



ELECTRONICS RECYCLING WORKGROUP FINAL REPORT

Prepared by:

Resource Management Program
Land & Materials Administration

Prepared for:

Legislative Policy Committee
House Environment and Transportation Committee
Senate Finance Committee
Senate Education, Health, and Environmental Affairs Committee

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I. Introduction

On May 2, 2012, Chapter 400, entitled *Environment – Statewide Electronics Recycling Program* was enacted into law. This legislation amended certain manufacturer registration and fee provisions of the Statewide Electronics Recycling Program (SERP) under §9-1727 et seq. of the Environment Article, *Annotated Code of Maryland*. In addition to those changes, the legislation required the Secretary of the Environment to:

- On or before October 1, 2015, convene a workgroup consisting of representatives of the various sectors of the electronics industry and representatives from appropriate public and private entities to review and assess the impact of the \$10,000 annual registration fee collected under §9-1728(c)(3) of the Environment Article on the number of covered electronic device takeback programs implemented by manufacturers; and
- On or before December 31, 2015, report the findings and recommendations of the workgroup to the Legislative Policy Committee, House Environment and Transportation Committee, Senate Finance Committee, and Senate Education Health, and Environmental Affairs Committee.

The Maryland Department of the Environment (“MDE” or “the Department”) established a workgroup in June 2015, including representatives of electronics manufacturers and retailers and public and private recycling organizations. Appendix A contains a list of the workgroup members. In addition to providing input via e-mail, the workgroup met once in person in August 2015. The Department respectfully submits this final report containing the findings and recommendations of the workgroup.

II. Background

Maryland’s first electronics recycling law, enacted in 2005, established the Pilot Statewide Computer Recycling Program (Pilot Program).¹ The Pilot Program required certain computer manufacturers to register with MDE and pay initial registration and annual renewal fees. Manufacturers were prohibited from selling computers in the State unless they complied with these requirements. The law had two purposes. First, by charging lower annual renewal fees for manufacturers that implemented MDE-approved takeback programs, it encouraged manufacturers to provide consumers with recycling opportunities for their products. Second, it required fee revenue to be deposited into the State Recycling Trust Fund and allowed the Fund to be used for local government electronics recycling grants.

The Pilot Program was scheduled to expire in 2010. However, in 2007 the law was amended to create the permanent SERP that exists today.² The SERP is similar to the Pilot Program, but instead of addressing only computers, it applies to covered electronic devices (CEDs). CEDs include computers and video display devices with screens larger than 4 inches measured diagonally.³ The 2007 law also added a prohibition against retail sale of a CED unless the CED’s manufacturer is in compliance with the SERP.

In 2012, legislation was passed amending certain aspects of the SERP, effective beginning in calendar year 2013.⁴ First, the scope of the manufacturer registration requirement was changed. Prior to 2013,

¹ Ch. 384, Acts of 2005.

² Ch. 239, Acts of 2007.

³ The definition of CED excludes a video display device that is part of a motor vehicle or that is contained within a household appliance or commercial, industrial, or medical equipment. Environment Article, §9-1701(f).

⁴ Ch. 400, Acts of 2012.

manufacturers that manufactured an average of more than 1,000 CEDs annually over the preceding three years were required to register with the Department. Beginning in 2013, manufacturers that sell or offer to sell any number of CEDs in Maryland, including online, are required to register. Second, the legislation added a requirement for MDE-approved takeback programs to provide customers with educational materials on the destruction or sanitization of data from CEDs. Third, the legislation transferred responsibility for accepting fees and enforcing the law from the Comptroller to the Department and increased the penalties for noncompliance.

Finally, the 2012 legislation revised the fee structure. Prior to March 1, 2013, all manufacturers were subject to an initial registration fee of \$10,000 and an annual renewal fee of either \$5,000 with no MDE-approved takeback program or \$500 with a MDE-approved takeback program. On and after March 1, 2013, the fees are based on the number of CEDs the manufacturer sold in Maryland in the previous year.⁵ Manufacturers that sold fewer than 100 CEDs in Maryland in the previous year (small manufacturers) are exempt from fees. Manufacturers that sold between 100 and 999 CEDs in Maryland in the previous year (medium manufacturers) are subject to an initial registration fee of \$5,000 and an annual renewal fee of either \$5,000 without a MDE-approved takeback program or \$500 with a MDE-approved takeback program. Manufacturers that sold at least 1,000 CEDs in Maryland in the previous year (large manufacturers) are subject to an initial registration fee of \$10,000, the same as under the 2007 law. The annual renewal fee for large manufacturers with MDE-approved takeback programs also remains at \$500. However, the 2012 legislation temporarily increased the annual renewal fee for large manufacturers without MDE-approved takeback programs from \$5,000 to \$10,000, effective on March 1, 2013 and before March 1, 2016. Beginning on March 1, 2016, this fee reverts to \$5,000. Table 1 summarizes the initial registration and annual renewal fees under the SERP.

Table 1: Initial Registration and Annual Renewal Fees under the SERP

	Years			
	Before March 1, 2013*	March 1, 2013 to before March 1, 2016		March 1, 2016 and After
Initial Registration	\$10,000	<100 CEDs Sold	\$0	<100 CEDs Sold \$0
		100-999 CEDs Sold	\$5,000	100-999 CEDs Sold \$5,000
		≥ 1,000 CEDs Sold	\$10,000	≥ 1,000 CEDs Sold \$10,000
Annual Renewal	\$5,000/\$500^	<100 CEDs Sold	\$0	<100 CEDs Sold \$0
		100-999 CEDs Sold	\$5,000/\$500^	100-999 CEDs Sold \$5,000/\$500^
		≥ 1,000 CEDs Sold	\$10,000/\$500^	≥ 1,000 CEDs Sold \$5,000/\$500^

* In 2012 and prior years, the registration and fee requirements applied to manufacturers that manufactured an average of more than 1,000 CEDs annually over the previous 3 years.

^ The \$500 annual renewal fee applies only to manufacturers with MDE-approved takeback programs.

The 2012 legislation authorized the Department to enforce the requirements of the SERP and provided for civil and administrative penalties under §9-1730 of the Environment Article. While the Department

⁵ Manufacturers are required to report the number of CEDs sold in Maryland in the previous year on their annual registration forms. Env. Art. §9-1728(a)(4). MDE also uses data from the Electronics Recycling Coordination Clearinghouse (ERCC), which calculates estimated sales in each state based on national sales data and the population share of each state. The ERCC data is used to verify manufacturer-reported data when necessary.

conducts inspections of electronics retailers for compliance with the SERP, compliance issues identified during those inspections have so far been remedied without the need to impose penalties. Additional information on enforcement issues can be found in Appendix C.

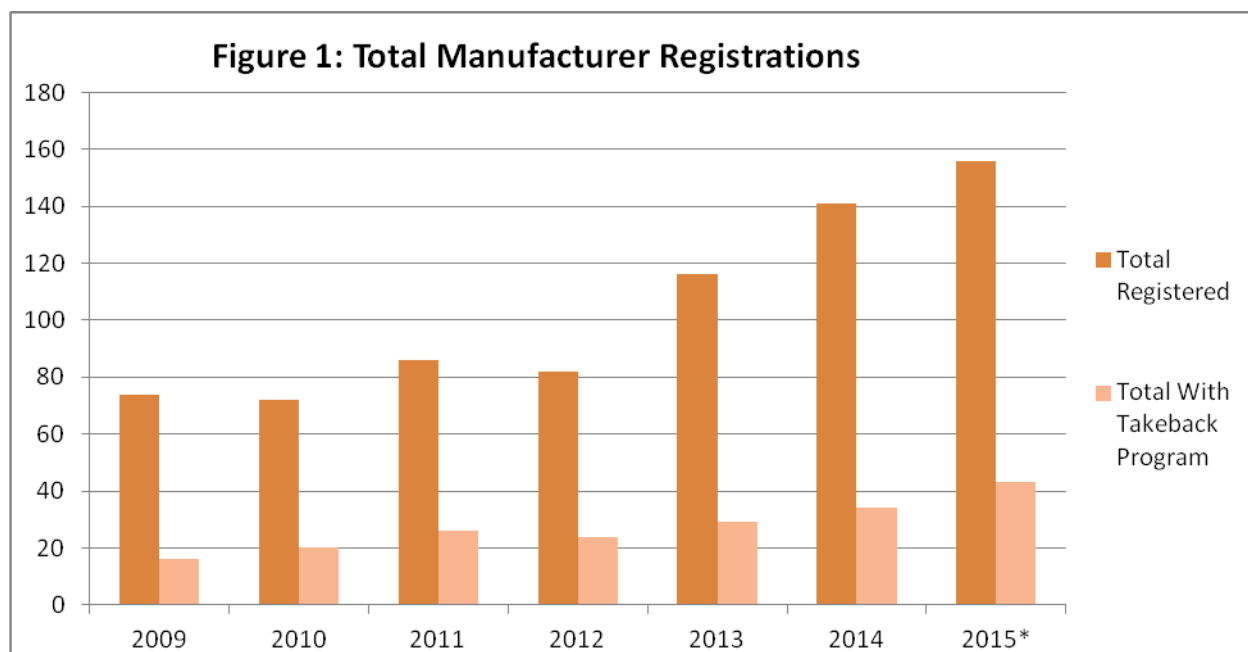
III. Data

The full table of registration data discussed in this section is provided in Appendix B.

A. Overall Program Performance

Figure 1 shows the total number of manufacturers registered under the SERP and the total number of manufacturers with MDE-approved takeback programs for each calendar year from 2009 to 2015.⁶ For example, calendar year 2015 would include registrations due March 1, 2015. Since some registrations may be submitted late, the 2015 includes registrations that may have occurred throughout 2015.

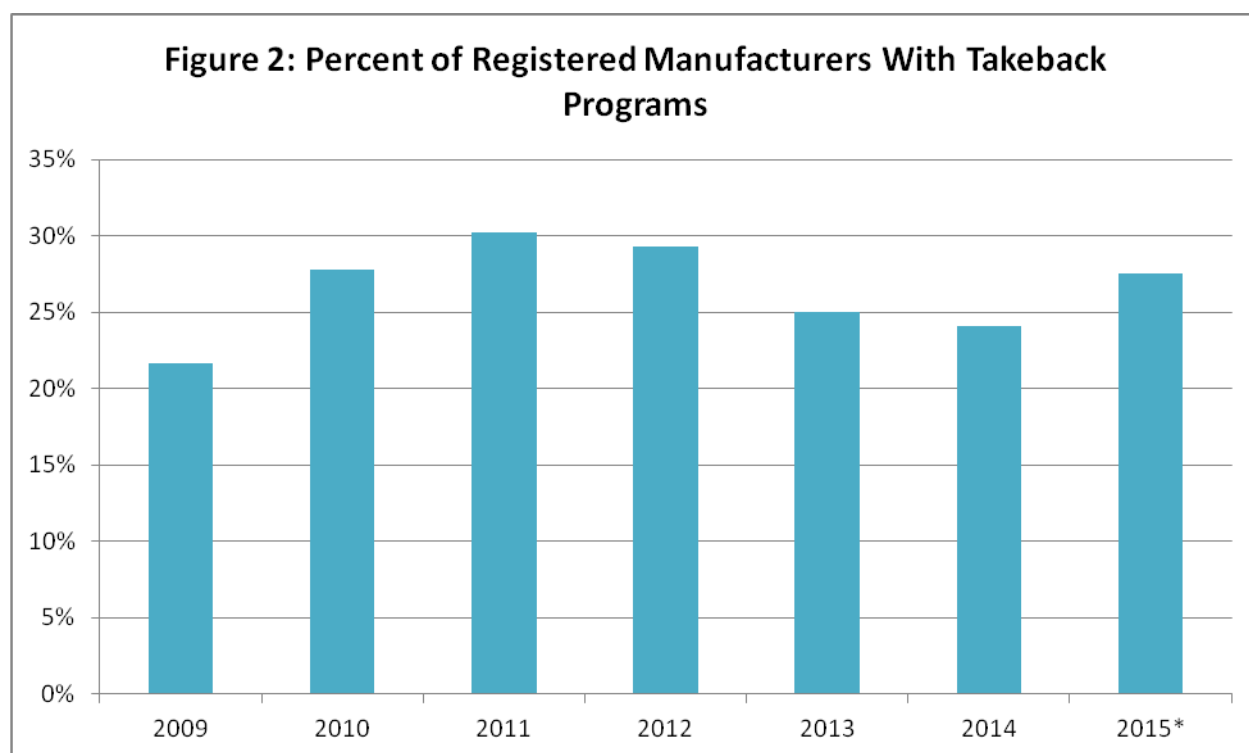
Manufacturer registrations increased significantly in 2013 and 2014. This is likely the result of two factors. First, in 2013 the scope of the registration requirement changed to include manufacturers that sell any number of CEDs in Maryland. Second, the Department began enforcement activities at the retailer level in 2014, which probably led to increased awareness of the registration requirement. Despite the increase in registrations in recent years, total registration numbers remain below the estimated number of manufacturers subject to the requirement, which is currently 224.



⁶ Throughout this report, registration data is captured from MDE's spreadsheet documenting registrations in each calendar year. Whether or not a manufacturer has a MDE-approved takeback program is documented at the time the registration is processed. In some cases, a manufacturer obtains MDE approval for a takeback program mid-year, after registration is already submitted and processed for that year. MDE continuously updates the list of MDE-approved takeback programs on its website as additional programs are approved throughout the year. So, while the number of MDE-approved takeback programs listed on the website is fluid, the number listed for each year in Figure 1 should be viewed as a snapshot at the time of registration.

Figure 2 shows the percent of registered manufacturers that implemented a MDE-approved takeback program in each year. MDE-approved takeback programs were the most prevalent in 2011 at 30%. One possible explanation for the dip in 2013 and 2014 is that the fee for a manufacturer's initial year of registration does not depend on whether the manufacturer implements a MDE-approved takeback program. As a result, it may be expected that the percentage of manufacturers with MDE-approved takeback programs would be lower in years with many new registrations, such as 2013 and 2014.

In addition, the requirement for a MDE-approved takeback program to include instructional materials on data sanitization began in 2013 and may have resulted in fewer MDE-approved takeback programs. Of the 24 total manufacturers with MDE-approved takeback programs in 2012, 22 were still registered in 2013. Of these, 17 still had MDE-approved takeback programs and five did not. Of the five manufacturers that no longer had MDE-approved takeback programs, three had MDE-approved takeback programs again by 2014. This may suggest that it took some manufacturers an extra year to incorporate the required data sanitization information into their takeback programs.



B. Impact of the Fee Increase on the Prevalence of MDE-Approved Takeback Programs

Beginning in 2013, the annual renewal fee for a large manufacturer without a MDE-approved takeback program increased from \$5,000 to \$10,000, while the annual renewal fee for a large manufacturer with a MDE-approved takeback program remained at \$500. The fee increase was intended to encourage implementation of MDE-approved takeback programs, presumably under the theory that a larger potential cost savings would produce a stronger incentive for a manufacturer to implement a MDE-approved takeback program. In order to determine whether this has been the case, this section examines

whether manufacturers subject to the fee increase were more likely to implement MDE-approved takeback programs after the increase occurred in 2013 than they were in previous years.

As discussed in Section III.A, the overall prevalence of MDE-approved takeback programs did not increase beginning in 2013, and in fact decreased in 2013 and 2014. However, concurrent with the fee increase, many new manufacturers were registered that were not subject to the increased \$10,000 annual renewal fee and thus could not have been affected by any enhanced incentives it provided. For this reason it is necessary to isolate the manufacturers subject to the fee increase, which are large manufacturers submitting annual renewal registrations (rather than initial registrations). This subset will be referred to as “large renewal manufacturers.”

Figure 3 shows the total number of large renewal manufacturers registered in each year and the number that had MDE-approved takeback programs. Before 2013, the law did not require manufacturers to submit sales data, so it is not possible to identify precisely which manufacturers registered before 2013 would correspond with the “large” category beginning in 2013. For years prior to 2013, all manufacturers that submitted annual renewal registrations are included here as large renewal manufacturers. Prior to 2013, manufacturers were required to register if they manufactured an average of more than 1,000 CEDs per year over the previous 3 years. Beginning in 2013, the large category includes manufacturers that sold more than 1,000 CEDs in Maryland in the previous year.

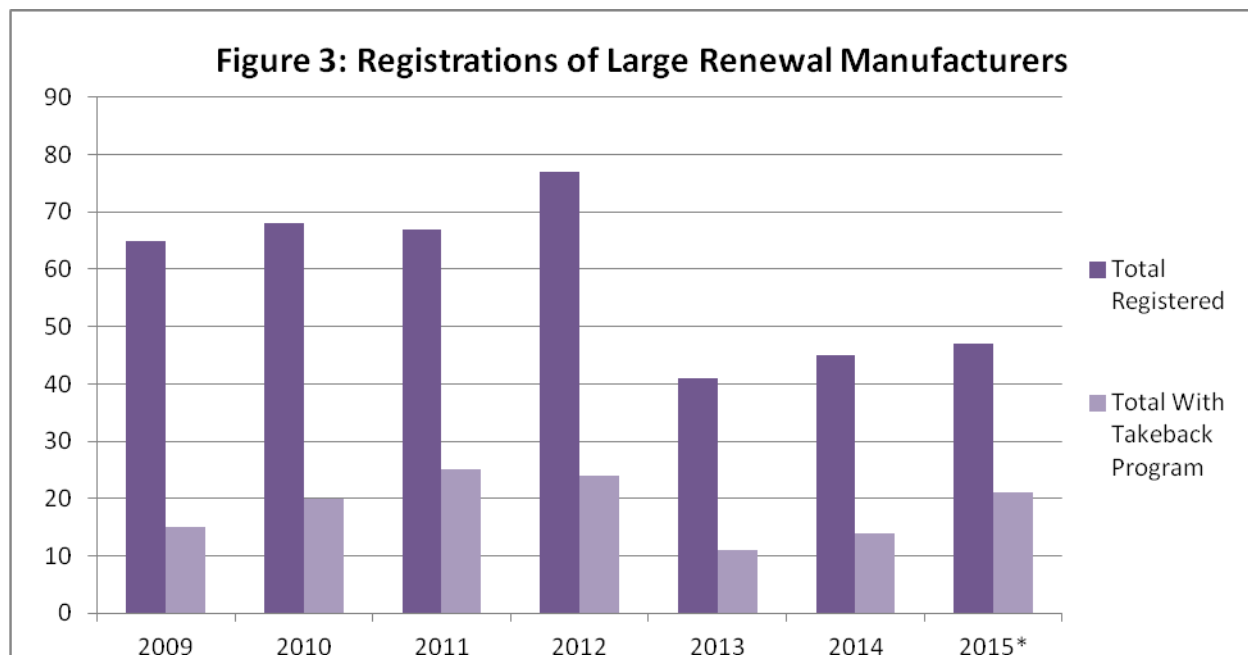
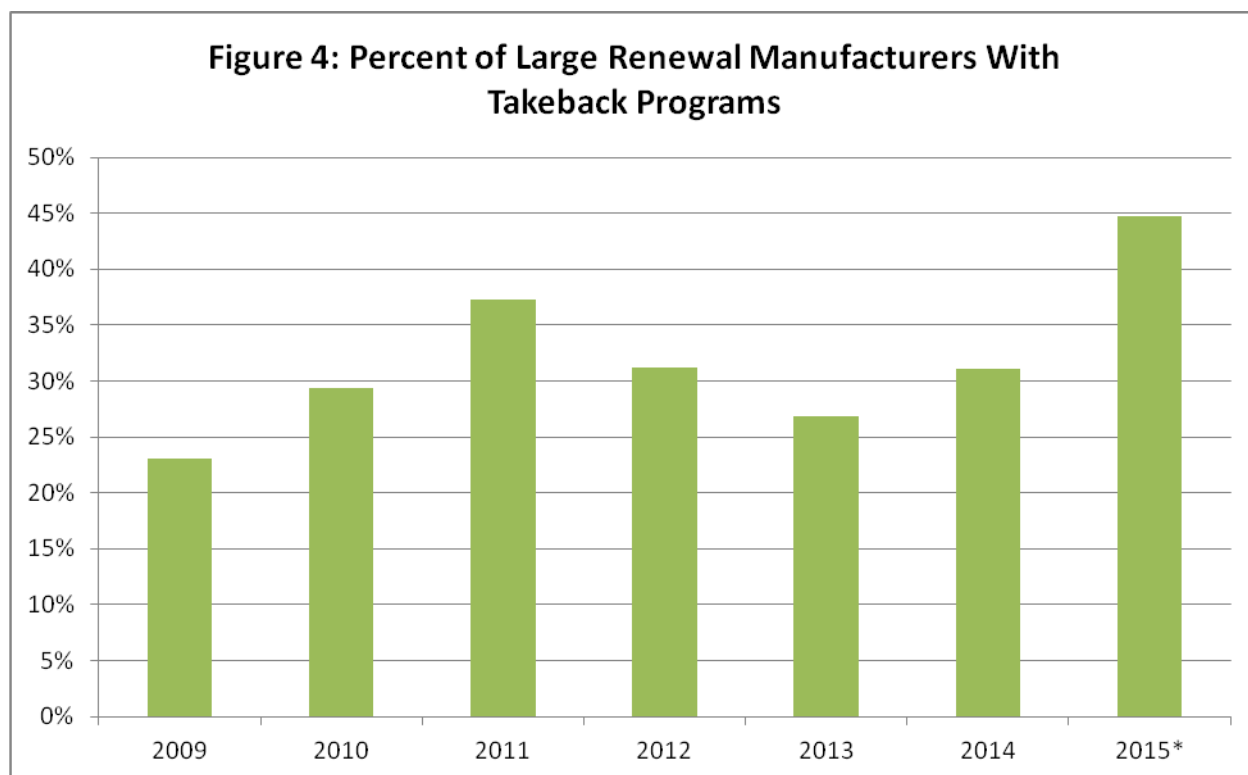


Figure 4 shows the percent of large renewal manufacturers with MDE-approved takeback programs in each year. In 2013 and 2014, MDE-approved takeback programs were no more prevalent among large renewal manufacturers than they were in previous years. In 2013, there was actually a decrease in the percent of large renewal manufacturers with MDE-approved takeback programs. However, this percentage recovered in 2014, and by 2015, a greater percentage of large renewal manufacturers had MDE-approved takeback programs than in any previous year at 45%.



C. Fee Revenue and Grants

Figure 5 shows the total fee revenue received for each year of the SERP between 2009 and 2015. The lighter area shown for 2013 through 2015 is the estimated additional revenue that was received due to the fee increase. For example, in 2013, 29 manufacturers paid the \$10,000 annual renewal fee. Assuming these manufacturers would have paid only \$5,000 without the fee increase, the additional revenue due to the fee increase was \$145,000.⁷ This does not account for any decrease in fee revenues that may have occurred due to manufacturers implementing MDE-approved takeback programs in response to the higher fee. Total revenue increased somewhat in 2013 and 2014. Large renewal manufacturers paid more on average, per manufacturer, after the fee increase than they did before (\$3,503 per large renewal manufacturer from 2009 through 2012, compared to \$6,563 per large renewal manufacturer from 2013 through 2015)

The Department has issued electronics recycling grants to counties and municipalities three times, as shown in Table 2. (Appendix D provides the amounts granted to each jurisdiction during each of the three grant cycles.) The Department expects to issue the next recycling grants in fiscal year 2017. The objective of the grants is to increase recycling of electronics by residents. Grants have been used to establish permanent collection facilities, provide curbside pickup for seniors, purchase equipment, and hold special collection events.⁸ In calendar year 2007, which corresponds with the first fiscal year in

⁷ 29 manufacturers x \$5,000 = \$145,000.

⁸ For additional information about local government electronics recycling activities and eCycling grants, see MDE's annual Maryland Solid Waste Management and Diversion Reports, available at <http://mde.maryland.gov/programs/Land/RecyclingandOperationsprogram/Publications/Pages/Programs/LandPrograms/Recycling/publications/index.aspx>

which electronics recycling grants were issued,⁹ the number of special collection events increased 160% from the previous year to a total of 26. When grants were issued again in the following year, the number of special collection events increased again to 34.

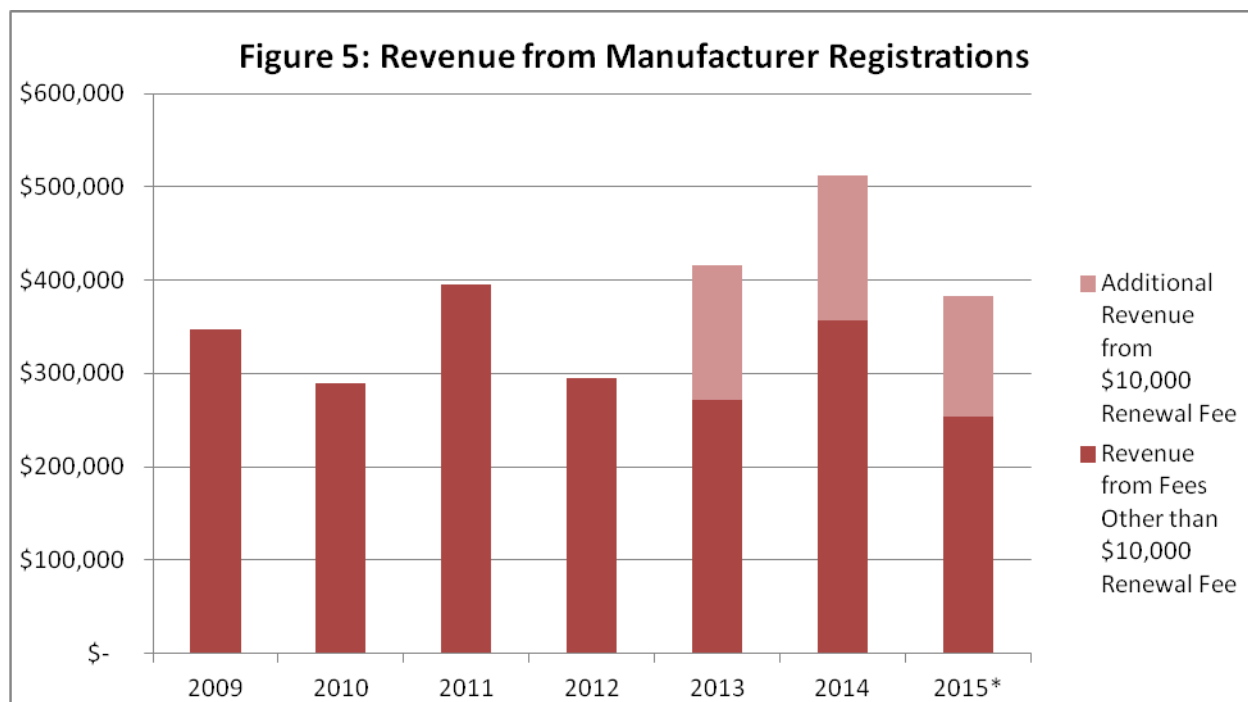


Table 2: Electronics Recycling Grants

Fiscal Year	Total Grants Issued
2008	\$ 190,000
2009	\$ 616,552
2015	\$ 500,000

D. Recycling Data

Electronics recycling occurs in Maryland through several channels. Some counties and municipalities collect electronics from residents through permanent collection programs or periodic special collection events. Businesses may contract privately for electronics recycling services. Customers may also use MDE-approved takeback programs established by manufacturers under the SERP. Figure 6 shows the tons of electronics recycled through local government residential collection programs and through private commercial recycling.¹⁰ The commercial recycling figures include only commercial recycling that is reported to MDE by the counties and may not capture all commercial electronics recycling. Substantial increases in residential tonnages in calendar years 2007 through 2009 correspond with the

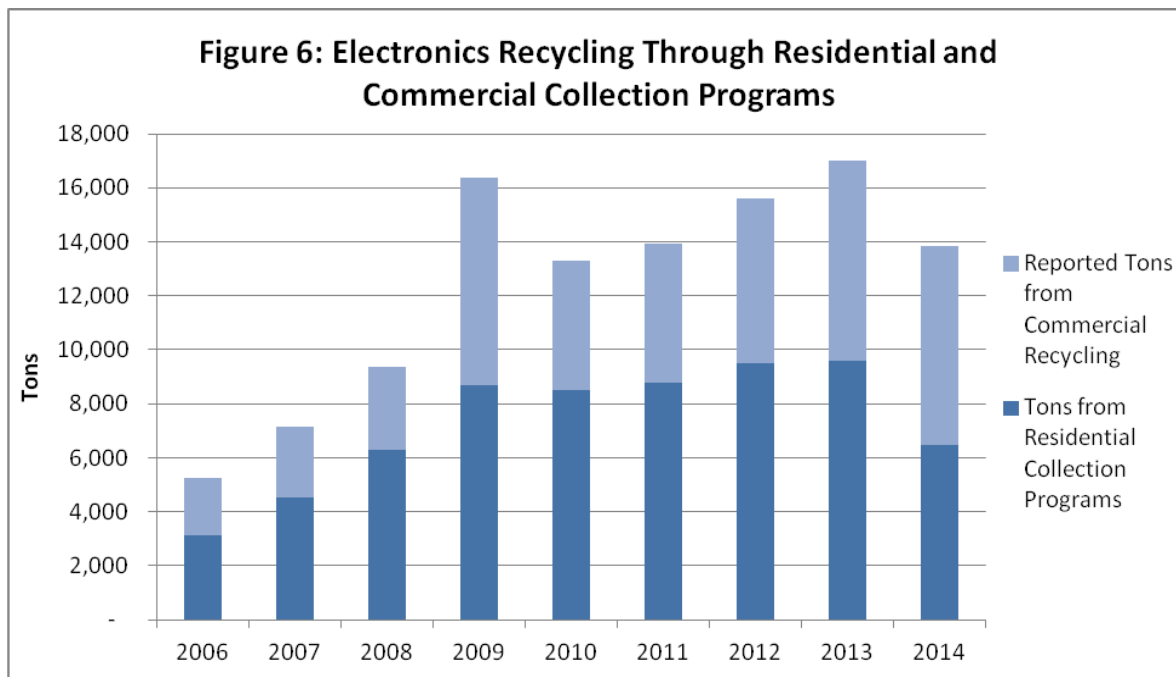
⁹ Both the SERP data and recycling data generally is collected and reported by calendar year in Maryland. Grants are issued by fiscal year. The first electronics recycling grants were issued in fiscal year 2008, which ran from July 1, 2007 through June 30, 2008.

¹⁰ This data is collected from counties each year on different deadlines than the SERP data. The most recent year available as of the writing of this report was 2014.

issuance of grants in fiscal years 2008 and 2009. Electronics recycling depicted in Figure 6 includes electronics other than CEDs.

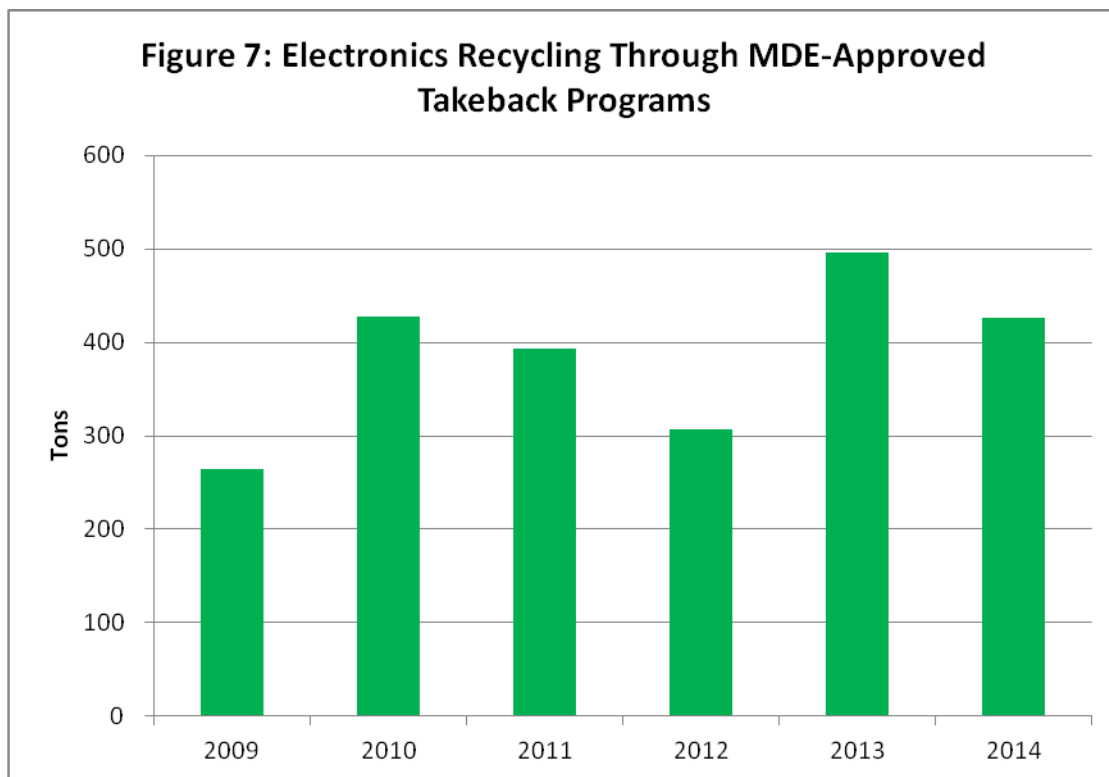
Figure 7 shows the tons of CEDs that were reported as returned through MDE-approved takeback programs under the SERP. The quantity of CEDs collected through an MDE-approved takeback program in a given calendar year is required to be reported by the manufacturer in the following year's registration form. For example, Figure 7 shows that 500 tons of CEDs were recycled through MDE-approved takeback programs in 2013, based on data from 2014 manufacturer registration forms. However, some manufacturers reported CED collection occurring in years in which they did not have MDE-approved takeback programs.¹¹ These quantities are removed so that Figure 7 includes only CEDs collected under MDE-approved takeback programs.¹² The opposite issue also exists: not all manufacturers required to report the quantity of CEDs collected did report. Because of this, additional, unreported collection is possibly occurring.

Figures 6 and 7 show that much of electronics recycling in Maryland (47 to 62%, based on the year) occurs through local government residential collection programs, with commercial recycling accounting for 35 to 51% and MDE-approved takeback programs accounting for 2 to 3% annually.



¹¹ This includes but is not limited to cases in which the manufacturer had implemented a takeback program but had not yet submitted it for approval in the previous year. For example, if a manufacturer implemented a takeback program in 2013, then submitted it for approval with the 2014 registration, quantities of CEDs collected in 2013 may have been reported on the 2014 registration form, even though they were not actually collected under a MDE-approved takeback program.

¹² Where the takeback program was approved at some point during the registration year, collection that occurred during that entire year is included if reported.



IV. Discussion and Recommendations

The Department distributed the data in Section III to the workgroup members and requested input related to the workgroup’s task to “review and assess the impact of the \$10,000 annual registration fee ... on the number of covered electronic device takeback programs implemented by manufacturers.” This section contains a discussion of input received on that issue. Members also raised a number of other issues related to the SERP more generally, which fall outside of the workgroup’s charge under Chapter 400 of 2012. These additional topics are discussed in Appendix C.

The following opinions were expressed by workgroup members regarding the SERP registration fees and are discussed in more detail in IV.A through D:

- Factors may have impacted manufacturers’ decisions regarding takeback programs.
- The fees are inadequate to support local electronics recycling programs. The registration fees under the SERP are too low and should be increased. Alternatively, the current \$10,000 annual renewal fee for the large manufacturers should be retained and not allowed to revert to \$5,000.
- The negative impact of high compliance costs on manufacturers should be considered in evaluating registration fees.
- The threshold number of CEDs sold in Maryland for the highest fee tier should be increased to avoid subjecting small- and medium-sized businesses to the highest fees.

A. Issue: Impact of \$10,000 Annual Renewal Fee for Large Manufacturers on the Number of MDE-Approved Takeback Programs

Manufacturers as a whole were no more likely to implement MDE-approved takeback programs in the period after the fee increase became effective than they were before. The average percentage of manufacturers with MDE-approved takeback programs was 27% before the fee increase and 26% afterward.

Manufacturers affected by the fee increase were more likely to implement MDE-approved takeback programs after the fee increase became effective. The average percentage of large renewal manufacturers with MDE-approved takeback programs was 30% before the fee increase and 34% afterward. This increase was due entirely to 2015, as the average prevalence of MDE-approved takeback programs among large renewal manufacturers in 2012 and 2013 was slightly lower than in previous years, at 29%. The inability to filter the pre-2013 registrations by sales quantities makes it difficult to compare the data across only the group affected by the fee increase.

In summary, the data suggests that the increased fee may have had a positive impact on the prevalence of takeback programs in 2015. There was no similar increase in 2013 or 2014, but this may have been because it took manufacturers one or two years to become aware of and adjust to the changes made to the SERP. It is also possible that factors other than the \$10,000 fee contributed to the increased prevalence of takeback programs among these manufacturers in 2015. For example, increased awareness of corporate social responsibility may lead manufacturers to increasingly adopt takeback programs over time, regardless of legislation. In addition, according to the U.S. EPA, recycling of consumer electronics in the U.S. as a whole has shown a strong upward trend, increasing from 30.6% in 2012 to 40.4% in 2013, the most recent year available.¹³ This may signal factors such as increasing availability of recycling services and increased consumer demand for recycling opportunities, both of which may encourage manufacturers to adopt takeback programs independent of legislation. More states have adopted electronics recycling laws over time as well, with 25 states now having some type of electronics recycling law.¹⁴ It may be that changes in laws other than Maryland's, or the combined incentives of many state programs, resulted in some manufacturers adopting takeback programs.

Revenue from the \$10,000 fee did seem to have a positive impact on SERP revenue from large renewal manufacturers. However, this effect could decline over time if additional MDE-approved takeback programs are implemented. Past data shows that grant funding provided through fee revenue is effective at increasing opportunities for electronics recycling at the local level. Since the majority of electronics recycling in Maryland continues to occur through local residential collection programs, support for these programs is important.

B. Issue: Adequacy of Fees to Support Local Electronics Recycling Programs

¹³ U.S.EPA., Advancing Sustainable Materials Management: Facts and Figures in 2013 (June 2015), http://www.epa.gov/wastes/nonhaz/municipal/pubs/2013_advncng_smm_rpt.pdf Note that because of increasing costs for electronics recycling, this trend may not continue. See Appendix C for additional discussion of changes in the electronics recycling market.

¹⁴ National Center for Electronics Recycling, <http://www.electronicrecycling.org/public/contentpage.aspx?pageid=14>

Several members noted that the revenue from registration fees under the SERP is not sufficient to fully fund local government electronics recycling programs. In part because of the changing nature of the electronics waste stream and limited markets for recycled Cathode Ray Tubes (CRTs) (discussed further in Appendix C), costs to operate electronics recycling programs have increased over time. The Northeast Maryland Waste Disposal Authority advises that recently these costs have led several of its member counties to discontinue recycling of televisions and monitors, including Anne Arundel, Baltimore, and Carroll Counties. The Authority estimates that these devices constitute 71% by weight of the total electronics recycling stream formerly collected in those jurisdictions and 35% of the total electronics recycling stream for all Authority jurisdictions, not including Harford County data. This equates to over 2,500 tons of television and monitor material no longer being recycled each year, beginning CY 2014. NMWDA also estimates that the annual costs to Montgomery and Howard Counties to operate electronics recycling programs are \$450,000 and \$200,000, respectively. In comparison, total fee revenue under the SERP ranges from approximately \$300,000 to \$500,000 annually, and a significant portion of that revenue is used to administer the SERP and other recycling programs, leaving limited funding for grants. Based on this, some workgroup members believe that the fee levels are inadequate and should be increased, or at least maintained without the automatic reversion scheduled to occur.

The Department notes that the SERP is a shared responsibility system, meaning that manufacturers, retailers, consumers, and local governments all have roles, financial or otherwise, in electronics recycling in Maryland. The law requires most manufacturers to contribute to recycling opportunities for their products, but provides flexibility in how that contribution is made. Some manufacturers choose to supplement local recycling programs by providing statewide mail-in or drop-off return programs for their products. Manufacturers that choose not to provide this service must contribute financially in the form of higher registration fees. The SERP is intended to enhance the availability of various recycling options for CEDs. It is not intended as a funding mechanism for local government electronics recycling programs.¹⁵ The Department acknowledges that many counties and municipalities choose to provide convenient, effective electronics recycling programs to their residents at a cost that exceeds available grant funding. This is particularly true currently, given the challenging markets for recycled electronics. Local recycling programs may also be broader than the SERP, collecting electronics that fall outside the definition of CEDs.

Another issue to consider in assessing fee levels is that it is hard to predict the net effect that higher or lower fees would have on future revenue. Higher fees exert both upward and downward effects on revenue. They encourage more takeback programs, reducing revenue, but require manufacturers without takeback programs to pay more, increasing revenue. A variety of external factors may also impact decisions regarding takeback programs. As a result, it cannot be assumed that further increases in the fees for manufacturers without MDE-approved takeback programs would significantly increase revenue.

C. Issue: Impact of Fees on Manufacturers

Another member stated that costs to manufacturers under the SERP should be considered in making any recommendations related to fees. CED manufacturers provide valuable goods, services, and employment. High compliance costs may adversely impact these businesses, especially those that are small, new, or struggling financially. Half of all states now have electronics recycling legislation, many of these with their own fees on manufacturers. In addition to paying fees in the various states in which

¹⁵ For a summary of the workgroup's more general discussions regarding the effectiveness of local government collection and manufacturer takeback programs, see Section II of Appendix C.

they do business, companies may have to pay consultants, attorneys, recyclers, and other contractors to assist in compliance with electronics recycling laws. According to one member, compliance costs can reach into the tens or hundreds of thousands of dollars.

D. Issue: Number of CEDs Sold for Large Manufacturer Category

The workgroup also discussed whether it is appropriate to apply the highest fee bracket to manufacturers selling 1,000 or more CEDs in Maryland annually. One member asserted that this threshold is too low and subjects all but the smallest manufacturers to the higher fee, including small- and medium-sized businesses.

MDE notes that one purpose of the revised fee structure under the 2012 legislation was to ensure the SERP provides the strongest incentives to the manufacturers that potentially contribute the most CEDs to Maryland's waste stream. MDE worked with the Consumer Electronics Association and legislators in 2012 to develop a structure that would provide relief for the smallest businesses while enhancing the incentive for larger contributors to provide recycling opportunities. Manufacturers selling only a very small number of CEDs in Maryland are exempt from all fees, but are still required to register each year in order to certify that they continue to sell below the threshold number of CEDs.

Data obtained by MDE from the Electronics Recycling Coordination Clearinghouse (ERCC) estimates the number of devices sold in Maryland in 2014 by each of 122 manufacturers. Of these, over one third were estimated to have sold fewer than 100 CEDs in Maryland, and over half sold fewer than 1,000. Despite applying to less than half of the 122 listed manufacturers, the large manufacturer category captures over 97% of Maryland's estimated market share.¹⁶

Another factor to consider is the impact of further changes to the fee structure on the ease of complying with the SERP. Manufacturers that sell their products throughout the U.S. potentially have dozens of electronics recycling laws they must learn and comply with. Steady increases in registration under the SERP and the Department's own experience with manufacturers and retailers suggest increasing awareness of and compliance with the SERP. Before any additional changes are made that require further adjustment by regulated entities, the benefits should be weighed against the potential for confusion or delays in compliance.

E. Conclusions and Recommendations

The Department believes that the 2012 changes to the SERP have, overall, been beneficial to the Program. Many more manufacturers have registered in recent years. Consumers now have more manufacturer takeback programs available to them than ever before. The Department acknowledges that local governments have made significant progress in improving access to electronics recycling through special events and permanent collections programs, often independent of grant funding. These programs continue to capture significantly more material than is collected through MDE-approved takeback programs, including some quantities of electronics outside the subset of CEDs. However, the SERP was not intended as a funding mechanism for local programs, and the fee levels were not set with the expectation of yielding sufficient revenue for that purpose. Instead, the SERP seeks to increase recycling options through a combination of manufacturer takeback programs and supplemental funding for local programs. By this standard, the Department considers the program successful.

¹⁶ The ERCC sales data for Maryland is based on national sales figures and Maryland's share of the U.S. population.

Based on the workgroup members' comments, there are three potential options for addressing the \$10,000 annual renewal fee for large manufacturers without MDE-approved takeback programs.

Option 1: The General Assembly could pass legislation to retain the \$10,000 annual renewal fee for all large manufacturers. This would preserve the fees currently in force.

Option 2: The General Assembly could pass legislation to retain the \$10,000 annual renewal fee for only a subset of the current "large" category. For example, the \$10,000 fee might be applied only to those selling 5,000 or more CEDs per year in Maryland, while those selling 1,000 to 4,999 CEDs per year in Maryland would join the "medium" category, subject to the \$5,000 annual renewal fee. This compromise may preserve the enhanced incentive for the manufacturers selling the most CEDs, while providing some relief to those on the lower end of the current "large category."

Option 3: The General Assembly could take no action. The \$10,000 annual renewal fee for large manufacturers without MDE-approved takeback programs would revert to \$5,000 beginning March 1, 2016. All other fees would remain the same.

Table 3 shows the three options, with their potential impacts on the number and market share of manufacturers potentially subject to the \$10,000 fee, as well as the estimated change in revenues. Each of the options affects only manufacturers that do not have MDE-approved takeback programs. Since some portion of the manufacturers potentially subject to the \$10,000 fee will have MDE-approved takeback programs, in estimating impacts to revenue it is assumed that 47% of large renewal manufacturers will continue to have MDE-approved takeback programs in the future. Note that this method of estimation has limitations because it does not account for the fact that Options 2 and 3 may impact the proportion of large renewal manufacturers with MDE-approved takeback programs.

Table 3: Options for Annual Renewal Fee for Large Manufacturers Without MDE-Approved Takeback Programs

(Annual renewal fee for manufacturers with MDE-approved takeback programs remains at \$500 under all three options)

Option		Number of manufacturers potentially subject to \$10,000 annual renewal fee ¹	Portion of total Maryland market share covered under \$10,000 annual renewal fee ¹	Estimated loss of revenue (relative to current program) ²
1	Pass legislation to retain \$10,000 fee, preserving the current program.	59	97%	\$0
2	Pass legislation to retain \$10,000 fee only for those selling 5,000 or more CEDs in Maryland annually.	42	96%	\$45,000
3	Take no action; allow fee to revert to \$5,000	0	0%	\$155,000

¹ Based on number of CEDs sold in Maryland, estimated from ERCC 2014 Data.

² Assumes that 47% of the manufacturers potentially subject to the \$10,000 annual renewal fee will have MDE-approved takeback programs and 53% will not. For example, under Option 2, there would be 17 fewer manufacturers potentially subject to the \$10,000 fee than under the current program ($59 - 42 = 17$). Assuming 53% of these manufacturers, or approximately 9 of the 17, do not have MDE-approved takeback programs, the potential loss in revenue would be \$45,000 ($9 \times \$5,000 = \$45,000$).

The workgroup members did not reach consensus on which of the three options is preferable. The data reviewed in this report was mixed. The 2015 registration year was the only year showing a clear increase in the prevalence of MDE-approved takeback programs among large renewal manufacturers, and it is impossible to conclusively determine the primary factors driving the increase in MDE-approved takeback programs in that year. Finally, it is impossible to determine whether the increase in MDE-approved takeback programs in 2015 has translated into more CED recycling, because data for CEDs collected through the takeback programs in 2015 will not be available until the 2016 registration year.

Regardless of whether the fee is allowed to revert to \$5,000, the Department will continue to track the successes and challenges of the SERP, including by improving data reporting on CEDs collected for recycling. It will also work to increase awareness of the availability of MDE-approved takeback programs among local governments and consumers.

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Appendix A – Workgroup Members

A.Hussain Alhija, Maryland Department of the Environment

Joseph Bissonnette, HTC America, Inc.

Anthony Drury, Washington County

Tim Dunn, Best Buy

C. Robert Ernst, Maryland Recycling Network

Kaley Laleker, Maryland Department of the Environment

Katherine McIlroy, Northeast Maryland Waste Disposal Authority

Dave Mrgich, Maryland Department of the Environment

Allison Schumacher, Consumer Electronics Association

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Appendix B – Full Registration Data

SERP Manufacturer Registration Data, CY 2009 - 2015

	2009	2010	2011	2012	2013	2014	2015
Total Manufacturers Registered	74	72	86	82	116	141	156
Total Registered with MDE-approved Takeback	16	20	26	24	29	34	43
Percent with MDE-approved Takeback	22%	28%	30%	29%	25%	24%	28%
Large Manufacturer Renewals ¹	65	68	67	77	41	45	47
Large Renewals with MDE-approved Takeback	15	20	25	24	11	14	21
Percent Large Renewals with MDE-approved Takeback	23%	29%	37%	31%	27%	31%	45%
Total Revenue	\$347,500	\$290,000	\$395,500	\$295,500	\$416,500	\$512,000	\$383,500
Average Paid Per Manufacturer	\$4,696	\$4,028	\$4,599	\$3,604	\$3,586	\$3,631	\$2,458
Average Paid Per Large Renewal Manufacturer	\$3,962	\$3,676	\$3,187	\$3,188	\$7,317	\$7,044	\$5,330
Number of Manufacturers that Paid \$10,000 Renewal Fee	0	0	0	0	29	31	26

¹For years prior to 2013, it is assumed that all registered manufacturers are large manufacturers. However, no sales data was required to be submitted until 2013.

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Appendix C – Grant Amounts by Jurisdiction

Grants Issued in FY 2008

Jurisdiction	Amount
Allegany County	\$27,000
Calvert County	\$12,606
Cecil County	\$12,607
Garrett County	\$8,582
Howard County	\$10,000
Midshore Region*	\$16,000
Montgomery County	\$10,000
Prince George's County	\$18,923
Washington County	\$18,700
Worcester County	\$12,606
Annapolis, City of	\$6,750
College Park, City of	\$11,483
Greenbelt, City of	\$11,890
Hyattsville, City of	\$12,853
TOTAL	\$190,000

*Mid-Shore includes Caroline, Kent, Queen Anne's, and Talbot Counties.

Grants Issued in FY 2009

Jurisdiction	Amount
Anne Arundel County	\$33,678
Baltimore County	\$42,572
Calvert County	\$25,000

Carroll County	\$32,892
Charles County	\$40,955
Cecil County	\$28,098
Garrett County	\$16,074
Harford County	\$43,750
Howard County	\$32,500
Midshore Region*	\$44,283
Montgomery County	\$30,000
Prince George's County	\$27,900
Washington County	\$40,500
Worcester County	\$39,436
Annapolis, City of	\$18,912
Bowie, City of	\$12,000
Brentwood, Town of	\$18,159
College Park, Town of	\$10,943
Hyattsville, City of	\$18,900
Laurel, City of	\$25,000
Takoma Park, City of	\$10,000
Westminster, City of	\$25,000
TOTAL	\$616,552

*Mid-Shore includes Caroline, Kent, Queen Anne's, and Talbot Counties.

Grants Issued in FY 2015

Jurisdiction	Amount
Allegany County	\$7,500

Baltimore City	\$38,000
Calvert County	\$31,400
Carroll County	\$28,558
Cecil County	\$35,600
Dorchester County	\$10,000
Frederick County	\$31,200
Harford County	\$33,200
Howard County	\$27,200
Midshore Region*	\$32,104
Montgomery County	\$27,200
Prince George's County	\$33,200
St Mary's County	\$31,200
Washington County	\$35,600
Wicomico County	\$22,498
Worcester County	\$33,200
College Park, Town of	\$7,326
Hagerstown, City of	\$15,000
La Plata, Town of	\$7,564
Laurel, City of	\$12,450
TOTAL	\$500,000

*Mid-Shore includes Caroline, Kent, Queen Anne's, and Talbot Counties.