ¹² Zora Chung, Steven Chung & Emil Nusbaum, *Why Battery Testing is Critical for the Transition to Electric Vehicles*, Automotive Recyclers Association and Rejoule, 2024, https://www.a-r-a.org/wp-content/uploads/ara_rejoule_batterytesting_whitepaper.pdf
- ¹³ Engel, Hertzke, Siccardi, *Second-Life EV Batteries: The Newest Value Pool in Energy Storage*, McKinsey & Company (April 30, 2019). <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/second-life-ev-batteries-the-newest-value-pool-in-energy-storage>
- ¹⁴ Freeman Hall, *Presentation to Commission to Advance Lithium-Ion Battery Safety: B2U Storage Solutions, B2U’s EPS Energy Storage System for EV Battery Repurposing*, May 8, 2025.
- ¹⁵ *Id.*
- ¹⁶ Zero Emission Transportation Association, *Closing the Loop: Strategies for Electric Vehicle Battery Management and Critical Materials Recovery* (2025), <https://8829857.fs1.hubspotusercontent-na1.net/hubfs/8829857/ZETA-WP-Closing%20the%20Loop.pdf>
- ¹⁷ GAIA, *Battery Infosheet: Electric-Vehicle Battery Repurposing and Second Life* (June 2024), <https://www.no-burn.org/wp-content/uploads/2024/06/04-Battery-Infosheet-Electric-Vehicle-Battery-Repurposing-and-Second-Life.pdf>
- ¹⁸ Battery Pass Consortium, *Battery Passport Content Guidance*, 62, (Apr. 17, 2023), https://thebatterypass.eu/assets/images/content-guidance/pdf/2023_Battery_Passport_Content_Guidance.pdf
- ¹⁹ Automotive Recyclers Association, *Electric and Hybrid Vehicle Technology Guide*, 2020, <https://arauniversity.org/wp-content/uploads/2021/03/Electric-Vehicle-Training-Final.pdf>
- ²⁰ Recycled Materials Association (ReMA), <https://www.recycledmaterials.org/battery-resources/>
- ²¹ Organization for Economic Co-operation and Development, *Extended Producer Responsibility and Economic Instruments*, OECD (accessed Nov. 20, 2025), <https://www.oecd.org/en/topics/sub-issues/extended-producer-responsibility-and-economic-instruments.html>
- ²² ERI, *Government Regulations and Their Impact on Lithium-Ion Battery Recycling*, ERI-Direct (Nov. 13, 2023), <https://eridirect.com/blog/2023/11/government-regulations-and-their-impact-on-lithium-ion-battery-recycling/>

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- ²³ U.S. Environmental Protection Agency. (2024, March 19). *Sustainable Management of Electronics and Batteries Working Session, Kick-off: Current Landscape and Conversation Track Overview for All Battery Types*, https://www.youtube.com/watch?v=uNisWO_9mT0
- ²⁴ Mark Hopper, *EPR Expands Beyond Packaging: Tackling Vapes and Household Hazardous Waste*, Diversys (Oct. 21, 2025), <https://www.diversys.com/insights/epr-expands-beyond-packaging-tackling-vapes-and-household-hazardous-waste/> (last visited Nov. 20, 2025).
- ²⁵ Ryan Fogelman, *September Fire Report: The “Vape Effect” Worsens*, Waste360 (Sept. 9, 2025), <https://www.waste360.com/industry-insights/september-fire-report-the-vape-effect-worsens> (last visited Nov. 20, 2025).
- ²⁶ N.Y. Assembly Bill A3059 (Assemb. 2025–2026) (proposed Jan. 23, 2025), N.Y. Legis. Info. Serv.
- ²⁷ Marissa Heffernan, *Policy update: EPR, right to repair and more*, Resource Recycling (Apr. 3, 2025), <https://resource-recycling.com/e-scrap/2025/04/03/policy-update-epr-right-to-repair-and-more/> Resource-Recycling
- ²⁸ City of Calgary, *Call2Recycle Canada and Christine Sinclair Thank Key Partners as It Brings Battery Recycling Awareness Tour to Alberta*, (June 6, 2025), <https://newsroom.calgary.ca/call2recycle-canada-and-christine-sinclair-thank-key-partners-as-it-brings-battery-recycling-awareness-tour-to-alberta/>
- ²⁹ Boulder Cnty., *Vape Aware*, Boulder County Healthy Homes (2025), <https://bouldercounty.gov/environment/healthy-home/tobacco/vapeaware/>
- ³⁰ Maryland Department of the Environment, “eCycling,” *Maryland Programs: Land/Waste Management*, <https://mde.maryland.gov/programs/land/WasteManagement/Pages/eCycling.aspx> (accessed Nov. 23, 2025).
- ³¹ Maryland Department of Transportation, *EV Dashboard*, November 20, 2025, <https://experience.arcgis.com/experience/d8d908d9e62f4054b14ec8f6cbb5392b/>
- ³² *Information about the Port of Baltimore*, Bureau of Transportation Statistics (Apr. 5, 2024), <https://www.bts.gov/current-transportation-statistics/information-about-port-baltimore> (last visited Oct. 29, 2025).
- ³³ Martin Associates, *The Economic Impacts of the Port of Baltimore, 2023* (Mar. 13, 2024), Maryland Port Administration, <https://www.mpa.maryland.gov/Documents/MarylandEconomicImpactofPOB2023.pdf> (last visited Oct. 29, 2025).
- ³⁴ Jim Motavalli, *Port of Baltimore Rolls More Cars Off and On Than Any Other in the States*, AUTOWEEK (Apr. 9, 2024), <https://www.autoweek.com/news/a60432034/port-of-baltimore-ships-most-cars/> (last visited Oct. 29, 2025).
- ³⁵ Solid Waste Association of North America, *Lithium-Ion Batteries*, SWANA Key Initiatives: Safety, <https://swana.org/key-initiatives/safety/lithium-ion-batteries>
- ³⁶ Recycled Materials Association, *Position on Non-Embedded Small and Medium Format End-of-life Battery Management* (Board approved Feb. 27, 2025), <https://www.recycledmaterials.org/wp-content/uploads/rema-position-non-embedded-small-medium-format-end-of-life-battery-management.pdf>
- ³⁷ Automotive Recyclers Association, *Electric and Hybrid Vehicle Technology Guide: Training Package* (Mar. 2021), <https://arauniversity.org/wp-content/uploads/2021/03/Electric-Vehicle-Training-Final.pdf>
- ³⁸ *Battery Collection Best Practices*, U.S. Environmental Protection Agency, <https://www.epa.gov/electronics-batteries-management/battery-collection-best-practices> (last visited Oct. 30, 2025). *Extended Battery Producer Responsibility (EPR) Framework*, U.S. Environmental Protection Agency, <https://www.epa.gov/electronics-batteries-management/extended-battery-producer-responsibility-epr-framework> (last visited Oct. 30, 2025).