Report to the Joint Standing Committee on the Environment and Natural Resources

Annual Product Stewardship Report

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I. Introduction

This report is prepared in accordance with Maine's *Product Stewardship Law*, 38 M.R.S. §§ 1771-1776, which directs the Department of Environmental Protection ("Department") to develop an annual report for the Legislature evaluating Maine's product stewardship programs. Product stewardship is a public policy approach that can be used by governments and businesses to minimize the negative impacts of products and packaging throughout their lifecycle. Manufacturers (a.k.a. producers) have the greatest influence over the life-cycle impacts of their products, starting with material sourcing and design, although distributors, retailers and consumers also have a role. Product stewardship laws that mandate some level of manufacturer (producer) responsibility for proper product management at the end-of-life are known as extended producer responsibility ("EPR") laws. EPR relieves the public sector of some of the burden of managing products at their 'end of life'.

P.L. 2019, ch. 227, *An Act To Implement Recommendations of the Department of Environmental Protection Regarding the State's Product Stewardship Program Framework Laws*, strengthened the State's product stewardship program framework laws based on recommendations included in the Department's annual report on the State's product stewardship programs. The Department anticipates that new program elements incorporated into the framework will significantly improve the quality and performance of new product stewardship programs implemented in Maine.

Maine currently has eight laws related to the end-of-life management of specific consumer products that may be considered to be product stewardship laws. Additionally, Maine has two product management laws that regulate the use of certain disposable products.

This report provides the Joint Standing Committee on the Environment and Natural Resources ("ENR Committee") with information concerning the performance of Maine's current product stewardship programs, as well as candidate products for future consideration. Maine's Product Stewardship framework law requires the Department to solicit and collect public comments on the content of the report for 30 days prior to submittal to the Legislature, and to append all comments received to the report. The Department is currently utilizing five full-time equivalent positions to implement these product stewardship and management programs and would require additional resources in order to take on responsibility for additional product categories.

II. Background

Maine's *Product Stewardship Law* ("Framework Law") 38 M.R.S. § 1772, establishes the following criteria for identifying products and product categories that when generated as waste may be appropriately managed under a product stewardship program:

A. The product or product category is found to contain toxics that pose the risk of an adverse impact to the environment or public health and safety;

B. A product stewardship program for the product will increase the recovery of materials for reuse and recycling;

C. A product stewardship program will reduce the costs of waste management to local governments and taxpayers;

D. There is success in collecting and processing similar products in programs in other states or countries; and

E. Existing voluntary product stewardship programs for the product in the State are not effective in achieving the policy of this chapter.

III. Candidate products for Stewardship Programs

A. EPR Bills considered by the 129th Legislature.

The following products were the subject of EPR bills considered by the ENR Committee during the 129th Maine Legislature. Most of these bills were not acted upon by the full legislature due to its early adjournment in March 2020 in response to the COVID-19 pandemic.

1) Pharmaceuticals

LD 1460 - *An Act To Support Collection and Proper Disposal of Unwanted Drugs,* would have established a drug-take back program in which producers pay for and manage collection and disposal of household pharmaceuticals. Pharmacies and other approved collection locations, which could include police departments, would have the ability to participate through the distribution of pre-paid mail-in envelopes, a drop-off kiosk, or other approved methods. The ENR Committee reported out this bill unanimously – Ought To Pass As Amended.

2) Packaging

LD 1431 - *Resolve, To Support Municipal Recycling Programs* directed the Department to develop legislation establishing an extended producer responsibility law for packaging. The Department provided recommendations for an EPR law and draft legislation at a briefing before the ENR Committee in early January 2020 which were incorporated into LD 2104 - *An Act To Support and Increase the Recycling of Packaging.* LD 2104 would have established a program in which packaging producers pay into a fund based on the amount of packaging material distributed in the State. The proposed program was designed to provide financial support to

municipalities for the cost of managing packaging waste, incentivize decreases in the volume and toxicity of packaging, and generally improve recycling outcomes in Maine, in part through investments in infrastructure and education. The Department would contract with a stewardship organization to administer the program. The bill was reported out of the ENR Committee with a divided report, with the majority voting Ought To Pass As Amended.

A large portion of the current municipal waste stream is comprised of various types of consumer packaging; much of it is not recyclable. Packaging that is readily recyclable has historically been managed to some extent through Maine's existing recycling system, which is a combination of public and private enterprises. However, shifts in international markets for recyclables during 2018 have shown the vulnerability of these programs to commodity price changes and the need for investment in recycling infrastructure. Stable funding provided by extended producer responsibility can mitigate high municipal costs and diversion of recyclables to disposal when material values drop, as occurred during 2018.[1] Low commodity values for recycled scrap, along with fewer market outlets for recyclables continue to pose financial barriers to recycling. An EPR program for packaging can provide incentives for producers to design for recycling, galvanize investment in Maine's recycling infrastructure, and relieve municipalities of much of the financial burden of dealing with this waste stream.

3) Consumer batteries

LD 1594 - *An Act To Establish a Stewardship Program for Consumer Batteries*, would have repealed and replaced the existing battery law which covers select rechargeable battery chemistries with an EPR law covering all consumer battery types, including primary batteries. This bill was reported out of committee – Ought Not To Pass.

The Department testified in support of the bill as consumer batteries meet all five criteria for product identification for Product Stewardship programs under the Framework Law. The existing battery law (*Regulation of certain dry-cell batteries;* 38 M.R.S. § 2165), requires manufacturers of nickel cadmium and small sealed lead acid batteries to provide recycling services for these batteries. New battery chemistries introduced since Maine's original battery law was passed in 1991 pose significant fire risks in the waste system[2] yet are not required to be recycled in Maine. Simplifying the process of battery recycling would reduce confusion and the related risk of improperly disposed batteries and is likely to greatly increase the rate of overall battery recycling.

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[1] The average value of a ton of single stream recycling in Maine, as tracked by the Maine Resource Recovery Association, fluctuated between a value of $20/ton to a cost of $30/ton between 2007 and 2017 before dropping to cost of more than $100/ton in 2018.

[2] See https://www.waste360.com/safety/april-2020-fire-report-how-why-do-lithium-ion-batteries-fail-insight-jedi-master-lithium.

An additional point to consider related to battery stewardship is that a thoughtful stewardship policy can encourage sustainable consumption of finite resources. There is a longevity issue with mass production of devices containing embedded batteries in that a device itself must be discarded and replaced when the battery is no longer rechargeable. Requiring a product's battery to be removable would allow the product to have a longer life span when reused, or when disposed, make removal of the battery for recycling easier.[3] Policies incentivizing production of devices with removable batteries would allow more consumers to either replace batteries themselves or enable them to affordably replace batteries through a professional service to maintain the product's longevity.

4) Mattresses

LD 710 - *Resolve, To Require the Department of Environmental Protection to Study the Establishment of a Product Stewardship Program for Mattresses* directed the Department to study the establishment of a new stewardship program for mattresses and report the findings of its study to the ENR Committee. The report was submitted for the ENR Committee's consideration in December of 2019. The Department concluded that recycling does not appear to be economically or environmentally beneficial at this time, and the most appropriate course of action is to proceed with field trials and pilot projects to address outstanding questions concerning waste mattress management, rather than implement a stewardship program.

5) Tobacco

LD 544 - *An Act To Create Extended Producer Responsibility for Post-consumer Waste Generated from the Use of Tobacco Products*, was a concept bill creating a tobacco stewardship program. A bill was ultimately reported out of Committee – Ought to Pass as Amended. The final bill did not create a stewardship program but amended the definition of "litter" (17 M.R.S. § 2263(2)) to include cigarette butts. The bill was signed into law on March 18, 2020.

6) Recycled content in plastic beverage containers

Although not a product stewardship bill, LD 102 - *An Act To Improve the Manufacturing of Plastic Bottles and Bottle Caps*, would have added design requirements to single-use plastic beverage containers. An original requirement for tethered caps was removed from the bill and the remaining language laying out a schedule for increasingly stringent requirements for post-consumer recycled content was given a divided report before dying upon conclusion of the curtailed 129th Legislature.

[3] See https://nahmma.starchapter.com/images/downloads/FLNAHMMA_Lithium_Batteries.pdf.

7) Single use plastic bags

Although not a product stewardship bill, LD 2148 - *An Act To Implement the Recommendations of the Department of Environmental Protection Regarding the State's Plastic Bag Reduction Law,* made changes to P.L. 2019, ch. 346 - *An Act To Eliminate Single-use Plastic Carry-out Bags,* which established a ban on single-use plastic carry-out bags used to bag products at the point of sale in retail establishments. This bill made changes to the language to facilitate implementation of the law with its original intent, clarifying the definition of a "Single-use carry-out bag". This bill was signed into law March 18, 2020.

B. Other previously identified products

The following products have been identified in previous Product Stewardship Reports as potential EPR candidates using the criteria outlined in Section II. The following is an updated summary of each product. Although the Department is not currently recommending product stewardship programs for these items, they have been identified as products of concern and may be comprehensively assessed by criteria outlined in the Framework Law as potential stewardship candidates in the future.

1) Carpet

Carpeting has been identified as a product of concern in past Product Stewardship Reports. Carpet consistently meets four of the five criteria listed in the Framework Law for identifying stewardship candidate products, and certain carpets meet the criterion of toxics in the product. Research shows that some carpets may contain brominated flame retardants,[4] which pose health concerns related to endocrine disruption, immunotoxicity, reproductive toxicity, and neurotoxicity.[5] In 2018, researchers also detected PFAS, or per- and polyfluoroalkyl substances at levels up to 25 parts per million in five out of 12 carpet products tested.[6] According to the U.S. Environmental Protection Agency, PFAS have been used in carpets since the early 1980s for their stain, soil, and grease-resistant properties.[7] A product stewardship program for carpet would increase the recovery of materials for reuse and recycling and reduce the costs of waste management to local governments and taxpayers. For a successful program, it is important to incentivize reuse as well as the use of recycled content.

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[4] *Environmental concentrations and consumer exposure data for selected flame retardants (TBB, TBPH, TBBPA, ATO),* Consumer Product Safety Commission, 2015.
[5] Gosavi RA, Knudsen GA, Birnbaum LS, Pedersen LC. 2013. Mimicking of estradiol binding by flame retardants and their metabolites: a crystallographic analysis. *Environ Health Perspect 121*(10):1194-1199.
[6] Columbus, C. (2018, December 13). *PFAS detected in carpets from several U.S. manufacturers.* Retrieved from https://www.eenews.net/stories/1060109571
[7] Dusaj 1988; U.S. EPA 2012

2) Gypsum wallboard

Gypsum wallboard, also known as drywall, plasterboard, or sheetrock, is composed primarily of $CaSO_4$ $2H_2O$ (calcium sulphate dihydrate). Although gypsum is not hazardous, landfill disposal of the material can result in the generation of hydrogen sulfide gas and subsequent odor issues and potential health impacts from hydrogen sulfide gas.[8] Due to the risks associated with landfilling of gypsum, it has been banned from landfill disposal in several jurisdictions, including a ban on landfill disposal of clean gypsum wallboard in Massachusetts[9] and reuse requirements as well as disposal restrictions in British Columbia and Europe[10]. More recently, an ordinance in Seattle set a requirement to separate gypsum from all construction and demolition projects for reuse.[11] There are strong environmental incentives to reduce landfill disposal, but a lack of economic incentives to recycle as well as a lack of access to recycling options in Maine, making gypsum a good candidate for product stewardship.

3) Solar panels

Product stewardship for photovoltaic ("PV") modules, commonly referred to as solar panels, meets all five criteria outlined in the Framework Law. Solar panels are made up of photovoltaic cells and semiconductors electrically connected in a module or panel.[12] Solar panels have an average lifetime of 25-30 years.[13] The overall proportion of waste to new installations is expected to increase over time from an estimated 4-14% in 2030 and up to more than 80% in 2050.[14] In 2020, the Department's Bureau of Land Resources' Natural Resources Protection Act ("NRPA") program has approved applications for over 5,000 acres of solar panel development. Proactively establishing EPR for solar panels would encourage companies to internalize recovery costs into current production and sales. In addition, the increasing volume of PV waste may improve economies of scale over time.[15] Including incentives for design are an important consideration to minimize impacts on the environment and increase efficient use of resources for production, collection, and recycling. However, there is a need for a balanced approach to

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[8] Northeast Waste Management Officials' Association. (2010). *Policy Options White Paper: Promoting Greater Recycling of Gypsum Wallboard from Construction and Demolition Projects in the Northeast.* Retrieved from http://www.newmoa.org/solidwaste/GypsumWallboardRecyclingWhitePaperFinal9-17-10.pdf

[9] See Massachusetts Guidance on Gypsum Wallboard: https://www.mass.gov/doc/gypsum-wallboard-waste-ban-guidance-cd-handling-facilities/download

[10] Waste Today. (2019, May 8) *NYC closes the loop on gypsum wallboard.* Retrieved from https://www.wastetodaymagazine.com/article/building-product-ecosystems-closed-loop-gypsum-wallboard-nyc

[11] Ibid.

[12] U.S. Energy information Administration. (n.d.). *Solar explained: Photovoltaics and electricity*. Retrieved from https://www.eia.gov/energyexplained/solar/photovoltaics-and-electricity.php

[13] Solar Energy Industry Association, *PV Recycling.* Retrieved from https://www.seia.org/initiatives/recycling-end-life-considerations-photovoltaics

[14] *Ibid.*

[15] *End-of-life management: Solar photovoltaic panels.* IEA-PVPS Report Number: T12-06:2016.

ensure any up-front or internalized costs for end-of-life product management do not inhibit progress in transitioning to renewable energy.

4) Household hazardous waste

Household hazardous waste ("HHW") is a term used to describe common household products that may exhibit the same characteristics of hazardous waste as defined in the Resources Conservation and Recovery Act but are exempt from the precautionary handling requirements under Subtitle C that apply to commercially generated hazardous waste.[16] This means that hazardous waste such as cleaning solutions, oils, and pesticides from households can generally be handled as if they were not hazardous and may be disposed of in the trash like any municipal solid waste. Pharmaceuticals and personal care products are just two examples of the variety of product categories that can include HHW. HHW products may catch fire, react, or explode or may be corrosive or toxic if not managed properly. These risks to human health and the environment underscore the importance of managing HHW cautiously. HHW meets four of the five criteria for product stewardship outlined in the Framework Law and has the potential to meet all five criteria if managed in such a way that products can be fully utilized through reuse programs.

IV. Existing programs' performance and recommendations

Based on reviews of Maine's eight product stewardship programs, the performance of each of the implemented programs is described below. The programs are listed in chronological order, beginning with the container redemption law, which was implemented in 1978, and ending with Maine's most recent stewardship program for architectural paint, which began in 2015.

A. Container redemption ("Bottle Bill," 1978) – 38 M.R.S. §§ 3101-3119

Maine's *Manufacturers, Distributors, and Dealers of Beverage Containers*, a.k.a. the "Bottle Bill" law has been under the purview of the Department since November 1, 2015. Previously, the program had been overseen by the Department of Agriculture since it was enacted in Title 22 in 1976, with the resulting beverage container redemption program originally implemented in 1978.

Consistent with recommendations in a report on the Bottle Bill program in May of 2018 by the Office of Program Evaluation and Government Accountability ("OPEGA") assessing the program, three bills were passed in 2019 that enacted multiple changes to the State's container redemption laws, as discussed in the 2020 Product Stewardship report. The Department is

[16] *Household hazardous waste (HHW).* Retrieved from https://www.epa.gov/hw/household-hazardous-waste-hhw.

continuing to act on OPEGA recommendations not addressed by the legislation. These include improvement of reporting requirements on container sales and redemptions and ensuring that all beverage containers collected through the program are recycled as is now required by law. In addition, changes recommended by the Department in LD 2172, *An Act To Implement the Recommendations of the Department of Environmental Protection Regarding the State's Container Redemption Law,* which was not reported out of committee, are being reintroduced in the Department's Omnibus bill, LR 132, *An Act To Make Minor Changes and Corrections to Statutes Administered by the Department of Environmental Protection.*[17]

The COVID-19 pandemic had a significant impact on Bottle Bill program operations throughout Maine. Due to initial concerns about spread of the virus, the Department paused enforcement on retailers and redemption centers for failing to accept beverage containers from March 18-April 30th of 2020. Despite this, many redemption centers chose to remain open and were collecting higher than normal volumes of material, in part due to the temporary closure of other redemption centers out of safety concerns. Department staff remain focused on assisting redemption centers and other entities with implementation of the new requirements established in 2019, as well as impacts from the COVID-19 pandemic.

Table 1. 2018 and 2019 Container Redemption Recycling

Year	Plastics	Glass	Metals	Total
2018 Tons	9,217	26,706	5,657	41,580
2019 Tons	10,366	37,050	5,423	52,840
Total	19,583	63,756	11,080	94,419

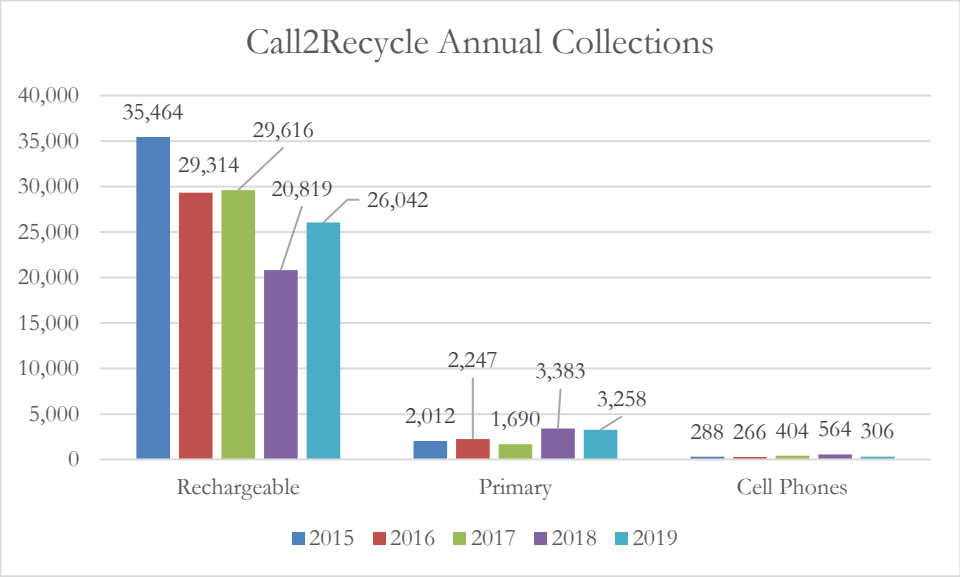
The Department continues to implement changes and develop and improve reporting processes in accordance with revisions to the State's container redemption laws enacted during the 2019 legislative session. Overall, the Bottle Bill program has continued to function during the pandemic and remains a successful collection program with estimated recovery rates in the 75 to 87% range,[18] well above Maine's overall statewide recycling rate of 36.5%[19] and the national recycling rate of 34.7%.

B. Rechargeable batteries (1991) – 38 M.R.S. § 2165

Regulation of certain dry-cell batteries, 38 M.R.S. § 2165 requires manufacturers of nickel cadmium and small sealed lead acid batteries to provide recycling services for these batteries and is implemented by Call2Recycle on behalf of the manufacturers. Call2Recycle collected 26,042 pounds of rechargeable batteries in Maine in 2019, a 25% increase over the previous year but

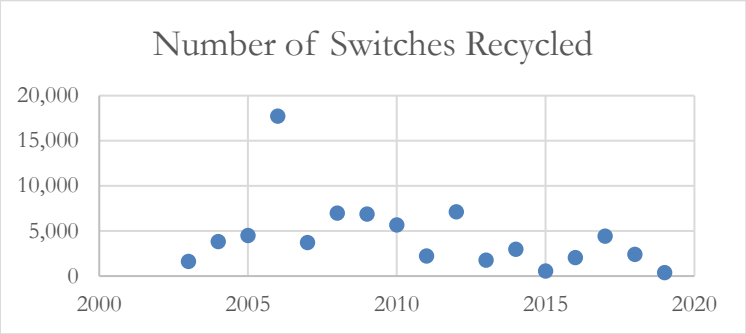
[17] See http://legislature.maine.gov/doc/4785 for list of Agency and Department bills.
[18] Office of Program Evaluation and Government Accountability Report No. SR-BOTTLE -17, *Maine's Beverage Container Redemption Program–Lack of Data Hinders Evaluation of Program and Alternatives; Program Design Not Fully Aligned with Intended. Goals; Compliance, Program Administration, and Commingling Issues Noted*, May 2018 (http://legislature.maine.gov/doc/2316).
[19] Based on available data, Maine's estimated MSW recycling rate averaged 36.56% in 2018 and 2019, down slightly from 38.09% in 2017.

still lower than collections in 2015, 2016, and 2017, when rechargeable battery collections were above 29,000 each year. In addition, 3,258 pounds of primary batteries and 306 pounds of cell phones were collected by Call2Recycle in 2019. Primary batteries, the most common nonchargeable battery, are not covered by Maine's law, nor are they accepted in the Call2Recycle program as the manufacturers of primary batteries do not contribute funds to the battery recycling program. However, primary batteries still end up in the Call2Recycle collection box each year, albeit in much smaller amounts than rechargeable batteries. Batteries collected through the program are sorted by chemistry and sent to appropriate processing facilities for extraction of materials to use in new products. Cell phones that are collected are either refurbished and resold or recycled.

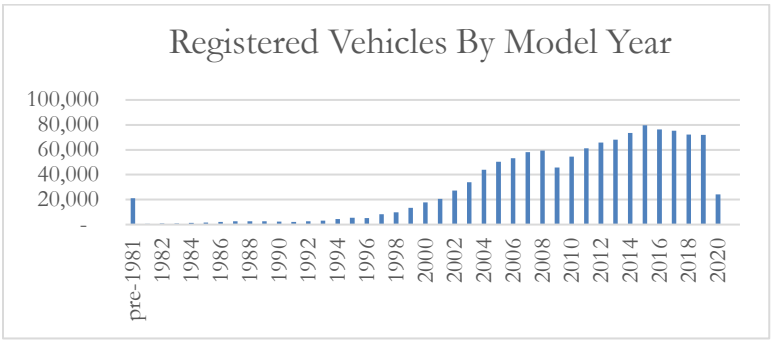


C. Mercury auto switches (2003) – 38 M.R.S. § 1665-A

38 M.R.S. § 1665-A was passed in 2001 and the program began in 2003. The original law prohibited the sale of new motor vehicles with mercury switches, required that mercury switches and headlamps be removed before a motor vehicle is crushed, and required motor vehicle manufacturers to pay for both the recycling of mercury auto switches and a $4 bounty to the collector for each switch. Since that time, more than 165 pounds of mercury have been collected through the program, which amounts to approximately 25% of that estimated to be available for collection. Complete 2020 numbers are not yet available, but 574 switches were collected during the first 3 quarters of 2020, up slightly from 402 total in 2019, but down from 2,421 in 2018 and 4,448 in 2017. Switches are turned in once every three years, so increased outreach for 2016, when many entities were overdue to return switches, is the likely cause of lesser collections in 2019. In 2020, COVID-19 limited the amount of in-person staff time for outreach. Returns will likely rebound in 2021.



While collection numbers have historically reflected the extent of Department outreach, the number of available switches is also decreasing. Statute directs the Department to recommend repeal of the program once the Commissioner determines that the number of mercury switches is too small to warrant continued collection. The Department is not recommending this action at this time. Current data from the Maine Department of Transportation on the model year of registered vehicles shows that over 193,000 vehicles – approximately 16% of vehicles registered in 2020 – are old enough to contain mercury switches; this data omits any vehicles that are not registered as they are in junk yards, dealerships, or abandoned in back lots. The average switch has approximately one gram of mercury and, while not present in all vehicles, a single vehicle can have as many as three switches. There is still a substantial amount of mercury to collect.



Unfortunately, the anticipated timeline for retirement of vehicles provided by the National Vehicle Mercury Switch Recovery Program ("NVMSRP"), the organization set up by obligated manufacturers to realize their responsibilities under this and similar laws, predicted a more rapid turnover in vehicle stock than has been experienced in this State. NVMSRP modeling never extended beyond 2017, but when extrapolated to do so would have predicted that no switches would be available for collection in Maine after 2021.[20] End of Life Vehicle Solutions ("ELVS"), the non-profit entity that runs the NVMSRP, currently plans to end voluntary collection in states without current product stewardship laws at the end of 2021.

[20] See the Annual Product Stewardship Report, 2020 for additional detail.

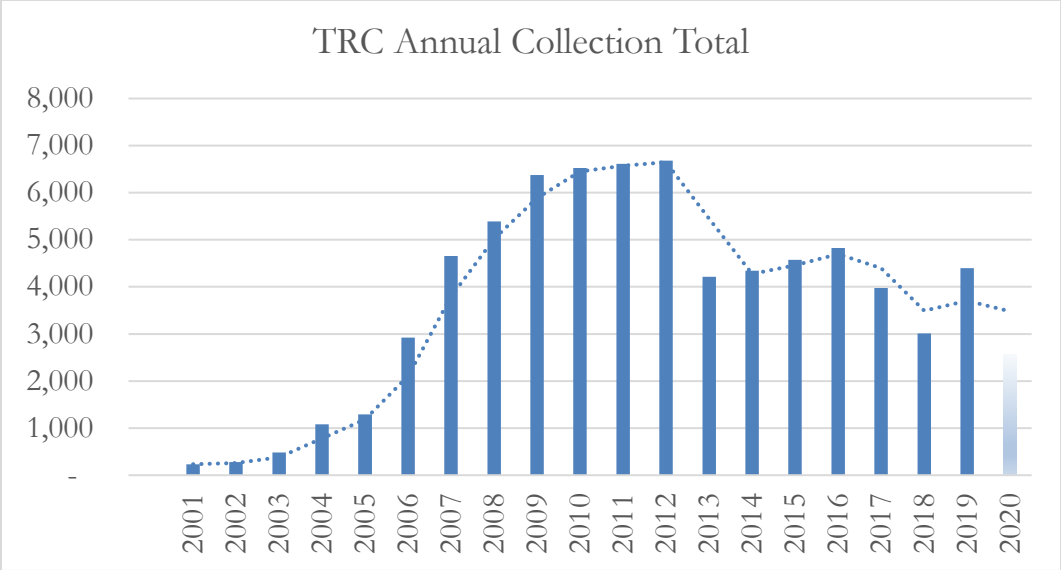
Post-2022, the financing of the NVMSRP is uncertain. Prior to its 2009 bankruptcy, General Motors was responsible for nearly half of the switches ELVS collects; post-bankruptcy, the new company was relieved of its liability. Money from the bankruptcy and additional funds from the steel industry, which benefits from reduced mercury emissions at its electric arc furnaces, have helped fund the program since, but this money is only expected to cover costs through the end of 2021. In a Memorandum of Understanding between the reorganized General Motors and eleven states, including Maine, the new company agreed to provide additional funding to help cover the prior company's obligation through the end of 2022. In the absence of additional agreements, the remaining vehicle manufacturers will be responsible for a disproportionate share of costs post-2022.[21]

During 2020, Department staff increased communication with stakeholders, including other states and businesses that crush motor vehicles, to better understand the state of the NVMSRP and how one might improve efficiency as switches come in more slowly. In the coming year, the Department plans to evaluate options for dealing with mercury auto-switches post-2022. Massachusetts is the only other New England state that will still have a law post-2022.

D. Mercury thermostats (2005) - 38 M.R.S. § 1665-B

Maine's mercury thermostat program, enacted in 2005, established extended producer responsibility for the collection and recycling of mercury-added thermostats. For the first two years, the program required manufacturers to fund collection and recycling of mercury-added thermostats. Due to low initial collection numbers, a $5.00 incentive payment for every mercury thermostat returned was incorporated into the law beginning in 2007.

[21] Gilkeson, John, state representative to the NVMSRP Steering Committee; "Vehicle mercury switches: NVMSRP/ELVS timeline and roles, GM settlement w/legislated states, State vehicle switch laws" presented November 20, 2019.



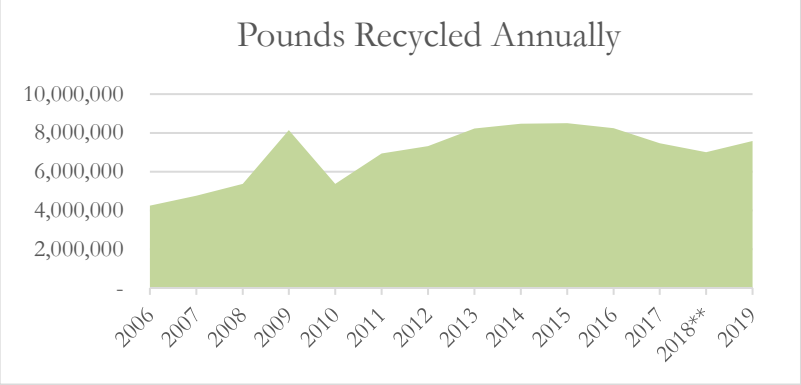
An estimated 4,528 mercury thermostats were collected in 2019 (4,397 by Thermostat Recycling Corporation ("TRC") and 131 through universal waste management), up 46% from 3,145 mercury thermostats collected in 2018. Complete data for 2020 collections is not yet available. As might be expected given the COVID-19 pandemic, preliminary data retrieved from TRC's real-time reporting system shows that 2020 collections are down 42% from 2019, with around 2,566 mercury thermostats collected as of mid-December. The most marked drop occurred during the second quarter, when significant safety measures were in place to slow transmission of the virus. Since 2001, over 500 pounds of mercury has been recovered through thermostat recycling efforts in Maine, approximately 86% of which was recovered through TRC's program.[22] From 2007-2016, collections averaged roughly 5,200 thermostats per year, consistently at least 40% higher than rates achieved before the $5 incentive was implemented.

TRC has conducted an annual round of site visits to 35-50 Maine collection locations that had not returned their mercury thermostat bin within the past year and implemented a "miss you" mailing campaign to reach any past-due collection locations that could not be targeted by an in-person technical assistance visit. In 2019, TRC conducted 49 site visits and placed 97 "miss you" calls to collection sites in Maine. Mercury thermostat bin return rates for sites that received an in-person visit or an in-person visit along with a phone call were higher at 40-54% versus 25-33% for sites that received either no communication or received only a phone call. TRC also hosted a booth at the Maine Resource Recovery Association conference in 2019 and conducted an education and outreach campaign in Maine via online, print, and radio outlets to help raise public awareness of the mercury thermostat recycling program.

[22] Department staff recently reviewed all historic data provided by TRC. An average of 3.18 grams of mercury per thermostat was found and used in calculations for this year's report. In previous reports, an estimate of 4 grams per thermostat was used to calculate the total amount of mercury collected.

E. Electronic waste (2006) - 38 M.R.S. § 1610

Maine's electronic waste ("e-waste") program has facilitated the recycling of printers, televisions, interactive entertainment computers, and other devices with screens of at least 4 inches measured diagonally since 2006. Through 2019, nearly 98 million pounds of covered electronic devices had been recycled through the program.



[23]

The e-waste statute was amended in 2018 (P.L. ch. 391) to increase efficiency by reducing brand-sorting, among other things. Issues discussed but not addressed at the time of the 2018 amendment included consideration of appropriate product scope and an increase or removal of the per pound cap of recycling costs that can be approved by the Department. The Department will continue to examine these issues in the year ahead. Other issues under consideration include: the sufficiency of the credits provided to manufacturers of environmentally preferable products, potential cost control mechanisms, potential alterations to the current process of approving consolidators, and the proper end-of-life management of e-waste plastics containing brominated flame retardants. Except for changes to product scope, these items could be largely addressed through changes to Department rule and policy.

[23] **The total pounds recycled in 2018 includes an estimate of the number of pounds likely recycled by one consolidator, Ewaste Recycling Solutions (ERS). ERS went out of business in April 2019. There is no evidence that it slowed collection before that point – any entities ERS stopped servicing would have been in touch with us and/or other consolidators looking for a new pick up agent. Unfortunately, ERS didn't send its report on collection from the second half of 2018. While uncertain, it is much closer to the actual value than zero; it was figured as follows. If one assumes that ERS's market share was the same in the second half of 2018 as it was in the first, 35%, and that NCS's market share of 47% also remained unchanged, ERS would have recycled 1,763,280 pounds. If one assumes that ERS's market share was the same in the second half of 2018 as it was in the first, 35%, and that EE's market share of 13% also remained unchanged, ERS would have recycled 1,491,130 pounds. If one takes the mean of the two estimates and rounds to significant figures, this gives 1.6 million pounds.

F. Cellular telephones (2008) – 38 M.R.S. § 2143

Maine's cellular telephone recycling law requires only that a retailer selling cellular phones accept, at no charge, used cellular telephones from any person and shall post signage stating as much.

The Department does not actively monitor compliance with this law as used cellular telephones are a valuable commodity and therefore should be easy for individuals to send for recycling. However, during 2020, the Department received one complaint from a person who claimed they were refused cell phone take back by a retailer. Department review with the retailer confirmed that it does in fact accept cell phones, and the incident was likely the result of insufficient staff training. The Department will continue to post information about cell phone recycling on its website and respond to any complaints. If the number of complaints increases or the economics of cell phone recycling changes, the Department will reevaluate the resources it allocates toward compliance and enforcement of this law.

G. Mercury Lamps (2011) - 38 M.R.S. § 1672

Maine's mercury-added lamp law was originally enacted in 2011 and requires manufacturers to collect and recycle mercury-added lamps in Maine. The requirements for recycling of mercury-added lamps (fluorescent, neon, black lights, UV, and high intensity discharge - HID) are implemented by the National Electrical Manufacturers Association ("NEMA") on behalf of the manufacturers. NEMA's program provides free containers, shipping and recycling services to voluntarily participating retail and municipal collection sites.

The mercury-added lamp law was amended in 2019 by P.L. 2019, ch. 286 - *An Act To Implement Recommendations of the Department of Environmental Protection Regarding the State's Mercury-added Lamp Law*. The law now allows any entity including small businesses and nonprofits, to recycle mercury lamps through the program. However, the revised law also imposes a limit of ten non-CFL mercury lamps (linear tubes, high-intensity discharge, etc.) that may be dropped off per person, per visit. NEMA and the Department agreed to this limitation to align Maine's mercury lamp program with Vermont's program, which also limits non-CFLs to ten per visit to a drop-off location. Any non-CFL mercury lamps received above this cap in one visit by one individual must be managed separately by the collection site. This cap does not apply to CFLs, which may be dropped off in any quantity provided a collection location has the capacity to accept the amount.

Table 2. Mercury lamps collected through NEMA in 2019.

Lamp Type	# Collected	% of Total
Circular Fluorescent Lamps	217	0.11
Compact Fluorescent Lamps	48,493	23.5
Eight Foot Fluorescent Lamps	13,107	6.35
Four Foot Fluorescent Lamps	126,266	61.19
Halogen Lamp	72	0.03
HID Lamps	5,022	2.43
Three Foot Fluorescent Lamps	293	0.14
Two Foot Fluorescent Lamps	4,178	2.02
U-Tube Lamps	8,694	4.21
Total	206,342	100

The Department has received feedback on the revised law that the per person, per visit cap on most mercury lamps continues to prevent many entities from participating in the mercury lamp stewardship program. For households, businesses, or schools looking to recycle their mercury lamps, the limit may mean multiple trips to a facility to ensure they are within the per visit cap of ten non-CFL lamps. For collection sites, lack of adequate storage space, additional staff time and other resources needed to manage separate lamp collections make it unfeasible. As shown in Table 2, CFLs are not the most common lamp collected in Maine. Limiting the number of mercury lamps someone can bring in at one time may discourage use of the stewardship program for both residents and businesses. The Department will continue to examine these issues and consider additional feedback as it is received to determine whether or not to propose changes in a future annual report.

In 2019, NEMA collected and recycled approximately 206,342 mercury-added lamps through its product stewardship program in Maine, which equates to approximately 16.23% of available lamps and represents a 5% decrease in the number of lamps collected over the previous year, but a 2% increase in the recycling rate as the number of lamps available for collection (estimated to be 1,271,605) also decreased. This coincided with a 33% decrease in the number of lamps collected by universal waste management companies in Maine in 2019.

H. Architectural paint (2015) - 38 M.R.S. § 2144

Maine's architectural paint law requiring that manufacturers set up and operate a collection system for post-consumer paint was enacted in 2015. PaintCare serves as the stewardship organization authorized under Maine's law. PaintCare is a non-profit third-party organization established by the paint manufacturers to fulfill their responsibilities under stewardship laws in ten states and the District of Columbia. The program is funded by a consumer fee on each container[24] of paint sold. Consumers may return unwanted architectural paint at no cost to

[24] There is no fee on containers that are a half pint or smaller.

participating retail and municipal collection sites as well as household hazardous waste (HHW) collection events where PaintCare is participating. PaintCare provides each collection location with storage containers for the returned paint and handles transportation of the collected paint in addition to providing in-person training and a training manual, and education and outreach materials for collection sites. To avoid overwhelming collection sites with large quantities of paint, PaintCare also offers a free large volume pickup service for those with 200 gallons or more of paint[25].

Since January of 2019, the PaintCare program in Maine has operated as a separate subsidiary, PaintCare Maine LLC. This subsidiary serves to keep all funds collected in Maine for Maine program activity only. PaintCare reports on a fiscal year ("FY") (July 1 – June 30) basis. The Maine program ended FY 2020 (July 1, 2019 – June 30, 2020) with a reserve fund of $161,368. This is related to the fact that paint sales were up around 300,000 gallons from FY2019 while paint collection was down slightly about 10,000 gallons, likely due to the pause in collections due to COVID-19 as described below.

In FY 2020, PaintCare collected 121,902 gallons of postconsumer paint and processed 130,332 gallons of postconsumer paint[26]. Of the processed paint, approximately 78,244 gallons was recycled, 40,150 gallons went to energy recovery, and 11,938 gallons of latex paint was dried out and no longer viable for recycling and had to be disposed via landfill. Sixty-eight % of the paint collected was latex and 32% was oil-based. The program had a recycling rate of approximately 86% for latex paint in 2020. Less than 1% of the latex paint was used as fuel; 13% was unrecyclable and sent to landfills for disposal. The paint recovery rate, which is the volume of paint collected divided by the volume of new paint sold during the year, was 5.3%, a 23% decrease from 2019. Ninety-five % of the oil-based paint was used as fuel and 5% was recycled into new paint. For the second year in a row, the percentages of oil-based paint recycled was slightly higher than in the previous reporting period. These percentages were similar to the previous reporting period. In addition, 106 tons of consumer packaging, i.e., metal and plastic containers, were recycled. PaintCare's analysis shows that its collection network provides a permanent collection site within 15 miles of 94.9% of Maine's population, exceeding the 90% goal set in statute.

Maine's PaintCare program experienced some disruptions in 2020 due to the COVID-19 pandemic. During the early months of the pandemic, large volume pickups (200 gallons or more) were temporarily ceased but restarted in May with updated health and safety guidelines in light of COVID-19. Many paint stores closed to in-store customers and provided curbside pickup,

[25] Chapter 858 -- Universal Waste Rules prohibits accumulation of more than 55 gallons of oil-based paint at one time.
[26] Collected gallons dictate related costs for the fiscal year and are based on weight converted to gallons. Processed gallons reflect actual paint processing that occurred during the fiscal year, which includes some paint collected in the previous year and does not capture all of the paint collected in the current fiscal year.

pausing their participation in PaintCare during the first months of the pandemic as well. Many of Maine's hardware stores, which are essential, remained open and in operation with continuing PaintCare service during this time. For the most part, stores reopened to in-person customers and paint take-back as statewide restrictions once again allowed such activities to resume.

PaintCare's Program Manager, who also manages the Vermont program, typically visits each collection location throughout both states at least once annually. In-person site visits to all collection sites were put on hold for several months in early 2020, and while some visits are now being conducted, they are much less frequent and limited in reach across the state. Department staff have conducted more limited site visits due to the COVID-19 pandemic. The PaintCare Program Manager was able to conduct remote check-ins with Maine collection sites via phone and conduct online trainings for new collection sites.

V. Product management laws to promote sustainability

Although they are not product stewardship laws, the following laws relate to the sustainable management of products and encourage more sustainable choices from entities who must comply, ultimately resulting in less waste. Maine's product stewardship laws are intended to create sustainable systems for the production and use of products, which is why these product management laws are included in this report although they serve a different purpose than a true product stewardship program.

Due to the COVID-19 pandemic, the Department is delaying enforcement of both of these laws until July 1, 2021.

A. Plastic bags - 38 M.R.S. § 1611

P.L. 2019, ch. 346 - *An Act To Eliminate Single-use Plastic Carry-out Bags* was enacted during the First Regular Session of the 129th Legislature. This bill repealed and replaced *Plastic bags; recycling,* 38 M.R.S. § 1605 which required retailers to collect and recycle plastic bags. *Plastic Bag Reduction,* 38 M.R.S. § 1611 establishes a statewide ban on single-use plastic carry-out bags used to bag products at the point of sale in retail establishments including stores, restaurants, farmers' markets, and fairs that sell merchandise like food, goods, products or clothing.

Once the law is in effect, all carry-out bags provided by the retailer at point-of-sale must be either a reusable bag or a recycled paper bag. In addition, retail establishments must charge a fee of at least 5¢ per bag for reusable bags made of plastic or recycled paper bags.

An area of concern is the lack of consistent end markets for plastic bags and film collected through the retail drop-off program. After being collected, plastic bags require a viable market in order to ensure they are recycled. According to the most recent report on plastic film

recycling prepared for the American Chemistry Council by the consulting firm More Recycling, "the environmental case [for film recycling] is very strong". However, "[t]he U.S. is not well-positioned to process all of the [plastic film] material available for recycling, including PE Retail Bags and Film, […and] the return on investment in new capacity faces challenges given the cost of virgin resin, low importance placed on recycled content, or energy savings, and the low cost of disposal in America." Finally, anecdotal evidence suggests that, "most small and mid-sized businesses are without a film recycling solution as networks to collect and consolidate material for market have disappeared."[27]

Film plastic is a commodity that would benefit from requirements for post-consumer recycled content ("PRC"). Adding a PRC content requirement to the reusable bags made of plastic or to the plastic bags exempt from the ban under 38 M.R.S. §1611(2) would help ensure that these bags can be recycled once collected. It would also help in the creation of markets for the film produced by small and mid-sized businesses, both as a result of the recycling requirement in this law and their normal operations. Laws in other jurisdictions that lay out similar requirements use certifications from material reclaimers to facilitate the verification of manufacturers' PRC claims.

B. Disposable food service containers - 38 M.R.S. §§ 1571-1573

P.L. 2019, ch. 62 - *An Act To Eliminate the Use of Certain Disposable Food Containers* was enacted during the First Regular Session of the 129th Legislature. *Disposable Food Service Containers,* 38 M.R.S. §§ 1571-1573 will require all businesses and institutions that meet the definition of a "food establishment" or "eating establishment" to stop using or providing polystyrene foam food service containers. In general, restaurants including mobile food vendors, institutions (schools, correctional facilities, etc.), stores, food packing facilities, and home meal delivery businesses all meet the definition of a food establishment or eating establishment. This law also applies to agricultural fairs, farmers' markets, food pantries, churches, boarding homes, and independent living or retirement homes. There are some exemptions for certain uses, such as for foam coolers for processing or shipping seafood.

Expanded polystyrene foam has long been a popular material for packaging take-out foods, beverages, and more due to its light weight, insulating properties, and low price compared to other packaging materials. However, polystyrene foam is one of the top 10 contributors to environmental litter, is not biodegradable, is resistant to photo-oxidization, and is not accepted by any recycler in Maine.

[27] "2018 National Post-Consumer Plastic Bag and Film Recycling Report", August 2020, prepared by More Recycling for the American Chemistry Council, pgs. 12-13, available at: https://www.plasticsmarkets.org/jsfcontent/FilmReport18_jsf_1.pdf.

VI. Conclusion

Maine's EPR programs for certain consumer items continue to divert a significant amount of material for recycling and ensure the safe handling of products containing toxics. The Department is currently focused on implementing recent legislative changes and overseeing existing EPR programs. As described in the Department's 2020 report, implementation of any new product stewardship programs will require no less than one-half full time equivalent ("FTE") staff position. While the Department supports continuing to utilize product stewardship strategies to increase recycling, regulation of new product categories will require additional resources for program administration. The Department will continue to assess candidate products presenting end-of-life management challenges that may be addressed by carefully constructed EPR programs in the future.

Appendix A - Comments Received on Posted Report