

2016 Annual Status Report on Connecticut's State-wide Consumer Electronics Recycling Program (CGS 22a-629 through 22a-640)



**Over 90 Million Pounds of Unwanted Electronics Gets Recycled
Over 80 Recycling Jobs Created and
Over \$4.0 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 several successful 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”) 2016 data analyzed by DEEP was derived from the semi-annual reports required to be submitted by the six (6) 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 the inception of 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 \$4.0 million dollars saved in avoided disposal fees by Connecticut’s municipalities. It’s an equitable and efficient 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 electronics recycling program benefits, successes, challenges and future considerations since the inception 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, and consumers often paid for recycling with limited availability to recycle even if they wanted to. For residential electronics thrown away, most Connecticut municipalities would be charged for collection and disposal [up to \$90 per ton].

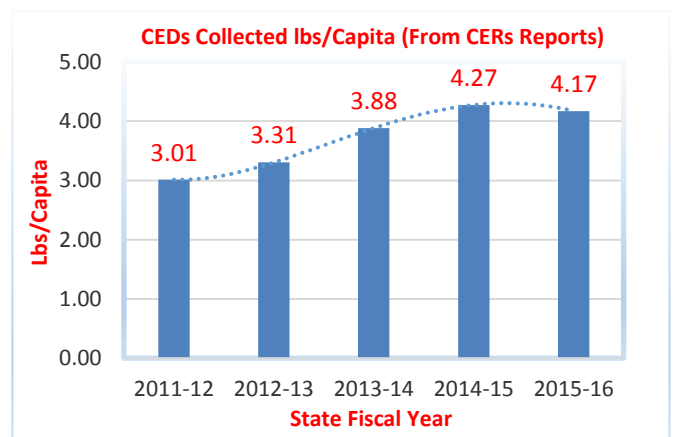
Convenience and Accessibility. There are now over 163 approved collection locations statewide, one of the most comprehensive collection networks in the country. Currently, there are 150 municipal transfer stations and 13 regional collection plans approved to cover all of Connecticut’s residents. Other approved collection locations include Savers retail stores and businesses specializing in electronics recycling (Green Monster e-Cycling LTD 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. 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 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.

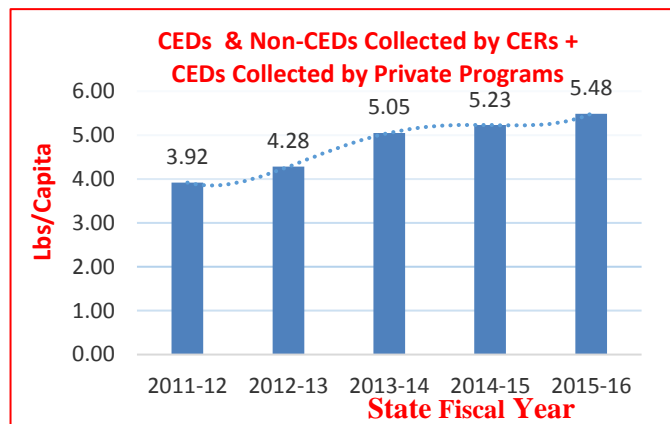
No Weight or Dollar Limits on CEDs Collected in Connecticut. All CEDs collected by CERs and responsibly recycled are eligible for reimbursements by electronics manufacturers on a price per pound basis that is pre-approved by DEEP.

Cumulative Program Successes:

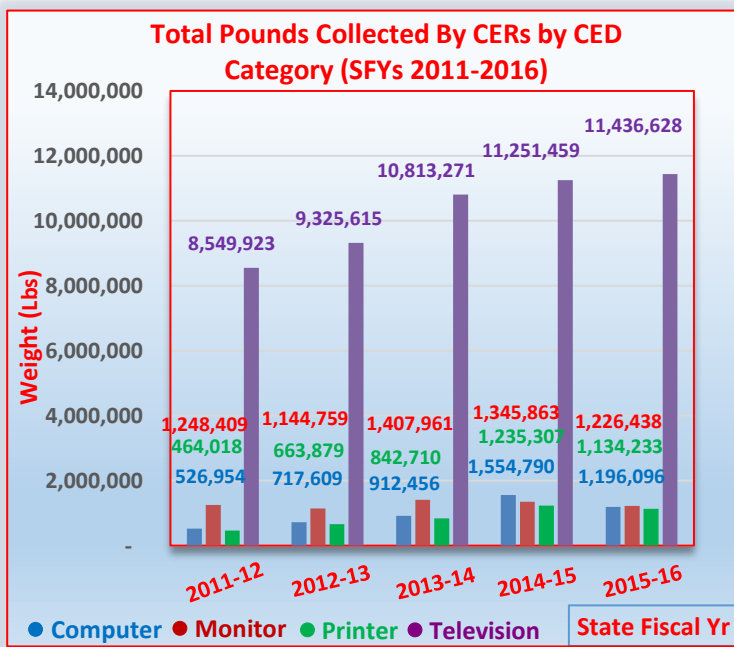
- Since the inception of Connecticut’s program in February 2011, over 90 million pounds of unwanted electronics have been collected cumulatively. The breakdown is as follows:
 - 69.6 million pounds of CEDs collected by CERs;
 - 7.6 million pounds of CEDs collected by electronics manufacturers’ private programs; and
 - 12.8 million pounds of other unwanted electronics (Non-CEDs such as VCRs, DVD players, etc.) by CERs.



- In SFY 2016, close to 15 million pounds of CEDs were collected by CERs, a state per capita rate of 4.17 lbs/capita (2% decrease from SFY 2015). Additionally, 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 2016 exceeds 19 million pounds, which equates to a state per capita rate of 5.48 lbs/capita (5% increase from SFY 2015). Televisions accounted for the majority of the volume of CEDs with an average of 76% of the reported weight collected. Monitors were the next highest product category with 8% of the reported weight collected. The remaining weight was computers and printers. See table below for total pounds collected cumulatively by CED category.



- The table to the right also shows a decrease in total CEDs collected by CERs, although there is a slight increase in the weight of televisions collected. Data from SFY's 2015 and 2016 suggests signs of a reduction of older, heavier cathode ray tubes ("CRTs") being collected in the waste stream and newer, lighter technology flat screens are already recycling through the program. Light weighting may also be contributing to the slight decreases in weight of other CEDs collected too.



- Since the last report, 27 additional jobs have been added in Connecticut and 2 regionally. Of the 80 direct jobs, 68 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 \$4.0 million dollars have been saved by Connecticut's municipalities in avoided disposal fees by diverting CEDs, non-CEDs and manufacturer's private programs. In SFY 2016, municipalities collectively saved over \$880,000 in avoided disposal costs.

SFY 2016 Program Successes

- Recyclers reported the following electronic waste components were recycled into new products, placing valuable materials back into the stream of commerce:
 - 7.5 million pounds of CRT glass* (15% decrease from SFY 2015) (estimated over 510,000 pounds of lead recycled);
 - 2.8 million pounds scrap metal (33% increase from SFY 2015);
 - 1.1 million pounds of plastic (27% decrease from SFY 2015) ;

- 380,000 pounds of circuit boards (28% decrease from SFY 2015);
- 4,000 pounds mercury containing materials* (100% increase from SFY 2015);
- 4,000 pounds of glycol (56% decrease from SFY 2015);
- 4,500 pounds of wood (95% decrease from SFY 2015) (315,000 pounds of wood incinerated for energy recovery); and
- 135 pounds of batteries (75% decrease from SFY 2015).



*Note: A 100% increase in the mercury containing material combined with a slight 15% decrease in 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.

- Over 1.6 million additional pounds of CEDs (23% increase from SFY 2015) were collected by electronics manufacturers' private programs that recycle their products by partnering with recyclers and retail stores. This is based on reports from 14 (up from 8 last year) electronics manufacturers that have established additional local collection points such as Best Buy, Verizon, Goodwill, or Staples stores or mail-back programs.
- For almost 15 million pounds of CEDs collected by CERs in SFY 2016, manufacturers paid \$5.26 million dollars to CERs collectively based on their national market share and return share data.
- In SFY 2016, DEEP used advertisement time paid for by the manufacturers in various movie theaters across Connecticut, during the 2015 holiday season to show DEEP's 30 second video to raise awareness about Connecticut's program. See link to YouTube video [here](#).
- 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 Opportunities / Next Steps:

Program Measures / Goals

- Connecticut's program collected a rate of 4.17 pounds per capita in SFY 2016 (2% decrease in weight comparing SFY 2015) based on the CERs reports. This rate is comparable to other states with similar consumer-based programs, and meets DEEP's state-wide goal¹ of 4.0 pounds per capita. DEEP anticipates that with new and innovative public education and outreach, consumer participation rates will increase. DEEP will continue to assess the suitability of this measure and decide whether to use it, expand it or recommend replacing it in out years.
- DEEP plans to assess the quantity of material that is disposed over time. Based on the CERs' reports, 1.86% of the total weight of CEDs recycled is disposed as waste or residue from the recycling activities.
- According to [Connecticut's 2015 Waste Characterization Study](#), the quantity of "electronics" disposed was 11,906 tons in 2015, which equated to 0.5% of the municipal solid waste disposed in Connecticut. As represented in the report, the amount of "electronics" that was disposed dropped



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.

by 76% 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, carbon footprint and greenhouse gases emitted as a result of Connecticut's program.

Outreach & Education

- DEEP continues to evaluate whether certain electronic devices may be considered to meet the law's definition of a CED, including certain hand held or mobile devices, game consoles, external data storage devices, satellite or cable boxes, and certain printers including 3-D printers.
- DEEP continues to work with [Northeast Recycling Council](#) (NERC) and [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 electronic manufacturers to register in Connecticut using ERCC's online e-registration system. This system is more cost effective and a solution for electronic registration submissions in out years.
- DEEP will continue to work closely with stakeholders to assess increasing recycling rates by possibly expanding the scope of collection by including schools (K-12), municipal CEDs, colleges and universities and small businesses. Such expansion is consistent with numerous other states among the 26 with programs.
- Additionally, in SFY 2016, DEEP 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.



Compliance Assurance

- 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 2017 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 plans to audit the CERs in out years.

- CRT glass recycling is an international problem, and Connecticut is not immune. As a result, in early 2016, Best Buy has decided to no longer accept CRT-based televisions and monitors for free at its Connecticut retail locations. DEEP's response to CRT glass related issues is outlined below.
 - Issuance of a Notice of Violation to the CER. The CER reported that it stored in an out-of-state facility approximately 365,000 pounds of CRT glass collected from Connecticut's program that turned out to be a portion of over 3 million pounds of CRT glass being stockpiled at an out-of-state facility. In summary, the CER is no longer approved to operate in Connecticut based on a voluntary withdrawal from Connecticut's program. Additionally, DEEP worked with the CER and the storage site's state environmental agency to ensure all of the CRT glass from Connecticut was removed from the site and properly managed/recycled.
 - Increased Reporting for CERs on CRT Glass. As a preventative measure, DEEP created an electronic monthly CRT glass report. Beginning in July, 2016, CERs are required to report to DEEP the total quantity of CRT glass stored on site at the end of each month. DEEP staff plans to track the trends of CRT glass stored on site by each CER, and take necessary actions to address excessive stockpiling.
 - DEEP Audited CERs Shipping Records to Verify CRT Glass Shipments. In the summer/fall of 2015, DEEP sought records of CRT glass shipments from all CERs actively collecting CEDs to verify that their downstream partners recycled such CRT glass. With the number of outlets for CRT glass recycling diminishing internationally, the results of the audit at that time verified that substantially all of the CRT glass was shipped to the appropriate downstream partners' facilities for recycling, including certifications of recycling included. DEEP plans to continue similar audits of records on an on-going basis.
- 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 and improve the recycling infrastructure/system.



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



The diagram illustrates the e-cycle waste process. It features a central green 'e' with '- cycle' above it and '- waste' below it. Four green arrows form a square around the 'e', indicating a continuous cycle. The top arrow points from a computer monitor icon to a printer icon. The right arrow points from the printer icon to a television icon. The bottom arrow points from the television icon back to the computer monitor icon. A fourth arrow on the left points from the computer monitor icon back to the printer icon, completing the cycle.

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 municipality the cost of disposal for CEDs.