

**JOINT LEGISLATIVE AIR AND WATER POLLUTION  
CONTROL AND CONSERVATION COMMITTEE**

**Pennsylvania General Assembly  
House of Representatives  
PO Box 202254  
Harrisburg, Pennsylvania 17120  
717-787-7570**

**REPORT ON E-WASTE RECYCLING  
PROGRAMS AND POLICY OPTIONS**

**June, 2008**

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**TO: All Members of the General Assembly**

**FROM: Representative Scott E. Hutchinson, Chairman  
Senator Raphael J. Musto, Vice Chairman**

**SUBJECT: Report on Electronic Waste Programs and Policies**

**DATE: June 26, 2008**

The following report is the result of a public hearing held by the Joint Legislative Air and Water Pollution Control and Conservation Committee in Harrisburg, Pennsylvania on October 4, 2007.

The purpose of the hearing was to discuss the possibility of creating a state-wide electronic waste recycling system. This report is intended to help the Commonwealth develop long-term solutions for dealing with the growing electronic waste problem, and encourage manufacturers, recyclers, and consumers to recycle electronic waste in an economically and environmentally responsible manner.

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**2007-2008 Session**

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## **Section I. Electronic Waste Policy Issues and Recommendations**

### **Introduction**

The question of what to do with electronic waste (e-waste) is one that is facing Pennsylvania and our entire nation. The issue itself is not new, but the volume of e-waste headed for the scrap heap, unless recycled or reused, is growing larger each year. In fact, according to the U.S. Environmental Protection Agency (EPA), electronic waste is the fastest growing category of the municipal solid waste stream.

EPA estimates that 2 million tons of electronic waste is generated annually in the U.S. The Consumer Electronics Association estimated that in 2005, about 304 million electronic items, of which about two-thirds were still in working order, were removed from U.S. households. The EPA reported that in 2005, between 1.5 million and 1.9 million tons of discarded electronic waste was disposed of in landfills while only about 345,000 - 379,000 tons were recycled.

The Joint Legislative Air and Water Pollution Control and Conservation Committee (Committee) has taken up the issue of what to do with electronic waste because of numbers like those above. In October 2007, the Committee held a public hearing in Harrisburg, Pennsylvania concerning e-waste recycling and heard about several different ways to approach the problem. Thus far, there is no national e-waste system or standards. As a result, different states like Pennsylvania are trying different methods to recycle items like computer components, TVs, VCRs, cell phones and monitors.

Pennsylvania is seeking to move forward with a more robust approach than its current voluntary recycling programs. Pennsylvania has been a national leader in recycling other waste streams such as newspaper, aluminum cans and glass bottles. We expect that several different proposed e-waste programs have been or will be introduced in legislation in Pennsylvania during this legislative session. The Committee believes that a successful electronic waste recycling system will require cooperation between stakeholders and understanding of each other's responsibilities. As will be described in more detail in Section III below, we can also learn from other states who have attempted to establish effective e-waste programs.

While Maine's and California's e-waste programs systems are already up and running, other states – such as Washington, Minnesota and Texas, are just beginning to implement their own systems. Some states use combinations of the “producer” and “consumer” responsibility models, some state systems cover televisions and computer components, while other state systems focus only on computer electronics.

This Report provides: 1) an overview of the current status of legislative proposals related to e-waste regulation in Pennsylvania; 2) a summary of the expert testimony the Committee heard in October 2007; 3) a summary of the types of e-waste programs that have been established or proposed in other states; 4) a set of

consensus points or recommendations for moving forward on an e-waste recycling program in Pennsylvania in 2008; and, 5) draft legislation based upon the best practices of other state e-waste recycling programs.

## **Executive Summary**

Rapid advances in technology mean that electronic products are becoming obsolete more quickly. Coupled with explosive sales in consumer electronics, it also means that more products are being disposed of in landfills and incinerators.

Now that several states have passed electronic waste recycling bills, and some have gone through rulemaking or even program implementation, we have some models for legislative language on key elements. Effective e-waste legislation must address what happens to the collected waste to make sure it's handled responsibly.

The Committee was asked to study and make recommendations regarding the disposal of electronic waste in Pennsylvania. Simply put, the objective is to move toward an economical and environmentally sustainable series of actions that are designed to minimize waste generation, maximize the recovery of resources where economically viable and dispose of the remainder of materials by methods that protect human health and the environment.

While there are a variety of approaches that lend themselves to study in formulating recommendations for Pennsylvania, two goals are paramount. First, waste reduction – keeping electronics out of landfills and incinerators – should be the preferred approach to electronic waste management. Waste reduction helps conserve resources for future generations and contributes to a cleaner environment.

Second, reduction in the use of toxic materials in electronic devices should be pursued in order to facilitate recycling and reuse. If treated properly, e-waste is a valuable resource for secondary raw materials. The debate continues over the distinction between “commodity” and “waste”, but disposal and recycling/reuse operations must be undertaken with great care to avoid environmental hazards. Simply collecting and then exporting e-waste overseas to questionable “processing” facilities is not good enough.

Pursuing both of the goals above means that we should not only be encouraging consumers to return electronic items to responsible entities instead of tossing them in the trash or hoarding them in their closets, but also encouraging manufacturers to design electronic items that do not become obsolete but retain value for future use.

Many states have embarked on e-waste legislation by enacting bans on land-filling e-waste due to the toxins found in the waste. But that only solves a part of the problem. As states move forward, two basic schools of thought have emerged in regard of how to treat the e-waste that will now no longer be landfilled.

The first approach is “producer responsibility” or “extended producer responsibility” (EPR) in which manufacturers pay for collection, transportation and recycling of e-waste. The second approach is an “advance recovery fee” (ARF) sys-

tem, in which consumers pay a fee at retail when they purchase electronics products to cover recycling. The fees are then typically sent to a state agency, which administers the program and reimburses either recyclers or local collection programs for recycling costs. As more states act, both approaches are being tweaked and nuanced to address problems that have cropped up in earlier implementations.

The Committee took the initiative to hold an “E-waste Recycling Simulation” in which participants played roles in both EPR and ARF systems to determine pluses and minuses and strengths and weaknesses. The simulation was very instructive and helped to clarify what worked and what did not. Both systems had pros and cons and the recommendations of the Committee reflect that neither system is perfect and incorporate what was learned at the simulation.

Keeping in mind the two paramount goals stated above, the Committee is seeking a system that encourages manufacturers to take responsibility for their products and to make design changes that make electronics more recyclable and reusable. This should help to control costs and allow flexibility for manufacturers to build recycling and reuse networks with a variety of collectors. A successful system should minimize government bureaucracy, paperwork and unnecessary administrative costs. A successful system should encourage consumers to want to recycle and provide them with simple ways to return outmoded, unwanted electronic items to those who will properly recycle or reuse them. A successful system will emphasize electronic components as commodities, not as waste.

The recommendations that follow reflect what the Committee has learned through research and discussion, its public hearing, its recycling simulation exercise and by what is happening in the marketplace. Healthy debate will continue and that is a positive step forward. By basing its recommendations on the basic goals and premises stated above, it is hoped that the system that will result will be one of partnership, one of efficiency and effectiveness, and one of innovation and initiative on the part of manufacturers, government and consumers.

### **Committee Recommendations**

1. Pennsylvania already has a voluntary system of e-waste recyclers that has achieved some very impressive successes given the very limited amount of funding available for electronic waste recycling. Any new legislative effort should build upon those past successes and continue to allow public/private partnerships on e-waste recycling to benefit non-profit organizations, such as Goodwill Industries.
2. Pennsylvania should focus its immediate efforts on e-waste recycling programs for computer components, one of the fastest growing segments of electronic waste and a market segment in which recycling might be performed in a profitable or close to profitable manner. Television set recycling should be considered only after a computer component recycling system has been established.
3. Pennsylvania should encourage private sector computer manufacturers and retailers to work together in creative and collaborative ways to efficiently collect, recycle and dispose of e-waste in the Commonwealth. By placing the recycling burden on computer manufacturers, Pennsylvania should also encour-

age the industry to use less toxic computer component materials in the future as they are easier to recycle.

4. Under a Pennsylvania e-waste system, computers will be recycled or disposed of in a manner that complies with federal, state and local laws and should be consistent with the Institute of Scrap Recycling Industries standards. The Pennsylvania e-waste system should also help prevent recyclers, brokers or other e-waste processors from shipping e-waste overseas to Third World processors.

### **Consumers**

5. Pennsylvania should develop an e-waste recycling program that does not impose a fee on new computer component purchases. The e-waste recycling program should be reasonably convenient and available to all computer component consumers and should include, but not be limited to: 1) free mail in disposal options; 2) staffed collection and drop off sites for e-waste; and 3) periodic collection events for computer related e-waste.

### **Retailers**

6. Retail stores will not be obligated to take back old computer components when selling new computer components. Retailers will be required to sell only those computer components that are manufactured by a corporation that has established a free and convenient e-waste recycling program. Under the Pennsylvania system, retailers should be encouraged to work with manufacturers to form partnerships on recycling that might include having some retail locations serve as e-waste collection points.

### **Manufacturers**

7. The main thrust of the proposed Pennsylvania e-waste regulatory program should require that computer manufacturers that want to sell their computer components in the Commonwealth must establish a free and convenient program to collect and recycle their own brands of desktop, laptop, computer monitors and other computer components. The proposed e-waste regulatory system will not cover television sets at this time.
8. The Pennsylvania e-waste regulatory program should allow computer component manufacturers a good deal of flexibility in the design and implementation of their e-waste recycling programs so that computer manufacturers should be able to tailor their recovery and recycling programs to track their business models. While allowing a flexible design, the Pennsylvania e-waste regulatory system for computer manufacturers should require robust collection and reporting of information on the results achieved, including the weight of computer components recycled and disposed.
9. Computer manufacturers should also be encouraged to establish an “orphan waste” program that collects, recycles and disposes of old computer components manufactured by companies that no longer sell computer components in the Commonwealth.

## **Department of Environmental Protection**

10. Computer manufacturers should be required to submit their free and convenient programs to collect and recycle their own brands of desktop, laptop, computer monitors and other computer components to the Department of Environmental Protection (DEP). These e-waste recycling programs will include information and data about the amount of waste collected, recycled and disposed on a quarterly basis.
11. DEP should review and approve the e-waste recycling programs and will publish a list of “approved manufacturers,” so that retailers will know which brands of computer components they are allowed to sell in the Commonwealth.
12. DEP should maintain a web site that publicizes the results of the e-waste recycling programs, collection center locations, and the names of the computer manufacturers that have established e-waste recycling programs. DEP will also direct a public education program that promotes the benefits of the e-waste program, the location of collection centers and the recycling and disposal options available for owners of “orphan” computer components.
13. DEP should submit an annual report on the e-waste recycling program to the General Assembly.

## **Section II - Summary of Recently Proposed Legislation**

As previously mentioned, there are two basic models that states have used to establish e-waste recycling laws: Producer Responsibility (manufacturer pays) and Advanced Recovery Fee (consumer pays). Both models have been proposed for consideration here in Pennsylvania. The following is a summary of those proposals:

### **Pennsylvania House Bill No. 7**

Pennsylvania House Bill No. 7 proposed a mandatory recycling program for used electronic devices, specifically, “covered electronic devices” (CED’s). In order to get a recycling program up and running, the Bill imposed certain duties on both manufacturers and retail sellers of CED’s and established enforcement mechanisms for DEP.

#### **Establish Recycling Program**

The first section of the bill defines key terms that appear throughout the text, the most important of which is “covered electronic devices” (CED’s). The Bill defines a CED as computers, computer monitors, and televisions sold for personal use.

## **Duties of Manufacturers and Retailers**

### **Manufacturers**

The second section imposes duties on manufacturers and retail sellers of CED's. First, in order to be allowed to sell CED's in the Commonwealth, manufacturers must register with DEP annually and pay a \$5,000 fee each year. Moreover, manufacturers must pay an additional annual fee based on the amount of CED's (technically, the weight of CED's) they sell in the Commonwealth. DEP, in turn, will use these revenues to operate the recycling program.

Manufacturers may opt out of the sales-based fee - but only if several conditions are satisfied. For instance, manufacturers may opt out if they create their own plan to collect, transport, and recycle the same amount of CED's that would be collected under the Commonwealth system. Manufacturers must provide DEP with a description of each step they will undertake during the entire recycling operation, from collection to processing. Manufacturers must also list the names and locations of all the other businesses involved in the plan's implementation as well as proof of these businesses' compliance with processing, reporting, and accounting standards.

Assuming a manufacturer was to fulfill the aforementioned requirements, DEP still reserves the right to reject the manufacturer's plan or amend it at will. Furthermore, if the plan was approved, but the manufacturer failed to comply with it, the manufacturer would pay restitution to DEP and be liable for a punitive fine.

Nonetheless, those manufacturers who successfully implement and execute their own recycling scheme avoid payment of the sales fee; in fact, if a manufacturer recycles more than its equitable share of CED's, it earns "credits" to apply to the next year's collection (or which may be sold for profit to other manufacturers who are not able to meet their compliance targets).

Manufacturers must comply with all the duties laid out in this bill or be banned from selling CED's in the Commonwealth.

### **Retailers**

While there are extensive duties for manufacturers, the duties of retail sellers are limited to providing relevant information to CED consumers and buying only from manufacturers who remain compliant under this bill. Retailers face the same prospects as manufacturers for noncompliance; namely, a ban on selling CED's in the Commonwealth.

## **Powers of DEP**

The final substantive section of this bill lays out the duties and powers of DEP, which will administer the recycling program. DEP's duties include keeping track of and publicizing a list of compliant CED manufacturers and retailers, informing manufacturers and retailers about their annual financial obligations, and making sure that CED waste drop-off locations are accessible to the general public. The bill also assigns certain duties to facilitate legislative oversight of DEP,

i.e., a yearly audit performed by an independent accountant, a listing of CED collection sites and their operators, etc.

Finally, the bill explains how DEP will, alternatively, select and compensate those businesses responsible for actually recycling CED waste. Following competitive bidding, DEP will provide reimbursement pay-outs to those businesses that have provided recycling services (assuming the businesses can provide valid and appropriate documentation).

House Bill No. 7 (Session of 2006), was referred to the Committee on Environmental Resources and Energy.

## **Pennsylvania Senate Bill No. 1115, Session of 2007**

### **Purpose**

The purpose of the “Computer and Electronic Equipment Disposal and Recycling Act,” is to ban the disposal of computer and other electronic equipment in landfills, as well as to provide for the recycling of computer and electronic waste by creating the Pennsylvania Electronic Waste Recovery and Recycling Account.

### **Definitions**

The bill defines a “covered electronic device” as any electronic device with a video display screen that is greater than four inches in width. More specifically, “covered electronic device” (hereinafter, “CED”) refers to items such as computers, computer monitors, and televisions, but not to similarly-designed, larger-scale commercial, industrial, or medical equipment. Additionally, “covered electronic waste” refers to CED’s that have been disposed of or discarded.

### **Substantive Provisions**

#### **Bans disposal of CED’s**

- Ban may go into effect at the beginning of 2010; specific rules governing the ban are to be laid out by DEP by December 2008.

#### **Imposes a consumer fee on all CED’s sold in Pennsylvania**

- Fee to take effect on July 1, 2008. Retail sellers are legally responsible for collecting the fee, which will vary depending on the screen size of the CED being sold. Retailers may retain up to 3% of the gross revenues to cover the cost of collecting the fee, but the remaining revenues must be sent to DEP and deposited in the Electronic Waste Recovery and Recycling Account. At least once every two years, DEP is required to reconsider the fee amount at a public hearing.

#### **Manufacturer responsibilities**

- DEP must first determine a manufacturer’s compliance with this bill before that manufacturer may sell CED’s in Pennsylvania. Manufacturers are also obligated to label their CED’s. CED’s without proper labels

cannot be sold in Pennsylvania. Each year, all CED manufacturers must submit reports to DEP. These reports are required to include their sales figures from the previous year, the amount of certain hazardous materials as well as the amount of recycled materials in their CED's from the previous year, and details as to how each manufacturer is making their CED's more recyclable. Additionally, manufacturers are required to notify consumers about how to properly dispose of used CED's - this information may be made available through various media, such as a website, toll-free phone number, or merely by including it with each CED purchase.

### **Creates the Electronic Waste Recovery and Recycling Account within the Pennsylvania Treasury Department**

- Fees, civil penalties, and any other revenues collected under this bill are to be deposited into the account. DEP may spend money in the account to pay the collectors and recyclers of CED's and to administer the provisions of this legislation—but only upon appropriation by the Pennsylvania General Assembly. The Bill also sets limits on the export of CED's and on the amount of money that may be spent on public education and awareness programs.

Senate Bill 1115 has been referred to the Committee on Environmental Resources and Energy.

## **Section III - Summary of October 4, 2007 Public Hearing**

### **Chairman Scott Hutchinson - Introduction.**

Electronic waste (“e-waste”) represents the fastest growing portion of the U.S. waste stream. Continued technology obsolescence and the 2009 digital transition will increase disposal rates. This hearing is designed to better inform the Legislature on a complex and increasingly important environmental issue.

**Meggan Ehret** - Sr. Counsel of Thomson Inc. and member of the Electronic Manufacturers Coalition for Responsible Manufacturing.

An advanced recovery fee (ARF) is the best way to address e-waste because it is fully funded (at the outset) and increases consumer awareness. Producer-responsibility programs are inefficient because of the long lifetime of televisions and the high turnover in manufacturing companies - so by the time a TV gets recycled, it's likely the manufacturer won't be around to pay. Computer manufacturers may prefer producer responsibility because of the differences in the computer and television markets. If Pennsylvania chose to adopt a producer responsibility model, it should consider allocating costs to television manufacturers based on market share and not return share.

**Bob Erie** - E-World Recyclers, Vista, California.

**California Program Structure:** Covers display devices such as CRT's, LCD's, etc. The fees started before payouts, so start-up funding from the state was unnecessary. Retailers collect ARFs at purchase based on the size of the screen. Fees are disbursed to collectors & recyclers, with the retailer keeping 3%.

**Results:** In 2001, the program had 5 recyclers, and, in 2007, it has 50 recyclers. There are 600 group collectors in California. Collectors are paid 20 cents per pound and recyclers are paid 28 cents per pound. The recycler has to identify the material's origin and submit the claim. Subsequently, the recycler receives a payment 90 days later. In 2005 revenues for the program were about \$78 million, and \$160 million is projected for 2008.

**Enforcement:** The state boards and departments that enforce the program can deny payments to recyclers or revoke approvals, fine participants for not complying with hazardous materials handling regulations, and suspend fraudulent collectors. The collectors log every device that is turned in, and the state government spot-checks the list to check for fraud. The recycler has to show that all the waste coming in equals all the raw materials going out.

**Problems:** All electronic devices are banned from landfills, but 40% of these are not covered by the program - and so are being shipped to Asia. With the changeover to LCD's and digital, there is less of a market for CRT glass in the U.S., making it harder to recycle domestically. Collectors are controlling the recycling program and charging recyclers higher rates for the waste.

**Recommendations:** If Pennsylvania bans all small electronics from landfills, Pennsylvania's program should impose fees on those devices as well. It should also add printers & computers at the onset of the program.

**Thomas Fidler** - Deputy Secretary for Waste, Air, & Radiation Management with DEP.

About 80% of all e-waste currently being generated in Pennsylvania is being disposed in landfills. Currently Pennsylvania has been using federal grant money to collect e-waste in non-fee programs, which has yielded about 7.5 million pounds. DEP has to pay recyclers 10-30 cents per pound to take the e-waste because of the low value of the waste, especially CRT's. A landfill ban in Pennsylvania should be phased-in because Pennsylvania currently does not have the infrastructure to manage the amount of material generated. Currently, there are seven processors to receive the material, which is probably not enough to accommodate a ban.

**Joseph Nardone** - Environmental Health & Safety Director with Amandi Services, Inc.

If Pennsylvania develops a covered waste program, it should include generic descriptions so that it doesn't have to continually update the covered products list as technology changes. The downside of the California program is that it forces the recycler to be a bank and an enforcement agency, not to mention the fact that collectors are trying to gouge the recyclers. Shipping materials off-shore for recycling is bad for the environment because environmental standards are lower abroad. The program also should prohibit the use of prison labor because of the sensitive nature of electronic data equipment. Amandi has the capacity to recycle

every CRT on the East Coast just in their New York and Pennsylvania locations. China and India are major CRT glass customers.

**Joanne Sonenshine** - Environmental Policy Manager of Government Affairs for the Consumer Electronics Association.

Only 11% of all U.S. homes will be impacted by the digital transition because most households have a cable connection and the FCC is sending out coupons to houses to purchase a converter box. A national solution is necessary in the face of the patchwork of state laws. Manufacturers shouldn't be solely responsible for financing the program.

**Rona Cohen** - Sr. Policy Analyst in the Energy & Environment Program of the Council of State Governments (CSG).

CSG developed model legislation that calls for manufacturers to pay fees based on their market share in the state. They chose a producer responsibility approach so that they wouldn't impose fees on consumers, the program would be cheaper and more efficient, and there would be an incentive for manufacturers to design more easily recyclable products. In implementation, most states have changed to a return share basis from a market share basis.

**Pennsylvania State Rep. Chris Ross**

Since the federal government is not taking action, states should create legislation with common elements to make regulation consistent for manufacturers. It is more feasible to place the burden of recycling on manufacturers than consumers. Manufacturers who sell in Pennsylvania should pay a registration fee up front. The fee would be adjusted after the first year. Retailers wouldn't be allowed to sell unregistered products, but, if they preferred, they could handle the registration themselves. Market share is easy to measure, but the return share is fairer because it creates incentives to increase product lifetimes. A landfill ban should only be created once there is a viable alternative.

**Robert Bylone** - Executive Director of the PA Recycling Markets Center.

The Recycling Markets Center (RMC) acts as a clearinghouse for various types of business assistance, including economic development, technical assistance, applied commercialization and research and workforce development, much like the Ben Franklin or Industrial Resource Center. RMC is an independent 501 (c) (3) nonprofit organization that pairs secondary recycled commodities with end use. End markets are key to making e-waste recycling work. The evolution of what can be done with the recycled materials as a substitute for virgin materials needs some additional research and technical development.

**Written Testimony**

**Pennsylvania Retailers' Association** - Pennsylvania should not move forward with its own regulations pending introduction of federal legislation to create consistency for manufacturers but, if it does, it should take a producer responsibility approach.

**Michael Smith**, Goodwill Industries of Pittsburgh - Goodwill has already developed the Computer Recycling Center and could increase operations with government assistance. Goodwill supports the National Computer Recycling Act as well as the Advanced Recovery Fee model.

**Philips Electronics** - Philips and the rest of the Electronics Manufacturers Coalition for Responsible Recycling supports an ARF paid by consumers at purchase. Many states already use this approach for recycling other products such as batteries. The 2009 digital transition is not going to cause a significant increase in the number of disposed television sets. The producer responsibility approach rewards new manufacturers who are not making investments in environmental design and will not pay for recovery for 10-15 years. Established manufacturers are already leaders in environmental design without incentives. Requiring a fee will take away funding for environmental design. With the television market so competitive and pressure from retailers, manufacturers are unable to increase prices to reflect increased costs. Retailers already administer sales tax, so it is not an undue administrative burden to require them to administer an ARF.

#### **Section IV - Overview of Recently Enacted State Legislation in Other States**

Many states are taking action to solve the e-waste recycling problem. Twelve states, plus the City of New York have passed laws creating e-waste recycling programs. All of the programs to date, except for California, are some form of "producer responsibility" law that requires manufacturers to pay for e-waste collection and recycling. The following is a brief summary of enacted programs:

#### **Arkansas**

On April 9, 2001, the state enacted the Arkansas Computer and Electronic Solid Waste Management Act. The law applies to computer and electronic equipment - defined as a personal computer, computer component, audio player, stereo player, videocassette player, facsimile machine, copy machine, cellular telephone, wireless paging device, video game console, or any electronic item containing an intact or broken CRT. The law authorizes the state's Department of Environmental Quality to establish and implement rules and regulations banning the disposal of all computer and electronic equipment in Arkansas landfills by January 1, 2008 (that deadline was extended from the original date of January 1, 2005).

The law also establishes a program that requires state agencies to develop plans to sell, reuse, recycle, or dispose of surplus computer equipment and electronics; and encourages those agencies to donate unsold equipment to Arkansas public schools. A portion of the funds generated from selling surplus electronics must be allocated to a Computer and Electronics Recycling Fund, also established by the law. Among other activities, funds may be used for product market research and development grants to determine the most efficient means of collecting, transporting, and processing scrap electronic equipment, and to establish statewide contracts for computer and electronics recycling and manufacturing businesses.

## **California**

California's Electronic Waste Recycling Act of 2003 was enacted on September 24, 2003, and subsequently amended September 29, 2004. The law applies to new or refurbished televisions or computer monitors that use a CRT or liquid crystal display (LCD), laptop computers, or any other video display device larger than four inches.

Beginning January 1, 2005, the law required that at the time of retail sale, California consumers must pay an "electronic waste recycling fee" ranging from \$6 to \$10, depending on screen size. No recycling fee is assessed on the resale or reuse of a covered device. Retailers are required to transfer the collected fees to the Board of Equalization, which in turn deposits the money into an account managed by the California Integrated Waste Management Board (CIWMB). The CIWMB distributes the funds from this account to approved recyclers or to registered manufacturers that are collecting and recycling CED's. A ban on the landfill disposal of CRT's went into effect under regulations issued by the state in 2001.

Other requirements of California's e-waste program include:

- A new or refurbished CED cannot be sold without a clearly visible label showing the name of the manufacturer or the manufacturer's brand.
- CED wastes cannot be exported to a foreign country without proper notification to the state Department of Toxic Substances Control.
- The sale of electronic devices that would be prohibited for sale under the Directive would be prohibited for sale in the state.
- State agencies purchasing or leasing covered electronic devices must require prospective bidders to certify that they comply with the law.

## **Connecticut**

On July 6, 2007, Connecticut enacted its e-waste recycling law, which applies to desktop or personal computers, computer monitors, portable computers, CRT-based televisions and non-CRT-based televisions or any other similar or peripheral electronic device. Under this law, by January 2009, manufacturers will be required to participate in a program to implement and finance the collection, transportation, and recycling of certain electronic devices. The law requires manufacturers to register with the state Department of Environmental Protection and pay an annual fee that the state will use to administer the recycling program. Also by January 2009, municipalities must provide for the collection of CED's; waste CED's must then be transported to and recycled by an approved recycler.

In addition to the registration fee, manufacturers must pay reasonable costs of transporting and recycling CED's attributed to them, and will be billed a pro rata market share for orphan devices. A landfill disposal ban will take effect in January 2011.

Additional elements of Connecticut's e-waste program include:

- By January 1, 2008, a manufacturer or retailer cannot sell a CED in the state unless it has affixed a readily visible label with the manufacturer's brand.
- To be eligible to receive funds from the state, CED collectors, transporters and recyclers must meet performance standards established by the state.
- Retailers must provide consumers with information on recycling.
- By January 1, 2009, CED's collected through any state program cannot be exported for disposal in a manner that poses a significant risk to the public health or to the environment.

## Maine

On April 22, 2004, Maine enacted the Act to Protect Public Health and the Environment by Providing for a System of Shared Responsibility for the Safe Collection and Recycling of Electronic Waste. The law applies to waste televisions and computer monitors (CRT's and flat panel displays or similar video display devices with a screen greater than four inches measured diagonally). The law implements a version of the producer-pays model that requires manufacturers to pay for the handling, transportation, and recycling of televisions and computer monitors.

By July 20, 2006, municipalities were required to ensure that waste televisions and computer monitors generated by households are recycled. They are required to ensure that a system is in place for delivering residential waste televisions and computer monitors to a consolidation facility in Maine. Each municipality may determine how this requirement will be met (i.e., operate an ongoing collection center, have one-day collections, or have residents deliver directly to a nearby consolidator).

Beginning January 1, 2006, consolidation facilities were responsible for counting each household-generated waste television and computer monitor and determining the total from each manufacturer. By March 1 of each year, beginning in 2007, the consolidator must provide this accounting to the state Department of Environmental Protection and submit a bill to manufacturers for allowable costs associated with recycling (i.e., the costs of handling, transportation, and recycling of their own television and computer monitor products, plus a pro rata share of orphan products). A ban on the landfill disposal of mercury-added products and CRT's went into effect under separate laws on July 20, 2006.

Additional elements of Maine's e-waste program include:

- All CED's offered for sale in the state must have a visible, permanently affixed label clearly identifying the manufacturer of the device.
- Retailers are prohibited from selling any CED offered for sale by a manufacturer not in compliance with the law.

- Recyclers must provide consolidators with a sworn statement that their operations meet environmentally sound management guidelines established by the state.

## **Maryland**

The law implementing Maryland's Electronic Recycling Program took effect on July 1, 2005, and was subsequently amended with changes that took effect October 1, 2007. The law, implemented as a pilot program scheduled to end December 31, 2010, applies to manufacturers of computer or video display devices (CRT, LCD, plasma, digital or other image-projection technology) with a screen greater than four inches.

To sell CED's in Maryland, manufacturers of more than 1,000 devices a year must register with the Maryland Department of the Environment and pay a \$10,000 registration fee (before the amendment, the fee was \$5,000). In subsequent years, manufacturers must pay a \$5,000 annual fee. Manufacturers with an approved take back program pay an annual fee of \$500.

Maryland's e-waste program also provides:

- All CED's offered for sale in the state must be labeled with the name of the manufacturer name or the manufacturer's brand label.
- Retailers are prohibited from selling any CED offered for sale by a manufacturer not registered with the state.
- The law specifies detailed criteria a manufacturer must meet to demonstrate that it has implemented its own take back program.

## **Massachusetts**

A ban on the landfill disposal of CRT's from television and computer monitors has been in effect since April 1, 2000. The law makes it illegal for a person to dispose of, or for a landfill, incinerator, or transfer station to accept, CRT's for disposal. As part of its electronics recycling strategy, the state has established a grant program providing free electronics recycling for municipalities.

## **Minnesota**

On May 8, 2007, Minnesota enacted its e-waste recycling law, which applies to computers, peripherals (keyboards, printers, or other devices sold for external use with a computer), facsimile machines, DVD players, video cassette recorders, and "video display devices" — defined as a television or computer monitor, including laptops, with a CRT or a flat panel screen that is larger than nine inches.

Beginning July 1, 2007, the law required manufacturers to register with the state and pay an initial registration fee of either \$5,000 (those that sell more than 100 units per year in the state) or \$1,250 (those that sell fewer than 100 units). Thereafter, manufacturers must pay \$2,500, plus a variable recycling fee based on

the total weight of CED's sold in the previous year. In addition to the registration fee, manufacturers must pay for collection and recycling of their e-waste.

The law also requires manufacturers to meet specific recycling goals (Minnesota is the only state to set such mandatory goals). During the first program year (July 1, 2007 through June 30, 2008), manufacturers must collect and recycle an amount equal to 60% of the total weight of CEDs sold in the state in the previous year; this amount increases to 80% in subsequent program years. A ban on the landfill disposal of CRT's went into effect under separate law on July 1, 2006.

The following are additional elements of Minnesota's e-waste program:

- All CED's offered for sale in the state must be labeled with the manufacturer's name or brand label.
- Retailers are prohibited from selling any CED offered for sale by a manufacturer not registered with the state.
- In addition to manufacturers, CED recyclers and collectors must also register with the state (but pay no fee).
- Recyclers are prohibited from using prison labor.

## **New Hampshire**

On May 24, 2006, New Hampshire enacted a ban on the landfill disposal and incineration of "video display devices." Video display devices are defined as a "visual display component of a television or a computer, whether separate or integrated with a computer central processing unit, and includes a cathode ray tube, liquid crystal display, gas plasma, digital light processing, or other image projection technology, greater than four inches when measured diagonally, and its case, interior wires, and circuitry." The ban took effect July 1, 2007.

## **New Jersey**

On January 3, 2008, New Jersey adopted an e-waste recycling law, which applies to desktop and personal computers, computer monitors, and televisions, but not to peripheral electronic devices that are contained within industrial or commercial equipment or to telephones (unless the phones include video display screens wider than four inches).

The New Jersey law implements a version of the manufacturer responsibility model. Beginning in January 2009, manufacturers are required to register with the state's Department of Environmental Protection (DEP) each year and pay an annual fee of \$5,000. By January 2010, registered manufacturers must have agreed to participate in the state contractor recycling program or received approval from the DEP to implement their own recycling programs, subject to DEP guidelines.

This law also creates the Used Recycling and Management Program Fund within the state Treasury Department; DEP is charged with appropriating money from the fund in order to administer the state-run recycling program.

Additional provisions of the New Jersey program include:

- No fees or costs may be charged to consumers for the collection, transportation, or recycling of CED's.
- DEP will administer a website with the names of those manufacturers, collectors, transporters, and recyclers who have met the requirements under this act.
- Any manufacturer not in compliance with all financial and other requirements of this act is prohibited from selling (or offering to sell) a CED in New Jersey.
- Manufacturers and retailers may not sell or offer to sell a CED unless it is properly labeled with the manufacturer's name or brand.
- This law forbids the recycling of CED's by prisoners.

### **New York City**

New York City is the first U.S. city to pass a mandatory producer responsibility ordinance. The law was passed on February 13, 2008 and establishes a citywide manufacturer take-back program for electronic waste sold and disposed of within the city of New York. The ordinance places the responsibility on each manufacturer of covered electronic equipment sold and generated as waste in the city of New York to collect, handle and recycle or reuse all such e-waste as well as a pro rata share of "orphan waste".

### **Oregon**

On June 7, 2007, Oregon passed its e-waste recycling law, which applies to televisions and computer monitors of any type with screens larger than four inches, and to desktop or portable computers. By January 1, 2009, manufacturers that sell these products in the state will be required to finance "free, convenient, and environmentally sound" recycling services. Manufacturers can create their own take-back program or participate in a common program, but they must pay for collection, transportation, and recycling costs. Manufacturers must also register with the state and pay an annual registration fee of \$20, \$200, \$5,000, or \$15,000, depending upon their market share in the state.

The registration must include a list of products sold in the state and a statement regarding whether the manufacturer will implement its own recycling program in accordance with criteria established by the law, or use the state contractor program.

Among other requirements, the state Department of Environmental Quality will be responsible for maintaining a list of registered manufacturers and orphan brands; determining each manufacturer's return share of CED's; establishing a state contractor program to collect, transport, and recycle CED's; and determining the recycling fee to be paid by each registered manufacturer. State and local governments will fund consumer education and promotion of the law. At the time of

sale, retailers will be required to provide consumers with information about where and how they can recycle CED's in the state. A ban on the landfill disposal of CED's becomes effective January 1, 2010; however, the state Department of Environmental Quality may postpone the prohibition in any area of the state where there is an inadequate system for CED collection, transportation, and recycling.

The following are additional elements of Oregon's e-waste program:

- A manufacturer may not sell any CED in the state unless it is labeled with its brand.
- A retailer may not sell any CED unless it is properly labeled and is on the list of registered manufacturers posted by the state.

## Rhode Island

On July 7, 2006, Rhode Island enacted the Electronic Waste Prevention, Reuse and Recycling Act. The law bans the landfill disposal of desktop computers (including central processing units(CPU's), computer monitors, including CRT monitors and flat panel monitors, laptops, combination units (CPU's with monitors), CRT- and non-CRT-based televisions including plasma and LCD's), or any similar video display device with a screen greater than four inches diagonally and that contains a circuit board. The law specifies that after July 1, 2008, no person shall dispose of a CED in any manner other than by recycling or disposal as hazardous waste.

The law also requires the state Department of Environmental Management, in consultation with stakeholders, to develop a plan for implementing and financing a program that addresses the collection, recycling, and reuse of covered electronic products from all covered electronic product generators in the state.

Progress reports on the study were due to the general assembly on January 1 and May 1, 2007. By December 31, 2007, the law also requires the department to submit to the general assembly a plan and recommendations for any legislation necessary to implement the plan for collection, recycling, and reuse of CED's.

## Texas

On June 15, 2007, Texas enacted its e-waste recycling law, which applies to computer equipment - defined as desktop or notebook computers, including computer monitors or other display devices that do not contain a tuner (i.e., the Texas program does *not* include televisions). The law requires manufacturers to implement a recovery plan that provides consumers with a free and convenient program to recycle the manufacturer's computer equipment.

The following are additional elements of Texas's e-waste program:

- A manufacturer may not sell any CED in the state unless it is labeled with its brand.

- Retailers may not sell any CED unless it is properly labeled and is on the list of registered manufacturers maintained by the state.
- The Texas Commission on Environmental Quality (Commission) is required to adopt standards for recycling such as those provided by the Institute of Scrap Recycling Industries, Inc. (which bans the use of prison labor).
- The Commission is required to educate the public regarding the computer recycling programs, maintain program information on a website, enforce requirements for recycling computer equipment, and compile and issue an annual electronic report to the state legislature.

## Washington

On November 11, 2006, Washington passed its e-waste recycling law, which applies to CRT's or flat panel computer monitors or televisions with a screen size of more than four inches, and to desktop or laptop computers. The law requires CED manufacturers to finance and implement a program to collect, transport, and recycle waste CED's. The program must be implemented in accordance with requirements specified in a "Standard Plan," implemented by the state that will apply to all manufacturers. Individual manufacturers may opt to implement their own "Independent Plan," if it is approved by the Washington Department of Ecology.

By January 1, 2007, and annually thereafter, manufacturers must register with the state and pay an annual administrative fee. By January 1, 2008, and annually thereafter, manufacturers must pay their apportioned costs associated with the implementation of the Standard Plan.

By April 1, 2010 the state's Department of Ecology must report to the state legislature regarding the amount of orphan products collected. If more than 10% of the total products collected are orphan products, the department must provide recommendations for reducing the amount of orphan products or alternative methods for financing the collection, transportation, and recycling of orphan products.

Additional elements of Washington's e-waste program include:

- A manufacturer may not sell any CED in the state unless it is labeled with its brand.
- The state is required to establish performance standards for environmentally sound management of CED processors, including financial assurances to ensure proper closure of a facility consistent with specified environmental standards.
- Retailers must provide information to consumers describing where and how to recycle CED's and locations for collection or return of products.
- Each collector, transporter, and recycler of CED's must register with the state.
- No plan or program may include the use of prison labor for CED processing.

## **Summary and Conclusion**

The e-waste recycling/reuse system envisioned for Pennsylvania will build upon the successes of its voluntary e-waste recycling efforts. It will focus first on computer-related electronics, leaving the more problematic area of television set recycling until the computer segment is up and running, thereby providing a learning curve to help plan for the future.

The responsibility for collection and recovery of electronic products to be recycled and reused will rest with manufacturers and will involve no additional charge for consumers. In order to sell their products in Pennsylvania, manufacturers will have to establish a recycling and recovery program. Manufacturers should not have to act in a vacuum or a straitjacket, however, and are encouraged to be flexible and innovative in setting up their systems, in partnering with other manufacturers, retailers, collectors, non-profits and recyclers. Manufacturers will be encouraged to establish an “orphan waste” program with the same level of flexibility and innovation.

Meanwhile, consumers will be encouraged to cooperate in e-waste recycling by not having to pay a fee to bring in items to manufacturers. There will be no new taxes for consumers to pay to finance unwieldy collection programs. Programs to provide for free mail-in disposal and/or manufacturer collection programs, staffed collection and drop-off sites, periodic collection events and other convenient recycling/reuse methods will be included. The system is decidedly consumer-friendly.

Government will play a role of initial approval, and then enforcement and education, but the system should not require massive new government programs or bureaucracies. State government will review and approve e-waste recycling programs and provide a list of “approved manufacturers”. After that, the intent is that government will partner with manufacturers and consumers in a competitive marketplace, allowing the parties to “do their thing” and stepping in only to educate and inform those who wish to use the system or to restore order where violations have occurred.

Pennsylvania has been a national leader in “traditional” recycling efforts, dating back to Act 101 of 1988. There is no reason why Pennsylvania cannot be a leader in the high-tech world of electronic recycling and reuse as well. The system envisioned combines the best of approaches by other states and by the industry itself, combined with clearly defined roles for consumers, manufacturers, government, retailers, recyclers, non-profits and other entities who would be partners in this effort. The Committee believes it to be a system of simplicity, efficiency and effectiveness that by encouraging reduced waste and reduced toxins will increase responsible recycling and reuse.

Those are the goals and the Committee believes the following draft legislation to be the path.

## **Model Legislation – Explanation of Legislative Intent**

The Committee is recommending legislative language created by Dell, Inc. (see Appendix A). The Committee felt that this model legislation balanced convenience of waste disposal with manufacturer responsibility. The Committee agrees that shifting the costs for managing discarded computers to brand owners and producers has the potential to create powerful end-use markets and provide the incentives for manufacturers to improve product design and reduce the use of toxic materials. The goal throughout this process is to create a system of responsible recycling here in Pennsylvania by protecting human health and the environment, promoting “greener” designs of electronic equipment and protecting the taxpayer from mandated fees and government funded collection systems.

We agree with the intent of this legislation that a consumer should be able to return a product, at the end of its useful life to a manufacturer at no charge. Convenience and ease of return are paramount. The Committee heard through its public hearing process that manufacturers should have the flexibility to adopt a collection system that best suits their needs. Manufacturers should also have the option to create individual systems for their particular brands or may join forces with other manufacturers. Some may use third-party, non-profit organizations such as Goodwill Industries International, Inc. This legislation addresses that issue. The proposed legislation creates the standard for convenience but does not endorse any particular collection approach over another and is intended to once again, balance the needs of the manufacturer and consumers in both rural and urban areas. However, in order to make compliance standards and rulemaking easier for DEP, the proposed legislation endorses the use of the Institute of Scrap Recycling Industries, Inc’s Electronics Recycling Operating Practices (available at: [www.isri.org](http://www.isri.org)).

There is a critical element to the legislation. Each manufacturer has to determine how it will comply with the legislation. The bill does not require government or state agency approval of a collection and recovery plan but does enforce the failure to properly collect and recycle unwanted covered devices through fines and penalties.

Retailers do have responsibilities under this legislation. First, retailers must make sure that any computer, display or printing device it sells is labeled with the manufacturer’s brand. Second, retailers must make sure that the manufacturer is listed on DEP’s website as having a recovery plan. A retailer may be fined or products may be seized if a product is sold without such a label or found to be from a manufacturer without a listed recovery plan.

DEP will be responsible for educating the public about the benefits of collection and recycling and providing information about manufacturer’s collection and recycling programs. In doing this, the legislation requires that DEP include information on their website (or third-party websites) to help consumers find instructions on how to properly return their electronic equipment.

DEP will be responsible for enforcing the law and this proposed legislation offers several ways to accomplish this.

Manufacturers may be penalized for:

- Failure to label a product.
- Failure to adopt and implement a recovery plan.
- Failure to offer adequate information to the public.
- Failure to properly collect and recover products.

Retailers may be penalized for:

- Offering for sale or selling products without a manufacturer label.
- Offering for sale or selling products from a manufacturer that does not have a recovery plan.

Recyclers may be penalized for:

- Failure to recover products in compliance with state health and safety laws.
- Failure to be a certified recycler.

The proposed legislation requires annual public reporting whereby manufacturers are to report to DEP on their progress. DEP will also report annually to the General Assembly on the manufacturers' progress. This will provide a level of accountability and transparency and allow each program to be evaluated on its performance. DEP or the legislature can assess the programs and make adjustments accordingly.

Consumers will have the responsibility for removing any information or data that may remain on their computers. Manufacturers need to recover and recycle the products without fear of liability from information that consumers may leave on their systems.

Although we are seeking to address the collection and recycling of e-waste here in the Commonwealth, it has been suggested that a national program could provide a level of uniformity. Therefore, federal preemption could occur if a national program was created that meets or supersedes the intent of this legislation.

# APPENDIX A



E-waste  
legislation.PDF