

2017 Annual Status Report on Connecticut's State-wide Consumer Electronics Recycling Program (CGS 22a-629 through 22a-640)



**Over 105 Million Pounds of Unwanted Electronics Gets Recycled
81 Recycling Jobs Created and
Over \$4.8 Million Dollars Saved By Municipalities!**

Pursuant to Section 22a-639(b) of the Connecticut General Statutes ("CGS"), the [Connecticut Department of Energy and Environmental Protection](#) ("DEEP") presents its annual status report ("report") on Connecticut's state-wide electronics recycling program ("program"). This report is required to evaluate the effectiveness of the program, and to provide information about any federal electronics recycling law if such federal law substantially meets or exceeds the requirements of Connecticut's program. The report finds Connecticut's program is being successfully implemented, and that the federal government has not established a national program for the collection and recycling of electronic devices. This report also sets forth DEEP's plan to achieve program implementation goals and actions to achieve such goals per CGS section 22a-639.

Connecticut's electronics recycling law ([CGS Section 22a-629 thru Section 22a-640](#)) is one of [25 Extended Producer Responsibility \("EPR"\) state laws](#) requiring the manufacturers to pay for the recycling of their products. Specifically with electronics, the manufacturers pay for the collection, transportation and recycling of residentially generated Covered Electronic Devices ("CEDs") which means computers, monitors, printers, and televisions sold to consumers. This program has no direct cost to consumers or municipalities. Recyclers are approved by DEEP to ensure responsible recycling practices are being used. Towns are only responsible to provide for the convenient and accessible collection of CEDs for their residents. Most towns have chosen to use an existing transfer station or regional waste collection as their collection points, while other towns use special collection events, or designate specific businesses as a drop off location.

The State Fiscal Year ("SFY") 2017 data analyzed by DEEP was derived from the semi-annual reports required to be submitted by Connecticut's four (4) currently approved [Covered Electronics Recyclers \("CERS"\)](#), and supplemental information and data from registered manufacturers of CEDs. Census population data was used to determine the state-wide pound per capita rates for unwanted electronics collected under the program.

Since collection of CEDs started under Connecticut's program in February 2011, Connecticut's electronics recycling program has transformed the collection and recycling of unwanted CEDs in Connecticut. The result is thousands of tons annually of unwanted electronics getting recycled into new products, creating new jobs, keeping toxic materials out of the environment, and to date over \$4.8 million dollars saved in avoided disposal fees by Connecticut's municipalities. It's an equitable system since the manufacturers that make the products are now financing the system that recycles them. Connecticut was the fourth state in the U.S. to have an electronics recycling program financed by electronics manufacturers.

A summary of some specific program benefits, successes, challenges and future considerations since the start of the program are presented below.

On-going Benefits:

No fees for consumers and no recycling/disposal costs for municipalities.

Before the establishment of Connecticut's program, most household electronics were discarded in the trash, or consumers often were charged for recycling with limited availability to recycle even if they wanted to. For residential electronics thrown in the trash, most Connecticut municipalities would be charged for collection and disposal [up to \$90 per ton]. Some towns and regions collected waste electronics separately for recycling, but had to pay for those services from their own funds. Now manufacturers pay the cost for 100% of the electronics collected for recycling by towns from residents.



Convenience and Accessibility. Before Connecticut's e-waste program, there were some regional collections held seasonally, and a few permanent collection locations. There are now over 163 approved collection locations statewide, one of the most comprehensive collection networks in the country. Currently, there is state-wide collection coverage, including 150 municipal transfer stations, most of which are open year-round, and 13 regional collection locations. Other approved collection locations include Savers and Red, White and Blue retail stores and businesses specializing in electronics recycling (Green Monster e-Cycling LLC located in West Hartford, and Take 2 Inc. located in Waterbury). Each municipality must have a collection plan approved by DEEP, so residents should check with their local recycling coordinator for locations and drop off times.

Responsible Recycling and Disposal. Before the Connecticut e-waste program, towns were on their own to vet recyclers. Now, CERs are approved by DEEP to ensure that CEDs are recycled in a responsible manner. Connecticut is one of only a few states that evaluate recyclers to ensure electronics are actually recycled and not abandoned or dumped into questionable international markets. The regulations require recyclers and their downstream partners to have safeguards including: facility and data security, insurance coverage for pollution releases, closure plans and financial assurance to protect taxpayers from paying for cleaning up illegally dumped or abandoned materials. CERs are also required to track and report to DEEP the movement of electronics downstream until the material is used as an industrial feedstock or recycled into a new product.

No Weight or Dollar Limits on CEDs Collected in Connecticut. All CEDs collected by CERs at approved collections sites that are responsibly recycled are eligible for reimbursements by electronics manufacturers on a price per pound basis that is pre-approved by DEEP. Other states have limits on collection which often have left recyclers with e-waste collected for which they cannot be reimbursed.

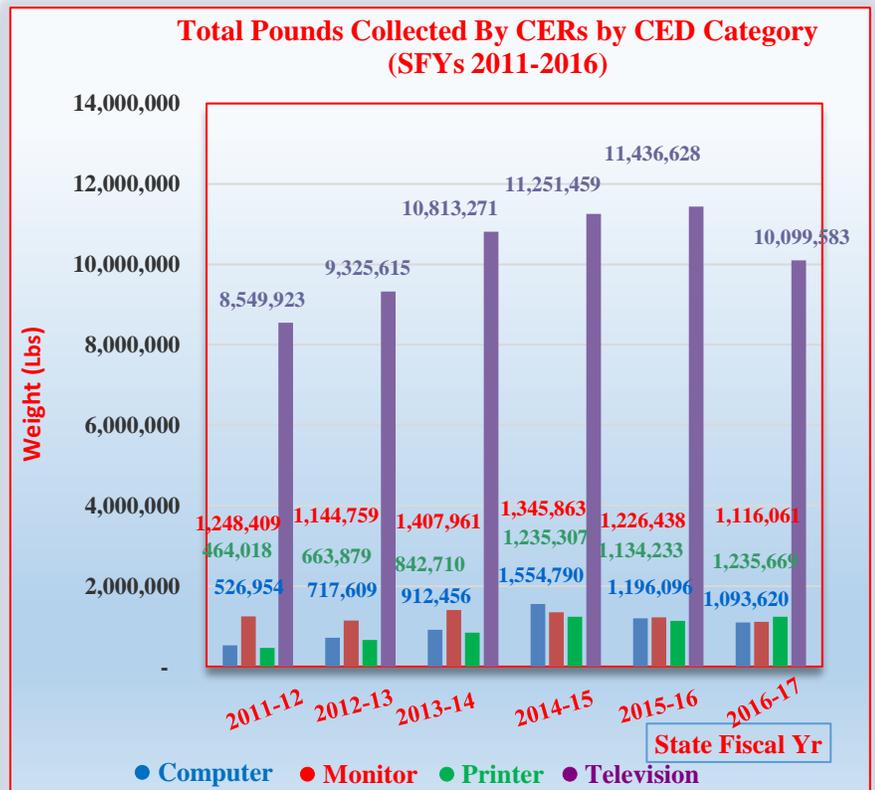
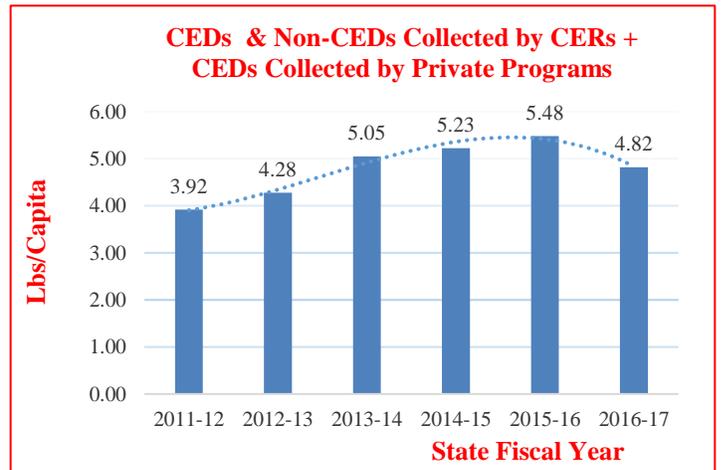
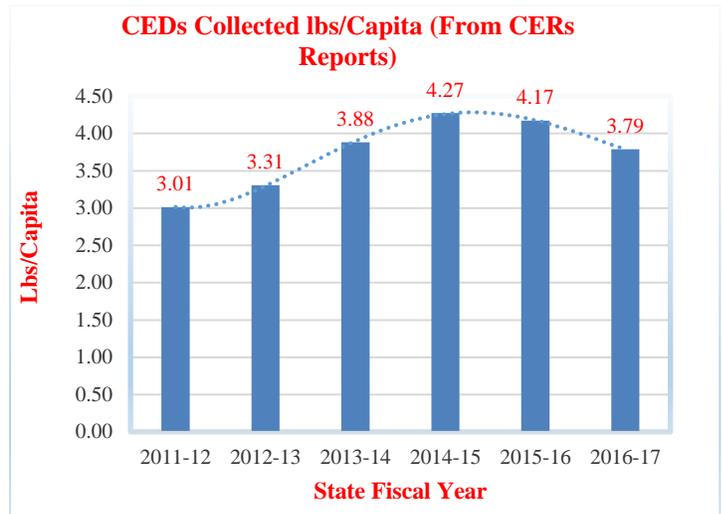
Cumulative Program Successes:

- Since Connecticut's program started in February 2011, over 107 million pounds of unwanted electronics have been collected cumulatively. The breakdown is as follows:
 - 83 million pounds of CEDs collected by CERs;
 - 8.4 million pounds of CEDs collected by electronics manufacturers' private programs; and

- 15.7 million pounds of other unwanted electronics collected (Non-CEDs such as computer keyboards, VCRs, DVD players, etc.) by CERs.

- In SFY 2017, over 13.5 million pounds of CEDs were collected by CERs, yielding a state per capita rate of 3.79 lbs/capita (9% decrease from SFY 2016). If DEEP includes the total weight of CEDs reportedly collected by electronics manufacturers in private programs and all other non-CEDs reported by CERs, the total amount of unwanted electronics collected in SFY 2017 exceeds 17 million pounds, which equates to a state per capita rate of 4.82 lbs/capita (12% decrease from SFY 2016). Televisions accounted for the majority of the weight of CEDs with an average of 75% of the reported weight collected. Printers were the next highest product category with 9% of the reported weight collected. The remaining weight was computers (8%) and monitors (8%). See table below for total pounds collected cumulatively by CED category. It appears that Connecticut's program may have peaked in 2016. See "decline of CRTs and light-weighting" discussion under Program Challenges / Next Steps Section.

- The table to the right also shows a decrease in total CEDs collected by CERs and the weight of televisions collected. Data from SFY's 2016 and 2017 suggests an 11% reduction of older, heavier cathode ray tubes ("CRTs") being collected in the waste stream and newer, lighter technology flat screens recycling through the program. Data from SFY 2017 also suggests that 25% percent, or 2.6 million pounds, of the total televisions being collected are flat screens. Light weighting is also



contributing to the decreases in weight of other CEDs collected too.

- Since the last report, 1 additional job has been created in Connecticut. Of the 81 direct jobs, 69 of these jobs are located in Connecticut, and another 12 jobs are located within New England, improving the local and regional economy with direct and indirect jobs.
- Since February 2011, over \$4.8 million dollars have been saved by Connecticut's municipalities in avoided disposal fees by diverting unwanted electronics. In SFY 2017, municipalities collectively saved over \$775,000 in avoided disposal costs.

SFY 2017 Program Successes:



- Recyclers reported the following electronic waste components were recycled into new products, placing valuable materials back into the stream of commerce:
 - 6.5 million pounds of CRT glass* (13% decrease from SFY 2016) (estimated over 440,000 pounds of lead recycled);
 - 2.1 million pounds scrap metal (24% decrease from SFY 2016);
 - 1 million pounds of plastic (2% decrease from SFY 2016);
 - 344,000 pounds of circuit boards (9% decrease from SFY 2016);
 - 4,500 pounds mercury containing materials* (1% increase from SFY 2016);
 - 5,200 pounds of glycol (10% increase from SFY 2016); and
 - 11,073 pounds of batteries.

*Note: An increase in mercury containing material combined with a 13% decrease in the amount of CRT glass over last year is an indicator of a growing number of flat screen televisions and monitors being recycled by the program.

- Electronics manufacturers reported 780,000 pounds of CEDs collected (52% decrease from SFY 2016) for recycling under established private programs. Under such programs, manufacturers generally partner with recyclers or retail stores of their choice to collect and recycle their own products based on descriptions submitted to DEEP. With the addition of 7 new private programs established in SFY 2016, electronics manufacturers have established 15 total private programs in Connecticut. Private programs create additional collection opportunities for Connecticut residents including retailer drop off points at Best Buy, Verizon, Goodwill, and Staples stores, or through mail-back programs. One reason for the continued decrease in CEDs collected is Best Buy no longer accepts the return of CRT-based televisions and monitors at its Connecticut retail locations (dating back to 2016).
- With 13.5 million pounds of CEDs collected by CERs in SFY 2017, it is estimated that manufacturers paid a share of \$4.8 million dollars to CERs collectively based on their national market share or return share data and the average price per pound of \$0.36.

- This and other EPR programs (paint, mattresses, etc.) will continue to play an important role in achieving the state’s diversion goal of 60% by 2024 as established by P.A. 14-94 and the recently adopted July 2016 [Comprehensive Materials Management Strategy](#).



Program Challenges / Next Steps:

Program Measures / Goals

- Connecticut’s program collected a rate of 3.79 pounds per capita in SFY 2017, which equates to a 9% decrease in weight comparing SFY 2016 based on the CERs reports. This rate is lower than in past years and is slightly below DEEP’s state-wide goal¹ of 4.0 pounds per capita. This lower number will serve as an incentive for ongoing public outreach at the municipal and state levels. DEEP continues to assess the suitability of this measure and will decide whether to use it, expand it or recommend replacing it in out years. Important factors to consider include the decline of CRTs and device weight discussed in the next paragraph.
- “Decline of CRTs and Light-Weighting”: The sale of consumer electronics containing CRTs declined to virtually zero in the early 2010s. CRTs are by far the heaviest component in the consumer electronics wastestream, so a peak and decline in the weight CRTs collected can be expected. As the CRT weight alone had been about 80-85% of the total CED weight, the trend in total CED weight collected is expected to follow the trends with CRTs. Indeed, the weight of CRTs peaked and declined in 2016, along with the total weight of CEDs collected. Virtually all other state programs have recorded similar collection trends in their e-waste recycling programs. Another likely aspect of declining CRT weight is the increasing number of private programs that no longer accept CRTs. In addition, electronics are generally being manufactured to be lighter, smaller and more mobile. Consequently, future collection rates based on weight are expected to decline. This decline will present a challenge with how to properly evaluate success of Connecticut’s program.
- DEEP plans to assess more closely the quantity of material that is disposed over time. Based on the CERs’ reports, 2.14% of the total weight of CEDs recycled is disposed as waste or residue from the recycling activities, which is a 15% increase from SFY 2016.
- According to [Connecticut’s 2015 Waste Characterization Study](#), the quantity of “electronics” disposed in the trash was 11,906 tons, which equated to 0.5% of the municipal solid waste disposed in Connecticut. This is a 76% drop from a similar study performed in 2010 – before the implementation of Connecticut EPR program. DEEP plans to continue to monitor this trend in residents’ disposal habits.
- DEEP plans to assess the development of new or additional program measures like consumer awareness, number of units, carbon footprint and greenhouse gas emissions avoided as a result of Connecticut’s program.



¹ In 2007, DEEP set a convenience and accessibility goal of 4.0 lbs./capita on a state-wide basis on an expectation that each town/region meet that goal. This goal may not be the best measure of program performance with newer, smaller and lighter products entering the waste stream.

Outreach and Education

- DEEP has surveyed, on an informal basis, program awareness levels amongst Connecticut residents. The results suggested that only 45% of Connecticut residents are aware of Connecticut's free recycling program. The other 55% of Connecticut residents polled did not know of an outlet to recycle their CEDs. DEEP will continue to develop innovative ways to improve public awareness within available program resources. DEEP anticipates that with ongoing and innovative public education and outreach, consumer participation rates will increase.

Policy and Coordination

- DEEP continues to evaluate whether certain electronic devices may be considered to meet the law's definition of a CED, including certain hand held devices, game consoles, external data storage devices, satellite or cable boxes, and certain printers, including certain 3-D printers that may also print on paper.

- DEEP continues to work with the [Northeast Recycling Council](#) (NERC) and the [Electronics Recycling Coordination Clearinghouse](#) (ERCC) to seek market share data directly from manufacturers to reduce costs and aid in assigning national market share to each manufacturer covered by Connecticut's program.



- DEEP continues to work closely with NERC/ERCC to assist manufacturers to register in Connecticut using [ERCC's online e-cycle registration system](#). This system is a cost effective solution for electronic registration submissions. This year, DEEP allowed the submission of electronic registrations by manufacturers using NERC's/ERCC's system. 71 of a total of 104 manufacturers submitted electronic submissions to-date.



- DEEP will continue to work closely with stakeholders to assess increasing recycling rates by possibly expanding the type of CEDs and scope of collection by including schools (K-12), government, colleges and universities and small businesses. Such expansion would be consistent with numerous other states' EPR programs.
- DEEP will assess the feasibility of a recycling and manufacturer reimbursement system for computers, monitors and printers based on best available national market share, similar to reimbursements for recycling televisions currently in Connecticut. DEEP is interested to know if implementing such a system will help to reduce recycling costs.

Compliance Assurance

- DEEP issued Notices of Violation ("NOVs") to 2 CERs in SFY 2016 for failure to seek prior approval of the use of downstream partners. CERs are required to notify the Commissioner of any change to any information, activity, facility or procedure described or contained in a CER's Approval pursuant to section 22a-638-1(b)(8) and (9) of the Regulations of Connecticut State Agencies ("RCSA"). DEEP worked closely with both CERs to submit modifications to add downstream facilities to their process flow. DEEP approved the modifications and CERs returned to compliance.

- DEEP issued a NOV to a CER for issuing invoices to manufacturers without the proper information contained on the invoice pursuant to Regulations of Connecticut State Agencies (“RCSA”) Section 22a-638-1(j)(2). DEEP worked closely with the CER to ensure invoices produced by the company contained all of the elements prescribed by the RCSA for a quick return to compliance.
- While DEEP will continue to take enforcement actions to compel compliance as needed, DEEP also recognizes a strong need for innovative outreach to stakeholders on program requirements.
- CRT glass recycling options are declining and becoming more expensive. This is an international problem, and Connecticut is not immune. It is the main reason why private programs no longer accept CRT devices. As a result, DEEP has created an electronic, monthly CRT glass report to track CRT glass. Since June, 2016, CERs report to DEEP the total quantity of CRT glass stored on site at the end of each month. DEEP staff track the trends of CRT glass stored on site, by each CER, and take necessary actions to address excessive stockpiling. DEEP is also planning to use a similar tool to track and monitor other materials of concern, such as mercury.
- Improved accessibility to recycling drop-off points is an on-going need. While every town has an approved collection plan, at least 6 towns have reported zero or very little CEDs collected. DEEP plans to target compliance and enforcement in SFY 2018 to improve free, convenient and accessible recycling opportunities for all of Connecticut’s residents.
- In addition to a comprehensive selection process of approving CERs and their partners, a major program goal has been to verify the accuracy of reported data by CERs including evaluating mass balance accounting of billable weights by an independent 3rd party. DEEP has plans to audit the CERs in out years.
- Manufacturers may audit CERs and seek records from CERs and their downstream partners for CED shipments to verify collection, billing and recycling data pursuant to RCSA section 22a-638-1(e)(8). DEEP will work with manufacturers and CERs to facilitate successful audits and findings. With any manufacturer performed audit, DEEP may take independent actions if violations of applicable environmental laws are identified.

While there is currently no federal electronics recycling program in place, DEEP continues to engage in interstate collaboration to harmonize Connecticut’s program with other states to help streamline, reduce costs and improve the recycling infrastructure/system.

Based on the findings and assessment reported in this report, DEEP concludes Connecticut’s electronics recycling program is working successfully and is well positioned to continue to protect public health and the environment by diverting CEDs into recycling markets, creating green jobs and saving municipalities the cost of disposal for CEDs.

RECYCLE
Your E-Waste



For information on how/where to recycle your unwanted
TVs, Computers, Monitors, & Printers

go to the CT DEEP's website at
www.ct.gov/deep/e-waste
or call toll free 1.888.424.4193

