

Call2Recycle, Inc.

**PRODUCT STEWARDSHIP AND
THE CHALLENGES OF A
CIRCULAR ECONOMY**

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Today's Speakers

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WHO ARE WE? CALL2RECYCLE

- Non-profit, public service organization founded in 1994 to deal with emerging state and federal regulation.
- First battery product stewardship program in North America.
- Voluntary stewardship program approved by governments in North America (New York / British Columbia / Quebec / Manitoba / Vermont).
- Collection and recycling program offered at NO COST to consumers, retailers and participants; 100% funded by manufacturers.
- Collected over 100 million pounds of batteries since 1996 from over 30,000 sites.
- The first “**Product Stewardship**” program in North America.



PRODUCT STEWARDSHIP EXPLAINED

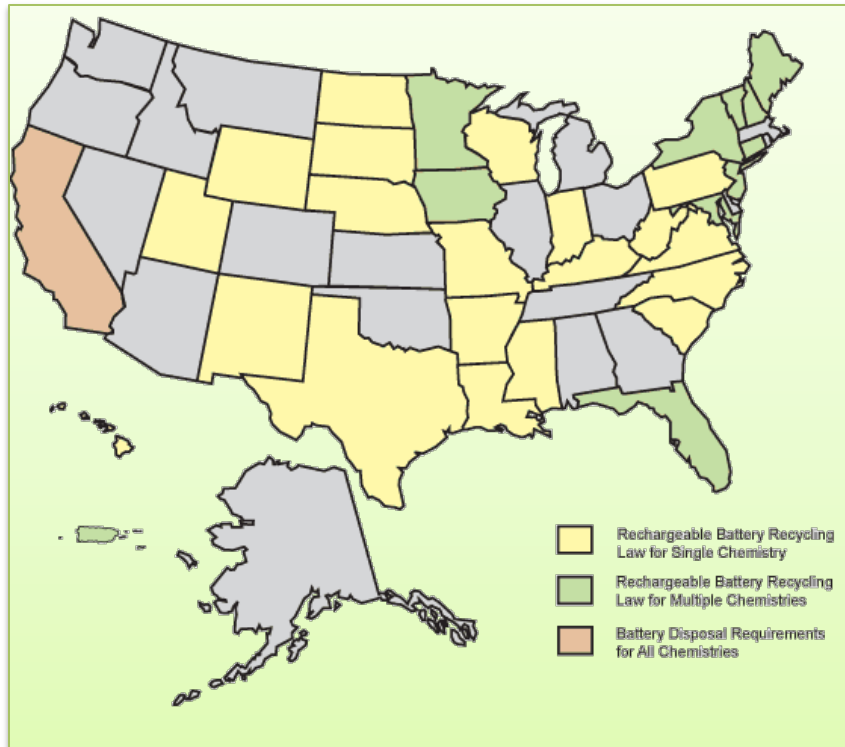
- In practice, “Product Stewardship” refers to a policy of shifting costs for disposal from county and municipal governments to the private sector, typically to the company deemed to have put the product into the market.
- Product Stewardship and “Extended Producer Responsibility (EPR)” are often used synonymously even though the intent is different.
- In principle, product stewardship is the desire to think through and manage the entire lifecycle of a product from the design, resourced materials, transport through disposal.
- EPR is a policy tool used by governments to ensure that a producer is responsible for appropriately managing what it puts into the market at the end of the products useful life.



WHERE IS BATTERY RECYCLING REQUIRED?

- Extended producer responsibility (EPR) laws for consumer batteries.

Current U.S. Battery Laws



Future

- Vermont:** First US state to require single-use producers to develop a program for collecting and recycling spent primary batteries
- Other States to Follow:** Maine, California, Connecticut and Texas have introduced (or have expressed an interest to introduce) bills specific to battery recycling product stewardship

1

COLLECTION

Public Agencies
Retailers
Businesses
Municipalities

Call2Recycle Physical Flow: United States

2

SORTING

Recording and sorting by chemistry

BATTERY SOLUTIONS *Howell, MI*
INMETCO *Ellwood City, PA*
WISTRON *McKinney, TX*

3

PROCESS & RECOVERY

Processed by chemistry type

Li-Ion Batteries

SSLA/Pb Dry Cell Batteries

Ni-Cd, Ni-MH, Ni-Zn

Cellphones

GlencoreXstrata

Sudbury, ON
Canada

COBALT RECOVERED

Terrapure VSC

Ville Ste-Catherine, QC
Canada

LEAD RECOVERED



Eagan, MN

INMETCO

Ellwood City, PA

NICKEL-IRON STAINLESS STEEL
& CADMIUM RECOVERED



Boulder, CO

METALS RECOVERED OR REFURBISHED/RESOLD
PROCEEDS SUPPORT PROGRAM
AND PUBLIC EDUCATION

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WHAT IS SUSTAINABLE MATERIALS MANAGEMENT (SMM)?

- EPA and state governments are developing SMM plans that focus on end-of-life material management.
- The emphasis is on:
 - Keeping materials out of the waste stream.
 - Government influencing upstream behaviors of manufacturers and consumers to reduce waste.
 - Influencing the design and manufacture of products in a way that reduces carbon footprint.
- Government sees the need to broaden how success is measured, including:
 - Weight-based recycling rates.
 - Overall waste reduction.
 - Carbon footprint impacts.



THE CIRCULAR ECONOMY

- The Circular Economy is the focus of private sector stakeholders, like manufacturers and brand owners as well as the Ellen MacArthur Foundation who aim to keep products, components and materials at their highest utility and value at all times.
- There is a greater emphasis on products and packaging that minimize waste, to reduce the carbon footprint and keep materials in the resource stream through the entire value chain.
- A Circular Economy can't exist without material reuse/recycling.
- Circular Economy stakeholders also are working on new metrics for measuring success:
 - Material circularity indicator (factoring in product utility and restorative ability).
 - Carbon footprint impacts.



EFFICIENCY WHEN CAPTURING MATERIALS

- A good supply system is critical to guaranteeing that materials are used and reused in a continuous loop.
- Organizations can standardize operations through internal auditing and supply chain benchmarks.
- A continuous loop will generate sufficient supply of material feed stocks to meet consumer demand and reduces waste that creates environmental concerns.

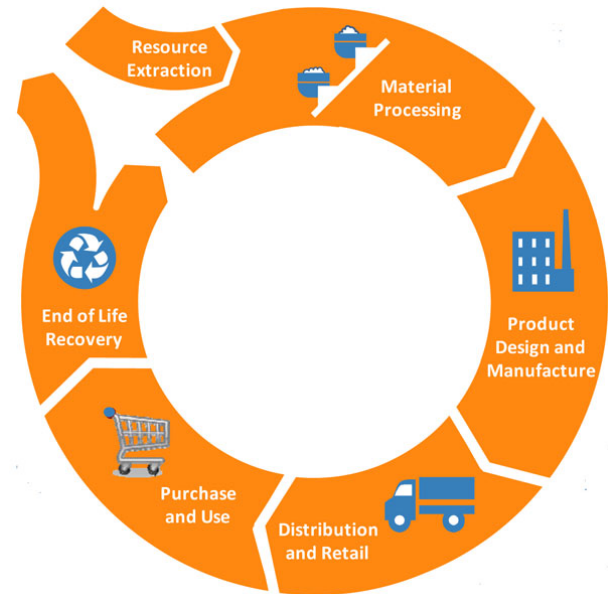
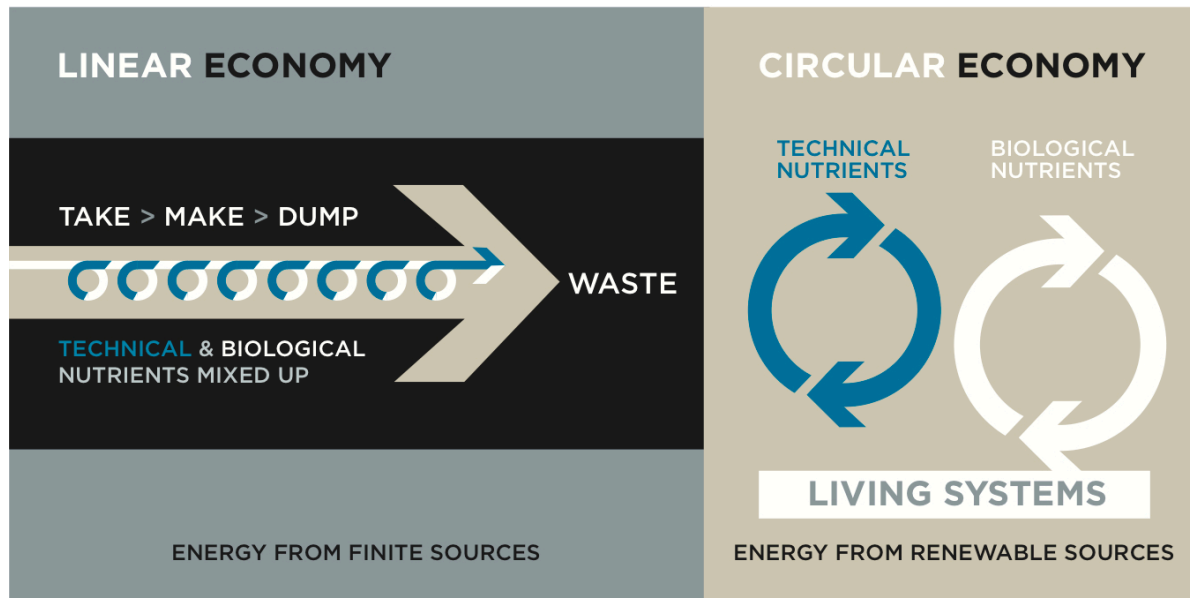


Image Credit: Environmental Protection Agency



THE IDEAL SUPPLY SYSTEM



AFTER W McDONOUGH AND M BRAUNGART



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EPR & CIRCULAR ECONOMY

Extended Producer Responsibility

- A mandatory type of product stewardship that includes, at a minimum, the requirement that the producer's responsibility for its product extends to post-consumer management of that product and its packaging.

Two Elements:

- Shifting financial and management responsibility for disposal, with government oversight, upstream to the manufacturer / producer; and
- Providing incentives to manufacturers to incorporate environmental considerations into the design of their products.



Circular Economy

- Keeping material in use for as long as possible.
- For battery recycling, choosing processes that allow for continuous feedback into recycling loops.

Examples:

- Processing Ni-Cd and NiMH batteries into Steel Alloys.
- Extracting Lead (Pb) from SSLA batteries for Use in Making More SSLA batteries.



WHAT IS AT THE INTERSECTION OF EPR & THE CIRCULAR ECONOMY?

- ✓ Focus on recycling sometimes no matter what the environmental and economic costs; the circular economy focuses on material management.
- ✓ Failure to consider how consumers will dispose of products and how best to manage material particularly when recycling may not make financial sense.
- ✓ Lack of metrics on performance and efficiency making comparisons of methods very difficult.
- ✓ Public and public organizations and governments, have a role to help come up with solutions to existing material management practices.



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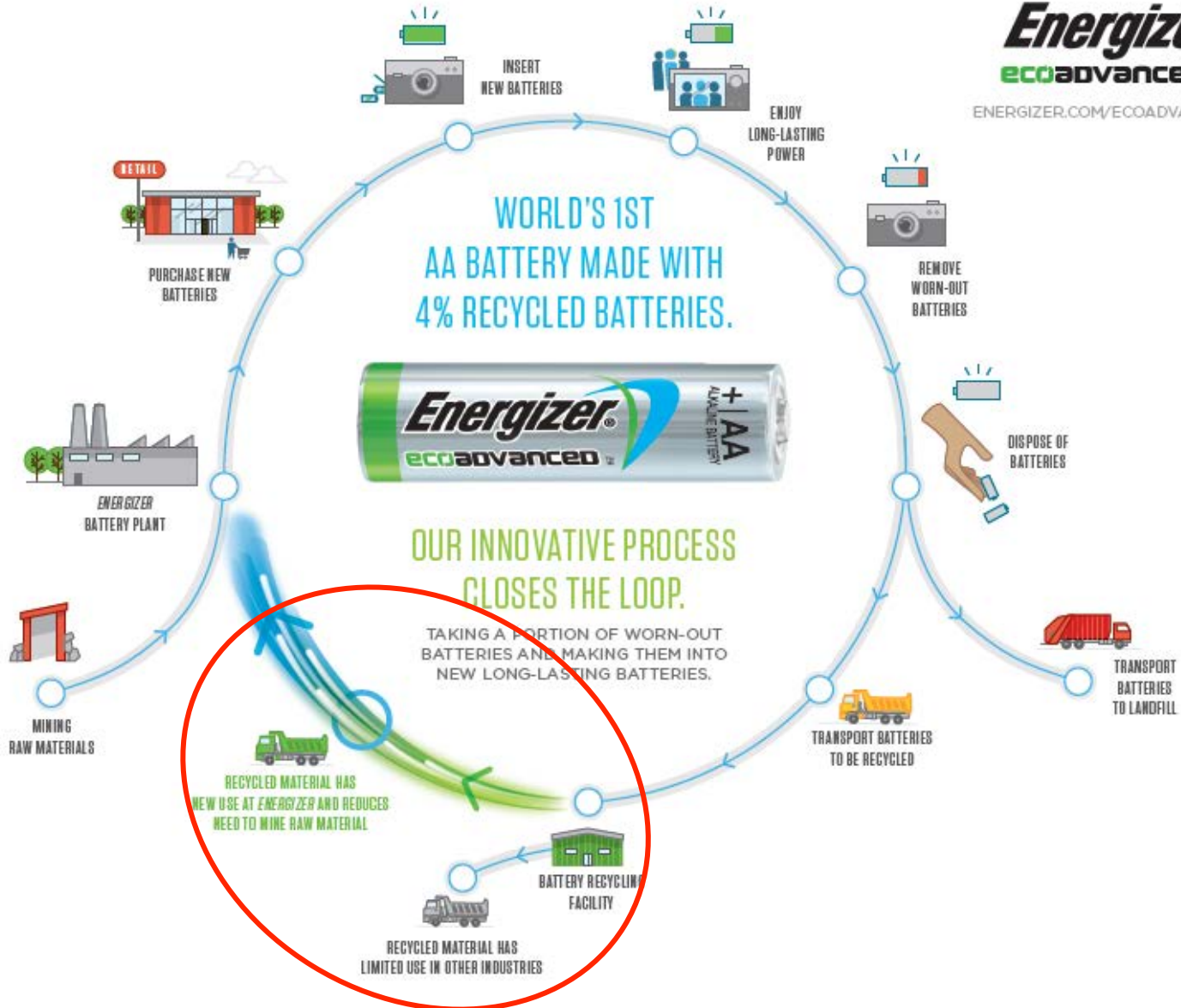


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A REAL LIFE EXAMPLE: Energizer EcoAdvanced

Energizer
ecoadvanced™

ENERGIZER.COM/ECOADVANCED



ECOADVANCED LINE: UNTAPPED OPPORTUNITIES

- Changing consumer perception of batteries from a product that can't be made from recyclable materials to one that can.
- Product Life cycle benefits from new approach, promotes efficiencies in material management.
- Closing the loop in the product lifecycle.
- Creating value for residual materials.
- Future research could point to enhancements.



WHY AN ECOADVANCED LINE OF BATTERIES?

What entering a new product category means

- As an organization, it marks the beginning of journey: from operational readiness, to level of commitment, to available resources.
- Response to the question: Is there a better way?

Value proposition for consumers

- Long lasting batteries.
- Responds to an increase in consciousness / trends among consumers.
- Product features are aligned with the vision that one day all batteries contain recycled materials .



CHALLENGES

- Being first to enter a category has its challenges:
 - Development of new supply chain
 - Logistics of unfamiliar products (waste)
- Managing expectations from internal and external stakeholders is key.
- Requires considerable commitment from organization in terms of time, budget, resources, etc.
- Managing setbacks in an efficient and positive way.



ECOADVANCED BATTERIES AND THE ROAD AHEAD

- None of this will work long-term without a level playing field.
- Adapting to a circular economy takes time.
- No two products are the same.
- No challenges are necessarily the same.
- Validation from the market / consumers is necessary – but not always available.



Today's Speakers – Q&A

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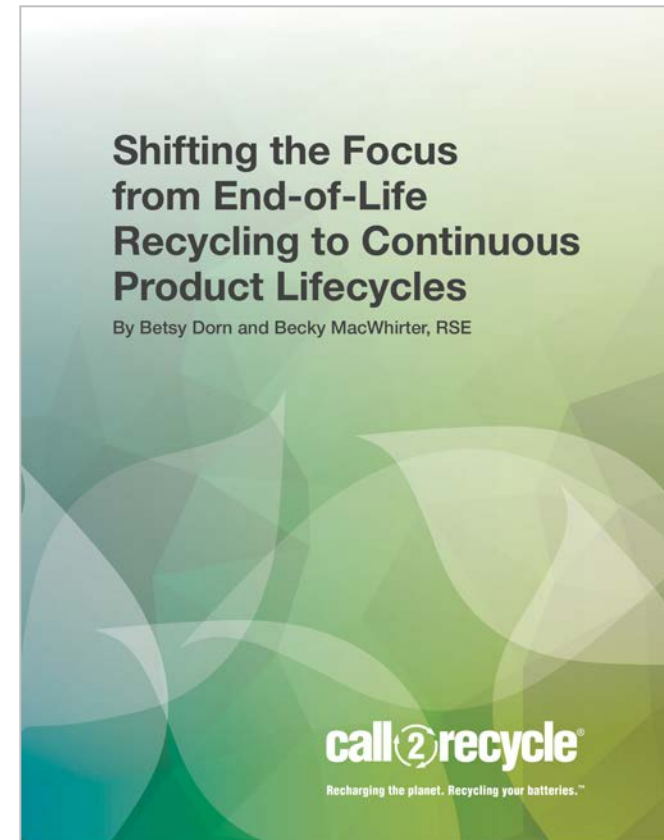
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ABOUT THE WHITE PAPER

To learn more about the circular economy, battery stewardship and other related topics discussed during this Webcast, please download the White Paper “*Shifting the Focus from End-of-Life Recycling to Continuous Product Lifecycles*,” available at: www.Call2Recycle.org/continuouslifecycles



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