A Second-Generation Solution to Electronic Waste: The New York Approach

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INTRODUCTION

Over four million people purchased the new Apple iPhone 4S during the first weekend that the updated device was available for sale.[1] Most of these newly purchased phones replaced older phones, which were likely discarded.[2] While many states have recycling programs that will refurbish old cell phones or responsibly dispose of their toxic components, these programs often are not widely known or advertised.[3]

As an accelerating cycle of innovation drives the consumer electronics market forward, consumers are purchasing new devices and discarding their older models at an increasing rate.[4] Discarded electronic products, including cell phones, televisions, and computers, account for tens of millions of discarded items each

1. Greg Bensinger, *Would Be iPhone Customers Still Facing Weeks Long Waits*, WALL ST. J. BLOG (Nov. 11, 2011, 2:51 PM), http://blogs.wsj.com/digits/2011/11/17/would-be-iphone-customers-still-facing-weeks-long-waits/.

2. *See* ENVTL. PROT. AGENCY, FACT SHEET: MANAGEMENT OF ELECTRONIC WASTE IN THE UNITED STATES 1 (2008), *available at* http://www.epa.gov/osw/conserve/materials/ecycling/docs/fact7-08.pdf ("For each new product that comes along, one or more becomes outdated or obsolete."); *see also* LINDA LUTHER, CONG. RESEARCH SERV., RL34147, MANAGING ELECTRONIC WASTE: AN ANALYSIS OF STATE E-WASTE LEGISLATION 2–3 (2008) [hereinafter LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION], *available at* http://www.cnie.org/NLE/CRSreports/08Mar/RL34147.pdf (estimating that the percentage of e-waste will grow as new technology changes and transitions bring new products into the market).

3. *See, e.g.*, U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-10-626, ELECTRONIC WASTE: CONSIDERATIONS FOR PROMOTING ENVIRONMENTALLY SOUND REUSE AND RECYCLING 56 (2010) [hereinafter GAO, ELECTRONIC WASTE: CONSIDERATIONS], *available at* http://www.gao.gov/assets/310/307013.pdf (attributing the Texas program's lack of success to inconvenience to consumers of manufacturer-established mail-back programs and insufficient consumer education about available recycling opportunities).

4. *See* ENVTL. PROT. AGENCY, FACT SHEET, *supra* note 2, at 1 (stating that in 1998 about twenty million computers became obsolete, while in 2005 between twenty-six and thirty-seven million computers became obsolete); *Statistics on the Management of Used and End-of-Product-Life Electronics*, ENVTL. PROT. AGENCY, http://www.epa.gov/osw/conserve/materials/ecycling/manage.htm (last updated Nov. 2, 2011) [hereinafter *EPA Statistics*] ("438 million electronic products were sold in 2009, which represents a doubling of sales from 1997, driven by a nine-fold increase in mobile device sales.").

year,[5] causing electronic waste ("e-waste") to continue to grow as a percentage of solid waste.[6] Only a small portion of these products is recycled, compounding their presence in our nation's landfills.[7] With an increasing number of consumer devices in use and continual innovation perpetually driving future purchases,[8] the low incidence of recycling aggravates the environmental harms of e-waste disposal—including the prevalence of chemicals that leak into the environment due to improper disposal.[9] These harms can be avoided through refurbishment or recycling programs, which

5. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 3.

6. ENVTL. PROT. AGENCY, MUNICIPAL SOLID WASTE GENERATION, RECYCLING, AND DISPOSAL IN THE UNITED STATES: DETAILED TABLES AND FIGURES FOR 2008 tbls. 12, 13 & 14 (2009), *available at* http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw2008data.pdf (showing that while other waste streams are decreasing or remaining stable in percentage terms, there is a significant increase in the volume of consumer electronic products generated and discarded as a share of total solid waste). The vast majority of computers, televisions, and cellular phones are disposed of as solid waste, and account for approximately three percent of municipal waste. OFFICE OF TECH. POLICY, U.S. DEP'T OF COMMERCE, RECYCLING TECHNOLOGY PRODUCTS: AN OVERVIEW OF E-WASTE POLICY ISSUES 1 (2006), *available at* http://permanent.access.gpo.gov/lps74917/Beg-Apendix7.pdf.

7. *EPA Statistics*, *supra* note 4 (stating that twenty-five percent of electronics were collected for recycling). Specific recycling rates vary greatly by state, and even those with recycling programs report ranges from approximately one pound to six pounds collected per capita. ENVTL. PROT. AGENCY, OFFICE OF RES. CONSERVATION & RECOVERY, ELECTRONICS WASTE MANAGEMENT IN THE UNITED STATES THROUGH 2009 18 (2011), *available at* http://www.epa.gov/epawaste/conserve/materials/ecycling/docs/fullbaselinereport2011.pdf. The same document, however, qualified the EPA e-waste recycling estimates by stating that "[d]ue to the lack of robust data that is currently available, there is still a high level of uncertainty in the actual quantity of electronics collected for recycling." *Id.*

8. *See Industry Sales Statistics Overview*, CONSUMER ELECS. ASS'N, http://www.ce.org/Research/Products-Services/Industry-Sales-Data.aspx (last visited June 7, 2012) (showing a six percent increase from 2009 to 2010, and a 3.5% projected increase from 2010 to 2011).

9. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-08-1044, EPA NEEDS TO BETTER CONTROL HARMFUL U.S. EXPORTS THROUGH STRONGER ENFORCEMENT AND MORE COMPREHENSIVE REGULATION 1 (2008) [hereinafter GAO, EPA NEEDS TO BETTER CONTROL HARMFUL U.S. EXPORTS], *available at* http://www.gao.gov/assets/280/279792.pdf ("Toxic substances contained in used electronics—such as lead—are well known to harm people's health, and when electronics are disposed of improperly, they can leach from discarded devices into the surrounding environment."); *see also* LINDA LUTHER, CONG. RESEARCH SERV., R40850, MANAGING ELECTRONIC WASTE: ISSUES WITH EXPORTING E-WASTE 4–5 (2010), *available at* http://www.fas.org/sgp/crs/misc/R40850.pdf (noting that, in addition to Cathode Ray Tubes, discussed *infra* notes 50–52, "electronic devices such as personal and laptop computers, keyboards, and computer mice may contain toxic constituents such as arsenic, cadmium, chromium, or mercury."); Mark Dempsey & Kirstie McIntyre, *The Role of Collective Versus Individual Producer Responsibility in E-Waste Management: Key Learnings from Around the World*, *in* ELECTRONIC WASTE MANAGEMENT 212 (Ronald E. Hester & Roy M. Harrison eds., 2009) ("Hazardous substances are contained within components such as printed-circuit boards, cables, wiring, plastic casing containing flame retardants, display equipment, including cathode ray tubes, batteries and accumulators, capacitors, resistors and relays, and connectors.").

provide an environmentally friendly disposal method and save valuable landfill space.[10]

The problems associated with e-waste are not insurmountable. Over the past decade, state legislatures across the country have passed legislation that regulates the disposal of electronic products, including computers, televisions, and cellular phones.[11] Today, half of the states have laws that regulate some aspect of e-waste disposal.[12] State legislation that encourages the recycling of e-waste addresses environmental and economic concerns regarding unregulated disposal, including community exposure to toxic chemicals found in discarded materials and scarce landfill space.[13] However, the bulky nature of electronics,[14] their potentially toxic components,[15] and the high costs of proper disposal present unique challenges,[16] and most early e-waste laws took only limited steps to address the growing problem of e-waste disposal.[17] Some laws were

10. *Reuse & Recycle—eCycle*, ENVTL. PROT. AGENCY, http://www.epa.gov/osw/partnerships/plugin/reuse.htm (last updated Apr. 16, 2012) ("Reuse is the environmentally preferable alternative and it benefits society.").

11. *See generally* ELECS. TAKEBACK COAL., COMPARISONS OF STATE E-WASTE LAWS (2009), *available at* http://www.electronicstakeback.com/wp-content/uploads/Detailed%20State%20Law%20Comparison%20ALL (listing states with electronic waste laws).

12. Jason Linnell, *The Digital Divide—The Differing E-Waste Laws*, PUB. WORKS (June 6, 2011), http://www.pwmag.com/industry-news.asp?sectionID=772&articleID=1582743 (indicating that Utah's 2011 law marked the twenty-fifth state to pass an electronic waste recycling law). The passage of EERRA made New York the twenty-fourth state, in addition to the District of Columbia, to adopt an e-waste law. *Id.* For a chart of current e-waste laws, see *infra* Appendix A.

13. *See* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 3 (noting that the vast majority of electronics are sent to landfills, where some have "the potential to leach toxic substances with known adverse health effects").

14. OFFICE OF TECH. POLICY, *supra* note 6, at 1.

15. *See* Dempsey & McIntyre, *supra* note 9, at 212; *see also* GAO, EPA NEEDS TO BETTER CONTROL HARMFUL U.S. EXPORTS, *supra* note 9, at 1.

16. OFFICE OF TECH. POLICY, *supra* note 6, at 1.

17. *See* ELECS. TAKEBACK COAL., TEN LESSONS LEARNED FROM STATE E-WASTE LAWS 6 (2011), *available at* http://www.electronicstakeback.com/wp-content/uploads/Lessons-Learned-from-State-E-waste-laws.pdf ("The first states to pass e-waste laws specified very narrow scopes of products, typically just computers, monitors, laptops, and sometimes TVs . . . . States passing bills more recently (like New York) have been able to establish much larger scopes of products, including a wide range of computer and television peripherals, as well as computer devices."). *Compare* Act of May 10, 2005, 2005 Md. Laws 1785 (codified as amended at MD. CODE ANN., ENVIR. §§ 9-1701, 9-1702(d), 9-1703, 9-1707(f), 9-1727–9-1730 (LexisNexis 2007)) (including monitors, computers, and laptops in 2005 law), *with* 415 ILL. COMP. STAT. ANN. 150/1–999 (West Supp. 2012) (including desktop computers, notebook computers, computer monitors, printers, televisions, and a larger scope of products that could be included toward manufacturer goals in 2008 law).

limited in scope, covering narrow categories of electronics,[18] while others took only minimal steps to encourage consumer recycling.[19] Only the most recent laws create comprehensive e-waste policies that address the interconnections between participants across the waste disposal system and the challenges faced by each of those stakeholders.[20]

New York's recent adoption of the Electronic Equipment Recycling and Reuse Act (EERRA) is exemplary of the evolution toward a new generation of state e-waste policies.[21] EERRA provides the most comprehensive approach to e-waste disposal of any state to date by addressing a wide variety of consumer electronic products and requiring compliance from both manufacturers and consumers.[22] Under the statute, manufacturers were required to provide free recycling programs to consumers by April 2011.[23] EERRA also phases in targets for the amount of e-waste each manufacturer must recycle.[24] In 2015, EERRA will prohibit consumers from discarding electronics in landfills.[25]

18. *See, e.g.*, CAL. HEALTH & SAFETY CODE § 25214.10.1(a)(1) (West 2006) (defining covered electronic devices as video devices with a screen size greater than four inches).

19. MD. CODE ANN., ENVIR. §§ 9-1701–1730 (LexisNexis 2007) (establishing recycling programs for computers and monitors). The Maryland program began as a five-year pilot program that was later modified and extended. *See* 2007 Md. Laws 1645 (codified at MD. CODE ANN., ENVIR. §§ 9-1701–1730 (LexisNexis 2007)).

20. *See, e.g.*, N.Y. ENVTL. CONSERV. LAW §§ 27-2601–2621 (McKinney Supp. 2012) (establishing regulations for consumers, manufacturers, retailers, and recyclers); 415 ILL. COMP. STAT. ANN. 150/1–999 (West Supp. 2012); MINN. STAT. ANN. § 115A.1310 (West Supp. 2012).

21. *See* Linnell, *supra* note 12 ("The New York law is the most comprehensive of any state law in terms of products covered. It also is significant because it represented the largest producer responsibility program in the country when it took effect . . . .").

22. *See* N.Y. ENVTL. CONSERV. LAW §§ 27-2601–2621 (McKinney Supp. 2012); *see also* Jaymi Heimbuch, *New York Toughens Up on Electronics Manufacturers with New E-Waste Law*, TREEHUGGER (June 9, 2010), http://www.treehugger.com/files/2010/06/new-york-toughens-up-on-electronics-manufacturers-with-new-e-waste-law.php.

23. N.Y. ENVTL. CONSERV. LAW § 27-2603(1)–(2) (McKinney Supp. 2012). As of April 1, 2011, nearly seventy manufacturers had established take-back programs. Mireya Navarro, *E-Waste Law Urges Manufacturers to Simplify Disposal*, N.Y. TIMES, Apr. 2, 2011, at A16, *available at* http://www.nytimes.com/2011/04/02/science/earth/02ewaste.html?emc=eta1. Nearly a year after implementation, eighty manufacturers have registered with the New York Department of Environmental Conservation. *See New York State Electronic Equipment Recycling and Reuse Act, Registered Covered Electronic Equipment (CEE) Manfacturers [sic] and Their Brand(s)*, N.Y. DEP'T OF ENVTL. CONSERVATION, http://www.dec.ny.gov/docs/materials_minerals_pdf/regceemfrs.pdf (last updated Apr. 25, 2012).

24. N.Y. ENVTL. CONSERV. LAW § 27-2603(4) (McKinney Supp. 2012).

25. *Id.* § 27-2611.

As additional states consider similar legislation, an assessment of current approaches to e-waste policy, focusing on the innovations in EERRA, will prove instructive to policymakers looking to pass new e-waste laws or update current programs. With twenty-five states adopting e-waste policies over the past decade,[26] there is ample opportunity to examine what has worked thus far—and what has not.

This Note examines how New York's approach to e-waste disposal addresses prominent challenges to the adoption of e-waste recycling programs, and argues that EERRA is the model most likely to succeed in increasing e-waste recycling. Part I reviews state e-waste legislation and explains New York's multifaceted approach under EERRA. Part II examines the evolution from early state laws to EERRA, including alternative state approaches and the challenges of coverage, enforcement, and financing. Part III considers future state and federal action, addressing the feasibility of using EERRA as a blueprint for state and federal e-waste regulation.

I. BACKGROUND: STATE E-WASTE LEGISLATION AND EERRA

In the absence of formal e-waste regulation, there are few incentives to recycle consumer electronic devices. In fact, both manufacturers and consumers face disincentives to recycle e-waste. Manufacturers rarely establish consumer-friendly recycling programs voluntarily because accepting an unrestricted volume of discarded products burdens them with high recycling costs.[27] Even where manufacturers have created independent programs to recycle used products, retailers rarely participate in these programs and manufacturers often fail to provide convenient e-waste disposal options.[28]

Consumers face similar disincentives to recycle e-waste. Many independent recycling facilities charge consumers an end-use fee to accept and recycle certain electronics,[29] whereas consumers may

26. *See infra* Appendix A (listing all states with electronic waste laws).

27. *See* LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 4–5.

28. *See* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 8 (listing examples of manufacturer-implemented programs, including mail-back programs, store-return programs with a fee for non-store-branded products, and partnerships with non-profit collection centers). *See generally* Jason Linnell, *The E-Waste Disconnect*, WASTE 360 (May 1, 2010, 12:00 PM), http://wasteage.com/E-Waste/comparing-state-e-waste-legislation-201005/index1.html (showing less waste collected in states without mandatory, state-run programs).

29. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 4 (noting that recyclers and

dispose of e-waste in a landfill for no additional charge.[30] Unlike the recycling of plastics, glass, and aluminum, where collection is often integrated into municipal waste infrastructure,[31] the recycling of e-waste involves separate collection locations and procedures, requiring consumers to research disposal options.[32] Many consumers lack knowledge of alternatives to landfill disposal,[33] and when e-waste recycling locations are established, their existence often receives little public attention.[34] Even for motivated consumers, recycling locations are frequently inconvenient and may not accept all forms of e-waste.[35]

The status quo for e-waste recycling consists largely of a web of voluntary programs, which generally are not well-publicized and are difficult for consumers to navigate.[36] Despite the growing problem of e-waste disposal, the federal government has so far failed to develop a national solution. This Part begins by examining why the task of implementing e-waste legislation has fallen to the states. It continues by assessing the differing regulatory approaches across states, and concludes with a discussion of the scope and responsibilities that underlie New York's approach in EERRA.

refurbishers often charge a fee for services because costs outweigh revenue gained from recycled commodities).

30. *Id.* A consumer's municipal solid waste stream is composed of items typically used and thrown away, although some materials can be recovered through recycling. *See* ENVTL. PROT. AGENCY, MUNICIPAL SOLID WASTE GENERATION, RECYCLING, AND DISPOSAL IN THE UNITED STATES: FACTS AND FIGURES FOR 2008 2 (2008), *available at* http://www.epa.gov/osw/nonhaz/municipal/pubs/msw2008rpt.pdf.

31. ENVTL. PROT. AGENCY, *supra* note 6, tbls. 2 & 6.

32. *See* LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 3–4.

33. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-937T, ELECTRONIC WASTE: OBSERVATIONS ON THE ROLE OF THE FEDERAL GOVERNMENT IN ENCOURAGING RECYCLING AND REUSE, STATEMENT OF JOHN B. STEPHENSON, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT 5 (2005) [hereinafter GAO, ELECTRONIC WASTE: OBSERVATIONS], *available at* http://epw.senate.gov/public/109th/GAO_testimony.pdf.

34. *See* LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 3–4; *see also* Elizabeth Rosenthal, *Responsible Recycling: My E-Waste Odyssey*, N.Y. TIMES GREEN BLOG (Oct. 24, 2010, 8:02 AM), http://green.blogs.nytimes.com/2010/10/24/responsible-recycling-my-e-waste-odyssey/ (describing efforts to find e-waste recycling locations prior to EERRA implementation as taking "considerable investigation—the answer was not easy or obvious").

35. GAO, ELECTRONIC WASTE: OBSERVATIONS, *supra* note 33, at 8 (noting that consumers are deterred by inconvenient recycling locations, many of which charge consumers a fee for electronics disposal).

36. *Id.*

A. Need for State Action

Two considerations have made the need for state action particularly acute. First, the lack of a nationwide consensus on a financing mechanism for e-waste recycling has prevented enactment of federal legislation. Second, the United States Environmental Protection Agency (EPA) lacks regulatory authority to develop a comprehensive e-waste recycling program, which severely constrains its ability to address domestic e-waste issues.

1. Failure to Find a Federal Solution

Despite considering e-waste for more than a decade, Congress has failed to develop a serious proposal for a federal e-waste disposal or recycling program.[37] The most notable effort to develop a federal e-waste framework was led by the National Electronics Product Stewardship Initiative, beginning in December 2000.[38] The Initiative attempted to establish a uniform list of covered products and a federal financing system to encourage the creation of a federal e-waste program.[39] The negotiations, however, concluded in 2004 with no agreement as to a financing source.[40]

Congress's failure to produce a solution in the face of the continually increasing volume of discarded e-waste has created a vacuum of national regulation, leaving the states to act separately in the absence of a federal policy.[41] Despite manufacturers' strong

37. *Federal Legislation and Policy on E-Waste*, ELECS. TAKEBACK COAL., http://www.electronicstakeback.com/promote-good-laws/federal-legislation/ (last visited April 20, 2012) (listing current federal proposals to prevent international dumping of e-waste, and noting that "[t]here is currently no federal legislation pending to establish a federal takeback program."). Due to the lack of consensus on a financing mechanism, no serious push for federal legislation has occurred. *See infra* text accompanying notes 38–46.

38. *National Electronics Product Stewardship Initiative,* PRODUCT STEWARDSHIP INST., http://www.productstewardship.us/displaycommon.cfm?an=1&subarticlenbr=71 (last visited Apr. 20, 2012).

39. OFFICE OF TECH. POLICY, *supra* note 6, at 7–8. From 2001 through 2004, the working group attempted to agree on a framework for a federal solution to e-waste recycling. PRODUCT STEWARDSHIP INST., *supra* note 38.

40. LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 5 (describing the impasse as "divid[ing] the group into two camps—those who believed that a collection and recycling program should be financed through a consumer-paid advance recycling fee (ARF) . . . and those who advocated a 'producer pays' model wherein electronics manufacturers either took back their own e-waste and recycled it or paid for a system that would."); *see also* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 4 (noting that a uniform recycling system for televisions also provided an area of disagreement within the group).

41. Linnell, *supra* note 12 (discussing state coordination efforts in the absence of a guiding federal policy).

preference for a uniform solution instead of a patchwork of differing state policies,[42] no effort to implement a nationwide e-waste disposal policy has been successful.[43] Although the problem of e-waste has received increasing Congressional attention over the past decade[44] and the Obama administration has acknowledged the urgency of the issue,[45] the ongoing lack of consensus among national stakeholders regarding a financing mechanism has so far prevented the adoption of a federal e-waste recycling policy.[46]

2. Limits on the EPA's Ability to Address Domestic E-Waste

The EPA lacks statutory authority to develop comprehensive regulations for domestic e-waste disposal.[47] Therefore, although the

42. *See* Jennifer Bemisderfer, *What Does the Public Think About e-Waste Recycling?*, CONSUMER ELECS. ASS'N (Nov. 23, 2009), http://blog.ce.org/index.php/2009/11/23/what-does-the-public-think-about-e-waste-recycling/ ("To maximize efficiency and ensure a level playing field for businesses, CEA and its members believe a federal framework would be superior to the current patchwork of policies."); *E-Waste*, U.S. CHAMBER OF COMMERCE, http://www.uschamber.com/issues/technology/e-waste (last visited Apr. 20, 2012) (stating that the Chamber's objective is to "[d]evelop an industry consensus on the creation of a uniform national approach to the management of E-waste").

43. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 4.

44. *See* Press Release, Office of Congressman Mike Thompson, Lawmakers Form Bipartisan Congressional E-Waste Working Group (May 24, 2005), *available at* http://mikethompson.house.gov/News/DocumentSingle.aspx?DocumentID=206315 ("The working group will explore possible solutions to the nation's growing electronic waste problem . . . ."). However, recent proposals focus on addressing aspects of the e-waste problem without implementing a federal recycling program. *See* Responsible Electronics Recycling Act, H.R. 2284, 112th Cong. (2011) (bipartisan bill to prevent overseas dumping of e-waste); Electronic Device Recycling Research and Development Act, H.R. 1580, 111th Cong. (2009) (aiming to fund research and development efforts to improve recycling of e-waste and move to more environmentally friendly product design).

45. The Obama administration released a "National Strategy for Electronics Stewardship" in July 2011, which the administration described as "a strategy for the responsible electronic design, purchasing, management and recycling . . . includ[ing] the first voluntary commitments made by Dell, Sprint and Sony to EPA's industry partnership aimed at promoting environmentally sound management of used electronics." Press Release, Envtl. Prot. Agency, Obama Administration Officials and Industry Leaders Unveil Federal Strategy to Promote U.S.-Based Electronics Recycling Market and Jobs (July 20, 2011), *available at* http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceeac8525735900400c27/030075aab3c88984852578d300566b3b!OpenDocument. This program focused on implementing voluntary partnerships with manufacturers to develop more efficient and sustainable electronic products, changing procurement of electronic products at federal agencies, and developing recycling options for consumers. *Id.*

46. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 4 (describing hurdles preventing previous agreement).

47. *Wastes—Resource Conservation—Common Wastes & Materials—e-Cycling*, ENVTL. PROT. AGENCY, http://www.epa.gov/osw/conserve/materials/ecycling/rules.htm (last visited Apr. 20, 2012) ("At present, there is no Federal mandate to recycle e-waste."); *see* LUTHER, *supra*

EPA increasingly views e-waste as an important issue,[48] the agency's regulatory efforts primarily address the international aspects of hazardous material disposal associated with e-waste, including establishing export controls and addressing the safe disposal of toxic e-waste components on the international market.[49] The EPA's ability to regulate e-waste is limited to cathode ray tubes (CRTs),[50] listed as potentially toxic devices under the Resource Conservation and Recovery Act (RCRA), and thus the agency's primary focus in the context of e-waste has been regulating the disposal and export of CRTs.[51] EPA's rulemaking regarding CRTs includes both domestic regulations and a requirement that recyclers provide notice before exporting CRTs. The exporting notice is forwarded to the destination country and includes the amount transported and the foreign recycler.[52]

EPA's general lack of regulatory authority over e-waste recycling limits its capacity to address domestic e-waste.[53] Over the past decade, the EPA has established a limited number of domestic trial programs to promote environmentally sound e-waste disposal, but these programs have failed to produce a measurable decrease in landfill disposal.[54] Starting in 2003, one such program began

note 9, at 6–7 (discussing exclusion of consumer e-waste from EPA authority under RCRA).

48. Lisa P. Jackson, *The U.S. Environmental Protection Agency's International Priorities*, ENVTL. PROT., AGENCY, http://blog.epa.gov/administrator/2010/08/17/the-us-environmental-protection-agency%E2%80%99s-international-priorities/ (last updated May 14, 2012) (including "Cleaning Up E-Waste" on a list of EPA's six international priorities).

49. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 8–10.

50. A cathode ray tube (CRT) is the glass video display component of an electronic device (usually a computer or television monitor).

51. Hazardous Waste Management System; Modification of the Hazardous Waste Program; Cathode Ray Tubes and Mercury-Containing Equipment, 67 Fed. Reg. 40,508, 40,510 (proposed June 12, 2002) (to be codified at 40 C.F.R. pts. 260, 261, 264, 268, 270, 273); *see* GAO, EPA NEEDS TO BETTER CONTROL HARMFUL U.S. EXPORTS, *supra* note 9, at 2 ("CRTs contain copper—a commodity in high demand, in part because its price has increased threefold over the last several years—but also 4 pounds of lead, a toxin that can delay neurological development. Accordingly, used CRTs are the only electronic device regulated as hazardous waste and whose export is specifically controlled by EPA.").

52. 40 C.F.R. § 261 (2011); *see* LUTHER, *supra* note 9, at 8–9.

53. *See* ENVTL. PROT. AGENCY, *supra* note 47 ("At present, there is no Federal mandate to recycle e-waste."). However, the Obama administration established an Interagency Taskforce on Electronics Stewardship, which provided a report on ways that the federal government could take voluntary action on e-waste in the absence of a federal mandate. INTERAGENCY TASK FORCE ON ELECS. STEWARDSHIP, NATIONAL STRATEGY FOR ELECTRONICS STEWARDSHIP 7 (2011), *available at* http://www.epa.gov/waste/conserve/materials/ecycling/taskforce/docs/strategy.pdf.

54. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 11–14 (concluding that "the impact of [EPA partnership programs] on the management of used electronics is limited or

working with manufacturers, retailers, and service providers to ensure that refurbishers or recyclers follow EPA guidelines to protect human health and the environment.[55] Another program, established in 2009, attempts to certify recyclers who adhere to best practices promoted by the EPA, which provides a public relations benefit for recyclers who go beyond legally required practices.[56]

One area of success for the EPA has been the implementation of programs for environmentally responsible procurement and disposal within federal agencies.[57] Through these programs, the EPA has focused on encouraging environmentally sound recycling practices for electronics.[58] Unfortunately, EPA programs have done little to increase the total volume of recycled e-waste, as the reach of these EPA programs does not extend beyond the federal government.[59] The task of increasing domestic recycling rates for consumer electronic products, therefore, remains with the states.

B. Differing State Approaches to the Producer Responsibility Model

Successful e-waste recycling must accommodate and incentivize decisions by disparate actors in the life-cycle of an electronic product. Manufacturers, as the original creators, decide during production whether to use potentially toxic materials.[60] Retailers pass these products along to consumers, who face the decision of how to dispose of obsolete or unwanted electronics.[61] Effective recycling policies must address each actor, and incentivize them to make environmentally responsible choices.[62]

uncertain.").

55. *Id.* at 11–12; *see Plug-In To e-Cycling Partners*, ENVTL. PROT. AGENCY, http://epa.gov/epawaste/partnerships/plugin/partners.htm (last visited Apr. 20, 2012).

56. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 11 (discussing the Responsible Recycling (R2) program).

57. *Id.* at 12–14 (reporting that the EPA's Federal Electronics Challenge program achieved eighty-three percent reuse or recycling of obsolete electronics, but also identifying opportunities for higher participation); *see Home*, FED. ELECS. CHALLENGE, http://www.federalelectronicschallenge.net/ (last visited Feb. 29, 2012).

58. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 11–14.

59. *Id.* at 8 (noting that the impact of these EPA programs on the management of used electronics is "limited or uncertain").

60. *See* LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 9.

61. *See* Deepali Sinha Khetriwal et al., *Producer Responsibility for E-waste Management: Key Issues for Consideration—Learning from the Swiss Experience*, 90 J. ENVTL. MGMT. 153, 162–63 (2007).

62. *Id.* (noting the Swiss approach—a collective system that does not distinguish by manufacturer—enhanced consumer convenience by allowing centralized drop-off of different types of electronics, compared to separation by manufacturing brand or type of waste).

Two different e-waste systems have been implemented in the United States, and each addresses the divide between actors in differing ways—the Producer Responsibility System (PRS) and the Advanced Recovery Fee System (ARF).[63] The PRS approach places responsibility for recycling and disposal costs on manufacturers, while the ARF approach charges consumers a recycling fee at the point of sale.[64] All but one state e-waste program implements a form of a PRS; California is the only state that has adopted an ARF system.[65] New York continued this trend with the adoption of a PRS program that requires manufacturers to implement and finance e-waste disposal systems.[66]

C. EERRA: The New York Approach

New York's EERRA has received praise as "the most progressive, best researched e-waste bill in the country."[67] Environmental groups commend the law's strong statewide recycling target, its shifting of recycling costs to producers, and its inclusion of incentives to reduce the use of toxic materials in consumer electronics product design.[68] Although EERRA places the primary financing burden on manufacturers, criticism from the electronics industry has remained subdued because manufacturers view EERRA as an improvement on New York City's previous effort to regulate e-waste.[69] That approach could have required manufacturers to provide door-to-door pick-up of obsolete electronics[70]—a standard

63. *Id.*

64. *Id.* at 159.

65. CAL. HEALTH & SAFETY CODE § 42464(a) (West 2006) (providing for collection of consumer fee); *see* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 6; *see also* ELECS. TAKEBACK COAL., *supra* note 11 (stating that "all the states (except California) use the producer responsibility approach.").

66. N.Y. ENVTL. CONSERV. LAW § 27-2605 (McKinney Supp. 2012).

67. Heimbuch, *supra* note 22 (quoting Kate Sinding, Natural Resources Defense Council).

68. *See id.*

69. *See* Meline MacCurdy, *Electronics Manufacturers Challenge New York City E-Waste Law*, MARTEN LAW (Aug. 12, 2009), http://www.martenlaw.com/newsletter/20090812-nyc-e-waste-law-challenged (noting the CEA "allege[d] that the program is the most onerous, draconian, and expensive e-waste program in the United States, will cost manufacturers over $200 million per year, and that, on a per pound basis, the cost of the direct collection alone will be 'ten times more expensive than the total cost of collection and recycling of other E-waste programs in California and Maine'").

70. *See* Complaint ¶ 73, Consumer Elecs. Ass'n v. City of New York, No. 9-6583 (S.D.N.Y. July 24, 2009), 2009 WL 2251862 ¶ 73; Jaymi Heimbuch, *Electronics Associations File Suit Against NYC Over Door-to-Door e-Waste Collection Law*, TREEHUGGER (July 28, 2009), http://www.treehugger.com/clean-technology/electronics-associations-file-suit-against-nyc-

that had never before been imposed on manufacturers.[71]

EERRA offers the most complete approach to electronic waste recycling to date, covering a large range of products, creating a uniform system for product disposal, and establishing stronger targets for enforcement.[72] Two policies demonstrate the comprehensive nature of EERRA. First, the statute's broad definition of "e-waste" creates a large scope of materials subject to regulation. Second, the statute regulates a wide variety of parties by imposing responsibilities on each participant in the e-waste lifecycle. These policies will be discussed in turn.

1. Covered Products: What Is "E-Waste"?

Without federal regulations to specify which products comprise the flow of e-waste, states have taken varied approaches to defining e-waste.[73] EERRA expands on the definitions in prior statutes and brings a broad list of consumer electronic products within the definition of e-waste. The legislation specifically includes computers, televisions, small servers, computer peripherals (monitors, electronic keyboards, electronic mice, faxes, scanners, and printers), and small electronic equipment (VCRs, DVRs, portable digital music players, DVD players, digital converter boxes, cable or satellite receivers, and video game consoles).[74] These products become covered electronic waste when "discarded or no longer wanted" by their owner, or upon entering "the waste collection, recovery, treatment, processing, or recycling system."[75]

EERRA focuses on medium-size consumer electronics, including

over-door-to-door-e-waste-collection-law.html ("The reason New York City's plan is more controversial, sparking litigation from CEA and ITIC, is because in addition to asking manufacturers to pay recycling costs, the city will require companies to provide free, door-to-door pickup of e-waste.").

71. While some states do provide direct collection, these programs are generally coordinated by the state as part of the municipal waste infrastructure. *See* NW. PROD. STEWARDSHIP COUNCIL, PRELIMINARY ANALYSIS OF E-CYCLE PROGRAMS IN WASHINGTON AND OREGON 8–9 (2010), *available at* http://www.productstewardship.net/PDFs/productsElectronicsEcycleWAORReport.pdf.

72. *See* Richard L. Santalesa, *New York's Electronic Equipment Recycling and Reuse Act*, INFO. LAW GRP. (Sept. 1, 2010), http://www.infolawgroup.com/2010/09/articles/data-destruction/new-yorks-electronic-equipment-recycling-and-reuse-act/.

73. LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 1 ("There is no universally accepted definition of e-waste, but it generally refers to obsolete, broken, or irreparable electronic equipment . . . .").

74. N.Y. ENVTL. CONSERV. LAW § 27-2601(3), (5) (McKinney Supp. 2012).

75. *Id.* § 27-2601(6).

televisions, computers, and a wide range of related devices.[76] Business devices with small electronic components fall outside the statute, so consumers need not recycle devices such as calculators or typewriters to comply.[77] To ensure that the primary regulatory focus remains on the toxic effects of e-waste, products that contain minor electronic components but that are not typically considered to be electronic devices are exempt from mandatory recycling,[78] along with non-electronic component parts such as plastic casing.[79]

2. Covered Parties: Who Is Affected, and What Are Their Responsibilities?

Parties throughout the supply chain, including manufacturers, retailers, recyclers, and consumers, are each assigned varying responsibilities for recycling covered products. By placing responsibilities on many parties and providing meaningful mechanisms for enforcement, EERRA expands upon previous laws.

a. Manufacturers

Covered manufacturers face many e-waste recycling responsibilities under EERRA; thus, the breadth of the definition is important. A manufacturer is defined as a person or entity who:

> (a) assembles or substantially assembles covered electronic equipment for sale in the state; (b) manufactures covered electronic equipment under its own brand name or under any other brand name for sale in the state; (c) sells, under its own brand name, covered electronic equipment sold in the state; (d) owns a brand name that it licenses to another person for use on covered electronic equipment sold in the state; (e) imports covered electronic equipment for sale in the state; or (f) manufactures covered electronic equipment for sale in the state without affixing a brand name.[80]

Small-scale producers that assemble fewer than one thousand units of covered electronic equipment are not classified as manufacturers for the purposes of the statute.[81] Thus, the statute focuses on large

76. *Id.* § 27-2601(5).
77. *Id.* § 27-2601(2).
78. *Id.* § 27-2601(5). These products include security systems, medical devices, and cash registers. *Id.*
79. *Id.* § 27-2601(6).
80. *Id.* § 27-2601(11).
81. *Id.*

manufacturers rather than small businesses. Those who sell equipment made primarily of rebuilt, refurbished, or used components are also exempt from the definition, because they further EERRA's aim to recycle and reuse component parts.[82]

When multiple parties are involved in manufacturing equipment covered by the statute, any one of the parties may assume the responsibilities of a manufacturer under EERRA.[83] As an incentive to induce intra-industry planning and cooperation, when parties fail to determine who assumes the duties of a manufacturer, all parties will be deemed jointly and severally responsible.[84] Manufacturers of products without a brand name also do not escape responsibility; rather, these so-called "white-box manufacturers" receive manufacturer classification and face additional requirements, including that products for sale in the New York market come with a label clearly identifying the manufacturer.[85]

EERRA shifts the costs of e-waste collection, handling, and environmentally-safe recycling to those covered under the statutory definition of a manufacturer.[86] The statute couples mandatory compliance with economic incentives. Manufacturers must establish collection systems and meet specified e-waste recycling targets each year.[87] Manufacturers—or their delegated recycler—may recoup some costs by recovering reusable component materials with intrinsic value, such as precious metals.[88] However, it is generally understood that the recoverable value of these components is not sufficient to offset the costs of establishing and running a recycling program.[89]

Manufacturers have flexibility to establish their own methods for

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.* (including those who "manufacture[] covered electronic equipment for sale in the state without affixing a brand name" in the manufacturer definition); *id.* § 27-2609 (establishing labeling requirement).

86. *Id.* § 27-2605(4)–(5) (establishing manufacturer responsibilities); *id.* § 27-2601(11) (defining "manufacturers").

87. *Id.* § 27-2603(1)–(4).

88. *See* Khetriwal et al., *supra* note 61, at 153 (discussing how a study determined that precious metals can be recovered from e-waste at a high rate).

89. *See id.* (acknowledging that the "intrinsic recoverable value" of e-waste may not be enough to meet costs of a recycling program); GAO, ELECTRONIC WASTE: OBSERVATIONS, *supra* note 33, at 10–11 (listing reasons why electronics recycling is cost-intensive and generally loses money).

collecting e-waste, subject to some requirements.[90] Collection methods must meet a "convenience" requirement to ensure that e-waste collection remains accessible to consumers.[91] Specifically, the convenience standard requires manufacturers to establish collection points within each county and each municipality with at least ten thousand people.[92] Manufacturers can choose to work with existing programs or to join other manufacturers to create shared programs.[93] This approach provides flexibility for manufacturers by encouraging them to streamline collection points and collaborate with other entities to create more efficient programs.

Under New York's PRS model, a manufacturer pays for the costs of collection, transportation, and recycling according to its statewide market share.[94] EERRA establishes statewide recycling goals and assigns individual targets based on each manufacturer's market share.[95] Manufacturer targets began in April 2011 with the goal of recycling three pounds of covered electronics per person.[96] State goals increase by one pound per capita in 2012 and 2013, eventually reaching five pounds per capita in 2013.[97] In 2014 and thereafter, statewide goals will be recalculated based on program experience,[98] using manufacturer percentages based on the weight of products sold in previous years.[99] Additionally, as of April 2011, a manufacturer is required to accept and recycle one obsolete unit when a consumer purchases a new unit of a similar type and chooses to recycle an older one.[100] For example, if a consumer purchases a new computer and wants to recycle an older computer, the manufacturer must accept and recycle the old computer, regardless

90. N.Y. ENVTL. CONSERV. LAW § 27-2605(5) (McKinney Supp. 2012) (some requirements include: collecting e-waste in a manner convenient to consumers, providing information to consumers about destroying data stored in e-waste, a public education program, and any other information required by the department).

91. *Id.*

92. *Id.* (requiring manufacturers to ensure that all counties and all municipalities with a population of ten thousand or greater "have at least one method of acceptance that is available within such county or municipality").

93. *Id.* § 27-2605(7).

94. *Id.* § 27-2603(1), (4) (establishing calculations for market share formula).

95. *Id.*

96. *Id.* § 27-2603(3)(a). Since the targets went into effect in April, the yearly goal calculation was multiplied by three-quarters for 2011.

97. *Id.* § 27-2603(3)(b)–(c).

98. *Id.* § 27-2603(3)(d).

99. *Id.*

100. *Id.* § 27-2603(1)(b).

of who manufactured the discarded product.[101] This mandate creates a built-in stream for collecting used products that might otherwise be discarded. The requirement also addresses the problem of orphan waste—products from now-defunct companies—by ensuring that that there is one method for all products to enter the recycling stream.[102]

Manufacturer targets are enforced by the New York Department of Environmental Conservation (NYDEC), which imposes scaled fines on manufacturers who fail to meet their assigned targets.[103] Scaled fines, as opposed to a fixed fine for all violations, are based on the percentage of the yearly target a given manufacturer meets.[104] This provides an incentive for manufacturers to collect as much e-waste as possible. Manufacturers can avoid fines through the use of "recycling credits," which are awarded to producers that exceed their yearly recycling target.[105] The credits provide a way to recoup some costs of recycling, because manufacturers can save credits for use toward meeting subsequent recycling targets or can sell the credits to other manufacturers that failed to meet their own recycling goals.[106]

b. Retailers

EERRA defines regulated "retailers" as parties who sell covered equipment to any person within the state by any means, including online sales.[107] This definition includes manufacturer-refurbished products that are resold to consumers.[108] A retailer who sells fewer

101. *Id.*

102. *See infra* notes 262–268 and accompanying text for a discussion of orphan waste.

103. N.Y. ENVTL. CONSERV. LAW § 27-2603(5) (McKinney Supp. 2012).

104. *Id.* (establishing fines of thirty cents per each additional pound that should have been collected if a manufacturer collects over ninety percent of the established manufacturer target, forty cents per additional pound that should have been collected if the manufacturer collects over fifty percent of the manufacturer target, and fifty cents per each additional pound that should have been collected for manufacturers who collect less than fifty percent of their manufacturer target).

105. *Id.* § 27-2603(7) (allowing up to twenty-five percent of a yearly target to be met through credits received in a previous year).

106. *Id.* (noting that credits may only be "banked" for three calendar years succeeding the year in which the credit is earned).

107. *Id.* § 27-2601(16) (defining a retailer as "a person who sells covered electronic equipment to a person in the state through any means, including, but not limited to, transactions conducted through retail sales outlets, mail, catalogs, the telephone or the internet, or any electronic means. 'Retailer' does not include a person who sells or offers for sale fewer than ten items of covered electronic equipment during a calendar year.").

108. *Id.* § 27-2601(16)–(18) (limiting "retailer" to those who "sell[]" covered electronic

than ten covered items per year is exempt from the statute.[109]

EERRA, however, excludes certain transactions from the sale requirement that fall outside the standard purchase of a new product, including the purchase of used electronic equipment[110] and the leasing of equipment.[111] Transactions other than those between retailers and consumers are also excluded, including wholesale transactions between two retailers and second-hand transfers between two consumers.[112]

After implementation of the recycling programs, additional regulations will apply to retailers.[113] EERRA prohibits New York retailers from selling any covered electronic equipment unless the equipment manufacturer registers with NYDEC.[114] This prohibition provides a check on manufacturer compliance because those that fail to register and cooperate with recycling programs face expulsion from the state market. Additionally, retailers must provide information to consumers about end-of-product-life recycling options when a covered product is purchased.[115] Consumer education on proper disposal of electronic devices thus begins at the point of sale, which increases the information flow so that consumers are aware of future disposal options and can make informed choices about disposal.

c. Consumers

Consumers, long left out of PRS models, are also drawn into EERRA's regulatory scheme. The statutory definition of "consumer"

equipment and defining "[s]ell" or "sale" to include the "transfer of . . . used products that may have been refurbished by their manufacturer or retailer").

109. *Id.* § 27-2601(16).

110. *Id.* § 27-2601(18) (defining "sell" or "sale").

111. *Id.*

112. *Id.* However, retailers may be considered both manufacturers and retailers if they meet both definitions. *See* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 17 (including Best Buy as an example of a manufacturer and retailer); *see also* N.Y. ENVTL. CONSERV. LAW § 27-2601(11) (McKinney Supp. 2012) ("'Manufacturer' does not mean a person who assembles or substantially assembles, and sells less than one thousand units of covered electronic equipment annually in this state, or whose primary business is the sale of covered electronic equipment which is comprised primarily of rebuilt, refurbished or used components."). Additionally, "'[s]ell' or 'sale' . . . does not include consumer-to-consumer second-hand transfer." *Id.* § 27-2601(18).

113. *Id.* § 27-2607(2).

114. *Id.*

115. *Id.*

covers all parties, except wholesale distributors and retailers.[116] Schools and small businesses are also excluded from the definition of consumer.[117]

The consumer approach couples an information campaign with penalties for those who fail to utilize the electronics recycling programs. In 2015, three years after implementation of the required recycling programs, the consumer disposal ban will become effective and consumers may be fined for improper disposal of covered electronics.[118] Prior to the enactment of the consumer disposal ban, both retailers and manufacturers will be required to educate consumers on e-waste recycling procedures.[119] This educational mandate makes information available to consumers at several phases in the life of electronic equipment, from the point of sale onward.

d. Recyclers

The collection and processing stages are each covered by EERRA's recycling mandates.[120] Collection sites include public or private facilities designed to collect electronics for recycling.[121] Retail stores and other outlets that accept electronic waste for recycling also qualify, including not-for-profit donation sites that accept electronic waste.[122] EERRA thus addresses each level of the recycling supply chain.[123]

To reduce the total amount of toxic e-waste disposed in landfills, waste collection and recycling facilities must notify consumers of the prohibition on landfill disposal and inform consumers of proper

116. *Id.* § 27-2601(4) (defining consumer as "a person located in the state who owns or uses covered electronic equipment, including but not limited to an individual, a business, corporation, limited partnership, not-for-profit corporation, the state, a public corporation, public school, school district, private or parochial school or board of cooperative educational services or governmental entity, but does not include an entity involved in a wholesale transaction between a distributor and retailer").

117. *Id.* § 27-2605(8) (excluding "large businesses," defined as for-profit organizations employing fifty or more employees or non-profit organizations employing over seventy-five employees, except those designated as a 501(c)(3) by the IRS, thus allowing manufacturers to charge business consumers for collection and recycling).

118. *Id.* §§ 27-2611(3), 27-2729(1)(a) (banning individual disposal and establishing consumer fines for illegal dumping of $100 per incident).

119. *Id.* § 27-2607(2) (retailer requirement); *id.* § 27-2605(c) (manufacturer requirement).

120. *See id.* § 27-2601(7)–(9).

121. *Id.* § 27-2601(7).

122. *Id.*

123. *See id.* § 27-2601.

disposal procedures.[124] Recovery and reuse of metals from discarded electronic products is encouraged, and the recycling method is specified to ensure safe handling and disposal of non-reusable toxic elements.[125]

3. State Enforcement Role

NYDEC regulates all parties governed under EERRA, collecting data to establish manufacturer recycling targets,[126] regulating the types of e-waste allowed in landfills,[127] and enforcing the state prohibition on disposal of covered electronic equipment as ordinary solid waste through the imposition of fines.[128] Manufacturers must also disclose to NYDEC any products sold in New York failing to comply with the Restriction of Hazardous Substances (RoHS) Directive, an international accord defining toxic products.[129] All fees collected by NYDEC are appropriated to the New York Environmental Protection Fund, including fees recovered from manufacturers that fail to meet recycling targets, fees from recyclers for improper recycling practices at the point of disposal, and fees from individual consumers for improper dumping.[130] Through comprehensive coverage, EERRA creates interrelated incentives and disincentives for each party in the e-waste supply chain, from manufacturer production, retailer sales, consumer disposal, and e-waste consolidators and recyclers.

124. *Id.* § 27-2611(2).

125. *Id.* § 27-2613. *See generally* Khetriwal et al., *supra* note 61, at 153–54 (noting that between eighty and ninety-five percent of metals contained in e-waste products can be recovered through recycling).

126. N.Y. ENVTL. CONSERV. LAW § 27-2617 (McKinney Supp. 2012).

127. *Id.* § 27-2611 (implementing disposal ban); *Guidance for Municipal Electronic Waste Collection Sites*, N.Y. DEP'T OF ENVTL. CONSERVATION, http://www.dec.ny.gov/chemical/66879.html (last visited Apr. 20, 2012).

128. N.Y. ENVTL. CONSERV. LAW § 27-2729(1)(a) (McKinney Supp. 2012).

129. *See id.* § 27-2605; N.Y. DEP'T OF ENVTL. CONSERVATION, REGISTRATION FORM FOR MANUFACTURERS OF COVERED ELECTRONIC EQUIPMENT (2010), *available at* http://www.dec.ny.gov/docs/materials_minerals_pdf/mfrreg101310.pdf (requiring manufacturers to certify their compliance with RoHS directives).

130. N.Y. ENVTL. CONSERV. LAW § 27-2621 (McKinney Supp. 2012) (establishing environmental protection fund); *see also* N.Y. STATE FIN. LAW § 92-s (McKinney 2010) (establishing the "environmental protection fund").

II. EVOLUTION FROM EARLY LAWS: HOW EERRA DIFFERS FROM PREVIOUS STATE APPROACHES

New York's approach to e-waste disposal marks the arrival of a second generation in e-waste legislation—one that is more comprehensive and effective than earlier state approaches. The move from piecemeal policies to increasingly comprehensive solutions—those addressing interconnected entities and the challenges they face—becomes apparent when e-waste laws in various states are compared.[131]

While not all recent state actions match the scope of EERRA, states have increasingly enacted legislation that builds upon earlier approaches, proposing broad solutions similar to those adopted in New York. This section examines three notable shifts in state approaches to e-waste disposal legislation exemplified by EERRA: (1) regulating all applicable products and actors; (2) providing the state with power to enforce regulations and ensure party compliance; and (3) adequately funding implementation and enforcement. A chart of all current state e-waste legislation is provided in Appendix A.

A. Scope of Coverage

In the first wave of state e-waste legislation, many states chose piecemeal approaches to electronics recycling that involved implementing plans to solve narrowly defined problems. In contrast, EERRA broadens the products and parties regulated. Two major shifts have occurred in the movement toward legislation resembling EERRA. First, an increased number of products now come within the scope of state e-waste legislation. Second, states have moved toward more interconnected solutions that address all parties in the supply chain, rather than placing the responsibility solely on manufacturers or consumers.

1. Moving Away from Device-Specific Laws

Many early state e-waste laws, known as device-specific laws, covered only one type of electronics, such as video display devices[132]

131. *See, e.g.*, 415 ILL. COMP. STAT. ANN. 150/1–999 (West Supp. 2012).

132. *See, e.g.,* CAL. HEALTH & SAFETY CODE § 25214.10.1(a)(1) (West 2006) (defining an "electronic device" as a "video display device . . . with a screen size of greater than four inches.").

or computers.[133] Some states passed separate but similar laws, thereby establishing multiple systems within the same state rather than creating one uniform system covering all e-waste.[134] For example, prior to EERRA, New York had implemented a narrow, device-specific cellular phone recycling law.[135] These device-specific laws have proven successful in the context of cellular phone recycling[136] because, unlike computers and televisions, mail-back programs are easily tailored to smaller devices, which minimizes the need for direct collection points.[137] Device-specific laws have also received significant praise from manufacturers, especially in cases where the particular device is uniquely suited to the program.[138] A single, comprehensive program, however, is more appropriate for mid-sized electronics, including computers and televisions, where mail-back programs are not feasible.[139]

Limiting the scope of products covered also limits the amount of e-waste collected for recycling, leaving categories of potentially recyclable products in the landfill waste stream. The majority of state laws leave out important consumer products such as scanners, monitors, and other devices of similar size and composition.[140] State programs defined for specific products prevent the establishment of one comprehensive system that covers a larger swath of consumer products through centralized recycling efforts.

133. N.C. GEN STAT. § 130A-309.90 (repealed 2010) (specifically excluding televisions in original bill, but added in 2008 amendments); *see also* 2010 N.C. Sess. Laws 67, *available at* http://www.ncleg.net/Sessions/2009/Bills/Senate/HTML/S887v6.html (amending prior computer recycling requirements).

134. *See* HAW. REV. STAT. § 339D-1 (LexisNexis Supp. 2011) (imposing different requirements for manufactures of televisions versus manufacturers of computers); MD. CODE ANN., ENVIR. § 9-1701 (LexisNexis 2007) (passing subsequent legislation adding televisions to the state's definition of e-waste).

135. N.Y. ENVTL. CONSERV. LAW § 27-2303 (McKinney Supp. 2012) (requiring wireless telephone providers to accept used cell phones for recycling); *see* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 33 (noting that some manufacturers believe cell phones should receive different treatment from larger electronic devices, as the smaller size of cell phones makes mail-back programs a feasible option).

136. *See* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 33.

137. *See id.* at 6 n.5.

138. *Id.* at 33 (noting that "mobile devices can be easily collected through mail-back programs").

139. Texas, which allowed manufacturers to use mail-back programs for all e-waste, found non-cell phone products less conducive to mail-back programs. *See* TEX. HEALTH & SAFETY CODE ANN. § 361.955 (West 2010); GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 56 (citing local officials as saying allowing mail-back programs for all products was one factor that contributed to the law's lack of impact on recycling percentages).

140. *See generally* ELECS. TAKEBACK COAL., *supra* note 11 (comparing state e-waste laws).

2. Limited Moves Toward Interconnected Solutions

Since 2003, when states began addressing the challenges posed by e-waste recycling, states have increasingly moved away from device-specific laws. The majority of these laws were enacted after 2008, and all except California have used a version of the PRS model.[141]

California took the first independent action to regulate e-waste in 2003, when it adopted the only state ARF system presently in effect.[142] The California plan limits its coverage to televisions, monitors, and other screened products, and excludes all central processing units (CPUs).[143] Rather than requiring manufacturers to bear the majority of the costs, California charges consumers a set fee when a new device is purchased.[144] This funding is then used by the state to reimburse recyclers that collect e-waste from state residents.[145] Because the program does not refund the purchase fee to consumers, they have less of an incentive to seek out end-use recycling options. However, while this approach differs from other state regimes,[146] it has successfully provided a method for increasing the availability of e-waste recycling in California.[147]

Some of the other early state e-waste programs, including those in Maine (adopted in 2004) and Maryland (adopted in 2005), also embraced narrow focuses. Maine's program originally covered only televisions, monitors, and laptops.[148] Maryland's program originally accepted only certain types of computers.[149] These models also used different approaches for sharing funding responsibilities, requiring the state government to pay some of the costs rather than manufacturers.[150] Maine divides operating costs between municipalities, which fund collection, and manufacturers, who pay

141. *Id.*

142. *See* CAL. PUB. RES. CODE § 42464(a) (West 2006).

143. *Id.* § 42463.

144. *Id.* § 42464.

145. *Id.* § 42476.

146. Valerie Eifert, *Collaboration Before Legislation: The Current State of E-Waste Laws and a Guide to Developing Common Threads for the State Patchwork Quilt*, 18 PENN ST. ENVTL. L. REV. 235, 241–45 (2010) (describing the different PRS models used in the states).

147. *See* CAL. DEP'T OF RES. RECYCLING AND RECOVERY, UPDATE ON CALIFORNIA'S COVERED ELECTRONIC WASTE RECYCLING PROGRAM IMPLEMENTATION OF THE ELECTRONIC WASTE RECYCLING ACT OF 2003 2 (2012), *available at* http://www.calrecycle.ca.gov/Electronics/CEW/ProgramStats.pdf (showing yearly recycling returns).

148. ME. REV. STAT. ANN. tit. 38, § 1610 (Supp. 2011).

149. MD. CODE ANN., ENVIR. § 9-1701 (LexisNexis 2007).

150. ME. REV. STAT. ANN. tit. 38, § 1610 (Supp. 2011); MD. CODE ANN., ENVIR. § 9-1701 (LexisNexis 2007).

for handling and recycling.[151] Maryland requires manufacturers to pay a flat fee to cover program costs.[152] Additionally, both programs lack recycling targets that would incentivize manufacturers to increase their collection efforts.[153] However, each program provides a baseline for addressing e-waste, and, notably, each state amended its program after implementation to increase the range of products covered.[154] Thus, although these approaches began narrowly, they provide examples of how states have expanded coverage over time.

Michigan, Missouri, and Texas implemented another limited approach, requiring only that manufacturers implement a recycling program that covers the e-waste they create.[155] States following this strategy have implemented laws with few mandates, preferring to leave major program decisions, aside from the threshold requirement that each manufacturer provide a recycling option at no cost to consumers, to manufacturers.[156] The scope of coverage is also limited. The Missouri and Texas laws cover only computer manufacturers, and Michigan's law covers only general computer equipment and television manufacturers.[157] While these programs established a collection mechanism for some products, in many cases they were not well publicized or convenient for consumers.[158]

3. Intermediate Approaches

One example of an intermediate approach, showing a move toward adopting more comprehensive policies, occurred when Washington and Oregon began to implement similar "E-Cycle" programs in 2007

151. ME. REV. STAT. ANN. tit. 38, § 1610 (Supp. 2011).

152. MD. CODE ANN., ENVIR. § 9-1728(c) (LexisNexis 2007).

153. ME. REV. STAT. ANN. tit. 38, § 1610 (Supp. 2011).

154. Maine amended its program in 2009 to add electronic picture frames, desktop printers, and videogame consoles as additional covered devices. ELECS. TAKEBACK COAL., *supra* note 11, at 11. Maryland added televisions as a covered product in 2007, and extended the program, which began as a five-year test phase that would have expired in December 2010. MD. CODE ANN., ENVIR. § 9-1701 (LexisNexis 2007) (including display devices with screens over four inches in width); ELECS. TAKEBACK COAL., *supra* note 11, at 13.

155. *See* MICH. COMP. LAWS ANN. § 324.17305 (West 2009); MO. ANN. STAT. § 260.1062 (West Supp. 2012); TEX. HEALTH & SAFETY CODE ANN. § 361.955 (West 2010).

156. *See* MICH. COMP. LAWS ANN. § 324.17309 (West 2009); MO. ANN. STAT. § 260.1062 (West Supp. 2012); TEX. HEALTH & SAFETY CODE ANN. § 361.955 (West 2010).

157. *See* MICH. COMP. LAWS ANN. §§ 324.17309, 324.17311 (West 2009) (computer takeback program and television takeback program, respectively); MO. ANN. STAT. § 260.1053 (West Supp. 2012); TEX. HEALTH & SAFETY CODE ANN. § 361.952(2) (West 2010).

158. *See* MICH. COMP. LAWS ANN. § 324.17309 (West 2009); MO. ANN. STAT. § 260.1062 (West 2008); TEX. HEALTH & SAFETY CODE ANN. § 361.955 (West 2010); GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 56 (discussing shortfalls of Texas mail-in program).

and 2008.[159] These plans contained a hybrid element, shifting responsibility for waste disposal to manufacturers, while also implementing a "default" plan administered by a city agency.[160] Manufacturers are required to pay a share of the default program cost unless they opt-out and run their own state-approved program.[161] Both programs saw early increases in consumer recycling of electronics.[162] Emphasizing coordination among different producers to implement an easy-to-use program proved especially successful.[163]

As opposed to previous laws that merely required that an opportunity be available for consumer to recycle e-waste, recent laws in Illinois and Minnesota have also moved toward more comprehensive coverage and enforcement of recycling targets.[164] Illinois recently implemented an approach that combines free collection for consumers, a state disposal ban, and manufacturer targets based on the manufacturer's state market share.[165] The Illinois legislation, passed in September 2008, began with a wide scope similar to EERRA's, covering computers, printers, and televisions, while also allowing other products to count toward a manufacturer's recycling goal.[166] Additional amendments in 2010 increased the scope to include portable digital music and video devices, computer accessories (such as scanners, keyboards, small servers, and fax machines), and digital television equipment (such as recorders and receivers).[167] As part of the movement toward implementing goals for each manufacturer, Illinois implemented a market share goal, where targets are set according to percentage of

159. NW. PROD. STEWARDSHIP COUNCIL, *supra* note 71, at 2–5. These two states refer to their e-waste recycling program as "e-cycle" programs. *Id.*

160. *Id.* at 8–9.

161. *Id.*

162. *Id.* at vii.

163. *Id.* at 28 (citing Washington program coordination through single entity).

164. *See generally* 415 ILL. COMP. STAT. ANN. 150/1–999 (West Supp. 2012); MINN. STAT. ANN. §§ 115A.1310–1330 (West Supp. 2012).

165. *See* 415 ILL. COMP. STAT. ANN. §§ 150/15, 15/30(d), 150/95 (West Supp. 2012) (provisions with market share calculation, mandating collection at no net cost to consumers, and disposal ban, respectively).

166. *See* 415 ILL. COMP. STAT. ANN. 150/10 (West Supp. 2012) (defining covered products); *see also Amendments to the Illinois Electronic Products Recycling and Reuse Act*, ILL. ENVTL. PROT. AGENCY, http://www.epa.state.il.us/land/electronic-waste-recycling/amendments.html (last visited Apr. 21, 2012).

167. 415 ILL. COMP. STAT. ANN. 150/10 (West Supp. 2012).

sales the manufacturer makes for each type of product.[168] The Illinois system is one of the first to levy fines for failing to meet recycling goals. Specifically, the Illinois system charges manufacturers for each pound that they fall short of their goals.[169] Additionally, Illinois includes incentives to refurbish and reuse electronic equipment.[170] Products that are refurbished and returned to market or donated for use by eligible non-profits count for two or three times the normal value of that product in determining whether the manufacturer has met the law's recycling goal.[171]

Minnesota similarly established a PRS program with enforceable targets that also uses market share goals.[172] Minnesota's program likewise incentivizes recycling in rural counties by providing bonus credits toward the recycling goal.[173] Like EERRA, the Illinois and Minnesota programs increase the scope of covered products and implement recycling targets so that each manufacturer is held accountable for recycling a set percentage of the e-waste it generates.[174] States, such as these, that have taken individual steps toward covering all parts of the supply chain illustrate the move toward a second-generation approach to e-waste.

B. Compliance and Enforcement

State approaches to enforcement have evolved from optional programs with voluntary recycling goals to mandatory programs with fixed recycling targets.[175] States are increasingly emphasizing consumer compliance by focusing on methods to increase consumer participation.[176] However, even when programs include recycling targets, many do not include adequate consequences for failing to meet established recycling goals. EERRA addresses compliance

168. *Id.* § 15; *see also infra* pp. 31–33. MK - change when we put all the articles together..

169. 415 ILL. COMP. STAT. ANN. 150/80 (West Supp. 2012); ILL. ENVTL. PROT. AGENCY, *supra* note 166.

170. 415 ILL. COMP. STAT. ANN. 150/30 (West Supp. 2012); ILL. ENVTL. PROT. AGENCY, *supra* note 166.

171. 415 ILL. COMP. STAT. ANN. 150/30 (West Supp. 2012); ILL. ENVTL. PROT. AGENCY, *supra* note 166.

172. MINN. STAT. ANN. § 115A.1320 (West Supp. 2012).

173. *Id.* § 115A.1314.

174. *Id.* § 115A.1318.

175. *See, e.g.*, *id.* § 115A.1314 (setting enforceable manufacturer targets).

176. *See, e.g.*, ELECS. TAKEBACK COAL., *supra* note 17, at 2 (indicating that states see higher collection rates when implementing programs focused on consumer convenience or collection goals).

concerns by focusing on three areas: (1) manufacturer recycling goals and fines for failing to meet those goals;[177] (2) assignment of responsibility to consumers through a disposal ban with meaningful fines;[178] and (3) increased state power to enforce the established mandates.[179] Each of these areas is discussed below.

1. Development of Enforceable Manufacturer Goals

Several early e-waste programs did not require mandatory participation and failed to set enforceable goals.[180] Without consequences for failing to enact recycling programs, voluntary benchmarks failed to drive manufacturer action.[181] While these voluntary efforts raised the level of e-waste recycling, these efforts failed to provide accountability or incentives to move toward sustainable programs. For example, Maryland required counties to pay for the collection of e-waste and then reimbursed the counties with fees from product manufacturers, but it also allowed counties to opt out and not offer any e-waste recycling program.[182] Additionally, the programs in Michigan, Missouri, and Texas required only that companies implement a recycling program—not that the programs be effective or consumer-friendly.[183] These approaches contained few, if any, recycling requirements and lacked goals to encourage manufacturer-based recycling efforts.[184]

In response to the increasing need for electronics recycling, some manufacturers have established voluntary, nationwide recycling

177. *See* N.Y. ENVTL. CONSERV. LAW § 27-2603(4) (McKinney Supp. 2012).

178. *See id.* § 27-2611(3).

179. *See id.* § 27-2615.

180. *See generally* ELECS. TAKEBACK COAL., *supra* note 11 (noting which programs have enforceable goals versus voluntary goals, and the programs that did not set specific return goals).

181. ELECS. TAKEBACK COAL., *supra* note 17, at 3 (arguing that "if states don't spell out clear convenience requirements or establish collection goals, most of the manufacturers won't make any significant effort to collect used electronics.").

182. *See* MD. CODE ANN., ENVIR. §§ 9-1727–1728 (LexisNexis 2007) (establishing manufacturer registration requirements).

183. *See* MICH. COMP. LAWS ANN. § 324.17309 (West 2009); MO. ANN. STAT. § 260.1062 (West Supp. 2012); TEX. HEALTH & SAFETY CODE ANN. § 361.955 (West 2010). While the Michigan and Texas laws required that collection be "convenient," no further definition of "convenience" was included. *Id.*

184. *See* MICH. COMP. LAWS ANN. § 324.17309 (West 2009) (setting a non-binding goal of recycling sixty percent of the weight sold in the previous year); MO. ANN. STAT. § 260.1062(3) (West Supp. 2012) (requiring only that collection be "reasonably convenient" and "designed to meet the collection needs of consumers"); TEX. HEALTH & SAFETY CODE ANN. § 361.951.55(c) (using same language as Missouri statute).

programs.[185] These voluntary programs, however, fail to collect a significant portion of the millions of pounds of e-waste annually disposed in landfills.[186] Similarly, state systems that formally shift costs to manufacturers but set only statewide targets collect less e-waste than systems that set mandatory goals.[187] Voluntary programs typically fail to provide broad coverage, as manufacturers have little incentive to develop programs that collect additional products because adding new product categories creates additional recycling costs.[188] Voluntary programs, particularly when established by manufacturers, are often implemented with costs rather than convenience in mind, thereby failing to engage consumers as active participants in e-waste recycling.[189]

An intermediate approach, used in Washington and Oregon, provides additional structure for recycling programs by establishing a default state program for collecting consumer e-waste. Under these laws, manufacturers can choose to join the default program and share the costs for that program, or they can choose to run their own recycling program.[190] This approach ensures the existence of a convenient, centralized default for consumer disposal.[191] However, enforcement options and incentives for manufacturer participation and innovation remain limited.[192] Thus, these programs provide access to recycling options, but fail to incentivize manufacturers to create more recycling-friendly products.[193]

Manufacturer recycling targets can be formulated as market share targets, which are based on sales within the state, or return share targets, which are based on the amount of products recycled the

185. *See Manufacturer Takeback Programs*, ELECS. TAKEBACK COAL., http://www.electronicstakeback.com/how-to-recycle-electronics/manufacturer-takeback-programs/ (last visited Apr. 21, 2012) (listing voluntary electronics recycling programs implemented by manufacturers).

186. Jaymi Heinbuch, *U.S. Government Officials Ask Electronics Industry to Take Back NYC Lawsuit, and Take Back Gadgets*, TREEHUGGER (Nov. 5, 2009), http://www.treehugger.com/files/2009/11/us-government-officials-ask-electronics-industry-to-take-back-nyc-lawsuit-and-take-back-gadgets.php.

187. ELECS. TAKEBACK COAL., *supra* note 17, at 4 (noting the most effective programs set high minimum goals rather than maximum goals).

188. *Id.* at 3. However, consumers prefer single collection points that recycle a wide variety of electronics. *Id.* at 6.

189. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 22.

190. *See* NW. PROD. STEWARDSHIP COUNCIL, *supra* note 71, at 4.

191. *See* Khetriwal et al., *supra* note 61, at 163.

192. *See* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 15–17.

193. *Id.*

previous year.[194] These approaches allow states to set realistic manufacturer targets tailored to state priorities. For example, Minnesota separates manufacturer obligations—measured by market share of televisions, monitors, and laptops—from free collection of other goods.[195] This approach matches enforceable goals with consumer incentives to recycle additional products.[196] Individual manufacturer goals provide an easier mechanism for ensuring compliance and establishing fines or other sanctions for failing to meet targets.

More programs, like EERRA, are setting goals for each manufacturer's recycling share and mandating fines for failure to meet established targets.[197] Establishing mandatory collection targets increases state authority and helps encourage collection and recycling of e-waste while decreasing landfill disposal.[198] By moving away from the early e-waste programs that lacked statewide goals and implementing strong producer take-back programs, states have become more effective in recycling significant percentages of e-waste.

2. Consumer Participation

A comprehensive approach can better target e-waste by addressing all parties in the system, thus encouraging reuse of a greater percentage of products. State programs have increasingly come to recognize the consumer's important role in effective e-waste recycling. Consumer participation requires accessible and inexpensive methods of e-waste disposal[199] because cost and inconvenience are two factors that prevent consumer

194. *Id.* at 32.

195. MINN. STAT. ANN. §§ 115A.1314, 115A.1318 (West. Supp. 2011) (calculation of recycling credits and manufacturer obligations, respectively).

196. *See id.*; *see also* ELECS. TAKEBACK COAL., *supra* note 11, at 16.

197. *See*, *e.g.*, HAW. REV. STAT. ANN. § 339D-8(g) (LexisNexis Supp. 2010) (imposing a cost of fifty cents per pound for TV companies); 415 ILL. COMP. STAT. ANN. 150/80(c) (West Supp. 2012) (imposing a cost of seventy cents per pound multiplied by the difference between goal and actual amount recycled); MINN. STAT. ANN. § 115A.1314 (West Supp. 2011) (varying the manufacturer registration fee depending on percentage recycled).

198. ELECS. TAKEBACK COAL., *supra* note 17, at 6 (noting that consumers like programs that ask them to bring in all their used electronics rather than limited types).

199. *See* Ramzy Kahhat et al., *Exploring E-waste Management Systems in the United States*, 52 RESOURCES, CONSERVATION & RECYCLING 955, 960–61 (2008); *see also* LUTHER, *supra* note 9, at 11 ("Most stakeholders agree that if e-waste is to be recycled, it must be as easy for consumers to recycle electronics as it is to buy them.").

participation.[200] EPA pilot programs found that convenient, free recycling services proved successful in motivating consumer compliance.[201] While consumer-recycling rates can fluctuate due to various community factors, including poor accessibility in rural areas and lack of information about disposal locations,[202] providing clear information to consumers is essential to a successful program.[203] Because consumers choose where and how to dispose of the product, programs that actively engage consumers in the recycling process through increased information about recycling options dramatically increase the amount of e-waste recycled.[204]

States have also started to address consumer concerns about cost and convenience. Nearly all states with e-waste legislation prohibit manufacturers from charging consumers a fee for recycling, which removes cost from consumer end-of-product-life decisions.[205] While states generally require manufacturers to implement programs that are convenient for consumers, some states lack additional definition or enforcement of that convenience standard, and thus have limited requirements over how accessible and well-publicized programs should be for consumers.[206] However, more recent state efforts include specific requirements to increase the ease of consumer use. States are placing a new emphasis on consumer education and outreach programs to boost consumer participation, with most states requiring manufacturers to meet a consumer education requirement.[207]

Unlike many early approaches, EERRA includes several efforts to motivate consumer recycling, which in turn helps manufacturers

200. GAO, ELECTRONIC WASTE: OBSERVATIONS, *supra* note 33, at 8–10.

201. *Id.* at 12 (concluding that EPA programs providing free take-back of certain manufacturers' products at retail stores "showed the extent to which recycling can be encouraged by making it inexpensive and convenient to the consumer.").

202. *See* ELECS. TAKEBACK COAL., *supra* note 17, at 4–5 (discussing manufacturer hesitance to establish rural collection points due to cost and other concerns).

203. Kahhat et al., *supra* note 199, at 960.

204. *Id.* (advocating for the adoption of advanced consumer fee systems similar to state bottle deposit programs, which use economic incentives to encourage consumers to recycle designated products).

205. Linnell, *supra* note 28 (noting that California's advance recovery fee system makes it the "only state with a fee charged to the consumer at the time of sale").

206. *See generally* MO. ANN. STAT. § 260.1062(3) (West Supp. 2012) (mandating that collection be "reasonably convenient" without mandating specific standards).

207. *See, e.g.*, N.C. GEN. STAT. § 130A-294 (2011); 2007 N.C. Sess. Laws 550 (adding a mandate to North Carolina's Solid Waste Program that manufacturers create an education plan that teaches the public about laws governing recycling and reuse of e-waste and methods for compliance).

meet their recycling targets. By combining all aspects of the recycling program in one comprehensive piece of legislation,[208] the regulations for manufacturers, retailers, and consumers were designed to complement each other, existing state laws, and federal CRT regulations.[209]

EERRA's convenience requirement specifically mandates that manufacturers establish convenient collection points across the state; collection points must be established in every county and in all municipalities with a population greater than ten thousand.[210] Requiring retailer participation to inform consumers of recycling options at the point of sale provides early education about recycling options.[211] Instituting a consumer disposal ban provides additional incentives for consumer participation.[212] While fines for consumer non-compliance are modest, with the maximum currently set at $100, these fines still provide some measure of deterrence.[213] By placing some responsibilities on both consumers and manufacturers, EERRA represents an attempt to overcome the consumer participation concerns seen in manufacturer-driven programs.

EERRA takes important steps toward voluntary consumer compliance by reducing common barriers to consumer participation. By requiring free and convenient disposal, EERRA couples empirically proven methods of driving consumer participation with the powerful incentive of individual fines. The broad consumer incentives and considerations in EERRA should provide additional consumer engagement in the e-waste program.

3. State Enforcement Powers

Early state legislation frequently established mandates without giving the state strong enforcement mechanisms.[214] Recent state efforts to prohibit sales of electronic products containing toxic chemicals and to regulate end-of-product-life disposal—both of which require increased state authority to enforce[215]—reflect the

208. *See* N.Y. ENVTL. CONSERV. LAW §§ 27-2601–2621 (McKinney Supp. 2012).

209. *Id.* § 27-2601 (regulating electronics outside of those in existing cell phone law); *see* Linnell, *supra* note 28 (discussing federal CRT regulations).

210. *See* N.Y. ENVTL. CONSERV. LAW § 27-2605 (McKinney Supp. 2012).

211. *Id.* § 27-2607.

212. *Id.* § 27-2611.

213. *Id.* § 71-2729.

214. *See* TEX. HEALTH & SAFETY CODE ANN. §§ 361.951–966 (West 2010) (establishing a voluntary program).

215. *E.g.*, CAL. HEALTH & SAFETY CODE § 25214.10.1 (West 2006); *see* ELECS. TAKEBACK COAL.,

growing need for powerful enforcement provisions.

State emphasis has shifted toward regulating all levels of the supply chain. Rather than simply regulating specific procedures for recyclers or establishing programs for consumer collection, EERRA implements separate, but complementary, requirements for manufacturers, retailers, consumers, and recyclers.[216] Beyond simply increasing the amount of regulation applicable to each party, EERRA provides overlapping regulations and incentives. While manufacturers are fined for failing to collect their share of e-waste, manufacturers also receive potentially lucrative credits for collecting e-waste beyond their individual goals.[217] The dual role of fines and incentives induces compliance and participation in e-waste recycling programs.[218]

State commitment to vigorously enforce regulations is necessary to realize the goals of the legislation.[219] Some regulations, such as determining whether a retailer sells prohibited products, are relatively easy to enforce. Others, such as the consumer disposal ban, are more difficult because tracking consumer disposal and linking improper actions to specific consumers requires large resource expenditures. Thus, a commitment by NYDEC to monitor compliance efforts and make appropriate changes will aid in establishing a successful program. Through these increased enforcement powers, focused on all parties in the system, EERRA provides an effective combination of incentives and enforcement tools to encourage e-waste recycling.

C. Financing

The costs incurred in collecting, transporting, and recycling component parts of electronic products are challenges to implementing an e-waste recycling system. The PRS approach benefits states by shifting costs away from the government and incentivizes producers to create new products with the end-of-product-life cycle in mind, thus reducing waste and increasing the

supra note 11 (noting that some states specifically forbid manufacturers from selling RoHS products).

216. *See* N.Y. ENVTL. CONSERV. LAW §§ 27-2601–2621 (McKinney Supp. 2012).

217. *See infra* note 256 and accompanying text (discussing issues with manufacturer credits).

218. N.Y. ENVTL. CONSERV. LAW § 27-2603 (McKinney Supp. 2012).

219. *See* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 20 (noting the perceived lack of enforcement by state environmental agencies).

use of secondary materials.[220] PRS requires manufacturers to bear many costs of e-waste disposal, under the assumption that such costs will be passed back to the consumer in future purchase prices.[221]

Within state PRS programs, a spectrum of financing methods exists between the two extremes of full government payment and full manufacturer payment.[222] The different state programs range from complete administration of recycling programs[223] to a pure enforcement role that allows manufacturers to establish and run their own programs.[224] Some programs require large degrees of government responsibility, called Collective Producer Responsibility (CPR), whereby the state provides recycling services and producers are reimbursed based on their share of recycled materials.[225] While state-run programs provide fewer burdens on manufacturers, the state may end up shouldering more of the costs.[226] Additionally, producers may lack incentives to move toward more environmentally-friendly product designs, because they face similar recycling costs for old products regardless.[227]

EERRA and other recent programs shift financial responsibility to manufacturers. States increasingly look to Individual Producer Responsibility Systems, "designed to provide incentives to producers for taking responsibility for the entire lifecycle of his/her own products, including end of life."[228] While this does not require each

220. *See* Dempsey & McIntyre, *supra* note 9, at 213–14.

221. *See* Eifert, *supra* note 146, at 241–45 (describing the different producer systems).

222. *Id.* Maine implemented the first PRS program in 2004. *See* ME. DEP'T OF ENVTL. PROT., REPORT ON MAINE'S HOUSEHOLD E-WASTE RECYCLING PROGRAM 2–3 (2010) (noting the history of Maine's PRS program). All subsequent states adopted similar programs, but they have varied dramatically. *See* ELECS. TAKEBACK COAL, *supra* note 11.

223. *See* NW. PROD. STEWARDSHIP COUNCIL, *supra* note 71, at 4–5. For example, the Oregon and Washington programs allowed each state to implement default collection programs, for which the manufacturers received the bill for implementation, divided by manufacturer market share. *Id.* at v, vii.

224. *See, e.g.*, 415 ILL. COMP. STAT. ANN. 150/1–999 (West Supp. 2012).

225. Dempsey & McIntyre, *supra* note 9, at 215–16.

226. *See, e.g.*, ME. DEP'T OF ENVTL PROT., *supra* note 222, at 7–8. Maine's program runs at a substantial cost to the state even though it splits the costs of collection and recycling between producers (who pay for transportation, consolidator handling, and recycling) and municipalities (which cover collection costs). *But see* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 50–51 (noting that increased costs required Maine to start charging a $3000 annual fee from each manufacturer to cover state costs).

227. Dempsey & McIntyre, *supra* note 9, at 225.

228. *Id.* at 215. *But see* GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 17 (detailing why manufacturers claim e-waste laws have not impacted their product design).

producer to have separate infrastructure to collect its own appliances, because of the strong link between the waste product and the producer, individual responsibility creates incentives to design products that are easier and cheaper to recycle.[229]

III. FUTURE APPLICATION OF THE EERRA BLUEPRINT

As states and the federal government continue to evaluate their e-waste laws, EERRA serves as a model for the implementation of comprehensive, second-generation solutions. There are, however, additional considerations that must be taken into account. While EERRA provides an effective model to follow, expansion of future e-waste programs must also acknowledge aspects of the program unique to New York and tailor policies to particular local conditions. In analyzing the New York approach for implementation in other states or as a nationwide blueprint, there are three important issues to consider: (1) the unique market conditions and economies of scale present in New York; (2) the continued enforcement challenges facing New York and other state programs; and (3) the financial challenges of implementing and expanding electronic waste recycling programs.

A. Unique Considerations in Implementing EERRA

With any state policy, the choices made necessarily reflect local considerations and constraints. While this allows programs to be more responsive to local concerns, it also requires that any future application of state legislation consider the choices that shaped the legislation, and how those local considerations contrast with the needs of another area. For example, two local factors directly influenced EERRA's success. First, the unique market power of sales in New York incentivized stakeholder participation. Second, the unique political considerations behind the bill, including reactive concerns raised by New York City's earlier attempt to regulate e-waste, muted possible manufacturer opposition. Both of these factors, idiosyncratic to New York, are discussed below.

229. *See* Dempsey & McIntyre, *supra* note 9, at 227 (explaining how the feedback cycle between recycling plants and manufacturers encourages design improvements on issues such as material composition, ease of disassembly, and labeling).

1. Market Conditions

The market conditions in New York provide economic incentives that cannot be easily replicated in other markets. The ability to sell products in the New York market provides producers and retailers with access to millions of consumers.[230] The threat of exclusion from this lucrative market provides unique leverage and gives manufacturers an incentive to comply with regulations, while reducing the burden of costs associated with implementing an e-waste recycling program.[231] In short, New York's demographics provide a large carrot to spur manufacturer compliance with EERRA.

A lack of the same economies of scale may lead to different considerations in other state markets. The problem of providing convenient access to recycling in rural markets will require additional thought for states with comparatively larger rural populations,[232] many of which have not implemented e-waste programs.[233] With sixty-two counties in New York, EERRA's county requirement does not impose as great a burden on manufacturers as it would in other states.[234] While some states have previously addressed the problem of convenience mandates in rural areas, unique challenges remain where a significant percentage of a state's population lives in rural areas.[235] Instead of rural areas constituting merely one part of a state program, as in New York, policymakers in states with predominantly rural populations face different challenges. Without dense urban areas, such as New York City, that can balance the costs of providing collection opportunities to less populous areas, rural states will need to examine how to provide access to recycling for all areas of the state while keeping costs down.

230. The New York tri-state area is the most-populous region of the country, including over 18 million people. U.S. CENSUS BUREAU, POPULATION DISTRIBUTION AND CHANGE: 2000–2010 6 tbl. 3 (2011), *available at* http://www.census.gov/prod/cen2010/briefs/c2010br-01.pdf.

231. *See generally* Linnell, *supra* note 12.

232. *See, e.g.*, GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 56 (describing the scheme in Texas, where many manufacturers opted for a mail-back option to allow rural residents to return e-waste conveniently).

233. *Id.* at 5 fig. 1 (depicting those states that have and have not implemented e-waste programs).

234. *See, e.g.*, MINN. STAT. ANN. § 115A.1320 (West 2007); 415 ILL. COMP. STAT. ANN. 150/10 (West Supp. 2012) (using incentives for less populous counties.).

235. MINN. STAT. ANN. § 115A.1310 (West 2007) (giving manufacturers fifty percent more credit for electronics collected in rural areas); ELECS. TAKEBACK COAL., *supra* note 17, at 6 (discussing problems facing rural collection).

Implementation of the requirements of EERRA in New York's rural counties could provide a model for other rural areas.[236] States with smaller populations could also consider additional incentives to decrease the burden on manufacturers while ensuring convenient recycling locations. For example, manufacturers may prefer a target system like those in Illinois and Minnesota,[237] which provides a bonus for e-waste collected from rural areas in meeting manufacturer target percentages.[238] Additional government support for start-up costs or other financing incentives for smaller manufacturers could also ease the burden.[239]

2. Political and Legal Conditions

The political landscape surrounding EERRA provided unique incentives for cooperation. As discussed above, prior to the state's adoption of EERRA, New York City had approved local e-waste legislation that was strongly criticized by manufacturers.[240] Industry groups sued to halt implementation of the legislation, claiming the requirements on manufacturers were too onerous.[241] The inclusion of large household appliances in the recycling mandate, coupled with a requirement that manufacturers provide for convenient disposal, became a focal point of the criticism.[242] Manufacturers argued that this requirement might be read to require door-to-door disposal

236. *See generally* N.Y. ENVTL. CONSERV. LAW §§ 27-2603, 2605 (McKinney Supp. 2012) (establishing state-wide targets for e-waste collection and requiring that manufacturers provide convenient collection for consumers, with a minimum of one collection point per county).

237. *See supra* note 194 and accompanying text.

238. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 54–55 (indicating manufacturer support for Illinois's approach). Wisconsin provides a similar program. *Id.*

239. *See* OFFICE OF TECH. POLICY, *supra* note 6, at 45–46 (discussing how states have previously used tax incentives to spur recycling efforts).

240. *See generally* Complaint, Consumer Elecs. Ass'n v. City of New York, No. 09-6583 (S.D.N.Y. July 24, 2009), 2009 WL 2251862 (suing New York City to enjoin the operation of its e-waste program). Manufacturer organizations criticized the legislation, claiming it would require manufacturers to provide free recycling to a broad group of parties including businesses. *Id.* at ¶¶ 5, 75.

241. *See id.* ¶ 117 ("[T]he New York City E-waste Program constitutes, by far, the most onerous and expensive electronics recycling mandate enacted to date in the United States, imposing costs that are ten times more expensive than the total cost of collection and recycling of other E-waste programs in California and Maine.").

242. *Id.* ¶¶ 146–208 (outlining various complaints that the requirement for collection of "large" covered electronic equipment constituted a violation of due process, was in breach of the interstate commerce clause, and would cause additional environmental harms).

service for obsolete appliances.[243]

EERRA made this issue moot by preempting implementation of the controversial New York City program and by excluding large appliances from the scope of the state legislation.[244] This dynamic may have mitigated potential resistance to other aspects of EERRA because manufacturers viewed the state legislation as the least costly alternative. However, manufacturers rarely criticize e-waste programs involving cost sharing, and some manufacturers have explicitly endorsed PRS.[245] With the trend clearly moving toward producer responsibility, manufacturers have additional incentives to encourage the adoption of a similar approach across states.

While EERRA addresses issues specific to New York, it remains an effective blueprint for future e-waste legislation. As in New York, efforts to develop any new e-waste recycling system should begin by identifying parties and concerns unique to that market and making modifications to account for such challenges.

B. Compliance and Enforcement

While EERRA improved upon past compliance and enforcement regimes, it remains to be seen whether the statute provides a model that effectively tackles serious enforcement challenges.[246] Implementation of e-waste legislation involves unique challenges across each level of the supply chain, including ensuring manufacturer compliance, enforcement of manufacturer recycling credits, and ensuring recyclers follow appropriate disposal guidelines. Each of these areas has manageable solutions, but states must ensure that they apply their resources effectively toward achieving these objectives. EERRA attempts to address concerns at each level.

1. Manufacturer Compliance Costs

There are inherent tensions between the need for manufacturer cooperation to ensure consumer convenience and retaining transparent, enforceable collection procedures. States frequently

243. *Id.* ¶ 72.

244. N.Y. ENVTL. CONSERV. LAW § 27-2601 (McKinney Supp. 2012).

245. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 31 (discussing television manufacturers' support for PRS).

246. *See* Khetriwal et al., *supra* note 61, at 9–11 (arguing that four areas have empirically proven challenging to the implementation of other e-waste legislation: (1) free riding manufacturers, (2) uncooperative retailers, (3) inactive consumers, and (4) rogue recyclers).

encourage manufacturers to work together to implement collection procedures.[247] Collection procedures often work through existing networks, using a combination of private businesses, charitable organizations, and public locations.[248] EERRA also allows manufacturers to work together to create joint programs.[249] Other states may want to place greater emphasis on this requirement, particularly if cooperation would decrease manufacturer costs and ease compliance requirements. Because collaboration helps ensure that consumers have knowledge and access to recycling programs,[250] encouraging joint ventures may help create a successful program without placing additional requirements on manufacturers.

2. Enforcement of Recycling Credits

The choice to award recycling credits presents a potential weakness to EERRA that may require additional attention and necessitate adjustments. Under EERRA, manufacturers recycling quantities of waste greater than their market share targets require will receive credits that can be saved for future years or sold to producers that do not meet their goals.[251] Some environmental groups view the addition of recycling credits to EERRA as a loophole that could undermine the statute's goals by discouraging the recycling of more products than required by the target.[252] The concern is that allowing sale or trade of credits will create a systematic disincentive for manufacturers, as a group, to exceed the targets.[253] Even if some individual manufacturers exceed their market share target, they could sell the credits to others with less vigorous (or even no) recycling program, thereby effectively capping

247. *Id.*

248. *See* NW. PROD. STEWARDSHIP COUNCIL, *supra* note 71, at 27 (discussing collaboration of manufacturers and local private and public entities).

249. N.Y. ENVTL. CONSERV. LAW § 27-2605(7) (McKinney Supp. 2012); *see* Mireya Navarro, *In New York, E-Waste Recycling Law Takes Effect,* N.Y. TIMES, Apr. 2, 2011, at A16, *available at* http://www.nytimes.com/2011/04/02/science/earth/02ewaste.html (discussing a group of twenty-six companies who pooled resources under EERRA to establish joint collections in New York City).

250. *See* Khetriwal et al., *supra* note 61, at 52.

251. N.Y. ENVTL. CONSERV. LAW § 27-2603(7) (McKinney Supp. 2012) (discussing how credits can be "sold, traded, or banked").

252. *See* ELECS. TAKEBACK COAL., *supra* note 17, at 4 (discussing problems of credit banking and low manufacturer goals); Heimbuch, *supra* note 22 (calling credit provisions an "unfortunate loophole" because they can be traded and sold).

253. *See* Heimbuch, *supra* note 22.

the volume of recycled e-waste at or just above the statewide goal.[254]

However, because recycling credits make the program more manageable for producers by providing flexibility in meeting recycling goals, credit programs should be modified but not eliminated. For example, Minnesota modified its recycling credit program to allow manufacturers to carry forward some recycling credits because the state ended up shouldering the burden for recycling costs beyond manufacturer targets.[255] This approach successfully balanced the concerns of manufacturers by retaining some cost savings, while limiting the effect on state finances.

While EERRA's structure should prevent the states from shouldering a large cost burden, states should ensure that targets do not create a ceiling for manufacturer recycling. Recycling credit approaches should be evaluated to determine whether the implementation of recycling credits would lead to a liquid market for credits or cause producers to hoard credits, which would reduce future recycling.[256] Striking a balance between incentivizing manufacturers to recycle the products that exceed the manufacturer's yearly target and preventing the state from shouldering excess recycling costs requires attention in future applications.

3. Enforcement of Recycling Requirements

New York and other states' programs should monitor the implementation of recycling requirements to ensure compliance. States must play a role in monitoring recycling practices within their borders in order to ensure that their environmental goals are being met.[257] States must also take action to ensure that recyclers do not cut corners or illegally export toxic components.[258] Export of toxic components, however, is outside state jurisdiction; it is controlled by EPA, which receives continued criticism for its export controls.[259]

254. *See* ELECS. TAKEBACK COAL., *supra* note 17, at 4.

255. GAO, ELECTRONIC WASTE: CONSIDERATIONS, *supra* note 3, at 52.

256. ELECS. TAKEBACK COAL., *supra* note 17, at 4 (discussing problems of credit banking and low manufacturer goals).

257. *Id.*

258. *See generally* GAO, EPA NEEDS TO BETTER CONTROL HARMFUL U.S. EXPORTS, *supra* note 9 (discussing problems with illegal recycling).

259. *Id.* at 23 (calling the CRT rule "largely ineffectual because EPA's implementation of it apparently has not deterred companies from illegally exporting these items from the United States"). GAO recommends "voluntary initiatives, new regulations, or combinations of multiple approaches" to strengthen federal enforcement of CRT exports. *Id.* at 31.

With responsibility for exports and international recycling standards outside the bounds of state control, encouraging recycling within the state will provide better oversight opportunities.

C. Financing

The success of e-waste programs relates directly to the security of program funding. In fact, the financing of recycling costs is the primary point of contention that inhibits consensus on federal legislation.[260] Thus, how successfully EERRA addresses funding concerns will be a key issue in determining whether expansion of the approach outside New York is likely. EERRA promises to provide a low-cost model in which manufacturers bear the original costs of recycling programs, limiting the situations in which the state will be forced to bear additional implementation costs.[261]

Management of "orphan waste" (electronic waste with no identifiable manufacturer or whose manufacturer is no longer in business)[262] presents a funding challenge for every e-waste program.[263] By one estimate, over 1200 orphan brands are likely to appear in a given e-waste stream.[264] In a producer-based model such as EERRA, it is challenging to incorporate these products into the recycling stream. EERRA provides a partial answer by requiring manufacturers to accept one product of like kind for each new product purchased.[265] This creates an entry-point for these products by requiring manufacturers to accept a portion of the orphan products. EERRA also attempts to limit the introduction of new "orphan" e-waste in the system through labeling requirements at the time of sale.[266] However, this may prove to be an incomplete solution if, in the absence of strict enforcement, new orphan products can get into the system. New labeling requirements also fail to address the orphan products already in existence, as well as

260. *See supra* text accompanying notes 45–46(discussing the National Electronics Product Stewardship Initiative's failure to reach an agreement on a federal funding source).

261. *See supra* Part I.C.2.a (discussing EERRA's manufacturer cost provisions).

262. Jason Linnell et al., *Understanding and Examining the Impacts of Orphan Products and 'White Box' Products on Emerging Electronics Recycling Systems*, *in* PROCEEDINGS OF THE 2006 IEEE INTERNATIONAL SYMPOSIUM ON ELECTRONICS & THE ENVIRONMENT 144, 144 (2006).

263. LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 6.

264. *Id.* (quoting results from Washington e-waste returns).

265. N.Y. ENVTL. CONSERV. LAW § 27-2603(1)(b) (McKinney Supp. 2012).

266. *Id.* § 27-2609 ("[A] manufacturer may not offer for sale in the state or deliver to retailers for subsequent sale covered electronic equipment unless it has a visible, permanent label clearly identifying the manufacturer of that equipment.").

orphan products whose manufacturer is out of business. An alternative approach for states where manufacturers do not implement their own programs could be to bill each manufacturer for a pro rata share of orphan devices.[267]

States must address the problem of existing orphan waste and limit future orphan waste in the adoption and modification of e-waste programs.[268] Likewise, states should monitor the financial burden on manufacturers and provide necessary assistance in addressing this central concern. Just as finances continue to be the primary concern preventing agreement on the best approach at the federal level, solving financing issues will continue to be of primary importance for the implementation of any successful e-waste program at the state level.

IV. CONCLUSION

The implementation of successful e-waste programs is of increasing importance to parties at the state and federal levels. As the amount of discarded electronic waste increases, the need for a comprehensive solution that successfully addresses all actors in the system continues to grow. EERRA took several important steps toward implementing a comprehensive e-waste program, including its expansive scope of coverage, the increasing attention given to enforcement concerns, and a dedicated funding stream. These innovations all provide an important foundation from which a successful e-waste system can emerge. Indeed, EERRA has raised the bar for what a comprehensive e-waste program should accomplish.

While EERRA can serve as a useful blueprint for future e-waste programs, ultimately, application of the plan to other contexts will require individually tailored approaches. Just as EERRA considered the unique circumstances, compliance challenges, and financing concerns facing New York, so too must other states consider how the application of specific e-waste programs could raise unique issues within their own borders. However, New York's legislation, as the most comprehensive and forward-looking solution to date, provides a strong model for the future implementation of e-waste recycling

267. *See* 415 ILL. COMP. STAT. ANN. 150/10 (West Supp. 2012) (distributing orphan waste costs proportionally across manufacturers).

268. LUTHER, ANALYSIS OF STATE E-WASTE LEGISLATION, *supra* note 2, at 6–8 (discussing orphan waste as a concern in determining financing mechanisms).

programs in other states.

Appendix A: Chart of Current State E-waste Programs

State	Date Passed	Statutory Citation	Information
California	Sept. 25, 2003	CAL. HEALTH & SAFETY CODE §§ 25214.9–25214.10.2 (West 2006)	Advanced Fee Recovery system.
Connecticut	July 6, 2007	Conn. Gen. Stat. §§ 22a-629–22a-640 (Supp. 2012)	
Hawaii	July 2008	HAW. REV. STAT. ANN. § 339D (LexisNexis Supp. 2011)	Televisions added in 2009.
Illinois	Sept. 17, 2008	415 Ill. Comp. Stat. Ann. 150/1–150/999 (West Supp. 2012)	
Indiana	May 13, 2009	IND. CODE §§ 13-20.5-1-1–13-20.5-10-2 (LexisNexis 2011)	
Maine	Original pilot program passed in 2004	ME. REV. STAT. ANN. tit. 38 § 1610 (Supp. 2011).	Amended in 2009 (making program permanent and adding additional devices) and 2011.
Maryland	2005	MD. CODE ANN., ENVIR. §§ 9-	Amended in 2007 to add

		1701–1730 (LexisNexis 2007).	televisions.
Michigan	Dec. 26, 2008	MICH. COMP. LAWS ANN. §§ 324.17301–17333 (West 2009);	Amended in 2011 to add printers.
Minnesota	May 8, 2007	MINN. STAT. ANN. §§ 115A.1310–1330 (West Supp. 2012)	Revised in 2009 and 2011.
Missouri	June 16, 2008	MO. ANN. STAT. §§ 260.1050–1101 (West Supp. 2012)	
New Jersey	Jan. 15, 2008	N.J. STAT. ANN. § 13:1E-99.94 (West Supp. 2012)	Revision signed in 2009.
New York	May 29, 2010	N.Y. ENVTL. CONSERV. LAW §§ 27-2601–27-2621 (McKinney Supp. 2012)	
North Carolina	Aug. 13, 2007	N.C. GEN STAT. §§ 130A-309.130–309.141 (2011)	Televisions added in 2008.
Oklahoma	May 13, 2008	OKLA. STAT. ANN. tit. 27A §§ 2-11-601–2.11.611 (West 2011)	
Oregon	June 7, 2007	OR. REV. STAT. § 459A.300 (2011)	

Pennsylvania	Nov. 23, 2010	35 PA. CONS. STAT. ANN. § 6031 (West Supp. 2011)	
Rhode Island	June 27, 2008	R.I. GEN. LAWS §§ 23-24.10-1–23-24.10-17 (2008)	
South Carolina	May 19, 2010	S.C. CODE ANN. §§ 48-60-05–48-60-150 (Supp. 2011)	
Texas	June 15, 2007	TEX. HEALTH & SAFETY CODE ANN. §§ 361.951–966 (West 2010).	Television law passed in 2011.
Utah	March 2011	UTAH CODE ANN. §§ 19-6-1201–1205 (LexisNexis Supp. 2011)	Requires only manufacturer education, not recycling.
Vermont	April 21, 2010	VT. STAT. ANN. tit. 10, §§ 75511–7564 (2011)	
Virginia	March 11, 2008	VA. CODE ANN. §§ 10.1-1425.27–1425.38 (Supp. 2011)	
Washington	March 2006	WASH. REV. CODE ANN. § 70.95N (West 2011)	
West Virginia	January 2009	W. VA. CODE ANN. § 22-15A-25 (LexisNexis	

		2009)	
Wisconsin	Oct. 23, 2009	WIS. STAT. ANN. § 287.17 (West Supp. 2011)	