Mid-Format Battery Working Session Report-Out

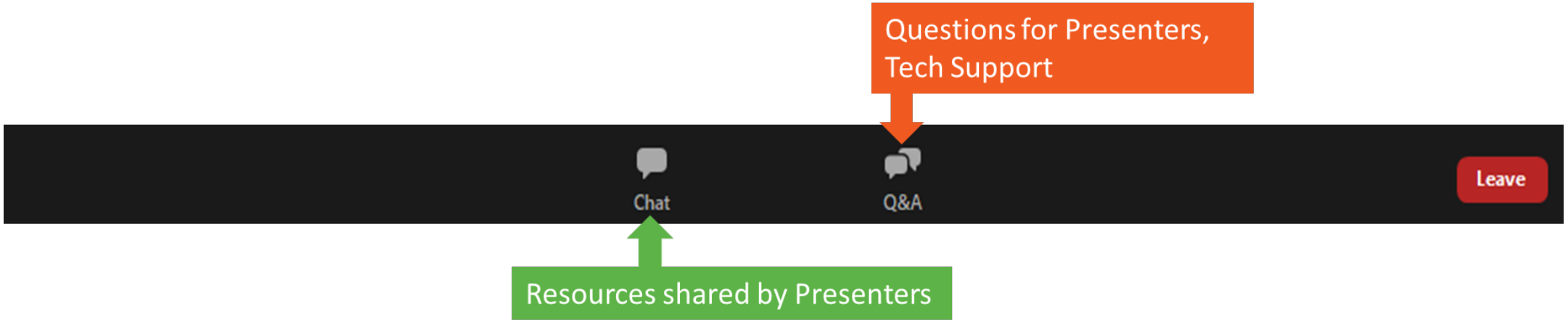
March 12, 2025

U.S. Environmental Protection Agency

Logistics and Agenda Review

Pat Tallarico, Facilitator

Webinar Logistics



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Agenda

- Background and EPA's work to date
- January 27–28 working session overview
- Key takeaways
  - Policy
  - Messaging
  - Collection
  - End of life (EOL)
- Wrap-up and next steps

Background and Feedback We've Heard to Date

Ellen Meyer, U.S. EPA

Focus on Mid-Format Batteries

Category	Small format consumer electric and portable batteries		Mid-format batteries	Large format batteries
Type	Single use (Primary)	Rechargeable (Secondary)	Rechargeable	Rechargeable
Use	Removable or embedded in electronics and electric devices, such as watches, hearing aids, cameras, key fobs, toys, portable radios, flashlights.	Removable or embedded in electronics and electric devices, such as phones, computers, appliances, small uninterruptable power supplies (UPS), power tools, power banks.	E-mobility including e-bikes, e-scooters. Outdoor power equipment. Portable power stations.	All scales of automotive starting and motive vehicle batteries. Materials handling equipment (forklift, crane, etc.) Recreational (golf carts, marine equipment, recreational vehicles, etc.)

EPA

Mid-Format Batteries Are Showing up in Landfills

Photo 1: A Maryland transfer station collected various types of batteries over a one-week period

Photo 2: A mid-format battery was collected and sorted out of a recycling facility

Photos 3: Various battery types await transport to a battery recycler

Photos provided by Emil Nusbaum/Automotive Recyclers Association

Powering the Great American Comeback

Activities are consistent with current Administration priorities, including:

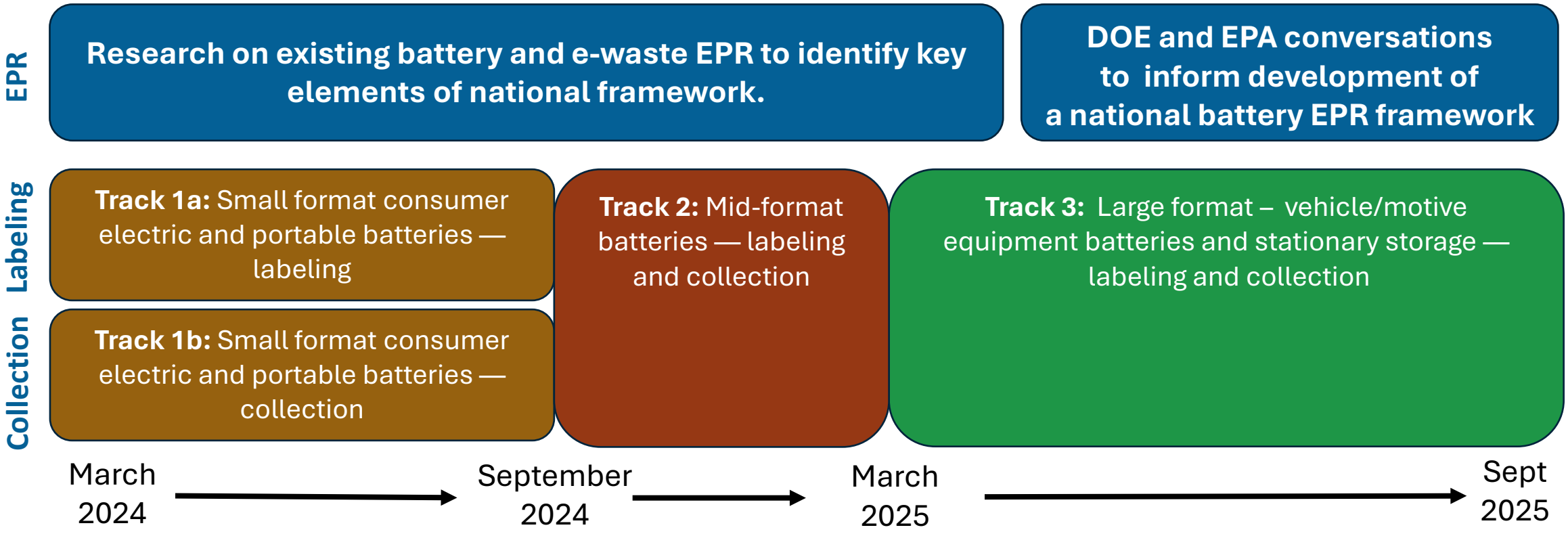
- January 20, 2025, Executive Order "Unleashing American Energy"
- Administrator Zeldin's Five Pillars to guide EPA's work -
  - **Pillar 1:** Clean Air, Land, and Water for Every American
    - Improving the safety of end-of-life lithium battery management, helping to mitigate battery fires.
  - **Pillar 2:** Restoring American Energy Dominance
    - Helping close the loop on a domestic supply chain for the critical minerals in energy technologies.
  - **Pillar 3:** Permitting Reform, Cooperative Federalism, and Cross-Agency Partnership
    - Closely coordinating with S/T/L govts, learning from their experiences and helping them identify best practices for challenging situations.
  - **Pillar 4:** Make the United States the Artificial Intelligence Capital of the World
    - Supporting American-made energy in batteries to power AI.
    - Helping consumers find collection locations and understand battery label information.
  - **Pillar 5:** Protecting and Bringing Back American Auto Jobs
    - Supporting domestic auto manufacturing jobs, especially in the emerging "Battery Belt" of American factories that manufacture and recycle vehicle batteries.

EPA's Ongoing Battery-Related Projects

Separate but complementary requirements in the Infrastructure Investments and Jobs Act (IIJA):

- **Battery Collection Best Practices** to identify and increase accessibility to battery collection locations, promote consumer education, and reduce hazards from improper disposal [Sec. 70401(b)]
- **Voluntary Battery Labeling Guidelines** to improve battery collection and reduce battery waste by promoting consumer education and reducing safety concerns related to improper disposal. [Sec. 70401(c)]
- **Education Materials** to create consistent messaging to help reduce fires, protect communities, keep workers safe, and recover critical minerals for domestic supply chains. [Sec. 70401(c)]
- **National Battery Extended Producer Responsibility (EPR) Framework** to address recycling goals, collection models, reporting requirements, and outline pathways for effective recycling [Sec. 40207(f)]

Timeline of Battery-Related Conversations



Vision for EPA's Resources and Guidelines

- **Battery Collection Best Practices**
  - EPA will develop best practices for state, Tribal, and local governments to recycle batteries in a manner that is:
    - Technically and economically feasible
    - Environmentally sound and safe
    - Optimizing value and use of materials, including critical minerals
  - Anticipated resources published in 2025 and 2026
    - Best practices document
    - Case studies

Vision for EPA's Resources and Guidelines

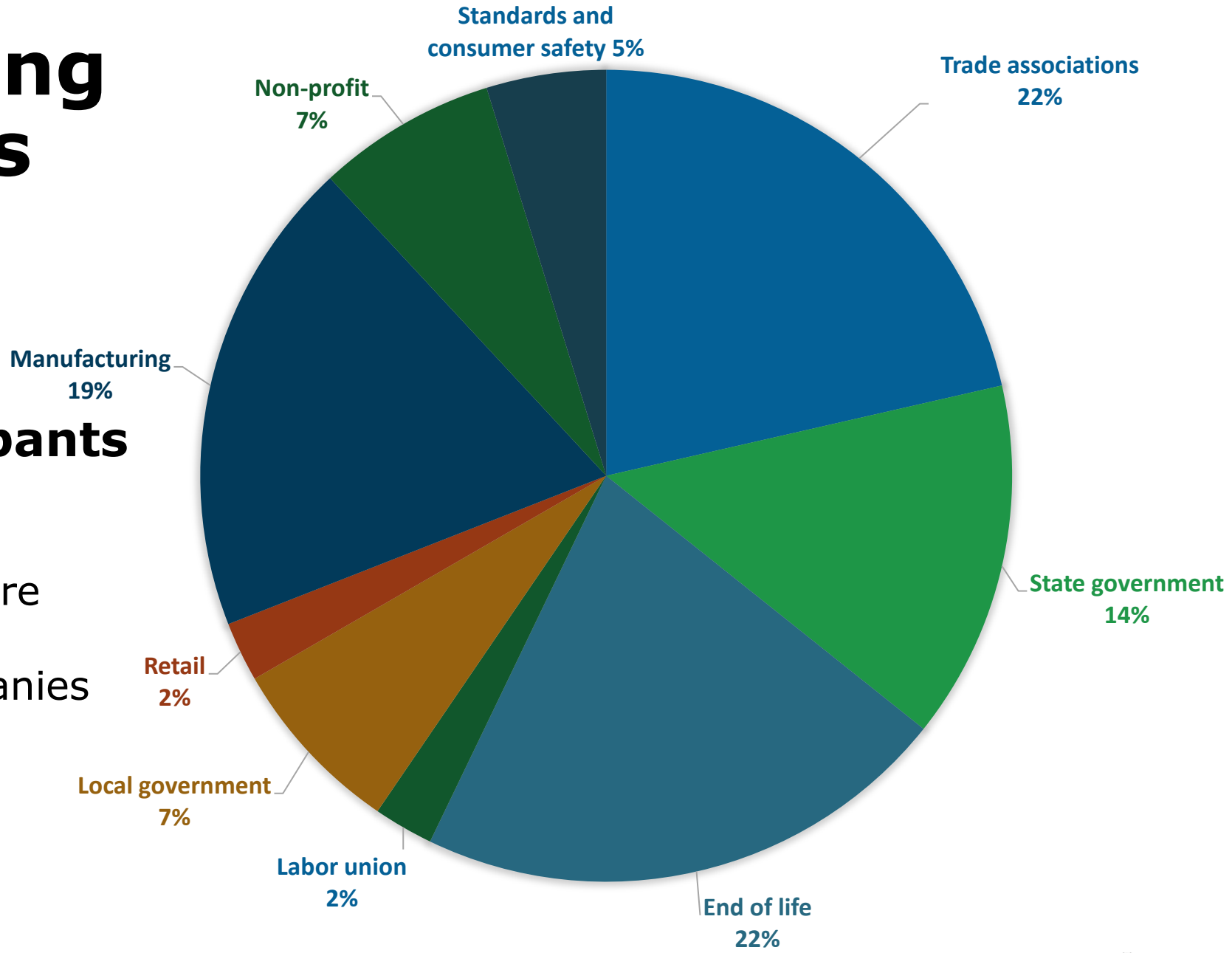
- **Voluntary Battery Labeling Guidelines**
  - EPA aims to develop guidelines for labels that will:
    - Identify battery collection locations
    - Educate consumers about recycling opportunities
    - Reduce safety concerns from improper disposal
  - Anticipated resources for publication in 2025 and 2026
    - Sets of written guidelines for various battery categories
    - Guidance will build on existing standards, emphasize good ideas, and address inconsistencies

Session Overview and Key Takeaways

Ellen Meyer, U.S. EPA and **Pat Tallarico,** Facilitator

January Working Session Details

- **January 27-28, 2025**
- **Diverse set of participants**
  - 58 participants
  - Manufacturers, trade associations, and EOL were most represented
  - Missing: insurance companies



High-Level Working Session Agenda

- **Policy considerations**
  - Assess current state and local mid-format battery policies and identify opportunities and policy tools for improving consistency across states
- **Messaging, barriers, and motivators**
  - Understand consumer behaviors, best practices, and challenges to battery recycling to inform messaging channels and tactics
- **Building robust collection programs**
  - Identify opportunities to improve the current system of collection for mid-format batteries and the resources needed to make these improvements
- **Expanding end-of-life opportunities**
  - Discuss the end-of-life practices for mid-format batteries and identify what actions might help battery sorters and recyclers improve the recovery of critical materials

Policy Considerations

Policy Overview

- **Number of state policies is growing**
  - Every state offers voluntary rechargeable battery collection programs
  - Vermont, District of Columbia, Illinois, parts of California, and Washington have portable battery legislation
  - Thirteen states are considering or have introduced portable battery legislation
- **Policies typically apply to small and mid-format batteries**
- **Discussion topics**
  - Most effective state and local policies
  - Role of labeling and certification
  - Harmonization with other policies
  - Future proofing policies
  - Measuring success

Policy Feedback

- Critical – keep collection convenient for consumers
- Include information and processes to handle damaged, defective, or recalled (DDR) batteries
- Prioritize education and training for front-line workers, including regulatory differences for small and mid-format
- Allow states flexibility to adapt programs
- Address key challenges such as online purchases
- Having a national EPR framework can help address state-to-state inconsistencies
- Financial incentives may be helpful – deposit refunds or core charges
- Mixed perspectives – role of retailers in the collection system

Labeling and Certification

- Consistency is critical – EU as a potential model
- Include messaging on household trash bins
- Use electronic labels to provide more information
- Ensure durability
- More space available for labels, but challenges remain – time for changing labels, embedded batteries
- Consider a certification mark to help address counterfeit batteries

Harmonization

- Improve consistency regarding battery storage and safety protocols
- Harmonize definitions in policies and EPR legislation (e.g., covered products, DDR, obligated producers)
- Standardize data collection and reporting
- Strengthen coordination between state and federal laws regarding EPR

Future Proofing

- Incorporate a chemistry classification review process in legislation (e.g., 5 years)
- Design laws and standards for traceability to help assess recycling rates and changes over time
- Ensure labels are accurate
- Establish a national batteries database
- Include consumer education in laws to keep pace
- Utilize AI to enhance sorting capabilities – type, health
- Require manufacturers to have an EOL plan

Measuring Success

- Convey success to align with consumer values (e.g., safety, recovery, etc.)
- Measure statistics on safety, material recovery, sustainability, collection locations, and participation rates
- Tailor messages for specific audiences, such as age or geographic location

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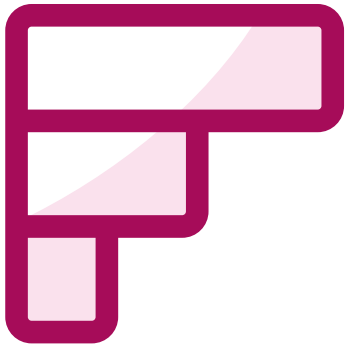

Which of the following best aligns with your views on the role of brick-and-mortar retailers in the collection system?

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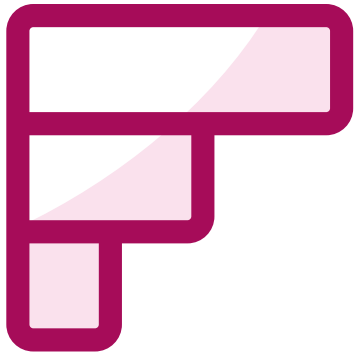

Which of the following best aligns with your views on the role of online retailers in the collection system?

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What else would you like to add about how state and local policies could better promote mid-format battery recycling?

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Messaging

Messaging Barriers

- Participants identified barriers, benefits, and motivators to engaging in certain recycling behaviors
- Behaviors:
  - Do not put batteries in the garbage or recycling bin
  - Visit a central, easy to find online location to find what to do with their batteries
  - Recycle batteries through mail back, drop off, or curbside pickup
- Top barriers:
  - Lack of proximity to a recycling location
  - Complexity surrounding the materials that collection sites and recycling centers accept
  - Consumers might not know if a battery contains or is a battery
  - Recycling guidelines vary
  - Consumers do not face consequences when they place batteries in the garbage or recycling bin
  - Mistrust of recycling system
  - Internet access

Messaging Motivators

- Place collection sites close to consumers and at frequently visited locations (e.g., grocery stores, post offices, pharmacies)
- Publicly available data on battery recycling
- Leave sorting for MRFs instead of consumers
- Single website for battery recycling information and education
- K–12 battery curriculum
- Core retail charges and other financial incentives

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If you needed to convince your neighbor to recycle their mid-format battery rather than putting it in the trash bin, what would you say to them in one sentence?

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Collection Program Improvement

Current Landscape of Mid-format Collection

- Currently two industry-funded programs through Call2Recycle
  - E-bikes – Human Powered Solutions/National Bike Dealers Association
  - Power equipment – Outdoor Power Equipment Institute
- Retailers collect batteries from participating brands
- Retailers are provided with training, incident kits, outreach materials, and packaging

Current Landscape of Mid-format Collection

- Key challenges
  - Direct to consumer sales
  - Lack of physical space for handling and storing lithium-ion batteries
  - High insurance rates impacting battery collection sites
  - Remote area collection
  - Consistent consumer messaging
  - Competing labels
  - Free-riding manufacturers
  - Competition with counterfeit batteries

Discussion Topics

- Expanding manufacturer participation
- Addressing logistical concerns related to storage and transport
- Expanding the collection footprint

Expanding Manufacturer Participation

- Larger manufacturers already participating in voluntary programs and with strong sustainability focus will likely participate
- Online foreign retailers may be the most difficult to capture
- Cost, liability, and lack of legal requirements are challenges
- Suggestions
  - Have more universal requirements for manufacturers to join PROs and address EOL
  - Provide recognition for good actors
  - Certified marking or seal on batteries
  - Grants for participating in collection network
  - Providing industry information on business case for participation

Expanding Collection Footprint

- Expanding collection sites is a key to success
- Suggestions
  - Utilize public spaces such as post offices or libraries as a collection site for remote or hard-to-reach communities
  - Utilize locations that already handle hazardous materials as mid-format battery collection sites
  - Implement extensive and standardized collection site training
  - Provide collection sites with outreach materials that can inform consumers and staff members
  - Provide collection sites with the option for voluntary site visits performed by EPA staff
  - Expand interagency coordination through grant programs

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What additional ideas do you have for expanding the collection footprint?

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Logistical Concerns

- Common barriers to storage and transport
  - Need for special permits
  - Concerns about safety and liability on the part of carriers
  - The need to "de-risk" batteries – e.g., de-energize, safely package, etc.
- Remote, rural, and island communities face unique challenges
- Suggestions
  - Convene further dialogues with carriers, transporters, and insurance companies
  - Conduct more research on de-energizing and safe packaging
  - Use remote shredding facilities

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What other suggestions do you have for addressing the storage and transportation challenges associated with mid-format batteries?

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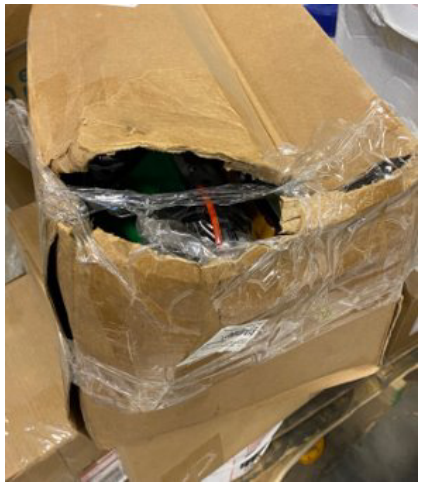
End of Life

Collection Site Challenges

- Comingling and contamination
- Unmanaged collection sites
  - Trash and water can enter the bins
- Employee turnover and overwhelm
  - Employees often manage a range of materials and drop-offs
- Risk of thermal event
- Insufficient consumer and collection site education
  - Misidentifying battery types can lead to incorrect shipping and transport paperwork
- Terminal protection for shipment
  - Excessive tape or torn labels can cause improper or inefficient sorting at MRFs



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Photos provided by Danielle Spalding/Cirba Solutions

End-of-Life Solutions

- Cirba Solutions provides employee training materials, point-of-sale signage, collection bins, and transportation and recycling services
  - Partnerships with Batteries Plus and the Green Bay Packers
- Cirba's turnkey collection bins
  - Recycling kit for businesses
  - The kits provide materials to help collection sites comply with federal transportation, packaging, and handling battery guidelines

Questions

Wrap-up and Next Steps

Ellen Meyer, U.S. EPA

Upcoming EPA Battery Webinars and Next Steps

Large Format Batteries	Meeting Topic	Meeting Date	Meeting Time	Format	Registration
Labeling and Collection	Current Standards and Practices for Large Format Batteries	April 24, 2025	2:00–4:00 PM EDT	Virtual	Registration page
Labeling and Collection	Expanding End of Life Management for Large Format Batteries–Recycling and Refurbishing	June 17, 2025	2:00–4:00 PM EDT	Virtual	Registration page
Extended Producer Responsibility	**Meeting Topic**	**Meeting Date**	**Meeting Time**	**Format**	**Registration**
EPR	All batteries EPR kick-off	April 7, 2025	2:00–4:00 PM EDT	Virtual	Registration page

Email batteries@epa.gov if you have an interesting story to tell about battery collection