



Indiana E-Cycle 2017 Report

Indiana Department of
Environmental Management

Office of Program Support

August 1, 2017

Overview of Program Year 7 data reported by registered
collectors, recyclers, and manufacturers.



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Executive Summary

Indiana's electronic waste (e-waste) law (IC 13-20.5) has achieved many successes since it was established in 2009, most notably recycling over 205 million pounds of electronics while expanding electronic collection access for Indiana residents. E-waste continues to be one of the fastest growing waste streams worldwide. Indiana is currently one of 26 states with e-waste legislation and plays an important role in efforts to manage the numerous challenges presented by the significant volumes of e-waste generated each year in the United States. Most notably, the program has allowed for a robust e-waste collection network to be developed throughout the state of Indiana, which has afforded Indiana residents the opportunity to take their unwanted electronic devices to these collectors.

The Indiana e-waste law created an extended producer responsibility (EPR) program, known as Indiana E-Cycle, under which manufacturers of video display devices (VDDs) are required to collect and recycle e-waste from covered entities (households, small businesses, and public schools) in Indiana. This year, 2017, marks the eighth year of the Indiana E-Cycle Program. This report will provide a summary of the last seven years of the program as well as provide the required annual information mandated by the Indiana legislature. For example, highlighting Program Year 7 (PY7), manufacturers collectively funded the recycling of 15,818,470 pounds of covered electronic devices (CEDs), again exceeding their recycling obligation. The vast majority of the weight recycled as part of the program continues to be collected from metropolitan counties in the state.

An analysis of the seven years of the Indiana E-Cycle program reveals that each program year, manufacturers collectively exceeded their recycling obligation, to date recycling a total of 141,373,171 pounds of (CEDs) (actual pounds without incentives) from Hoosier households, small businesses, and public schools. Households, small businesses, and public schools in Indiana are known as covered entities. While baseline data on e-waste recycling rates prior to the passage of the Indiana e-waste law is not available, the Indiana Department of Environmental Management (IDEM) is confident that more e-waste has been recycled in the state since the implementation of the law than would have been recycled otherwise.

Since the implementation of the Indiana e-waste law, both the nature of electronics being sold and purchased have changed significantly. Due to the increase of smaller and lighter electronic devices, the total weight-based recycling obligations for manufacturers have been declining since the program's inception. Demand and cost, however, for the collection and recycling of e-waste in the state has not decreased, meaning that the cost to collect this material is becoming more difficult for e-waste collectors. The cost associated with the collection of e-waste is especially burdensome for cathode ray tube devices, as dwindling markets and lower commodity prices have increased cost for recyclers, which is usually passed down to collectors.

Introduction

The Indiana e-waste law requires that manufacturers of VDDs that offer their products for sale to Indiana households annually register with and report to IDEM. Each year these manufacturers are required to collect and recycle 60 percent (by weight) of the total weight of VDDs they sold to Indiana households during the previous twelve months. They can collect and recycle a broader range of products of any brand to fulfill their obligation.

All collectors and recyclers that collect and recycle CEDs on behalf of a registered manufacturer must also register with and report to IDEM annually. If collectors and recyclers do not register with the program, CEDs collected and recycled cannot be credited toward a manufacturer's recycling obligation.

The law also contains a disposal prohibition, which, as of January 1, 2011, prohibits covered entities from disposing of CEDs with trash that is intended for disposal at a landfill or for disposal by burning or incineration.

Legislative Requirements

This report fulfills the requirements contained in IC 13-20.5-7-4. IDEM is to submit a report concerning the implementation of the Indiana e-waste law to the general assembly, the governor, the Interim Study Committee on Environmental Affairs, and the Indiana Recycling Market Development Board before August 1.

Required content includes:

- A summary of information in the annual reports submitted by manufacturers and recyclers.
- Information regarding the total weight of CEDs recycled.
- The various collection programs used by manufacturers to collect CEDs.
- Information regarding CEDs collected by persons other than registered manufacturers, collectors, and recyclers.
- Information about CEDs, if any, being disposed of in landfills in Indiana.
- A description of enforcement actions under the Indiana e-waste law.

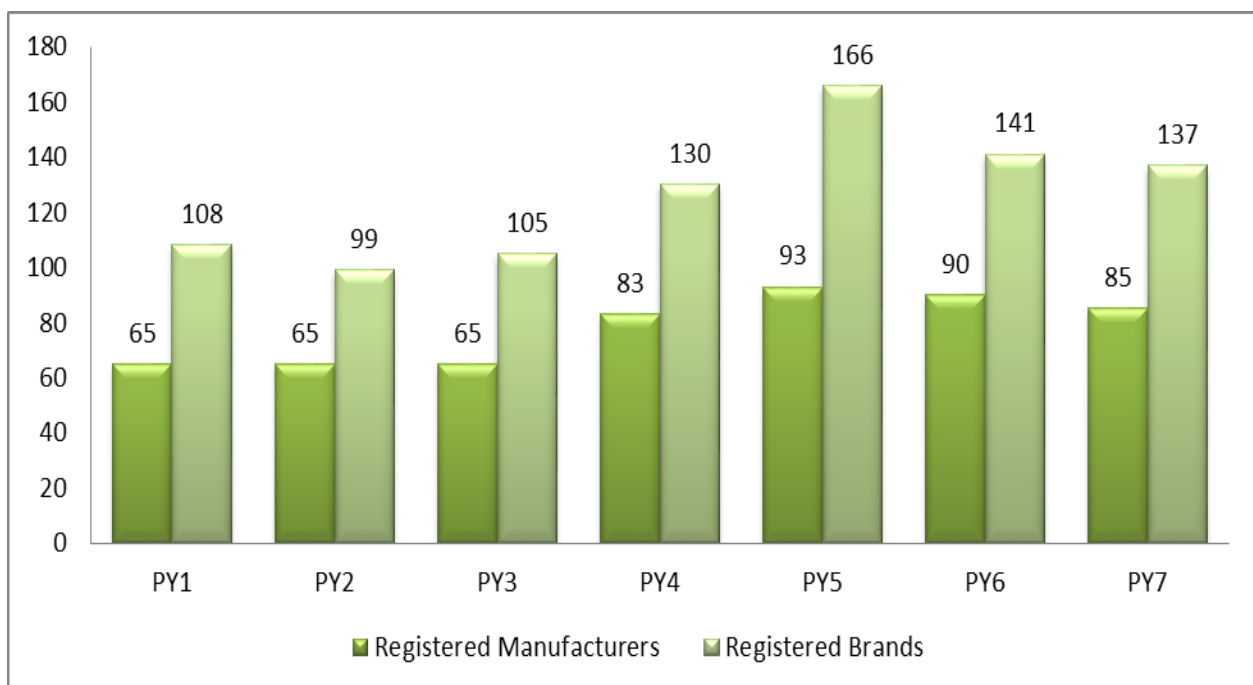
Program Participation

While the number of registered manufacturers and brands remained relatively unchanged from the previous program year, the companies that are registered has varied as new manufacturers enter the market, other manufacturers exit the market, and mergers and acquisitions occur. A total of 85 manufacturers registered with the Indiana E-Cycle Program for PY7. These 85 manufacturers accounted for 137 different brands of devices that are being sold to Indiana households.

IDEM routinely conducts research to determine if companies selling VDDs to Indiana households have failed to register with the program. The agency contacts these manufacturers to inform them of the registration requirement.

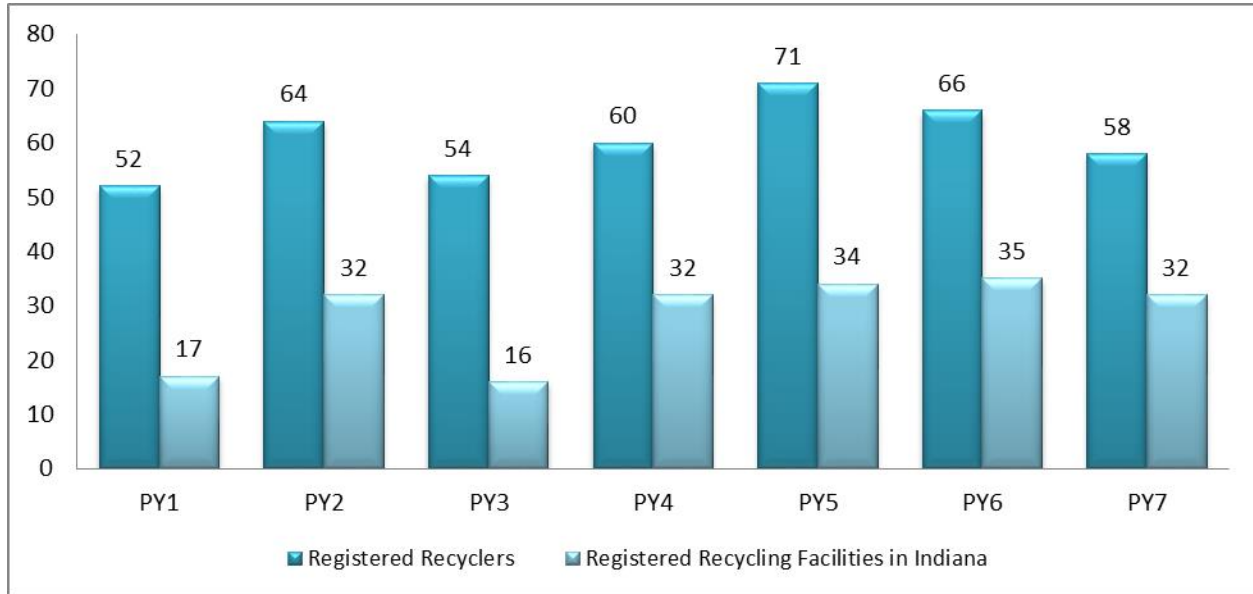
Manufacturers that have sold more than 100 units of VDDs to Indiana households, during the previous year, are required to pay a \$5,000 registration fee for the first program year they register and a \$2,500 registration fee each year thereafter for which their sales were above the 100 unit threshold.

Figure 1: Registered Manufacturers and Brands



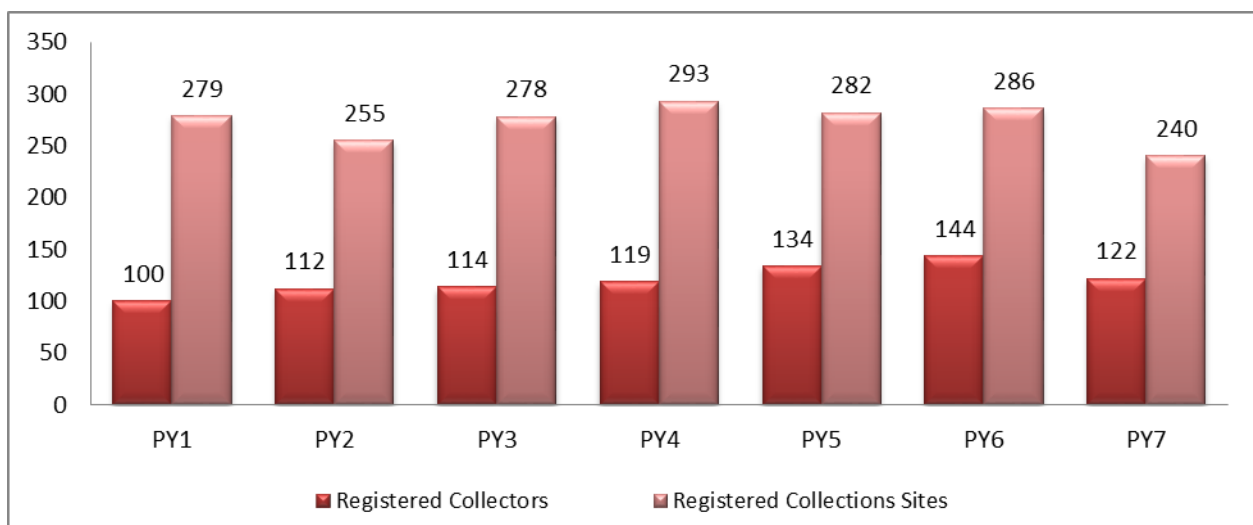
For each of the first seven program years, the majority of registered recyclers have also been registered collectors. The number of registered recyclers for PY7 decreased slightly from the previous program year. The primary explanation for this decrease can be explained by better quality assurance checks within the program, especially when determining if it is necessary that a recycler register with the program. For PY7, of the 58 registered recyclers, 32 of them are located in Indiana.

Figure 2: Registered Recyclers and Registered Recycling Facilities in Indiana



As shown in **Figure 3**, the number of registered collectors and collection sites decreased from the previous program year. Collectors are not allowed to perform any dismantling of CEDs. Dismantling of CEDs requires registration as a recycler. Most registered recyclers are also registered as collectors; however, most collectors are not also recyclers.

Figure 3: Registered Collectors and Collection Sites



Summary of Information in the Annual Reports Submitted by Manufacturers and Recyclers (Including Total Weight of CEDs Recycled)

The statute allows a 50 percent incentive to be earned for collecting CEDs from non-metropolitan counties in the state and a 10 percent incentive for recycling CEDs at a registered facility in Indiana.

These incentives can be combined; for example, each pound of CED collected from a non-metropolitan county and recycled at an in-state recycling facility is counted as 1.6 pounds recycled. **Figures 4 and 5** show how many pounds of CEDs were recycled by manufacturers registered in PY7 and the previous program years in which annual reports were submitted.

Figure 4: Covered Electronic Devices Recycled by Registered Manufacturers (lbs)

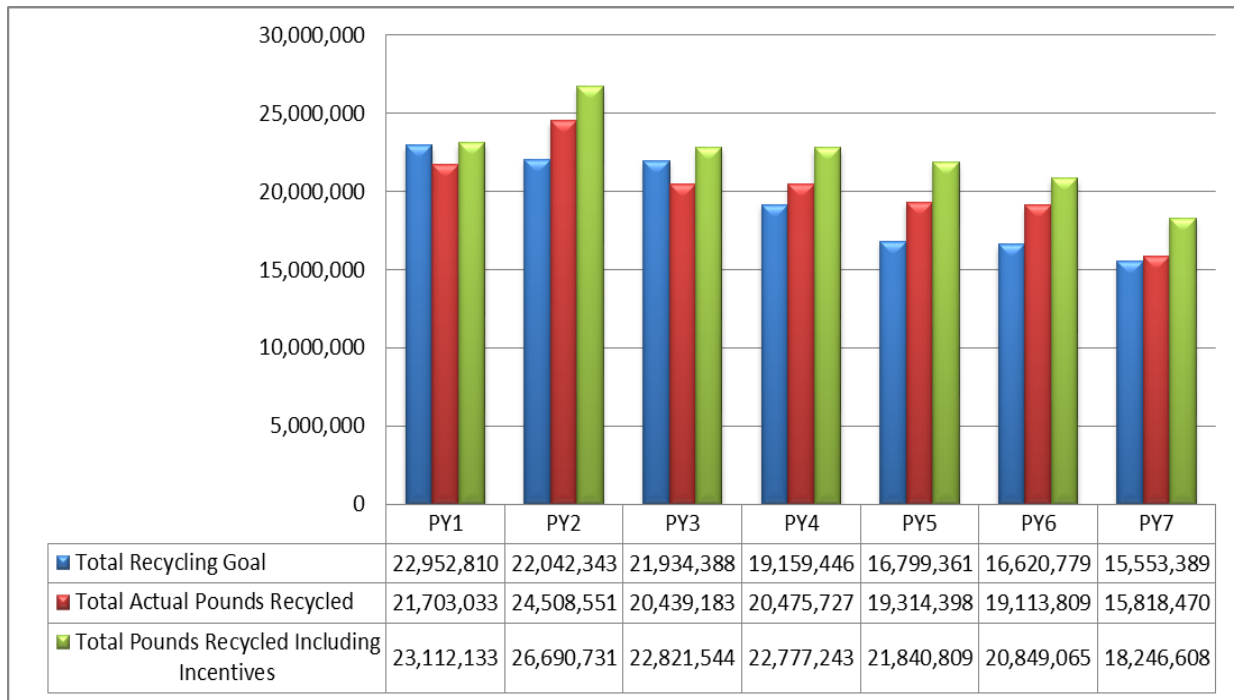
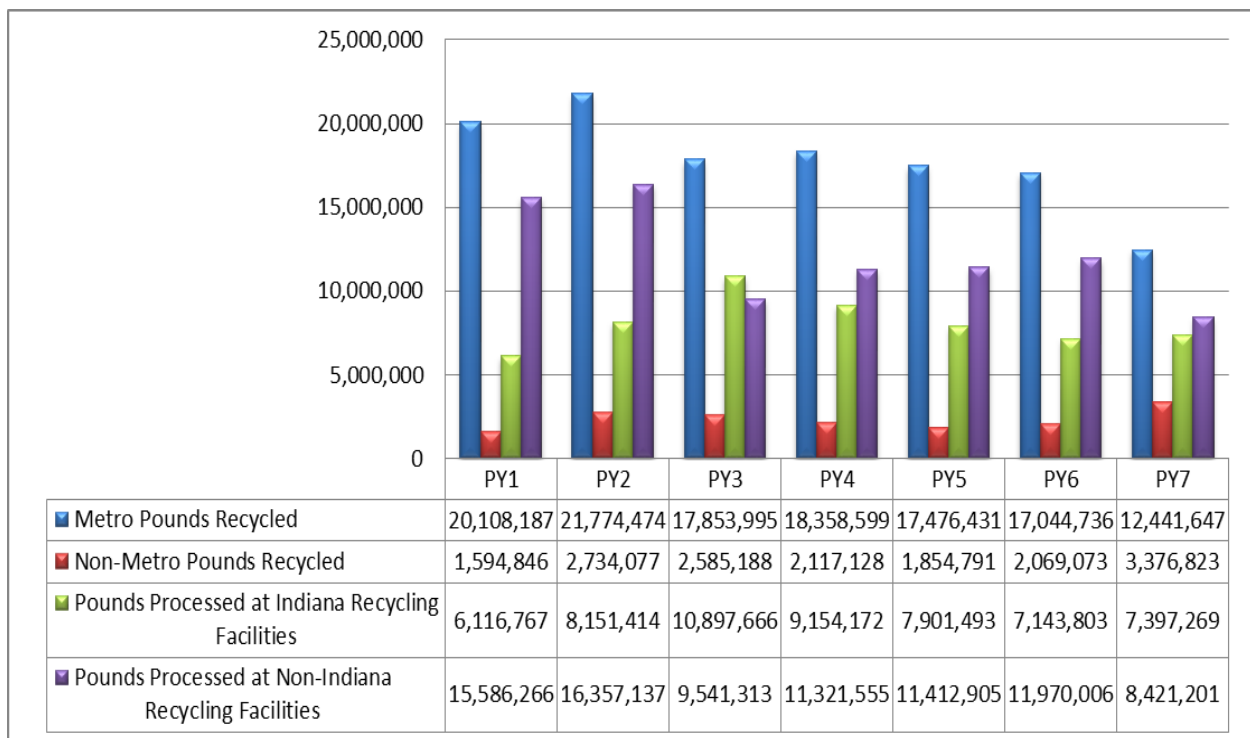


Figure 5: Covered Electronic Devices Recycled by Registered Manufacturers: Details (lbs)



Figures 6 and 7 show how many pounds of CEDs were recycled by recyclers registered in PY7 and the previous program years. There continues to be more e-waste being recycled than what registered manufacturers are responsible for recycling.

Figure 6: Covered Electronic Devices Recycled by Registered Recyclers (lbs)

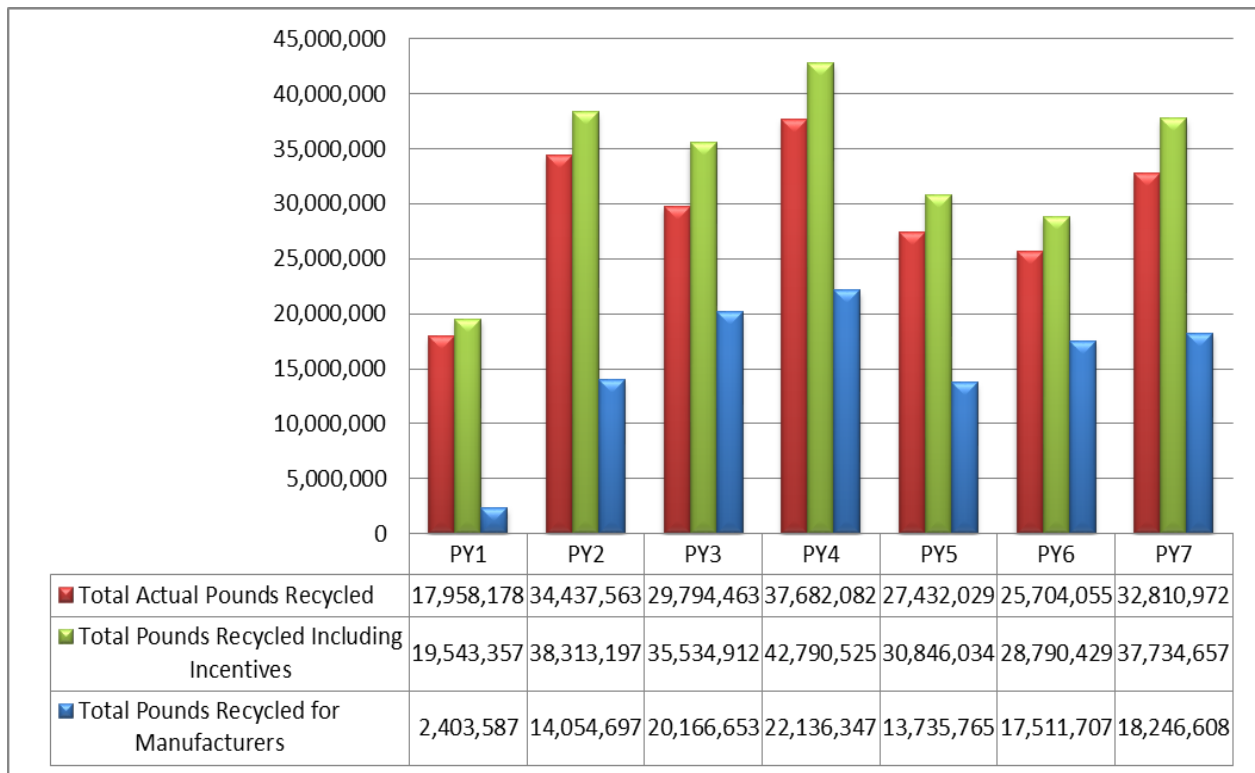
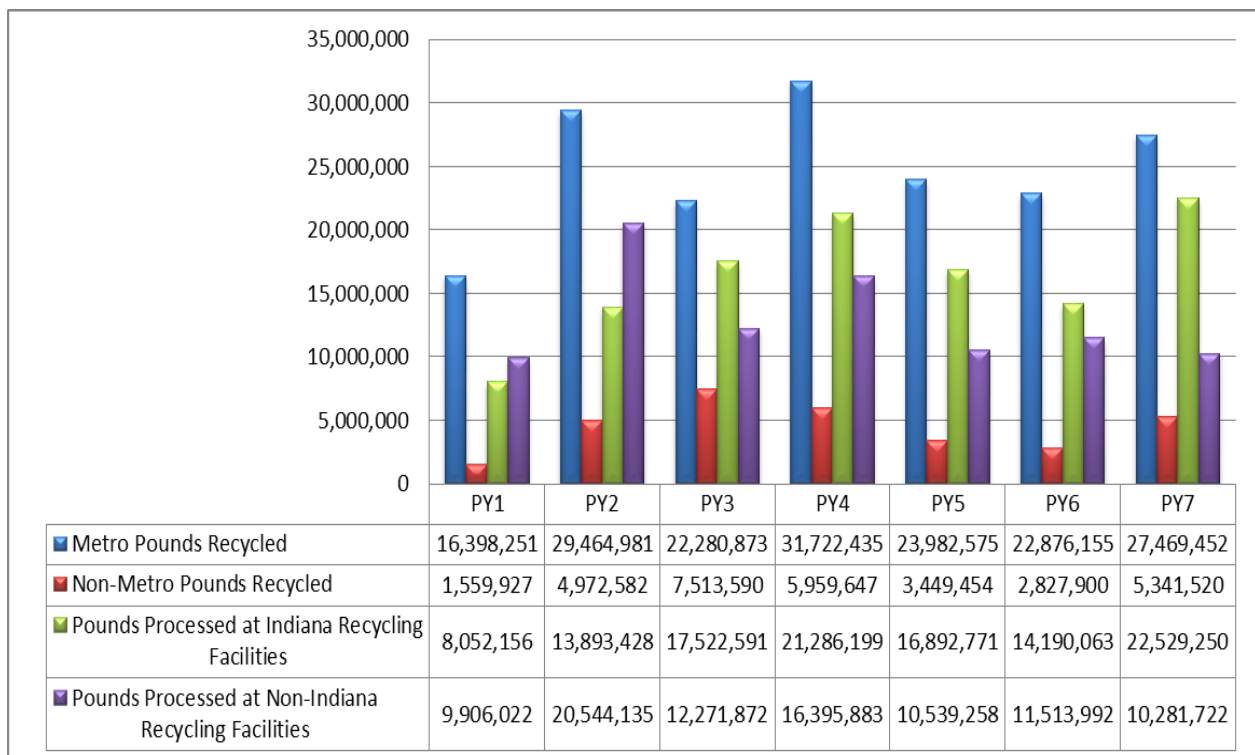


Figure 7: Covered Electronic Devices Recycled by Registered Recyclers: Details (lbs)



Based on the reporting trends, the amount of CEDs recycled in Indiana will continue to exceed the amount of CEDs that manufacturers are responsible for recycling given that new VDDs are becoming lighter than older CEDs. In addition, the list of items that meet the definition of CED is more extensive than the list of items that are defined as VDDs. Lastly, manufacturers' recycling obligations are based solely on their sales of VDDs to households, while CEDs collected to meet their recycling obligations can come from households, small businesses, and public schools.

The results of Indiana E-Cycle in terms of pounds of e-waste recycled per resident are as follows:

	<u>Lbs/Capita (Actual Pounds)</u>	<u>Lbs/Capita (Including Incentives)</u>
PY1	3.35	3.56
PY2	3.78	4.12
PY3	3.13	3.49
PY4	3.12	3.47
PY5	2.93	3.31
PY6	2.89	3.15
PY7	2.38	2.75

If a manufacturer exceeds their recycling obligation, 25 percent of the excess pounds are converted to recycling credits that can be used by the manufacturer in any of the three immediately following program years or sold to another manufacturer. Manufacturer credit details are as follows:

	<u>Credits Earned</u>	<u>Credits Bought/ Sold</u>	<u>Credits Used</u>	<u>Credits Expired</u>	<u>Credits Retained</u>	<u>Manufacturers Holding Credits</u>
PY1	1,074,733	0	n/a	n/a	1,074,733	18
PY2	1,623,705	0	19,253	n/a	2,653,837	23
PY3	555,630	0	116,758	n/a	3,090,762	26
PY4	967,292	87,256	104,592	809,875	3,039,188	37
PY5	1,174,168	246,957	808,867	586,136	2,579,219	29
PY6	1,057,072	0	128,070	465,811	3,024,254	25
PY7	673,305	179,919	65,531	698,386	3,170,225	24

Various Collection Programs Used by Manufacturers to Collect CEDs

Manufacturers registered with Indiana E-Cycle utilize three types of collection programs to fulfill their recycling obligations:

1. Permanent collection sites
2. Temporary/special collection events
3. Manufacturer take-back programs

Multistate Collaboration

The Indiana E-Cycle Law permits IDEM to participate in and join regional multistate organizations or compacts to assist in implementing the article. IDEM participates in regular conference calls with other Midwestern states, which are coordinated by the United States Environmental Protection Agency Region 5 office. The majority of the states that participate in the calls also have e-waste laws, most notably, Minnesota and Wisconsin, which have laws comparable to Indiana's. The information shared and the coordination achieved on these calls is valuable in assisting with the implementation of Indiana's law.

Description of Enforcement Actions Under the Indiana E-Waste Law

Manufacturers that do not meet their recycling obligation are subject to a shortfall fee, or a variable recycling fee (VRF). The VRF is calculated as follows:

- Forty cents per pound of shortfall for manufacturers that recycle less than 50 percent of their goal.
- Thirty cents per pound of shortfall for manufacturers that recycle at least 50 percent, but less than 90 percent, of their goal.
- Twenty cents per pound of shortfall for manufacturers that recycle at least 90 percent of their goal.

Eight manufacturers were required to pay a shortfall fee for PY6, resulting in \$4,722.60 for a total shortfall of 11,855 pounds. For PY7, three manufacturers will be required to pay a shortfall fee for a total amount of \$1,439.80.

Manufacturers that were exempt from the registration fee for PY7, because they sold less than 100 units of VDDs to households during PY6, are exempt from the VRF.

Discussion of Results

Indiana's E-Cycle Program is comprised of collectors, recyclers, and manufacturers. PY7 marked the first year that an online reporting system was available for stakeholders to complete their registration and annual report. Previously, stakeholders completed their registration and annual report by filling out a paper form. Each registered stakeholder in the program completed their registration and annual report through this new online format. Below is a brief discussion of results for each stakeholder group within the Indiana E-Cycle Program.

Collectors:

For PY7, there were a total of 122 collectors that registered with the program. This figure is slightly lower than the past several years, and this decrease may be due to better quality assurance and understanding of what facilities need to register with the program. As these quality assurance checks were conducted, it was discovered that some facilities had been registering with the program, even though they were not collecting e-waste, and never had previously collected it. Upon this realization, it was determined that these facilities did not need to register with the program, which in turn reduced the number of registered collectors for the program year.

For PY7, collectors reported collecting 36,872,113 pounds of CEDs. Of this total, 30,409,917 came from metropolitan counties, while 6,462,196 came from non-metropolitan counties. Of the total CEDs collected for the program year, 11,556,734 came from Indiana Solid Waste Management Districts (SWMDs), while

the remaining 25,315,379 came from other entities. Indiana SWMDs have proven to be a valuable resource for collecting these CEDs, especially in non-metropolitan areas in Indiana. For the program year, SWMDs jointly collected 5,103,092 pounds of CEDs from non-metropolitan areas, while also collecting 6,453,642 from metropolitan areas in Indiana. For the program year, SWMDs accounted for roughly 80 percent of all CEDs collected from non-metropolitan areas in Indiana.

Recyclers:

For PY7, 58 recyclers registered with the program, with 32 of them being located in Indiana. This figure is slightly lower than the past several years, and this decrease can be explained by the implementation of better quality assurance and understanding of what facilities need to register with the program. As was discussed above regarding collectors, it was discovered that some facilities had been registering with the program, even though they were not recycling e-waste, and never had previously recycled it. Upon this realization, it was determined that these facilities did not need to register with the program, which in turn reduced the number of registered recyclers for the program year.

Recyclers reported recycling 32,810,972 pounds of CEDs for the program year. Of this total, 27,469,452 came from metropolitan counties, while 5,341,520 came from non-metropolitan areas. It should be mentioned that the difference between the total amount collected by collectors and the total amount recycled by recyclers largely pertains to material that was sent out of the state. Another factor contributing to this collection and recycling difference is that not all CEDs that were collected for the program year were processed by the recycler prior to the report being due.

As was addressed in above figures 4 and 5, a 50 percent incentive can be earned for collecting CEDs from non-metropolitan counties in the state and a 10 percent incentive is earned for recycling CEDs at a registered facility in Indiana. For PY7, recyclers earned 4,923,685 in total incentives, which brings the total amount of CEDs recycled by recyclers for the program year to 37,734,657 pounds. There was an increase of 7,106,917 pounds of CEDs that were reported as being recycled by registered recyclers this program year compared to the previous program year. The increase in the amount of CEDs that were reported being recycled for the program year compared to the last several years is partially due to several large e-waste recycling facilities reporting data that had not reported in previous years.

Recyclers collectively recycled 15,818,470 pounds of CEDs on manufacturer's behalf before the inclusion of incentives.

Manufacturers:

For PY7, 85 manufacturers registered with the program. Five fewer manufacturers registered this year than in the previous program year. The primary explanation for this decrease is due to mergers and several manufacturers discontinuing their operation. For the program year, manufacturers collectively had a recycling obligation of 15,553,389 pounds. Manufacturers surpassed this recycling obligation by recycling 15,818,470 pounds of CEDs before incentives, and this figure increased to 18,246,608 pounds after the inclusion of incentives. This marks the seventh consecutive year that manufacturers have over-recycled upon their recycling obligation.

Manufacturer's recycling obligations decreased by 1,067,390 pounds from PY6 to PY7. The amount of e-waste that registered manufacturers are responsible for recycling each year is determined based on the weight of products they sold during the previous year. With the continued light-weighting of products (products getting smaller and/or weighing less) and changes in the types of products that are being purchased (e.g., tablets instead of laptops), the total amount of CEDs that registered manufacturers are responsible for recycling has decreased from 22.9 million pounds in PY1 to 15.6 million pounds in PY7; despite having 20 more manufacturers registered in PY7 than in PY1. The demand for e-waste collection and recycling in the state, however, has not decreased, meaning that the cost of collection is increasingly burdensome to e-waste collectors including solid waste management districts.

Credits played a relatively minor role in helping to achieve manufacturer's recycling obligation for the program year. 65,531 credits were used for the program year, while 698,386 credits expired.

Conclusion

Indiana's E-Cycle Program has achieved numerous successes since it took effect in 2009, most notably helping to allow for over 205 million pounds of covered electronic devices to be recycled. Indiana has had the benefit of having a large number of collectors register with the program, which allows Indiana residents the ability to have numerous options in regards to recycling their electronic devices.

IDEM is determined to provide accurate data regarding the collection and recycling of electronics. Recent modifications and a streamlined approach, coupled with an online reporting format, has assisted IDEM with achieving this goal. As the program continues to grow and develop, a more refined understanding of the regulated community will arise, as well as the continued practice and development of efficient data collection.