

# REPORT ON BATTERY STEWARDSHIP

2014 Act 139, Section 2

Submitted to the  
House Committee on Natural Resources, Fish and Wildlife  
and Senate Committee on Natural Resources and Energy

**Prepared by:**

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## I. INTRODUCTION

In 2014, the Vermont Legislature passed a primary battery stewardship law. Section 2 of Act 139 of 2014<sup>1</sup> requires the Agency of Natural Resources to report by January 15, 2019 on:

- (1) “[Weight of Batteries Collected] the amount, by weight, of primary batteries and rechargeable batteries collected under approved primary battery stewardship plans;
- (2) [Percent “Non-covered” Batteries Collected] the percentage of collected batteries not covered by or attributable to a primary battery producer implementing an approved primary battery stewardship plan or participating in an approved primary battery stewardship organization; and
- (3) [ANR Battery Recommendations] recommendation for any amendments to the requirements of 10 V.S.A. chapter 168, including whether additional manufacturers of batteries or battery containing products should be required to implement primary battery stewardship plans.”

## II. SUMMARY OF PRIMARY BATTERY STEWARDSHIP PROGRAM



*Program Collection Box*

Vermont implemented its first battery stewardship program in 1991 for certain dry cell batteries including nickel cadmium, sealed lead acid and mercuric oxide batteries that are used for industrial, governmental or medical purposes. Shortly thereafter in 1994 a battery deposit program for all lead acid batteries from cars, trucks and boats including personal use was implemented. This battery deposit program allows consumers to recycle batteries at various retailers. It has made lead acid batteries the most recycled consumer product and has a national recycling capture rate of 99 %<sup>2</sup>. Other battery recycling programs have been phased in over the past 20 years for the various types of batteries in use. In 2014, Vermont became the first state to require manufacturers to fund recycling of single-use batteries, with the passage of the Vermont Primary Battery Stewardship Program. The law requires producers of primary batteries (non-rechargeable batteries) sold in Vermont to register with Vermont Department of Environmental Conservation (DEC) and provide a stewardship plan to manage the proper recycling and/or disposal of primary batteries. A Primary Battery is a non-rechargeable battery weighing

two kilograms or less, including alkaline, carbon-zinc, and lithium metal batteries. Producers may choose to submit an individual stewardship plan or participate in a shared stewardship plan. Currently,

<sup>1</sup> Act 139

<https://legislature.vermont.gov/assets/Documents/2014/Docs/ACTS/ACT139/ACT139%20As%20Enacted.pdf>

<sup>2</sup> EPA

[https://www.epa.gov/sites/production/files/201807/documents/2015\\_smm\\_msw\\_factsheet\\_07242018\\_fnl\\_508\\_002.pdf](https://www.epa.gov/sites/production/files/201807/documents/2015_smm_msw_factsheet_07242018_fnl_508_002.pdf)

producers who sell in Vermont participate under a shared stewardship plan implemented by the stewardship organization [Call2Recycle](#)<sup>3</sup> or they qualify for an exemption.

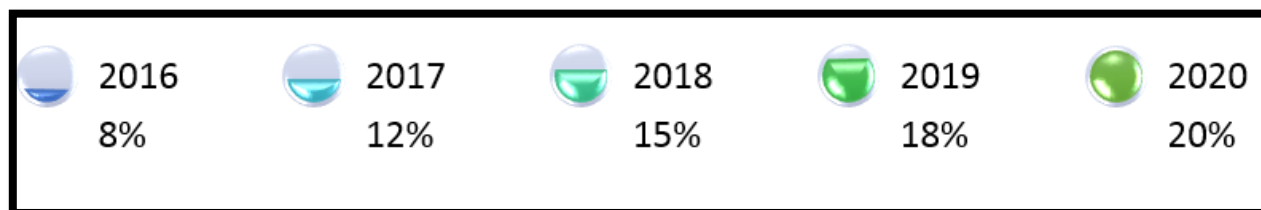
Call2Recycle implements both the primary (non-rechargeable) battery stewardship program mandated by Vermont law and the voluntary manufacturer-led rechargeable battery collection program that began with Nickel Cadmium rechargeable battery recycling in 1994. This allows for both types of batteries to be recycled at no cost to Vermont consumers at convenient drop-off collection locations throughout the state. There are 274 collection sites available in Vermont for battery recycling which offers 98% of Vermont residents and businesses access to a collection site within 10 miles of their home or business. Collection sites include pharmacies, hardware stores, town clerk offices, libraries, solid waste district offices, State of Vermont offices, solid waste transfer stations and Household Hazardous Waste facilities.

The primary battery stewardship program is funded by battery producers who pay fees to the stewardship organization, Call2Recycle, based upon their Vermont sales. Call2Recycle implements the program including the collection, shipment, management and recycling of batteries, outreach and education materials, and training for collection sites. The Primary Battery Stewardship Plan (plan), prepared by Call2Recycle and approved by the VT DEC, meets all requirements of statute, including a primary battery collection rate performance goal that must be met each year.

As outlined in statute, the collection rate is calculated using the following formula:

$$\frac{\text{The total weight of the primary batteries that are collected during each calendar year}}{\text{The average annual weight of primary batteries estimated to have been sold in the State by participating producers during the previous three calendar years}}$$

In order to establish a collection rate performance goal, Call2Recycle compiled collection data from other mandatory primary battery stewardship programs and the previous three years of sales data from participating producers. These other programs showed that it took six years to achieve a 25% collection rate of primary batteries which led to an expectation that it would take approximately five years to achieve a 20% collection rate by the end of the five-year plan term (2020). The figure below shows Call2Recycle’s annual five-year collection rate goals for Vermont’s primary battery collections:



More details about the collection rates are outlined in the Call2Recycle [stewardship plan](#).<sup>4</sup>

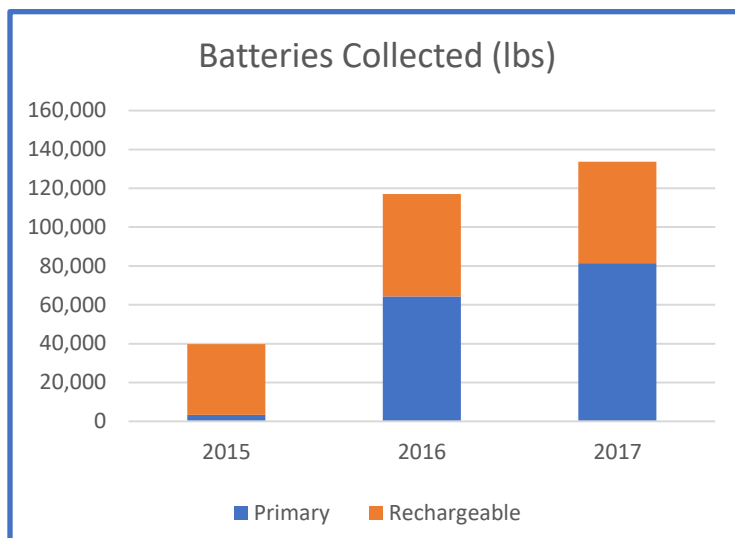
### III. WEIGHT OF BATTERIES COLLECTED

Since the primary battery stewardship program began in January 1, 2016, it has collected 145,747 pounds of primary batteries and 104,855 pounds of rechargeable batteries as of December 31, 2017.

<sup>3</sup> Call2Recycle <https://www.call2recycle.org/vermont/>

<sup>4</sup> Call2Recycle VT Primary Battery Stewardship Plan [https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/Primary%20Battery%20Plan-VT\\_FINAL-Revised\\_11.2016.pdf](https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/Primary%20Battery%20Plan-VT_FINAL-Revised_11.2016.pdf)

Additionally, Call2Recycle has met the required performance goal of 8% collection rate for 2016 (an actual collection rate of 9.4% was achieved) and 12% for 2017 (an actual collection rate of 13% was achieved). This is evidence that the implementation of the primary battery stewardship law has significantly increased collection and recycling of both primary and rechargeable batteries.



Part of the program’s success is due to the work of Vermont’s Solid Waste Management Entities (SWMEs) who have partnered with Call2Recycle to organize collection at their transfer stations, towns offices, local retailers and special collections and have assisted in program promotion. SWMEs have reported positive feedback on working with Call2Recycle.

The collection, management and recycling of batteries has been convenient for both collection sites and Vermonters needing to recycle their batteries. However, some of the SWMEs have suggested that outreach and education strategies should be improved. Call2Recycle has made consistent efforts to promote battery collection and recycling statewide via various methods of outreach and education including the use of social media, radio ads, newspaper ads, bus ads and signage at facilities and retail locations. Surveys conducted by Call2Recycle in the Fall of 2017 show that 68% of Vermonters knew that batteries could be recycled and 53% had recycled batteries in the prior 12 months. Call2Recycle would like to see greater awareness and is considering other methods to encourage more Vermonters to recycle their batteries and divert them from the landfill.

#### IV. PERCENT “NON-COVERED” BATTERIES COLLECTED

Call2Recycle reported that during 2017, 4.5% of the primary batteries collected were from producers not participating in an approved primary battery stewardship plan. Call2Recycle conducted periodic sorts of primary batteries collected as required by statute in order identify brands that have been sold in the state that are not participating in the program. They audited approximately 6,000 pounds of collected primary batteries and found that 95% by weight of the primary battery brands are participating in the stewardship program and 4.5% by weight are not. In addition, 0.5% by weight have received exemptions from ANR.

Based on the sort data reported by Call2Recycle, ANR does not recommend changes to statute requiring manufacturers of batteries contained within products to participate in a primary battery stewardship plan or implement their own. Inclusion of primary batteries contained in products would require increased ANR staff time and resources to monitor compliance of potentially hundreds of manufacturers for only modest program benefit. This small percentage of batteries collected of brands not participating in the program does not warrant such changes to the program which would require significant increase in ANR oversight.

All data can be found in the 2017 Primary Battery Stewardship Program [Annual Report](#).<sup>5</sup>

<sup>5</sup> Call2Recycle Annual Report <https://www.call2recycle.org/vermont/>

## V. ANR BATTERY RECOMMENDATIONS

Act 139 of 2014 requires the Agency of Natural Resources to provide a “recommendation for any amendments to the requirements of 10 V.S.A. chapter 168, including whether additional manufacturers of batteries or battery containing products should be required to implement primary battery stewardship plans.”

After consideration of impact and changes in types of batteries on the waste stream and discussions with various stakeholders, ANR has the following recommendations.

**1. Add Batteries Used in a Medical Device if principally designed and marketed to consumers for Personal Use to the Primary Battery Stewardship Program:** ANR recommends modifying the definition of “primary battery” to include personal use batteries such as hearing aid, and other batteries used in personal medical devices which require frequent battery replacement by the consumer. Currently, these batteries are exempt as a “battery used in a medical device as that term is defined in the federal Food, Drug and Cosmetic Act 21 U.S.C. §321(h).” Personal Use Medical Device batteries are generally alkaline, lithium and carbon zinc button cell batteries that are easily and routinely replaced and can be conveniently collected by this primary battery stewardship program. From 2006 through 2016, ANR partnered with other organizations in VT to conduct a successful collection program for the recycling of button cell batteries at pharmacies and doctors’ offices. This convenient collection program continues under the primary battery stewardship program. In addition, these batteries are button cell batteries that could be sold for purposes other than for use in a medical device. Battery manufacturers, Call2Recycle, and solid waste management entities support this recommended change.

**Recommendation:** Modify the exemption in 10 V.S.A. §7581 (10) (D) as follows: “a battery that is ~~used~~ used in a medical device, as that term is defined in the federal Food, Drug and Cosmetic Act 21 U.S.C. §321(h), as may be amended, provided that the device is not designed and marketed for sale or resale principally to consumers for personal use.”

**2. Add Batteries Intended for Industrial, Business-to-Business, Warranty or Maintenance services, or Nonpersonal Use to the Primary Battery Stewardship Program:** ANR recommends modifying the definition of “primary battery” to include industrial and business to business batteries such as batteries sold directly to institutions for use in electronic soap dispensers, automatic faucets and doors and other industrial use products where the battery is easily and routinely replaced. Industrial use batteries may include but not be limited to lithium, alkaline or carbon zinc. Data provided by the stewardship organization shows that approximately 8.6% of the batteries sold fall into this category and those batteries can be recycled through the primary battery stewardship program. Battery manufacturers, Call2Recycle, and solid waste management entities support this recommended change.

**Recommendation:** Delete the exemption in 10 V.S.A. §7581 (10) (A) as follows “~~batteries intended for industrial, business to business, warranty or maintenance services, or nonpersonal use;~~”

**3. Battery Disposal Ban:** To reduce fire hazards posed by certain battery types and increase safe management and recycling of all batteries, ANR recommends expanding the lead-acid battery landfill disposal ban under 10 V.S.A. § 6621a to include all battery types. The draft 2018 Waste Composition Study indicates that 492,000 pounds of primary batteries and an additional 12,000 pounds of rechargeable batteries were disposed in 2017 in VT. Call2Recycle, solid waste management entities and solid waste facility owners/operators support this recommended change.

**Recommendation:** Modify 10 V.S.A § 6621a as follows: **Landfill disposal requirements.** “(a) In accordance with the following schedule, no person shall knowingly dispose of the following materials in solid waste or in landfills: (1) ~~Lead-acid~~ batteries, after July 1, ~~1990~~ 2019.”

ANR intends to add the VT Hazardous Waste Regulations definition of “battery” to the Solid Waste Rules as follows: “All batteries defined as a device consisting of one or more electrically connected electrochemical cells which is designed to receive, store and deliver electric energy. An electrochemical cell is a system consisting of an anode, cathode, and an electrolyte, plus such connections (electrical and mechanical) as may be needed to allow the cell to deliver or receive electrical energy. The term battery also includes an intact, unbroken battery from which the electrolyte has been removed.”

**4. Collection Rate Performance Goal:** To increase battery collection and consumer participation, the producers and the stewardship organization must commit to offering convenient and accessible collection options that are well promoted through various types of outreach and education strategies. In order to encourage this commitment, ANR proposes that if collection rate performance goals are not met by the producers and the stewardship organization, then the producers and stewardship organization will be required to conduct additional outreach or improve program accessibility. Solid waste management entities support this recommended change.

**Recommendation:** Modify 10 V.S.A. § 7585 as follows: “In the event a producer or primary battery stewardship organization does not meet the annual collection rate performance goal, then the producer or battery stewardship organization shall be required to conduct more outreach, provide additional educational materials, or improve collection accessibility, as determined by the Secretary of ANR.”

### Types of Primary Batteries

Battery Types	Uses	VT Disposal Ban	Collected Under Primary Battery Stewardship Program	Hazardous Waste <sup>2</sup>
Alkaline	flashlights, toys, smoke alarms	no	yes	no
carbon zinc, zinc air, zinc chloride	hearing aids, toys, novelty items	no	yes	no
lithium metal	flashlights, toys, smoke alarms	no	yes	yes
Mercuric Oxide and Mercury Containing Batteries	old hearing aids(mercury not used in U.S. batteries since 90s.), novelty items mftered outside of U.S.	only for non consumer	yes	yes

### Types of Rechargeable Batteries

Battery Types	Uses	Current Disposal Ban	Collected Under Voluntary Stewardship Program for Rechargeable Batteries	Hazardous Waste <sup>2</sup>
Large Lead Acid <sup>1</sup>	cars, motorcycles, boats, large toy cars	yes	no	yes
Small sealed lead acids (under 25 pounds)	UPS back ups, toys	yes	yes only under 11 pounds	yes
Nickel cadmium	power tools, digital cameras, cordless phones	yes	yes	yes
Large lithium ion(over 25 pounds)	electric bikes, solar back up, hybrid and electric cars	no	no	yes , fire hazard
Lithium ion (under 25 pounds)	toys, cell phones, lap tops	no	yes only under 11 pounds	yes, fire hazard
Large nickel metal hydride(over 25 pounds)	hybrid and electric cars(older models)	no	no	yes
Small nickel metal hydride(under 25 pounds)	power tools, digital cameras, cordless phones	no	yes only under 11 pounds	yes

<sup>1</sup> The retailers of large-lead batteries operate a battery deposit program.

<sup>2</sup> Certain types of batteries may qualify as Hazardous Waste when coming from a regulated generator. Households are exempt from the definition of regulated generator.