

Recommending the Program

Surveyed participants were asked if they recommended this program to any of their friends, neighbors or relatives and if so to how many people. Overall, about three-quarters of participants reported that they did recommend the program (81.4% of Ohio participants and 72.4% of Kentucky participants). Surveyed participants who recommended the program to others recommended it to an average of 5.8 people apiece, with a median of four others informed per participant; the range of recommendations per survey participant is from one to thirty-five other people. There are no significant differences between Ohio and Kentucky customers in terms of recommending the program.

Participant Satisfaction

Participants were asked for their levels of satisfaction on a one-to-ten scale (with one being the lowest and ten being the highest) for individual measures they received as well as different aspects of the program. The survey can be found in *Appendix E: Participant Survey Instrument* and the results of the satisfaction questions are presented below.

Measure Satisfaction

Table 24 below shows the respondents' mean satisfaction scores with the various measures provided by this program. Customers only provided satisfaction ratings for measures they confirmed receiving.

Most measures provided by this program received mean satisfaction ratings of "9" or higher on a ten-point scale, indicating high levels of satisfaction. The highest satisfaction ratings for measures rated by at least ten participants are for the foam insulation spray (9.75 with 16 customers rating this measure), water heater temperature adjustment (9.62 based on 34 ratings) and water heater pipe wrap (9.56 based on 39 ratings). The lowest satisfaction ratings are for low-flow showerheads (8.64 based on 61 ratings) and the vinyl weather stripping for doors (8.80 based on 46 ratings). None of the surveyed participants in the Midwest gave ratings for vinyl weather stripping for window HVAC units, and only two participants (both in Ohio) rated the clear glass patch tape.

There is only one statistically significant difference between states in terms of satisfaction ratings for measures: Kentucky participants are more satisfied with the faucet aerators (9.65 based on 26 ratings) than Ohio participants (8.98 based on 44 ratings; this difference is significant at $p < .10$ using ANOVA).

Table 24. Mean Satisfaction Ratings for Measures (N=128)

Measure	Ohio		Kentucky		Total Midwest
	Valid N (not including don't know)	Average Rating	Valid N (not including don't know)	Average Rating	Average Rating
CFLs	63	9.37	55	9.51	9.43
Switch Plate Wall Thermometer	59	9.08	41	9.27	9.16
HVAC Filters Year Supply	41	9.51	38	9.53	9.52
Faucet Aerators	44	8.98	26	9.65	9.23
Low-flow Showerheads	30	8.63	31	8.65	8.64
Change Filter Calendar	25	9.60	27	9.33	9.46
Door Sweeps	22	9.64	23	9.35	9.49
Vinyl Weather Stripping Doors	33	8.85	13	8.69	8.80
Water Heater Pipe Wrap	24	9.42	15	9.80	9.56
Water Heater Temperature Adjustment	15	9.40	19	9.79	9.62
Caulking Doors	15	9.13	7	9.71	9.32
Caulking Windows	10	9.40	7	9.71	9.53
Foam Insulation Spray	9	9.78	7	9.71	9.75
HVAC Winter Kit for Wall/Window Unit	7	9.71	8	9.13	9.40
Water Heater Tank Insulation Wrap	7	9.57	2	9.00	9.44
Clear Glass Patch Tape	2	10.00	0	NA	10.00
Vinyl Weather Stripping for window HVAC units	0	NA	0	NA	NA

Customers who gave satisfaction ratings of “7” or lower on a ten-point scale were asked the reason for their relatively low satisfaction with a measure. These responses are summarized in later sections of this report that discuss the installation of each individual measure.

Program Satisfaction

The surveyed participants are very satisfied with the Residential Neighborhood program. Figure 6 below shows the respondents’ mean satisfaction scores with various aspects of the program.

Overall program satisfaction among participants in Ohio and Kentucky is extremely high, averaging 9.70 (across both states) on a ten-point scale where “10” is most satisfied. Surveyed participants also rated their satisfaction with the auditors who came to their homes and performed the audit: on the same ten-point scale, the auditors’ knowledge was rated at 9.66, and their helpfulness was rated at 9.73. Satisfaction ratings in Ohio and Kentucky are very similar, with no statistically significant differences.

The community meeting also received high satisfaction scores, averaging 9.76 for the information presented at the meeting and 9.82 for the staff and presenters. However these ratings are based on the much smaller group of participants who attended these community meetings; only 18 Ohio customers and four Kentucky customers provided satisfaction ratings for the meetings.

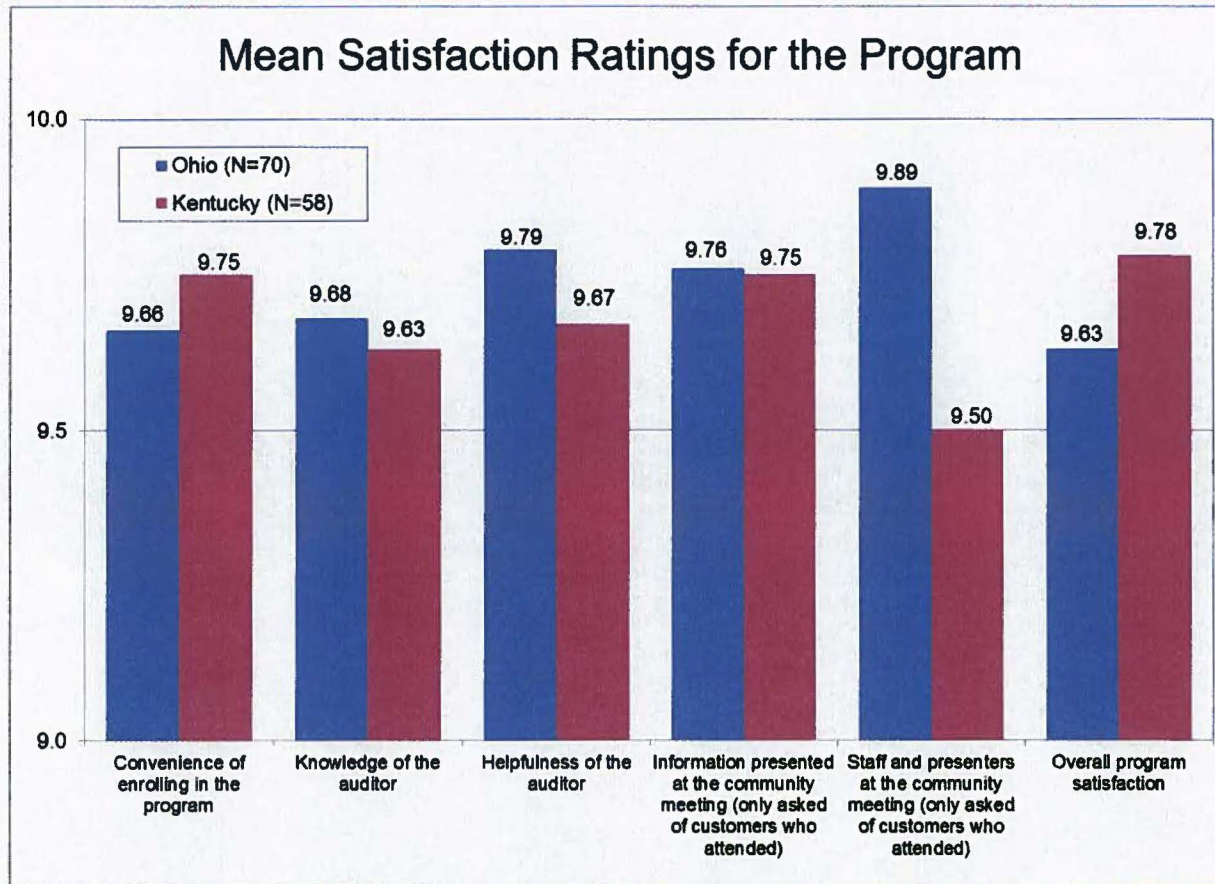


Figure 6. Mean Satisfaction with the Program and Components (N=128)

For questions receiving satisfaction ratings of “7” or lower, participants were asked what could be done to improve the situation; however for each of the ratings questions shown above there were no more than three respondents giving ratings of “7” or lower. Comments from the small number of customers who gave low ratings to auditors specify that the auditors were rushed, unprepared and could have done a more thorough job. Comments about low ratings for other aspects of the program are not informative (“it was fine”, “I don’t know”, etc.)

Satisfaction with Duke Energy

Satisfaction with Duke Energy is generally high among these program participants, with a mean rating of 8.79 on a ten-point scale where “10” means “very satisfied”, and nearly half of surveyed participants (48.4%) rate their satisfaction with Duke Energy at “10 out of 10”, the highest possible score. Satisfaction with Duke Energy is similar in Ohio (mean rating 8.72) and Kentucky (8.86). The full distribution of responses is shown in Figure 7.

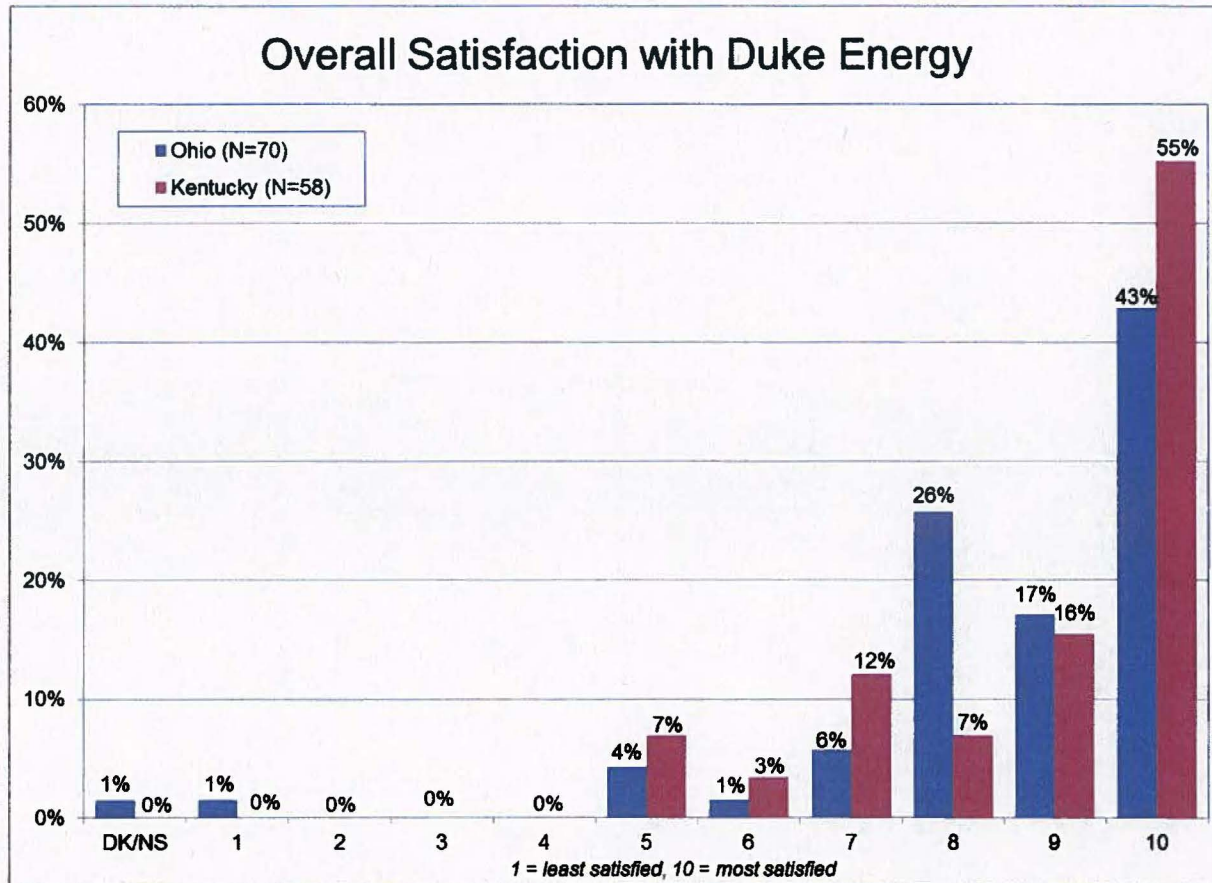


Figure 7. Program Participants’ Overall Satisfaction with Duke Energy (N=128)

Twenty-two participants (17.2%) rated their satisfaction with Duke Energy at “7” or less on a ten-point scale and were asked how this situation could be improved. The most common responses to this question have to do with service issues and energy rates, as seen in the list below (more than 22 responses are listed because respondents could mention more than one issue).

Customers rating overall satisfaction with Duke Energy at “7” or less (N=22)

- Rates are too high / too many fees (n=3 Ohio, n=6 Kentucky)
- Customer service complaints (n=3 Ohio, n=3 Kentucky)
- Concerns about metering and accuracy of bills (n=5 Kentucky)
- Late payments and service being shut off (n=2 Ohio, n=2 Kentucky)
- Bring back neighborhood locations for paying bills (n=2 Kentucky)
- Improve dependability of service (n=1 Kentucky)
- Pollution concerns (n=1 Ohio)
- Issues with switching service providers (n=1 Ohio)
- Concerns about tree-trimming and power lines (n=1 Ohio)
- Duke Energy should do more to promote energy efficiency (n=1 Ohio)

Surveyed participants were also asked if their participation in the Residential Neighborhoods program has made their attitude toward Duke Energy more positive or more negative. Table 25 shows that a clear majority say that the program has made them more positive towards Duke Energy (64.8%), and a similar number report that their knowledge of how to save energy has increased (66.4%). None of the customers surveyed in Ohio and Kentucky report that their attitude towards Duke Energy has grown more negative due to their participation in the program, or that their knowledge of how to save energy has decreased.

Table 25. Changes in Attitude and Knowledge due to Program Participation (N=128)

	Ohio customers (N=70)	Kentucky customers (N=58)	Total customers (N=128)
<i>This program has made my attitude towards Duke Energy....</i>			
Much more positive	25.7%	20.7%	23.4%
Somewhat more positive	44.3%	37.9%	41.4%
About the same	28.6%	41.4%	34.4%
Somewhat more negative	0.0%	0.0%	0.0%
Much more negative	0.0%	0.0%	0.0%
Don't know	1.4%	0.0%	0.8%
<i>Has your knowledge of how to save energy</i>			
Increased a lot	27.1%	19.0%	23.4%
Increased somewhat	41.4%	44.8%	43.0%
Stayed the same	28.6%	36.2%	32.0%
Decreased somewhat	0.0%	0.0%	0.0%
Decreased a lot	0.0%	0.0%	0.0%
Don't know	2.9%	0.0%	1.6%

Participants who said their attitude towards Duke Energy was altered by their participation in the program were asked to explain this; these responses are categorized and listed below. Overwhelmingly, customers who are more positive towards Duke Energy because of this program attribute this to the perception that Duke Energy cares about their customers and the community. Saving customers' money is the second-most mentioned reason for an improved attitude towards Duke Energy, followed by a few mentions of conservation and education about energy efficiency (there are more responses than respondents listed because participants could give more than one reason for their change in attitude).

Much more positive towards Duke Energy (N=30)

- This program shows that Duke Energy cares about and wants to help their customers / gives back to the community (Ohio n=13, Kentucky n=10)
- Duke Energy is helping customers save money / giving free measures (Ohio n=4, Kentucky n=4)
- Duke Energy is saving energy (and water) / conservation (Ohio n=3, Kentucky n=1)
- This program taught me about energy efficiency / education (Ohio n=2, Kentucky n=1)
- Appreciate home improvements / help with things I could not do myself (Ohio n=2, Kentucky n=1)

Somewhat more positive towards Duke Energy (N=53)

- This program shows that Duke Energy cares about and wants to help their customers / gives back to the community (Ohio n=19, Kentucky n=6)
- Duke Energy is helping customers save money / giving free measures (Ohio n=11, Kentucky n=10)
- Duke Energy is saving energy (and water) / conservation (Ohio n=5, Kentucky n=4)
- Qualified comments: this program is good but there are other things I still do not like about Duke Energy (Ohio n=2, Kentucky n=4)
- This program taught me about energy efficiency / education (Ohio n=3, Kentucky n=1)
- I was already positive towards Duke Energy (Ohio n=1, Kentucky n=1)
- Duke Energy is doing this for public relations purposes (Kentucky n=2)
- Appreciate home improvements / help with things I could not do myself (Kentucky n=2)

Nearly half of surveyed participants (47.7%) report that their utility bills have decreased since participating in the program, though one in ten (9.3%) report that their bills have actually increased. A quarter of these participants (25.0%) have seen no change, and 18.0% are not sure if their bills have gone up or down. Table 26 also shows participants' estimates for the monthly change in their bills; the fourteen customers who say their bills "decreased a lot" report saving an average of about \$75 per month, while those who say their bills "decreased somewhat" report saving an average of about \$21 per month. Overall, the average savings of the 92 participants¹¹ who were able to estimate the change in their bill is about \$15 per month and the median savings is about \$9 per month.

Table 26. Changes in Energy Bills due to Program Participation (N=128)

	Ohio customers (N=70)	Kentucky customers (N=58)	Total customers (N=128)	Estimated dollars per month savings (negative means increase in bill)
<i>Have your monthly utility bills ...</i>				
Decreased a lot	11.4%	10.3%	10.9%	\$75
Decreased somewhat	38.6%	34.5%	36.7%	\$21
Stayed about the same	21.4%	29.3%	25.0%	\$0
Increased somewhat	10.0%	3.4%	7.0%	-\$34
Increased a lot	4.3%	0.0%	2.3%	-\$75
Don't know	14.3%	22.4%	18.0%	NA
Total average savings per month				\$15

Predicting Overall Program Satisfaction

Correlations and simple linear regression analysis were used to determine what drives overall satisfaction in this program. The conclusions from this analysis are listed below, and the

¹¹ Out of 128 participants surveyed, 23 participants were not sure if their bills had changed, so were not asked to estimate the amount of the change. Thirteen more participants who were able to answer the question about their bill changing were unable to provide a specific dollar estimate for the amount of the change.

statistical analyses which support these conclusions can be found in *Appendix H: Predicting Overall Program Satisfaction*.

- Consistently, satisfaction with the convenience of enrolling in the program is the most important predictor of program satisfaction. Since satisfaction ratings skew very high (most customers give “9” or “10 out of 10” ratings), this indicates that customers with unsatisfying enrollment experiences are significantly less satisfied with the program as a whole.
- Satisfaction with the measures received also has a significant relationship with program satisfaction; again, this indicates that customers who received measures they are less than satisfied with tend to be less satisfied with the program.
- Ratings of the auditors and Duke Energy overall are not significant in the presence of the two significant predictors listed above, nor is the number of measures received, nor whether or not the customer attended the community meeting.
- In the presence of the significant predictors above, there is also a significant difference between Kentucky and Ohio customers; Kentucky customers give the program slightly higher satisfaction ratings than Ohio customers when “everything else is equal.”
- In conclusion, if there is a need to improve program satisfaction, priority should be given to improving the enrollment process followed by the quality of measures.

Installation of Energy Efficiency Measures

Duke Energy provided program records of which measures were installed in which customers’ homes, which are based on the auditors’ records of which measures were installed during audits. The number and percentage of surveyed Ohio and Kentucky participants who received each measure according to these records is shown in Table 27. Out of the sixteen categories of measures shown in this table, all customers who were surveyed received between three and fourteen measures, and on average customers received eight of these measures (the mean is 8.0 types of measures received and the median is also eight measures).

All but one surveyed program participant in the Midwest received CFLs (of either wattage: 98.6% of Ohio customers and 100% of Kentucky customers), and more than 90% received switch plate wall thermometers (97.1% in Ohio and 93.1% in Kentucky). Majorities of surveyed customers in both states also received faucet aerators (87.1% in Ohio, 67.2% in Kentucky), HVAC filters and filter change calendars (72.9% in Ohio, 82.8% in Kentucky), low-flow showerheads (50.0% in Ohio, 65.5% in Kentucky) and water heater temperature adjustments (50.0% in Ohio, 63.2% in Kentucky). The least-common measures received through this program are water heater tank insulation wrap (11.4% in Ohio, 3.5% in Kentucky), clear glass patch tape (7.1% in Ohio and none of those surveyed in Kentucky) and weatherstripping and kits for window air conditioning units (2.9% in Ohio and none of those surveyed in Kentucky).

Table 27. Installation of Energy Efficiency Measures from Auditor Records (N=128)

	Ohio (N=70)		Kentucky (N=58)	
	Count	Percent	Count	Percent
Any CFL(s)	69	98.6%	58	100.0%
13-watt CFL(s)	58	82.9%	46	79.3%
18-watt CFL(s)	66	94.3%	53	91.4%
Switch plate wall thermometer	68	97.1%	54	93.1%
Faucet aerator(s)	61	87.1%	39	67.2%
HVAC filters and filter change calendar	51	72.9%	48	82.8%
Low-flow showerhead(s)	35	50.0%	38	65.5%
Water heater temperature adjustment	35	50.0%	36	63.2%
Vinyl weather stripping doors	41	58.6%	23	39.7%
Water heater pipe wrap	36	51.4%	28	48.3%
Door sweeps	24	34.3%	27	46.6%
Foam insulation spray	24	34.3%	23	39.7%
Caulking doors	26	37.1%	16	27.6%
HVAC winter kit for wall/window unit	12	17.1%	16	27.6%
Caulking windows	14	20.0%	13	22.4%
Water heater tank insulation wrap	8	11.4%	2	3.5%
Clear glass patch tape	5	7.1%	0	0.0%
Vinyl weather stripping HVAC window units	2	2.9%	0	0.0%

Surveyed customers who participated in the Residential Neighborhoods program were asked to confirm whether they received the measures that auditor records show they had received. Among measures installed in at least ten surveyed participant households, confirmation rates range as high as 90.0% for water heater tank insulation wrap to as low as 40.4% for foam insulation spray. There is also high variability in the percent of customers who are unable to confirm measures (“don’t know”), ranging from the low single digits for some measures such as CFLs (only 3.1% were unsure if they had received these measures) up to 45.1% who were not sure if they received a hot water temperature adjustment.

Table 28. Customer-Confirmed Installation of Energy Efficiency Measures (N=128)

	Valid count (# receiving according to auditor records)	All measures installed %	Partially installed %	Not installed %	Don't know %
Any CFL(s) <i>(partial = only some bulbs installed)</i>	127	75.6%	20.5%	0.8%	3.1%
13-watt CFL(s)	105	NA	NA	NA	NA
18-watt CFL(s)	119	NA	NA	NA	NA
Switch plate wall thermometer	122	89.3%	NA	7.4%	3.3%
Faucet aerator(s)	101	72.3%	NA	13.9%	13.9%
Door sweeps	51	88.2%	NA	5.9%	5.9%
HVAC filters and filter change calendar <i>(partial = received filters or calendar)</i>	99	59.6%	26.3%	9.1%	5.1%
Weather stripping doors	64	73.4%	NA	18.8%	7.8%
Low-flow showerhead(s)	73	87.7%	NA	6.8%	5.5%
Foam insulation spray	47	40.4%	NA	29.8%	29.8%
Caulking doors	42	52.4%	NA	21.4%	26.2%
Water heater temperature adjustment	71	52.1%	NA	2.8%	45.1%
Water heater pipe wrap	64	60.9%	NA	18.8%	20.3%
HVAC winter kit for wall/window unit	28	53.6%	NA	42.9%	3.6%
Water heater tank insulation wrap	10	90.0%	NA	10.0%	0.0%
Caulking windows	27	63.0%	NA	18.5%	18.5%
Weather stripping HVAC window units	2	0.0%	NA	50.0%	50.0%
Clear glass patch tape	5	40.0%	NA	20.0%	40.0%

These significant discrepancies between auditor records and customer recollections are not unexpected, for several reasons:

- Auditors record installations the day the work is done; customers are recalling what was done weeks or months after the installation.
- The auditors did the vast majority of the installations themselves; the customers may or may not have been paying attention to what the auditor was doing during the audit.
- Auditors have experience with installing these particular measures and with filling out the paperwork to record what was done; most customers do not have any experience with these measures, and are not familiar with the forms (i.e., the range of possible measures that could be installed).

Since this evaluation did not include on-site verification of measure installation, we cannot determine the objective accuracy of either the auditor records or the customers' recollections of what was done during the audits. However, for the reasons listed above, TecMarket Works assumes that the auditor records are more accurate than the customers' survey responses. Therefore, the process reporting for measure installations generally assumes that the auditor records are correct and the measure was installed when a customer cannot confirm auditor records ("don't know"). Further, 5% of auditor records are confirmed by Duke Energy's contractor that conducts Quality Control on the program's installations.

CFL Installations

Although auditors are supposed to install all measures, customers report that this does not always happen. As seen in Table 29, a clear majority of customers who received CFLs according to auditor records confirmed that the auditor installed all of the bulbs (62.2%), and another 13.4% reported that all of the bulbs they received were installed by a combination of auditor and customer efforts. However, one in five surveyed participants (21.3%) report that the auditor left CFLs behind which have not been installed yet, which includes one customer (0.8%) who said that they received CFLs (fifteen 18-watt CFLs), of which none have been installed yet.

Table 29. Measure Installation: CFLs (N=127)

<i>127 participants received CFLs according to auditor records</i>	Count	Percent (N=127)
Auditor installed all bulbs	79	62.2%
Auditor installed some bulbs, left other bulbs which customer installed	14	11.0%
Auditor gave bulbs to customer, customer installed all of them	3	2.4%
Auditor installed some bulbs, left other bulbs which customer has NOT installed	19	15.0%
Auditor gave bulbs to customer, customer installed some of them	7	5.5%
Auditor gave bulbs to customer, customer has not installed any of them	1	0.8%
Don't know / not specified	4	3.1%

The 27 participants who said that they have not-yet-installed CFLs they received from the auditor were asked how many of these bulbs are left over, and what they have done or intend to do with those bulbs. These 27 customers report having a total of 48 13-watt and 107 18-watt bulbs left over (an average of 1.8 13-watt and 4.0 18-watt CFLs apiece among customers with leftover program CFLs).

Table 30 compares auditor records of CFL installation with customer recollections. Auditor records report that 675 13-watt CFLs and 858 18-watt CFLs were installed across the 128 surveyed participant households. When asked to confirm the auditor bulb totals, in aggregate customers reported receiving only slightly fewer bulbs than the program records showed (675 13-watt CFLs and 850 18-watt CFLs). However, after taking into account 167 program bulbs that customers report had not been installed as of the time of this survey, the number of bulbs confirmed installed by customers is 618 13-watt CFLs (91.6% of the auditor-recorded total) and 740 18-watt CFLs (86.2% if the auditor-recorded total). Overall, the total number of customer-confirmed bulb installations is 88.6% of the auditor-reported total (1,358 out of 1,533 bulbs installed). While this is designed to be a "direct install" program, and having the auditors install light bulbs is considered a best practice, TecMarket Works considers it acceptable for a portion of light bulbs to be installed by the customers themselves; in most cases, it is the customer who requests that light bulbs be given to them rather than installed by auditors.

Customers in Ohio report a significantly larger percentage of program bulbs installed (94.1% of 13-watts and 91.1% of 18-watts) than customers in Kentucky (88.4% of 13-watts and 81.2% of 18-watts; both differences significant at $p < .05$ using Student's t-test). Customers in both states

also report significantly higher percentages of 13-watt bulbs installed than 18-watt bulbs installed (significant at $p < .10$ in Ohio and $p < .05$ in Kentucky, and $p < .05$ for the Midwest overall using Student's t-test).

Table 30. Customer Confirmation of CFL Installations (N=127 Participants)

	Ohio Count of CFLs	Kentucky Count of CFLs	Total Midwest Count of CFLs
Auditor records: 13w CFLs installed	372	303	675
Customer confirmation: 13w CFLs received	366	309	675
Customer confirmation: 13w CFLs installed	350	268	618
Percent of 13w CFLs from auditor records confirmed installed by customers	94.1%	88.4%	91.6%
Auditor records: 18w CFLs installed	438	420	858
Customer confirmation: 18w CFLs received	432	418	850
Customer confirmation: 18w CFLs installed	399	341	740
Percent of 18w CFLs from auditor records confirmed installed by customers	91.1%	81.2%	86.2%
Auditor records: Total CFLs installed	810	723	1533
Customer confirmation: Total CFLs received	798	727	1525
Customer confirmation: Total CFLs installed	749	609	1358
Percent of Total CFLs from auditor records confirmed installed by customers	92.5%	84.2%	88.6%

As indicated in Table 31, about one in five customers who received CFLs from this program still has some program bulbs in storage (21.3%), though confirmed stored bulbs only account for 8.0% of the bulbs that customers confirm were given to them. However, if it is assumed that customers who don't know how many program bulbs they have remaining still have all their program bulbs in storage, then the percentage of stored program bulbs is 10.2% (155 out of 1,525) of bulbs confirmed received. No surveyed customers reported giving away any program bulbs, and none reported disposing of any functional program bulbs. The twelve bulbs shown in this table as having "other outcomes" (0.8% of 1,525 bulbs confirmed received) are apparently stored program bulbs that replaced other program bulbs that had burned out in between installation and the time of this survey (these twelve bulbs are all in households where the customer installed some of the program bulbs themselves).

Table 31. Customers with Uninstalled CFLs and Number of Uninstalled CFLs (N=127)

	Customers (N)	Customers (%)
Customers who received bulbs (customer confirmed)	127	100.0%
Customers with bulbs not installed yet	27	21.3%
Uninstalled bulbs in storage	21	16.4%
Uninstalled bulbs given away	0	0.0%
Uninstalled bulbs don't know	6	4.7%
	CFLs (N)	CFLs (%)
Number of bulbs received (customer confirmed)	1,525	100.0%
Number of bulbs not installed yet	167	11.0%
Uninstalled bulbs in storage	122	8.0%
Uninstalled bulbs given away	0	0.0%
Uninstalled bulbs already used to replace other program bulbs that burned out	12	0.8%
Uninstalled bulbs don't know	33	2.1%

Customers with confirmed spare program CFLs in storage were asked if they intend to use all these bulbs, and how long they think it will take to use them all. As seen in Table 32, overall 85.7% of customers who confirmed that they have program CFLs in storage plan to use them all, while one customer (4.8%) said they “maybe” will use them all (explaining, “*I can't reach some of my fixtures*”), one customer (is not sure if they will use them all (“*The CFLs are too big to fit many of my light fixtures*”), and one customer reports that they do not intend to install the CFLs (“*I do not use CFLs; the program should install LEDs instead.*”) About half of customers with stored program CFLs (47.6%) think they will have installed all of the program bulbs within two years, while about one in four intend to install all of the program bulbs but are not sure how long this will take (23.8%) and 9.5% of these customers think it will take more than five years to install all of their program bulbs.

Table 32. Customer Plans for Uninstalled Program CFLs (N=21)

Base: participants with stored program CFLs	Customers (N)	Customers (%)
Customers with confirmed program CFLs in storage	21	100.0%
Yes, plan on eventually installing all uninstalled CFLs	18	85.7%
Yes – will install all within a year	5	23.8%
Yes – will install all in 1-2 years	5	23.8%
Yes – will install all in 2-3 years	1	4.8%
Yes – will install all in 3-5 years	0	0.0%
Yes – will install all in more than 5 years	2	9.5%
Yes – will install all, not sure how long it will take	5	23.8%
Maybe, might eventually install all uninstalled CFLs	1	4.8%
No, do not plan to eventually install all uninstalled CFLs	1	4.8%
Don't know if all uninstalled CFLs will eventually be installed	1	4.8%

Customers who received CFLs from the Residential Neighborhoods program were asked a series of questions about up to three CFL installations.¹² Table 33 (Ohio households) and Table 34

¹² The 126 customers surveyed in the Midwest who confirmed that they have program CFLs installed in their homes were asked about up to three installations apiece, yielding data on 357 installations in total (194 installations in Ohio

(Kentucky households) indicate that program CFLs are most frequently installed in living/family rooms, kitchens, bedrooms and bathrooms; these correspond to the rooms in a home that generally have the highest occupancy time and thus highest lighting usage. The distribution of program bulbs installed by room is very similar for Ohio and Kentucky (no statistically significant differences between states).

Table 33. Installation of Program CFLs by Room: Ohio Households (N=194 installations)

<i>Room where program CFLs were installed</i>	13w CFLs count	18w CFLs count	Bulb wattage not recalled	Total CFLs count	% of CFL installations (N=194)
Living/family room	18	21	8	47	24.2%
Kitchen	5	23	5	33	17.0%
Master bedroom	14	13	9	36	18.6%
Bathroom	11	18	2	31	16.0%
Dining room/dinette	5	5	3	13	6.7%
Other bedroom	2	4	2	8	4.1%
Hall	0	6	1	7	3.6%
Basement	2	2	3	7	3.6%
Den/computer room	0	1	0	1	0.5%
Porch/exterior	1	0	1	2	1.0%
Closet	1	1	0	2	1.0%
Utility room	1	1	0	2	1.0%
Garage	0	0	0	0	0.0%
Unique locations, listed below	2	0	0	2	1.0%
Don't know	0	3	0	3	1.5%

Respondents who have program CFLs installed are asked about up to three bulb installations.

and 163 installations in Kentucky). This does not represent all installed bulbs, but rather a customer-selected sample of installations. There were a total of 1358 CFLs confirmed installed by survey participants, though many of these installations may involve multiple bulbs in the same fixtures, controlled by the same switches (we do not know the total number of installations represented by the 1358 bulbs distributed).

Table 34. Installation of Program CFLs by Room: Kentucky Households (N=163 installations)

<i>Room where program CFLs were installed</i>	13w CFLs count	18w CFLs count	Bulb wattage not recalled	Total CFLs count	% of CFL installations (N=163)
Living/family room	15	17	6	38	23.3%
Kitchen	10	21	5	36	22.1%
Master bedroom	19	8	4	31	19.0%
Bathroom	13	10	5	28	17.2%
Dining room/dinette	4	2	4	10	6.1%
Other bedroom	2	6	0	8	4.9%
Hall	1	2	1	4	2.5%
Basement	2	1	0	3	1.8%
Den/computer room	0	1	0	1	0.6%
Porch/exterior	1	0	0	1	0.6%
Closet	0	0	0	0	0.0%
Utility room	0	2	0	2	1.2%
Garage	0	0	0	0	0.0%
Unique locations, listed below	0	1	0	1	0.6%
Don't know	0	0	0	0	0.0%

Respondents who have program CFLs installed are asked about up to three bulb installations.

Three of the program bulbs installed in participant households are in unique locations, described by participants as a “parlor”, “spare room” and “play room/solarium”.

Table 35 shows the bulb type and wattage of the light bulbs which were replaced by program CFLs according to customers’ recollections. Customers report that 9.8% of installations consisted of a program CFL replacing a pre-existing CFL, 0.3% of installations consisted of a program CFL being placed in a previously empty socket, and another 0.3% reported that the program CFL replaced fluorescent tube lighting. The remaining nine out of ten program bulbs installed (89.6%) replaced standard incandescent bulbs, and there are no significant differences between states in terms of the types of bulbs replaced. A majority of replaced incandescent bulbs were 45 to 70 watt bulbs (52.6% or 130 out of 247 installations replacing incandescent bulbs where the customer was able to give a wattage for the previous bulb).

For the 118 program bulb installations in Kentucky where the customer was able to state the wattage of replaced bulbs, the average wattage of the replaced bulb was 64 watts¹³; for the 141 program bulb installations in Ohio where the customer was able to state the wattage of replaced bulbs, the average wattage of the replaced bulb was 61 watts. Out of 259 total installations surveyed in the Midwest, the overall average wattage of replaced bulbs is 62 watts; the average replaced bulb wattages reported in this section include replaced CFLs as well as replaced incandescent bulbs.

¹³ Average wattage of replaced bulbs reported for Kentucky does not include the participant who had a program bulb installed in a previously empty socket; if this installation is included in the calculation as “zero watts” previously installed, then the average for Kentucky is 63 watts previously used by sockets with program bulbs installed. However, with or without this Kentucky installation included, all programs bulbs in the Midwest went into sockets previously using an average of 62 watts (rounded off to the nearest watt).

Table 35. Installation of Program CFLs: Replaced Bulb Type and Wattage (N=357 installations)

	Ohio % of CFL installations (N=194)	Kentucky % of CFL installations (N=163)	Total Midwest % of CFL installations (N=357)
What type of bulb was previously in the socket where the CFL was installed?			
Standard incandescent	89.7%	89.6%	89.6%
CFL	10.3%	9.2%	9.8%
Other type (fluorescent tube)	0.0%	0.6%	0.3%
No bulb in the socket	0.0%	0.6%	0.3%
Don't know	0.0%	0.0%	0.0%
How many watts was the bulb that was replaced by the CFL?			
Replaced CFL: 30 watts or less	4.1%	2.5%	3.4%
Replaced CFL: don't know wattage ¹⁴	6.2%	7.4%	6.7%
Replaced incandescent: 44 watts or less	10.3%	9.2%	9.8%
Replaced incandescent: 45 to 70 watts	35.1%	38.0%	36.4%
Replaced incandescent: 71 to 99 watts	18.6%	16.0%	17.4%
Replaced incandescent: 100 watts or more	4.6%	6.7%	5.6%
Replaced incandescent: don't know wattage	21.1%	19.6%	20.4%
No bulb in socket / bulb type unknown	0.0%	0.6%	0.3%

Respondents who have program CFLs installed are asked about up to three bulb installations.

Table 36 shows the hours of use for lighting where program CFLs were installed, based on customers' reporting. A majority of lights where program CFLs were installed are used for less than four hours per day (57.1%), but about one in seven are used for eight or more hours per day (13.8%). For more than nine out of ten installations (92.4%), customers report that hours of use has not changed since participating in the program; however 2.8% reported that hours of use increased while 2.5% reported that their usage decreased.

In Kentucky households, lights with program 13-watt bulbs installed are used an average of 4.3 hours per day, program 18-watt bulbs are used an average of 4.7 hours per day, and program bulbs where customers can't recall the wattage are used 4.3 hours per day. In Ohio, program 13-watt bulbs are used an average of 4.5 hours per day and program 18-watt bulbs are used an average of 4.2 hours per day, while program bulbs where customers can't recall the wattage are used 3.5 hours per day. Across the entire Midwest, program bulbs are installed in sockets that are used an average of 4.3 hours per day; by state, program bulbs are used an average of 4.4 hours per day in Kentucky and 4.2 hours per day in Ohio.

¹⁴ One Kentucky participant who said that they replaced fluorescent tube lighting with a program CFL is reported as "replaced CFL, don't know wattage" in this table.

Table 36. Installation of Program CFLs: Hours of Use (N=357 installations)

	Ohio % of CFL installations (N=194)	Kentucky % of CFL installations (N=163)	Total Midwest % of CFL installations (N=357)
How many hours per day is this light used?			
Less than 1 hours	12.9%	12.9%	12.9%
1 up to 2 hours	14.9%	16.0%	15.4%
2 up to 4 hours	29.4%	28.2%	28.9%
4 up to 8 hours	27.3%	22.7%	25.2%
8 up to 12 hours	5.2%	10.4%	7.6%
12 up to 24 hours	5.7%	6.7%	6.2%
Don't know	4.6%	3.1%	3.9%
Did the hours of use for this light change since installing the CFL?			
Stayed the same	93.3%	91.4%	92.4%
Increased	3.1%	2.5%	2.8%
Decreased	1.5%	3.7%	2.5%
Don't know	2.1%	2.5%	2.2%

Respondents who have program CFLs installed are asked about up to three bulb installations.

Customers were asked to estimate the change in usage for the nineteen installations where usage went up or down after the program. Among the ten installations where usage increased, the average increase is 3.0 hours per day and all ten of these installations involve a CFL replacing an incandescent bulb. Among the nine installations where usage decreased, the average decrease is 2.2 hours per day; eight of these installations involve a CFL replacing an incandescent bulb, but in one case a participant reports that a program CFL replaced another CFL.

Table 37 shows that about a third of previously installed bulbs were retained by customers and are being stored for potential future use (34.5%), though more previously used bulbs are being stored by Ohio participants (43.3%) than Kentucky participants (23.9%; this difference, highlighted in bold, is significant at $p < .05$ using Student's t-test). About half of installations in the Midwest (50.4%) resulted in the old bulbs being thrown away, recycled or taken by the auditor. For 15 of these 357 installations (4.2%), the old bulbs are still in use in the customer's home (1.7% of the installations were "installed elsewhere in the home") or could be in use in another person's home (2.5% of bulbs were "given to somebody"). For about one installation in ten (10.6%) the customer could not recall what happened to the previous bulb.

Table 37. Installation of Program CFLs: Disposal of Old Bulbs (N=357 installations)

	Ohio % of CFL installations (N=194)	Kentucky % of CFL installations (N=163)	Total Midwest % of CFL installations (N=357)
<i>What happened to the old bulb that was removed?</i>			
Threw it away	31.4%	48.5%	39.2%
Stored it	43.3%	23.9%	34.5%
Auditor took it with them	11.9%	3.7%	8.1%
Recycled it	3.1%	3.1%	3.1%
Gave it to somebody in another household	0.5%	4.9%	2.5%
Installed it elsewhere in my home	1.5%	1.8%	1.7%
Don't know what happened to it	8.2%	13.5%	10.6%
No bulb previously in socket	0.0%	0.6%	0.3%

Respondents who have program CFLs installed are asked about up to three bulb installations. Differences between states which are significant at p<.05 or better using Student's t-test are marked in boldface italics.

About one in seven participants who confirmed that they have program CFLs installed has since removed at least one program bulb (13.5%), as seen in Table 38. The 17 customers who removed program bulbs uninstalled a total of 34 CFLs (an average of 2.0 CFLs per household that removed CFLs), or 2.5% of the 1,358 program CFLs which were confirmed installed. There are no statistically significant differences between states in terms of removing program CFLs.

Table 38. Removing Installed Program CFLs

<i>Base: participants who confirmed that they have program CFLs installed</i>	Ohio % participants (N=69)	Kentucky % participants (N=57)	Total Midwest % participants (N=126)
Customers who removed program CFLs			
Yes, removed program CFL(s)	15.9%	10.5%	13.5%
No, all program CFLs are still installed	78.3%	84.2%	81.0%
Don't know	5.8%	5.3%	5.6%
<i>Base: Installed program CFLs (customer confirmed bulb counts)</i>	Ohio % CFLs installed (N=749)	Kentucky % CFLs installed (N=609)	Total Midwest % CFLs installed (N=1,358)
Total number of program bulbs removed	2.1%	3.0%	2.5%
Number of 13w bulbs removed	1.1%	0.0%	0.6%
Number of 18w bulbs removed	0.8%	1.1%	1.0%
Number of bulbs removed, wattage unknown	0.3%	1.8%	1.0%

The 17 survey participants who removed program CFLs were asked why they did so. These responses are listed below; in most cases bulbs were removed because they burned out.

- Bulb burned out (n=12)
- Bulb broken by accident (n=2)
- One bulb broke and another one burned out (n=2)
- Bulb was flickering (n=1)

One hundred and eighteen (118) participants who confirmed that they have program-provided CFLs installed in their homes rated their satisfaction with the CFLs on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program CFLs is quite high at 9.43, and only 3.4% gave ratings of “7” or lower. The four customers with ratings of “7” or lower were asked the reason for their relatively low satisfaction with the CFLs; all four of these participants referred to the brightness of the program bulbs, with three stating explicitly that the CFLs are not bright enough and the fourth allowing that their brightness is merely adequate.

CFLs and LEDs Installed Before Participating in the Program

Table 39 indicates that most participants (57.9%) already had some CFLs installed in their homes before participating in the Residential Neighborhoods program, though Kentucky households are more likely to report not having any CFLs before the program (42.1%, compared to 30.4% for Ohio; this difference is significant at $p < .10$ using Student’s t-test). The 73 surveyed customers who already had CFLs installed before the program and were able to answer the question “how many?” had an average of 7.0 CFLs apiece before the program (7.8 in Ohio and 5.9 in Kentucky); including the 45 customers who did not have any CFLs installed before the program, the average number of CFLs installed before the program is 4.3 per household (5.2 in Ohio and 3.3 in Kentucky).

About one in four participants who confirmed the installation of program CFLs has previously acquired CFLs from another Duke Energy program (23.8% or 30 out of 126), and another one in four have purchased bulbs from a store (27.8%). Participants in Ohio are twice as likely to have previously participated in a Duke Energy CFL program (31.9%) compared to Kentucky participants (14.0%; this difference is significant at $p < .05$ using Student’s t-test).

More than a third of participants have been using CFLs for more than two years (37.3%), and another fifth (19.0%) started using CFLs in the past two years but prior to their participation in the Residential Neighborhoods program.

Table 39. Preinstalled CFLs (N=126)

Base: 126 participants who confirmed program CFLs were installed	Ohio % participants (N=69)	Kentucky % participants (N=57)	Total Midwest % participants (N=126)
Did you have any CFLs installed before participating in this program?			
No	30.4%	42.1%	35.7%
Yes, from 1 to 5	31.9%	31.6%	31.7%
Yes, from 6 to 11	15.9%	12.3%	14.3%
Yes, 12 or more	14.5%	8.8%	11.9%
Yes, don't know how many	0.0%	0.0%	0.0%
Don't know	7.2%	5.3%	6.3%
Where did you get the CFLs you were using in your home before participating in this program?			
Purchased at a store	23.2%	33.3%	27.8%
Another Duke Energy program	31.9%	14.0%	23.8%
A program from a company other than Duke Energy	1.4%	3.5%	2.4%
From a Community Assistance Program	4.3%	1.8%	3.2%
Another source, listed below	4.3%	5.3%	4.8%
Don't know	1.4%	1.8%	1.6%
How long have you been using CFLs?			
One year or less (but previous to program participation)	4.3%	12.3%	7.9%
One to two years	13.0%	8.8%	11.1%
Two to three years	18.8%	10.5%	15.1%
Three to four years	10.1%	8.8%	9.5%
Four years or more	14.5%	10.5%	12.7%
Don't know	1.4%	1.8%	1.6%

Although 73 participants reported having CFLs installed before participating in the program, there are 80 responses shown for the source of these CFLs because participants could give multiple responses if they acquired CFLs from multiple sources.

Six surveyed participants said they acquired CFLs from "another source"; three received CFLs from their friends or family, two received CFLs from landlords and one received CFLs from another program but could not recall the name or sponsor of the program.

The 30 customers who said they received CFLs from "another Duke Energy program" were asked to describe or name the program: 29 customers mentioned variations on "free CFLs by mail" and one customer in Ohio reported that they received a coupon from Duke Energy for five free CFLs.

The three customers who said they received CFLs from "a program from a company other than Duke Energy" were asked what company: one customer each identified these sponsors as People Working Cooperatively and "Weatherization of Kentucky," while the third participant could not recall the sponsor of their program.

The 35 customers who purchased CFLs at a store were asked to name the store; these responses are listed by state below.

Stores where participants purchased CFLs before the program (N=35)

- Walmart (Ohio n=5, Kentucky n=4)
- Lowe’s (Ohio n=4, Kentucky n=4)
- Home Depot (Ohio n=2, Kentucky n=3)
- “Lowe’s or Home Depot” (Ohio n=1, Kentucky n=1)
- “Walmart or Home Depot” (Kentucky n=1)
- Kroger’s (Ohio n=1, Kentucky n=3)
- One mention apiece: Dollar Store (Ohio), Family Dollar (Kentucky), Target (Kentucky)
- Don’t remember (Ohio n=2, Kentucky n=1)

Only about a third of surveyed participants (34.1%) were already intending to buy CFLs before participating in the program, while another 15.9% said they “maybe” were going to buy CFLs before participating in the program. A plurality of 42.9% had not intended to purchase any CFLs.

Three participants (2.4%) have purchased additional CFLs since participating in the program. These participants purchased at least 14 additional bulbs, an average of 4.7 CFLs per household that purchased additional CFLs. There are no significant differences between states in terms of intention to purchase CFLs before participating in the program, nor in terms of CFLs purchased since participating in the program.

Table 40. Intent to Purchase CFLs before the Program and Additional CFLs Purchased since the Program (N=126)

<i>Base: 126 participants who confirmed program CFLs were installed</i>	Ohio % participants (N=69)	Kentucky % participants (N=57)	Total Midwest % participants (N=126)
<i>Were you planning on buying CFLs for your home before participating in this program?</i>			
Yes	33.3%	35.1%	34.1%
Maybe	15.9%	15.8%	15.9%
No	40.6%	45.6%	42.9%
No, already installed in all available outlets	1.4%	0.0%	0.8%
Don't know	8.7%	3.5%	6.3%
<i>Have you purchased any CFLs since participating in this program?</i>			
No	91.3%	94.7%	92.9%
Yes, from 1 to 5	1.4%	1.8%	1.6%
Yes, from 6 to 11	1.4%	0.0%	0.8%
Yes, 12 or more	0.0%	0.0%	0.0%
Don't know	5.8%	3.5%	4.8%

Table 41 indicates that only 5.6% of surveyed customers in the Midwest confirmed that they had LEDs installed before participating in the Residential Neighborhoods program. The seven customers with LEDs installed before the program had an average of 2.0 LEDs installed per household; across all 126 surveyed households with installed program CFLs, the average number of pre-installed LEDs is only 0.1 per household.

All four Kentucky customers who had LEDs before the program have been using LEDs for two years or longer, while all three of the Ohio customers who had LEDs before the program have been using LEDs for less than two years. However, due to small sample sizes this result should not be considered a statistically significant finding.

Table 41. Preinstalled LEDs (N=126)

<i>Base: 126 participants who confirmed program CFLs were installed</i>	Ohio % participants (N=69)	Kentucky % participants (N=57)	Total Midwest % participants (N=126)
<i>Did you have any LEDs installed before participating in this program?</i>			
No	89.9%	84.2%	87.3%
Yes, from 1 to 5	4.3%	5.3%	4.8%
Yes, from 6 to 11	0.0%	1.8%	0.8%
Yes, 12 or more	0.0%	0.0%	0.0%
Yes, don't know how many	0.0%	0.0%	0.0%
Don't know	5.8%	8.8%	7.1%
<i>Where did you get the LEDs you were using in your home before participating in this program?</i>			
Another Duke Energy program	0.0%	0.0%	0.0%
Purchased at a store	2.9%	7.0%	4.8%
A program from a company other than Duke Energy	0.0%	0.0%	0.0%
From a Community Assistance Program	0.0%	0.0%	0.0%
Another source, listed below	0.0%	0.0%	0.0%
Don't know	1.4%	0.0%	0.8%
<i>How long have you been using LEDs?</i>	0.0%	0.0%	0.0%
One year or less (but previous to program participation)	2.9%	0.0%	1.6%
One to two years	1.4%	0.0%	0.8%
Two to three years	0.0%	1.8%	0.8%
Three to four years	0.0%	1.8%	0.8%
Four years or more	0.0%	3.5%	1.6%
Don't know	0.0%	0.0%	0.0%

Six of the seven customers with LEDs installed before the program purchased them at a store (while the seventh customer did not recall where they got their LEDs). The four Kentucky customers purchased their LEDs from Home Depot, Lowe's, Kroger's and Amazon.com, while the two Ohio customers who could recall where they got their LEDs purchased theirs at Home Depot and Lowe's.

Only nine surveyed participants (7.1%) were intending to purchase LED bulbs before participating in the program, while an additional seven participants (5.6%) said they "maybe" were intending to purchase LEDs before the program. Two surveyed participants (1.6%) purchased a combined five additional LEDs since participating in the program. Kentucky participants are more likely to have been planning to purchase LEDs before the program (10.5% compared to 4.3% in Ohio) and are more likely to have purchased additional LEDs since the program (3.5% compared to 0.0% in Ohio; both of these differences are significant at $p < .10$ using Student's t-test).

Table 42. Intent to Purchase LEDs before the Program and Additional LEDs Purchased since the Program (N=126)

<i>Base: 126 participants who confirmed program CFLs were installed</i>	Ohio % participants (N=69)	Kentucky % participants (N=57)	Total Midwest % participants (N=126)
<i>Were you planning on buying LEDs for your home before participating in this program?</i>			
Yes	4.3%	10.5%	7.1%
Maybe	4.3%	7.0%	5.6%
No	82.6%	75.4%	79.4%
No, already installed in all available outlets	0.0%	0.0%	0.0%
Don't know	8.7%	7.0%	7.9%
<i>Have you purchased any LEDs since participating in this program?</i>			
No	94.2%	93.0%	93.7%
Yes, from 1 to 5	0.0%	3.5%	1.6%
Yes, from 6 to 11	0.0%	0.0%	0.0%
Yes, 12 or more	0.0%	0.0%	0.0%
Don't know	5.8%	3.5%	4.8%

Replacing Program CFLs and Spare Light Bulbs in Storage

Table 43 indicates two-thirds of participants surveyed (70.0% or 84 out of 120 customers with program bulbs installed who answered questions about spare bulbs) have extra CFLs in storage, while slightly less than half (45.8%) currently have spare incandescent bulbs in storage, and only one customer in this survey (0.8%) has any spare LEDs. Across all surveyed customers, there are an average of 4.1 spare CFLs, 0.1 spare LEDs and 3.3 spare incandescent bulbs per participant household.

Table 43. Types of Light Bulbs in Storage (N=120)

	All Surveyed Participants with Confirmed Program CFLs Installed who answered these questions (Valid N=120)
% of customers with CFLs in storage	70.0%
% of customers with LEDs in storage	0.8%
% of customers with incandescent bulbs in storage	45.8%
	Total Number of Bulbs
Number of CFL bulbs in storage	488
Number of LED bulbs in storage	8
Number of incandescent bulbs in storage	390
	Average Bulbs per Participant
Average number of CFL bulbs in storage	4.1
Average number of LED bulbs in storage	0.1
Average number of incandescent bulbs in storage	3.3

Some of the spare CFLs in storage are bulbs provided by the Residential Neighborhoods program which have not been installed yet, as seen in Table 44. One in six Ohio participants with spare CFLs in storage (15.9%) report that all of their spare bulbs came from the program, while more than twice as many Kentucky participants with CFLs in storage (42.5%) say that all of their

spare CFLs are bulbs from the program (this difference is significant at $p < .05$ using Student's t-test).

Overall, 124 of the 488 spare CFLs in storage in participant households (25.4%) were identified as CFLs provided by the Residential Neighborhoods program, though the percentage of spare CFLs provided by the program is much lower in Ohio (12.8% of 233.5 spare CFLs) than in Kentucky (36.9% out of 254.5 spare CFLs).¹⁵

Table 44. CFLs in Storage Which Were Provided by the Residential Neighborhoods Program (N=84)

<i>Base: Participants with spare CFLs in storage</i>	Ohio % participants (N=44)	Kentucky % participants (N=40)	Total Midwest % participants (N=84)
None of the spare CFLs in storage are from the program	84.1%	57.5%	71.4%
Some of the spare CFLs in storage are from the program	0.0%	0.0%	0.0%
All of the CFLs in storage are from the program	15.9%	42.5%	28.6%
Don't know if any spare bulbs are from the program	0.0%	0.0%	0.0%

Participants who have incandescent light bulbs in storage were asked what type of bulb they would use to replace the program-provided CFLs when they need to be replaced. As seen in Table 45, nearly three-quarters of participants with incandescent bulbs in storage (72.7%) say they will replace program CFLs with other CFLs when they burn out. Only 3.6% of these surveyed participants intend to replace a program CFL with an incandescent bulb, and none intend to replace their CFLs with LEDs. If it is assumed that the 71 participants with program CFLs installed who did not confirm having any incandescents in storage will not replace their program-provided CFLs with incandescent bulbs, then the estimated rate of participants who will replace program CFLs with incandescents would be only 1.6%. There are no significant differences between states in terms of intentions to replace program CFLs.

¹⁵ In addition to the 124 stored program CFLs confirmed by participants with spare CFLs in storage, there are another 31 program bulbs in storage in three households which did not answer these questions (including one Ohio household that received 15 program CFLs none of which have been installed). These cases are not included in Table 44 since the total number of stored CFLs in these households (including non-program bulbs) is unknown.

Table 45. Replacing Program CFLs (N=55)

<i>Base: 55 participants with program CFLs confirmed installed and incandescent light bulbs in storage</i>	Ohio % participants (N=34)	Kentucky % participants (N=21)	Total Midwest % participants (N=55)
<i>If one of the free CFLs that was installed through the Residential Neighborhood Program burns out, will you replace it with . . . ?</i>			
A CFL	73.5%	71.4%	72.7%
An LED	0.0%	0.0%	0.0%
An incandescent bulb	2.9%	4.8%	3.6%
Depends on the socket or other factors (listed below)	5.9%	14.3%	9.1%
Don't know	17.6%	9.5%	14.5%

Five participants with program-provided CFLs installed and spare incandescent bulbs in storage said that the type of bulb they would use to replace program CFLs depends on the type of socket or other factors. Two of these customers say they will use whatever bulbs are convenient and available at that time, one says it depends on how much money they have to spend, and one customer mentioned both of these reasons. The only other reason given is wanting all the bulbs in an overhead fixture to match each other, given by one participant.

Surveyed customers with installed program CFLs were asked how many of the next ten light bulbs they purchase will be standard incandescent (or halogen), CFL and LED bulbs. As seen in Table 46, 97.2% of participants surveyed report that they intend to buy CFLs, but only one in ten says they intend to buy any standard incandescent or halogen bulbs (10.3%), similar to the low number of participants intending to buy LED bulbs (11.2%). The majority of bulbs these customers intend to purchase in the future will be CFLs (92.0% or 984 out of 1,070 bulbs), while only 4.6% will be standard incandescent or halogen bulbs and only 3.5% will be LEDs.

Table 46. Purchase Intent: Next Ten Bulbs Purchased (N=107)

Of the Next Ten Light Bulbs You Purchase, How Many Will Be...?	All Surveyed Participants with Confirmed Program CFLs Installed Who Answered This Question (Valid N=107)
% of surveyed customers who intend to buy at least one incandescent and/or halogen bulb	10.3%
% of surveyed customers who intend to buy at least one CFL bulb	97.2%
% of surveyed customers who intend to buy at least one LED bulb	11.2%
	All Bulbs To Be Purchased (N=1070)
Percentage of next ten bulbs that will be incandescent and/or halogen bulbs	4.6%
Percentage of next ten bulbs that will be CFL bulbs	92.0%
Percentage of next ten bulbs that will be LED bulbs	3.5%

Percentages in the first three rows total to more than 100% because participants could give multiple responses. Percentages in the bottom three rows are mutually exclusive and add up to 100%.

Figure 8 presents the distribution of future bulb purchases in the form of an area chart as a visual aid: the Y-axis shows the distribution of bulbs intended to be purchased, and the X-axis shows all 107 valid responses sorted by the distribution of bulb types. The chart shows that a large majority of customers surveyed (79.4%) say they intend to purchase exclusively CFLs for their next ten bulbs (the center area of the chart that is green from top to bottom), while a miniscule percent of participants (1.9%) intend to purchase all standard incandescent and halogen bulbs for their next ten bulbs (the far right of the chart which is red from top to bottom). Only one surveyed participant (0.9%) intends to purchase exclusively LEDs (the far left of the chart which is blue from top to bottom), and only one participant (0.9%) intends to purchase all three types of bulb (the red spike on top of the blue area on the left).

This area chart visually indicates that participants in this program are overwhelmingly interested in CFLs over other lighting options, with small but approximately equal numbers of customers in the program still intending to purchase “old-fashioned” incandescent light bulbs (10.3%) and intending to purchase “cutting-edge” LED lighting (11.2%).

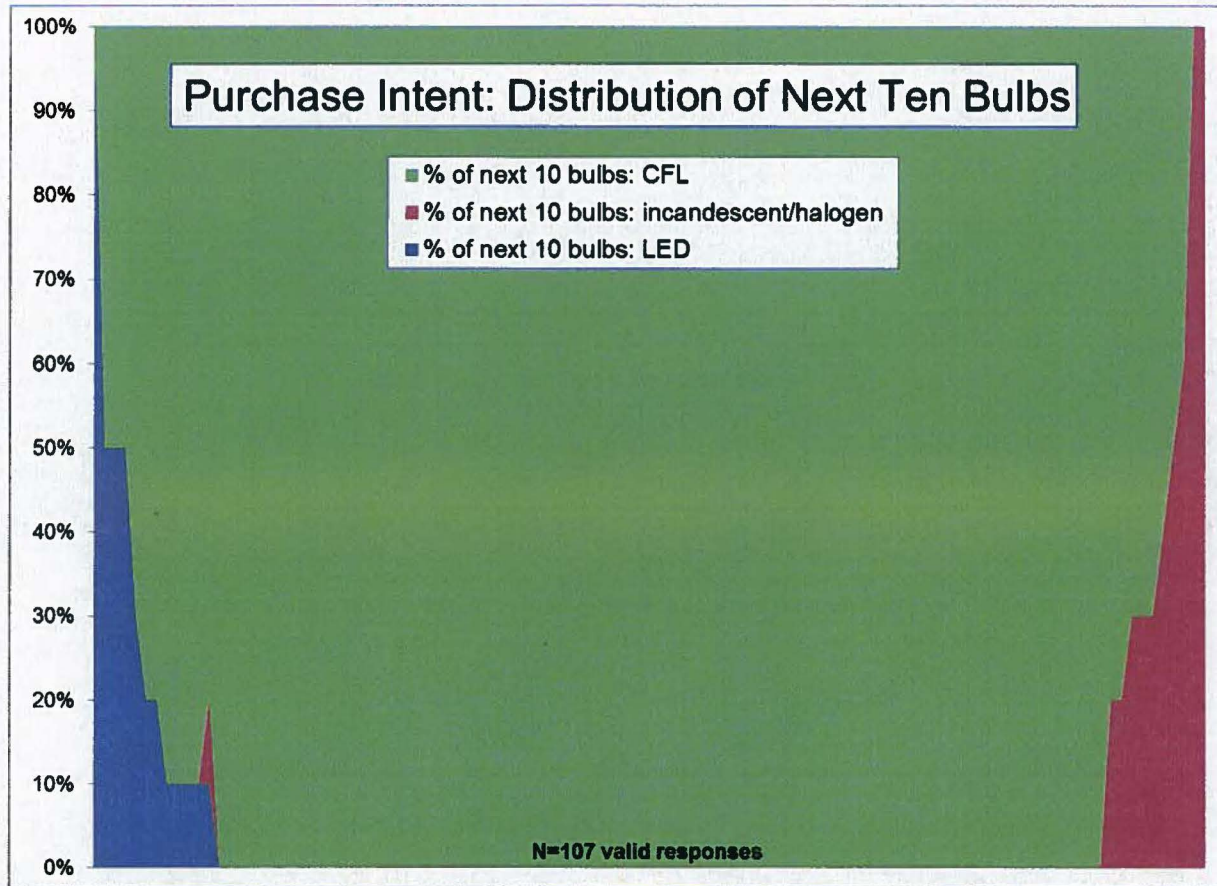


Figure 8. Area Chart of Intentions for Next Ten Bulbs Purchased (N=107)

Thirteen survey participants (10.8% of 120 who confirmed the installation of program CFLs and answered all CFL-related questions) “don’t know” what kind of bulbs they will buy in the future, and are not included in this chart.

Low-Flow Showerhead Installations

As seen in Table 47, the 73 surveyed participants who received showerheads according to customer records confirmed the installation of 70 low-flow showerheads provided by the program, which is 87.5% of the 80 installations recorded by auditors. Three of the showerheads (4.3%) were installed by the customers themselves.

Table 47. Measure Installation: Low-Flow Showerheads

<i>73 participants received low-flow showerheads according to auditor records</i>	Customer count (N=73)	Measures installed count according to auditor records (N=80)	Confirmed measures installed count (N=70)
Auditor installed showerhead(s)	83.6%	80.0%	90.0%
Auditor gave showerhead(s) to customer, customer installed them	4.1%	7.5%	4.3%
Auditor gave showerhead to customer, customer has NOT installed it	4.1%	3.8%	0.0%
Did not receive a showerhead	2.7%	3.8%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	5.5%	5.0%	5.7%

Three surveyed participants who received one showerhead apiece (3.8% of 80 distributed according to auditor records) report that they received showerheads from auditors but these measures have not been installed yet. All three of these customers are still intending to install these showerheads.

Three customers who installed their program-provided showerheads themselves (4.3% of 70 confirmed installed) confirmed a total of three showerheads were installed, although auditor records had showed these customers received six showerheads in total. All three of these customers reported that the showerheads were “easy” to install.

Customers who confirmed the installation of program-provided showerheads were asked if any of their showerheads have been removed from where they were installed. As indicated in Table 48, five surveyed participants (7.4% of 68 who confirmed installations) uninstalled one showerhead apiece (accounting for 7.1% of 70 measures confirmed installed).

Table 48. Removing Program-Provided Low-Flow Showerheads

	Customers who confirmed installation percent (N=68)	Confirmed measures installed percent (N=70)
<i>Have any of the low-flow showerheads that were installed through the Residential Neighborhood Program since been uninstalled or removed?</i>		
No, all showerheads are currently installed	86.8%	87.1% installed
Yes, one showerhead removed	7.4%	7.1% removed
Yes, two showerheads removed	0.0%	0.0% removed
Not sure if showerhead installed (did not answer questions about installation)	5.9%	5.7% assumed installed

The five customers who removed showerheads were asked who did so and why; their responses are listed below.

- *I got a handheld showerhead from the Council On Aging group instead. (Ohio)*
- *I removed it because I wanted a handheld showerhead. I liked the idea of that kind, so I went out and purchased a water-saving version. (Ohio)*

- *I removed the showerhead because I had a high-dollar showerhead I wanted to put back in. The auditor replaced my good showerhead. (Kentucky)*
- *I removed it because I didn't like it, but I don't remember why. Maybe I didn't like it because of the water pressure change. (Kentucky)*
- *I removed it because there was not enough pressure. (Kentucky)*

Table 49 shows how many showers are taken per week using the showers where program-provided showerheads were confirmed installed. Among the 61 installations described¹⁶, nearly half (44.3%) are used for ten or fewer shower per week, while about a quarter (26.2%) are used for sixteen or more showers per week. A plurality of the program-provided showerheads are reported as having a lower water flow than the previously-installed previous showerheads (41.0%), while a similar number report that the water flow is about the same (36.1%), and for one program showerhead in five (21.3%) the customer reported that the water flow actually seems to have increased.

Table 49. Shower Usage for Low-Flow Showerhead Installations (N=61)

Base: 61 participants who confirmed program showerheads are currently installed	Installations described (N)	Installations described (%)
How many showers per week are taken using this showerhead		
0 to 4	13	21.3%
5 to 10	14	23.0%
11 to 15	17	27.9%
16 to 20	3	4.9%
21 or more	13	21.3%
Don't know	1	1.6%
Flow of water after replacing showerhead		
Less than the old unit	25	41.0%
About the same as the old unit	22	36.1%
More than the old unit	13	21.3%
Don't know / not specified	1	1.6%

Sixty-one participants who received low-flow showerheads rated their satisfaction with the showerheads on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program showerheads is quite high at 8.64, and only 19.7% gave ratings of “7” or lower.

The twelve customers with ratings of “7” or lower were asked the reason for their relatively low satisfaction with the showerheads: Ten of these customers (14.7% of 68 customers who confirmed installation) state that they prefer a stronger water flow; another customer preferred

¹⁶ Customers confirmed 66 showerheads installed, plus four customers were unable to confirm auditor records showing that they received showerheads (thus the total confirmed is 70 showerheads based on the assumption that auditor records are correct when customers cannot confirm). However, five customers uninstalled their showerheads after the audit and thus were not asked questions about shower usage, in addition to the four customers who could not confirm receiving showerheads. Thus the total number of installations reported here is 61 (70 confirmed minus five uninstalled and four not asked because their installation could not be confirmed).

their previous showerhead to the program-provided measure, and one customer was less than satisfied because they have not seen a reduction in their water bill. However only three of these twelve customers report uninstalling their program showerheads.

Only about one in six surveyed participants (15.6%) already had any low-flow showerheads installed before the program, as seen in Table 50; the ten participants with previously installed showerheads had a total of eleven low-flow showerheads installed before the program. Only five respondents (7.8%) had intended to purchase a low-flow showerhead prior to participation, while another two respondents (3.1%) said they “maybe” would have installed a new showerhead before participating in the program, and a large majority of 85.9% did not intend to purchase low-flow showerheads. One surveyed program participant (1.6%) purchased one additional showerhead since the receiving measures from the program audit.

Table 50. Showerheads Installed Before the Program and Additional Showerheads Purchased (N=64)

<i>Base: 64 participants who confirmed program showerheads were installed</i>	Customers (N)	Customers (%)
<i>Previously installed showerheads</i>		
Already had low-flow showerhead(s) installed	10	15.6%
Did not already have low-flow showerhead(s) installed	49	76.6%
Don't know / not specified	5	7.8%
<i>Were you planning on purchasing a low-flow showerhead before participating in the program?</i>		
No	55	85.9%
No, already installed in all available showers	0	0.0%
Maybe	2	3.1%
Yes	5	7.8%
Don't know / not specified	2	3.1%
<i>Additional showerheads purchased since program</i>		
Have not purchased additional showerhead(s)	63	98.4%
Purchased additional showerhead(s)	1	1.6%

Faucet Aerator Installations

Table 51 shows that 101 surveyed participants confirmed the installation of 148 faucet aerators provided by the program, which is 87.1% of the 170 installations recorded by auditors; 11.9% of participants who received aerators according to auditor records reported that they did not receive any aerators, and another 13.9% were not sure if they had received this measure. None of the surveyed participants installed aerators themselves.

Table 51. Measure Installation: Faucet Aerators

<i>101 participants received faucet aerators according to auditor records</i>	Customer count (N=101)	Measures installed count according to auditor records (N=170)	Confirmed measures installed count (N=148)
Auditor installed aerator(s)	72.3%	73.5%	85.1%
Auditor gave aerator(s) to customer, customer installed them	0.0%	0.0%	0.0%
Auditor gave aerator(s) to customer, customer has NOT installed them	2.0%	1.8%	0.0%
Did not receive aerators	11.9%	11.8%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	13.9%	12.9%	14.9%

Two respondents reported that the auditor gave them aerators which have not been installed yet; both of these respondents plan to install the aerators they were provided (three aerators in total).

Customers who confirmed the installation of program-provided aerators were asked if any of their aerators have been removed from where they were installed. As indicated in Table 52, only two surveyed participants (2.0% of 101 who confirmed installations) uninstalled one aerator apiece (1.4% of 148 measures confirmed installed).

Table 52. Removing Program-Provided Faucet Aerators

	Customers who confirmed installations (N=101)	Confirmed measures installed (N=148)
<i>Have any of the aerators that were installed through the Residential Neighborhood Program since been uninstalled or removed?</i>		
No, all aerators are currently installed	84.2%	83.8% installed
Yes, one aerator removed	2.0%	1.4% removed
Yes, two or more aerators removed	0.0%	0.0% removed
Not sure if aerators installed (did not answer questions about installation)	13.9%	14.8% assumed installed

The two participants who removed aerators were asked who did so and why; one removed the aerator because they felt it was restricting the water flow too much, while the other reported that a family member removed the aerator because of a leak in the base of the faucet.

Surveyed participants answered questions about the usage of program-provided faucet aerators for 71 kitchen installations and 53 bathroom installations.¹⁷ Table 53 shows that most kitchen installations involved a single aerator (85.9%). Customers confirmed that 46.5% of program-provided faucet aerators installed in kitchens replaced other faucet aerators that were already

¹⁷ Customers confirmed 148 aerators installed (including 14 customers who did not recall the installation of a total of 22 aerators, thus auditor records are assumed correct for these customers). Customers who did not recall whether installations occurred did not answer detailed questions about installations, and two of the installed aerators were removed by participants. Thus the total number of aerator installations described by participants is 124 (148 confirmed installed minus two removed and 22 not asked).

installed. Two out of five kitchen installations are described as providing lower water flow than before the program aerators were installed (40.8%) and a similar number are described as having “about the same” water flow (39.4%).

Table 53. Usage of Faucet Aerators in the Kitchen (N=71)

<i>Base: 71 participants who confirmed program aerators are currently installed in kitchens</i>	Kitchen Installations described (N)	Kitchen Installations described (%)
Program aerators installed in kitchen		
One	61	85.9%
Two	10	14.1%
Three	0	0.0%
Was there an aerator previously installed on this faucet that had to be removed?		
Yes	33	46.5%
No	28	39.4%
Don't know / not specified	10	14.1%
Flow of water after installing program aerator		
Less than the old unit	29	40.8%
About the same as the old unit	28	39.4%
More than the old unit	12	16.9%
Don't know how compares to old unit	2	2.8%

Table 54 shows that most faucet aerator installations in bathrooms involved a single aerator (73.6%). Customers confirmed that 49.1% of program-provided faucet aerators installed in bathrooms replaced other faucet aerators that were already installed. A plurality of installations are described as providing lower water flow than before the program aerators were installed (45.3%).

Table 54. Usage of Faucet Aerators in the Bathroom (N=53)

<i>Base: 53 participants who confirmed program aerators are currently installed in bathrooms</i>	Bathroom Installations described (N)	Bathroom Installations described (%)
Program aerators installed in bathrooms		
One	39	73.6%
Two	14	26.4%
Three	0	0.0%
Was there an aerator previously installed on this faucet that had to be removed?		
Yes	26	49.1%
No	18	34.0%
Don't know / not specified	9	17.0%
Flow of water after installing program aerator		
Less than the old unit	24	45.3%
About the same as the old unit	21	39.6%
More than the old unit	7	13.2%
Don't know how compares to old unit	1	1.9%

Seventy participants who confirmed that they had program-provided faucet aerators rated their satisfaction with the aerators on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program aerators is quite high at 9.23, and only 12.9% gave ratings of “7” or lower.

The nine customers with ratings of “7” or lower were asked the reason for their relatively low satisfaction with the aerators. Five of these customers complain about the lower water flow of their new faucet aerators compared to their water flow before the program, however only one of these customers removed one of their program-provided aerators. Another customer was dissatisfied with the aerators because they have not noticed a decrease in their energy bill, and the other three customers did not notice any improvements due to this measure (“*that faucet is not doing anything any better than before.*”)

Table 55 shows information about participants’ previously installed aerators and intentions to purchase additional aerators. About half of participants surveyed (50.7% or 37 out of 73) said they already had aerators installed before participating in the program, but only 8.2% said that they intended to purchase aerators before receiving them from the program. One surveyed participant (1.4%) has purchased one additional aerator since participating in the Residential Neighborhoods program.

Table 55. Faucet Aerators Installed Before the Program and Additional Aerators Purchased (N=73)

Base: 73 participants who confirmed program aerators were installed	Customers (N)	Customers (%)
Previously Installed aerators		
Already had low-flow showerhead(s) installed	37	50.7%
Did not already have low-flow showerhead(s) installed	29	39.7%
Don't know / not specified	7	9.6%
Were you planning on purchasing faucet aerators before participating in the program?		
No	64	87.7%
No, already installed in all available showers	0	0.0%
Maybe	3	4.1%
Yes	6	8.2%
Don't know / not specified	0	0.0%
Additional showerheads purchased since program		
Have not purchased additional showerhead(s)	72	98.6%
Purchased additional showerhead(s)	1	1.4%

Thirty-seven participants reported having faucet aerators installed in their homes before participating in the program: ten of these participants had only one aerator before the program, 20 participants had two aerators installed before the program, six participants had three aerators apiece and one participant had four aerators. In total, there were 72 aerators installed across the 37 participant households that confirmed having aerators before the program.

Door Sweep Installations

As seen in Table 56, the 51 surveyed participants confirmed the installation of 68 door sweeps provided by the program, which is 97.1% of the 70 installations recorded by auditors.¹⁸ None of the door sweeps were installed by the customers themselves.

Table 56. Measure Installation: Door Sweeps

51 participants received door sweeps according to auditor records	Customer count (N=51)	Measures installed count according to auditor records (N=70)	Confirmed measures installed count (N=68)
Auditor installed door sweep(s)	88.2%	88.6%	94.1%
Auditor gave door sweep(s) to customer, customer installed them	0.0%	0.0%	0.0%
Auditor gave door sweep(s) to customer, customer has NOT installed them	0.0%	0.0%	0.0%
Did not receive door sweep(s)	5.9%	5.7%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	5.9%	5.7%	5.9%

Customers who confirmed the installation of program-provided door sweeps were asked if any of their door sweeps have been removed from where they were installed. As indicated in Table 57, one surveyed participants (2.1% of 48 with confirmed installations) reported that one program-installed door sweep was removed (1.5% of 68 measures confirmed installed).

Table 57. Removing Program-Provided Door Sweeps

	Customers with confirmed installation percent (N=48)	Confirmed measures installed percent (N=68)
<i>Have any of the door sweeps that were installed through the Residential Neighborhood Program since been uninstalled or removed?</i>		
No, all door sweeps are currently installed	91.7%	92.6% installed
Yes, one door sweep removed	2.1%	1.5% removed
Yes, two door sweeps removed	0.0%	0.0% removed
Not sure if door sweeps installed (did not answer questions about installation)	6.3%	5.9% assumed installed

One Ohio customer who removed a door sweep was asked who removed it and why; they explained “*The auditor removed it because it wasn't enough.*”

¹⁸ The 45 participants who confirmed that the auditor installed door sweeps should have received 62 sweeps according to auditor records, however the customers claimed to have 64 sweeps installed. Eight customers (17.8% of 45) reported a different number of sweeps installed than auditor records: five said they received one more door sweep than program records and three said they received one less. In addition, three customers did not know if they received door sweeps, and according to program records these customers should have received four door sweeps. Thus the total confirmed installed is 64 confirmed and corrected by customers plus four where auditor records are assumed correct equals 68 door sweeps.

Forty-five participants who confirmed that they currently have program-provided door sweeps installed in their homes rated their satisfaction with the sweeps on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program door sweeps is very high at 9.49, and only one participant (2.2%) gave a rating of “7” or lower.

The Kentucky customer who rated their satisfaction with this measure at “2 out of 10” was asked the reason for their relatively low satisfaction with the door sweeps; they explained “*the sweep is interfering with the flooring by pulling up the linoleum tiles.*” This customer reports that the program-provided door sweep is still installed in their home.

About one in four surveyed participants (28.9%) already had door sweeps installed before participating in the Residential Neighborhoods program, as seen in Table 58 (these thirteen participants with previously installed door sweeps had a total of 21 doors with sweeps previously installed). Prior to the program, nine respondents (20.0%) say they intended to purchase and install door sweeps, while another five respondents (11.1%) said they “maybe” would have installed door sweeps before participating in the program, while a majority of 68.9% did not intend to purchase any door sweeps. None of the surveyed program participants have purchased any additional door sweeps since receiving measures from the program audit.

Table 58. Door Sweeps Installed Before the Program and Additional Door Sweeps Purchased (N=45)

Base: 45 participants who confirmed program door sweeps were installed	Customers (N)	Customers (%)
Previously installed door sweeps		
Already had door sweep installed – one door	5	11.1%
Already had door sweep installed – two doors	8	17.8%
Did not already have door sweep(s) installed	32	71.1%
Don't know / not specified	0	0.0%
Were you planning on purchasing door sweep before participating in the program?		
No	31	68.9%
No, already installed on all available doors	0	0.0%
Maybe	5	11.1%
Yes	9	20.0%
Don't know / not specified	0	0.0%
Additional door sweeps purchased since program		
Have not purchased additional door sweep(s)	45	100.0%
Purchased additional door sweep(s)	0	0.0%

Vinyl Weather Stripping for Doors Installations

As seen in Table 59, the 64 surveyed participants confirmed the installation of vinyl weather stripping on 78 doors, which is 92.9% of the 84 installations recorded by auditors.¹⁹ None of

¹⁹ The 47 participants who confirmed that the auditor installed vinyl weather stripping for doors should have received vinyl weather stripping for 60 doors according to auditor records, however the customers claimed to have 71 doors weather stripped by the program. Twenty customers (42.6% of 47) reported a different number of doors with weather stripping installed than auditor records: sixteen claim to have received measures for one or two doors more than auditors recorded, and five customers claim to have received measures for one door fewer than auditors recorded. In addition, five customers did not know if they received vinyl weather stripping for doors, and according

these customers installed weather stripping themselves, though two participants (3.1%) report that they received weather stripping from the auditor but have not installed it yet.

Table 59. Measure Installation: Vinyl Weather Stripping for Doors

<i>64 participants received vinyl weather stripping for doors according to auditor records</i>	Customer count (N=64)	Measures installed count according to auditor records (N=84 doors)	Confirmed measures installed count (N=78 doors)
Auditor installed vinyl weather stripping for doors	73.4%	71.4%	91.0%
Auditor gave vinyl weather stripping for doors to customer, customer installed it	0.0%	0.0%	0.0%
Auditor gave vinyl weather stripping for doors to customer, customer has NOT installed it	3.1%	3.6%	0.0%
Did not receive vinyl weather stripping for doors	15.6%	16.7%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	7.8%	8.3%	9.0%

The two surveyed participants who claim they were given the vinyl weather stripping measure by the auditor report that they still intend to install it in the future.

Customers who confirmed the installation of program-provided vinyl weather stripping for doors were asked if any of the weather stripping has been removed from where it was installed. As indicated in Table 60, at least some of the program-provided weather stripping has been removed in three households (5.8%) where it was installed, representing 3.8% of doors that were weather-stripped by the program.

Table 60. Removing Program-Provided Vinyl Weather Stripping for Doors

	Customers with confirmed installation percent (N=52)	Confirmed measures installed percent (N=78)
<i>Has any of the vinyl weather stripping for doors that was installed through the Residential Neighborhood Program since been uninstalled or removed?</i>		
No, all vinyl weather stripping for doors is currently installed	84.6%	84.6% installed
Yes, vinyl weather stripping for one door removed (other doors may remain installed)	5.8%	3.8% removed 2.6% installed
Yes, vinyl weather stripping for two doors removed (none remains installed)	0.0%	0.0% removed
Not sure if vinyl weather stripping for doors installed (did not answer questions about installation)	9.6%	9.0% assumed installed

to program records these customers should have received weather stripping for seven doors. Thus the total confirmed number of doors weather stripped is 71 confirmed and corrected by customers plus seven where auditor records are assumed correct equals 78 doors with vinyl weather stripping provided by the program.

The three customers with a combined three doors that had their weather stripping removed were asked who removed it and why: in one case the participant had their entire door replaced, in another case a maintenance worker removed the measure because it was interfering with the door locking, and in the third case the participant's grandchildren removed the measure while playing (*"they thought it was fun to peel off."*)

Forty-six participants who confirmed that they had program-provided vinyl weather stripping installed on doors in their homes rated their satisfaction with this measure on a ten-point scale where "10" is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the vinyl weather stripping for doors is 8.80, and 15.2% gave ratings of "7" or lower.

The seven customers with ratings of "7" or lower were asked the reason for their relatively low satisfaction with this measure; three participants report issues with doors not closing properly, three complained about the quality of the installation (they still have drafts), and one participant said the measure was only useful during the winter. Only one of the participants giving a low satisfaction score for this measure actually had the weather stripping removed from where it was installed.

Nearly half of surveyed participants (46.8%) already had doors with vinyl weather stripping installed before participating in the Residential Neighborhoods program, as seen in Table 61 (these 22 participants with previously installed weather stripping had a total of 32 doors with weather stripping previously installed). Prior to the program, 19 respondents (40.4%) say they intended to purchase and install vinyl weather stripping for doors, while another six respondents (12.8%) said they "maybe" would have installed vinyl weather stripping on their doors before participating in the program. However, a plurality of 44.7% had not intended to purchase any vinyl weather stripping for doors before the program. Two of the surveyed program participants have purchased enough additional measures to apply vinyl weather stripping to a total of four more doors since receiving measures from the program audit.

Table 61. Vinyl Weather Stripping for Doors Installed Before the Program and Additional Vinyl Weather Stripping Purchased (N=47)

Base: 47 participants who confirmed program weather stripping was installed on doors	Customers (N)	Customers (%)
Previously installed vinyl weather stripping for doors		
Already had vinyl weather stripping installed – one door	13	27.7%
Already had vinyl weather stripping – two or more doors	9	19.1%
Did not have vinyl weather stripping installed on doors	23	48.9%
Don't know / not specified	2	4.3%
Were you planning on purchasing vinyl weather stripping for doors before participating in the program?		
No	21	44.7%
No, already installed on all available doors	0	0.0%
Maybe	6	12.8%
Yes	19	40.4%
Don't know / not specified	1	2.1%
Additional vinyl weather stripping for doors purchased since program		
Have not purchased additional vinyl weather stripping for doors	45	95.7%
Purchased additional vinyl weather stripping for doors	2	4.3%

Caulking Doors Installations

As seen in Table 62, the 42 surveyed participants confirmed that 49 doors were caulked by the program, which is only 89.1% of the 55 installations recorded by auditors.²⁰ One surveyed participant in six (16.7%) who received this measure according to auditor records reported that they did not have any doors caulked by the program, and another quarter (26.2%) were not sure if any of their doors had been caulked. None of the doors were caulked by the customers themselves, though two customers (4.8%) report that the auditor left caulk with them that has not been installed yet.

²⁰ The 22 participants who confirmed that the auditor caulked doors should have had 30 doors caulked according to auditor records, however the customers claimed to have had 35 doors caulked. Fifteen customers reported a different number of doors caulked than auditor records: nine reported more doors caulked than recorded by auditors, and six reported fewer doors caulked. In addition, eleven customers did not know if they had any doors caulked, and according to program records these customers should have had 14 of their doors caulked. Thus the total confirmed installed is 35 doors caulked confirmed and corrected by customers plus 14 doors where auditor records are assumed correct equals 49 doors caulked.

Table 62. Measure Installation: Caulking Doors

42 participants received door caulk according to auditor records	Customer count (N=42)	Measures installed count according to auditor records (N=55)	Confirmed measures installed count (N=49)
Auditor caulked door(s)	52.4%	54.5%	71.4%
Auditor gave caulk to customer, customer caulked doors	0.0%	0.0%	0.0%
Auditor gave caulk to customer, customer has NOT caulked doors	4.8%	3.6%	0.0%
Did not receive door caulk	16.7%	16.4%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	26.2%	25.5%	28.6%

Customers who confirmed that their doors were caulked by the program were asked if any of the caulking has been removed from where it was installed. As indicated in Table 63, one surveyed participant (3.0% of 33 with confirmed installations) reported that caulking was removed from one of their two caulked doors (2.0% of 49 measures confirmed installed).

Table 63. Removing Program-Provided Door Caulking

	Customers with confirmed installation percent (N=33)	Confirmed measures installed percent (N=49)
<i>Have any of the door caulking that was installed through the Residential Neighborhood Program since been removed?</i>		
No, all caulked doors are currently caulked	63.6%	67.3% installed
Yes, caulk removed from one door (one door remains caulked)	3.0%	2.0% installed 2.0% removed
Not sure if doors were caulked (did not answer questions about installation)	33.3%	28.6% assumed installed

The Ohio customer whose door had caulking removed was asked who removed it and why; they explained *“I had a local contractor remove the old door and replace it with a new one.”*

Twenty-two participants who confirmed that they currently have doors caulked by the program rated their satisfaction with the caulking on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program-provided door caulking is high at 9.32, and only 4.5% gave ratings of “7” or lower.

The only customer with a rating of “7” or lower gave a rating of “5 out of 10” for their satisfaction with this measure. This Ohio customer was asked the reason for their relatively low satisfaction with the door caulking, and explained *“I was disappointed that the auditor was unable to caulk the doorway. It was great that he tried, but he told me that he wasn't able to do the caulking because the gap was too big and the caulk was just dripping down into the crack. He explained to me that we would need some sort of expanding foam to plug up the crack.”*

A little less than a quarter of surveyed participants (22.7%) already had doors caulked before participating in the Residential Neighborhoods program, as seen in Table 64 (these five participants with previously caulked doors had a total of twelve doors with caulking installed. Prior to the program, five respondents (22.7%) say they intended to purchase caulk and install it on their doors, while another respondent (4.5%) said they “maybe” would have intended to caulk their doors before participating in the program, while two-thirds of surveyed participants (68.2%) did not intend to caulk any doors. None of the surveyed program participants have caulked any additional doors since receiving measures from the program audit.

Table 64. Doors Caulked Before the Program and Additional Caulk Purchased (N=22)

<i>Base: 22 participants who confirmed program door caulking</i>	Customers (N)	Customers (%)
<i>Previously installed door caulk</i>		
Already had one door caulked	1	4.5%
Already had two doors caulked	2	9.1%
Already had three or more doors caulked	2	9.1%
Did not already have doors caulked	14	63.6%
Don't know / not specified	3	13.6%
<i>Were you planning on purchasing door caulk before participating in the program?</i>		
No	15	68.2%
No, already installed on all available doors	0	0.0%
Maybe	1	4.5%
Yes	5	22.7%
Don't know / not specified	1	4.5%
<i>Additional door caulk purchased since program</i>		
Have not purchased additional door caulk	0	0.0%
Purchased additional door caulk	22	100.0%

HVAC Winterization Kit Installations

As seen in Table 65, the 28 surveyed participants who should have received winter kits for wall or window HVAC units confirmed that 23 units were installed, which is only 54.8% of the 42 installations recorded by auditors.²¹ A majority of 60.0% (9 out of 15) of participants who confirmed the installation of this measure reported that the auditor gave them the measure and they installed it themselves, accounting for 56.5% (13 out of 23) measures that were confirmed installed by surveyed participants.²²

²¹ Twelve customers who received winter kits according to auditor records report that these measures were either not received, or were received but have not been installed yet. The 15 participants who confirmed that winter kits were installed should have had 22 kits installed according to auditor records, and these customers confirmed having a total of 22 kits installed. In addition, one customer did not know if they had any winter kits installed, and according to program records these customers should have had one kit installed. Thus the total confirmed kits installed is 22 confirmed and corrected by customers plus one kit where auditor records are assumed correct equals 23 kits installed.

²² Participants surveyed in the Midwest for this evaluation had their homes audited by the program between July of 2013 and July of 2014, and this participant survey was conducted in August and September of 2014. Since the winter kit is intended for use in the winter, this may explain why this measure was usually left by auditors for the customers to install themselves (during the summer AC units are being used and are not winterized) and why relatively few measures were currently installed (the survey happened at the end of cooling season). Participants who received audits after the winter of 2013-2014 have not had an opportunity to use this measure in winter yet, and

Table 65. Measure Installation: Winter Kit for Wall or Window HVAC

<i>28 participants received door caulk according to auditor records</i>	Customer count (N=28)	Measures installed count according to auditor records (N=42)	Confirmed measures installed count (N=23)
Auditor installed kit(s)	21.4%	21.4%	39.1%
Auditor gave kit(s) to customer, customer installed	32.1%	31.0%	56.5%
Auditor gave kit(s) to customer, customer has NOT installed	35.7%	40.5%	0.0%
Did not receive winter kit	7.1%	4.8%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	3.6%	2.4%	4.3%

The nine customers who installed their winter kits themselves were asked if this was easy to do; eight (88.9%) reported that it was easy, while one (11.1%) reported that it was not easy.

The ten customers who reported that they received winter kits from auditors which have not been installed yet report that they received a combined 17 kits, and 90.0% of these customers said that they do intend to install these kits. The only surveyed participant who is not sure if they will install their kit is a Kentucky customer who gave this explanation for why they may not install it: *"If I can get someone to install the winter kit I will use it, but I can't install it myself. I'm 76 and I fall a lot, so I can't install things on my own."*

Customers who confirmed that this measure was installed were asked if any of winter kits have been removed from where they were installed. As indicated in Table 66, 68.8% of surveyed participants who confirmed installations report that kits have since been uninstalled: The eleven participants whose measures were uninstalled accounted for 73.9% of measures that were confirmed installed. This result is not surprising, in that this survey was conducted in August and September at the end of the cooling season, and this measure is intended for wintertime use.

Table 66. Removing Program-Provided Winter Kit for Wall or Window HVAC

	Customers with confirmed installation percent (N=16)	Confirmed measures installed percent (N=23)
<i>Have any of the door caulking that was installed through the Residential Neighborhood Program since been removed?</i>		
No, all kits installed kits are still installed	25.0%	21.7% installed
Yes, kit removed from one unit	31.3%	21.7% removed
Yes, kit removed from two units	37.5%	52.2% removed
Not sure if kits were installed (did not answer questions about installation)	6.3%	4.3% assumed installed

participants who received audits before or during the previous winter likely removed the kit for summer and had not re-installed it by September of 2014.

The eleven customers whose kits were removed from HVAC units were asked who removed them and why; ten of these participants (90.9%) mentioned that they removed the kit because the weather was hotter in the summertime and they wanted to use their air conditioning. The remaining customer (9.1%) stated: *“I removed the entire AC unit because it’s been a mild summer.”* Nine of these eleven customers (81.8%) uninstalled these measures by themselves, while one had help from a friend, and the other had a family member remove the measure.

Fifteen participants who confirmed that they had winter kits installed by the program rated their satisfaction with this measure on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program-provided winter kit is very high at 9.40, and only 6.7% gave ratings of “7” or lower.

The Kentucky customer who rated their satisfaction at “5 out of 10” was asked the reason for their relatively low satisfaction with the HVAC winterization kit; they explained *“the window kit looks like a pillow and doesn’t do a good job at keeping the outside air from coming in.”*

None of the surveyed participants who confirmed the installation of this measure already had winter kits before participating in the Residential Neighborhoods program, as seen in Table 67. Prior to the program, only one respondent (6.7%) reports that they intended to purchase and install a winter kit, while the other 93.3% did not intend to. None of the surveyed program participants have purchased or installed any additional kits since receiving measures from the program audit.

Table 67. HVAC Window Kits Installed Before the Program and Additional Kits Purchased (N=15)

Base: 15 participants who confirmed program HVAC window kits were installed	Customers (N)	Customers (%)
Previously installed HVAC winter kits		
Already had one kit installed	0	0.0%
Already had two or more kits installed	0	0.0%
Did not have any HVAC winter kits	15	100.0%
Don't know / not specified	0	0.0%
Were you planning on purchasing HVAC winter kits before participating in the program?		
No	14	93.3%
No, already installed on all units	0	0.0%
Maybe	0	0.0%
Yes	1	6.7%
Don't know / not specified	0	0.0%
Additional kits purchased since program		
Have not purchased additional HVAC winter kits	15	100.0%
Purchased additional HVAC winter kits	0	0.0%

Customers who confirmed the installation of program-provided winter kits for wall and window HVAC units were asked about their habits regarding seasonal location of their HVAC units. As indicated by Table 68, most respondents’ winterized wall and window HVAC units can be removed for winter (80.0%).

Nearly half of participants (46.7%) who confirmed the installation of winter kits said that they always removed their HVAC units in winter during past years, compared to only 6.7% saying that they removed their unit during the most recent winter. This is not surprising, since the purpose of this measure is to insulate removable HVAC units that are left in place for the winter (i.e., if a customer is going to remove the unit during winter, then this measure will not help them). However, of the fourteen participants who left their units in place for the most recent winter, only two (14.3%) said that they would have removed the unit without the program, while nine (64.3%) said they would have left the unit in place with or without the program (the remaining three customers, or 21.4%, have units which are not removable).

Table 68. Removing HVAC Units for Winter and Leaving Them in Place (N=15)

<i>Base: 15 participants who confirmed program HVAC window kits were installed</i>	Customers (N)	Customers (%)
<i>Are any of the window or wall units winterized with the kit removable?</i>		
No, all are permanently installed	3	20.0%
Yes, there is one removable unit	7	46.7%
Yes, there are two removable units	5	33.3%
Not sure	0	0.0%
<i>In previous years, did you remove units for the winter or leave them in place?</i>		
Always left in place during winter	3	20.0%
Sometimes removed, sometimes left in place	2	13.3%
Always removed for winter	7	46.7%
Unit is not removable (therefore units are left in place for winter)	3	20.0%
<i>What did you do with your units during the most recent winter?</i>		
Left units in place for winter, and would have done this regardless of the program	9	60.0%
Took units out for winter, and would have done this regardless of the program	1	6.7%
Left units in place for winter, but would have removed them without the program	2	13.3%
Took units out for winter, but would have left them in place without the program	0	0.0%
Unit is not removable (therefore units are left in place for winter)	3	20.0%

Vinyl Weather Stripping for HVAC Window Units Installations

As seen in Table 69, only two surveyed participants received this measure according to auditor records, and one said they did not receive it while the other was not sure. Participants thus confirmed that one window unit was weather stripped by the program, which is only 50.0% of the two installations recorded by auditors.²³

²³ The two participants who had this measure installed according to program records should have had two window units weather stripped, and they did not affirmatively confirm the installation of either. However, for the purposes of reporting installation rates in this section of this report, when a participant does not recall if a measure was performed, TecMarket Works assumes the auditor's record is correct. Thus the only case of this measure that is considered installed is one customer who does not recall whether they received the measure or not.