



**NEW YORK**  
STATE OF  
OPPORTUNITY.

**Department of  
Environmental  
Conservation**

# **NYS E-WASTE RECYCLING & REUSE ACT**

## **Implementation & Results for 2013, 2014 & 2015**

Report to the Governor and Legislature – December 2017



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# I. Legislative Charge

The New York State Department of Environmental Conservation (Department) submits this second report to the Governor and Legislature in accordance with Section 27-2617(4) of the *New York State Electronic Equipment Recycling and Reuse Act* (Act), Environmental Conservation Law (ECL) Article 27, Title 26. That section requires a biennial report on the implementation of the Act that includes an evaluation of the electronic waste (e-waste) stream in the state; recycling and reuse rates in the state for covered electronic equipment (CEE); a discussion of compliance and enforcement related to the requirements of the Act; recommendations for any changes to Title 26; and a discussion of opportunities for business development in the state related to the acceptance, collection, handling and recycling or reuse of electronic equipment.

## II. Executive Summary

The Act was signed into law on May 28, 2010 and became the nation's 22nd e-waste product stewardship law. There are now 26 state e-waste take-back laws. The passing of this key product stewardship legislation was a major step in moving New York State closer to achieving its goals to maximize waste reduction and recycling, as outlined in the state's Solid Waste Management Plan, "Beyond Waste." Most policy experts consider the Act to be one of the most comprehensive and progressive e-waste laws in the country. As a result of the Act, approximately 420 million pounds of e-waste from New York consumers was properly recycled or reused during the period of April 1, 2011 to December 31, 2015.

This report is being submitted to the Governor and the Legislature pursuant to ECL §27-2617(4) and provides an update on the Act's implementation during 2013, 2014 and 2015, an evaluation of its overall progress, an outline of program strengths, challenges and recommendations for future improvements. This report primarily focuses on program results and will not reiterate details of the Act's background nor provide in-depth descriptions of the regulated entities and their responsibilities, as these items were discussed in detail in the first report, "NYS E-Waste Recycling and Reuse Act: Implementation and Results for 2011 and 2012." A copy of the first report is posted on the Department's website and can be found at: <http://www.dec.ny.gov/chemical/65583.html>.

The Act, which took full effect on April 1, 2011, requires manufacturers who sell or offer for sale CEE (i.e., computers, computer peripherals, televisions, cathode ray tubes, small scale servers and small electronic equipment) in the state to register their brands of CEE with the Department, and acting individually or collectively through collective electronic waste acceptance programs (collectives), establish a convenient acceptance program for the collection, handling, and recycling or reuse of e-waste, free of charge to most consumers. To ensure adequate service to the consumers of the state and improve e-waste collection, recycling and reuse, the Act includes three primary product stewardship elements: convenience requirements, performance standards, and environmental standards. These elements, along with a broad scope of covered products, help divert millions of pounds of e-waste from landfills and waste combustion facilities; keep toxins such as lead, mercury and other hazardous materials from potentially contaminating the environment; and conserve natural resources by allowing valuable materials to be reclaimed and reused, rather than extracting virgin materials.

In addition to having established convenience requirements, the Act established annual statewide recycling and reuse performance goals for e-waste which must be met by manufacturers. In 2011, 2012 and 2013 the Statewide Recycling or Reuse Goals (Statewide Goals) were prescribed in the Act and were calculated by multiplying the population estimate for the state in that year by three, four and five pounds per capita, respectively. For 2014 and annually thereafter, the Statewide Goal was calculated using a comprehensive formula, based on the average weight of e-waste collected for recycling or reuse during the previous three years, as reported to the Department. This allows the Statewide Goal to adjust somewhat with market trends.

Once the Statewide Goal is calculated, manufacturers are required to collect and recycle their share of e-waste (acceptance standard), based on their market share of CEE sold in New York State. Manufacturers that do not meet their annual Department-issued acceptance standard are subject to recycling surcharges for any collection shortfalls. Manufacturers that collect and recycle more than their acceptance standards were allowed to begin accruing recycling credits in 2014. Beginning in 2015, these credits may be banked, sold to other manufacturers, or used by the manufacturer to offset up to a 25 percent shortfall, per year, in the subsequent three years.

The Act also established a phased-in disposal ban for CEE, which began on April 1, 2011 for manufacturers, retailers, operators of collection sites, consolidation facilities and recycling facilities, and a complete disposal ban for all entities, including individuals and households, which began January 1, 2015. Therefore, as of January 1, 2015, individuals and households were no longer able to dispose of any e-waste covered by the law in a landfill or waste-to-energy facility either directly or through their solid waste haulers.

Since the Department is tasked with oversight of the Act's implementation and its many requirements, staff receive, process and review all registrations, fee payments, annual report data and additional information from the approximate 1,500 entities regulated by the Act. The Department is also required to provide enforcement, develop data management systems to track sales of CEE and e-waste being collected and recycled, and impose surcharges or award credits when appropriate. During this reporting period, the Department began efforts to establish electronic reporting capabilities to ease reporting for regulated entities and expedite the Department's review and processing of the data. The Department's electronic reporting system was rolled out in the beginning of 2016 and was a major milestone and accomplishment.

The Department has posted information on the e-waste online registration and reporting data management system along with significant additional outreach and guidance information on the website listed above. We continue to provide, with links to interactive lists and maps, a list of all registered CEE manufacturers' brands and important information for consumers on how to recycle their e-waste easily through the various manufacturers' acceptance programs. Specific stakeholder guidance documents are also available through the website.

Results for all years are available in the Program Performance and Results section of this report. Results reported for the third year (2013) continued to show improved collection and recycling of all CEE. Manufacturers not only met the 2013 Statewide Goal of nearly 98 million pounds of e-waste collected for recycling or reuse, but exceeded it by more than 1.6 million pounds. More than 90% percent of manufacturers met or exceeded their individual acceptance standards. The nine manufacturers that did not meet their acceptance standards were billed for recycling surcharges in the amount of \$176,536.50. By the end of the third year, the Department received, reviewed and processed registrations and fees from 94 CEE manufacturers, six collectives, 52 consolidation facilities, 73 recycling facilities and 1,362 collection sites.

Results reported for e-waste collected for recycling or reuse in the fourth year (2014) were slightly lower, likely due in part to the reduced calculated 2014 Statewide Goal of under 94 million pounds. The reduction was mainly a function of 2014's introduction of the statutory formula, which uses a three-year average of entity-reported collection to calculate the Statewide Goal. Still, manufacturers reported exceeding the Statewide Goal by more than three million pounds. More than 90% of manufacturers met or exceeded their individual acceptance standards. Twenty-four manufacturers who exceeded their acceptance standards, were, for the first time in 2014, allowed to accrue credits for excess weight accepted to be used in subsequent years. Ten manufacturers did not meet their acceptance standards and were billed for recycling surcharges in the amount of \$242,848.70. By the end of the fourth year, 104 CEE manufacturers, seven collectives, 69 consolidation facilities, 93 recycling facilities and 1,148 collection sites were registered with the Department; an increase in all entity categories aside from collection sites.

The fifth year (2015) resulted in the highest reported collection since the Act's inception. More than 101 million pounds of e-waste was collected for reuse or recycling. Manufacturers reported exceeding the nearly 97-million-pound Statewide Goal by over four million pounds. Just under 90% of manufacturers

met or exceeded their individual acceptance standards. Twenty-three manufacturers accrued credits in 2015 for excess weight accepted, leaving a pool of approximately 9.4 million credits accrued in both years, available for use in 2016 and beyond. Ten manufacturers did not meet their acceptance standards and were issued recycling surcharges in the amount of \$67,747.90. By the end of the fifth year, 94 CEE manufacturers, seven collectives, 77 consolidation facilities, 73 recycling facilities and 1,181 collection sites remained registered with the Department.

There have been significant accomplishments during 2013, 2014 and 2015; however, several challenges still exist, with some issues becoming more serious. The Department continued to work with all stakeholders to address these program challenges and issues to achieve the most efficient, fair, and sustainable e-waste recycling program possible.

### III. Newly Phased-in Components of the Act

In Chapter IV of the first report to the Governor and Legislature, covering 2011 and 2012, the Department described in detail the responsibilities of the Act's regulated entities and the role of the Department in implementing and enforcing the Act. Presented below are components of the Act that have phased in during 2014 and 2015.

#### Statewide Recycling or Reuse Goal

Each year, manufacturers of CEE who sell in New York State are responsible for recycling or sending for reuse a portion of that year's Statewide Goal. In 2011-2013, the Statewide Goal was a fixed per capita collection standard set in statute. The formula for calculating the Statewide Goal for 2014 and beyond is essentially a sliding scale that fluctuates based on the average weight of e-waste collected for recycling or reuse during the previous three years as reported to the Department. The adjacent call-out box identifies the Statewide Goals for the first six years of the Act's implementation.

The Statewide Goal is the product of the "base weight" multiplied by the "goal attainment percentage." The base weight is the *greater* of (1) the three-year statewide average weight of all e-waste collected for recycling or reuse as reported to the Department by manufacturers; or (2) the three-year statewide average of all e-waste collected for recycling or reuse as reported to the Department by e-waste collection sites, consolidation facilities and recycling facilities. The goal attainment percentage is 90-110 percent of the previous year's Statewide Goal, depending on how the base weight compares to the previous year's Statewide Goal.

The Statewide Goal is calculated using data from all registered entities' annual reports, which are due by March 1 each year. The timely submission of complete and accurate annual reports to the Department is critical to calculating an accurate and equitable Statewide Goal.

#### Statewide Recycling & Reuse Goals:

- 2011: 43,968,269 lbs. (3.0 lbs./capita)
- 2012: 77,860,788 lbs. (4.0 lbs./capita)
- 2013: 97,851,305 lbs. (5.0 lbs./capita)
- 2014\*: 93,651,028 lbs.
- 2015\*: 96,852,222 lbs.
- 2016\*: 98,844,520 lbs.

\*For 2014 and beyond, the statewide goal fluctuates based on market conditions and takes into account the average weight of e-waste collected for recycling during the previous three years.

#### Manufacturer E-waste Acceptance Credit Tracking

The generation of e-waste acceptance credits began in 2014. If a manufacturer accepts more than its acceptance standard of e-waste, the excess weight may be used in subsequent years as e-waste acceptance credits. Beginning in 2015, e-waste acceptance credits can be used, sold or banked by manufacturers for a period of no longer than three years following the year in which the credits were earned. No more than 25 percent of a manufacturer's acceptance standard for any year may be met with credits generated in a prior year. In addition, manufacturers may not buy, sell or trade credits in the year they were earned.

## Disposal Ban for All

As of January 1, 2015, the Act prohibited anyone, including individuals and households, from disposing or placing CEE for collection that is intended for disposal at a solid or hazardous waste management facility, landfill, or waste-to-energy facility in the state. Owners or operators of these facilities must educate users of such facilities about the proper methods for recycling e-waste, using both written communication and conspicuous posting of signs. Similarly, waste haulers or transporters to such facilities must provide written information regarding the proper methods for recycling e-waste as well.

Any consumer who violates the disposal ban provision of the Act shall be liable for a civil penalty not to exceed \$100 for each violation. Any solid or hazardous waste management facility, landfill, waste-to-energy facility, hauler or transporter who violates the disposal ban provision of the Act shall be liable for a civil penalty not to exceed \$250 for each violation. Penalties for the Act's other regulated entities who fail to comply with the disposal ban prohibition are significantly higher.

## IV. Program Performance and Results

### Overall Collection Results

The NYS Electronic Equipment Recycling and Reuse Act has continued to deliver both positive environmental and economic results in 2013 through 2015. Together, CEE manufacturers, consumers, and the state's vast collection and recycling network successfully diverted nearly 300 million pounds of electronic equipment from the waste stream, during this time period. A summary of these results from the past three years for which data is available is provided in Figure 1 below.

Figure 1. 2013 – 2015 Collection Results

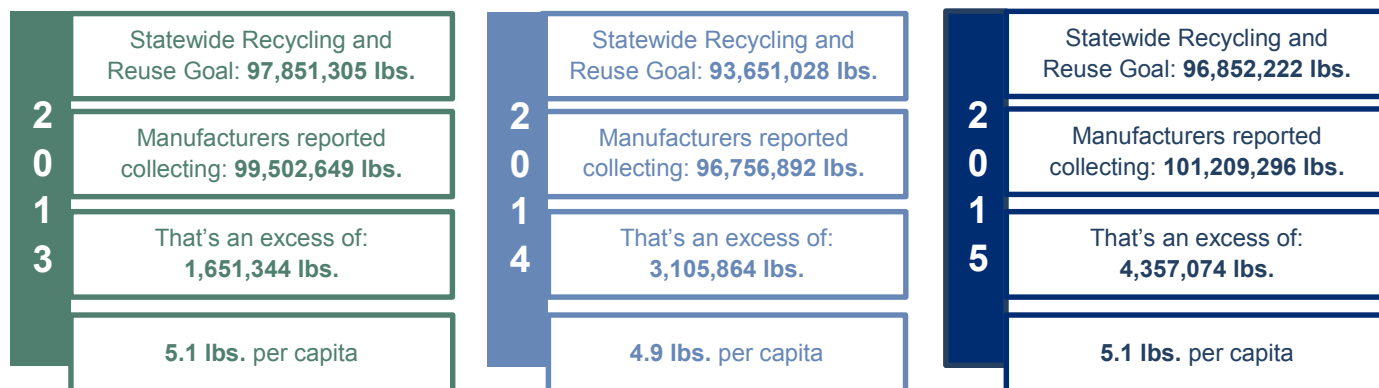
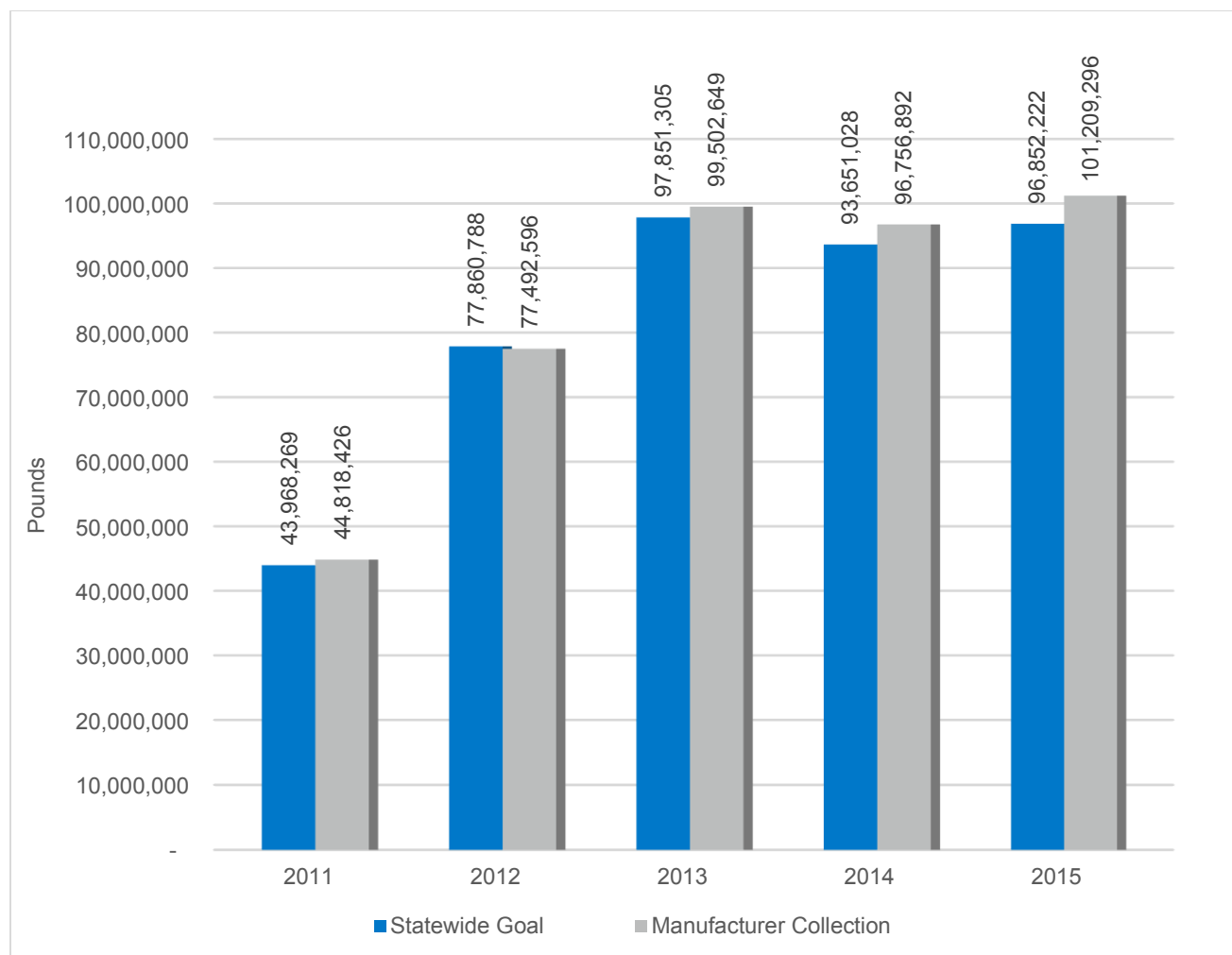


Figure 2 below illustrates that in all years except 2012, manufacturers reported collectively exceeding the Statewide Goal. The Statewide Goal for the past three years has been nearly 100 million pounds, due in part to the fact that most manufacturers are just meeting the minimum acceptance standards. However, simply meeting the Statewide Goal does not indicate that the demand for consumer e-waste recycling/reuse opportunities has been met.

Figure 2. Statewide Goal vs. Reported Collection



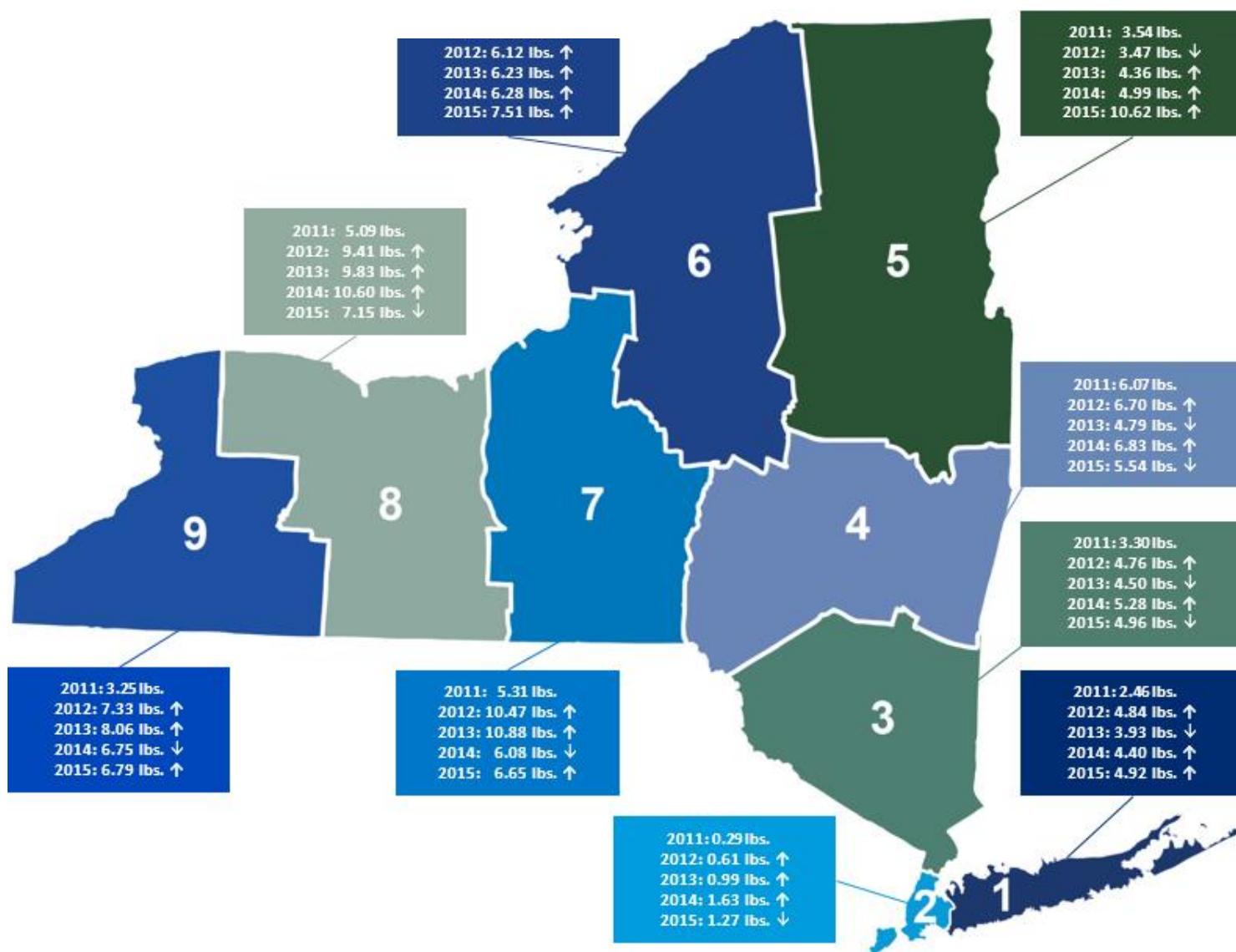
## Results by DEC Region

Figure 3 shows the per capita collection by DEC region for 2011 through 2015. Per capita collection rates by region fluctuate year to year based on a number of factors, with the most significant impacts resulting from the introduction and elimination of consumer e-waste recycling opportunities within the regions. To illustrate this effect, a new e-waste recycling facility began operations in 2015 in Region 5, which more than doubled the per capita collection rate from the prior year in a region in which collection had remained relatively static since the Act's inception.

It should also be noted that improvements in the regulated entity's ability to track the flow of materials destined for recycling or reuse, as well as the addition of more comprehensive DEC reporting requirements in recent years, have positively impacted the accuracy of the per capita regional collection rates, as the origin of e-waste received can be more accurately discerned. Moving forward, the Department will continue to fine tune how information is requested from reporting entities. This will result in more precise per capita collection results by region.

The results remain consistent that, on average, most weight was accepted from consumers in western New York (Regions 8, 7 and 9, respectively), followed by northern New York and the Capital Region (Regions 6, 5 and 4, respectively), downstate (Region 3), Long Island (Region 1), and New York City (Region 2).

Figure 3. Per Capita Collection by DEC Region

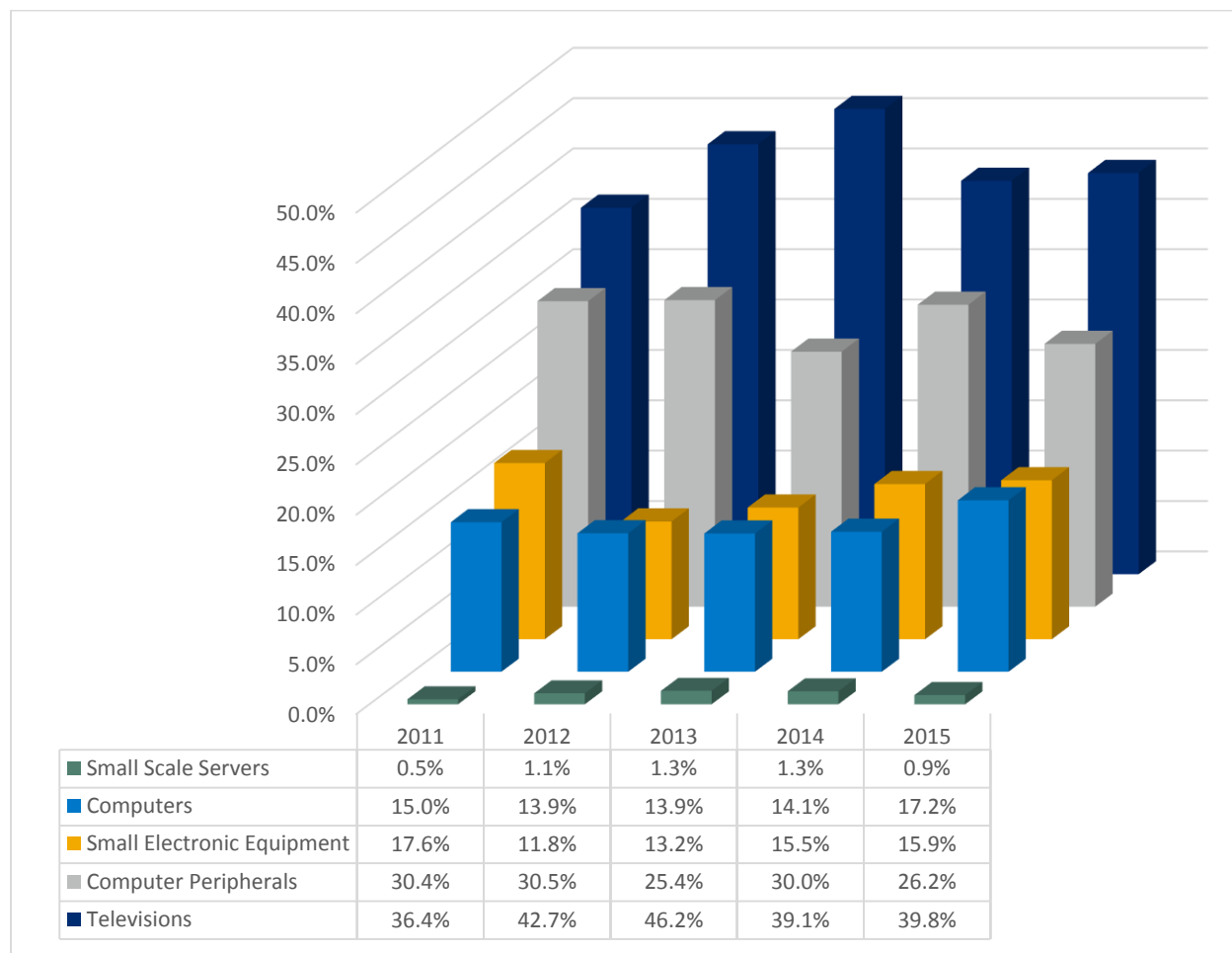


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- Region 1: Nassau and Suffolk counties
  - Region 2: Kings, Bronx, New York, Queens and Richmond counties
  - Region 3: Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester counties
  - Region 4: Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie counties
  - Region 5: Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington counties
  - Region 6: Herkimer, Jefferson, Lewis, Oneida and St. Lawrence counties
  - Region 7: Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins counties
  - Region 8: Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates counties
  - Region 9: Allegany, Chautauqua, Cattaraugus, Erie, Niagara and Wyoming counties

## Results by Type of Covered Electronic Equipment

The television and computer peripheral categories of CEE, which include heavy cathode ray tube (CRT) televisions and CRT monitors, continued to comprise the majority of weight reported as accepted from consumers for 2013 through 2015. Televisions represented 46% of the weight in 2013, which has since dropped to just under 40%. A slight decrease in the percentage of total weight accepted in the computer peripheral category could also be seen between 2014 and 2015. These recent decreases in weight percentages in both categories, may be an early indication that the amount of available CRT-containing equipment is decreasing. For a full results breakdown by CEE category, see Figure 4 below.

Figure 4. Percentage of Total Weight of Covered Electronic Equipment by Type



## Results by Acceptance Method

Manufacturers of CEE are allowed to employ a variety of acceptance methods to meet the convenience requirements of the Act. The Act describes the following acceptance methods as reasonably convenient:

- **Mail-back programs** that cover all consumer costs, including packaging materials and shipping costs, and that do not exclude material based on size or weight limits (unless another reasonably convenient acceptance method has been provided);
- **Collection events** conducted by the manufacturer or the manufacturer's agent or designee, including single and multiple-day events conducted by local governments, community groups or private parties;
- **Fixed acceptance locations** at dedicated acceptance sites operated by the manufacturer or its agent or designee, including local governments, retail stores, and not-for-profit organizations which have agreed to provide facilities for the collection of e-waste;

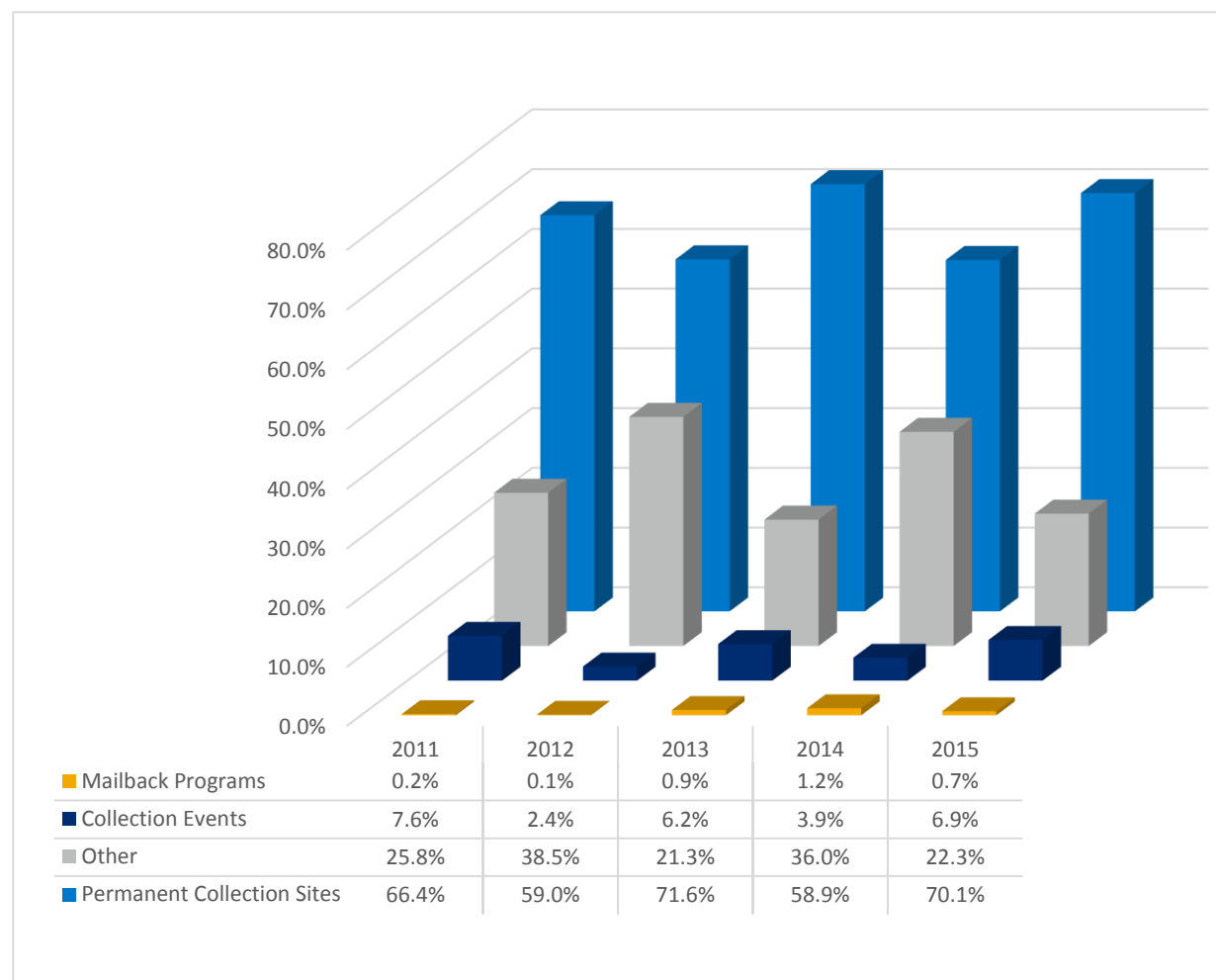
- **Other methods** which effectively provide for the acceptance of e-waste for recycling or reuse through means that are reasonably convenient to consumers in the state. Examples of “other methods” include premium services, such as reverse distribution/generator pick-ups of obsolete equipment at businesses, schools and government locations. In past reporting years, manufacturers and collectives have improperly reported weight accepted in the “other” category, that likely belonged in the “permanent collection site” or “collection events” categories.

One of the most significant movements witnessed in 2013 through 2015 was the reduction (by 181) of consumer collection site locations available across the state. This is unfortunate because this acceptance method has proven to be the most convenient and effective. Approximately two-thirds of the weight collected from consumers during 2013 through 2015 was accepted at permanent collection sites.

The “other” category of acceptance methods represented approximately one-fourth of consumer weight collected on average during the same three-year period. The volume of weight accepted at collection events remained low, as did acceptance via mail-back programs. Weight accepted through manufacturer or collective mail-back programs, which are used primarily to meet the Act’s convenience requirements, represented only around one percent of weight accepted from consumers during 2013 through 2015.

The Department began using its new e-waste online registration and reporting system for analysis of 2015 program year data and beyond. Use of the system expands the Department’s ability to identify questionable reporting, and have it amended in a timely manner, thereby increasing the likelihood of entities accurately reporting weight collected in the appropriate categories. For a full results breakdown by acceptance method, see Figure 5 below.

*Figure 5. Percentage of Total Weight of Covered Electronic Equipment Collected by Acceptance Method*



## Registration and Annual Reporting Process

The Department requires a one-time registration and an annual report from all registered entities. Registrant totals vary year to year for many reasons, such as sites and facilities beginning operation or shutting down, as well as new manufacturers entering the market while others leave or fall below the Act's 1,000-unit sales threshold. By the end of 2015, 1,432 registered entities remained in the program.

Overall, compliance with registered entity annual reporting has remained fairly consistent over the past several years. The Department is optimistic that annual reporting compliance will improve as entities become more comfortable with the user-friendly e-waste online registration and reporting system. Using the online system, the Department has the ability to more easily communicate important information and reminders to registrants. In addition, the Department has increased enforcement efforts, which will likely increase the percentage of reports received in years to come. Table 1 below presents the stakeholder participation, as well as compliance with the Act's annual reporting requirements.

*Table 1. Stakeholder Participation and Reporting Compliance*

Registrant Type	Total Registrants					% Annual Reports Received				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Collectives	6	7	6	7	7	100%	100%	100%	100%	100%
Manufacturers:	77	86	94	104	94	100%	94%	100%	96%	96%
• Individual program	39	42	31	34	21					
• Collective program	38	44	63	70	73					
Collection Sites	726	1,105	1,362	1,148	1,181	40%	75%	63%	78%	83%
Consolidation Facilities	42	57	52	69	77	70%	100%	75%	81%	81%
Recycling Facilities	47	62	73	93	73	78%	94%	86%	78%	84%

Many of the Act's regulated entities are required to pay a one-time registration fee depending upon the type of operations they perform. Collectives are required to pay \$10,000 at the time of registration; manufacturers running individual e-waste acceptance programs are required to pay \$5,000; and e-waste recycling and consolidation facilities are required to pay \$250. All manufacturers are required to pay an annual reporting fee of \$3,000 with their March 1 annual reports. Registration and annual reporting revenue for all years is shown in Table 2 below. These fees are deposited into the Environmental Protection Fund.

*Table 2. Registration and Annual Reporting Fee Receipt*

	2011	2012	2013	2014	2015
<b>Registration Fees</b>	<b>\$297,000</b>	<b>\$29,000</b>	<b>\$35,750</b>	<b>\$52,000</b>	<b>\$12,500</b>
Collectives	\$60,000	\$10,000	-	\$10,000	-
Manufacturers	\$215,000	\$10,000	\$30,000	\$35,000	\$10,000
Recycling Facilities	\$11,000	\$4,000	\$3,750	\$5,250	\$1,250
Consolidation Facilities	\$11,000	\$5,000	\$2,000	\$1,750	\$1,250
<b>Annual Report Fees</b>	<b>\$240,000</b>	<b>\$234,000</b>	<b>\$237,000</b>	<b>\$276,000</b>	<b>\$255,000</b>
<b>Total</b>	<b>\$537,000</b>	<b>\$263,000</b>	<b>\$272,750</b>	<b>\$328,000</b>	<b>\$267,500</b>

## Collective Electronic Waste Acceptance Programs

By the end of 2015, there were seven collectives operating in the state. These collectives continue to be an efficient and cost-effective option for many manufacturers, especially smaller manufacturers, who may not have the resources available to implement and maintain their own statewide electronic waste acceptance and public education programs. While about one-half of manufacturers who registered in 2011 joined collective programs, many manufacturers who originally opted to run their own individual acceptance programs have since switched to collective programs to meet the Act's requirements. By the end of 2015, 73 of 94, or nearly 78 percent of registered manufacturers, reported participating in collective programs.

## Manufacturer Performance

Manufacturer annual reports with updated sales information continued to be submitted after the annual reporting deadline in 2013 through 2015. This resulted in a delay in the Department's ability to calculate manufacturers' acceptance standards and distribute that information to manufacturers. These problems continued despite the Department's increased education and outreach efforts. To address these issues, the Department began issuing Notices of Violation (NOV) for failing to submit annual reports and fee payments starting in 2015. If manufacturers in receipt of NOVs did not promptly submit late annual reports or fee payments, they were ordered to pay penalties for the violations noted. In 2014, one manufacturer paid a penalty totaling \$10,000. In 2015, seven manufacturers paid penalties totaling \$12,800. The Department revoked three manufacturer registrations in the fall of 2015 after attempting to reach these manufacturers and bring them into compliance with the Act's reporting requirements over a two-year period. Revocation prohibits manufacturers from selling CEE into the state.

## Manufacturer Recycling Surcharges

Those manufacturers who fail to meet their acceptance standards of e-waste for the previous year are subject to a recycling surcharge of \$0.30, \$0.40 or \$0.50 per pound, depending on how far the manufacturers are from meeting their acceptance standards (see adjacent box).

The Department may waive the recycling surcharge payable by a manufacturer when the manufacturer demonstrates to the Department that it was unable to meet its acceptance standard of e-waste despite the manufacturer's best efforts. A waiver does not relieve a manufacturer of the obligation to comply with all other provisions of the Act. Waiver applications are to accompany the manufacturer's annual report and annual reporting fee due by March 1 annually. The Department received no waiver applications for 2013 through 2015.

Of the manufacturers who reported for 2013 through 2015, approximately 10 percent reported failing to meet their acceptance standards each year. Table 3 provides a summary of recycling surcharges issued and paid in these years.

### Recycling Surcharge Calculation

A manufacturer's surcharge is calculated by multiplying the following rate by the number of additional pounds the manufacturer should have collected and recycled towards its acceptance standard:

#### Rate, if the manufacturer collected:

< 50% of acceptance standard =  
**\$0.50 per lb.**

50% to <90% of acceptance standard =  
**\$0.40 per lb.**

90% to <100% of acceptance standard =  
**\$0.30 per lb.**

Table 3. Recycling Surcharge Summary

	2013	2014	2015	Total
<b>Manufacturers Surcharged</b>	9	10	10	29
<b>Weight Under-collected (lbs.)</b>	466,461	523,512	139,605	1,129,578
<b>Surcharges Issued</b>	\$176,536.50	\$242,848.70	\$67,747.90	\$487,133.10
<b>Surcharges Paid</b>	\$176,536.50	\$239,571.20	\$53,356.40	\$469,464.10

## Manufacturer Recycling Credits

Of the manufacturers who reported for 2013 through 2015, approximately 90 percent reported either having met or exceeding their acceptance standards each year. Beginning in 2014, manufacturers who reported exceeding their acceptance standard, could accrue and bank the excess weight as e-waste recycling credits. Credits generated in 2014 could then be sold, traded, purchased, used or banked beginning in 2015.

Twenty-four manufacturers generated more than five million credits in 2014. Only two manufacturers applied 6,200 of these credits to their acceptance standards in 2015, and no manufacturers sold or purchased credits in 2015. An additional 4.4 million credits were generated by 23 manufacturers in 2015, leaving approximately 9.4 million credits available for use in 2016.

## V. Department Activities

The Department is charged with implementing, administering and enforcing the provisions of the Act. The following are examples of program activities performed by the Department during 2013 through 2015, some of which are a continuation of activities performed in the first two years, unless otherwise noted.

### Registration, Annual Report and Fee Payment Processing

The Department continues to receive registration, annual report, certification and fee forms, and fee payments from the Act's regulated entities. Annual reports and those registrations and reports submitted in 2015 and thereafter are now required to be submitted using the Department's new e-waste online registration and reporting system. Once received, data submitted must be reviewed for completeness, accuracy, and compliance with the Act's requirements. The information requested within the forms themselves requires annual review and potential modification to better satisfy entities' reporting obligations under the Act.

### Stakeholder Guidance and Education

The Department continues to provide daily technical support and guidance to regulated entities via telephone and e-mail, and to sites and facilities during site visits. The Department provides and maintains guidance information on the Department's public website for all stakeholders, including lists of manufacturers' programs and e-waste collection sites and recyclers. Since the Department completed the rollout of the e-waste online registration and reporting system in 2016, guidance and educational materials continue to be made available to all stakeholders.

### Manufacturer Acceptance Standard and Surcharge Distribution

The Department compiles the information provided in the manufacturers' annual reports for the prior year and uses that information to determine each manufacturer's acceptance standard for the current year. The Department also determines which manufacturers did not collect sufficient weight to satisfy their prior year's acceptance standard and are therefore subject to a surcharge. The current year's acceptance standard and prior year's surcharge, if any, are sent to each manufacturer via certified mail.

## Compliance and Enforcement Activities

The Department regularly monitors manufacturer and collective electronic waste acceptance and public education programs, as well as the activities of the Act's regulated entities for compliance with the requirements of the Act. Not only does the Department monitor entities currently registered with the NYS E-waste Recycling Program, it also is actively seeking unregistered entities needing to be brought into compliance with the Act.

Department staff identify non-compliance and prepare enforcement documents (e.g., notices of violation, consent orders, notices of hearing and complaint, and notices of intent to revoke, etc.). As discussed previously, the Department began issuing NOVs for failing to submit annual reports and fee payments starting in 2015, and in cases where stipulations of NOVs were not satisfied, entities were ordered to pay penalties for the violations not addressed. Eight manufacturers paid a total of \$22,800 in penalties for 2014 and 2015, and three manufacturer registrations were revoked. While e-waste recycling facilities have been sent NOVs for non-submittal of annual reports, none have been issued penalties.

## Online Reporting and Data Management System Development

The Department launched its new e-waste online registration and reporting system, using Re-TRAC Connect software, in January 2016. The new system streamlines the registration and reporting process for the both the Department and regulated entities. The system also provides a geo-mapping feature of regulated entities, as well as various analytical reports the Department will use to verify and cross-check reported data. Use of the Re-TRAC Connect software is the most cost-effective alternative to fulfill the program's critical e-waste business requirements.

## Manufacturer E-waste Acceptance Credit Tracking

As discussed in the Program Performance and Results section of this report, beginning in 2014, manufacturers accepting more than their acceptance standards of e-waste can generate e-waste acceptance credits, which may be used beginning in 2015. The Department is tasked with the tracking and monitoring of manufacturer credit usage, purchase and sale, which is accomplished with the assistance of a newly developed analytical report within the Re-TRAC Connect e-waste online registration and reporting system.

## State Comptroller Audit

Over a four-month period in 2015, the Department was audited by the NYS Office of the State Comptroller. Auditors reviewed the Department's processes for the collection and management of fees and surcharges received under the Act for the period of January 1, 2013 through July 7, 2015. A report by the Comptroller's Office was issued in September of 2015 and is available at: <http://osc.state.ny.us/audits/allaudits/093015/15s18.htm>.

The report indicated that Department properly collected, recorded, and deposited fees and surcharges due to the Environmental Protection Fund. It recommended that the Department improve internal controls for the collection and reporting of fees by both 1) separating the handling and recording of cash receipts and 2) documenting the results of supervisory reviews of the cash collection process.

The Department has since implemented new internal control processes to address both concerns.

# VI. Program Strengths

## Broad Scope of Covered Electronic Equipment

The comprehensive scope of CEE covered by the Act continues to be one of its greatest values to consumers. The fact that the Act has such broad scope of CEE makes it easier for consumers to recycle their unwanted electronics since most common e-waste items are included. As technology evolves and new electronic equipment becomes available to consumers, the Department will continue to evaluate these new products to determine if they are candidates for inclusion as CEE under the Act.

## Increased Recycling/Reuse and the Resulting Benefits

The proper management of e-waste, including recycling and reuse, has been significant in ensuring hazardous components are prevented from ending up as waste in landfills. Proper management has also played an important role in reducing heavy metal emissions into the atmosphere from e-waste being converted to energy in waste-to-energy facilities. As a result of the Act, approximately 420 million pounds of e-waste from New York consumers has been properly recycled or reused during the period of April 1, 2011 to December 31, 2015. Increases in the Statewide Goal, combined with increasing consumer awareness and the continuing expansion of manufacturers' recycling infrastructures, will likely continue to increase the amount of e-waste collected. Increased collection of e-waste for recycling or reuse will save additional valuable landfill space, protect people and the environment from potentially toxic materials, and result in reduced need for virgin natural resources, among numerous other benefits.

## Convenient Collection Available to All Consumers

In several states with existing e-waste recycling laws, e-waste collection opportunities are only available to household consumers. In New York however, the Act expands its free and convenient acceptance requirements to small businesses, corporations, limited partnerships, not-for-profit corporations, the state, public schools, school districts, private or parochial schools, boards of cooperative educational services (BOCES), and governmental entities. These non-household consumers are significant contributors of e-waste, and it is essential to include them in the broad scope of entities covered by the Act. It is important to note that while free acceptance methods are available to non-household consumers in the state, many choose more convenient "premium service" options provided by manufacturer programs, such as at-business pick-up, equipment and data security services, or specialized packaging, which is allowed under the Act and can be charged for. The amount of e-waste collected through these "premium service" programs is included with all other methods in the total collected each year and is part of the calculation of the Statewide Goal.

## Year-Round Collection

Manufacturers are required to provide New York State consumers free and convenient access to e-waste recycling year round. Even after manufacturers meet their acceptance standards, e-waste collection cannot cease. Through its acceptance program, a manufacturer must collect not only its own brands of CEE, but also one piece of CEE of any manufacturer's brand if offered by a consumer, with the purchase of CEE of the same type. Such acceptance must continue all year long, allowing consumers the flexibility to offer their e-waste for recycling or reuse at a time that is most convenient for them. The Department believes, while this is one of the most important provisions of the Act, manufacturers are not fully complying with it. A more detailed discussion of the Department's concerns regarding this provision is provided in the Program Challenges section.

## Adjusting Statewide Goals

As stated earlier, Statewide Goals are prescribed in the Act for the first three years; however, in 2014 and beyond, the Act uses a specified formula by which the Statewide Goal will fluctuate. Year-to-year Statewide Goals will increase or decrease based on actual collection in the three preceding years as reported to the Department. The Department believes this to be an important strength of the program, ultimately resulting in manufacturers' acceptance standards more closely following changing market conditions and collection activities.

## Manufacturer Flexibility in Establishing Unique Collection Infrastructure

Under the Act, manufacturers are given the flexibility to decide how they will reach their acceptance standard. They can use a number of acceptance methods deemed "reasonably convenient" under the Act, including mail-back, collection at permanent sites, and collection events. The Department recognizes that the use of mail-back is commonly identified by manufacturers but is not being fully utilized, accounting for only approximately one percent of collections by manufacturers. The Department also

recognizes that the use of mail-back by manufacturers for larger items such as televisions is not convenient. The Department is developing regulations, and further evaluation will be conducted to determine the conditions under which mail-back should be considered a convenient option.

## Less Financial Burden on Local Government

Prior to the Act's implementation, many local governments across the state that provided e-waste collection programs for their residents were forced to pay excessively high prices. In many cases, the prohibitive cost of managing e-waste collection programs deterred local governments from offering such programs. During the first two years, participating municipalities reported that, not only had the Act removed the heavy financial burden of providing e-waste collection programs from local governments, but it had also helped defray program costs and, in some cases, provided a modest revenue stream. Unfortunately, market conditions have changed such that the costs have once again shifted and recyclers have begun to charge for CEE collections. This is counter to the intent of the Act and is being evaluated by the Department. It should be noted that the Department is not involved in contract negotiations between regulated entities and that these costs will continue to fluctuate based on market conditions beyond the Department's control. However, where violations of the Act can be identified, the Department will consider enforcement options.

## Program Implementation and Effectiveness in New York City

The 2011/2012 report identified that e-waste collection and recycling in New York City is a unique challenge. Due to the nature of housing and transportation within New York City, it is difficult to make e-waste collection and recycling conveniently available to the more than eight million residents. In the first two years, there was a significant under-collection of e-waste as reported by the various program stakeholders. This under-collection occurred despite the city's best efforts to disseminate information regarding e-waste collection opportunities, as well as sponsoring one collection event in each of its five boroughs annually. While it is not a responsibility required by the Act, the New York City Department of Sanitation (DSNY) recognized the need to develop an e-waste collection program for city residents to improve collection and provide a convenient method for consumers to discard unwanted e-waste.

The DSNY program allows apartment buildings with 100 or more residences to receive a DSNY bin in which residents may place unwanted CEE free of charge. E-waste placed in the bin is then collected by DSNY's recycler. Apartment buildings with 10 or more units may store e-waste in an enclosed, secure room and contact DSNY for a clean out. Apartment buildings with 250 or more units may schedule with DSNY to provide outdoor collection events for building residents. As an added convenience for city residents, DSNY has opened five special waste sites, one in each of the five boroughs, where consumers may drop-off e-waste free of charge.

The methods implemented by DSNY have been a success. While challenges remain in implementing an e-waste collection program in the city, DSNY officials have developed an expansive and comprehensive program with more convenient options for e-waste recycling/reuse for city residents.

## Online Registration and Reporting Data Management System

The Department launched its e-waste online registration and reporting data management system, Re-TRAC Connect, in January 2016. This new reporting and data management system, hosted by Emerge Knowledge, streamlines the registration and reporting process for the Department and reporting entities. Online reporting affords the Department easy access to data contained in an entity's registration and annual reports in one place. The system provides for easier analysis of this data, including such calculations as the total weight collected by facilities and manufacturers, the Statewide Goal, manufacturer acceptance standards, recycling surcharges and manufacturer credit balances.

The Department, working closely with input from reporting entities, is continuing to improve the online system. While online reporting has made reporting and data calculations easier, the Department is still working on improving the reporting experience for reporting entities, as well as how the Department uses the data to provide necessary information to its users (see Program Challenges section for more details).

## VII. Program Challenges

### Stakeholder Awareness

During 2013 through 2015, the Department believes that stakeholder awareness increased due to several factors. Regulated entities under the Act have become much more aware of their requirements through significant outreach by the Department: e-mail notices, correspondence and website information. The Department's enforcement actions against those non-complying entities, particularly from 2015, has contributed to greater stakeholder awareness. Also noteworthy during this period, the final phase of the disposal ban went into effect January 1, 2015, restricting individuals and households from placing or disposing of e-waste in any solid waste management facility or placing e-waste for collection intended for disposal at such a facility.

The Department firmly believes that increased public education and outreach for residents is a continual critical component in the success of any recycling program. The Department continues to provide education through its website and press announcements. The Electronics Recycling Coordination Clearinghouse (ERCC) Consumer Awareness Survey conducted between September 2014 and July 2015 indicated that New York State ranked in the top five states for consumer awareness about recycling opportunities. However, less than half of consumers surveyed in New York State knew where unwanted electronics could be brought for recycling. Full survey results are available through the ERCC website: <http://www.ecycleclearinghouse.org/content.aspx?pageid=107>. Educating consumers with a clear, concise message and easy-to-use information about free and convenient recycling/reuse, is key to increasing e-waste recycling in the state.

Under the Act, manufacturers are responsible for implementing a public education program to inform New York consumers about their e-waste acceptance program. The Department believes this is an area that has lacked attention, and significant additional outreach could be provided by manufacturers. As the Department continues to review manufacturers' acceptance programs, the Department will be re-emphasizing their outreach and educational responsibilities to ensure that consumers and residents are made aware of recycling opportunities provided by manufacturers. The Department will consider enforcement options for manufacturers that have failed to provide the minimum outreach and education required under the Act.

### Data Management, Tracking and Verification

The Department found it difficult to adequately track, manage and verify the significant amount of data generated from the annual reports of nearly 1,500 regulated entities since initial program implementation in 2011. The paper-based reporting and spreadsheet-based data tracking system significantly limited the Department's ability to accomplish some of the objectives of the program in a timely and comprehensive manner. In 2015, the Department developed an e-waste online registration and reporting data management system that would allow for easier reporting, data tracking and verification. During 2015, the Department spent considerable time and effort moving away from the old system toward an effective electronic database management system.

The new e-waste online registration and reporting data management system, Re-TRAC Connect, was developed in 2015 and rolled out in the beginning of 2016 in time for the 2015 annual reporting deadline. Initial stakeholder response is positive; a more complete description of the system and its implementation will be discussed in the next biennial report.

## Out-of-State Entities

The Department continues to have difficulty tracking and accounting for e-waste generated by New York consumers that is collected and processed by out-of-state entities that are not required to register in New York. Presently, only the collectors, consolidators and recyclers located in New York are required to register in the program and subsequently report collected CEE weight each year. The Department is aware, through the reporting from manufacturers and collectives, of weight collected in NYS by out-of-state recyclers that is not directly reported to the Department. This missing weight could negatively impact the calculation of the Statewide Goal. The Department will attempt to address this issue during the rulemaking process.

## Delayed Acceptance Standard Allocation for Manufacturers

The annual reporting deadline for each year for all regulated entities under the Act is March 1 of the following year. Many of the annual reports are not submitted by the due date and, even when received, the Department must often request and rectify a great deal of missing information. For example, of the 94 registered manufacturers in 2015, only 26 manufacturers had started or completed their 2015 annual report by the deadline date of March 1, 2016.

The annual report information is required to calculate manufacturer's acceptance standards. Failure to submit complete annual reports in a timely manner forces the Department to issue the manufacturer's acceptance standards later in the year than desired. The acceptance standards for 2013, 2014 and 2015 were issued on 6/11/13, 7/8/14 and 7/14/15, respectively. With the advent of the new online Re-TRAC Connect online database, the Department could issue the 2016 acceptance standards much earlier and expects to continue improving the date acceptance standards are distributed. In addition, the Department anticipates that enforcement efforts will result in greater compliance with the reporting deadlines in the Act.

## Recycling Cathode Ray Tubes (CRTs)

The management of CRTs continues to be a significant issue. This is not only a problem in New York State, but nationally and internationally as well. The markets for collected CRTs have continued to shrink, and the last major manufacturer of new CRTs, which used recycled CRT glass, is no longer in operation. While there remain some outlets to recycle these items, the costs have increased significantly while the value of the CRT glass has fallen. Consumers in New York State, like every other state in the country, have embraced the newer flat panel displays. This has resulted in a glut of the older, heavy CRT units available for collection, recycling and processing. CRTs contain significant quantities of lead, and properly managing the resultant contaminated glass has become a challenging task, especially when adequate end markets to use this material continue to dwindle. Only a few years ago, CRT recyclers earned \$200 per ton recycling CRT glass; now CRT recyclers typically pay \$200 or more per ton to process the same glass. This can prove costly for recyclers who claim that they are not being adequately compensated by electronic equipment manufacturers, who are responsible under the law for the cost of collecting and recycling CRTs. For many recyclers, revenue generated from the recovered material on the back end and any added premium services, such as at-home pick up or assisted data removal, do not offset losses from inadequate payments from the manufacturers and high CRT recycling costs. As a result, there is a net cost to recyclers. Besides these dynamic market forces, there are limited disposal options and increased transportation costs for CRTs, making recycling of CRTs financially burdensome to manufacturers and not viable for some recyclers.

On August 7, 2013, the Department issued an enforcement discretion policy (Commissioner's Policy-57) to allow regulated parties, such as CRT collectors and processors, to store used CRTs and CRT glass removed from CRTs prior to legitimate recycling, while the Department completes promulgating those requirements into State regulations. This discretion policy provides a protective but streamlined approach to managing these materials and thereby significantly encourages the recycling of this glass. Specifically, regulated parties will be allowed to comply with the requirements of the "CRT Rule" promulgated by the United States Environmental Protection Agency at 40 Code of Federal Regulation §261.39 (71 Federal Register 42928-42949, July 28, 2006).

Additional regulatory guidance and flexibility, both at the federal and state levels, may help ensure stronger end-markets for processed CRT glass, help facilitate the creation of new opportunities for innovative recycling business and encourage job creation.

## Smaller Manufacturers

The Department has observed that some smaller manufacturers with low acceptance standards may find that paying the surcharges is more cost-effective than developing a comprehensive e-waste acceptance program or partnering with an existing collective organization. Many smaller manufacturers simply offer a mail-back program to satisfy the convenience requirement of the Act and end up purchasing weight from a recycler to meet their assigned acceptance standard, as opposed to implementing a continuous and effective e-waste acceptance program. The Department will continue to review this issue to determine if any additional measures should be implemented to encourage these manufacturers to develop adequate acceptance programs.

## Definition Clarifications

In the previous report, the Department identified that there is no definition for “collective electronic waste acceptance program” under the Act. Such a definition is needed, considering that collectives play a large role in the implementation of New York’s e-waste program. More than 50 percent of manufacturers currently belong to a collective organization. While the “collective electronic waste acceptance program” was provided for in the Act as an option for manufacturers to use, their responsibilities need to be more clearly defined.

The Department also believes a clear definition is needed for an “electronic waste collection event”. There is currently no language describing what constitutes such a collection event. The Department cannot always track and account for e-waste collected at in-state collection events and processed by out-of-state entities if the e-waste collected is not claimed as part of a registered manufacturer’s program.

Another term from the Act that needs additional clarification and supporting language is “e-waste acceptance credits” (credits). Manufacturers have amassed approximately 9.4 million credits as of 2016 and the likelihood of credits coming into play for satisfying acceptance standards behooves clear and concise language in their application and handling in the program.

The Department will address these terms as part of its rulemaking effort.

# VIII. Department Recommendations and Conclusions

## Earlier Acceptance Standard Distribution

The Department expects that as the new e-waste online registration and reporting data management system matures it will help staff provide manufacturers’ acceptance standards much earlier than in previous years. However, the Department will continue to evaluate additional measures that could shorten this process. In order for manufacturers to receive an acceptance standard well in advance of an upcoming year, the years of sales data to be used in the acceptance standard calculation would likely need to be altered. This would allow manufacturers to better plan for their electronic waste collection, recycling and reuse programs.

## Manufacturer/Collective Program Improvement

The Department continues to find that many manufacturer and collective electronic waste acceptance programs are deficient and fail to comply with one or more provisions of the Act. A detailed letter was sent to all manufacturers and collectives in February 2015, clarifying important requirements of the Act and noting specific areas of program deficiencies. The Department has made numerous attempts to bring manufacturers’ acceptance programs into compliance by notifying manufacturers and collectives of shortfalls within their programs. The Department has also provided guidance on how to correct such

violations. However, significant problems continue. The Department will continue to increase its enforcement efforts to ensure that manufacturers and collectives enhance their electronic waste acceptance programs to meet all requirements of the Act. Emphasis will be placed on the provision of a continuous, convenient and effective acceptance program; the improvement of consumer education and outreach programs; and the importance of timely submittal of complete and accurate annual reports and associated fee payments.

## Regulation Development

In late 2015, the Department began the process of developing rules and regulations to provide clarity to the existing provisions of the Act for all participating stakeholders. Strengthening the provisions of the Act will improve implementation and overall program performance. Some areas required by ECL §27-2615(1) to be addressed in rulemaking include: potential standards for reuse; e-waste acceptance credits; waivers of recycling surcharges; and acceptable alternative methods for determination of sales data. The rulemaking will also attempt to address many of the challenges discovered during the implementation of the program, some of which are noted below:

- **Add Definitions** - Several new definitions are needed, such as “collective electronic waste acceptance program” and “electronic waste collection events.” These definitions would help to clarify participation in the program for those manufacturers considering using a collective to meet their acceptance standard and provide guidance for entities who arrange e-waste collection events in New York State. Various other definitions are being considered for the rulemaking as well.
- **Require Registration from All Manufacturers** – The Department believes that registration and annual reporting should be required of all manufacturers of CEE selling into the state, irrespective of the current 1,000-unit sales threshold. Without registration of those falling under the threshold, the Department has no way of knowing all brands that may be legitimately sold into the state and, therefore, cannot adequately inform retailers.
- **Out-of-State Recyclers** – To have the most accurate information and data for the calculation of the Statewide Goal, it is critically important that electronic waste collected and recycled by out-of-state facilities be reported to the Department.
- **Mail-back Enhancements** – Mail-back/take-back methods of acceptance have proven to be ineffective. The Department is considering ways to strengthen the requirements for this acceptance method.
- **Waiver of the Recycling Surcharge** – Develop waiver application form and guidance information.
- **Voluntary Program Withdrawal, Revocations of Registrations** – Address the various ways entities exit the program and identify any remaining responsibilities.
- **Credits** - Guidance for the use and transfer of manufacturer-generated credits.
- **Surety/Closure Requirements** – Outline requirements for recycling facilities that are recycling and processing e-waste.

## Recycling of Cathode Ray Tubes (CRT's)

While large quantities of CRTs have already been collected and recycled, many of these CRT units (computer monitors and televisions) are still expected to be returned for recycling over the next five years or more. A combination of market factors, such as the lack of needed new capacity and decreased value for the processed glass, increased transportation and processing costs, and possibly mismanagement, have led to increases in the cost to recycle these wastes. These factors have made recycling CRTs increasingly burdensome to businesses and not financially viable for recyclers. Ultimately, there are fewer opportunities for consumers to recycle.

The Department will continue to track this issue and believes that all options should be considered to help reduce the costs of transporting and processing CRTs. The following recommendations could help mitigate these problems and will be considered as part of the Department's future rulemaking activities:

- Consider requirements for manufacturers to pay certain minimum amounts towards this recycling effort
- Consider storage flexibility, as well as remove inconsistencies with federal regulations concerning the management of CRTs
- Provide grants and/or other incentives to CRT processors to locate in New York State.

## Online Reporting and Data Management System Development

Staff have completed most of the work required for the development of a long-term data management solution. In addition to the significant benefits to its online users, the Department strongly believes that the system will provide more accurate and useful data output, in a timelier fashion, which will help to improve overall program implementation. Online reporting for regulated entities and an e-waste collection site geo-mapping feature, as well the ability for verification and cross-checking of reported data from the various stakeholders, are now available through this new system. The Department expects to continue to utilize this system as the most cost-effective alternative to fulfill the program's critical e-waste business requirements. The Department will seek to implement further enhanced functional capabilities with the software vendor to improve the overall performance of the e-waste online registration and reporting data management system.

## Recycling Facility Inspections

As the e-waste program continued to expand during this three-year period and the number of e-waste recycling facilities increased, there was real need to visit and inspect these facilities. Reports of abandoned warehouses containing hazardous CRT materials in other states supported the need for closer monitoring of facilities collecting e-waste, especially downstream recyclers and processors. During this period, Department staff have conducted site visits at a number of electronic waste recycling facilities to determine compliance with New York State's e-waste law and to ascertain the presence of any CRT or CRT material stockpiles. With the exception of a few minor violations, the visited facilities were found to be in compliance, with no evidence of CRT stockpiling taking place at this time. The Department recommends continued inspection of the remaining e-waste recycling facilities on an ongoing basis to ensure compliance with the Act.

## Education and Outreach Efforts

The Department needs to continue and enhance its education and outreach efforts for all stakeholder groups. Although the Department has a plethora of information posted on its website for the various stakeholder entities, has conducted many presentations and instructional webinars, has provided email blasts to update and inform targeted groups, there is still a need to educate all stakeholders, especially consumers of the state. The Department will continue to enhance our outreach and educational activities as well as encourage manufacturers and/or their designees to provide more comprehensive public education and outreach programs to the Act's various stakeholders.

## Stakeholder Dialogue

The Department will continue to interact with all stakeholder groups to address critical concerns and identified challenges, with the aim of improving overall program performance. The New York Product Stewardship Council, with assistance from the Product Stewardship Institute, sponsored a day-long Summit on the implementation of the Act on January 23, 2014 in Albany. The forum provided municipal and state representatives, e-waste collectors/ consolidators/ recyclers, electronic equipment manufacturers, collective organizations and environmental groups an excellent opportunity to discuss those elements of the State's e-waste program that were working well, areas that needed improvement, and potential actions or steps that could be taken or considered to help fulfill the goals of the Act. This valuable information was used to assist the Department in identifying critical areas of concern and specific issues which will be addressed in the upcoming rulemaking effort. The critical open dialogue with all participating entities, which began at the Summit, will continue and will help improve overall program performance. The result will be a stronger and more sustainable New York State e-waste program.

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