



# Indiana E-Cycle 2019 Report

Indiana Department of  
Environmental Management

Office of Program Support

November 1, 2019

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



*Partially processed electronic devices at facility located in Indiana.*

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## Executive Summary

Indiana's electronic waste (e-waste) law (IC 13-20.5) has assisted in the recycling of over 275 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 (including the District of Columbia) with e-waste legislation and plays an important role in managing the numerous challenges presented by the significant volumes of e-waste generated each year in the United States.

### Covered Electronic Devices (CEDs):

- VDDs (televisions or computer monitors, including laptops, netbooks, notebooks, tablets, and e-readers, that contain a cathode ray tube or flat panel screen with a screen size that is greater than four inches measured diagonally)
- Computers (e.g., computer towers)
- Fax machines
- Peripherals including keyboards, external hard drives, printers, and mice
- An all-in-one printer/copier/scanner or a projector can be considered a peripheral provided that item is designed to be used exclusively with a computer
- DVD players (including gaming systems that are able to play DVDs)
- Video cassette recorders
- Digital photo frames
- Digital media players
- MP3 players
- Camcorders/Cameras
- DVR devices
- Portable GPS navigation systems

This report will examine the last nine years of the program as well as provide the required annual information mandated by the Indiana legislature. For example, highlighting Program Year 9 (PY9), year 2018, manufacturers collectively funded the recycling of 14,621,110 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 nine years of the Indiana E-Cycle program reveals that each program year, manufacturers collectively exceeded their recycling obligation. To date, a total of 170,759,181 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 PY9 did not fluctuate as much as previous years. This year marks the second year that manufacturer's collective recycling

obligation increased from the previous program year. 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 has largely 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

**Household:** occupants of a dwelling located in Indiana who use a VDD at the dwelling primarily for personal use or home office use.

**Small Business:** a business that satisfies all of the following:

- The business is independently owned and operated.
- The principal office of the business is located in Indiana.
- The business satisfies either of the following:
- Has less than 100 employees and average annual gross receipts is under \$10,000,000.

**Public School:** a K-12 public school or charter school.

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 combat 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.

### **Manufacturer:** a person that:

- Manufactures VDDs to be sold under the person's own brand or a brand the person licenses as identified by the person's own brand label or the brand label the person licenses;
- Sells VDDs manufactured by others under the person's own brand or a brand the person licenses as identified by the person's own brand label or the brand label the person licenses; or
- Assumes the responsibilities and obligations of a manufacturer.

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**Video Display Device (VDD):** a television or computer monitor, including a laptop computer, netbook, notebook, tablet computer, or e-reader, that contains a cathode ray tube or flat panel screen with a screen size that is greater than four inches measured diagonally and is marketed by a manufacturer for use by covered entities.

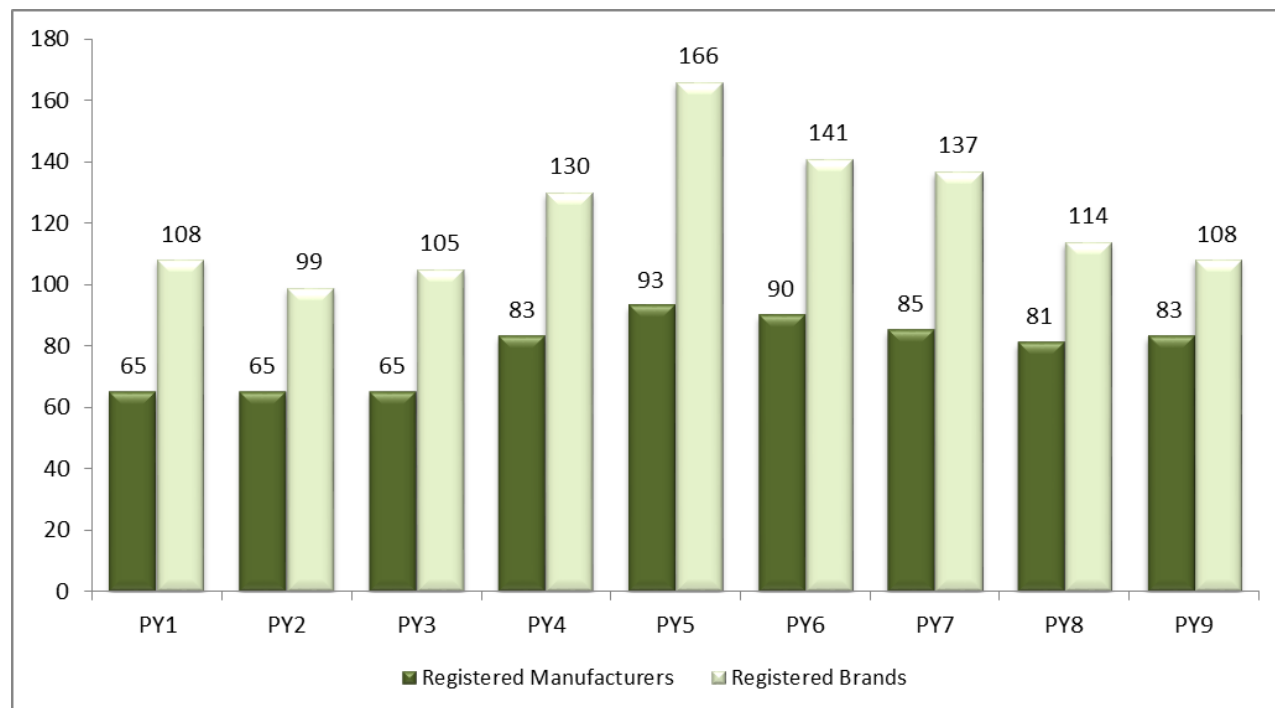
## Program Participation

A registration is required for manufacturers that offer VDDs (televisions, computer monitors, laptops, netbooks, notebooks, tablet computers, and e-readers) for sale to Indiana households. While the number of registered manufacturers and brands remained relatively unchanged from PY8, the companies that are registered has varied as new manufacturers enter the market, other manufacturers exit the market, and mergers and acquisitions occur. As shown in **Figure 1**, a total of 83 manufacturers registered with the Indiana E-Cycle Program for PY9. These 83 manufacturers accounted for 108 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 are provided with instructions on how to register with the program.

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.

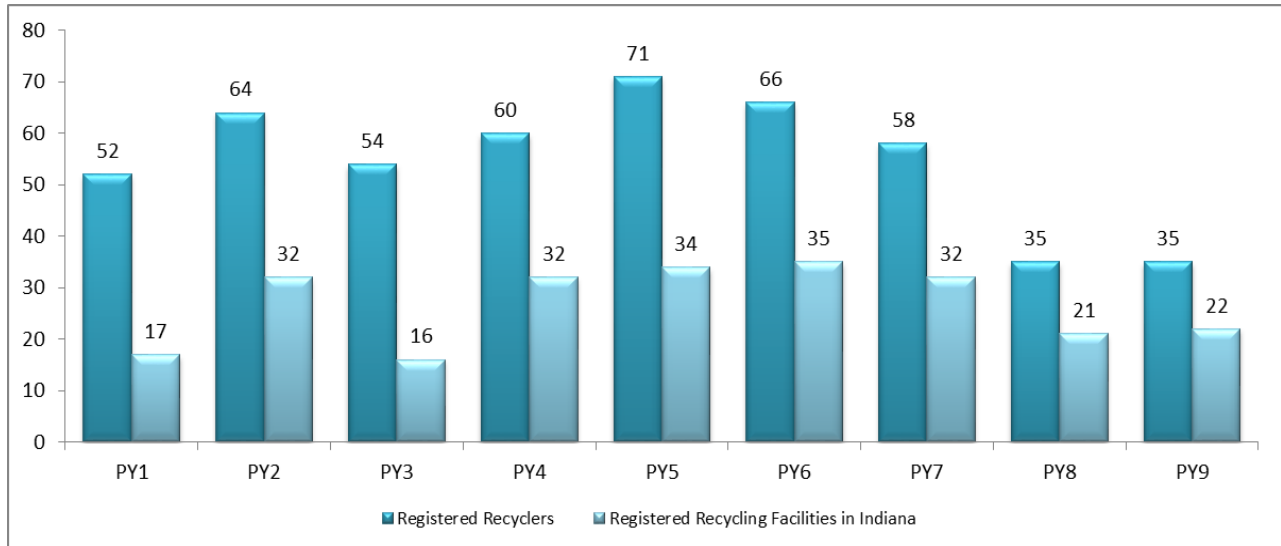
**Figure 1: Registered Manufacturers and Brands**



All recyclers recycling e-waste must be registered with the Indiana E-Cycle Program. The term recycler includes any recycling program (in Indiana or elsewhere) in which CEDs are recycled from covered entities (households, small businesses, and public schools). For each of the first nine program years, the majority of registered recyclers have also been registered collectors. For PY9, of the 35 registered recyclers, 22 of them are located in Indiana. The decrease in the number of registered recycler facilities in years past 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.

**Recycler:** an individual or public or private entity that accepts CEDs from covered entities and collectors for the purpose of recycling.

**Figure 2: Registered Recyclers and Registered Recycling Facilities in Indiana**

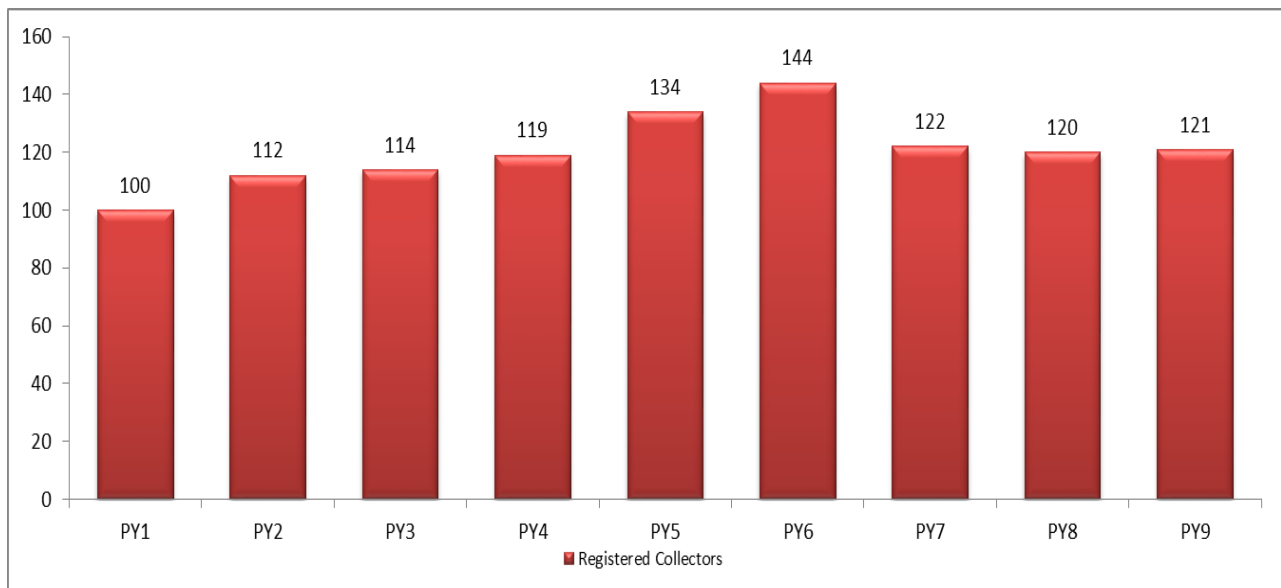


All collectors collecting e-waste must be registered with the Indiana E-Cycle Program. Collectors can include local units of government, solid waste management districts, curbside collection programs, manufacturer mail back programs, and any other collection program (in Indiana or elsewhere) in which CEDs are collected from covered entities (households, small businesses, and public schools in Indiana). As shown in **Figure 3**, the number of registered collectors for PY9 remained relatively unchanged from PY8. 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.

**Collector:** a public or private entity that:

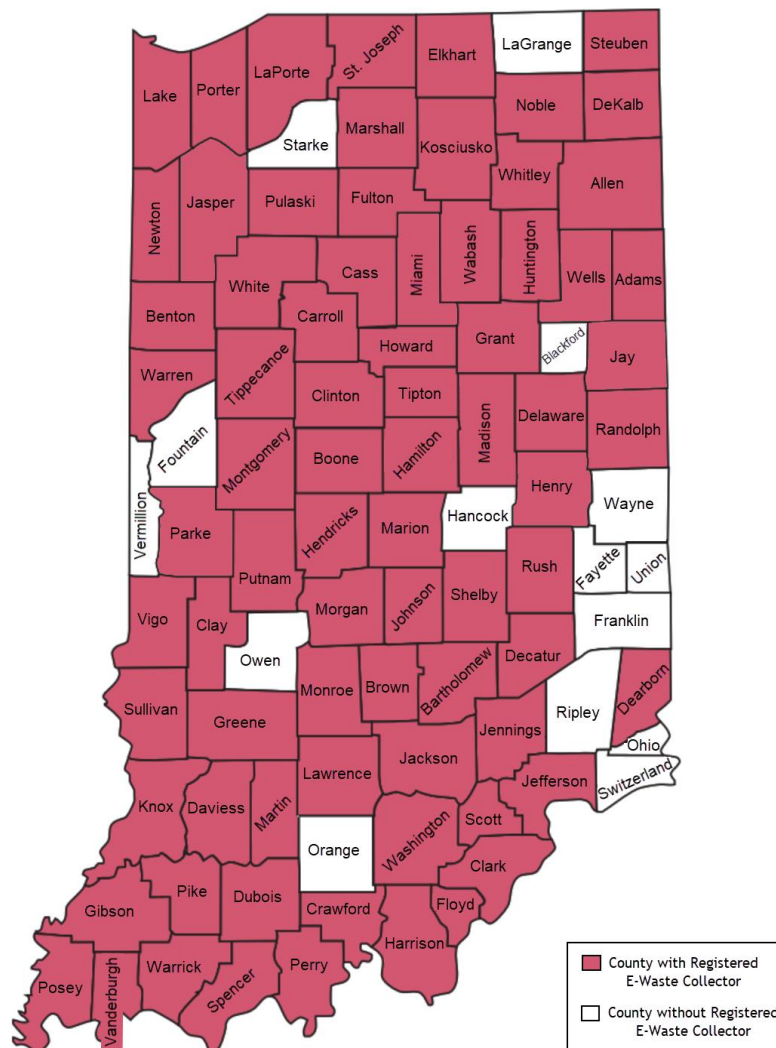
- receives CEDs from covered entities and arranges for the delivery of the CEDs to a recycler; or,
- collects CEDs directly from covered entities, including curbside collection.

**Figure 3: Registered Collectors**



**Figure 4** below displays counties with and without an e-waste collection site. In PY9, there were registered e-waste collection sites in 77 of Indiana's 92 counties. These collection sites include all registered permanent collection locations in the state and some, but not most, temporary and special collection events. Indiana residents have had the benefit of having a large number of collectors scattered throughout the state. This has allowed for more options to residents when it comes to recycling their unwanted electronic devices. The program will continue to attempt to focus on assisting counties with the collection of e-waste.

**Figure 4: Indiana Counties with Registered Collection Sites for PY9**

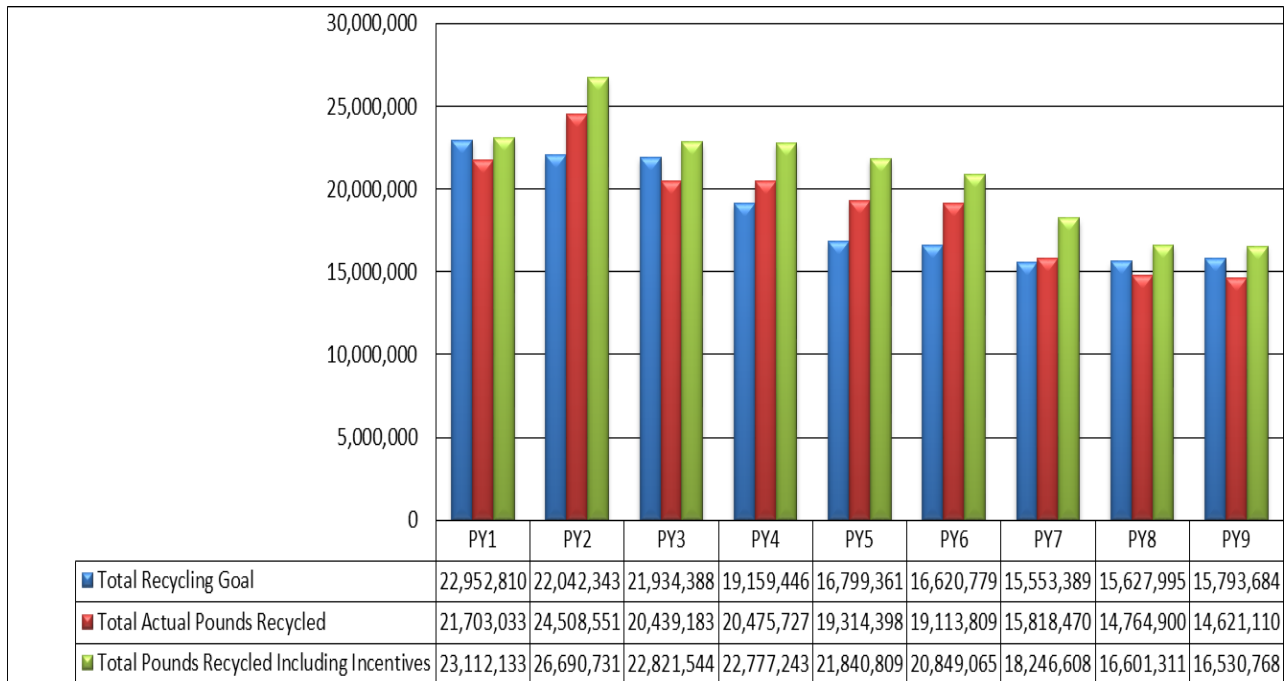


**Manufacturer and Recycler Annual Report Summaries (Including Total Weight of CEDs Recycled)**

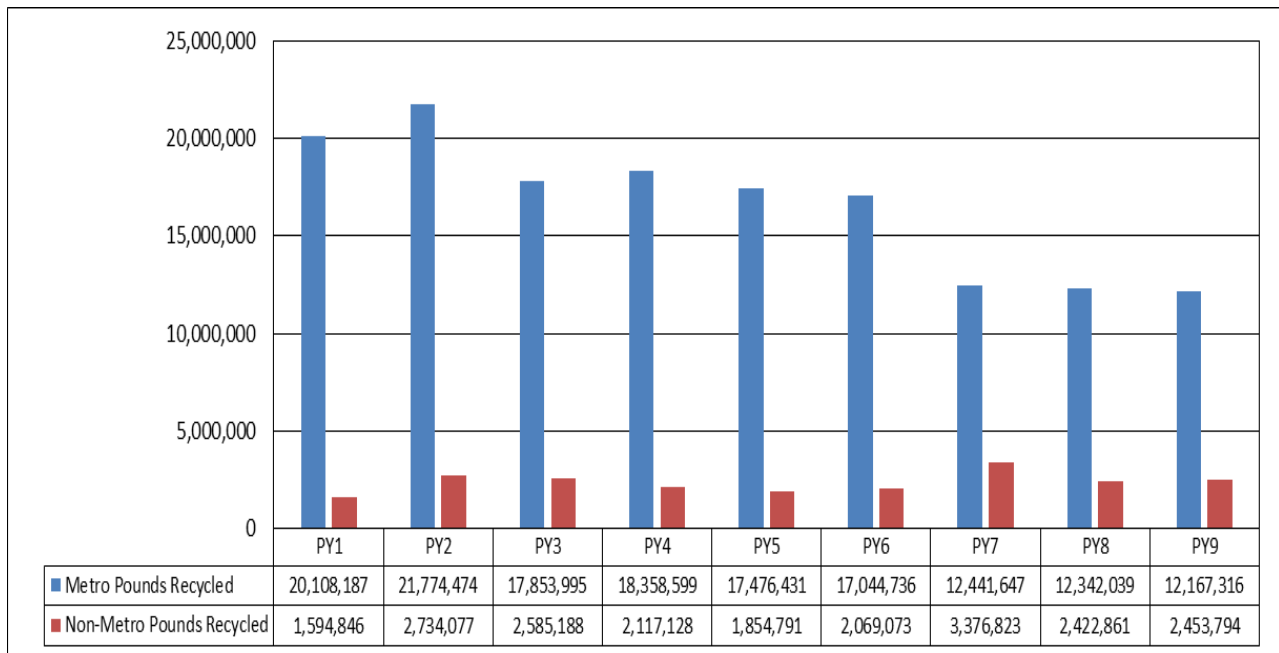
Manufacturers of VDDs (televisions, computer monitors, laptops, netbooks, notebooks, tablet computers, and e-readers that contain a cathode ray tube or flat panel screen with a screen size that is greater than four inches measured diagonally) are responsible for collecting and recycling or arranging for the collection and recycling of 60 percent by weight of the VDDs they manufacture and sell to Indiana households. Manufacturers are able to count the recycling of a variety of CEDs from covered entities toward their recycling obligation.

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. Manufacturers can only utilize collectors and recyclers that are registered with the Indiana E-Cycle Program to fulfill their recycling obligation. This includes collectors and recyclers located outside of Indiana as well as manufacturer mail back programs. Figures 5, 6, and 7 show how many pounds of CEDs were recycled by manufacturers registered in PY9 and the previous program years in which annual reports were submitted.

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

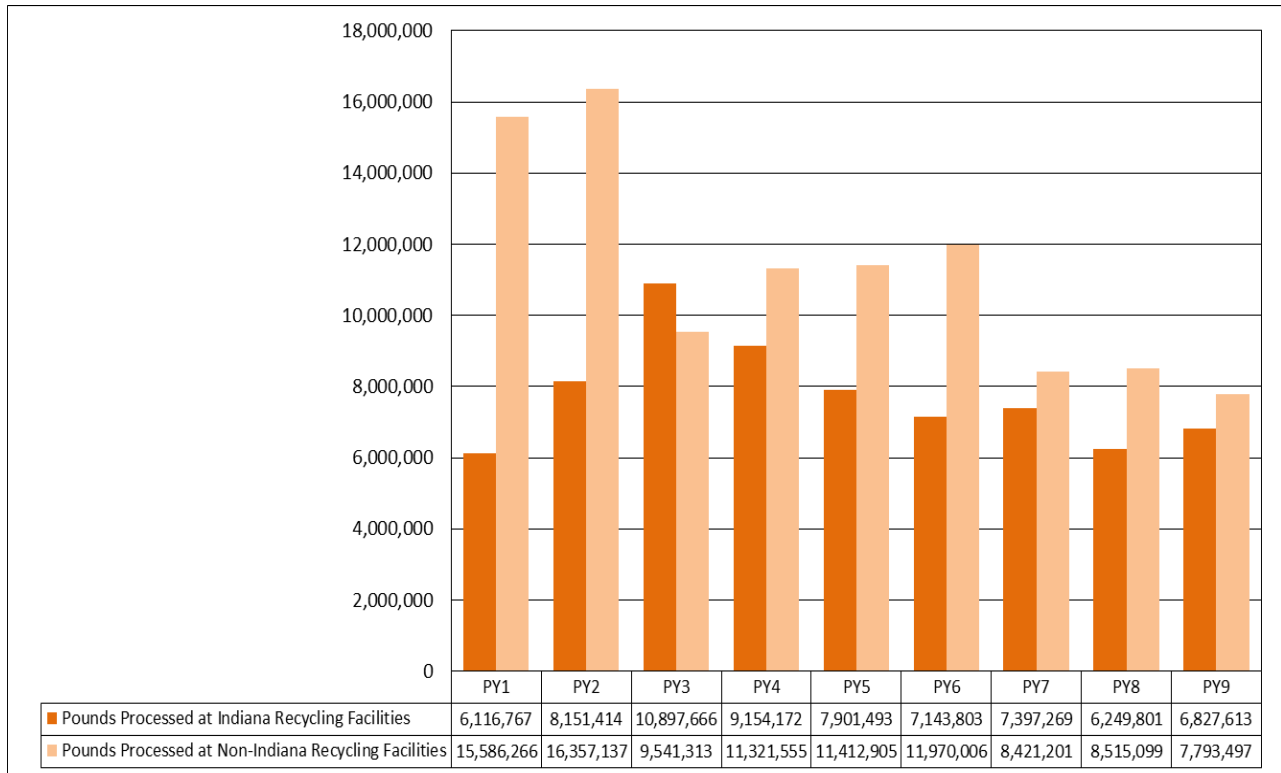


**Figure 6: Covered Electronic Devices Recycled by Registered Manufacturers: Details (lbs)**



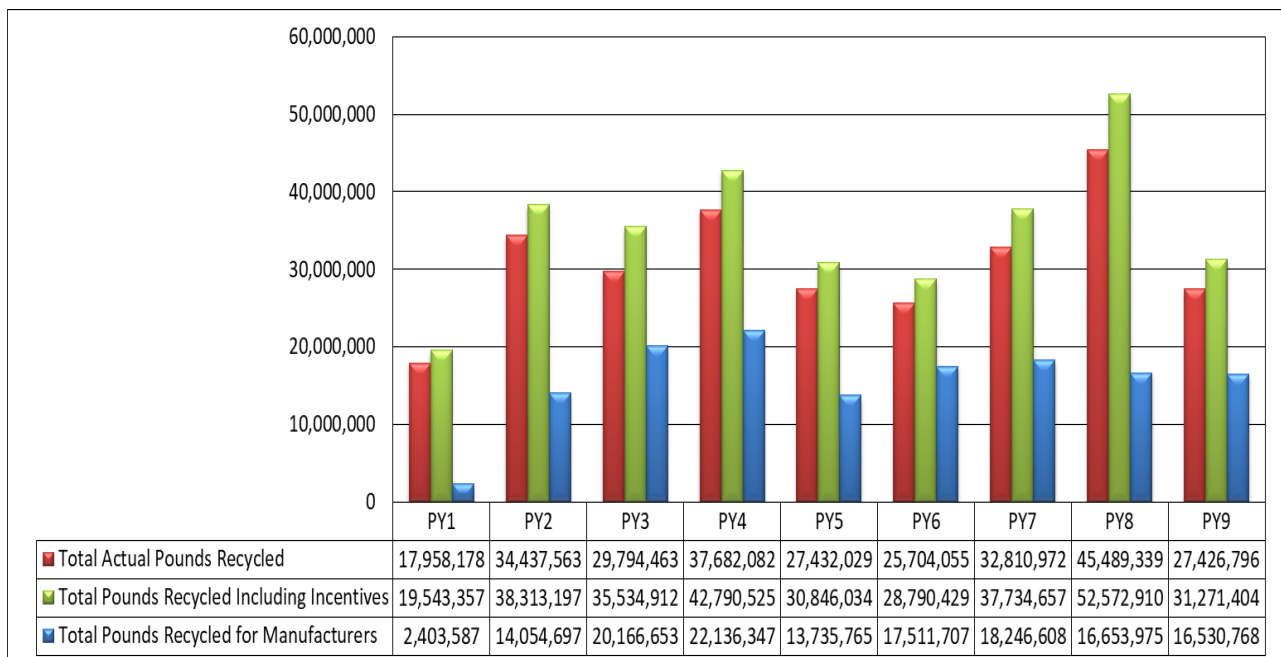


**Figure 7: Covered Electronic Devices Recycled by Registered Manufacturers: Details (lbs)**

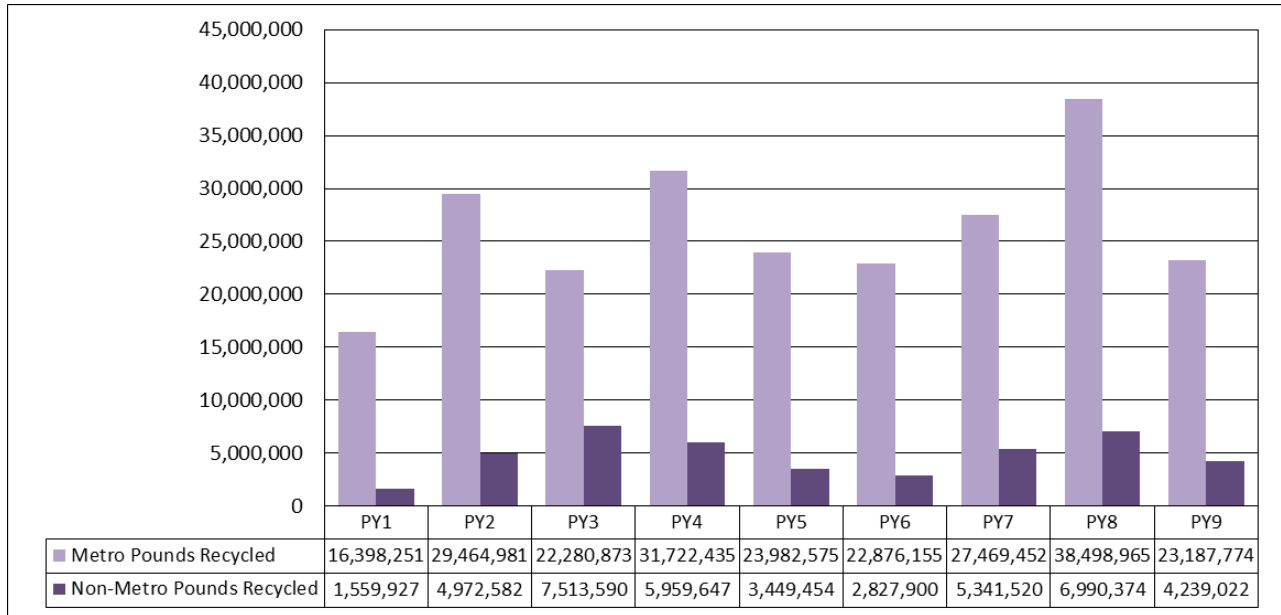


Figures 8, 9, and 10 show how many pounds of CEDs were recycled by recyclers registered in PY9 and the previous program years in which annual reports were submitted. There continues to be more e-waste being recycled than what registered manufacturers are responsible for recycling. For PY9, there was a decrease in pounds recycled by registered recyclers. The decrease in the amount of CEDs that were reported being recycled for the program year compared to the last several years is partially due to better quality assurance and education on the definition of CED.

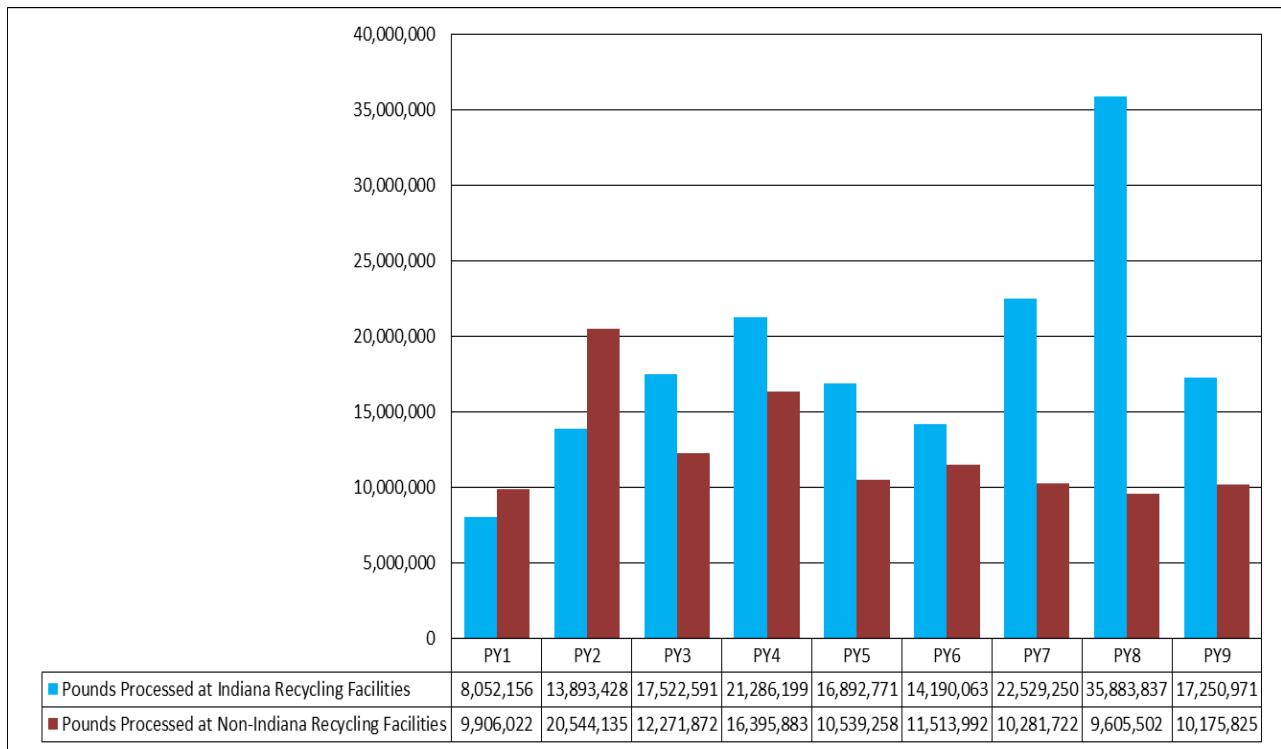
**Figure 8: Covered Electronic Devices Recycled by Registered Recyclers (lbs)**



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



**Figure 10: 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>
<b>PY1</b>	3.35	3.56
<b>PY2</b>	3.78	4.12
<b>PY3</b>	3.13	3.49
<b>PY4</b>	3.12	3.47
<b>PY5</b>	2.93	3.31
<b>PY6</b>	2.89	3.15
<b>PY7</b>	2.38	2.75
<b>PY8</b>	2.21	2.49
<b>PY9</b>	2.18	2.47

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>
<b>PY1</b>	1,074,733	0	n/a	n/a	1,074,733	18
<b>PY2</b>	1,623,705	0	19,253	n/a	2,653,837	23
<b>PY3</b>	555,630	0	116,758	n/a	3,090,762	26
<b>PY4</b>	967,292	87,256	104,592	809,875	3,039,188	37

<b>PY5</b>	1,174,168	246,957	808,867	586,136	2,579,219	29
<b>PY6</b>	1,057,072	0	128,070	465,811	3,024,254	25
<b>PY7</b>	673,305	179,919	65,531	698,386	3,170,225	24
<b>PY8</b>	336,481	0	307,559	1,000,579	2,196,005	30
<b>PY9</b>	217,427	0	114,386	1,084,328	1,214,661	29

### Various Collection Programs Used by Manufacturers to Collect CEDs

Manufacturers registered with the Indiana E-Cycle Program 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.

Seven manufacturers were required to pay a shortfall fee for PY8, resulting in a fee of \$5,078.20 for a total shortfall of 12,696 pounds. For PY9, five manufacturers will be required to pay a shortfall fee for a total amount of \$7,081.20.

Manufacturers that were exempt from the registration fee for PY9, because they sold less than 100 units of VDDs to households during PY8, are exempt from the VRF.

There has 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. PY9 marked the third 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 completing 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 PY9, there were 121 collectors 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 implemented by IDEM was to educate facilities, to ensure that registered participants were actually required to register with the program. Upon completing this goal, it became apparent that some 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 register.

For PY9, collectors reported collecting 30,113,101 pounds of CEDs for the program year. Of this total, 24,500,859 came from metropolitan counties, while 5,612,242 came from non-metropolitan counties. Of the total CEDs collected for the program year, 9,326,176 came from Indiana Solid Waste Management Districts (SWMDs), while the remaining 20,786,925 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 3,570,308 out of 5,612,242 pounds of CEDs from non-metropolitan areas, while also collecting 5,755,868 from metropolitan areas in Indiana. For the program year, SWMDs accounted for over 60 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 mitigate this issue.

### **Recyclers:**

For PY9, 35 recyclers registered with the program with 22 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 27,426,796 pounds of CEDs for the program year. Of this total, 23,187,774 came from metropolitan counties, while 4,239,022 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 above, 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 PY9, recyclers earned 3,844,608 in total incentives, which brings the total amount of CEDs recycled by recyclers for the program year to 31,271,404 pounds. The decrease in the amount of

CEDs that were reported being recycled for the program year compared to last years is partially due to better quality assurance and education on the definition of CED.

Recyclers collectively recycled 14,621,110 pounds of CEDs on manufacturer's behalf before the inclusion of incentives. After the inclusion of incentives, this figure rose to 16,530,768 pounds of CEDs.

### **Manufacturers:**

For PY9, 83 manufacturers registered with the program. For the program year, manufacturers collectively had a recycling obligation of 15,793,684 pounds. Manufacturers met this recycling obligation by recycling 14,621,110 pounds of CEDs before incentives, and this figure increased to 16,530,768 pounds after the inclusion of incentives. This marks the ninth year that manufacturers have recycled more than their recycling obligation.

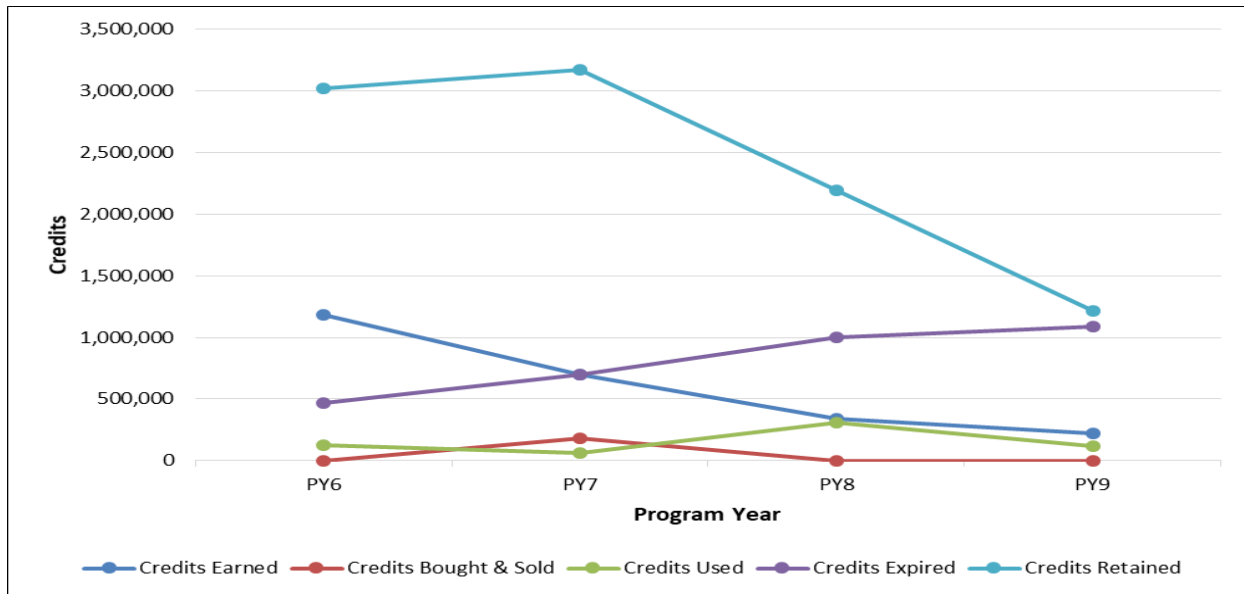
The amount of e-waste that registered manufacturers are responsible for recycling each year is determined based on the weight of products they sold during the previous year. With the continued light-weighting of products (products getting smaller and/or weighing less) and changes in the types of products that are being purchased (e.g., tablets instead of laptops), the total amount of CEDs that registered manufacturers are responsible for recycling has decreased from 22.9 million pounds in Program Year 1 to 15.8 million pounds in Program Year 9 despite having 18 more manufacturers registered in PY9 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.

**Figure 11** below highlights pertinent credit information over the most recent four program years. Credits continue to play a minimal role in helping to achieve manufacturer's recycling obligations for the program. 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. A total of 114,386 credits were used for the program year, while 1,084,328 credits expired. There were eight manufacturers that used credits towards their recycling obligation for PY9.

Twenty-nine 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 29 manufacturers that retained credits, only 10 of them retained an amount greater than 1,000 credits.

As displayed below, there has been a steady increase in the number of credits expiring each year, coupled with a steady decrease in the amount of credits being earned each program year. Based on the most recent four program years, it is apparent that credits are not as resourceful as was originally intended. One potential solution to making credits bare more weight within the program is to decrease the incentive manufacturers receive for recycling material from non-metropolitan counties in Indiana. This would reduce the number of overall credits, which in return would make their value increase, while lessening the amount of credits that go unused and expire on an annual basis.

**Figure 11: Credit Information**



## 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 as 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 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 VDDs 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 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. The reporting of actual e-waste data by registered stakeholders provides credibility in achieving recycling goals and helps to determine long-term infrastructure needs for the proper management of e-waste in the state of Indiana.