



Indiana E-Cycle 2018 Report

Indiana Department of
Environmental Management

Office of Program Support

November 1, 2018

Overview of Indiana E-Cycle Program data reported by registered collectors, recyclers, and manufacturers for Program Year 8.



Collected televisions ready to be recycled at facility located in Indianapolis, IN.

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Executive Summary

Indiana's electronic waste (e-waste) law (IC 13-20.5) has recycled successfully over 250 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 25 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.

This report will examine the last eight years of the program as well as provide the required annual information mandated by the Indiana legislature. For example, highlighting Program Year 8 (PY8), manufacturers collectively funded the recycling of 14,764,900 pounds of covered electronic devices (CEDs). The vast majority of the weight recycled as part of the program continues to be collected from metropolitan counties in the state, as opposed to non-metropolitan counties.

An analysis of the eight years of the Indiana E-Cycle program reveals that each program year, manufacturers collectively exceeded their recycling obligation. To date, a total of 156,138,071 pounds of CEDs (actual pounds without incentives) from Hoosier households, small businesses, and public schools has been recycled. 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.

Manufacturer's collective recycling obligations for PY8 did not fluctuate as much as previous years. 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 had been declining since the program's inception. Demand, however, for the collection and recycling of e-waste in the state has not decreased, and the cost to collect this material is becoming more difficult for e-waste collectors. The cost associated with the collection of cathode ray tube devices is especially burdensome, as dwindling markets and lower commodity prices have increased cost for recyclers, which ultimately get passed down to collectors. IDEM is exploring the possibility of establishing new and alternative methods and programs in an effort to lessen these collection costs.

Introduction

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. The 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 VDDs they sold to Indiana households during the previous twelve months. They can collect and recycle a broader range of products of any brand, known as CEDs, 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 November 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 that are being 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.

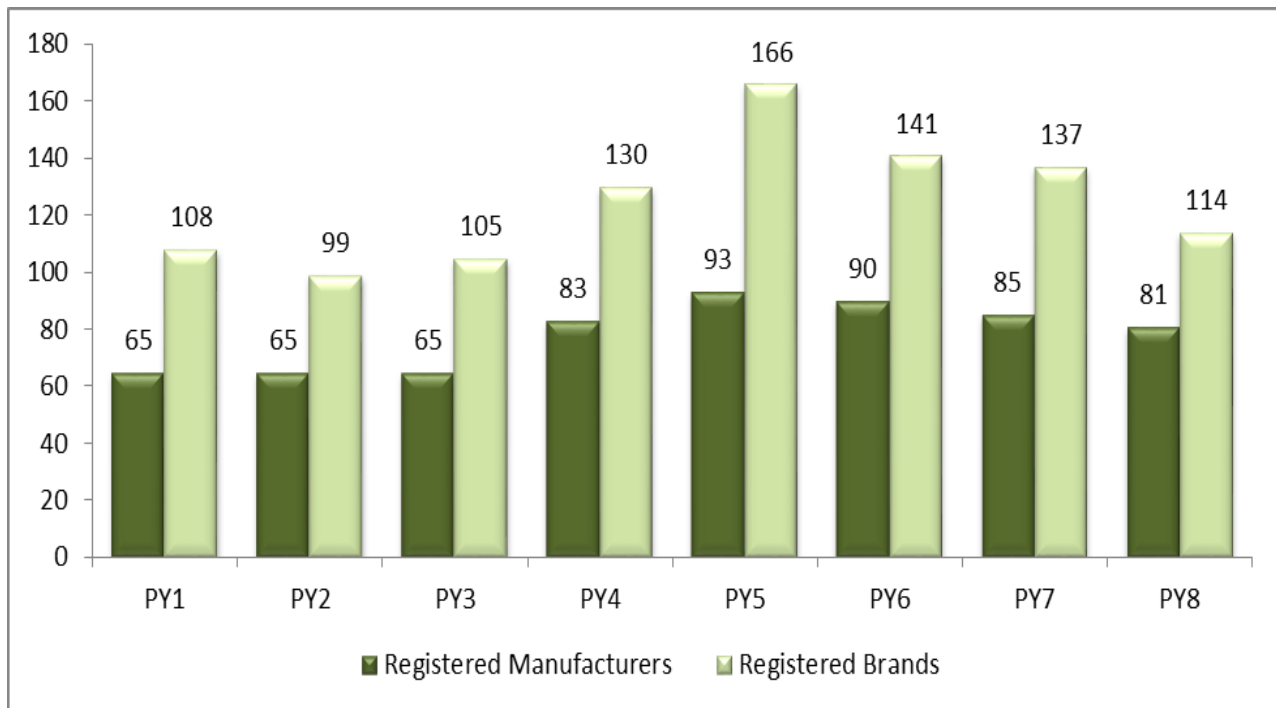
Program Participation

While the number of registered manufacturers and brands remained relatively unchanged from PY7, 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 81 manufacturers registered with the Indiana E-Cycle Program for PY8. These 81 manufacturers accounted for 114 different brands of devices that are being sold to Indiana households.

IDEM routinely conducts research to determine which companies selling VDDs to Indiana households have failed to register with the program. These manufacturers are contacted and informed of the registration requirement and provided with a registration form.

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.

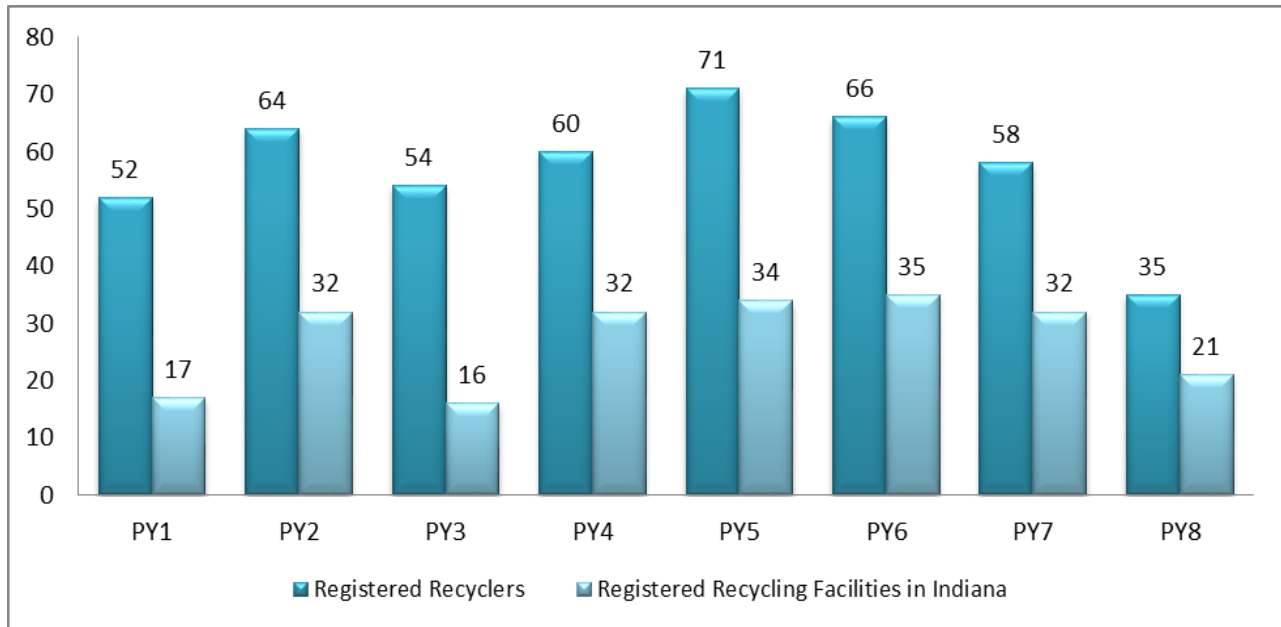
Figure 1: Registered Manufacturers and Brands



For each of the first eight program years, the majority of registered recyclers have also been registered collectors. The number of registered recyclers for PY8 decreased by 60 percent from PY7. For PY8, of the 35 registered recyclers, 21 of them are located in Indiana. The decrease in the number of registered

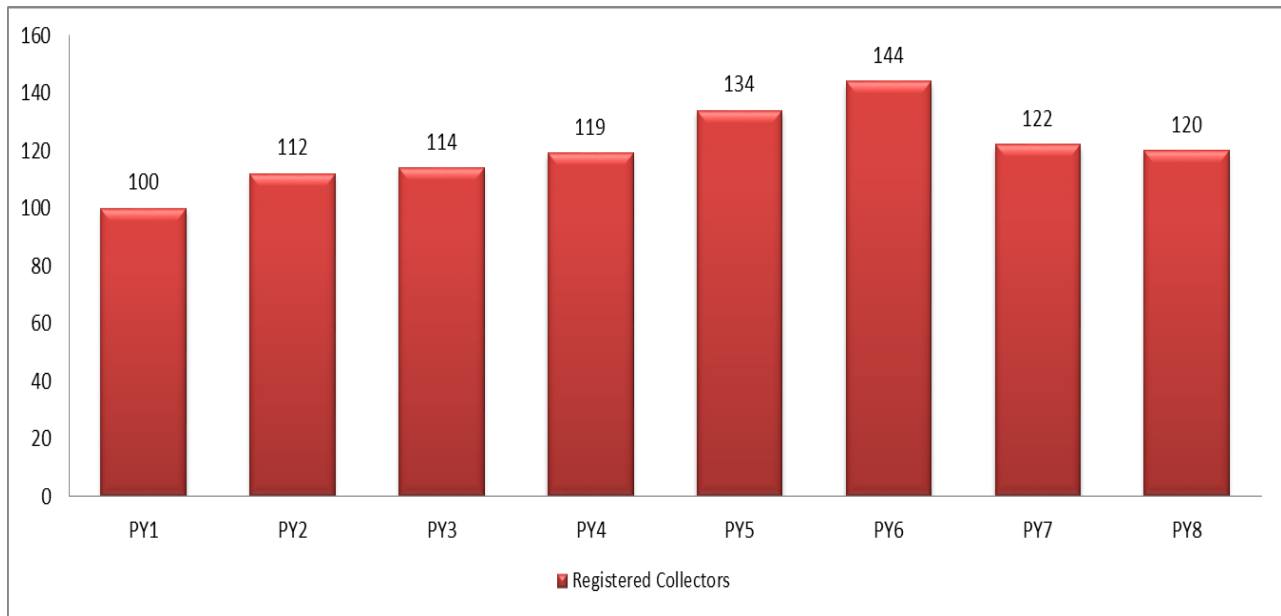
recycler facilities is likely due to better quality assurance and understanding of what facilities need to register with the program. Through outreach and research, it had become apparent that previously registered recycler facilities were inappropriately registering with the program.

Figure 2: Registered Recyclers and Registered Recycling Facilities in Indiana



As shown in **Figure 3**, the number of registered collectors for PY8 slightly decreased from PY7. 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



Manufacturer and Recycler Annual Report Summaries (Including Total Weight of CEDs Recycled)

A 50 percent incentive is 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. 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, 5, and 6 show how many pounds of CEDs were recycled by manufacturers registered in PY8 and the previous program years in which annual reports were submitted.

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

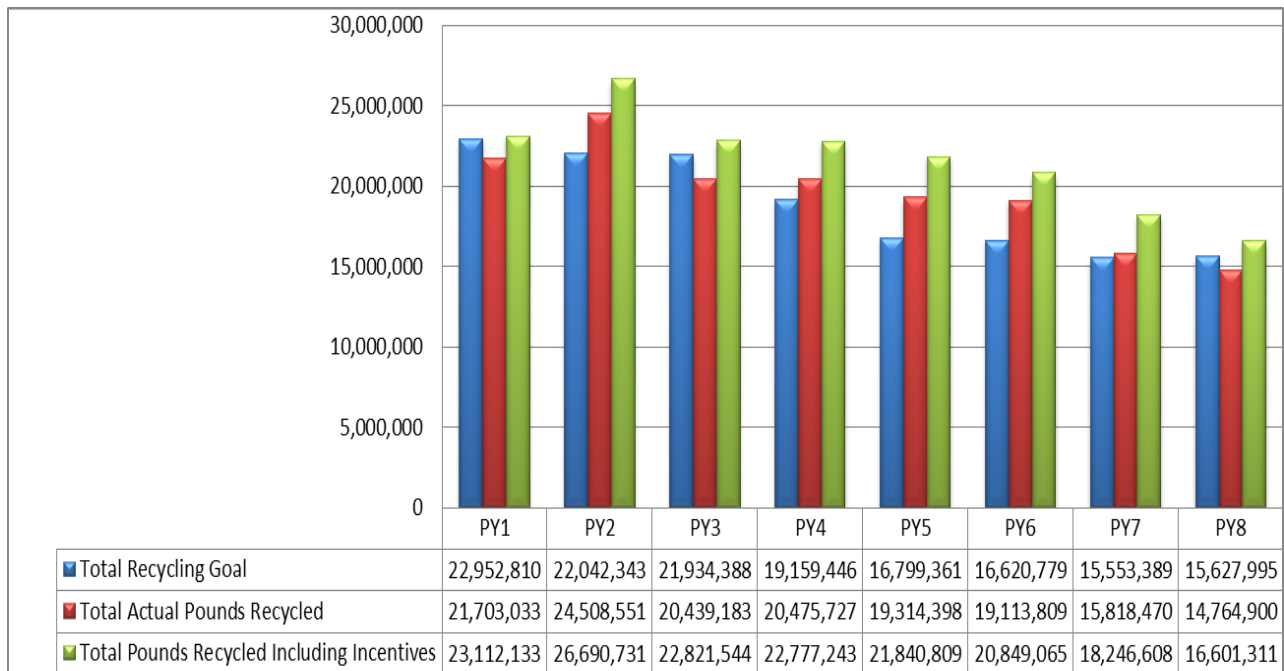


Figure 5: Covered Electronic Devices Recycled by Registered Manufacturers: Details (lbs)

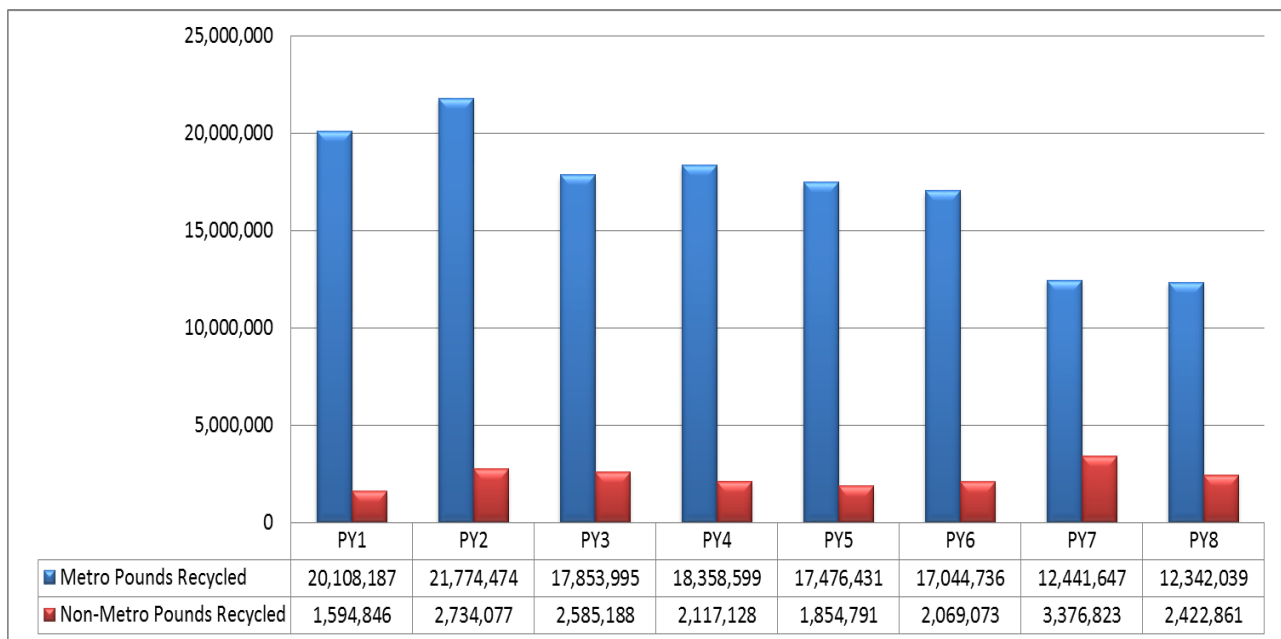
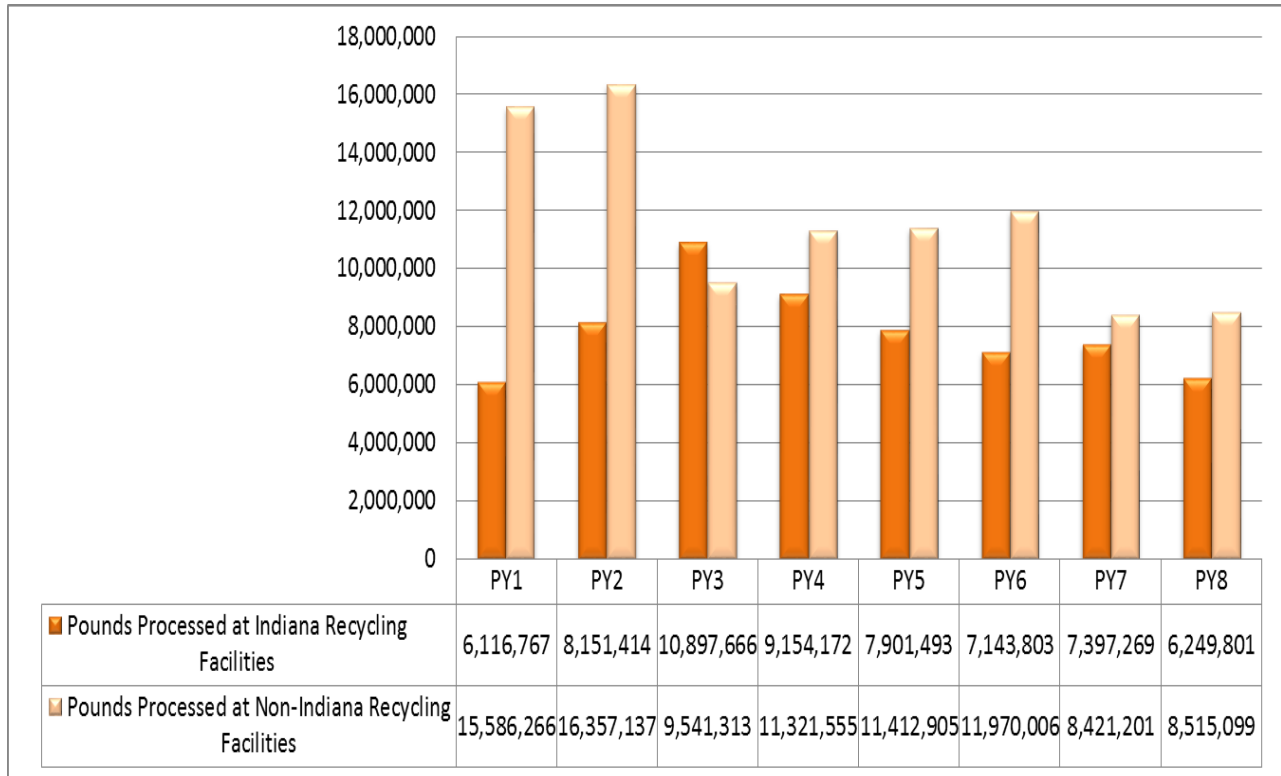


Figure 6: Covered Electronic Devices Recycled by Registered Manufacturers: Details (lbs)



Figures 7, 8, and 9 show how many pounds of CEDs were recycled by recyclers registered in PY8 and the previous program years in which annual reports were submitted. There continues to be more e-waste being recycled than what registered manufacturers are responsible for recycling. For PY8, there was a significant increase in pounds recycled by registered recyclers. 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 recycling facilities reporting data that had not reported in previous years, and due to several facilities expanding their recycling operations.

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

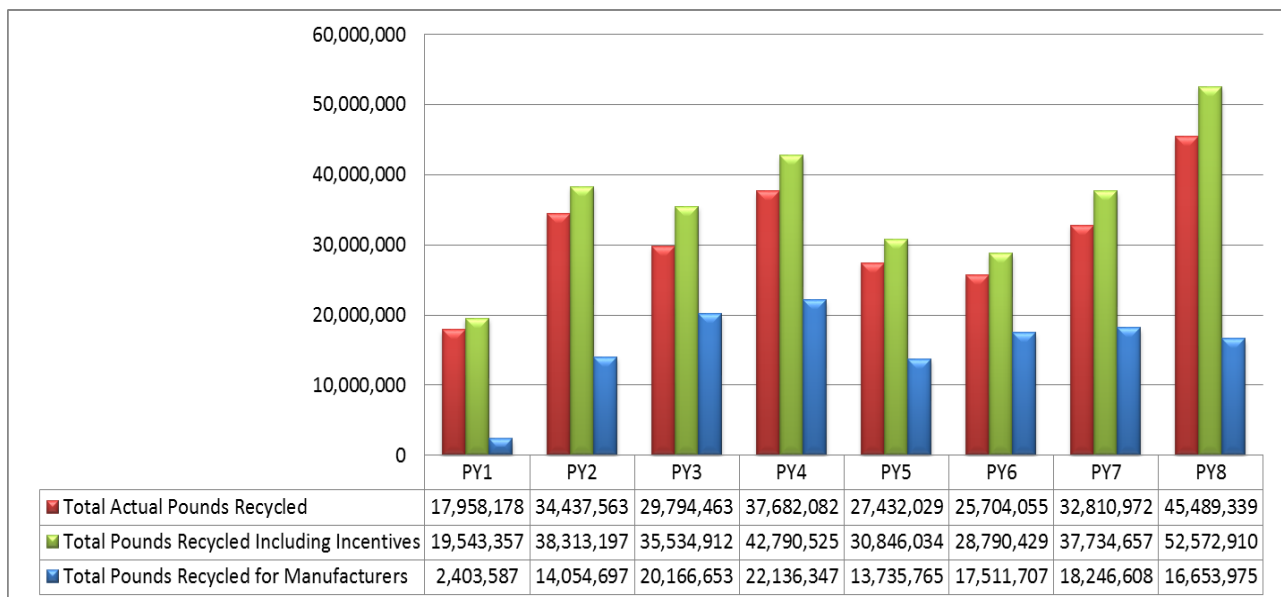


Figure 8: Covered Electronic Devices Recycled by Registered Recyclers: Details (lbs)

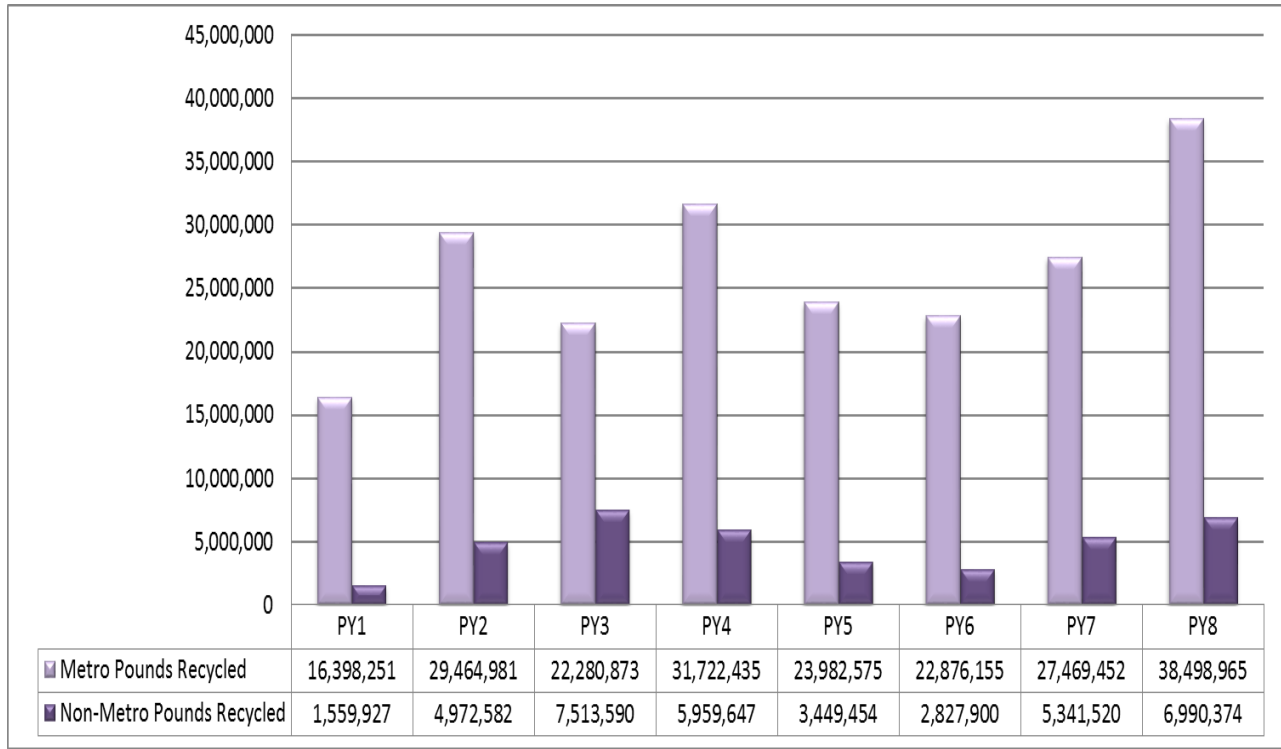
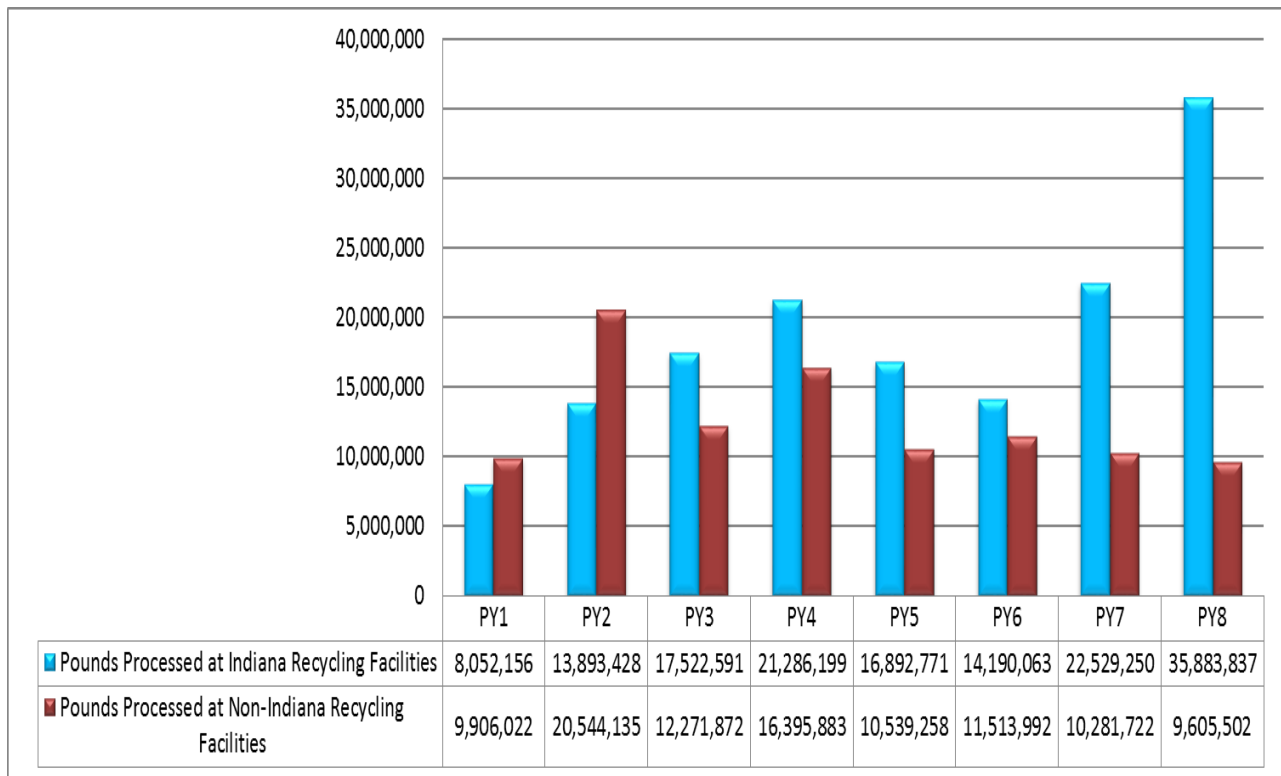


Figure 9: Covered Electronic Devices Recycled by Registered Recyclers: Details (lbs)



Based on the reporting trends, the demand for CED recycling 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 by manufacturer 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
PY8	2.21	2.49

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
PY8	336,481	0	307,559	1,000,579	2,196,005	30

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.

Three manufacturers were required to pay a shortfall fee for PY7, resulting in a fee of \$1,439.80 for a total shortfall of 4,793 pounds. For PY8, seven manufacturers will be required to pay a shortfall fee for a total amount of \$5,078.20.

Manufacturers that were exempt from the registration fee for PY8, because they sold less than 100 units of VDDs to households during PY7, are exempt from the VRF.

There have not been any enforcement actions under the Indiana E-Waste Law.

Discussion of Results

Indiana's E-Cycle Program is comprised of collectors, recyclers, and manufacturers. PY8 marked the second 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 PY8, there were a total of 120 collectors that registered with the program. This figure is slightly lower than the past several years, and this decrease is assumed to be the result of better quality assurance and understanding of what facilities need to register with the program. One goal that was taken on by IDEM was to further educate facilities in an attempt to ensure that registered participants were required to register with the program. Upon completing this goal, it had become apparent that at times registered collection facilities were inappropriately registering with the program, as they were not, nor never had, collected CEDs. Aside from this discovery, the new and improved online reporting tool requires that a facility only register their primary location, and does not require satellite locations to have to register.

For PY8, collectors reported collecting 46,485,050 pounds of CEDs for the program year. Of this total, 39,055,436 came from metropolitan counties, while 7,429,614 came from non-metropolitan counties. Of the total CEDs collected for the program year, 9,708,966 came from Indiana Solid Waste Management Districts (SWMDs), while the remaining 36,827,803 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 3,769,770 out of 7,429,614 pounds of CEDs from non-metropolitan areas, while also collecting 5,939,196 from metropolitan areas in Indiana. For the program year, SWMDs accounted for roughly 50 percent of all CEDs collected from non-metropolitan areas in Indiana.

Issues involving the collection of e-waste still continue to have effects on both public and private collectors. Over the course of the last several years, there has been an increasing concern from collectors over the collection costs of cathode ray tube devices (e.g., televisions & computer monitors). In an effort to lessen these operating costs, IDEM has begun conducting outreach and research on potential solutions to this issue.

Recyclers:

For PY8, 35 recyclers registered with the program with 21 of them being located in Indiana. Both of these figures are 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.

Recyclers reported recycling 45,489,339 pounds of CEDs for the program year. Of this total, 38,498,965 came from metropolitan counties, while 6,990,374 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 PY8, recyclers earned 7,083,571 in total incentives, which brings the total amount of CEDs recycled by recyclers for the program year to 52,572,910 pounds. 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 recycling facilities reporting data that had not reported in previous years, and due to several facilities expanding their recycling operations.

Recyclers collectively recycled 14,764,900 pounds of CEDs on manufacturer's behalf before the inclusion of incentives. After the inclusion of incentives, this figure rose to 16,601,311 pounds of CEDs.

Manufacturers:

For PY8, 81 manufacturers registered with the program. Four fewer manufacturers registered this year than in PY7. 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 15,627,995 pounds. Manufacturers met this recycling obligation by recycling 14,764,900 pounds of CEDs before incentives, and this figure increased to 16,601,311 pounds after the inclusion of incentives. This marks the eighth year that manufacturers have recycled more than their recycling obligation.

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 covered electronic devices that registered manufacturers are responsible for recycling has decreased from 22.9 million pounds in Program Year 1 to 15.6 million pounds in Program Year 8 despite having 16 more manufacturers registered in PY8 than in PY1 of the program. 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 prominent role in helping to achieve manufacturer's recycling obligations for the program year. Nearly 250,000 more credits were used this year, as opposed to the previous year. This program year, IDEM made an effort to make manufacturers more aware of how credits worked within the program, while also explicitly informing each manufacturer of their credit totals. 307,559 credits were used for the program year, while 1,000,579 credits expired.

30 manufacturers retained credits that can be used in upcoming years within the program. It should be mentioned, that even though a large number of manufacturers are holding credits within the program, a majority of these credits being held are of insignificant amounts. Out of the 30 manufacturers that retained credits, only 12 of them retained an amount greater than 1,000 credits.

Conclusion

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. The program has become more efficient and effective since its inception, and this can be observed through action items such the program's online reporting platform along with ensuring only required facilities participate in the program.

IDEM has identified potential areas for improvement within the E-Cycle Program. One potential revision and improvement with the program involves lessening or ending the program's use of the 50 percent incentive that is given for collecting and recycling CEDs from non-metropolitan counties. Many states require manufacturers to arrange for the collection and recycling of 100 percent by weight of the electronic devices they sell within their respective states when recycling obligations are based on weight sold. Indiana, who holds manufacturers responsible for the collection and recycling of 60 percent of the video display devices they manufacture and sell to Indiana households, is on the lower end of the spectrum when compared to other states. The above mentioned 50 percent incentive for recycling from non-metropolitan counties only inflates recycling data being provided by stakeholders within the program, while having the potential to further lessen manufacturers' recycling obligations.

IDEM is determined to provide accurate data regarding the collection and recycling of electronics. Recent modifications and a more streamlined approach, coupled with an online reporting format, has assisted IDEM with achieving accurate data. As the agency continues to better understand the regulated community, the numbers should not only increase, but also remain true to bettering recycling goals throughout the state.