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Implementing Product Stewardship in Maine 2015

Maine Bureau of Remediation and Waste Management

Maine Department of Environmental Protection

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Report to the Joint Standing Committee on Environment
and Natural Resources
127th Legislature, First Session

Implementing Product Stewardship in Maine

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Executive Summary

The Maine Department of Environmental Protection (Department) is submitting this report in accordance with 38 M.R.S.A. § 1772(1), which requires the Department to provide an annual update on the performance of existing product stewardship programs, as well as product or product categories that when generated as waste may be appropriately managed under a product stewardship program.

From 1992 to 2013, Maine enacted six laws that require producers to establish collection and recycling programs for dry mercuric oxide and rechargeable batteries, mercury auto switches, electronic waste, mercury thermostats, mercury lamps, and architectural paint. In addition, Maine also has a product stewardship law for cellular telephones; that law makes retailers responsible for the collection and recycling of unwanted cell phones rather than the manufacturers.

The following trends have been observed under the existing programs:

- Collection rates for covered products have varied since each program began, but have generally increased following program inception.
- Rechargeable battery collection rates increased 31% since 2009.
- The amount of consumer electronics collected reached the highest levels in 2013 since the program began in 2006
- Mercury-added lamp collection also reached the highest levels since program inception in 2011.
- The amount of mercury auto switches and mercury thermostats declined in 2013.
- The market for used cellular telephones remains robust, with so many participants that collection rates cannot be measured, indicating that the government mandated recycling program for unwanted cell phones is unnecessary to drive recycling and could be repealed.

The Department will review product stewardship program plans for architectural paint in 2015, and will continue to support voluntary efforts to divert post-consumer carpet and other products from landfilling.

I. Introduction

The product stewardship programs at the Department of Environmental Protection are defined at 38 M.R.S.A. § 1771(5), as “producer’s taking responsibility for managing and reducing the life cycle impacts of the producer’s product, from product design to end-of-life management,” in order to support the State’s solid waste management hierarchy (38 M.R.S.A. § 2101). This hierarchy prioritizes the management of solid waste, through various actions, the highest being reduction in volume and toxicity of waste at the source to the lowest being land disposal of waste. Product stewardship, which also may be referred to as “extended producer responsibility,” shifts the cost of the end-of-life management of products from municipalities and taxpayers to the producers and the consumers who purchase the products that are included in that program.

Product stewardship programs can be an effective tool to encourage the diversion of materials from disposal to recycling, and to encourage manufacturers to alter product design to support the recovery of materials from the products, and to invest in management systems to ensure the recycling of their products at the end of life. This reduces the costs of recapturing commodity materials from products, and ideally results in a positive commodity value when products reach the end of their useful life. As the concept of product stewardship has become more familiar, manufacturers of some products are proactively developing preferred model programs for recycling their products.

In accordance with 38 M.R.S.A. § 1772(1), this report includes updates and evaluations on the performance of Maine’s existing product stewardship programs, focusing on data from the last five years, with recommended next steps to improve program performance and evaluation. The report also addresses future product strategies under development.

II. Performance of Existing Product Stewardship Programs

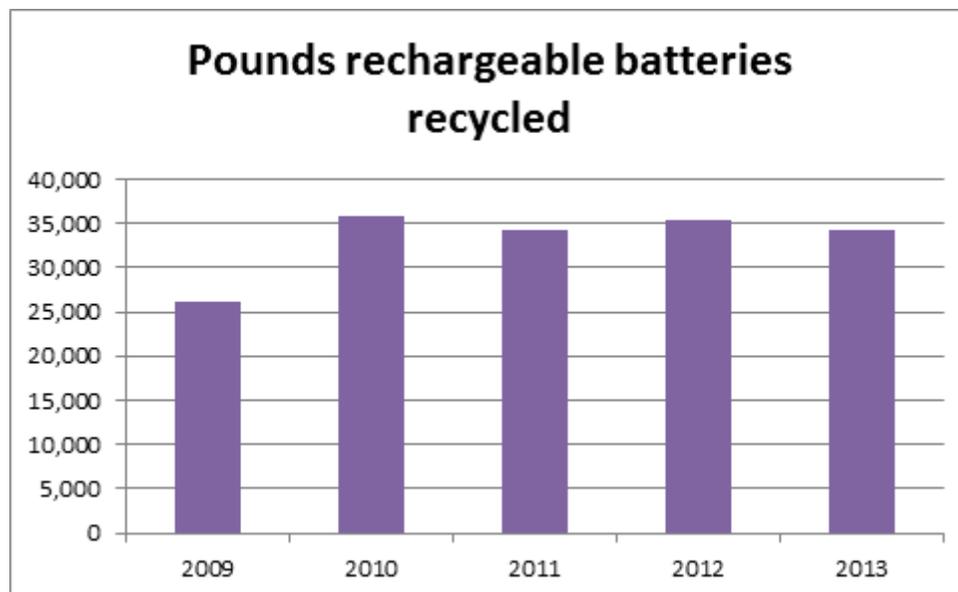
From 1992 to 2013, Maine enacted six laws that require producers to establish collection and recycling programs for dry mercuric oxide and rechargeable batteries, mercury auto switches, electronic waste, mercury thermostats, mercury lamps, and architectural paint. In addition, Maine also has a product stewardship law for cellular telephones; that law makes retailers responsible for the collection and recycling of unwanted cell phones rather than the manufacturers.

A. Rechargeable batteries program performance

In the early 1990’s, several states enacted laws requiring rechargeable battery manufacturers to provide a system for the recycling of nickel-cadmium and sealed lead acid rechargeable batteries, including Maine ([38 M.R.S.A. § 2165](#)). The rechargeable battery manufacturers established the non-profit Rechargeable Battery Recycling Corporation (RBRC), now known as Call2Recycle (C2R) to fulfill their legal obligations. C2R’s program is a revenue positive enterprise, so it provides containers for collecting and shipping collected rechargeable batteries at no cost upon request. C2R annually provides the Department with Maine specific data on the numbers and types of collection sites (business, retail, manufacturing, government) registered with their program as well as the amount of rechargeable batteries recycled from each. The amount of batteries collected and

recycled by C2R from Maine increased from 26,193 pounds in 2009 to 34,337 pounds in 2013, remaining at a relatively stable amount over the past four years).

Figure 1 – Pounds Rechargeable Batteries Recycled



B. Mercury auto switches program performance

Maine law established a mercury auto switch recycling program in 2001. In 2003, American automakers discontinued the use of elemental mercury in convenience light, automatic braking system, and active ride control system switches. The National Vehicle Mercury Switch Recovery Program (NVMSRP) received funding to operate through 2022 from a U.S. Bankruptcy Court Order¹.

The NVMSRP is administered by End-of-Life Vehicle Solutions (ELVS), a non-profit stewardship organization established by the mercury auto switch manufacturers to manage both their required and voluntary mercury switch recycling programs throughout the U.S. ELVS provides auto dismantlers with free buckets, shipping and recycling for all collected switches, and pays the incentives to the dismantlers as required by Maine law ([38 M.R.S.A § 1665-A](#)). ELVS provides Maine DEP with quarterly reports and access to monthly reports on the number of mercury auto switches turned in for recycling from identified locations in Maine.

Pounds of mercury collected from switches in Maine reached its second highest level in 2012 since program inception, then declined significantly in 2013.

¹ *Stipulation and Agreed Order entered 6/29/11 by Motors Liquidation Company GUC Trust and 12 states, entered into through the U.S. Bankruptcy Court Southern District of New York.*

Table 1 - Mercury Auto Switch Recycling 2009 -2013

Year:	Number of switches recycled	Percentage of estimated number of switches available	Pounds of Mercury collected
2009	6868	33%	15
2010	5685	27%	13
2011	2236	12%	5
2012	7139	40%	16
2013	1647	11%	4

Along with furnishing a very convenient collection system, ELVS provides the dismantlers with training videos (via YouTube), listings of vehicles with mercury switches and ABS sensors, and photo-based guidance documents showing where to find and how to remove the switches. In addition, the Department has sent postcards to vehicle dismantlers to remind them about the ELVS program, the availability of payment for switches recycled, and to send their mercury switches in for recycling. Also, staff from the Department's Response Services, Hazardous Waste Enforcement, and Stormwater Management programs, all check on the auto dismantlers' implementation of the switch collection program when they visit auto dismantlers' yards on business related to their respective programs.

C. Electronic waste program performance

Maine's legislated extended producer responsibility (EPR) program for certain covered electronic devices (CEDs) began in 2006 for households, and for K-12 schools and businesses with 100 or fewer employees in 2011 (see [38 M.R.S.A. § 1610](#)). CEDs include consumer products with video displays greater than 4" diagonal (TVs, monitors, laptops, digital picture frames, tablets, e-readers), game consoles and desktop printers. In addition to the CEDs recycled through the EPR program, some CEDs as well as other electronics from Maine are recycled through independent programs or in conjunction with the EPR program. In 2010, Goodwill and Dell began accepting computer-related electronics through their ReConnect program at all Goodwill locations in Maine. Both Best Buy and Staples have instituted free electronics recycling at their retail locations. Table 2 shows the total and per capita weights of electronics recycled each year from 2009 through 2013, plus voluntarily reported weights recycled from other programs.

Table 2 - Electronic Waste Recycling in Maine

	Maine Program - total pounds	Maine Program Per Capita	Goodwill-Dell ReConnect - pounds	Other non-program e-waste	Total pounds reported	Total Pounds Per Capita
2009	7,912,292	5.99	N/A	Not reported	7,912,292	5.99
2010	5,368,467	4.06	1,151,997	Not reported	6,520,464	4.93
2011	6,931,248	5.24	1,160,233	Not reported	8,091,481	6.12
2012	7,310,495	5.62	989,819	1,253,748	9,554,062	6.57
2013	8,218,434	6.19	1,462,587	2,017,233	11,698,254	8.81
Totals	41,015,355	--	4,764,636	3,270,981	49,050,972	--

The amount of electronic waste collected in Maine for recycling continued to increase, with the highest amounts achieved in 2013 since the program began. Maine’s overall collection and recycling rate of 8.81 pounds per person in 2013 compares favorably with data reported by other states, with only a few other states reporting a higher per capita rate (see data collected by the Electronics Recycling Coordination Clearinghouse at www.ecycleclearinghouse.org/Content.aspx?pageid=59).

D. Mercury-added thermostat program performance

38 M.R.S.A. §1665-B, Maine’s *Mercury-added Thermostats* law, was enacted in 2005 to establish extended producer responsibility for the collection and recycling of mercury-added thermostats. This law requires that the program be designed and implemented to achieve a maximum rate of collection [38 M.R.S.A. § 1665-B(2)(A)(1)], and it sets collection and recycling goals by weight, of at least 125 pounds of mercury within two years of implementation of a collection program for contractors and service technicians, and 160 pounds per year within three years of implementation of a program for homeowners. The law also requires manufacturers to “provide a financial incentive with a minimum value of \$5 for the return of each mercury-added thermostat”. In the program’s beginning, collection rates were below 10%, despite the availability of collection boxes at all HVAC wholesalers.

In 2007, the Thermostat Recycling Corporation (TRC), a non-profit organization that facilitates and manages the collection and proper disposal of mercury-containing thermostats, began implementation of the incentive program, where five dollars was provided to the deliverer of each mercury containing thermostat at a collection point, with HVAC wholesalers continuing participation as mandatory collection sites; voluntary retail participation to serve residents began in 2008.

Estimated recycling rates in 2013 declined to 17.65%, from a steady rate of approximately 25% since rates peaked in 2009. The Department does not have data on the actual number of mercury-added thermostats still available for collection, and only has estimates of the number that would be removed each year in Maine. Recycling rate estimates are based on an estimated 27,200 mercury thermostat removals per year in Maine.

Table 3 – Mercury Thermostat Recycling Rates

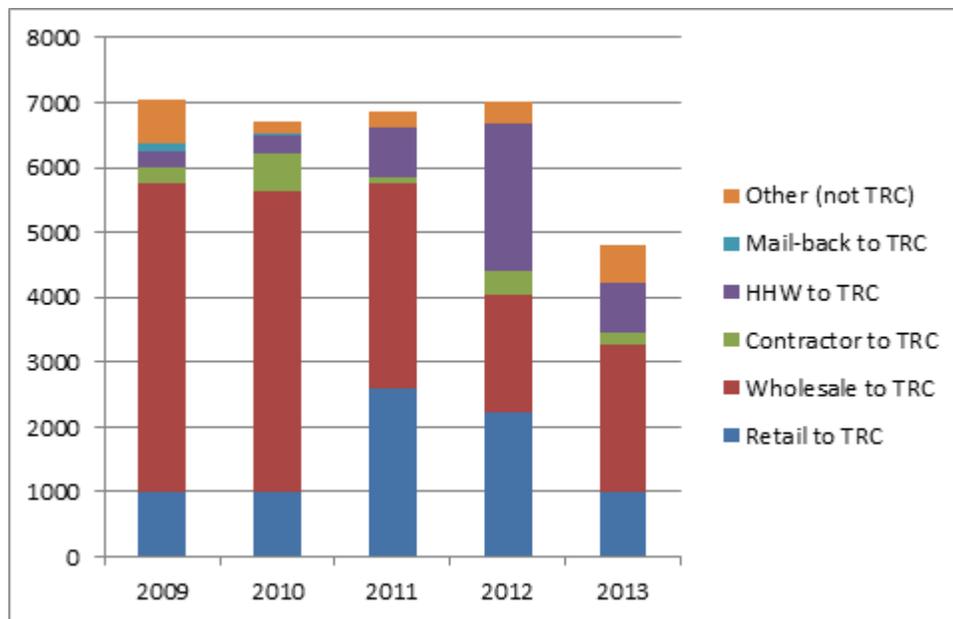
	2009	2010	2011	2012	2013
Number of t-stats	7029	6693	6872	7012	4802
Recycling rate	25.84%	24.6 %	25.26%	25.78%	17.65%

The 2014 [Implementation of Product Stewardship in Maine](#) report includes a discussion of the uncertainty in the numbers used to establish the statutory recycling goals and the estimated number of mercury thermostats available for recycling.

The *Mercury-added Thermostats* law also requires manufacturers to “provide a financial incentive with a minimum value of \$5 for the return of each mercury-added thermostat.” Thermostats can be

returned via the TRC program at wholesalers (any wholesaler that primarily sells heating, ventilation and air conditioning equipment to contractors is required to act as a collection site for mercury thermostats) and some contractors, as well as at voluntary retail and municipal locations (designated as “HHW” – household hazardous waste collection sites). In addition, the Department receives data from hazardous waste manifests on mercury thermostats recycled outside of the TRC program. Figure 2 shows thermostat collection numbers by collection site type.

Figure 3 – Thermostat Collections by Site Type



In 2012, there was a significant increase in the number of thermostats turned in through municipal household hazardous waste (HHW) collections. It appears that this increase was primarily due to a temporary program in which *ecomaine* (a non-profit waste management company owned and operated by 21 municipalities in Southern Maine) supplemented the TRC \$5 incentive with an additional \$5 incentive (providing a \$10 incentive) for each mercury-added thermostat turned in to their facility in Portland. In 2013, TRC undertook a national outreach and education campaign aimed at contractors.

E. Mercury-added lamps program performance

Manufacturers of mercury-added lamps utilize the National Electrical Manufacturers Association (NEMA) to implement their product stewardship responsibilities for household mercury-added lamps. This program provides free containers, shipping and recycling services to voluntary retail and municipal collection sites.

NEMA reports that 97,743 mercury-added lamps were recycled through its product stewardship program in Maine in 2013. Based on historic sales data, NEMA estimates that there were 844,576 residential mercury-added lamps available for recycling in Maine in 2013. Based on that estimate, 11.6% of available lamps were collected and returned for recycling through the manufacturers’ program in 2013, compared to 7.1% in 2012.

Table 4 – Household Mercury-added Lamp Recycling Rates

	# NEMA collection sites	# lamps recycled by NEMA	# lamps recycled by others	# lamps available for recycling	household lamp recycling rate
2011	149	6,634	163,196	688,000	24.68%
2012	263	50,492	155,159	708,889	29.01%
2013	293	97,743	149,191	844,576	29.24%

Municipal collections sites utilizing the NEMA program have indicated they find the program easy to use and appreciate the cost savings it provides to them.

In the fall of 2013, NEMA contracted with *Critical Insights*, a market research firm in Portland, to conduct a consumer awareness survey. This survey revealed that 47% of Mainers polled knew they could recycle their light bulbs, but 58% responded that they threw their light bulbs away. In 2014, NEMA continued a coordinated marketing campaign to educate Maine consumers on their free recycling program and about the disposal ban on fluorescent light bulbs. This included: print ads in *Uncle Henry's*, *Downeast Magazine*, *Bangor Daily News*, *Portland Press Herald* and some local weeklies; distribution of a radio public service announcement (PSA) to 95 area-specific radio stations; internet ads based on terms searched; and an expansion of its print, signage, and live read broadcasts advertising at University of Maine Black Bear sporting events.

F. Cell phone recycling program performance

The recycling of cellular telephones is encouraged in Maine by a product stewardship law. However, unlike other product-specific programs, the law assigns recycling requirements to retailers and reporting requirements to cellular telephone service providers, rather than producers.

Continuing a long-term trend, unwanted cell phones have market value, and a free collection system, offered by retailers and varying organizations, for recycling cell phones is very widespread in Maine. The collection network includes 100 locations offered by the five cellular telephone services providers and their authorized dealers and 675 additional sites offering the Call2Recycle® program (371 retail and 304 municipal, public agency and business locations, including many local solid waste and recycling facilities). Retailers utilizing the Call2Recycle® program include several of the larger retail chains (Rite Aid, RadioShack, Best Buy and Wal-Mart).

In addition to these physical collection sites located across the state, there are many internet-based non-profit organizations soliciting donations of cell phones, as well as for-profit businesses offering to purchase cell phones from consumers. A quick Google search for “cell phone recycling for cash” finds over 2 million “results” and 11 paid advertisers on “page 1” offering to buy cell phones directly from consumers. The strength and success of these various programs in capturing unwanted cell phones should be celebrated, and indicates that, due to the robust recycling opportunities available through the private sector, the government mandated recycling program for unwanted cell phones could be repealed.

Although the collection network in Maine is robust, data are not available to develop a quantitative assessment of program performance, i.e., a recycling rate. The plethora of internet outlets for the recycling of cell phones makes it infeasible to collect complete and accurate data on the number of cell phones recycled from Maine each year. Consistent reporting to the Department by the cellular telephone service providers over the past six years highlights their commitment to making cell phone recycling easy and even financially beneficial for their customers. However, this reporting provides limited useful data as cellular phone service providers are only one commonly used outlet for cell phone recycling.

III. Evaluation of the Performance of Maine's EPR Programs and Recommendations

The Department is required to report annually to the legislature on the performance of Maine's product stewardship programs, and include any recommendations for improvements to the programs. Recommendations for improvement may be warranted when there is evidence that a program is underperforming.

A. Rechargeable Batteries Program

The rechargeable battery recycling program has established a robust collection system, but there is insufficient information to accurately assess actual program performance, i.e., what percentage of batteries available for recycling are collected each year?

The first step needed to understand how much change, if any, is needed in the current EPR program for rechargeable batteries is to gather additional information on program performance. Missing key performance indicators include the collection rate (number of batteries collected/number of batteries available for collection), recovery rate (amount recycled/amount collected), and recycling rate (collection rate x recovery rate). The Department is evaluating options for obtaining and/or estimating these data points, and may provide recommendations in the future.

B. Mercury-Added Thermostats

The mercury-added thermostat program has not achieved the statutory capture rate in pounds. In the 2014 [Implementation of Product Stewardship in Maine](#) report, the Department identified the uncertainty in both the average number of mercury-added thermostats available for recycling each year (this is determined based on the average lifespan) and in the number of thermostats in each home and business.

An independent survey is now being conducted in Maine to estimate the current number of mercury thermostats still available for recycling, which could inform future program assessments and recommendations.

C. Cell Phones

Maine has a robust collection network for used cell phones provided in large part by voluntary participants. Used cell phones have sufficient market value to effectively incentivize their collection and recycling. The Department recommends the Legislature repeal the unnecessary requirements of [38 M.R.S.A. §2413](#), which add administrative burdens to the Department to ensure compliance, and to track and report on publicly available data.

IV. Future Product Strategies

A. Architectural Paint

P.L. 2013, ch. 395 directs manufacturers of architectural paint to work with a stewardship organization to submit a program plan to the Department by April 1, 2015, to establish a paint stewardship program in Maine. ([38 M.R.S.A. § 2144](#)). This law also authorized the Department to conduct rulemaking as needed to allow for collection of some paint otherwise regulated as hazardous waste. The Department posted proposed changes to the hazardous waste rules on September 17, 2014 to allow oil-based paint from businesses to be treated as universal waste, and expects to complete the rule-making process in February 2015.

PaintCare, a non-profit organization established by the American Coatings Association, implements product stewardship programs on behalf of paint manufacturers in 6 states. In preparation for submitting a proposed program plan in Maine, PaintCare reached out to municipalities to integrate the PaintCare recycling program into municipal household hazardous waste collection programs.

B. Carpet

In the Department's 2013 [Implementation of Product Stewardship in Maine](#) report, the Department identified carpet as a difficult to manage product to focus future diversion strategies on. During 2014, the Department participated in a regional meeting of representatives from state agencies, local solid waste and recycling programs, retail associations and the Carpet America Recovery Effort ([C.A.R.E.](#)), and initiated two meetings to discuss carpet stewardship efforts in Maine with representatives of carpet manufacturers, distributors, and handlers of post-consumer carpet.

Current efforts to divert carpet waste from landfills include carpet suppliers in Maine working with Maine's waste-to-energy facilities, and the installation of equipment at a cement manufacturing facility to replace some fuel with carpet recycling by-products. In addition, carpet sales and installation companies in Maine have agreements with some supplying manufacturers to return a select portion of used carpet to the manufacturers for recycling.

To encourage increased carpet recycling, Department staff presented information on the economics and available outlets for carpet recycling in Maine at a workshop for solid waste facility managers and operators. Staff also provided input into a successful grant application by the Product Stewardship Institute to develop best management practices for rural waste management facilities to

collect carpet for recycling. In 2015, the Department will continue to facilitate the growing connections between carpet manufacturers, installers and recyclers, and Maine's waste transfer and processing facilities to encourage and support increased carpet recycling. The Department will also continue to work with regional partners to develop practical guidance for collection sites to ensure the maximum quality and value of carpet collected for recycling, and will consult with the Division of Purchases on environmentally preferable purchasing of carpet that meets minimum recycled content specifications.

C. All consumer batteries

The Department regularly receives inquiries on how to recycle consumer batteries. In recent years, the major manufacturers of single-use batteries have explored implementing a product stewardship program for their products that could be operated similarly to the rechargeable battery recycling program implemented by Call2Recycle. A product stewardship law on single-use batteries was adopted in Vermont in 2013, and legislation is expected in Connecticut in 2015. The Department will continue to monitor efforts in other states and evaluate opportunities to increase battery recycling in Maine.

V. Conclusion

Maine continues to have one of the highest number of product stewardship programs established by law in the country. Information collected by and reported to the Department under these programs indicates they are successfully diverting materials from disposal in Maine, and that diversion rates are increasing for many of the affected products.

The Department will continue efforts to update information regarding the numbers of rechargeable batteries in Maine's market, and will evaluate new information as it becomes available to estimate the number of mercury-added thermostats that are removed and available for recycling in Maine each year.

The Department will complete the rule-making needed to allow for collection of oil-based architectural paints under a stewardship program, and will continue to work with manufacturers to support voluntary product stewardship efforts for the recycling of carpet.