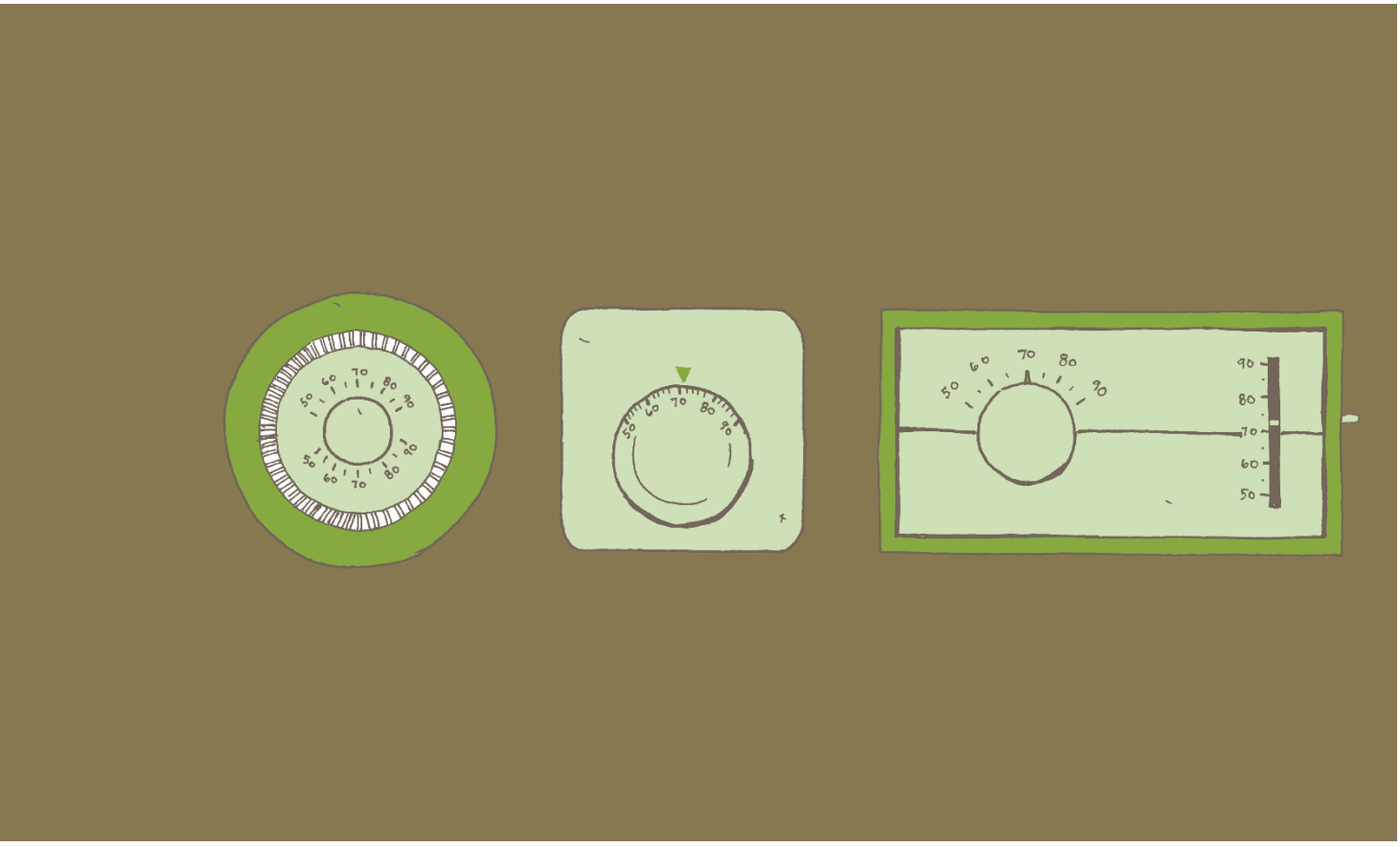

PENNSYLVANIA ANNUAL REPORT 2018

Thermostat Recycling® CORPORATION

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THERMOSTAT RECYCLING CORPORATION GOVERNANCE (AT CLOSE OF 2018)

Thermostat Recycling Corporation Board Members

Dan O'Donnell (Chairman)
Honeywell Home

John Sartain (Vice-Chairman)
Emerson Technologies (White Rodgers)

Rob Munin (Treasurer)
Johnson Controls

Loretta Damron (Secretary)
STLPC Corporation (representing the liability of Lux Products Corporation)

Thermostat Recycling Corporation Dues Paying Members

Bard Manufacturing	Burnham Holdings	Carrier Corporation
ecobee Inc.	Empire Comfort Systems	General Electric
ITT	Lennox International Inc.	Nest Labs
Nortek Global HVAC, LLC	Rheem Manufacturing	Johnson Controls Inc.
TPI Corporation	Trane Residential Systems	White-Rodgers (Emerson)
Valliant	W.W. Grainger	Chromalox
Climate Master, Inc.	Crane Company	Goodman Global
Honeywell Home	Hunter Fan Company	STLPC Corporation (representing the liability of Lux Products Corporation)
Marley-Wylain Company	McQuay International	Schneider Electric (Invensys)
Sears Holding Corporation	Taco Comfort Solutions	Uponor

Thermostat Recycling Corporation Employees

Ryan Kiscaden
Executive Director

Danielle Myers
Operations and Compliance Manager

WE SHARE THE GOOD NEWS – 2018 WAS AN EXCEPTIONAL YEAR

As I began writing the 2018 annual reports, it dawned on me how much activity the program accomplished in the last year. Even as legacy mercury thermostats became less prevalent, the program continued to work in new and interesting ways to keep collecting these units. Not surprisingly, the replacement of HVACR equipment continued to be the leading indicator to mercury thermostat replacement. But there has been a remarkable shift occurring with energy efficiency programs. We have been the direct beneficiary of smart thermostat's rapid user adoption and utility programs which encourage thermostat replacements. In some cases, thermostats are being replaced prior to the death of the HVACR system they control. This replacement activity couldn't have been predicted several years ago.

Looking ahead, I anticipate that the program will continue to fulfill Pennsylvania statutory requirements, agreements and other arrangements for regulatory and legislative compliance. But we will target mercury thermostat collections at utility energy efficiency programs while simultaneously maintaining the HVAC industry collections. We will do both hand-in-hand with the regulatory community.

IT'S ALL ABOUT (NEW) MARKETING

The message around the importance of properly disposing mercury-containing devices is really an old message, and it's hard to keep redressing up the same thing. The awareness is always there, but we don't want to become noise by marketing too much, which is a challenge any recycler faces.

One of our enhancements was to create the "Ten Bin Club," which publicly identifies members every month who have sent us 10 bins since they joined TRC. In 2018, we had 68 companies who qualified for this unique accomplishment. In addition, we had 22 who returned their twentieth bin during our twentieth year. For the visually oriented, we created a wallpaper advertising theme that explains what we do, too. It's the kind of retro artwork that continues to highlight the T87 mercury-containing thermostat as one of the most iconic brands in the last century.

In the utility space, TRC issued a letter (in conjunction with the Air Conditioning and Cooling Contractors of America) to utility stakeholders on the importance of collecting mercury-containing

thermostats while developing, deploying and incentivizing thermostat replacement programs. Our letter demonstrated our intent and commitment and offered suggestions related to future incentive practices. We also made progress and will continue to strive toward a memorandum of understanding with the federal Environmental Protection Agency's *Smart Sectors*[1] program.

We also put a timestamp on an important day. October 24th was the day of TRC's founding twenty years prior. The day served as a mouthpiece of awareness. While recycling the devices is important, it's just as important that consumers and contractors don't treat thermostats like other household waste, such as batteries and paint. We are really excited to now have the national day, and it's really a pretty significant thing for our membership to celebrate into the future.

This past year, we incorporated Tableau software (an add-on to our Salesforce database) for immediate updates on our results. This technology helps in our marketing efforts and targeting using business intelligence tools such as GIS mapping. We established auto-emails to collection locations which provide timely contact and also added real-time data on the TRC website which we trained users through a video on our YouTube channel. We also gave special attention to search engine optimization. It's simple, if we drive up our position on search engines, with Google as the primary target, TRC is more likely among the first choices for people searching for recycling thermostats.

RELATIONSHIPS STILL MATTER

We say it hundreds of times during the year because it's true: Relationships matter. No man, woman, or organization is an island to themselves. A building block of our success certainly has been our relationships with our financial supporters but also finding unanimity on industry issues. For example, we are working with the Product Stewardship Institute on their U.S. Dept. of Agriculture grant again and continued attending joint EPR Executive Director group meetings which share programmatic best practices.

We continued as active participants with trade associations and added new partnerships such as the Midwest Energy Efficiency Alliance, the Northeast Energy Efficiency Partnerships and recently the Air Conditioning Association of New England. Additionally, our seasoned government relations

[1] a partnership that provides a platform to collaborate with regulated sectors and develop sensible approaches that better protect the environment and public health

consultant, Tom Murray, gave a well-received presentation at the federal EPA's Energy Star products partner meeting.

One thing I'm very proud of is that TRC contributed $5,000 to the Fort Washington Business Alliance, where we are headquartered. TRC also sponsored the Polar Bear International's "Thermostat Setback Challenge." This event, held every Feb. 27, "*drew attention to the challenges polar bears face in a warming Arctic climate —and how we can help*." We used both these vehicles to communicate our positioning as a consciousness nonprofit citizen to our neighbors, schools and businesses. These activities demonstrate our engagement with a range of organizations that have disparate individual goals. Yet all of us are united in a collective effort with the goal of ensuring that our environment is safe.

Please enjoy this year's annual report. If you should have any questions, please feel free to contact us.

Ryan L Kiscaden
Executive Director, Thermostat Recycling Corporation

PENNSYLVANIA

2018 Collections and Evaluation

The following analytical report details the annual program performance for mercury thermostat collection in the state of Pennsylvania in 2018. A few of the program highlights for 2018 are included below:

- In 2018 the program **collected 92.5 lbs. of mercury** in Pennsylvania. Since 2000, the annual quantity of mercury collected in Pennsylvania has an average of 76.2 lbs.
- The program collected **9,763 whole thermostats in 2018**. This was a 9% decrease over the number of thermostats collected in 2017. Since 2000, the average thermostat count per year is 7,949.
- The **number of whole thermostats collected per bin in 2018 was 41 thermostats,** a decrease from 43 in 2017**.**
- The counties with the most bins and thermostats returned in 2018 were **Bucks County (18 bins, 822 thermostats), Cumberland County (15 bins, 734 thermostats), and Montgomery County (13 bins, 697 thermostats).**
- In 2018, **45% of the partner locations returned at least one bin**.
- **A total of 153 'Miss You' calls were placed and 15 site visits in 2018** which identified a positive relationship between activities and bins returned.
- In addition to 9,763 whole thermostats, **1,859 loose switches were collected, bringing the total number of "thermostat equivalents" returned in 2018 to 11,150**, an increase of 1% from 2017.

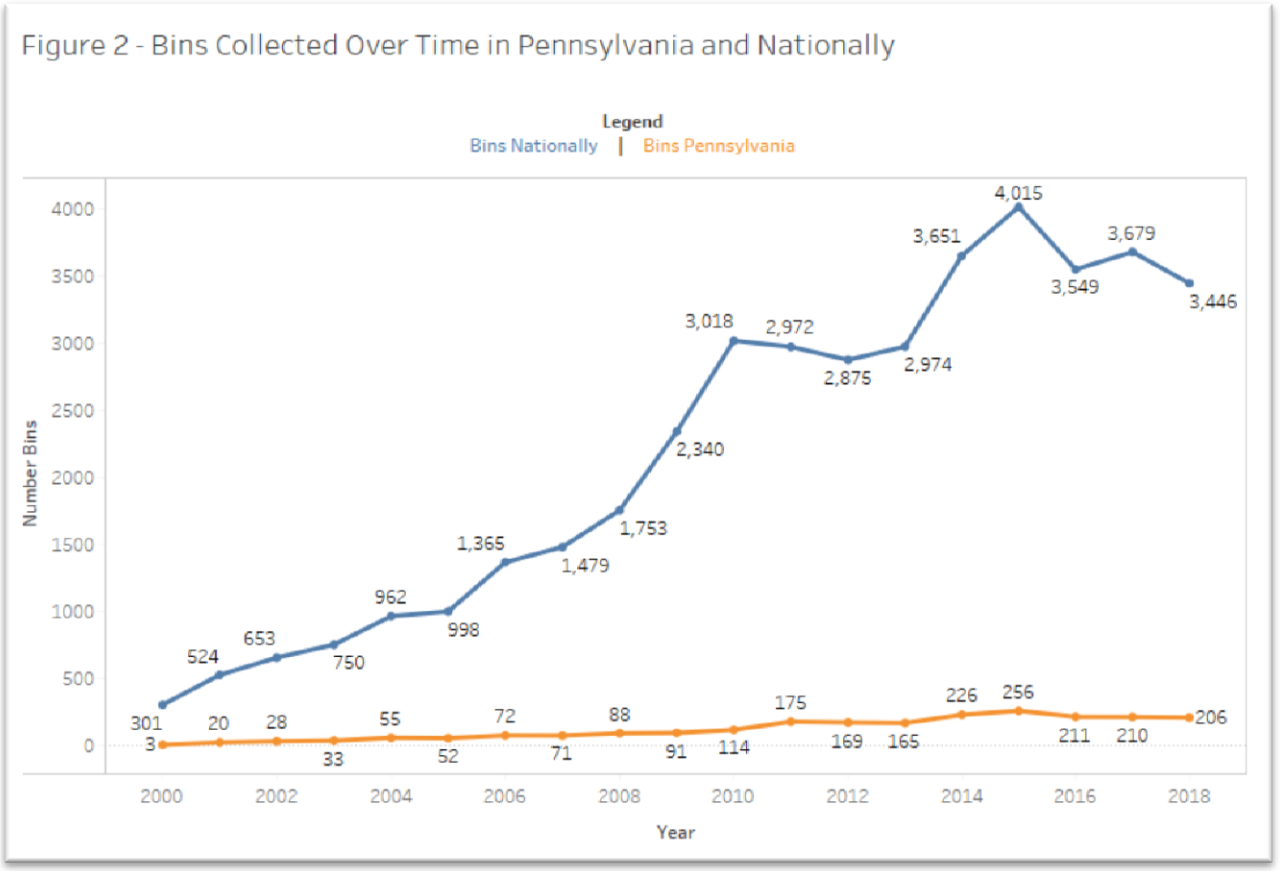
Section 1: Program Analytics

Section 1 of this report examines the annual performance of the thermostat collection recycling program in terms of bins, thermostats, and mercury collected as well as the year-over-year progression of the program. On average, the program has collected 76.2 lbs. of mercury and 7,949 whole thermostats per year since 2000. In 2018, the program collected 92.5 lbs. of mercury from 9,763 thermostats and 1,859 loose switches. Figure 1 below displays the total number of bins, the total number of thermostats, and the quantity of mercury collected in the Pennsylvania since the beginning of the program.

Figure 1 - Program Performance Over Time

Year	Number Bins	Number Thermostats	Mercury (Lb)
2000	3	278	2.5
2001	20	1,632	16.8
2002	28	2,242	25.8
2003	33	2,548	25.8
2004	55	4,632	46.2
2005	52	4,968	46.0
2006	72	7,019	59.4
2007	71	6,175	64.2
2008	88	7,560	72.2
2009	91	7,320	82.7
2010	114	9,500	99.1
2011	175	14,411	133.2
2012	169	11,406	114.8
2013	165	12,696	119.5
2014	226	14,201	133.0
2015	256	14,338	130.1
2016	211	9,676	88.8
2017	210	10,674	94.4
2018	206	9,763	92.5
Total	2,245	151,039	1,447.0
Average	118	7,949	76.2

Figure 2 displays the number of bins collected in the Pennsylvania since the initiation of the collection program, as well as the total number of bins collected in the U.S. over the same period. The number of bins collected in Pennsylvania has generally increased from 2000 to 2011. In 2014, bin returns increased again, peaking with highest number of bins returned in 2015 with 256 bins. In 2018, the number of bins returned was 206 bins.



The 92.5 lbs. of mercury collected in Pennsylvania in 2018 was 2% lower than the 94.4 lbs. collected in 2017. Figure 3 displays the quantity of mercury collected in the Pennsylvania over time as well as the annual percent change in the Pennsylvania and nationally.

Figure 3 - Quantity (Lb) of Mercury Collected in Program and Annual Changes to Pennsylvania and Nationally

Year	Mercury (Lb)	% Change Pennsylvania	% Change Nationally
2000	2.5	156%	
2001	16.8	570%	89%
2002	25.8	54%	14%
2003	25.8	0%	11%
2004	46.2	79%	17%
2005	46.0	0%	11%
2006	59.4	29%	32%
2007	64.2	8%	2%
2008	72.2	12%	16%
2009	82.7	14%	16%
2010	99.1	20%	26%
2011	133.2	34%	4%
2012	114.8	-14%	-5%
2013	119.5	4%	-5%
2014	133.0	11%	13%
2015	130.1	-2%	-1%
2016	88.8	-32%	-15%
2017	94.4	6%	-7%
2018	92.5	-2%	-42%
Average	76.2		

Pennsylvania collected 9,763 thermostats in 2018. This was a 9% decrease over the number of thermostats collected in 2017. Figure 4 displays the total number of thermostats collected in the Pennsylvania and nationally, and Figure 5 shares the underlying data as well as the calculated annual percent change.

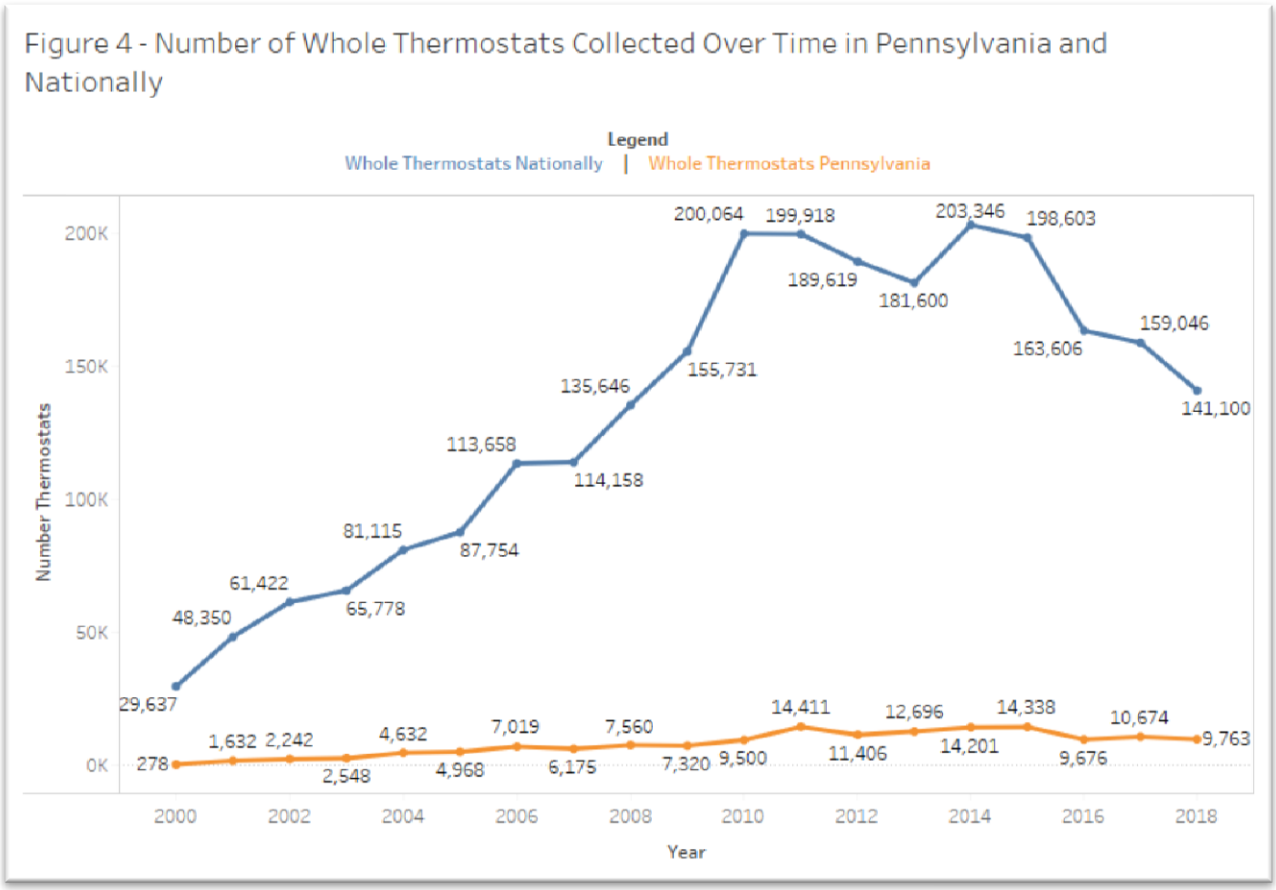
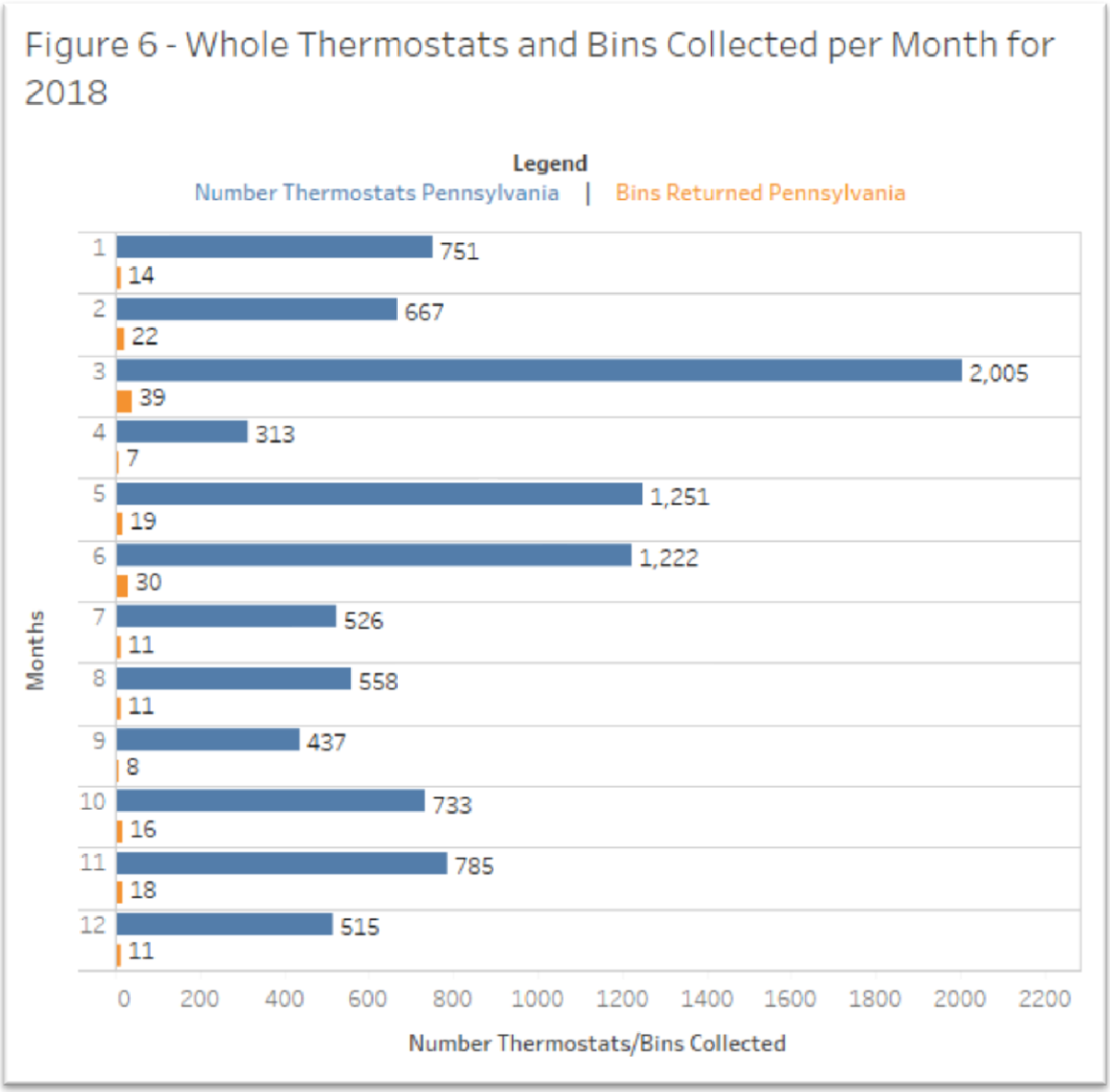


Figure 5 - Whole Thermostats Collected in Pennsylvania and Nationally Over Time and Annual Percent Change

Year	Number Thermostats Pennsylva..	% Change Pennsylvania	% Change Nationally
2000	278	85%	
2001	1,632	487%	63%
2002	2,242	37%	27%
2003	2,548	14%	7%
2004	4,632	82%	23%
2005	4,968	7%	8%
2006	7,019	41%	30%
2007	6,175	-12%	0%
2008	7,560	22%	19%
2009	7,320	-3%	15%
2010	9,500	30%	28%
2011	14,411	52%	0%
2012	11,406	-21%	-5%
2013	12,696	11%	-4%
2014	14,201	12%	12%
2015	14,338	1%	-2%
2016	9,676	-33%	-18%
2017	10,674	10%	-3%
2018	9,763	-9%	-11%

Average	7,949

Figure 6 displays the monthly distribution of bins and thermostats collected in the Pennsylvania in 2018. The months with the greatest number of thermostats returned were March (2,005 thermostats, 39 bins), and May (1,251 thermostats, 19 bins). The months with the greatest number of bins returned were March (39 bins), and June (30 bins). Conversely, the months with the least activity in 2018 were April and September.



The highest number of thermostats per bin returned occurred in May and September (65.8 and 54.6 thermostats per bin each month, respectively). Figure 7 shows the average number of thermostats per bin returned per month for the year.

Figure 7 - Average Thermostats per Bin Returned per Month for 2018

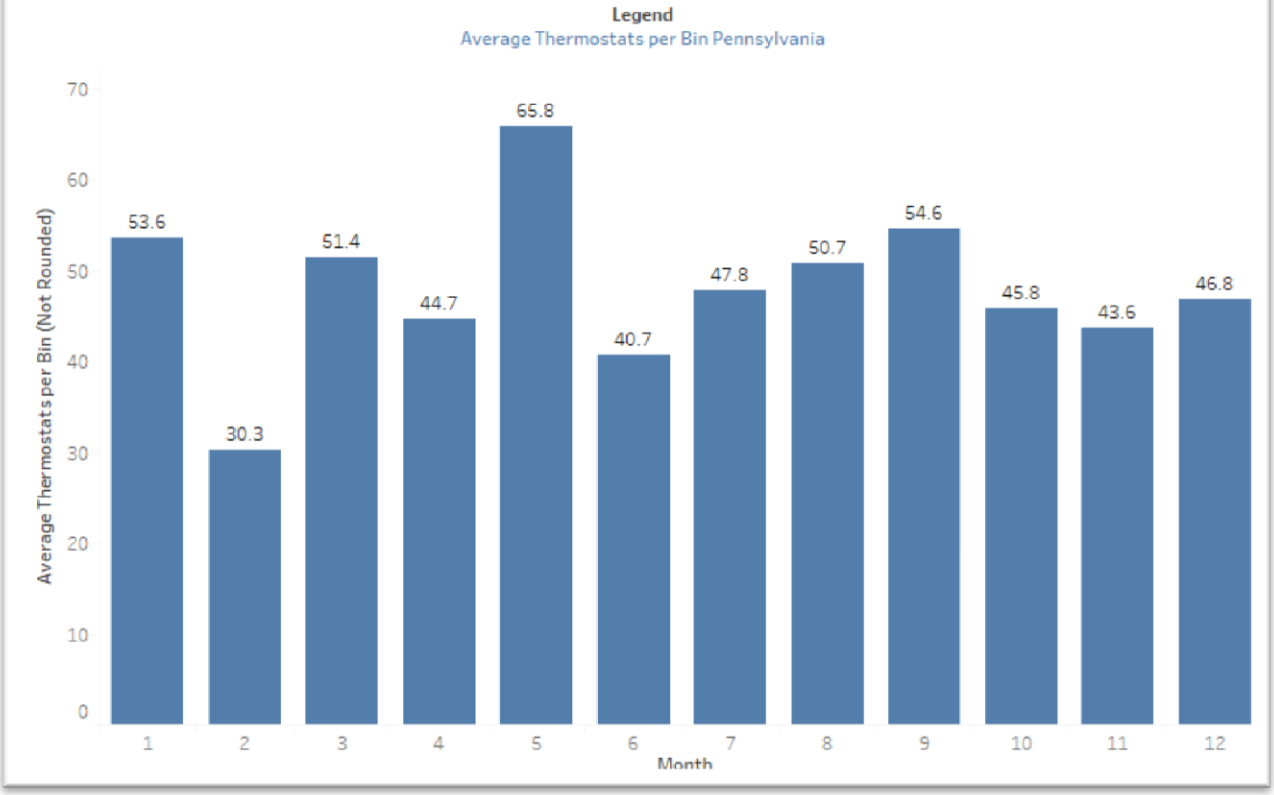


Figure 8 displays the average number of thermostats returned per bin in the Pennsylvania and in the U.S. since the beginning of the Pennsylvania program. Nationally, the number of thermostats per bin has been decreasing annually since 2000. In Pennsylvania a similar pattern is observed, with the exception of a few years. The number of thermostats per bin in 2018 (41 thermostats per bin avg.) decreased from 2017 (43 thermostats per bin avg.) which is the lowest to date.

Figure 8 - Average Number of Thermostats per Bin Returned Over Time in Pennsylvania and Nationally

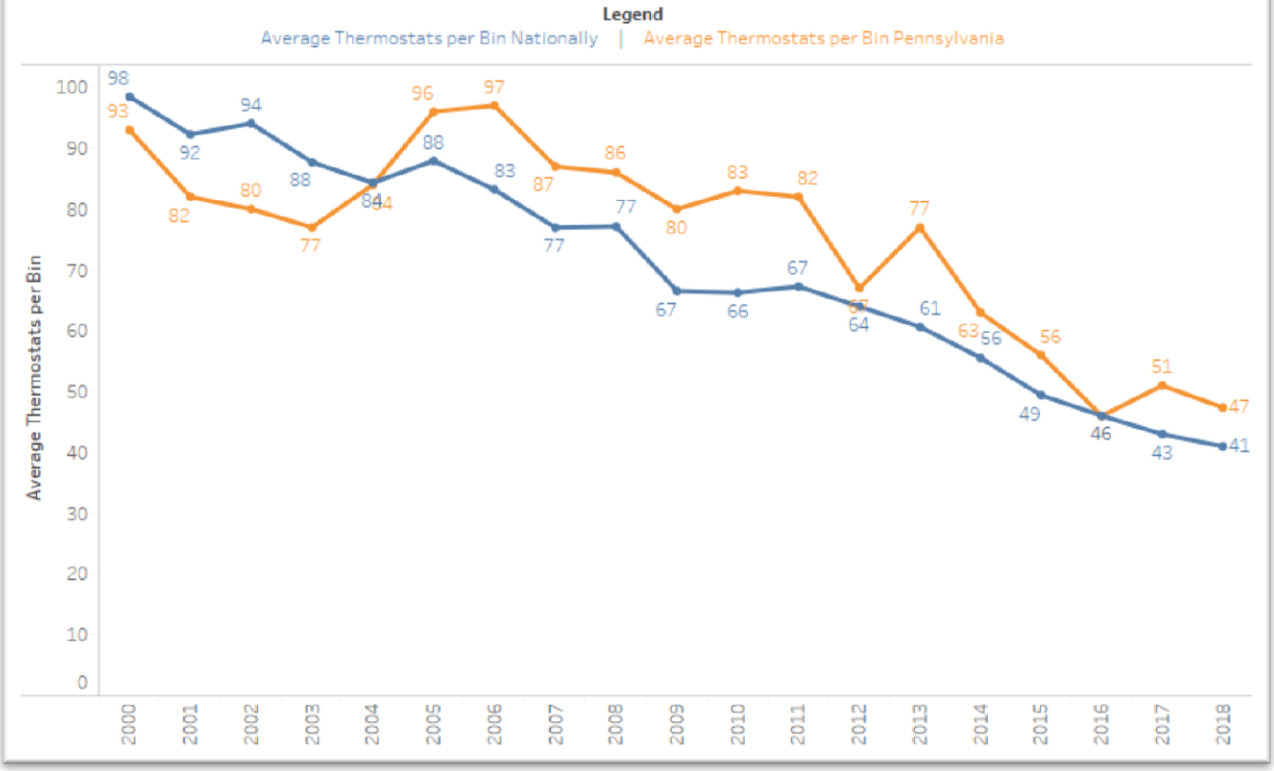
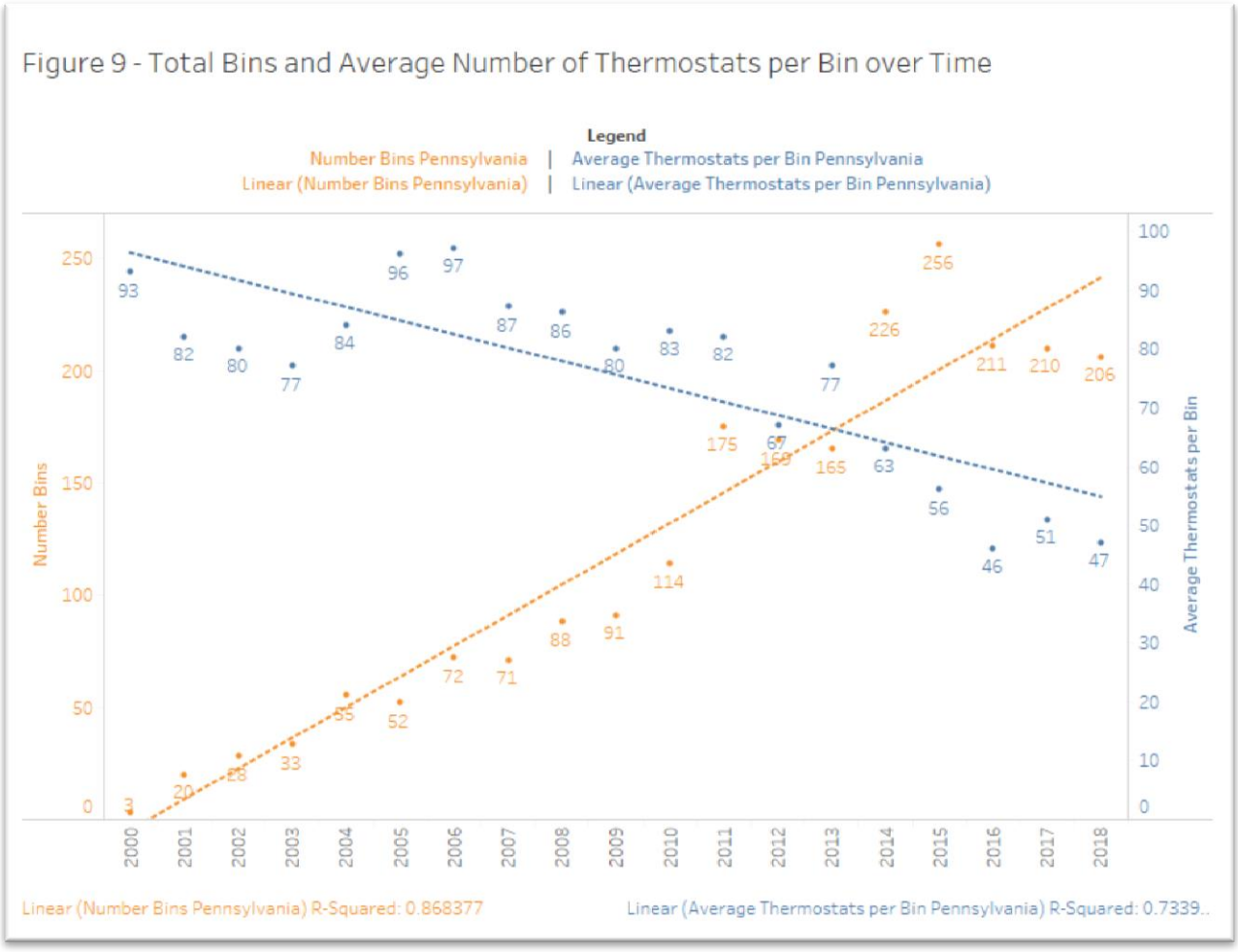


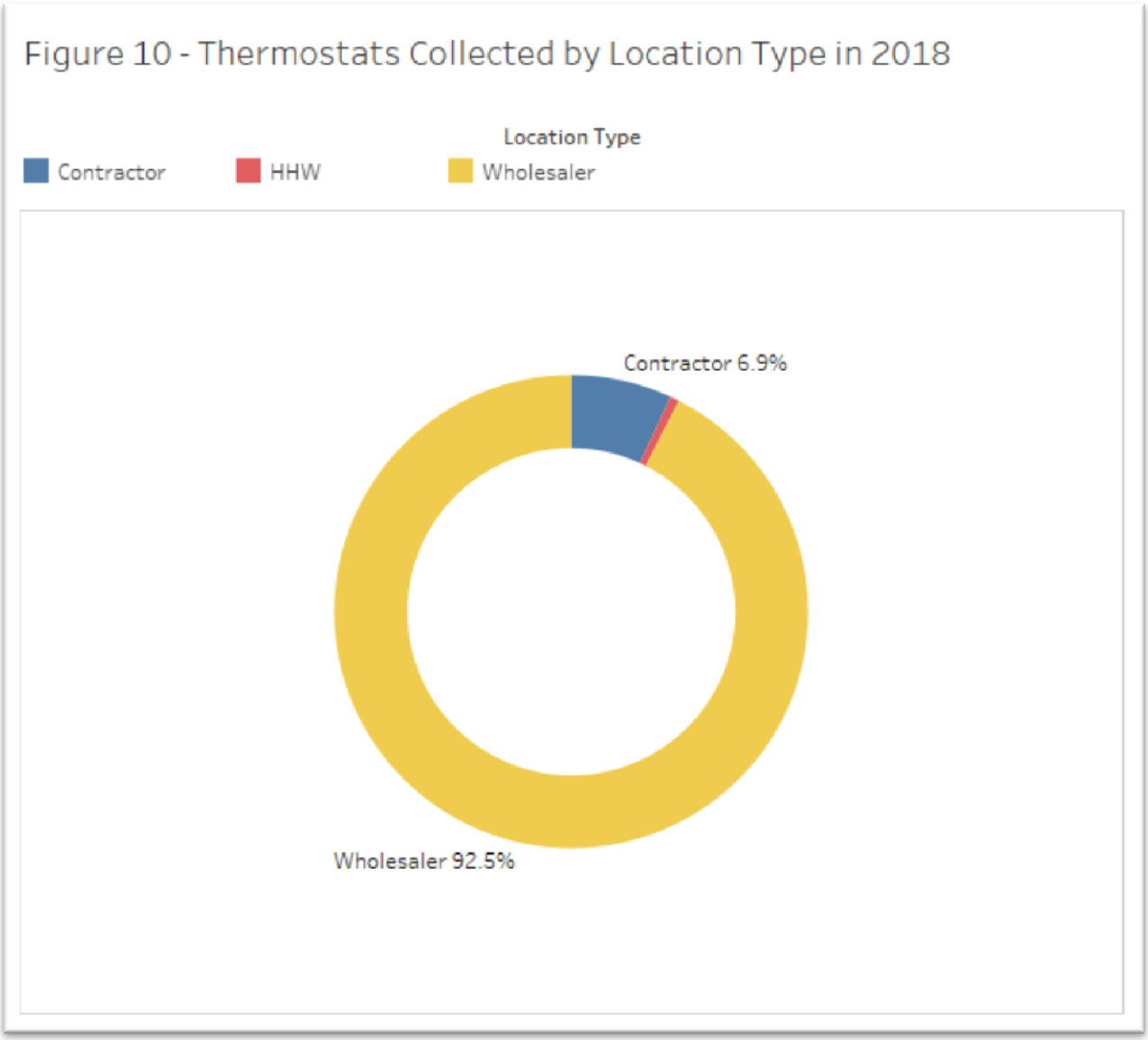
Figure 9 plots the total bins returned over time along with the average number of thermostats per bin over the same period. In general, the number of bins returned in Pennsylvania increased steadily from 2000 to 2015. At the same time, thermostats per bin generally grew until 2006, after which the trend in thermostats per bin dropped. A negative correlation has been identified between the number of bins returned and the number of thermostats per bin.



SECTION 2: Channel Partner Analysis

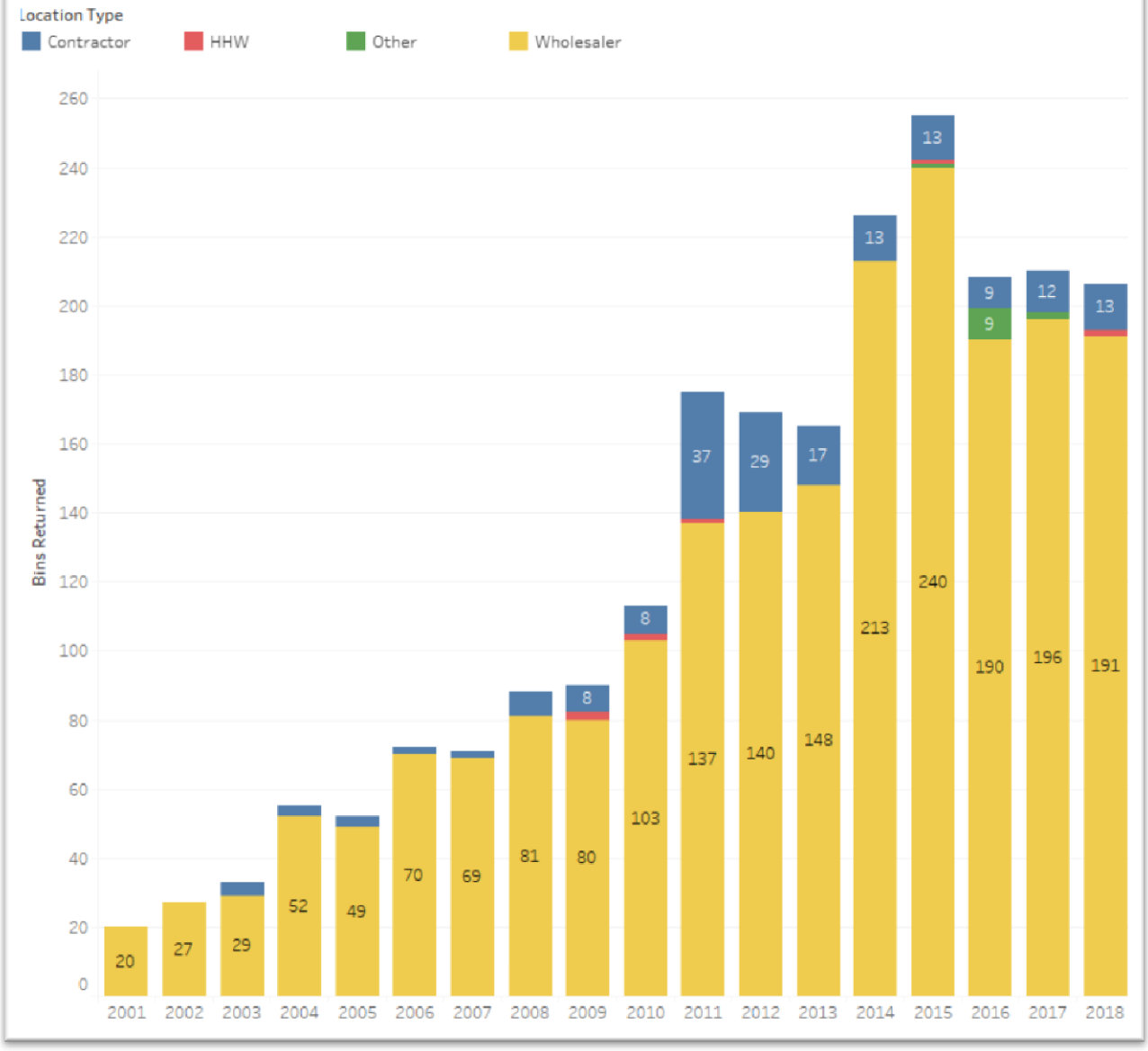
Section 2 of the report examines the partner locations in more detail. Most thermostats collected in the Pennsylvania were through wholesalers (92.5%) with the remaining thermostats collected by contractors (6.9%). Figure 10 shows the distribution of thermostats collected by location type in 2018.

Figure 10 - Thermostats Collected by Location Type in 2018



The number of bins returned in 2018 increased from 2017 levels across contractors. Wholesalers decreased to 191 from 196 bins. Figure 11 displays the change in the number of bins returned by thermostat collection type over time in the Pennsylvania.

Figure 11 - Thermostat Bins Returned by Location Type over Time



In 2018, 45% of Pennsylvania locations possessing a collection bin sent back at least one bin for recycling. The distribution is displayed in Figure 12.

Figure 12 - Percentage of Locations Returning a Bin in 2018

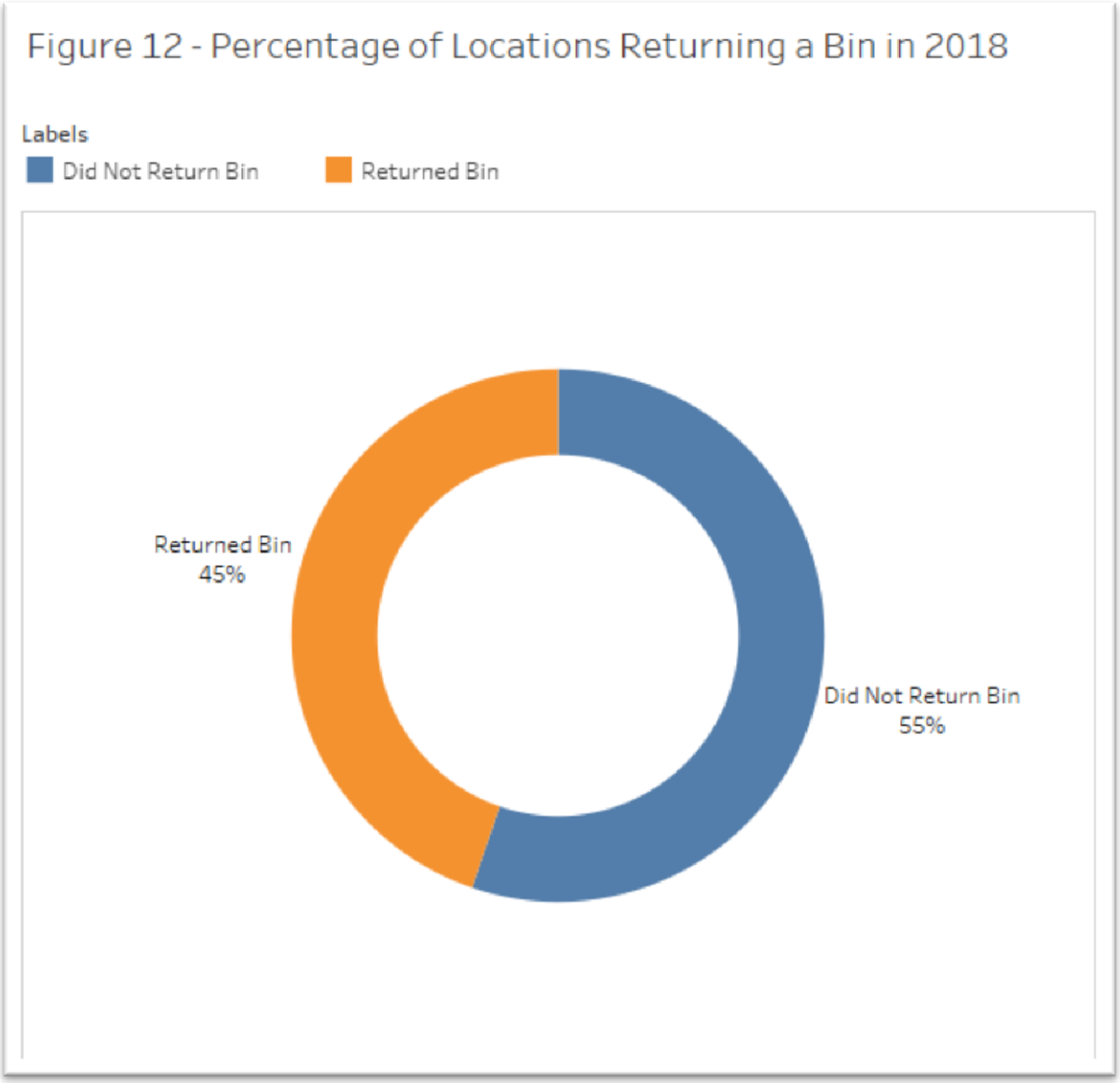


Figure 13 displays the total bins and thermostats returned by county in 2018. An analysis of the top performing counties revealed that Bucks County (18 bins, 822 thermostats), Cumberland County (15 bins, 734 thermostats), and Montgomery County (13 bins, 697 thermostats) returned the greatest number of bins and thermostats in 2018.

Figure 13 - Bins Returned and Total Thermostats Returned 2018 by County

	Number Thermostats	Number Bins
Bucks	822	18
Cumberland	734	15
Montgomery	697	13
Chester	663	16
Lehigh	647	12
Allegheny	642	14
Berks	601	7
Erie	540	7
York	484	7
Lancaster	470	7
Philadelphia	388	11
Franklin	293	4
Delaware	268	5
Butler	264	5
Mercer	240	3
Northampton	230	4
Lebanon	209	2
Luzerne	163	13
Dauphin	145	5
Clearfield	129	1
Westmoreland	111	4
Adams	96	2
Lycoming	91	3
Centre	86	4
Fayette	83	1
Crawford	76	1
Mifflin	68	1
Blair	56	1
Somerset	46	1
Indiana	43	1
Lackawanna	43	2
Washington	31	2
Monroe	29	3
Wayne	26	1
Columbia	20	1
Cambria	10	2
Schuylkill	9	1
Tioga	5	1

TRC partner R. E. Michel (2,876 thermostats) returned the highest number of thermostats in Pennsylvania in 2018, followed by Johnstone Supply (1,021 thermostats) and APR Supply (863 thermostats). Apart from these locations, 6 program partners returned more than 250 thermostats each. Figure 14 displays the top performers in terms of total thermostats returned in 2018.

Figure 14 - Top 10 Performing TRC Partners in Pennsylvania

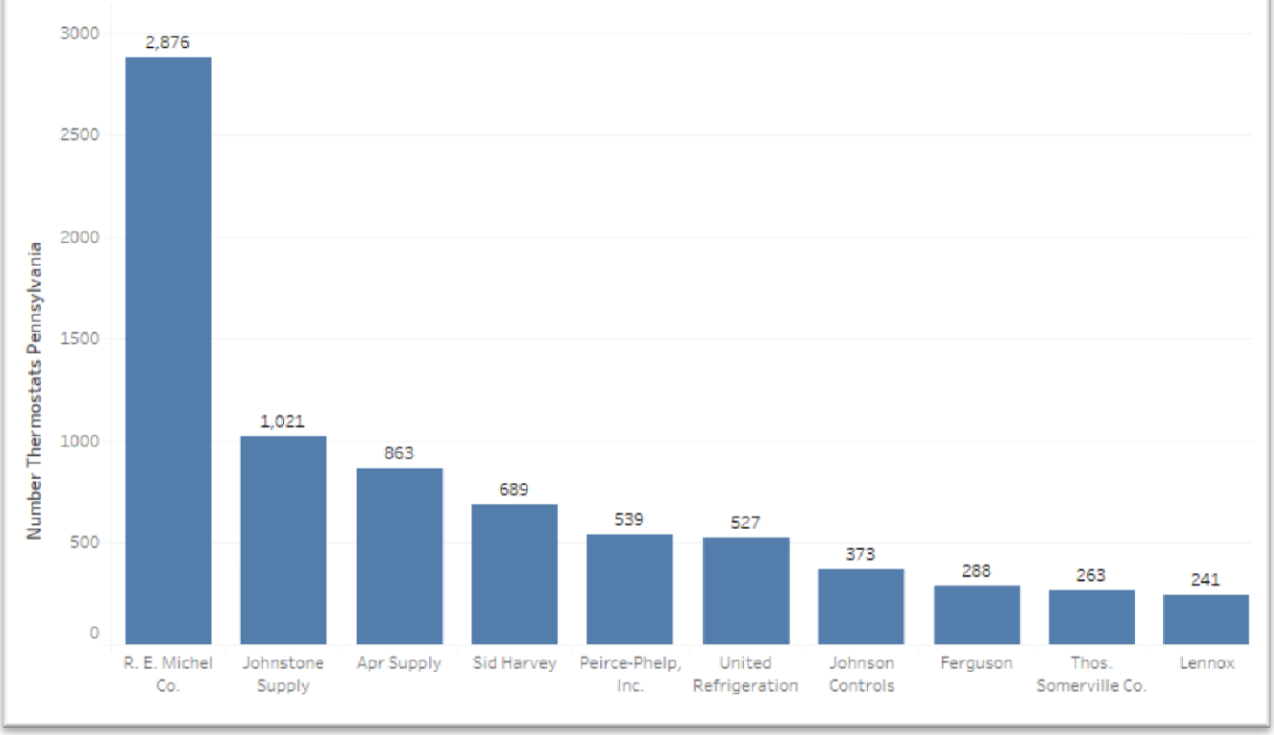


Figure 15 includes the top performers for 2018 by each of the following categories: total bins returned, total thermostats returned, and average number of thermostats per bin.

Figure 15 - Top 10 Performing Partners by Total Bins, Total Thermostats, and Average Thermostats per Bin

	Number Thermostats	Number Bins	Average Thermostats per Bin
R. E. Michel Co.	2,876	38	76
Johnstone Supply	1,021	15	68
Apr Supply	863	20	43
Sid Harvey	689	12	57
Peirce-Phelp, Inc.	539	10	54
United Refrigeration	527	17	31
Johnson Controls	373	13	29
Ferguson	288	9	32
Thos. Somerville Co.	263	4	66
Lennox	241	9	27

TRC conducted several activities in 2018 to increase the number of bins and thermostats returned in the Pennsylvania. These activities included site visits and 'miss you' calls to collection locations that may not have returned a bin recently. In 2018, 15 site visits were conducted in Pennsylvania, and a total of 153 'miss you' calls were placed. Figure 16 displays the relationship between the number of site visits per month, the bins returned per month, and the number of thermostats (in 100's) returned per month.

Figure 16 - Relationship Between Site Visits and Bins and Thermostats Returned Per Month in 2018

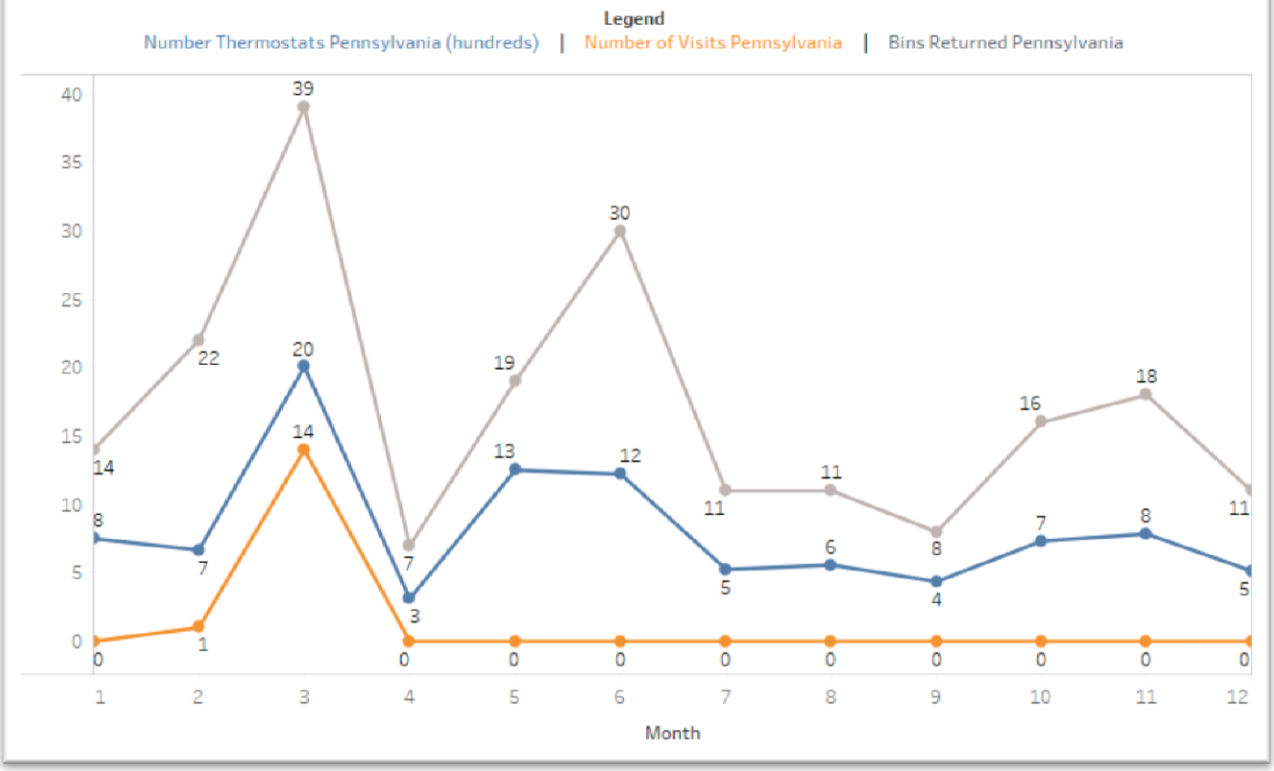


Figure 17 displays the relationship between the number of calls per month, the bins returned per month and the number of thermostats (by 100's) returned per month. Calls were placed in the months of January, May, and September.

Figure 17 - Relationship Between 'Miss You' Calls and Bins and Thermostats Returned per Month in 2018

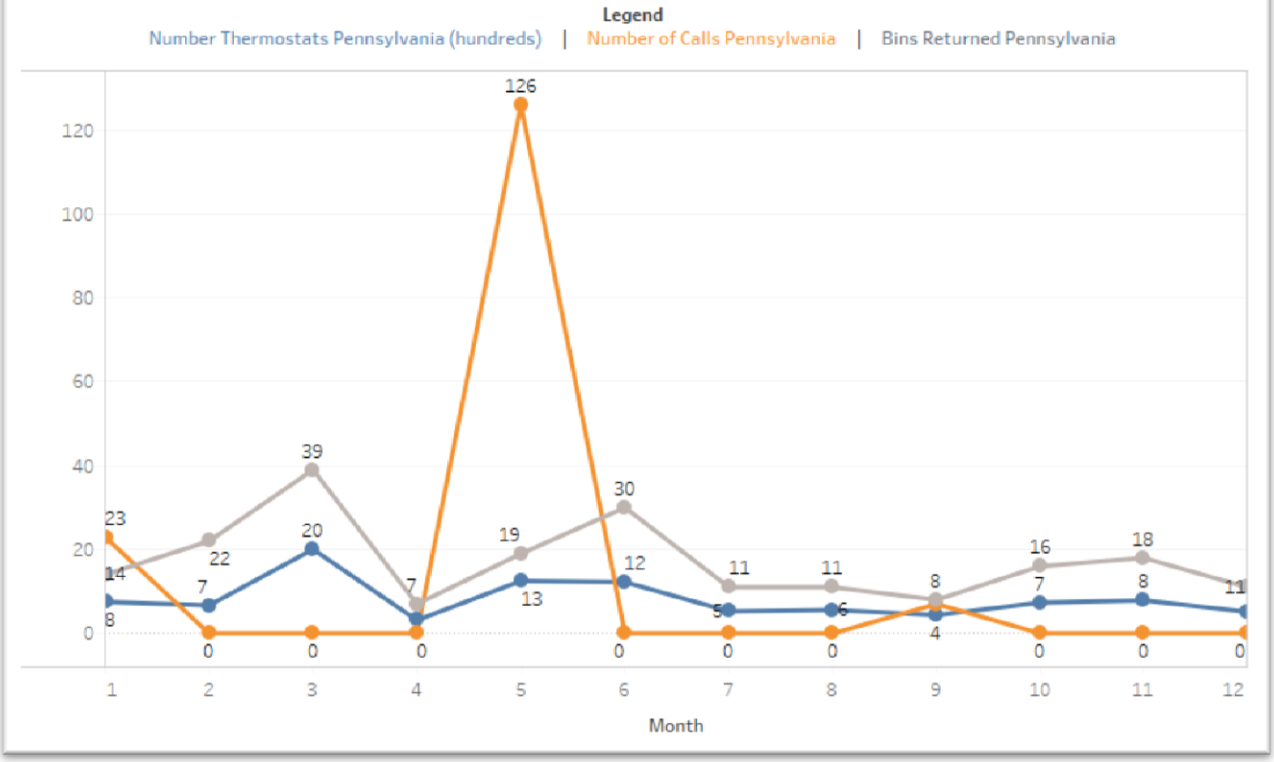


Figure 18 examines the return rates of four groups (if applicable) – locations that did not receive a call or visit, locations that received at least one visit, locations that received at least one call, and locations that received both a call and visit. The rate of active participation (which refers to locations that returned at least one bin) in 2018 was 46% for locations that did not receive either a visit and call but 89% for visited locations and only 43% for called locations.

Figure 18 - Percent Change in Bins and Thermostat Returns for Locations that Received a Visit or Call Over Locations that did not Receive Either

	No Visit No Call	Visit Only	Call Only	Visit and Call
Number of Locations	202	9	127	6
Rate of Active Participation*	46%	89%	43%	0%
Bins per Participating Location	1.43	1.50	1.07	
Thermostats per Participating Location	76	76	37	
Thermostats per Bin	53.02	50.92	34.40	

* Locations that returned one or more bins during 2018.

SECTION 3: Comparisons to National and Other States' Data

To compare how the Pennsylvania collection partners performed in 2018, the national average for the number of bins returned per locations that returned at least one bin was calculated and compared to the Pennsylvania average since 2012. The average number of bins does not include locations that did not return any bins in that year. It should be noted that when making comparisons each Pennsylvania has different regulations, different mix of housing types, local policies, and incentives that may have a unique impact on returns. Overall, the average number of bins returned per location per year was lower in Pennsylvania than the U.S. average, as shown in Figure 19.

Figure 19 - Average Number of Bins Returned Per Location Per Year

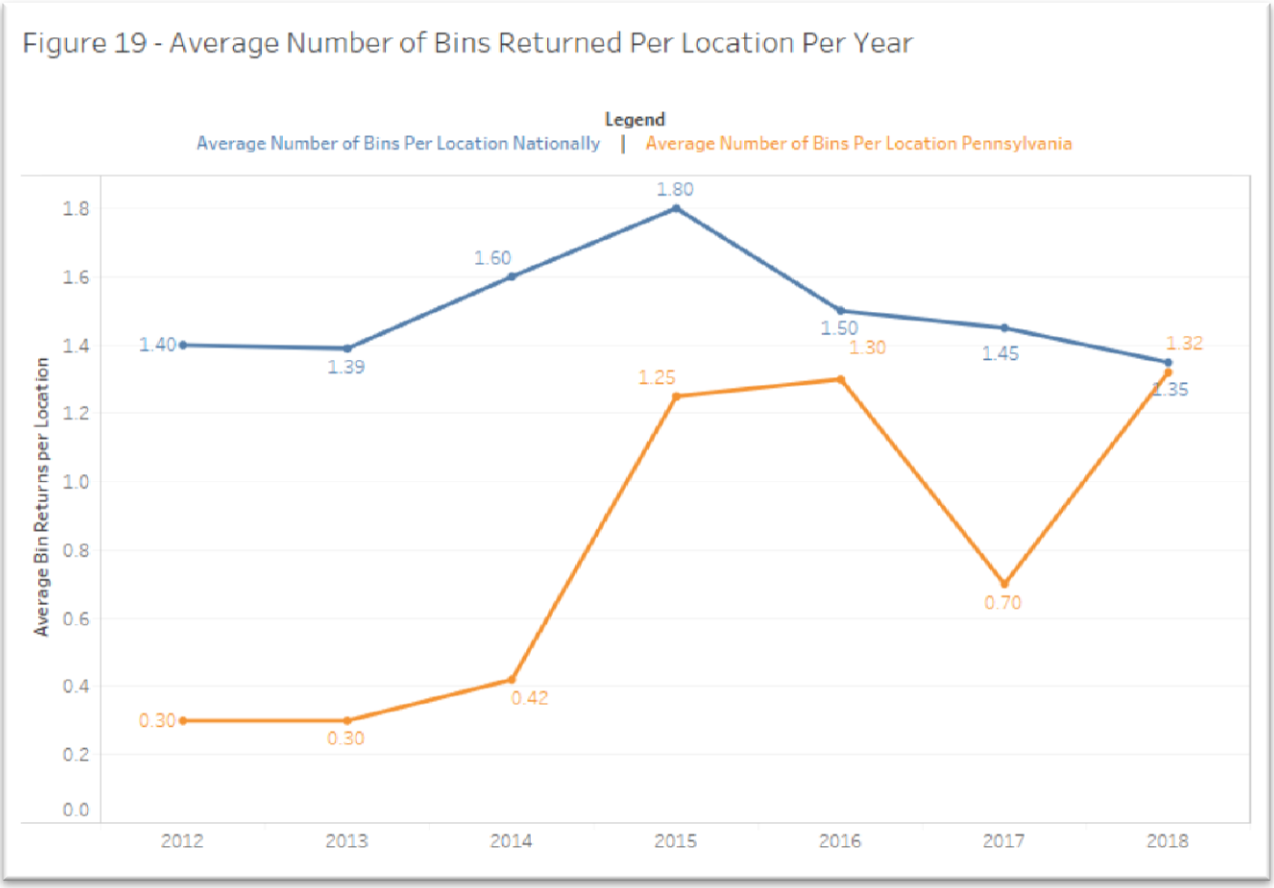


Figure 20 displays the locations in Pennsylvania that returned more than one bin in a given year since 2015, and Figure 21 displays the top 10 partners in the U.S. over the same period in terms of the number of bins returned.

Figure 20 - Partner Locations in Pennsylvania Returning More than 1 Bin per Last 4 Years

2015

R.e. Michel	39
Johnstone Supply	33
United Refrigeration	22
APR Supply Company	21
Johnson Controls (York UPG)	11
Sid Harvey Industries	11
Meier Supply Company Inc.	9
HVAC Distributors Inc	7
Lyon Conklin Co Inc	7
Peirce-Phelps Inc	7
Riley Sales	7
Robertson Heating Supply Co	7
Tran Parts Center	6
EPSCO	5
Lennox Industries Inc	4
Scott Electric	4
Goodman Distribution	3
Grove Supply inc	3
UGI HVAC	3
US Supply	3

2016

R.e. Michel	37
APR Supply Company	23
United Refrigeration	17
Johnstone Supply	14
Sid Harvey Industries	9
York UPG	8
Peirce-Phelps Inc	7
Binghamton Hardware & HVAC	5
HVAC Distributors Inc	5
Meier Supply Company Inc.	5
Robertson Heating Supply Co	4

2017

R.e. Michel	46
Johnstone Supply	26
United Refrigeration	18
Apr Supply Company	16
Sid Harvey Industries	9
Ferguson Enterprises	8
Peirce-Phelps Inc	8
UPG Stores	7
US Supply	7
Meier Supply Company Inc.	6
HVAC Distributors Inc	5

2018

R. E. Michel Co.	38
Apr Supply	20
United Refrigeration	17
Johnstone Supply	15
Johnson Controls	13
Sid Harvey	12
Peirce-Phelp, Inc.	10
Ferguson	9
Lennox	9
Hvac Distributors, Inc.	6
Meier Supply Company, Inc.	4
Robertson Heating Supply Co.	4
Thos. Somerville Co.	4
Epsco	3
Goodman Distribution	3
Trane	3
Binghamton Hardware & Hvac	2
Burkholder's Hvac	2
Hannabery Hvac	2
Us Supply	2

Figure 21 - Top 10 Performing Partner Locations Nationwide in Bins Returned Last 4 Years

2015

Johnstone Supply	519
R.E. Michel	336
Ferguson Enterprises	184
United Refrigeration	176
US Air Conditioning Distri..	106
Goodman Distribution Inc.	70
Gustave A Larson Company	62
Refrigeration Supplies Di..	54
Lennox Industries Inc.	51
Baker Distributing Compa..	50

2016

Johnstone Supply	444
R.E. Michel	292
United Refrigeration	237
Lennox Industries Inc.	131
Ferguson Enterprises	104
US Air Conditioning Distri..	70
Ace Supply Co Inc	66
Goodman Distribution Inc.	66
Lux Products	54
F.W. Webb	47

2017

Johnstone Supply	515
R.E. Michel	285
United Refrigeration	192
Ferguson Enterprises	144
Lennox Industries Inc.	89
US Air Conditioning Distri..	73
Refrigeration Supplies Di..	71
F.W. Webb	64
Goodman Distribution Inc.	60
Sid Harvey Industries	52

2018

Johnstone Supply	364
R. E. Michel Co.	258
United Refrigeration	213
Ferguson	108
Lennox	129
Us Air Conditioning Distributors (USACD)	69
Watsco	60
Wheelabrator	74
Sid Harvey	50
Goodman Distribution	55

Figure 22 displays total percentage of locations that actively participated in the program (active participation defined as sending back at least one bin) in 2018, for all the states that mandate thermostat returns reporting as well as the U.S. national average for all states (reporting and non-reporting). In 2018, 45% of the locations in PA returned at least one bin compared to a national average of 33%. The highest percentage of locations returning a bin in 2018 amongst states that mandate thermostat returns reporting was Rhode Island (73%).

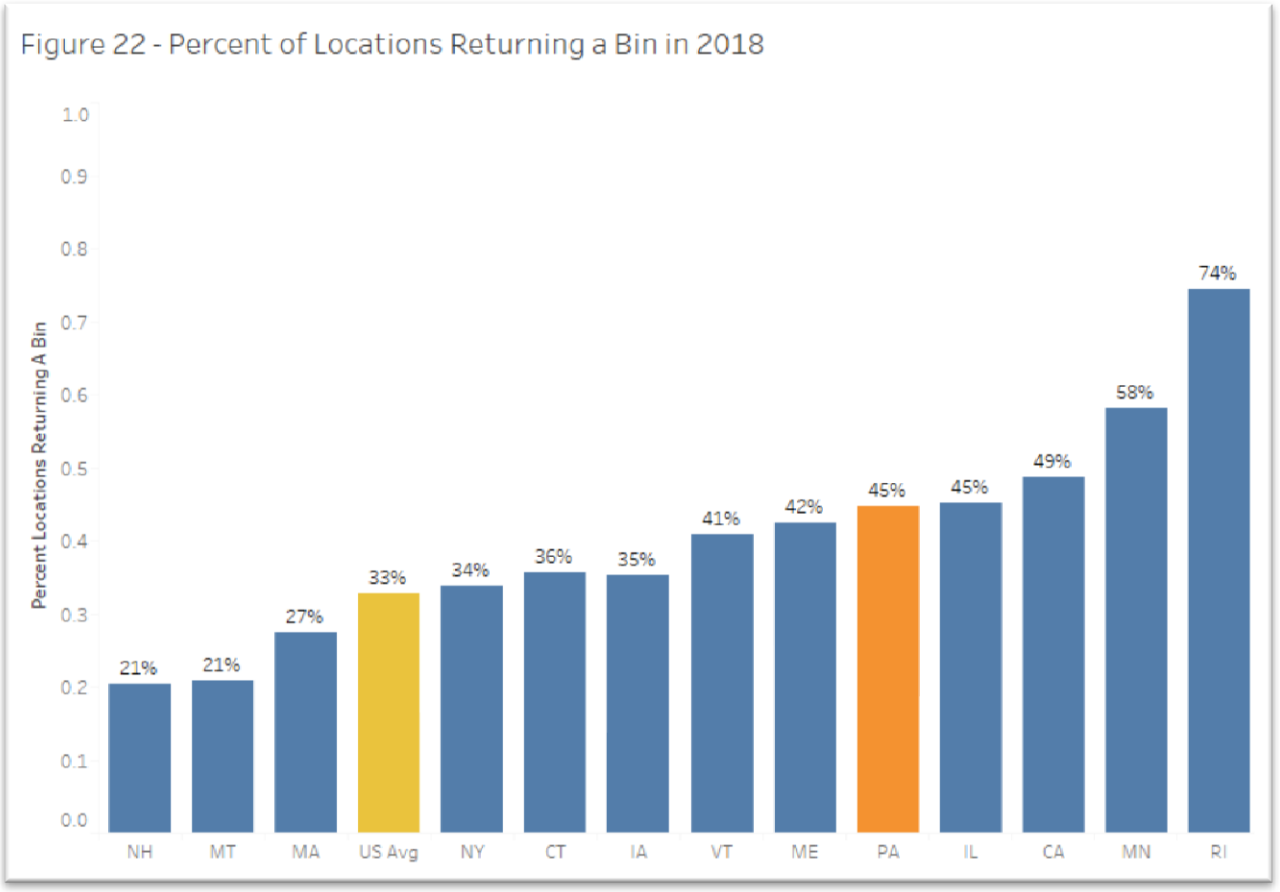


Figure 23 compares the Pennsylvania and national rates for several analytics. These include: total whole thermostats, bins, and loose switches collected, number of thermostats collected by total locations and per actively participating locations, number of thermostats per bin returned on average, equivalent average, number of mercury thermostat equivalents returned in 2018, and finally percent change in mercury thermostat conversion from 2017 to 2018. The equivalent average is an average of the number of switches in whole thermostats collected in the Pennsylvania, and it is used to represent and equivalent number of thermostats from returned loose switches. The thermostat equivalent number includes the totals of whole thermostats returned plus the number of thermostats estimated from loose switches. The states displayed are those that mandate thermostat returns reporting and the U.S. average is for all states that return bins (reporting and non-reporting).

Figure 23 - Comparison of States and US Average Among Several Categories

State	Whole Thermostats	Bins	Loose Switches	Thermostats returned per total # of locations with bins	Average Thermostats per bin	Average Thermostats collected per location that returned at least one bin in 2018	Equivalent Average	Thermostat Equivalents in 2018	% Change over previous year
CA	13,710	587	3,630	17	23	33	1.7600	15,773	-19%
CT	3,203	93	575	16	34	42	1.1000	3,726	-35%
IA	1,832	53	351	15	35	41	1.0800	2,157	-34%
IL	8,722	271	117	19	32	41	1.1700	8,822	-24%
MA	13,959	178	659	42	78	152	1.1400	14,537	62%
ME	3,014	105	2	15	29	35	1.0400	3,016	-24%
MN	7,859	117	774	59	67	101	1.2700	8,468	-5%
MT	314	5	65	13	63	63	0.9500	382	120%
NH	1,553	45	461	8	35	38	1.1700	1,947	-23%
NY	5,619	191	1,400	11	29	32	1.2200	6,767	-17%
PA	9,763	206	1,859	28	47	63	1.3400	11,150	1%
RI	4,384	65	22	93	67	125	1.0700	4,405	42%
VT	2,361	91	9	13	26	31	1.0800	2,369	-9%
US Avg	4,496	116	443	23	42	58	1.4461	4,817	-20%

Figure 24 further compares this state and national data by showing how each state ranked in each of these categories, from highest to lowest. The states compared are those that mandate thermostat returns reporting and the U.S. average is for all states that return bins (reporting and non-reporting).

Figure 24 - Comparison of States and US Average Among Several Categories, Rankings

	Whole Thermostats	Bins	Loose Switches	Thermostats returned per total # of locations with bins	Average Thermostats per bin	Average Thermostats collected per location that returned at least one bin in 2018	Equivalent Average	Thermostat Equivalents in 2018	% Change over previous year
1	MA	CA	CA	RI	MA	MA	CA	CA	MT
2	CA	IL	PA	MN	MN	RI	US Avg	MA	MA
3	PA	PA	NY	MA	RI	MN	PA	PA	RI
4	IL	NY	MN	PA	MT	MT	MN	IL	PA
5	MN	MA	MA	US Avg	PA	PA	NY	MN	MN
6	NY	MN	CT	IL	US Avg	US Avg	IL	NY	VT
7	US Avg	US Avg	NH	CA	CT	CT	NH	US Avg	NY
8	RI	ME	US Avg	CT	IA	IA	MA	RI	CA
9	CT	CT	IA	IA	NH	IL	CT	CT	US Avg
10	ME	VT	IL	ME	IL	NH	IA	ME	NH
11	VT	RI	MT	MT	NY	ME	VT	VT	IL
12	IA	IA	RI	VT	ME	CA	RI	IA	ME
13	NH	NH	VT	NY	VT	NY	ME	NH	IA
14	MT	MT	ME	NH	CA	VT	MT	MT	CT

2018 Collections by Brand

In Pennsylvania, Thermostat Recycling Corporation (TRC) recovered the equivalent of 11,150 mercury thermostats from 9,763 whole mercury thermostats plus 1,859 mercury switches removed from thermostats. A total of 92.5 pounds of mercury was diverted from solid waste.

*Please note the explanation of the converted thermostats or thermostat equivalents below.[2] An example of the mercury ampoule is shown below.

As required by the Pennsylvania statute, a table of thermostat brand holder with the corresponding thermostats, count of switches and pounds of mercury recycled is below. It is important to note that there still remain non-members whose thermostats the TRC collection program recycles. They are listed in the table as "Non-Member Brands". Also, there were a few changes that affected TRC's membership.

1. Lear Siegler dissolved their business and is no longer a paying TRC member. Please see the Appendix regarding their dissolution notice.
2. Johnson Controls, Inc. closed on a transaction which acquired the assets of Lux Products Corporation. Lux's remaining liabilities (including the mercury thermostat obligation) remained with a newly created company, STLPC Corporation.

[2] A mercury thermostat contains a variable amount of mercury ampoules or "switches" attached to the subbase of the thermostat. These glass ampoules often times are collected in the recycling container without the intact thermostat attached to them. TRC collects and counts these loose ampoules and recycles them. To derive the converted thermostat or thermostat equivalent, the program takes the following calculations to develop the converted thermostat or thermostat equivalent. First, TRC will count the total whole (intact) thermostats collected in the recycling bins. From these units, there is an intact ampoule count. TRC then takes the intact ampoules divided by the whole (intact) thermostats or otherwise known as the conversion ratio. After the conversion ratio is calculated, TRC will multiple the loose mercury switches by the conversion ratio. Lastly, we add this result to the whole (intact) thermostats to produce the converted thermostats or thermostat equivalents.

Brand Holder	Thermostats Count	Switches	Pounds Mercury
Bard Manufacturing Corporation	2	2	0.0124
Burnham Holdings, Inc	5	5	0.031
Carrier Corporation	168	308	1.9096
Chromalox	1	1	0.0062
Climate Master, Inc.	7	14	0.0868
Crane Company	0	0	0
Daikin Applied	0	0	0
ecobee	0	0	0
Emerson Electric Corporation/White Rodgers	793	891	5.5242
Empire Comfort Systems	40	43	0.2666
General Electric Corporation	75	207	1.2834
Goodman Global	50	103	0.6386
Honeywell Home	7797	9825	60.915
Hunter Fan Company	0	0	0
ITT Corporation	0	0	0
Lennox International Inc.	176	332	2.0584
Marley-Wylain Company	4	4	0.0248
Nest	0	0	0
Nortek Global HVAC	25	51	0.3162
Rheem Manufacturing Company	46	88	0.5456
Schneider Electric (Invensys Controls)	26	27	0.1674
Sears Holdings	7	10	0.062
STLPC (Representing the liability of Lux Products Corporation)	21	22	0.1364
Taco Comfort Solutions	5	6	0.0372
TPI Corporation	2	4	0.0248
Trane Residential Systems	306	793	4.9166
Uponor, Inc.	5	14	0.0868
Vaillant Corporation	0	0	0
W. W. Grainger	4	6	0.0372
York/Johnson Controls	45	87	0.5394
Non-Member Brands–			
ADDISON	2	8	0.0496
ASYSTAT	9	22	0.1364
ces	14	34	0.2108
COLMAN	1	2	0.0124
EFM	17	17	0.1054
esso	2	2	0.0124
EVCON	5	10	0.062
florida heat	2	4	0.0248
Florida Heat Pump	3	8	0.0496
HALEN	83	83	0.5146
Lear Siegler	4	12	0.0744
NY	2	2	0.0124
REXOIL	6	6	0.0372
sjc	1	4	0.0248
TETCO	1	2	0.0124
WATER FURNACE	1	2	0.0124
NOM (Manufacturer not identifiable)			
Loose Switches	0	1859	11.5258
TOTAL	**9,763**	**14,920**	**92.50**

2018 Accounting of the Program Expenses

Below is a summary of program expenses for the Pennsylvania collection program in 2018. 2018 program expenses (reported in the annual report) are unaudited and are for management purposes only. Prior to submittal of this annual report, the expenses were reviewed by Halt, Buzas & Powell, LTD. In 2018, the program spent nationally a grand total of $3,306,769.

Program Component	2017	2018	Difference ($'s)
Direct Expense for Marketing & Outreach	1,928	7,775	5,847
Incentive/Promotional Payments	-	(125)	(125)
Legal	-	-	0
New Collection Containers	-	-	0
Recycling Costs	34,916	41,003	6,087
Travel	1,265	1,161	(104)
TRC Staff and Administration	6,778	8,560	1,783
Total (expenses)	**44,887**	**58,375**	**13,488**

2018 PENNSYLVANIA ANNUAL REPORT

Thermostat Recycling Corporation Headquarters

500 Office Center Drive – Suite 400 | Fort Washington, PA 19034

1-888-266-0550

www.thermostat-recycle.org

Questions about this annual report?

Contact:

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(P) 267-513-1727

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All state specific annual reports are posted on our website at the following weblink:

https://www.thermostat-recycle.org/resources/media_center/

APPENDICES

How Mercury Thermostat Waste is Handled

Certificate of Dissolution – Lear Siegler

Thermostat Recycling™ CORPORATION

500 Office Center Drive – Suite 400 | Fort Washington, PA 19034| thermostat-recycle.org

HOW MERCURY THERMOSTAT WASTE IS HANDLED

WASTE MERCURY-ADDED THERMOSTAT MANAGEMENT THROUGH VEOLIA ES TECHNICAL SOLUTIONS, LLC.

Beginning December 19, 2016, bins with waste mercury-switch thermostats were received at a new fulfillment/inventory center in Port Washington, Wisconsin (WIR000130591). The facility is owned and operated by Veolia ES Technical Solutions, L.L.C. (Veolia) under contract with TRC.

All recycling containers, including pails and bins are received at the loading dock and sent to the TRC inventory area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name (location name), city, state, zip code, date returned, number of thermostats and mercury switches by manufacturer and any non-conforming material.

The containers are returned to the location that sent it in with a new prepaid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The thermostats and any loose bulb collected from the bins are consolidated into a special 55-gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are captured and vented when the drum is opened.

The 55-gallon drum is then shipped to Veolia's mercury recovery facility (WID988566543) for final processing of the mercury ampoules (switches) Veolia Environmental Services meets or exceeds all local, state, federal and EPA regulations for the management of the product.

The containers are returned from the storage area to the mercury recovery processing area to have the mercury bulbs removed from the plastic housing. Universal Waste Regulations require the recycling and disposal of waste within 12 months of acceptance at the processing facility.

Small quantities of thermostats are removed from the container, which is then closed again, a spillage. The bulbs are removed from the thermostats and placed into processing vessel at the work station. Once the processing vessel is full, the vessel is loaded into the mercury recovery retort oven.

If a bulb breaks and the mercury spills, the work area is designed to contain the spillage and the operators are trained in the clean-up and disposal of mercury. The TRC inventory

and processing areas are equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

Veolia meets or exceeds all local, state, federal and EPA regulations for the management of the product. The mercury recovery facility and process are permitted by the Wisconsin Department of Natural Resources. Veolia's approvals for mercury recovery/recycling include:

- EPA - identification WID988566543
- Hazardous Waste Storage License #6008
- Hazardous Waste Treatment License (Mercury Recovery Operations) #4585
- Air Operation Permit #246076050-S01
- Storm Water General Permit #WI-S067857-4

In addition to the regulatory permits, both Veolia Port Washington facilities have developed and maintains management systems in accordance with ISO 14001-2004, OHSAS 18001-2007, and Responsible Recycling (R2:2013) Practice. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

The mercury containing ampules are retorted at Veolia's Port Washington Mineral Springs facility. The mercury is removed during the retort process. The post retort debris consists of broken glass ampules. The debris is tested for residual mercury to document the removal of the mercury to levels below the US EPA Land Disposal Restriction (LDR) levels. The debris is then disposal of as a non-hazardous solid waste at Advanced Disposal Glacier Ridge Landfill, LLC in Horicon, Wisconsin.

A site evaluation of the Veolia Processing Center in Port Washington, WI was conducted by TRC staffer, Danielle Myers, in early October 2017. From this audit, a new design flow for processing bins was discovered, as well as more efficient ways to return bins back to participating facilities and contractors. Updates to packaging instructions were also a result, and will include new marketing collateral, incentives, and small pails.

State of Delaware
Secretary of State
Division of Corporations
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STATE OF DELAWARE

CERTIFICATE OF DISSOLUTION

The corporation organized and existing under the General Corporation Law of the State of Delaware.

DOES HEREBY CERTIFY AS FOLLOWS:

The dissolution of said Lear Siegler Diversified Holdings Corp. has been duly authorized by the Board of Directors and Stockholders in accordance with subsections (a) and (b) of Section 275 of the General Corporation Law of the State of Delaware.

The date the dissolution was authorized is July 23, 2018.

The following is a list of the names and addresses of the directors of the said corporation:

NAME	ADDRESS
James F. Matthews	14802 Bellezza Lane, Naples, FL 34110

The following is a list of the names and addresses of the officers of the said corporation:

NAME	OFFICE	ADDRESS
James F. Matthews	President, Secretary and Treasurer	14802 Bellezza Lane, Naples, FL 34110

The date the original certificate of incorporation of Lear Siegler Diversified Holdings Corp. was: January 13, 1987.

The registered office of Lear Siegler Diversified Holdings Corp. within the State of Delaware is located at 1209 Orange Street, City of Wilmington, New Castle County, Delaware 19801 and the name of its registered agent for service of process in the state is The Corporation Trust Company, the business office of which is identical with the registered office of Lear Siegler Diversified Holdings Corp.

By: /s/ James F. Matthews
Authorized Officer
Name: James F. Matthews
Title: President, Secretary and Treasurer