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Recycling of Electronic Waste from Households in Maine

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Executive Summary

As electronic products have been developed and become commonplace in Maine households over the past few decades, they have also become a growing segment of Maine's municipal solid waste (MSW) stream. Both the volume of this waste stream and the toxicity of some of its components pose a management challenge for Maine's municipalities. To assist municipalities in managing household electronic waste (e-waste), and to divert the associated toxics from Maine's disposal facilities, in 2004 Maine adopted 38 MRSA §1610 *Electronic Waste* (Maine's "E-Waste Law").

As required by 38 MRSA §1610, sub-§8, the Maine Department of Environmental Protection (DEP) must report on the recycling of electronic waste to the Natural Resources Committee every two years beginning in 2008 through 2014. This report includes an evaluation of electronics recycling rates in the State, a discussion of compliance and enforcement related to the E-Waste Law, and recommendations for any changes in the collection and recycling of electronic devices in Maine.

This was the first state law in the country that required television and computer monitor manufacturers to take responsibility for ensuring the recycling of their products at the end of life. Under Maine's E-Waste Law, municipalities are responsible for providing collection opportunities to their residents and for contracting with an approved consolidation business to ensure environmentally sound management and recycling of their residents' televisions and computer monitors. The approved consolidators perform an accounting of the waste by brand and bill the responsible manufacturers for the costs of handling and recycling as established through the DEP's Chapter 415 rule *Reasonable Costs for the Handling and Recycling of Electronic Wastes*. Retailers are prohibited from selling the products of manufacturers that are not in compliance with Maine's law. The requirements of this law were fully implemented in January 2006.

Over the first eighteen months of the program (January 2006-June 2007), Maine achieved an annual per capita electronics recycling rate of 3.29 pounds. This exceeds the anticipated rate of 1.75 pounds per capita, and represents the diversion of almost 6 million pounds of materials from Maine's landfills and incinerators into marketable commodities. Results of a survey of Maine municipalities show a varying level of electronics collection convenience and cost to Maine residents; the DEP will perform further assessment of this aspect of Maine's program to identify opportunities for improvements.

Because Maine was the first state to implement manufacturer responsibility for recycling of household electronics at the end-of-life, the DEP had to do an extraordinary amount of research to identify and notify manufacturers of their new responsibilities. Although most manufacturers are now in compliance with Maine's E-waste Law, there are a few who have remained out-of-compliance for an extended time. Additionally, the DEP has not had sufficient staff resources to conduct surveillance of internet retailers for compliance with the sales ban on products from non-compliant manufacturers and to pursue any enforcement as needed.

Maine's municipalities, brick and mortar retailers, and the private consolidators approved to participate in Maine's household e-waste recycling system have all worked diligently to implement their respective responsibilities under this law. The DEP has provided extensive training and

technical assistance to municipalities, and education and outreach to retailers. The approved consolidators have been instrumental in developing the waste accounting and tracking systems necessary to provide manufacturers with the assurance they seek that their products are appropriately recycled at a competitive cost.

Several other states have adopted e-waste laws in the years since Maine adopted its law. Although all the laws are unique, there are some common elements. The DEP has reviewed these laws and discussed implementation challenges with the responsible agencies in the few states that have progressed to implementation. Through this work, the DEP has identified elements of Maine's law that may be more closely harmonized with the e-waste laws of the states of Washington and Connecticut. Such harmonization will make it easier for manufacturers to comply by minimizing the differences between state programs. Additionally, the DEP recommends the addition of desktop printers and digital picture frames to the scope of products covered by the manufacturer responsibility provisions of Maine's E-Waste Law.

I. Background

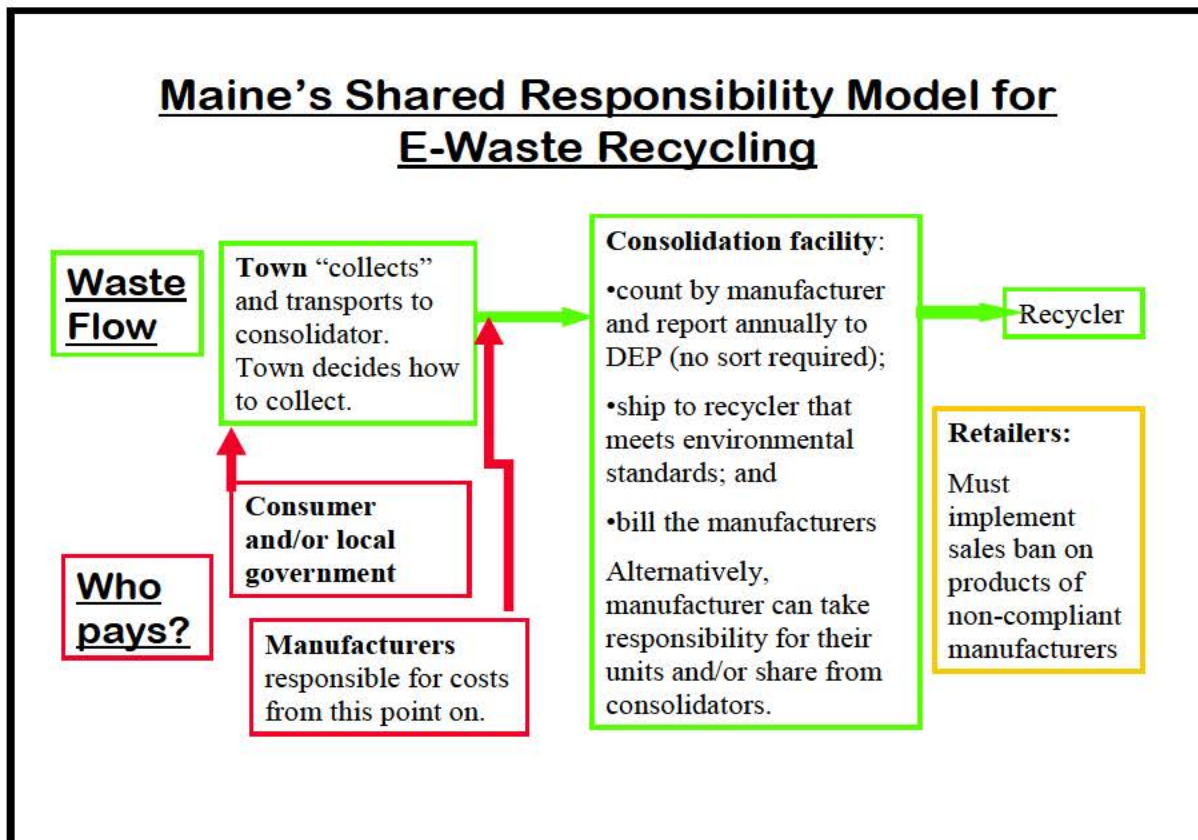
In 2003, Maine's legislature first deliberated issues associated with the end-of-life management of electronic waste (e-waste) from households. Household e-waste, including televisions, computer monitors, computers and associated peripherals, posed waste management challenges for municipalities due to the toxic materials contained in these products and the growing volume that they comprised of the waste stream. The enacted law (Public Law 2003, chapter 150 (attached as Appendix A) banned the disposal of cathode ray tubes beginning in 2006 and directed the Maine Department of Environmental Protection (DEP) to develop a recommended plan for the collection and recycling of CRTs based on input from a working group of stakeholders representing consumers, municipalities, electronics manufacturers, retailers, recyclers, and environmental advocacy organizations. The law directed that the plan "utilize the concept of shared responsibility among manufacturers, distributors, retailers, consumers and other parties."

DEP presented the required plan to the Legislature in 2004 in a report entitled *A Plan for the Collection and Recycling of Cathode Ray Tubes*. The Legislature then moved forward in adopting 38 MRSA §1610 *Electronic Waste*, Maine's E-Waste Law. This was the first electronics waste law adopted by any state to implement the concept of product stewardship by requiring that manufacturers take significant responsibility for the recycling of their electronics products. As stated, the purposes of the law are "to establish a comprehensive electronics recycling system that ensures the safe and environmentally sound handling, recycling and disposal of electronic products and components and encourages the design of electronic products and components that are less toxic and more recyclable" and "to establish an electronics recycling system that is convenient and minimizes cost to the consumer of electronic products and components".

To implement the program, DEP adopted new rules in October 2005, Chapter 415 *Reasonable Costs for the Handling and Recycling of Computer Monitors*. These rules set the standards for approval and operations of consolidation businesses that provide the handling and recycling services to the municipalities on behalf of the manufacturers. Based on the effective date of this rule, the manufacturers became responsible for the handling and recycling of their products beginning January 18, 2006. The CRT disposal ban subsequently went into effect on July 1, 2006.

II. Maine's Household E-Waste Program - Roles and Responsibilities

Under Maine's E-Waste Law, consumers, municipalities, e-waste consolidation & recycling businesses, manufacturers, retailers, and the State all have a role in ensuring that waste household televisions and computer monitors are recycled.



Maine residents and municipalities are responsible for collecting household waste televisions and computer monitors, and arranging for pick up by a consolidator approved to participate in Maine's e-waste program. Each municipality decides whether to have on-going collection at their local or regional solid waste transfer station or recycling center, or to hold periodic one-day collections.

Consolidators perform the accounting by brand and manufacturer to invoice manufacturers for transportation, handling and recycling of their products, and to annually provide their program accounting to Maine DEP (consolidators may contract with their recyclers to perform the brand and manufacturer accounting and billing). Consolidators are also responsible for shipping only to recyclers that provide certification of meeting Maine's *Environmentally Sound Management Guidelines (ESM Guidelines)*.

Each recycler is responsible for providing consolidators with a sworn statement that its handling, processing, refurbishment and recycling of computer monitors and televisions meet the *ESM*

Guidelines; these sworn certifications must be submitted to Maine DEP as part of each consolidator's application for approval to participate in the program.

Each manufacturer is responsible for paying the consolidators for the costs of handling, transportation and recycling of the televisions and computer monitors with their brand names. Manufacturers with more than 1% of the waste stream also pay a pro rata share of the cost of recycling orphan products, i.e., the products of manufacturers that are no longer in business and that have no successors in interest. Each manufacturer must provide Maine DEP with an initial plan for compliance as well as annual reports on the recycling of its products.

Retailers are responsible for ensuring they only sell products of manufacturers that are in compliance with Maine's E-Waste Law. Maine DEP notified all retailers of this responsibility, and provided them with a web site address to check the compliance status of manufacturers.

Maine DEP is responsible for publishing *ESM Guidelines* for recyclers, for adopting and implementing rules on allowable costs, and for annually calculating each manufacturer's pro rata share of orphan products. Maine DEP also conducts education, outreach and compliance activities; assesses manufacturer, consolidator and retailer compliance with the law and regulations; and performs enforcement activities as needed. Historically, the Maine State Planning Office provided more than \$500,000 in grants to municipalities and regional programs for the development of collection infrastructure.

III. Results

In the first 18 months of the program, consolidators reported that Maine municipalities recycled 5,985,901 pounds of televisions and computer monitors, the equivalent of 3.29 pounds per capita annually. This included 53,297 monitors and 64,178 televisions. Manufacturers paid an average of approximately \$0.33 per pound for the consolidators' transportation, handling and recycling services.

To understand whether the system as implemented has achieved the statutory purpose of providing a recycling system that is convenient and minimizes costs to the consumer, DEP partnered with the Natural Resources Council of Maine (NRCM) and the University of Southern Maine (USM) to survey municipalities on the frequency of collection and any end-of-life (EOL) fees charged by the collection facilities. Appendix B contains a summary of the preliminary results of the survey as well as copies of the survey documents.

The survey responses confirm that municipalities are using a variety of collection models to implement electronics collection for recycling, including on-going collection at their local solid waste facility, on-going collection at a regional facility, and annual or semi-annual events. Additionally, seven facilities provide on-going collection to all Maine residents. Responses from municipalities with 84.5% of Maine's population show that at least 70% of Maine residents have on-going collection available to them at their local solid waste facility or recycling center, and at least 10.3% are offered periodic collection. Maine DEP is performing follow-up to ascertain collection options for the remainder of Maine's residents.

Maine’s E-Waste Law does not prohibit solid waste facilities from charging EOL fees to consumers for electronics collection and recycling services. Studies generally show that consumers are willing to pay a modest amount, but that significant EOL fees are a strong deterrent to recycling¹. Prior to implementation of Maine’s E-Waste Law, the Tri-Community Landfill (TCL) in Caribou provided electronics recycling services for several years. TCL began offering the service for a low EOL fee, but raised the fee over time to cover the true cost of recycling. TCL’s experience corroborates the study findings that recycling rates decreased and “back road” e-waste dumping increased as EOL fees were increased. Fees currently charged to Maine residents are summarized in Tables 1 and 2.

Table 1: End of Life Fees for Monitors

EOL fee – monitors	\$0	\$1-5	\$6-10	\$11-15	\$16-20	>\$20	Fee Unknown
Number of municipalities	120	105	55	11	8	3	14
Percent of Maine population	29.1%	35.4%	9.9%	1.9%	1.4%	1.8%	1.5%

Table 2 : End of Life Fees for Televisions

EOL fee – televisions*	\$0	\$1-5	\$6-10	\$11-15	\$16-20	>\$20	Fee Unknown
Number of municipalities	120	102	54	11	8	3	14
Percent of Maine population	29.1%	34.8%	9.8%	1.9%	1.4%	1.8%	1.5%

*rate may vary depending on screen size of TV; count reflects highest rate charged

Based on surveys of municipalities representing 84.5% of Maine’s population

These data indicate a need to explore further the rationale for and the effects of the higher EOL fees. Once the survey results are finalized, the DEP can compare e-waste recycling rates of towns with no or low EOL fees to those with the higher fees. The DEP can also interview the towns with the higher fee to ascertain whether they are utilizing a consolidator approved to participate in billing recycling costs to the manufacturers and other possible reasons for charging high EOL fees. Currently, municipal facilities operated under contract by private companies charge a maximum of \$8 per large residential TV to cover their operational costs and provide a modest profit (the cost to recycle a large TV from a business is \$25).

IV. Compliance and enforcement

One of DEP’s primary responsibilities for implementing Maine’s E-Waste Law is to evaluate compliance and take enforcement action as needed to ensure that all parties are meeting their

¹ Virginia Department of Environmental Quality *Electronic Waste (eWaste) Management Activities*; this DEQ eWaste Working Paper 04-02 summarizes a study from an EPA Region III eCycling pilot that found that 60% of consumers expressed a willingness to pay \$2 per item, 25% would pay \$5, but only 11% were willing to pay \$10 per item.

responsibilities under the law. Parties that must comply with this law include manufacturers, consolidators, municipalities, and retailers.

Manufacturers

DEP undertook extensive research to identify manufacturers potentially subject to Maine's law. DEP then contacted all these manufacturers to educate them about the law, including the requirement that each manufacturer submit a plan for compliance with the law (38 MRSA §1610 sub-§6), and at a minimum pay for the handling and recycling costs incurred by consolidators approved by DEP to participate in Maine's household television and computer monitor recycling program [38 MRSA §1610 sub-§5(D)(2)].

After significant outreach to manufacturers potentially subject to Maine's E-Waste Law, DEP issued 159 Notices of Violation (NOVs) for failure to submit a plan for compliance. Based on the information provided in response to the NOVs, DEP staff ascertained that some of these manufacturers are not subject to Maine's law, some are no longer in business, and many have come into compliance.

DEP now has identified 184 currently viable manufacturers that are subject to Maine's law. As of December 2007, 12 manufacturers whose products have been identified in Maine's waste stream remain out of compliance with the requirement to submit a plan for compliance; these manufacturers are responsible for less than 0.03% of the television and computer monitor waste streams recycled through June 2007. Beginning July 1, 2007, manufacturers that are currently selling televisions or computer monitors are also required to submit an annual report to DEP. Fifty-three manufacturers have not yet complied with this requirement for 2007.

Additionally, consolidators have referred one manufacturer to the DEP for failure to pay allowable costs. The DEP has issued 2 NOVs to this manufacturer and has worked with the Maine Attorney General's Office to pursue further enforcement. DEP has reimbursed the consolidators for their costs incurred in accordance with 38 MRSA §1610 sub-§7 from the Maine Solid Waste Management Fund. The Attorney General currently has a complaint pending in Superior Court against this manufacturer.

Consolidators

In accordance with the provisions of Chapter 415 of DEP rules, annually businesses may apply to the DEP for approval to participate as a consolidator in the household television and computer monitor recycling program. Seven businesses applied for approval for 2006, and five were approved; six applied and were approved for 2007; and seven applied and six were approved to participate for 2008. These consolidation businesses have acted as trailblazers in establishing systems for managing the manufacturer and brand data provided by Maine DEP, ensuring recycling systems meet Maine's *ESM Guidelines*, and creating unit brand accounting and invoicing procedures to implement this first-in-the-nation manufacturer responsibility law. Because Maine's program seeks to provide assurances to manufacturers that their products are appropriately managed at a reasonable cost to them, as well as flexibility to take physical possession of their products, the

consolidators have had to adapt their operations to accommodate changes in manufacturer participation over time.

Consolidator facilities are subject to DEP inspections for compliance with DEP rules Chapter 415 and the Universal Waste provisions of DEP rules Chapter 850, Maine's *Hazardous Waste Management Regulations*. They also must allow manufacturers to audit their operations related to DEP Chapter 415, and they have been entirely cooperative in allowing DEP to view their associated out-of-state recycling operations to ensure compliance with Maine's *ESM Guidelines*. As a result of its compliance efforts, DEP has not discovered any significant violations of Chapter 415, Chapter 850 or of Maine's *ESM Guidelines* by the approved consolidators.

Municipalities

Due to Maine's disposal bans on CRTs and mercury-added products, municipalities must provide their residents with a way to recycle their televisions and computer monitors (most flat-panel display devices include mercury lamps) unless they ship their municipal solid waste (MSW) to a jurisdiction that does not have a disposal ban.² Solid waste facilities which collect e-waste for recycling must follow universal waste management requirements for storage, labeling and tracking. DEP has provided 11 training courses in universal waste management attended by 328 municipal officials and solid waste personnel over the past two years, as well as many additional training sessions on-site at solid waste facilities. After Maine's program had been in place for almost one year, *E-Scrap News*³ conducted a survey of collection sites representing 85% of Maine's population. Based on the results of this survey, *E-Scrap News* stated "In Maine, the DEP did a thorough job of working with collectors. They held informative classes before the program began, continue providing excellent ongoing technical support and are responsive to inquiries."⁴ Since implementation of Maine's E-Waste Law, DEP has not issued any Notices of Violations to municipalities for their operations related to e-waste collection for recycling.

Retailers

38 MRSA §1610 sub-§3(B) prohibits retailers from selling televisions, computer monitors and computers from manufacturers that are not in compliance with Maine's E-Waste Law. DEP has provided retailers with notification of this requirement and the DEP web site where retailers can find listings of manufacturers and their brands that are currently in or out of compliance. DEP staff routinely conducts compliance surveillance of retailers, and has notified the responsible retailers whenever they offer for sale a product from a manufacturer that is not in compliance. This is most commonly the result of a new brand being offered on the market. When notified, retailers have been very cooperative in ceasing sales of brands until the manufacturer comes into compliance by filing a plan in accordance with 38 MRSA §1610 sub-§6. This sales ban has proven to be a very effective tool to encourage manufacturer compliance.

² Some Maine towns send their MSW to New Hampshire and New Brunswick for disposal; New Hampshire implemented a disposal ban on CRTs on July 1, 2007.

³ *E-Scrap News* is a monthly publication of Resource Recycling, Inc., an independent Oregon corporation not affiliated with any trade association or other organization.

⁴ *Resource Recycling – North America's Recycling and Composting Journal*, Portland, OR, April 2007, pp 21-22.

DEP has not been entirely successful in implementing an effective compliance and enforcement program related to internet sales. Internet outlets include retailers that also have storefronts in Maine, retailers that operate solely on the internet, and businesses that provide an internet “platform” service for sales by others (e.g., eBay). DEP staff has been successful in communicating compliance requirements with internet retailers that also have a physical presence in Maine (e.g., Circuit City, Best Buy, Wal-Mart). However, DEP has not had sufficient resources to consistently monitor compliance with sales bans by retailers that sell strictly via the internet (e.g. TigerDirect) or sellers through internet platform sites (e.g., eBay). A few manufacturers limit their retail sales to internet outlets, and a couple have even claimed that they are not subject to Maine’s law because they do not have a physical presence in Maine (e.g., Broksonic and Systemax). DEP is working with the Attorney General’s Office to develop enforcement actions against these non-compliers.

V. Development of E-Waste Laws in Other States - Common Issues and Options

Prior to Maine’s adoption of its e-waste law, only California had adopted a law to manage and fund the recycling of electronics. California’s law operates differently, and imposes a fee on electronics at the time of sale; retailers remit this fee to the State, and the State reimburses collectors and recyclers for this service. This advanced recovery fee (ARF) system does not hold manufacturers responsible for any aspect of the end-of-life management of their products, so does not provide them with any incentive to design their products for easy recycling or to apply their market expertise and innovative abilities to creating efficient collection and recycling. In addition to funding the recycling of electronics, California’s ARF pays for the State’s costs related to administration, compliance and enforcement of the program.

In 2005, Maryland adopted an e-waste law that requires manufacturers to pay an annual fee to the State; the State uses this revenue to award e-waste recycling grants to local jurisdictions. In 2006, Washington State adopted an e-waste law that requires manufacturers to be responsible for all aspects of collection and recycling. Washington’s law sets up a process for manufacturers to design and fund a “standard plan” for meeting this responsibility. All manufacturers participate in the standard plan except that manufacturers with more than 5% market share of current sales can submit their own plan to the State for review and approval. Manufacturers pay an annual administrative fee to the State to support administration, compliance and enforcement, as well as a recycling fee to pay for collection and recycling.

Five additional states (Connecticut, Minnesota, North Carolina, Oregon, and Texas) adopted e-waste laws in 2007. All five of these laws are “manufacturer responsibility” laws; none of them charge consumers an ARF to fund administration or recycling. Several states have e-waste recycling legislation pending (on January 8, 2008 the New Jersey Assembly and Senate passed out a producer responsibility bill), and national legislation is also being considered by a Congressional subcommittee. Additionally, four states (Arizona, Massachusetts, New Hampshire and Rhode Island) have a law banning the disposal of cathode ray tubes. Appendix C is a chart which was published in August 2007 by the Congressional Research Service that compares selected elements of existing state e-waste laws.

Although model legislation has been developed by several organizations, including the Council of State Government's Eastern Regional Council, each state law is unique. In formulating its law, Connecticut used Maine's system as a model, and adapted it to better fit Connecticut's smaller geographic size and denser population. Connecticut continues to consult with the Maine DEP and recyclers participating in Maine's system in its rule writing and adoption process. By learning from Maine's experience, and seeking to harmonize systems to the extent practical and allowable under our respective laws, Maine and Connecticut hope to achieve greater efficiencies in both systems.

VI. Common Aspects and Options for Maine to Consider

Common aspects and options

Even though each state law is different, they all address common aspects, including:

- Scope of products covered – televisions, computer monitors, computers, printers, fax machines, and/or other peripherals;
- Whose wastes are covered – households, small businesses, large businesses, schools, non-profits;
- Funding options for recycling – ARF, complete manufacturer responsibility, or shared responsibility; manufacturer responsibility is based on waste stream share, market share or a combination of these;
- Definition of manufacturer – original equipment manufacturer, brand owner, first importer, and/or licensee;
- Disposal bans and/or sales bans;
- Collection and recycling standards (environmentally sound management requirements); and
- State responsibilities and financing of administration.

As additional states have adopted e-waste laws and grappled with implementation issues related to these aspects, Maine can learn from their experiences.⁵

Scope of products

Maine's E-Waste Law currently requires manufacturers of televisions (including portable DVD players) and computer monitors (including laptops) to pay for the handling, transportation and recycling of their branded products. It also requires that manufacturers clearly mark their monitors, televisions and computers with a permanently affixed label identifying the manufacturer. This enables the approved consolidators to perform the unit brand accounting necessary for accurate billing to manufacturers for the recycling of monitors and televisions. The labeling provision of the law was applied to computers to ensure that the manufacturers could be readily identified if the State decided to add computers to the list of e-waste items that manufacturers are responsible for recycling. When Maine initially passed its law, recyclers were collecting computers at low or no cost to municipalities because there was sufficient commodity value in computers for recyclers to

⁵ The Computer Take Back Campaign (www.computertakeback.com) and the National Center for Electronics Recycling (www.ncer.org) are two non-profit organizations which compile and analyze data and information about the various state e-waste laws. Both these organizations provide extensive relevant information on their web sites. Maine DEP staff also participates in conference calls organized by NCER and the Product Stewardship Institute to examine and evaluate options related to these issues.

realize a profit. An informal survey by DEP staff of the recyclers currently managing e-waste from Maine's program revealed that the commodity value of recycled computers remains sufficient to ensure recyclers a profit, so market demand remains an adequate driver for encouraging recycling of computers.

Printers have been identified by Maine's approved consolidators as the most common e-waste item that is costly to them to appropriately recycle. E-waste laws adopted by other states to date do not include printers in their covered scope of product, except that Connecticut's e-waste law covered scope of product includes "similar or peripheral electronic devices specified in regulation." Connecticut is currently in the process of rule-making and is examining whether to include printers in the covered scope of product. A recent report by the Florida Department of Environmental Protection identified that just 10 manufacturers are responsible for 99.5% of current printer sales.⁶ This small number of responsible manufacturers would make it relatively easy for Maine to add printers to the scope of products covered by the manufacturer responsibility provisions of the law. This would remove the barrier of recycling costs that prevents many municipalities from collecting printers for recycling rather than sending them for disposal.

Digital picture frames are a relatively new electronic product that is composed of the same materials as computer monitors. However, the definition of computer monitor in Maine's current law does not clearly encompass digital picture frames. The DEP recommends that the Legislature revise the definition of computer monitor so that digital picture frames are clearly included, and suggested statutory language is reflected in Appendix D.

Funding options for recycling

The recycling of computer monitors and televisions generated as waste by Maine households is currently paid for by the manufacturers based on a per pound cost for the actual weight of each manufacturer's products in the waste stream. A portion of both the television and computer monitor waste streams is made up of brands for which the manufacturers no longer exist; currently these "orphans" comprise about 2.4% of the television waste stream and 13% of the computer monitor waste stream from Maine households. The recycling of these orphans is paid for by existing manufacturers whose products make up more than 1% of the waste stream, e.g., manufacturers that have offered products for sale for at least several years.

This current system for apportioning the recycling costs of orphan units works well from the State's administrative perspective. However, several major television manufacturers contend that this system creates an unfair market advantage for new market entrants. Televisions have an average lifespan of 13-15 years. Historically, manufacturers that sold televisions which are now appearing in the waste stream did not price their products to include the cost of recycling 15 years in the future. This means that those television manufacturers have to increase their current market prices to recoup their recycling obligations, including orphan share obligations, under state e-waste laws. New Asian manufacturers are introducing low-cost televisions into the market place at an

⁶ *Quantifying Electronic Product Brand Market Share as a Metric for Apportioning Manufacturer Share of Recycling System Costs: Project Report*, October 5, 2007 by John L. (Jack) Price, Florida Department of Environmental Protection

accelerating rate.⁷ Because these new market entrants do not have units currently in the household waste stream, this is one less cost they need to recoup through pricing. Long-standing television manufacturers believe this creates a significant cost disparity for them vis-a-vis the new market entrants because the television industry sales model is based primarily on price competition [distinct from the information technology (IT) sector whose business model integrates customer service, customer loyalty, and environmental design improvement efforts as well as price]. Additionally, new market entrants are much more likely to go out of business, leaving their branded units as orphans in the waste stream, increasing the cost of the orphan share liability to the long-standing manufacturers.

These factors have led major television manufacturers to actively oppose state e-waste systems based on manufacturer responsibility, especially those, like Maine, that apportion costs based on the waste stream as opposed to market share financing. The greatest hurdle encountered by states in considering a market share approach to funding e-waste recycling (including Maine) is the difficulty and expense involved in obtaining market share numbers that would be accepted by all manufacturers and not subject to legal challenge. Manufacturers are currently working to design a cost apportionment model within Washington State's "standard plan" to apportion costs based on a calculation that accounts for both waste stream and market shares. Alternatively, states with system funding based on waste stream shares and annual manufacturer fees can set these fees to at least partially mitigate the cost differential for entrants within their recycling systems (and thus any market advantage) between long-standing television manufacturers and new market entrants.

Current orphan share costs for television manufacturers are very low in Maine's system, with an increase from 1.77% to 2.44%. Orphan computer monitors comprise 13% of the waste stream, however, the computer monitor manufacturer against which Maine's case is pending in Superior Court is responsible for 4% of the monitor waste stream in 2008. If this manufacturer does not remain in business, the orphan percentage of monitors would jump to 17%. Maine DEP will continue to assess the trends in manufacturers' market shares and orphan share responsibilities. Based on these trends, the efficacy of other state programs' efforts to mitigate orphan share costs, and any future availability of universally-accepted market share data, Maine may want to consider modifications to the funding mechanisms for its system in the future.

State responsibilities and financing

Under Maine's E-Waste Law, the DEP is responsible for: publishing environmentally sound management guidelines for recycling, setting operational standards and allowable costs through rule-making, accepting and reviewing manufacturer compliance plans, annually approving consolidators, and performing compliance activities and enforcement actions as needed. To accomplish these tasks, DEP engaged in considerable research to identify manufacturers subject to the law. Based on this research, staff conducted (and continues to conduct) outreach and compliance assistance to manufacturers. DEP has developed and maintains an extensive database of manufacturers, their brands, and their contact and billing information. DEP periodically provides this information to the approved consolidators so that they have up-to-date information for invoicing their handling and recycling costs to the responsible manufacturers. DEP also continues

⁷ *The Economics of the Television Industry*, September 2007 paper by Philips Electronics North America Corporation, on file with Maine DEP.

to provide training and technical assistance to municipalities, and to conduct compliance inspections on an on-going basis, and pursue enforcement as needed.

States which have adopted e-waste laws subsequent to Maine have included annual administrative fees which are dedicated to defraying the states' administrative costs. The annual registration process ensures that manufacturers provide updated information to the states at least annually, and gives states confirmation of the on-going participation of manufacturers in their e-waste program. Manufacturers may also find it easier to comply with Maine's annual requirements if they are made similar to other states', such as Washington and Connecticut. Maine's current system requires manufacturers to file an initial plan for compliance and to submit annual reports. This system could be simplified by requiring an annual registration to include the information the DEP needs to effectively administer the program, which is very similar to the information required by Washington State. The change to an annual registration instead of an annual reporting is included in the proposed statutory changes in Appendix D.

Other aspects

The development and implementation of Maine's and other states' e-waste laws do not indicate any significant change is needed in Maine's approach to the other common aspects of state-mandated recycling systems. Maine's law is limited to e-waste generated by households; the recycling of business waste is adequately addressed under Maine's hazardous waste laws and regulations (business e-waste is regulated as a Universal Waste, with streamlined storage, tracking, transportation and record-keeping provisions).

In 2007, Maine amended its statutory definition of manufacturer to clarify that the brand owner is ultimately responsible for the recycling of units marked with its brand label with the enactment of Public Law 2007, chapter 292. Some brand owners license other entities to use their brand names on units manufactured and/or sold by these licensees; some of these brand owners want states to assign recycling costs to their licensees. However, license agreements are confidential business information, and licensors often license more than one entity to utilize their brand name(s). Establishing responsibility for units at the end of life based on license agreements when there can be multiple licensees for a single brand adds a layer of complexity to apportioning costs that can quickly become unmanageable for the consolidators and recyclers doing the accounting of the waste stream. Maine's current definition was developed to streamline administrative implementation and simplify enforcement (if needed). Connecticut has adopted a definition that is virtually equivalent so that the two states can share manufacturer information and minimize duplication of efforts in identifying manufacturers and brands.

Maine's disposal ban and sales ban are both working well to encourage the recycling of e-waste and manufacturer compliance with Maine's e-waste law. The collection and recycling standards (environmentally sound management requirements) of Maine's law have been readily implemented by municipal collection sites, approved consolidators and the recyclers which receive Maine's household e-waste. This provides both the generators of the waste (Maine's residents) and the responsible manufacturers with a level of assurance that these wastes are managed appropriately to prevent any degradation to the environment and any associated liability.

VII. Accomplishments

Maine has accomplished a great deal with passage and implementation of its E-Waste Law. Maine's was the first law in the United States to codify the concept of product stewardship for the manufacturers of consumer electronics. This began the process of engaging the private sector to apply its ingenuity and expertise to the end-of life management of its products. It also relieved the public sector of being solely responsible for managing a growing waste stream containing a significant amount of toxics. Responsible manufacturers have responded by working with the recycling industry to ensure environmentally sound management of their products at the end-of-life. They are also working to design products with fewer toxics, for ease of disassembly and for recouping commodity value from components and materials at the end of product life.

Maine demonstrated to other states that it is possible to implement an e-waste management system that includes a significant component of manufacturer responsibility without a significant increase in government bureaucracy (California added 75-90 positions to manage its ARF-funded system⁸). States that have adopted e-waste laws subsequently to Maine have utilized Maine DEP's database of manufacturers and brands (either directly or through the National Center for Electronics Recycling) to implement their programs.

As a result of its E-Waste Law, Maine published *Environmentally Sound Management Guidelines for Televisions and Computer Monitors*, and required recyclers of Maine's household e-waste to meet these standards, thus preventing dumping of Maine's e-waste in developing countries. In accordance with the procurement provision of Maine's law, the State of Maine purchasing specifications now include design for the environment requirements (this is accomplished through purchase of EPEAT⁹ "silver" or higher rated computers). Including such environmentally-preferable purchasing specifications uses Maine's market power to reward manufacturers that design products with energy saving features and fewer toxics, and which are easy to recycle.

Most importantly, Maine's E-Waste Law has enabled municipalities, the State, manufacturers, retailers, consolidators, recyclers and environmental advocacy organizations to work together to implement a system that recycled almost six million pounds of electronics in its first 18 months of operation. This represents a significant savings in landfill capacity, a reduction in the potential for toxics releases to Maine's environment, and the reclaiming of almost all six million pounds of waste as commodity materials that can be used to create new products.

⁸ Matthew McCarron, California Integrated Waste Management Board, e-mail to Carole Cifrino, Maine DEP, December 11, 2007.

⁹ EPEAT, the "Electronic Product Environmental Assessment Tool", is a system to help purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes (environmentally preferable purchasing). EPEAT provides a clear and consistent set of performance criteria for the design of products, and provides an opportunity for manufacturers to secure market recognition for efforts to reduce the environmental impact of its products. The EPEAT system and the environmental criteria for computers and monitors were originally developed in a 2-year multi-stakeholder process that was facilitated by the Zero Waste Alliance on a grant from the US EPA.

VIII. Recommendations

The experience gained by DEP in implementing the first two years of the e-waste program and the concurrent development of e-waste laws in other states have brought to light some aspects of Maine's program that can benefit from changes. Specifically, additions to the scope of covered electronic devices will increase the amount of electronics recycled and decrease costs to municipalities, and harmonization of the annual manufacturer submittal requirements of Maine's law with other states' laws will make it easier for manufacturers to comply. Appendix D includes proposed changes to 38 MRSA §1610 to implement these recommendations.

Recommendation #1: The DEP recommends adding desktop printers and digital picture frames to the scope of products included in Maine's law.

Discussion: Desktop printers and digital picture frames are e-waste products for which municipalities incur costs if they choose to recycle them, so the majority doesn't. Printers and digital picture frames will continue to grow in volume in Maine's MSW waste stream, yet they are made up of materials that can be readily reused if the recycling receives some financial support from the manufacturers. Digital picture frames are similar in appearance and to a limited extent in function to computer monitors, and consumers will expect to be able to recycle them through the same system as monitors. Consumers routinely look to recycle their desktop printers along with their household computer systems as evidenced by the towns that have chosen to accept printers for recycling as a service along with computers and monitors.

Recommendation #2: The DEP recommends that the manufacturer plan and reporting requirements of 38 MRSA §1610 sub-§6 be simplified into an initial and annual registration requirement similar to those required by Washington State and Connecticut. Additionally, to support interstate cooperation, a new subsection should be added to 38 MRSA §1610 to authorize the DEP to participate in an interstate clearinghouse or compact to assist in carrying out the requirements of Maine's E-Waste Law.

Discussion: As other states have adopted e-waste laws, they have provided Maine with new and refined approaches to some aspects common to all e-waste laws. For example, Maine can simplify the manufacturer paperwork requirements by replacing the requirements for manufacturers to submit an initial plan for compliance and annual reports with a requirement for an annual registration containing information similar to that required by Washington State and Connecticut. In other states manufacturers also pay an annual administrative fee to support the states' administration and enforcement functions.

Connecticut's recent adoption of an e-waste law that is very similar to Maine's presents opportunities for harmonization which may allow for sharing of program administrative tasks. Specifically, Connecticut's law includes a provision that allows the State to enter into a regional multistate organization or compact to assist in implementing its e-waste law. This is similar to a provision in Maine's Mercury Products Law (38 MRSA §1671) which has enabled DEP to participate in the Interstate Mercury Education and Reduction Clearinghouse (IMERC), preventing unnecessary duplication of efforts by multiple states implementing similar laws. The DEP recommends that a similar provision be added to Maine's E-Waste Law so that DEP can take

advantage of any opportunities to share program administrative tasks through partnerships with other states.

IX. Conclusion

In the first 18 months of implementation, Maine's program resulted in the recycling of almost six million pounds of televisions and computer monitors, all of which was recycled in accordance with environmentally sound management guidelines. Additionally, the program encouraged the development of local collection infrastructure, and many municipalities have chosen to collect and recycle computers along with the monitors and televisions.

The private sector consolidators and recyclers have played a key role in ensuring the success of Maine's program. They have been creative and flexible in establishing the new procedures required to implement the end-of-life accounting and billing of manufacturers and reporting to the DEP. Maine's program places them in a unique role of providing services to both the municipalities and the manufacturers while being subject to additional regulatory oversight. The consolidators' willingness to take a risk by volunteering to participate in an untried program and to work cooperatively with the DEP, municipalities and manufacturers highlights the strength of innovation that the private sector brings into this shared responsibility system.

Although Maine's program has been successful, there are opportunities for improvement. DEP staff has not been able to perform adequate compliance surveillance of on-line retailers, nor has staff been able to consistently pursue timely enforcement. DEP established this program with no additional staff or financial resources. Other state programs established subsequent to Maine's law include an annual manufacturer administrative fee that is used to provide program resources. A similar annual administrative fee requirement could be considered in Maine to provide DEP with resources to support program staff and defray the cost to long-standing manufacturers of orphan products recycled as part of Maine's program.

Maine's 2004 E-Waste Law acted as a major catalyst to engage electronics manufacturers in planning for the lifecycle impacts and costs of their products. This law was the first to require that manufacturers work with state and local governments and the private sector recycling industry to establish a cost-efficient program for the recycling of televisions and computer monitors. Based in part on Maine's demonstrated success, several other states have adopted manufacturer responsibility laws for e-waste recycling. Along with the diversion of millions of tons of waste from Maine's disposal facilities to become market commodities, the leadership in integrating product stewardship concepts into waste management laws may be the greatest legacy of Maine's E-Waste Law.

Appendix A – Original (2003) Law

PUBLIC LAW 2003, CHAPTER 150 H.P. 549 - L.D. 743

An Act To Develop a Plan for Cathode Ray Tube Disposal

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 38 MRSA §1306, sub-§4 is enacted to read:

4. Cathode ray tube disposal. After January 1, 2006, a person may not dispose of a cathode ray tube in a solid waste disposal facility. This subsection may not be construed to affect existing laws, rules or regulations governing disposal of cathode ray tubes in effect prior to January 1, 2006.

Sec. 2. Stakeholder group established. The Department of Environmental Protection shall convene a stakeholder group to assist the department in developing a recommended plan for the collection and recycling of cathode ray tubes, referred to in this section as "CRTs." The plan must utilize the concept of shared responsibility among manufacturers, distributors, retailers, consumers and other parties. The stakeholder group must be convened no later than 30 days after the effective date of this Act.

1. Membership. The stakeholder group must include representation from an environmental advocacy organization; the electronic manufacturing industry; a recycling or consolidation business; the Executive Department, State Planning Office; a statewide municipal association; a solid waste disposal business; and other interested parties that may have a role in the collection and recycling plan.

2. Duties. The Department of Environmental Protection, with the assistance of the stakeholder group, shall:

- A. Identify products that contain CRTs; track the distribution of these products among consumer groups, including households, small businesses and industry; and determine the number of CRTs that are currently available for collection;
- B. Identify existing resources for the collection and recycling of CRTs and recommend ways to expand in-state resources for the collection and recycling of CRTs;
- C. Review the various types and sizes of CRTs in order to recommend which CRTs should be included in a collection and recycling program;
- D. Review alternative disposal practices, including the practice of disposal in lined solid waste landfills or incineration and the practice of collection, recycling and final disposal; and
- E. Estimate the cost of collection and recycling of CRTs and recommend a plan for how the costs should be paid, including the costs of collecting orphaned and historic waste. The payment plan must address shared responsibility among manufacturers, distributors, retailers, consumers and other parties.

3. Report. The Department of Environmental Protection shall submit to the Joint Standing Committee on Natural Resources no later than January 30, 2004 a recommended plan, including any legislation necessary to implement the plan, for the collection and recycling of CRTs that utilizes shared responsibility among manufacturers, distributors, retailers, consumers and other parties. The Joint Standing Committee on Natural Resources may report out legislation concerning the collection and recycling of CRTs during the Second Regular Session of the 121st Legislature.

Appendix B - Municipal E-Waste Survey

The University of Southern Maine (USM), the Natural Resources Council of Maine (NRCM), and the Maine Department of Environmental Protection (DEP) partnered to conduct a survey of Maine municipalities' e-waste recycling systems. After the three organizations agreed on the content, the DEP mailed a one page survey and a stamped return envelope to 446 municipalities in October 2007. Two USM students (one through work study and one in a paid internship for NRCM) entered the data and made phone calls to municipalities seeking responses from those that did not initially respond. The following information is based on completed surveys received as of the end of 2007. The survey form and cover letter are reproduced on the following two pages.

	Number of municipalities	Percent Maine population	Charge EOL ¹⁰ fees?	EOL fee \$5 or less	EOL fee >\$5
Responses received	348	84.5%			
Annual collection	20	3.9			
Semi annual/periodic collection	18	6.4			
On-going collection	279	70.5			
Household monitors	302	79.4	182	105	77
Household TVs	295	78.7	175	75	100
Business monitors	302	79.4	182	105	77
Business TVs	155	39	142	35	107
Also collect computers	158	43.4	135	27	108
Also collect desktop printers	135	37.8	112	52	60
Also collect peripherals	66	25.3	51	39	7

¹⁰ EOL fees are "end of life" fees assessed on electronic waste

MEMORANDUM

To: Every Maine municipality
From: Maine DEP Solid Waste Program
Date: September 18, 2007
Re: Update of municipal data on electronics recycling

Here is a short survey that we are asking every Maine town to complete and return to Maine DEP in the enclosed postage-paid envelope. The survey includes your name and contact information because our most recent records show that you are the person who is responsible for ensuring your town fulfills its solid waste management responsibilities for its citizens. If you are not the appropriate person, please pass this survey along to them so that they may update this information and complete and return the survey.

Over the last few years, Maine has adopted laws to increase the recycling of electronics while decreasing the cost of electronics recycling to municipalities. Many Maine citizens call DEP and visit our web site to find out where they can recycle their electronics. We conducted a phone survey of all towns in June of 2006 to compile information on municipal Universal Waste collection, including electronics. Since that time, many towns have changed the location and/or frequency of electronics collections for their residents. By completing this survey, you will help us provide the most accurate information to your residents.

At the end of the survey, we ask for your town's primary solid waste facility. Here we are seeking the facility to which your resident's send their trash, which may or may not be the final disposal location.

Thank you for completing this survey and returning it as soon as possible. Please contact Ann Pistell (207-287-7703, ann.e.pistell@maine.gov) or Carole Cifrino (207-287-7720, carole.a.cifrino@maine.gov) if you have any questions.

Electronic Waste Recycling - Municipal Survey

Town: _____ Date: _____

E-Waste Collection Site: _____

Physical location: _____

E-Waste/Recycling Contact Name(s) _____

Mailing Address: _____ Phone: _____

Type of facility:

- ☐ Transfer Station ☐ Recycling Center ☐ Public Works Facility
☐ Landfill or solid waste incinerator ☐ Other _____

Electronics collected::

- ☐ TVs ☐ Computer Monitors ☐ Computers ☐ Printers
☐ other _____

Frequency of Collection:

- ☐ on-going _____ day(s) per week ☐ annual ☐ semi-annual
☐ other _____

Do you charge households a fee for electronics recycling? ☐ Yes ☐ No

If yes, how much for each?

Computer Monitor _____ Computer _____ Printer _____
TV _____ Other Electronics _____

Do you accept TVs, computer monitors or computers from businesses? ☐ Yes ☐ No

If yes, do you charge businesses a fee? If yes, how much for each?

TV _____ Computer Monitor _____ Computer _____

What company or regional organization picks up the TVs and monitors for recycling? _____

If a resident wants to recycle a TV or computer monitor when your town collection location is not open, where do you tell them to take it? _____

Does your town's e-waste collection site use the free RBRC battery recycling program to recycle rechargeable batteries and cell phones? ☐ Yes ☐ No

Town contact:

Name _____ Title: _____

Mailing Address: _____

Phone: _____ E-Mail address: _____

Town's Primary Solid Waste Facility _____

Attendant's Name _____ Phone: _____

Mailing Address: _____

Physical Address: _____

Appendix C - Comparison of Selected Elements of State E-Waste Laws

Legislative Element	AR	CA	CT	ME	MD	MA	MN	NH	OR	RI	TX	WA
<i>Funding Mechanism</i>												
ARF		✓										
Producer pays			✓	✓			✓		✓		✓	✓
Flat fee					✓							
<i>Collection & Recycling Standards or Restrictions</i>												
Landfill ban	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Export restrictions		✓	✓									
Ban on prison labor							✓				✓	✓
Recycling standards			✓	✓							✓	✓
Mandatory recycling goals							✓					
<i>Product Requirements or Restrictions</i>												
Product label to identify manufacturer or brand		✓	✓	✓	✓		✓		✓		✓	✓
Provisions tied to the RoHS Directive regarding the use of certain hazardous substances		✓					✓					

Source: The Congressional Research Service's August 2007 Report for Congress entitled
Managing Electronic Waste: An Analysis of State E-Waste Legislation (Order Code RL34147)

Appendix D – Current Statute with Changes Proposed by the Maine Department of Environmental Protection

38 MRSA §1610. Electronic waste

1. Findings; purpose. The Legislature finds that the establishment of a system to provide for the collection and recycling of electronic devices in this State is consistent with its duty to protect the health, safety and welfare of its citizens, enhance and maintain the quality of the environment, conserve natural resources and prevent air, water and land pollution. The Legislature further finds that such a system is consistent with the overall state solid waste management policy including its intent to pursue and implement an integrated approach to solid waste management and to aggressively promote waste reduction, reuse and recycling as the preferred methods of waste management.

The Legislature finds that the purpose of this section is to establish a comprehensive electronics recycling system that ensures the safe and environmentally sound handling, recycling and disposal of electronic products and components and encourages the design of electronic products and components that are less toxic and more recyclable.

The Legislature further finds that it is the purpose of this section to establish an electronics recycling system that is convenient and minimizes cost to the consumer of electronic products and components. It is the intent of the Legislature that manufacturers of electronic products and components will be responsible for ensuring proper handling, recycling and disposal of discarded products and that costs associated with consolidation, handling and recycling be internalized by the manufacturers of electronic products and components before the point of purchase.

The Legislature further finds that the manufacturers of electronic products and components should reduce and, to the extent feasible, ultimately phase out the use of hazardous materials in these products.

The Legislature further finds that a system of shared responsibility for the collection and recycling of covered electronic devices among manufacturers, consolidators, municipalities and other parties is the most effective and equitable means of achieving the purposes of this section. Manufacturers of electronic devices and components, in working to achieve the goals and objectives of this section, should have the flexibility to act in partnership with each other, with state, municipal and regional governments and with businesses that provide collection and handling services to develop, implement and promote a safe and effective electronics recycling system for the State.

2. Definitions. As used in this section, unless the context otherwise indicates, the following terms have the following meanings.

A. "Computer monitor" means a covered electronic device that is a cathode ray tube or flat panel display primarily intended to display information from a central processing unit or the Internet. For purposes of this section, digital picture frames are considered to be a type of computer monitor.

B. "Consolidation facility" means a facility where electronic wastes are consolidated and temporarily stored while awaiting shipment of at least a 40-foot trailer full of covered electronic devices to a recycling, treatment or disposal facility. "Consolidation facility" includes a transport vehicle owned or leased by a consolidator and used to collect covered electronic

devices at municipal collection sites in this State at a cost no greater than the per pound transportation rate for a full 40-foot trailer as approved by the department for each consolidator pursuant to the rules governing reasonable operational costs adopted under subsection 5, paragraph D, subsection 1.

B-1 "Consolidator" means a person that provides consolidation and handling services for electronic wastes and that operates at least one consolidation facility.

C. "Covered electronic device" means a computer central processing unit, a desktop printer, a cathode ray tube, a cathode ray tube device, a flat panel display or similar video display device with a screen that is greater than 4 inches measured diagonally and that contains one or more circuit boards. "Covered electronic device" does not include an automobile, a household appliance, a large piece of commercial or industrial equipment, such as commercial medical equipment, that contains a cathode ray tube, a cathode ray tube device, a flat panel display or similar video display device that is contained within, and is not separate from, the larger piece of equipment, or other medical devices as that term is defined under the Federal Food, Drug, and Cosmetic Act.

C-1. "Desktop printer" means a device that prints text or illustrations on paper and which is designed for external use with a desktop or portable (laptop) computer. Such devices may include, but are not limited to, daisy-wheel, dot-matrix, ink-jet, laser, LCD and LED, line printer or thermal printers, including devices that perform other functions in addition to printing such as copy, scan or fax.

D. "Manufacturer" means a person who:

1. Manufactures or has manufactured a covered electronic device under its own brand or label;
2. Sells or has sold under its own brand or label a covered electronic device produced by other suppliers;
3. Imports or has imported a covered electronic device into the United States that is manufactured by a person without a presence in the United States; or
4. Owns a brand that it licenses or licensed to another person for use on a covered electronic device.

E. "Municipal collection site" means a municipally owned solid waste transfer station or recycling center, including a facility owned by a consortium of municipalities or a facility that is under contract with a municipality or consortium of municipalities to provide solid waste management services.

F. "Office" means the Executive Department, State Planning Office.

G. "Orphan waste" means a covered electronic device, the manufacturer of which can not be identified or is no longer in business and has no successor in interest.

H. "Recycling" means the use of materials contained in previously manufactured goods as feedstock for new products, but not for energy recovery or energy generation by means of combustion.

I. "Recycling and dismantling facility" means a business that processes covered electronic devices for reuse and recycling.

J. "Retailer" means a person who sells a covered electronic device in the State to a consumer. "Retailer" includes, but is not limited to, a manufacturer of a covered electronic device who sells directly to a consumer through any means, including, but not limited to, transactions conducted through sales outlets, catalogs or the Internet, or any similar electronic means, but not including wholesale transactions with a distributor or other retailer.

K. "Television" means a covered electronic device that is a cathode ray tube or flat panel display primarily intended to receive video programming via broadcast, cable or satellite transmission or video from surveillance or other similar cameras.

3. Sales prohibition. Beginning January 1, 2006 the following sales prohibitions apply to manufacturers and retailers.

A. A manufacturer not in compliance with this section is prohibited from offering a covered electronic device for sale in this State. A manufacturer not in compliance with this section shall provide the necessary support to retailers to ensure the manufacturer's covered electronic devices are not offered for sale in this State.

B. A retailer may not offer for sale in this State a covered electronic device of a manufacturer that is not in compliance with this section.

4. Manufacturer label required. Beginning January 1, 2005, a manufacturer may not offer for sale in this State a covered electronic device unless a visible, permanent label clearly identifying the manufacturer of that device is affixed to it.

5. Responsibility for recycling. Municipalities, consolidators, manufacturers and the State share responsibility for the disposal of covered electronic devices as provided in this subsection.

A. Each municipality that chooses to participate in the state collection and recycling system shall ensure that computer monitors and televisions generated as waste from households within that municipality's jurisdiction are delivered to a consolidation facility in this State. A municipality may meet this requirement through collection at and transportation from a local or regional solid waste transfer station or recycling facility, by contracting with a disposal facility to accept waste directly from the municipality's residents or through curbside pickup or other convenient collection and transportation system.

B. A consolidator is subject to the requirements of this paragraph.

(1) Beginning January 1, 2006, a consolidator shall identify the manufacturer of each computer monitor, television, and desktop printer delivered to a consolidation facility and identified as generated by a household in this State and shall maintain an accounting of the number of ~~waste household~~ computer monitors, televisions, and desktop printers by manufacturer. By March 1st each year beginning in 2007, a consolidator shall provide this accounting by manufacturer to the department.

(2) A consolidator may perform the manufacturer identification required by subparagraph (1) at the consolidation facility or may contract for this identification and accounting service with the recycling and dismantling facility to which the waste is shipped.

(3) A consolidator shall work cooperatively with manufacturers to ensure implementation of a practical and feasible financing system. At a minimum, a consolidator shall invoice the manufacturers for the handling, transportation and recycling costs for which they are responsible under the provisions of this subsection.

(4) A consolidator shall transport ~~waste~~ computer monitors, televisions, and desktop printers to a recycling and dismantling facility that provides a sworn certification pursuant to paragraph C. A consolidator shall maintain for a minimum of 3 years a copy of the sworn certification from each recycling and dismantling facility that receives covered electronic devices from the consolidator and shall provide the department with a copy of these records within 24 hours of request by the department.

C. A recycling and dismantling facility shall provide to a consolidator a sworn certification that its handling, processing, refurbishment and recycling of covered electronic devices meet guidelines for environmentally sound management published by the department.

D. Computer monitor, ~~manufacturers and~~ television, and desktop printer manufacturers are subject to the requirements of this paragraph.

(1) Ninety days after the department adopts rules as provided for in this subparagraph, each computer monitor manufacturer, ~~and~~ each television manufacturer and each desktop printer manufacturer is individually responsible for handling and recycling all computer monitors, ~~and~~ televisions and desktop printers that are produced by that manufacturer or by any business for which the manufacturer has assumed legal responsibility, that are generated as waste by households in this State and that are received at consolidation facilities in this State. In addition, each computer monitor manufacturer is responsible for a pro rata share of orphan waste computer monitors, ~~and~~ each television manufacturer is responsible for a pro rata share of orphan waste televisions, and each desktop printer manufacturer is responsible for a pro rata share of orphan waste desktop printers generated as waste by households in this State and received at consolidation facilities ~~in this State~~. The manufacturers shall pay the reasonable operational costs of the consolidator attributable to the handling of all computer monitors, ~~and~~ televisions, and desktop printers generated as waste by households in this State, the transportation costs from the consolidation facility to a licensed recycling and dismantling facility and the costs of recycling. The manufacturers shall ensure that consolidation facilities are geographically located to conveniently serve all areas of the State as determined by the department. ~~By November 1, 2005, the department shall adopt routine technical rules as defined in Title 5, chapter 375, subchapter 2 A that identify the criteria that consolidators must use to determine reasonable operational costs attributable to the handling of computer monitors and televisions.~~

(2) Each computer monitor manufacturer, television manufacturer and desktop printer manufacturer shall work cooperatively with consolidators to ensure implementation of a practical and feasible financing system. Within 90 days of receipt of an invoice, a manufacturer shall reimburse a consolidator for allowable costs incurred by that consolidator.

E. Annually, beginning January 1, 2006, the department shall provide manufacturers and consolidators with a listing of each manufacturer's pro rata share of orphan waste computer monitors, televisions and desktop printers. The department shall determine each manufacturer's pro rata share based on the best available information, including but not limited to data

provided by manufacturers and consolidators and data from electronic waste collection programs in other jurisdictions within the United States.

6. Manufacturer plan and reporting or registration requirements. A manufacturer shall develop a plan and submit a report or submit an annual registration as required in this subsection.

A. A manufacturer shall develop a plan for the collection and recycling or reuse of computer monitors and televisions as follows.

(1) By March 1, 2005, a manufacturer of computer monitors and a manufacturer of televisions shall develop and submit to the department a plan for the collection and recycling or reuse of computer monitors and televisions produced by the manufacturer and generated as waste by households in this State. This plan must be based on the manufacturer's taking responsibility for its products upon receipt at consolidation facilities in the State. Following submission of the original plan, manufacturers may revise their plans at any time as they may consider appropriate in response to changing circumstances or needs only if these revisions conform to the provisions of this section and rules adopted pursuant to this section, and are submitted to the department in a timely fashion.

(2) Ninety days after the department adopts rules under subsection 5, paragraph D, subparagraph (1), a manufacturer of computer monitors and a manufacturer of televisions shall implement and finance the implementation of this plan for the collection and recycling or reuse of computer monitors and televisions produced by the manufacturer and generated as waste by households in this State.

(3) Notwithstanding subparagraphs (1) and (2), a manufacturer may satisfy the plan requirements of this paragraph by agreeing to participate in a collective recovery plan with other manufacturers. The collective recovery plan must meet the same standards and requirements of the plans submitted by individual manufacturers.

(4) The plan developed by the manufacturer must include, at a minimum:

(a) A description of the collection system, including the methods of convenient collection;

(b) A public education element to inform the public about the collection system, including details about meeting all consumer notification and labeling requirements;

(c) Details for implementing and financing the handling of computer monitors and televisions produced by the manufacturer and orphan waste computer monitors and televisions that are generated as waste by households in this State and received by consolidation facilities in this State;

(d) Details for the method of reimbursing consolidators for the costs of handling and recycling the household computer monitors and televisions;

(e) Deleted. PL 2005, c 561, §8;

(f) Deleted. PL 2005, c 561, §8;

(g) Descriptions of the performance measures that will be used and reported by the manufacturer to report recovery and recycling rates for computer monitors and televisions at the end of life of those computer monitors and televisions; and

(h) Deleted. PL 2005, c 561, §8;

(i) Annual sales data on the number and type of computer monitors and televisions sold by the manufacturer in this State over the 5 years preceding the filing of the plan. The department may keep information submitted pursuant to this division confidential as provided under section 1310-B.

(5) A manufacturer is responsible for all costs associated with the development and implementation of the plan. If the costs are passed on to consumers, the costs must be imposed at the time of purchase and not with a fee imposed at the end of life of the computer monitor or television.

This paragraph is repealed effective January 1, 2009.

B. Beginning July 1, 2007, and annually thereafter, a manufacturer that offers a computer monitor or television for sale in this State shall submit a report to the department that includes the following: a description of the collection, consolidation and recycling services utilized to recover the manufacturer's products; substantiated estimates, on an annual basis for the preceding calendar year, of the quantities of covered electronic devices marketed to retail customers in this State and collected for recovery in this State; the capture rate for electronics based on sales in this State; the identification of end markets for the collected waste; and any systems implemented by the manufacturer to ensure environmentally sound management of its products. The department may keep information submitted pursuant to this paragraph confidential as provided under section 1310-B. This paragraph is repealed effective January 1, 2009.

C. By January 1, 2009, and annually thereafter, a manufacturer that offers or has offered a computer monitor, television or desktop printer for sale in this State shall submit a registration to the department that includes the following:

(1) The name, contact, and billing information of the manufacturer;

(2) The manufacturer's brand name(s) and the type of televisions, computer monitors, and printers on which each brand is used, including:

(a) All brand names sold in Maine in the past; and

(b) All brand names currently being sold in Maine;

(3) All brand names of electronic products for which the registrant assembles but does not have legal ownership of the brand name placed on the product;

(4) When a word or phrase is used as the label, the manufacturer must include that word or phrase and a general description of the ways in which it may appear on the manufacturer's electronic products;

(5) When a logo, mark, or image is used as a label, the manufacturer must include a graphic representation of the logo, mark, or image and a general description of the logo, mark, or image as it appears on the manufacturer's electronic products;

(6) The method or methods of sale used in or into Maine;

(7) Annual sales data on the number and type of computer monitors and televisions sold by the manufacturer in this State over the 5 years preceding the filing of the plan. The department may keep information submitted pursuant to this paragraph confidential as provided under section 1310-B; and

(8) The manufacturer's consolidator handling option for the next calendar year selected in accordance with rules adopted pursuant to subsection 10.

A manufacturer's annual registration filed subsequent to its initial registration shall clearly delineate any changes in information from the previous year's registration. Whenever there is any change to the information on the manufacturer's registration, a registered manufacturer must submit an updated form within fourteen days of when the change occurs.

7. Enforcement. The department must enforce this section in accordance with the provisions of sections 347-A and 349. If a manufacturer fails to pay for the costs allocated to it pursuant to section 1610, subsection 5, paragraph D, subparagraph (1), including its prorated share of costs attributable to orphan waste, the department may pay a consolidator its legitimate costs from the Maine Solid Waste Management Fund established in section 2201 and seek cost recovery from the nonpaying manufacturer. Any nonpaying manufacturer is liable to the State for costs incurred by the State in an amount up to 3 times the amount incurred as a result of such failure to comply.

The Attorney General is authorized to commence a civil action against any manufacturer to recover the costs described in this subsection, which are in addition to any fines and penalties established pursuant to section 349. Any money received by the State pursuant to this subsection must be deposited in the Maine Solid Waste Management Fund established in section 2201.

8. Reports to Legislature. The department shall submit a report on the recycling of electronic waste in the State to the joint standing committee of the Legislature having jurisdiction over natural resources matters by January 15, 2008 and every 2 years thereafter until January 15, 2014. The report must include an evaluation of the recycling rates in the State for covered electronic devices, a discussion of compliance and enforcement related to the requirements of this section and recommendations for any changes to the system of collection and recycling of electronic devices in the State.

9. State procurement. All vendors of electronic devices to the State shall provide take-back and management services for their products at the end of life of those products and must be in compliance with all the requirements of this section. Vendors shall provide assurances that all take-back and management services will operate in compliance with all applicable environmental laws. Purchasing preference must be given to electronic devices that incorporate design for the preservation of the environment.

10. Rule-making. The department shall adopt routine technical rules as defined in Title 5, chapter 375, subchapter 2-A as necessary for the purpose of implementing, administering and enforcing this chapter, including rules that identify the criteria that consolidators must use to determine reasonable operational costs attributable to the handling of computer monitors, televisions and desktop printers.

11. Interstate clearinghouse for e-waste. The department may participate in the establishment and implementation of a regional multistate clearinghouse or compact to assist in carrying out the requirements of this chapter. Notwithstanding section 1310-B, subsection 2, the department may provide the interstate clearing-house or compact with information submitted to the department under section 1610 subsection 6 and the department and the interstate clearinghouse or compact may compile or publish analyses or summaries of such information provided the analyses or summaries do not identify any manufacturer or reveal any confidential information.

2008 E-Waste Report – Updated Tables

Tables 1 and 2

Tables 1 and 2 appear on page 5 of 8 in the 1/15/08 report; data here is updated as of 1/22/08

EOL fee – monitors	\$0	\$1-5	\$6-10	\$11-15	\$16-20	>\$20	Fee Unknown
Number of municipalities	126	112	53	17	8	3	13
Percent of Maine population	29.8%	36.7%	9.7%	2.6%	1.4%	1.8%	1.3%

EOL fee – televisions*	\$0	\$1-5	\$6-10	\$11-15	\$16-20	>\$20	Fee Unknown
Number of municipalities	126	81	35	10	33	28	15
Percent of Maine population	29.8%	22.4%	9.8%	2.5%	9.3%	7.5%	1.4%

*rate may vary depending on screen size of TV; count reflects highest rate charged

83% municipalities reporting, representing 85.8% of Maine's population

Appendix B – Municipal E-Waste Survey

Appendix B table information updated as of 1/22/08

	Number of municipalities	Percent Maine population	EOL fees?	EOL \$5 or less?	EOL >\$5
Responses received	355	85.8%			
Annual collection	25	4.9			
Semi annual/periodic collection	18	6.4			
On-going collection	299	73.3			
Household monitors	322	82.1	196	112	84
Household TVs	315	81.4	189	81	108
Business monitors	322	82.1	196	112	84
Business TVs	180	41.8	163	36	127
Also collect computers	183	46.2	155	121	34
Also collect desktop printers	156	39.6	128	60	68
Also collect peripherals	84	27.2	65	58	7