Extended Battery Producer Responsibility Framework Virtual Conversation: Battery Recycling Goals and Reporting Requirements

July 17, 2025

Hosted by:

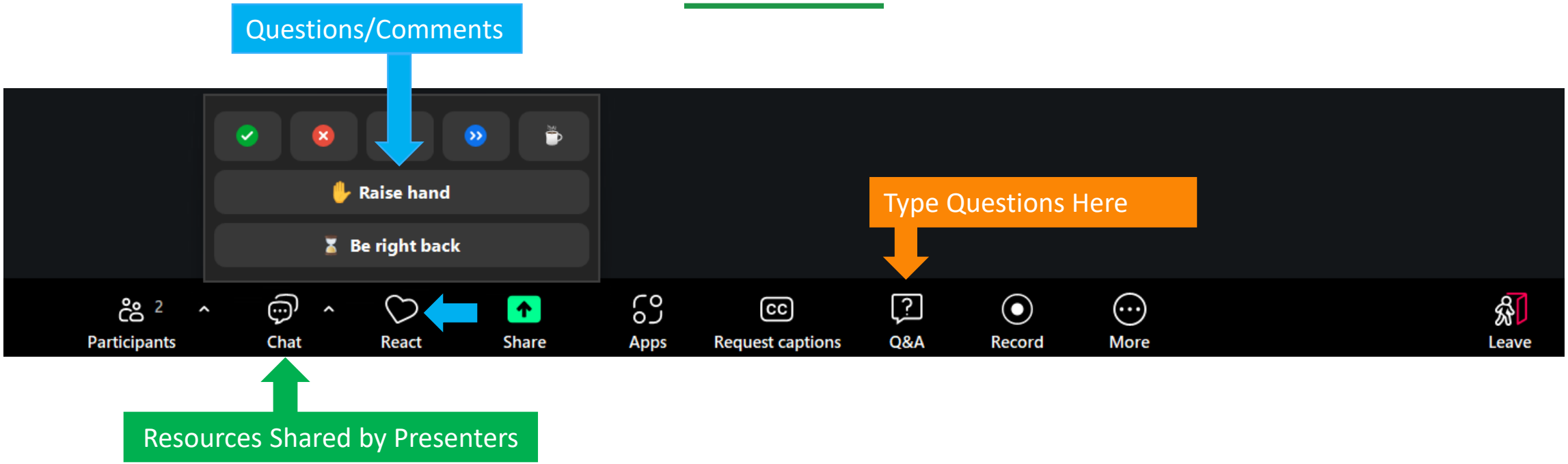
U.S. Environmental Protection Agency (EPA) and

U.S. Department of Energy (DOE)

Logistics and Agenda Review

Pat Tallarico, Facilitator, ERG Support Team

Meeting Logistics



- **To ask a question or provide a comment during discussions:** Click on the "React" link and select "Rase Hand" to ask your questions directly and take yourself off mute when recognized.
- **To ask a question if you can't participate live:** Type your questions/contributions in the Q&A box if you are unable to participate directly.
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Agenda

- Overview of EPA and DOE's EPR Framework Initiative
  - **Kim Cochran**, U.S. Environmental Protection Agency
- Introduction to Performance Goals and Measurement Concepts
  - **Carl Smith,** ERG Support Team
- State Perspectives on Battery EPR Goals and Measurement
  - **Amanda Cotton,** Minnesota Pollution Control Agency
  - **Kelly Boyle**, Washington State Department of Ecology
  - **Carin Stuart**, Call2Recycle
- Group Conversation
- Wrap-Up and Next Steps

Overview of the EPR Framework Initiative

Kim Cochran, U.S. EPA

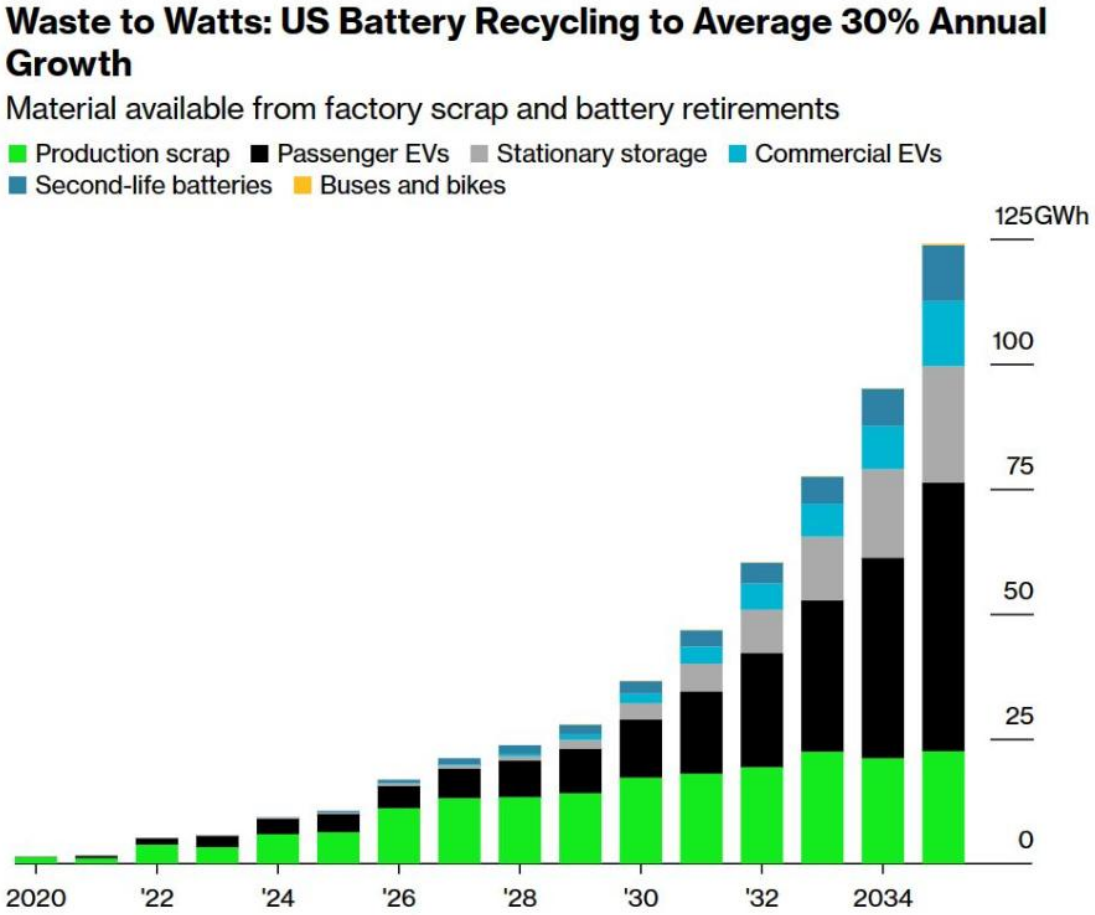
Why Batteries?

Batteries are central to our lives as they:

- Power everything from cars to consumer electronics
- Contain valuable metals that can be extracted and recycled

Increasing battery collection and recycling will help:

- Recover critical minerals
- Prevent fires by keeping batteries out of municipal waste streams
- Strengthen the domestic battery supply chain



Source: BloombergNEF

Fire Risks and Safety

- Safety is a major driver of EPR policies
  - Lithium metal and lithium-ion batteries can cause fires when damaged.
  - One EPA report found 64 waste facilities that experienced 245 fires from 2013-2020.
  - Over 50 percent of MRFs reported fires caused by batteries improperly disposed in curbside recycling bins.

Firefighters extinguishing a lithium battery fire. Source: EPA

EPA's Ongoing Battery-Related Projects

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

Extended Battery Producer Responsibility Framework

Battery Collection Best Practices

Education Materials

Voluntary Battery Labeling Guidelines

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

Pillar 2:
Restoring American Energy Dominance

Pillar 3:
Permitting Reform, Cooperative Federalism, and Cross-Agency Partnership

Pillar 4:
Make the United States the Artificial Intelligence Capital of the World

Pillar 5:
Protecting and Bringing Back American Auto Jobs

Vision for an Extended Battery Producer Responsibility Framework

- A voluntary EPR framework, not meant to be a model bill, that provides current practices and related options, challenges, and considerations
- Aimed at achieving national goals in recovering critical minerals and supporting states in battery collection and recycling.
- The framework will address, at a minimum, the key elements specified in the IIJA:
  - **Battery recycling goals**
  - **Reporting requirements**
  - Cost structures for mandatory recycling
  - Product design
  - Collection models
  - Transportation of collected materials, including safely storing and handling

Scope of 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

EPR Conversation Progression

- **April 7, 2025 – All batteries:** Kick-off conversation
- **July 17, 2025 – Small/mid-format:** Battery recycling goals and reporting requirements
- **August 26, 2025 – Small/mid-format:** Collection models, transportation, and cost structure considerations
- **Fall 2025 – Small/mid-format:** Governance, enforcement, and alignment with other policies
- **End of 2025 – Report out:** Sharing the EPR framework

Elements for an EPR Framework

- Definitions
- Financing
- Collection models & transportation
- Stewardship plan
- Governance
- Data collection & annual reporting
- Environmental considerations
- Implementation timeline
- Enforcement
- Performance standards & goals
- Fairness considerations
- Education & outreach
- Labeling
- Alignment with other policy instruments

Today's Conversation Topics

- Topics
  - Current data collection and annual reporting by states
  - National goals
- Outcomes
  - Understand the methodologies currently used across states
  - Discuss current challenges and lessons learned
  - Determine how the EPR framework could support national goals, as well as state data collection efforts

National Measure in the EPR Framework

To measure progress in recovering critical minerals, we need (a) national goal(s).

National Goal Example

Implement a safe and convenient system to collect X% of batteries, recovering critical minerals and creating American jobs.

Setting the Scene: Introduction to Reporting, Performance Goals and Measurement Concepts

Carl Smith, ERG Support Team

EPA

Evaluating Battery Program Performance

- To evaluate program performance, battery EPR laws require extensive information in the PRO's annual report, including (but not limited to):
  - Participating producers and their brands
  - Reporting on financial performance including fees, expenditures, and reserves
  - Details on collection footprint
  - Examples of educational efforts
  - Information on recyclers, transporters, and sorters
  - Explanation on major events, shortfalls, and efforts
- Battery EPR programs generally attempt to measure four areas of performance, prescribed by law or as part of the stewardship plan:
  - Accessibility (3 types of measures)
  - Collection rate (weight collected / weight available to collect)
  - Public awareness
  - Recycling efficiency rate (RER)

Recent Battery EPR Laws and their Performance Measures

State	Performance Measures			
	Accessibility	Collection Rate	Public Awareness	Recycling Efficiency Rate (RER)
California	✓	●	●	●
Connecticut	●	●	●	✓
Colorado	●	●	●	●
District of Columbia	✓	●	●	●
Illinois	●	●	●	✓
Nebraska	●	●	●	✓
Vermont	✓	●	●	✗
Washington	✓	●	●	●

● Included in the law but details are determined by / with the state agency as part of the stewardship plan process.

✓ Included in the law.

✗ Not included in the law.

EPA

What Data is Being Collected

Portable battery EPR laws require the PRO to report the following data in annual reports:

Data Point	Data Source
The weight, by chemistry, of covered batteries collected under the program	Data collected by sorter(s), reported to Call2Recycle
The weight and chemistry of batteries sent to each facility used for the final disposition of batteries	Data collected by sorter(s), reported to Call2Recycle per Call2Recycle's guidance on where sorters should send batteries
Recycling efficiency rate of battery processors (by chemistry)	Calculated and reported by Call2Recycle based on data by recyclers
Collection rate based on batteries collected divided by batteries placed on the market	Calculated and reported by Call2Recycle based on reported data
Estimated aggregate sales, by weight and chemistry, of batteries and batteries contained in or with battery-containing products sold in the state by participating producers for each of the previous three calendar years	Reported by obligated producers via a portal to Call2Recycle which compiles and reports data to the state agency and invoices obligated producers accordingly
Assessment of collection accessibility – the proximity of publicly available battery collection sites for consumers in the state	Assessment of convenience is currently calculated by Call2Recycle. If the law / agency does not dictate the methodology, Call2Recycle uses: X% of population are within 10 miles of a collection location.
Evaluation of the effectiveness of education and outreach activities	Methods developed and implemented by Call2Recycle and reported to the state agency as appropriate / required

Emerging Challenges

- Determining what products are covered and what is excluded (e.g., vapes and mid-format batteries including lead)
- Capturing all batteries placed onto the market and collected
- Addressing the status of reused and refurbished batteries
- Methodologies for calculating collection rates and recycling efficiency rates
- Building a robust and accessible collection footprint when participation as a collection site is voluntary and mid-format batteries hold a special hazardous designation
- Addressing the increased number of embedded batteries in products

International Perspectives on Performance Measures

- The EU and Canada have embraced battery EPR longer than U.S. states, offering relevant lessons learned for future performance measures.
- The 2024 EU Battery Regulation, replacing the 2006 EU Directive, sets more ambitious and refined performance measures, including:
  - A new methodology for calculating collection rates
  - Increased collection targets (prescribed in regulation)
  - Collection reporting by chemistry
  - New requirements for recycled content and carbon footprint in new batteries (larger format only)
  - Requirements for reporting on waste batteries exported
  - Requirements for reporting on batteries destined for reuse or refurbishment
  - A "digital passport" for large format batteries

Safety Performance Measures

- Early battery EPR laws enacted in the 1990s focused on battery toxicity (cadmium, lead, and mercury) their impact on landfills, and the possibility of leachate into the water supply.
  - **Fire safety concerns** (particularly related to lithium-based batteries) have been the driving force behind recent battery EPR laws, particularly for mid-format batteries.
- Measuring the impact of battery EPR laws on safety has not been included in discussion of performance measures for battery programs.
- While identifying, categorizing, and compiling safety incidents is a challenge, knowing how battery collection and recycling affect safety is critical.

Aftermath of a lithium-ion battery fire in a garbage truck. Source: EPA

Discussion Questions

- Any questions/observations about what you have heard so far?
- Given that there is a high level of concern about safety, are any states considering measuring safety improvements? If so, how?

State Perspectives on Battery EPR Goals and Measurement

State Perspectives on Battery EPR Goals and Measurement – Minnesota

Amanda Cotton, Minnesota Pollution Control Agency

MINNESOTA POLLUTION CONTROL AGENCY

MN Rechargeable Battery Law

EPA Webinar

Amanda Cotton

July 17, 2025

What is covered under MN's rechargeable battery law

- Manufacturers of rechargeable batteries and products powered by them must implement or join a recycling collection program (90% collection rate). Manufacturers that do not, cannot sell in Minnesota. (M.S. 115A.9157)
- Rechargeable batteries and products with non-removable rechargeable batteries are prohibited from being disposed of in mixed municipal waste. (M.S. 115A.9157)
- A rechargeable consumer battery and button battery must have a label identifying the electrode type. (M.S. 325E.125)
- A rechargeable consumer product in Minnesota cannot be sold unless its battery can be easily removed. (M.S. 325E.125)

Data under MN's rechargeable battery law

Call2Recycle numbers:

CY 24—193,826 pounds, CY 23 – 143,401 pounds, CY 22 – 165,737 pounds, CY 21 – 163,936 pounds, CY 20 – 138,511 pounds

Other entities (which includes lead acid batteries):

*CY 24 – 6,256 pounds, *CY 23 – 7,821 pounds, CY 22 – 4.4 million pounds, CY 21 – 4.2 million pounds, CY 20 – 2.8 million pounds

*Missing two reports due by end of CY 25

Stakeholder process

Over the last several years there have been a few legislative proposals to improve the collection and proper management of batteries (embedded and individual) and electronics.

During this time, the Minnesota Pollution Control Agency (MPCA) has been working with local government, environmental groups, and industry to update or replace the two laws to:

- capture critical materials
- reduce/eliminate fire risks
- reduce human health and environmental impacts
- increase safety throughout the collection/management system
- collection and proper management (e.g. reuse, repair, recycling) costs covered

Topics of concern and key questions going forward

During previous conversations with stakeholders, these seven topics kept coming up and will be discussed during our current stakeholder process:

- **The scope of products included**. This list will define what items producers will be responsible for the collection and proper management of.
- **The structure of a Producer Responsibility Organization (PRO).** How the responsibilities of the producers will be carried out, including arranging for collection and proper management of items, financing, reporting, and other duties. While PRO is the term used here, the discussion will include various organizational options.
- **Reimbursement rates process.** How will collectors and entities properly managing the materials be reimbursed and how will those rates be set.
- **Payment rates and funding from producers.** How will producers finance the required activities, e.g. fees.
- **Consumer education.** What level is needed to achieve success.
- **Reuse and repair.** How to include and incentivize reuse and repair and how to fund it.
- **Labeling.** What type of labeling of products is required for people and entities to carry out their duties.

Contact Information

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QUESTIONS AND ANSWERS

State Perspectives on Battery EPR Goals and Measurement - Minnesota

Amanda Cotton, Minnesota Pollution Control Agency

State Perspectives on Battery EPR Goals and Measurement – Washington

Kelly Boyle, Washington State Department of Ecology

DEPARTMENT OF ECOLOGY
State of Washington

Recycling Goals and Reporting Requirements

Battery Extended Producer Responsibility in Washington

Kelly Boyle

Solid Waste Management Program

July 2025

Statewide Collection Opportunities

Portable batteries

- 95% of residents must have 1 permanent collection site within 15 miles
- 1 additional site for every 30,000 residents in an urban area
- Consideration given to overburdened populations and vulnerable communities

Medium format batteries

- At least 25 permanent collection sites
- Must have 1 site in each county of 200,000 plus residents
- Only at HHW facilities or other sites with certified staff

Performance Goals

- Stewardship plans must include performance goals that measure the achievements of the program on an **annual basis:**
  - **Target Collection rates**
  - **Recycling efficiency rates**
    - 60% for rechargeable batteries
    - 70% for primary batteries
  - Goals for **public awareness, convenience, and accessibility** that meet the minimum requirements.
- Take into consideration technical feasibilit economic practicality

Reporting Requirements – Annual Report

The weight, by chemistry of batteries collected	The weight of materials recycled in total and by method of battery recycling	A calculation of the recycling efficiency rates
The weight and chemistry of batteries sent to each facility used for the final disposition	The collection rate and description of how this was calculated	The estimated aggregate sales, by weight and chemistry, of batteries and batteries contained in or with battery-containing products sold in WA by participating producers for the previous 3 years

Challenges and Lessons Learned

Define what to measure, not the target

Focus on trends

Make it measurable

Data collection and tracking inconsistencies

Thank you!

Join our email list
to receive updates.

DEPARTMENT OF
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QUESTIONS AND ANSWERS

State Perspectives on Battery EPR Goals and Measurement - Washington

Kelly Boyle, Washington State Department of Ecology

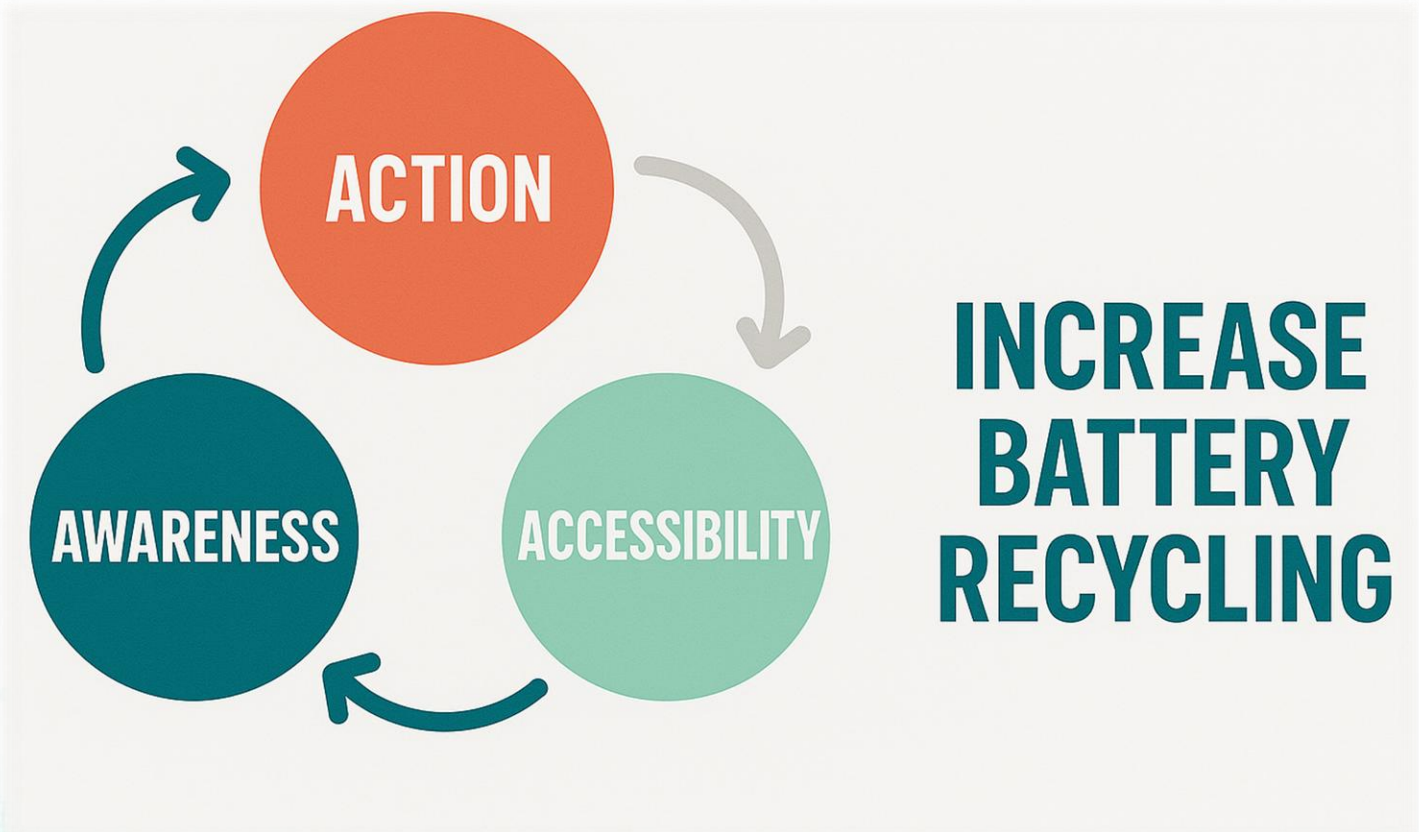
Perspectives on Battery EPR Goals and Measurement

Carin Stuart, Call2Recycle

EPA Extended Battery Producer Responsibility:
Battery Recycling Goals

Prepared by:
CALL2RECYCLE

Interdependency



Processor RER

Performance Goals

Awareness (statute requires BSO propose in plan)

- Combination of consumer awareness and action

Accessibly (has been set in statue)

- Collection sites and/or
- Accessibly rate

Collections (statute requires BSO propose in plan)

- Collection pounds
- Collection rate

Downstream Processing (has been set in statue)

- Recycling Efficiency Rates (RER) of processors

Battery Stewardship Organization (BSO)

Awareness

What is Measured: Public Awareness and Incidence

Key Terms:

- Awareness “are you aware that batteries can be recycled?”
- Incidence “did you recycle batteries?”

How is it measured: Up to BSO to propose in plan; C2R conducts annual statistically significant surveys of residents to measure

Lessons Learned: It takes consistent messaging over time to affect consumer awareness and incidence. Every region starts out at a different level and must build from there.

Accessibility

What is measured:

- Rate = X% of population lives within Y miles of a site
- Total number of sites = any county with minimum X population has X sites in county

Key Terms: none

How it is measured: Mapping and population software

Lessons learned: Urban areas can be challenging due to store footprint size and willingness to partner; need the balance of willing partners for success

Collections

What is measured: Total pounds (single-use and recharge) and collection rate percentage.

Key Terms: Collection Rate Percentage

How is it measured:

$$\frac{\text{Total g collected by BSO}}{\text{Total g reported to BSO}}$$

Lessons learned:

1. All batteries are not required to be collected through an approved program; there are many ways batteries are collected; collection metrics may be misleading/unattainable by BSO.
2. Some states are removing this performance goal to focus on awareness and accessibility.

Downstream Processing

What is measured: Recycling Efficiency Rate by chemistry (primary and recharge)

Key Terms: ratio of weight of battery components recycled by a BSO from batteries to the weight of those batteries collected by BSO

How is it Measured:

$$\frac{\text{Total g material recycled}}{\text{Total g batteries processed}}$$

Lessons Learned: Each processor must determine how to classify their outputs for this calculation

Closing Remarks

1. Need common definitions across states for an efficient and harmonized approach
2. Need to understand the different dynamics in each state and develop a reasonable performance metric approach

QUESTIONS AND ANSWERS

Perspectives on Battery EPR Goals and Measurement

Carin Stuart, Call2Recycle

Group Conversation

General Discussion Questions

- Any specific questions for the states that presented?
- Are there other goals and measures that other states are either using or considering? If so, what are they?
- Are there any key definitions you are struggling with or have found to otherwise be challenging to develop or implement?

Discussion Questions

- How are others thinking about embedded batteries or electronics?
- What ways are others measuring accessibility/convenience? And is there a difference between those two terms?
- What are the best ways that people think collection rate should be calculated? What challenges do you anticipate in collecting data from various sources?
- Are people including awareness as a measure? If so, how do you plan to collect information about changes in awareness?
- For those that are not states, what else is important to consider when developing or implementing goals and measures?

Federal Role in EPR Performance Measures

- Would it be helpful to have a national goal or measure associated with battery recycling? Why or why not? If so, what is your reaction to something like the following:

National Goal Example

Implement a safe and convenient system to collect X% of batteries, recovering critical minerals and creating American jobs.

Other Gaps in Harmonization

- What other aspects need to be harmonized or standardized as it relates to program goals and measures that we have not discussed?

Wrap-up and Next Steps

Kim Cochran, U.S. EPA

Upcoming EPA Battery Webinar and Next Steps

Meeting Topic	Meeting Date	Meeting Time	Format	Registration
Extended Battery Producer Responsibility Framework Virtual Conversation: Collection Models, Transportation, and Cost Structure Considerations	August 26, 2025	2:00–4:00 PM ET	Virtual	Registration Page

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