

- Accidentally clicked link that took me away from the website
- Confusion between free CFL program and Savings Store
- No suggestions / don't know (n=3)

Satisfaction with price of bulbs (n=16)

- The prices should be lower / I prefer free CFL programs (n=8)
- I found similar light bulbs cheaper somewhere else (n=3)
- The prices are acceptable (n=3)
- Surprised that specialty bulbs are so expensive, but Savings Store prices are better than Home Depot
- Shipping should be free

Ease of using the shopping cart (n=12)

- Shopping cart should keep a running tally of incented bulbs allowed (n=3)
- Not sure of quantity being ordered (single bulbs or multi-packs)
- Took too long for me to find what I wanted / I had to log on multiple times
- The website is fine but I am not very good with computers
- No suggestions / don't know (n=6)

Helpfulness of the energy savings calculator (n=10)

- Calculator makes too many assumptions / not customized enough for me to believe the results are accurate (n=5)
- No suggestions / don't know (n=5)

Ease of logging on to website (n=10)

- Issues with account verification / logging on to the site (n=2)
- Difficulty finding link to Savings Store site (n=2)
- Confusion between free CFL program and Savings Store
- No suggestions / don't know (n=5)

Ease of completing purchase online (n=9)

- Difficulty keeping track of incentive limits / confusion about final prices (n=3)
- Technical difficulties connecting to the website (n=2)
- The site should store credit card information to make shopping easier
- I am not an experienced online shopper
- No suggestions / don't know (n=2)

Satisfaction with order tracking feature (n=1)

- Have one-click access to order tracking updates

Satisfaction with phone support provided for store (n=1)

- Phone support should be able to provide order tracking updates

Customers' Favorite and Least Favorite Things about the Savings Store

Customers were asked to name their favorite thing about the Savings Store; these responses are shown in Table 24. A majority (63.1%) mentioned the low price for light bulbs, though only one participant surveyed (0.5%) mentioned saving money through lower utility bills. The convenience of online shopping and home delivery was mentioned by about a third of customers (30.6%), and nearly a quarter mentioned that the website layout, information and tools made shopping for bulbs easy to do (22.3%).

Table 24. Customers' Favorite Things about the Savings Store (N=206)

	Midwest (count)	Midwest (percent)
Reduced prices for light bulbs	130	63.1%
Convenience of online shopping & home delivery / not having to go to the store	63	30.6%
Website layout, info & tools made it easy to shop for bulbs	46	22.3%
Selection & variety of bulbs offered	21	10.2%
Quick delivery	5	2.4%
That Duke Energy is offering this program to customers	4	1.9%
Saving energy	4	1.9%
Different package size options / can order bulbs in bulk	3	1.5%
Helping the environment	2	1.0%
Saving money on utility bills	1	0.5%
Saving time	1	0.5%
Telephone support agents are very helpful	1	0.5%
Free delivery	1	0.5%
Quality of the light bulbs	1	0.5%
Don't know / nothing	2	1.0%

Percentages total to more than 100% because participants could name multiple favorite things.

It is our finding based on this evaluation that program participants largely represent households who have already adopted energy efficient lighting technology for standard sockets in their home, and this program has allowed them to extend that decision to specialty bulbs that would not have been replaced with efficient bulbs without the program. Although program participants had an average of 12.8 efficient bulbs apiece installed in their homes before they purchased Savings Store specialty bulbs, most installations of the efficient bulbs provide by the Duke Energy store replaced inefficient bulbs. The key question for these customers when making light bulb purchase decisions is not "should I get efficient bulbs?" it is "where can I get the efficient bulbs that will work in my fixtures at an acceptable price?" The participant survey shows that the over-riding reason customers bought efficient specialty light bulbs from the Savings Store is the availability of specialty bulbs at reduced prices offered by the store. The cost savings associated with less energy use is a distant secondary concern for these customers.

Reinforcing this hypothesis, participants overwhelmingly express that they would like to install efficient bulbs in their specialty sockets when their program bulbs burn out (at least 92% of installations), even though for 80% of these surveyed installations the efficient program bulb had replaced a previously-installed incandescent or halogen bulb. That is, they wanted to use efficient bulbs, but had not been able to make that switch in their specialty bulb fixtures without

the availability of the program. Thus, participation in the Specialty Bulbs program seems to distill down to the customer being able to find the “right bulbs” for special non-standard uses and functions at the “right price.” The Duke Energy store enabled these customers to make the switch in their specialty bulb sockets.

These findings support our conclusion that this program is performing as intended: by delivering efficient light bulbs to customers who will use them, but who largely would not have done so in the absence of the program.

Customers were also asked to name their least favorite things about the Savings Store, which are shown in Table 25. Over 40% of the participants (43.2%) could not name a least favorite thing about the Savings Store. The most-mentioned issues customers have are with the limits on incandescent bulbs (mentioned by 16.0%) and the information presented at the website (7.8%), followed by complaints about the selection of bulbs available and issues with website navigation (both 5.8%).

In contrast to 63.1% of customers mentioning the Savings Store’s prices as their *favorite* thing about the program, only 2.4% mentioned the price of the bulbs as their *least* favorite thing.

Table 25. Customers’ Least Favorite Things about the Savings Store (N=206)

	Midwest (count)	Midwest (percent)
Nothing / don't know	89	43.2%
Limit on quantity of discounted bulbs that can be purchased	33	16.0%
Wanted more or better info on website, listed below	16	7.8%
Selection of bulbs available, listed below	12	5.8%
Hard to navigate / difficult to compare bulbs, make choices	12	5.8%
Complaints about bulb quality, listed below	7	3.4%
Price / can get these bulbs as cheap or cheaper elsewhere	5	2.4%
The cost of shipping	6	2.9%
Cumbersome log on / hard to find link	4	1.9%
Could not find a specific bulb I was looking for, listed below	4	1.9%
Having to use Internet / want phone or mail order option	4	1.9%
Delivery time took too long	3	1.5%
Confusion about single bulbs versus multi-packs	3	1.5%
Confusion about price limits (thought I had to order more bulbs / order all bulbs at once / don't understand why there are two prices listed)	3	1.5%
Return policies / having to return items	2	1.0%
Dislike like having light bulbs shipped / shipping packaging	2	1.0%
Savings Store bulbs are not manufactured in the USA	2	1.0%
Dislike video that plays automatically when entering site	2	1.0%
Dislike order tracking	1	0.5%
Dislike that product offerings are different for business and residential customers	1	0.5%
Website does not make it clear that CFLs should be recycled	1	0.5%
Dislike telephone customer service	1	0.5%
Dislike having to buy light bulbs in general	1	0.5%

Percentages total to more than 100% because participants could name multiple least favorite things.

Sixteen customers made comments about the information presented at the Savings Store website, which are categorized below. Eight of these customers feel that the bulb descriptions are inadequate or confusing and thus they were not sure if they were ordering the “right” bulbs for their needs, four customers requested more information about the color or “temperature” of light produced, while three customers apiece requested more or better photographs of Savings Store bulbs and information about dimensions and threading (whether the bulbs will fit in their intended sockets). More than 16 responses are listed because some participants had more than one complaint in this area.

- The bulb descriptions are too vague / too confusing / I was not sure if I was buying the right bulbs (n=8)
- Want more / better information about light color/temperature (n=4)
- Want more / better photographs of the bulbs (n=3)
- Want more / better information about bulb dimensions and threading (n=3)
- Want to know brands of bulbs offered

Twelve customers made comments about the selection of bulbs available at the Savings Store website, which are categorized below. There is only one customer who thought the Savings Store’s selection was too large, while eleven customers thought the selection could be larger. The most common request is for the Store to include more LED options, while one customer wants the Savings Store to offer incandescent (non-efficient) specialty bulbs.

- Want a larger selection of LED options (n=5)
- Want a larger selection of bulbs in general (n=3)
- Want a larger selection and mentioned specific type of bulb (n=3)
 - Want more options for globe bulbs
 - Want the Store to offer nightlights
 - Want the Store to offer *incandescent* candelabra and globe bulbs
- Overwhelmed by too many choices

Seven customers made comments about the qualities of the light bulbs they purchased from the Savings Store website, which are categorized below. Three customers complained about non-functional bulbs while a fourth customer purchased a faulty three-way bulb that is not fully functional (more than seven responses are listed because one customer complained about both non-functional bulbs and slow CFL warm-up time).

- Bulb(s) I ordered arrived non-functional or burned out immediately (n=3)
- CFLs do not reach full brightness immediately (n=2)
- Three-way bulb I ordered still lights but the three-way function stopped working
- Bulbs I purchased are not dimmable
- Dislike the appearance of the candelabra bulbs I purchased

Four customers could not find specific light bulbs that they were looking for at the Savings Store; the five types of bulbs they were seeking are described as “*dimmable candelabra CFLs for chandeliers*,” “*mini-globe bulbs*,” “*ceiling fan lights*,” “*lights for outside*” and “*a specific type of*

halogen bulb.”

Satisfaction with Light Bulbs Purchased from the Savings Store

Customers who installed the light bulbs they purchased from the Savings Store were asked to rate their satisfaction with these bulbs on a ten-point scale where “10” means most satisfied. Table 26 shows that customers are generally satisfied with the program bulbs, which receive an overall mean ratings of 8.98 out of ten. The light bulbs that receive the highest satisfaction scores are the capsule LEDs (9.75 based on 40 ratings), indoor reflector LEDs (9.17 based on 12 ratings), capsule CFLs (9.20 based on 44 ratings) and non-dimmable indoor reflector CFLs (9.07 based on 67 ratings).

The bulbs with the lowest satisfaction scores are dimmable indoor reflector CFLs (7.87 based on 15 ratings, with 33.3% giving ratings of “7” or lower) and candelabra CFLs (8.48 based on 65 ratings; a mean satisfaction ratings higher than 8.0 still represents a high level of customer satisfaction, but there may be room for improvement with these specialty bulb types.

Overall, LEDs received a higher satisfaction rating (9.62 based on 52 ratings) than CFLs (8.89 based on 351 ratings). None of the surveyed customers (0.0% out of 52) rated their satisfaction with LEDs from the Savings Store at “7” or lower, compared to 14.8% of ratings for Savings Store CFLs receiving ratings of “7” or less.

Table 26. Mean Satisfaction Ratings for Light Bulbs Purchased from the Savings Store

Base: customers who installed program bulbs and gave satisfaction ratings	Average Rating	Valid N (not including don't know)	Percentage of ratings at “7 out of 10” or lower
Capsules total	9.46	81	6.2%
- CFL	9.20	44	11.4%
- LED	9.75	40	0.0%
Three-way CFL	8.96	48	12.5%
Candelabras CFL	8.48	65	18.5%
Indoor reflectors total	8.91	85	14.1%
- Non-dimmable CFL	9.07	67	11.9%
- Dimmable CFL	7.87	15	33.3%
- Dimmable LED	9.17	12	0.0%
Globes CFL	9.02	62	14.5%
Outdoor reflectors CFL	9.04	24	12.5%
Dimmable spiral CFL	8.88	26	19.2%
Standard spiral CFL (non-incended bulbs)	NA	NA	NA
Total for CFLs	8.89	351	14.8%
Total for LEDs	9.62	52	0.0%
Grand total all bulbs	8.98	394	13.2%

Respondents were only asked to give one satisfaction rating per category of specialty bulb that they purchased, not separately for different types of bulbs that they purchased within a category. Four survey respondents who purchased both capsule CFLs and LEDs gave ratings, and eight respondents who purchased more than one type of indoor reflector bulb gave ratings, which is

why the valid N's for subtotals of these bulbs types add up to more than the total valid N (this is also why the valid N for the grand total for all bulbs is four less than the combined totals for CFLs and LEDs). Respondents were not asked to rate their satisfaction with (non-incented) standard spiral CFLs from the Savings Store.

Fifty-two surveyed participants who gave ratings of "7" or less for their satisfaction with Savings Store bulbs were asked how this could be improved; these responses are listed below by specialty bulb type (there are more responses listed than respondents because some customers had multiple concerns and issues). All 52 of these customers (100%) purchased CFLs from the Savings Store, and none (0%) purchased LEDs. The most frequent complaints from customers about these CFLs are that they take too long to reach full brightness. Some customers who are less satisfied also report bulbs burning out or working defectively as reasons for their lower satisfaction, and dimmability issues are a factor for some customers who bought candelabra and indoor reflector bulbs. Some customers also complain about their bulbs being either too dim or too bright for the fixtures they are installed in, indicating there may be a problem choosing the bulbs that have the appropriate lumens for the customers' intended use.

Candelabra CFLs (n=12)

- Bulbs take too long to reach full brightness (n=5)
- Bulbs are not dimmable (n=4)
- Bulbs look unattractive in my fixtures / aesthetics (n=3)
- Prefer clear glass bulbs over opaque/frosted (n=3)
- Bulbs do not fit the fixtures I intended them for
- Bulbs are too bright

Indoor reflector CFLs (n=12)

- Bulbs take too long to reach full brightness (n=7)
- These bulbs do not dim as well as my previous bulbs (n=2)
- Bulbs burned out too quickly
- These bulbs would not work in cold weather (though installed indoors)
- These bulbs are smaller than my previous bulbs and leave a gap

Globe CFLs (n=9)

- Bulbs take too long to reach full brightness (n=4)
- Bulbs are flickering (n=2)
- Bulbs are not bright enough (n=2)
- Bulbs burned out too quickly
- Bulbs are too bright

Three-way CFLs (n=6)

- Bulbs are flickering (n=2)
- Bulbs burned out too quickly
- Bulbs light up but three-way function does not work
- Bulbs take too long to reach full brightness.
- Bulbs are not bright enough and light is wrong color/temperature

Capsule CFLs (n=5)

- Bulbs take too long to reach full brightness (n=5)

Dimmable spiral CFLs (n=5)

- Bulbs are flickering (n=2)
- Bulbs take too long to reach full brightness
- Bulbs burned out too quickly
- Bulbs are bulky and difficult to install
- These bulbs do not dim as well as my previous bulbs

Outdoor reflector CFLs (n=3)

- Bulbs take too long to reach full brightness
- Bulbs are flickering
- Bulbs burned out too quickly

Satisfaction with Duke Energy

Satisfaction with Duke Energy is generally high among these program participants, with a mean rating of 8.44 on a ten-point scale where “10” means “very satisfied”, and about a third of surveyed participants (35.9%) rate their satisfaction with Duke Energy at “10 out of 10”, the highest possible score. The full distribution of responses is shown in Figure 19.

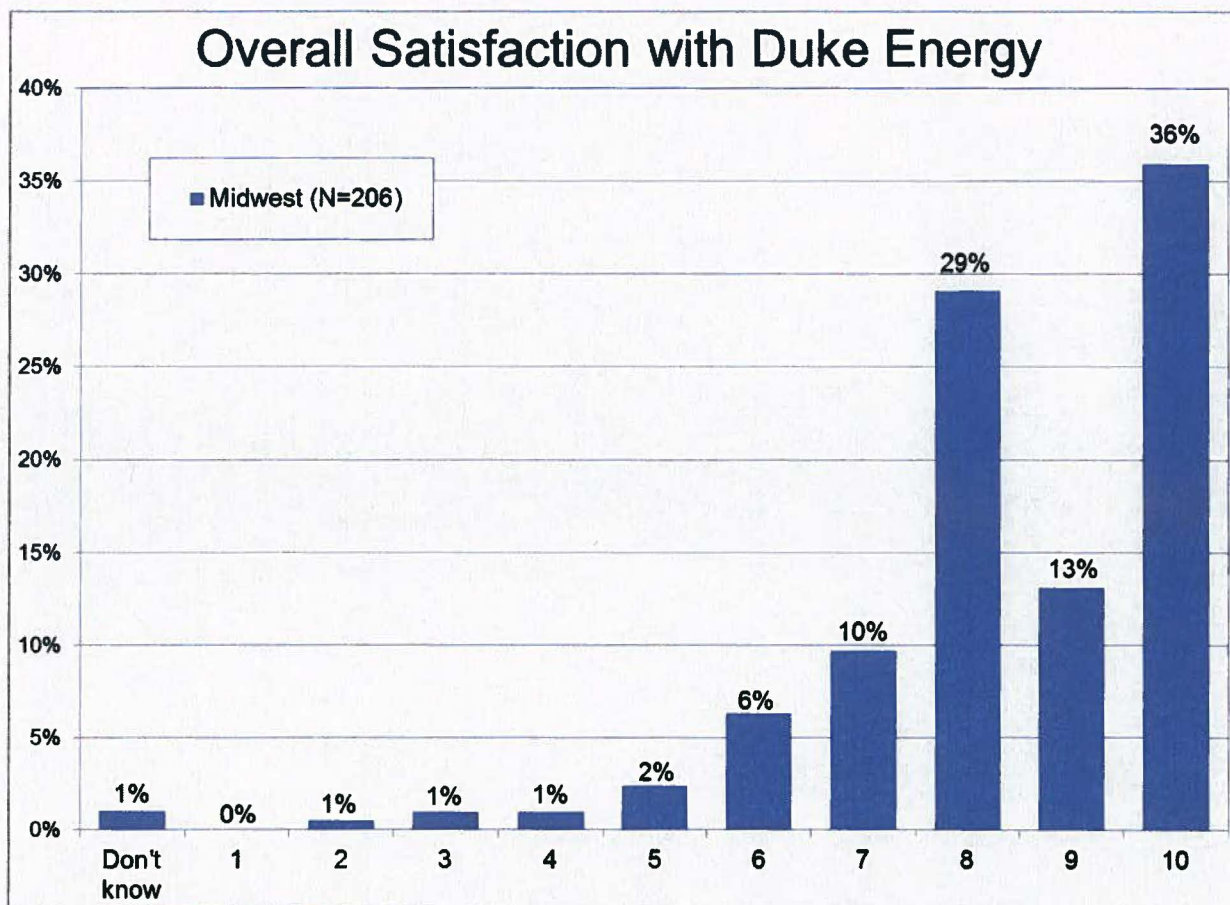


Figure 19. Program Participants' Overall Satisfaction with Duke Energy (N=206)

Forty-three participants (21.1%) rated their satisfaction with Duke Energy at “7” or less on a ten-point scale and were asked how this situation could be improved; these responses are listed in *Appendix H: Explanations of Satisfaction and Influence Ratings*.

Predicting Overall Program Satisfaction

Table 27 shows the correlations between overall program satisfaction and ten ratings which could be used to predict program satisfaction, plus the correlation between program satisfaction and whether the customer received non-functional bulbs, had bulbs become non-functional after installation, or returned any bulbs that they bought from the Savings Store. All ten ratings of aspects of the program, and satisfaction with Duke Energy, are highly correlated to satisfaction with the Savings Store. However, none of the defective or returned bulb variables are significantly correlated with program satisfaction; the negative correlations for receiving non-functional bulbs and having bulbs become non-functional after installation indicate that having defective or damaged bulbs does lower program satisfaction (though not significantly), but the returns do not lower satisfaction on the whole (the coefficient for returning bulbs is not negative).

Table 27. Correlations with Overall Program Satisfaction (N=206)

	Correlation with program satisfaction (Pearson's r)	Significance
Ease of navigating website	.477	p<.01
Ease of using shopping cart	.466	p<.01
Ease of completing purchase	.465	p<.01
Satisfaction with Duke Energy overall	.477	p<.01
Satisfaction with delivery time	.424	p<.01
Helpfulness of bulb descriptions	.414	p<.01
Satisfaction with price of bulbs	.373	p<.01
Ease of logging on to website	.354	p<.01
Helpfulness of energy savings estimates per bulb	.359	p<.01
Ease of finding items I was looking for	.345	p<.01
Returned bulbs to Savings Store	.085	-
Received damaged bulbs from Savings Store	-.015	-
Bulbs from Savings Store became defective or burned out after installation	-.101	-

Next, simple linear regressions were performed to predict overall participant satisfaction with the program using ratings of satisfaction for ten different aspects of the program plus three variables for damaged, defective and returned bulbs. Two models were used: a stepwise model that selects predictors based on incremental improvements to the model (producing the most efficient model that predicts the most variance using the fewest predictors), and a "complete" model that uses all predictors simultaneously (which represents the maximum variance that can be explained using this set of predictors).

The two regression models produce consistent results, in that both indicate that two of the most important aspects of the program which influence overall program satisfaction are the ease of navigating the website and ease of completing a purchase. The two models also produce very similar levels of variance explained, indicating that the non-significant predictors included in the complete model have little additional effect.

The stepwise algorithm is iterative, adding or subtracting predictors from the model based on predetermined criteria. For the model presented in Table 28, predictors are added to the model as long as their coefficients, when added to the model are significant at the $p < .10$ level, and removed from the model if the significance of their coefficients falls below $p < .20$ (due to multicollinearity with other predictors added to the model on subsequent steps). The algorithm will take as many steps as necessary until all predictors that meet the criteria have been added to (or subtracted from) the model. For this model, the algorithm added six predictors (and removed none) in order to arrive at the final regression equation in six steps.

The two most significant predictors of overall program satisfaction are basic e-commerce usability measures: ease of navigating the website and ease of completing purchases. Four additional predictors which are also significantly related to program satisfaction in a positive

direction are satisfaction with the bulb prices, the delivery time, the helpfulness of bulb descriptions and overall satisfaction with Duke Energy.

Table 28. Stepwise Regression to Predict Overall Program Satisfaction (N=137¹³)

Predictor	Beta coefficient	Significance
Ease of navigating website	.213	p<.01
Ease of completing purchase	.198	p<.05
Satisfaction with Duke Energy overall	.186	p<.01
Helpfulness of bulb descriptions	.169	p<.05
Satisfaction with delivery time	.161	p<.05
Satisfaction with price of bulbs	.128	p<.10

The six-predictor regression model above produced using the stepwise method predicts 47.1% of the variance in overall program satisfaction (R-squared), and is significant at the p<.01 level using ANOVA. Beta coefficients are standardized values and indicate the relative importance of the predictors in the model (absolute value of 1.0 would indicate that the predictor determines the predicted variable perfectly, and zero indicates no effect at all). Negative coefficients represent negative influence, though all coefficients are positive in this model.

For the “complete” model shown in Table 29, all thirteen predictors are used simultaneously to predict overall program satisfaction. Since there are no criteria used to determine which predictors are included in the model, most of the predictors do not reach the level of statistical significance. However the complete model does show the maximum amount of variance in overall satisfaction that can be explained using this set of predictors.

¹³ Though there are 206 participants in this survey, the number of valid cases used for regression models is 137 due to “listwise” deletion of missing data. In order to be included in the model, a participant had to give valid answers to all questions used in the model; 69 customers who are missing one or more ratings were excluded. For a similar reason, ratings questions with fewer than 50% valid responses are not included in these models.

Table 29. “Complete” Regression to Predict Overall Program Satisfaction (N=137)

Predictor	Beta coefficient	Significance
Satisfaction with Duke Energy overall	.185	p<.05
Ease of completing purchase	.184	p<.05
Satisfaction with delivery time	.160	p<.10
Ease of navigating website	.155	-
Helpfulness of bulb descriptions	.150	p<.10
Satisfaction with price of bulbs	.092	-
Ease of logging on to website	.081	-
Helpfulness of energy savings estimates per bulb	.042	-
Ease of finding items I was looking for	.034	-
Ease of using shopping cart	-.003	-
Returned bulbs to Savings Store	-.031	-
Received damaged bulbs from Savings Store	-.055	-
Bulbs from Savings Store became defective or burned out after installation	-.066	-

The “complete” thirteen-predictor regression model shown above predicts 48.5% of the variance in overall program satisfaction (R-squared), and is significant at the p<.01 level using ANOVA. The additional non-significant predictors in the “complete” model only increase the variance explained by 1.4% over the stepwise model. Only four of the thirteen predictors in this model have significant coefficients: ease of completing purchases, satisfaction with delivery times, helpfulness of bulb descriptions and satisfaction with Duke Energy overall. All four of these variables are also significant predictors in the stepwise regression model, however satisfaction with bulb prices and ease of navigation are significant in the stepwise model but not in the “complete” model.

Comparing the correlations in Table 27 (relationship between predictors and program satisfaction one-at-a-time) with the regression model in Table 29 (relationship between predictors and program satisfaction all-at-once) indicates that although all program ratings are significantly related to program satisfaction by themselves, most become non-significant in the presence of other, more significant predictors in the regression model. This indicates multicollinearity¹⁴ between the predicting variables (the predictors are highly correlated to each other as well as to the predicted overall program satisfaction); however, the two ratings that consistently appear as top predictors of program satisfaction are the ease of completing a purchase and overall satisfaction with Duke Energy.

Receiving damaged bulbs, bulbs that burn out quickly after installation, and having to return bulbs all have negative coefficients in the complete regression model, indicating that these situations decrease satisfaction with the program when the other aspects of the program included in the model are held constant (“everything else being equal”). However, the complete regression

¹⁴ Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated, meaning that one can be linearly predicted from the others with a non-trivial degree of accuracy.

model only predicts a decline of 0.2 points on the ten-point satisfaction scale when one of these conditions is present, and these variables are not related to program satisfaction at a statistically significant level in either of the regression models or individually in the correlation table.

Factors that Influence Light Bulb Purchases

Surveyed participants were asked to rate the importance of several factors when choosing light bulbs for their home on a ten-point scale where “10” means most important and “1” means not at all important. Table 30 shows the mean ratings of importance; two factors received scores averaging higher than “9 out of 10”: the purchase price of bulbs (9.31) and the energy savings (9.07). Factors involving utility bill savings (8.90) and bulb selection (8.62) also receive high scores, while the least important factors for choosing light bulbs are recommendations of friends and family (4.57), ability to dim the lights (5.72), recommendations from utility companies (6.22) and the ease of disposal (6.43).

Table 30. Importance Ratings for Factors When Choosing Light Bulbs (N=206)

	Average Rating	Valid N (not including don't know)	Percentage of ratings at “7 out of 10” or lower
Purchase price of the bulb	9.31	204	6.9%
Energy savings	9.07	203	11.3%
Cost savings on utility bill	8.90	202	14.9%
Selection of output levels and wattage available	8.62	204	20.6%
Environmental concerns	7.78	204	36.8%
Availability of utility programs or services that offer bulbs to you directly	7.83	204	36.3%
Availability of the bulb at stores and websites where you normally shop	7.24	196	43.9%
Speed at which bulb comes up to full lighting level	7.15	203	43.3%
Attractiveness or appearance of bulb	6.71	206	51.5%
Ease of bulb disposal	6.43	187	53.5%
Recommendations from the utility company	6.22	204	59.8%
Ability to dim the lighting level	5.72	200	64.0%
Recommendations from family / friends	4.57	202	75.7%

Surveyed customers were also asked to rate the influence of a number of factors on their decision to purchase specialty bulbs through Duke Energy’s Savings Store on a ten-point scale where “10” means most influential and “1” means not at all influential; these ratings are shown in Table 31. The highest-rated factors in terms of influence on purchasing from the Savings Store mirror customers’ highest-rated factors for choosing which bulbs to buy for their home: the price of the bulbs (9.53), saving money on utility bills (9.23) and saving energy (9.05). The convenience of home delivery (9.14) and convenience of online ordering (8.77) also received very high influence scores, followed by selection of bulb types (8.53) and selection of wattage levels (8.41), though the selection of brands has far less influence (4.76). Advertising by mail received a higher mean influence score (7.40) compared to advertising received while accessing online accounts (6.25) and advertising on the public section of the Duke Energy website (4.41).

Recommendations of friends and family have little influence (3.76, while recommendations received through websites and social media have even less influence (2.74).

Table 31. Influence Ratings for Deciding to Purchase Bulbs from the Savings Store (N=206)

	Average Rating	Valid N (not including don't know)	Percentage of ratings at "7 out of 10" or lower
Reduced price of bulbs at Savings Store	9.53	195	4.6%
Desire to save money on utility bills	9.23	205	11.0%
Convenience of home delivery	9.14	206	10.7%
Desire to save energy	9.05	206	13.1%
Convenience of online ordering	8.77	202	16.3%
Selection of types of bulbs for different purposes	8.53	205	20.5%
Selection of different wattages of bulbs	8.41	206	20.9%
Information provided at Savings Store site	8.18	194	26.3%
Advertising via mailings received from Duke Energy	7.40	199	36.2%
Advertising when I accessed my online account at Duke Energy website	6.25	188	52.1%
Brands of bulbs available	4.76	199	77.9%
Advertising on Duke Energy's public website	4.41	194	73.2%
Recommendation of friends / family (including through email and social media)	3.76	205	83.9%
Online recommendation of someone you don't know personally (web forums and social media)	2.74	196	92.9%

Survey participants were asked to explain the reasons for their influence ratings for the reduced price of bulbs, convenience of online ordering and the information provided at the Savings Store website. These comments can be found in *Appendix H: Explanations of Satisfaction and Influence Ratings*.

Effects of Pricing, Packaging and Incentive Limits on Purchase Decisions

Four-fifths of surveyed Savings Store customers (81.6%) are aware that the light bulbs offered there are available at a reduced price.¹⁵ Table 32 also shows that a large majority of customers (65.5%) report that they purchased more light bulbs than they otherwise would have due to the reduced pricing, while 32.0% said the reduced pricing had no effect and only 1.9% reported that the pricing actually made them purchase fewer bulbs.

Nearly half of customers surveyed (48.5%) also reported that they purchased more bulbs than they otherwise would have due to the availability of low-priced multi-packs of bulbs, while a similar percentage (48.1%) said multi-packs had no effect on the number of bulbs purchases and

¹⁵ The Savings Store website presents a price breakdown which begins with the "retail" price for each bulb, followed by a slightly lower "Savings Store" price and then a further "Duke Energy incentive" deduction is shown, resulting in the final "You Pay" price which is usually half or less of the original "retail" price.

only one customer (0.5%) said that the availability of multi-packs caused them to buy fewer bulbs.

Table 32. Reduced Pricing, Multi-Packs and Light Bulb Purchases (N=206)

	Midwest (count)	Midwest (percent)
<i>Do you recall if Duke Energy was offering a reduced price for bulbs?</i>		
Yes, price was reduced	168	81.6%
No, price was not reduced	13	6.3%
Don't know / can't recall	25	12.1%
<i>Did the pricing on the site cause you to buy ...</i>		
More light bulbs than you would have otherwise	135	65.5%
Fewer bulbs than you would have otherwise	4	1.9%
Have no influence on the number of bulbs purchased	66	32.0%
Don't know	1	0.5%
<i>Did the availability of low-priced multi-packs cause you to buy ...</i>		
More light bulbs than you would have otherwise	100	48.5%
Fewer bulbs than you would have otherwise	1	0.5%
Have no influence on the number of bulbs purchased	99	48.1%
Don't know	6	2.9%

Among the 100 participants who said they purchased more bulbs due to the availability of multi-packs, 91 provided estimates for how many of the bulbs they purchased were due to the availability of multipacks; these customers report that nearly half of the bulbs they purchased (an average of 9.4 bulbs apiece out of the 19.9 bulbs apiece that they ordered from the Savings Store) were due to the availability of multi-packaging. Furthermore, the 100 customers who said that multi-packs caused them to buy more bulbs purchased significantly more bulbs (19.9 bulbs apiece) than the 99 customers who said they were not influenced by multi-packaging (14.6 bulbs apiece; this difference is significant at $p < .05$ using Student's t-test). In other words, customers who were influenced to purchase more bulbs by multi-packaging options purchased 36% more bulbs apiece than customers who were not so influenced. Overall, according to customers' estimates of the effect of multi-packaging, about a quarter of bulbs sold are attributable to multi-packaging (at least 24.4% or 852 out of 3,489 bulbs purchased by all surveyed participants, which does not include nine customers who said they purchased more due to multi-packaging but did not provide an estimate for the number of bulbs).

Only 59.2% of surveyed customers are aware that there are limits on the number of bulbs that can be purchased at the fully-incented price, as seen in Table 33. Among customers who were aware of the incentive limit, 41.0% said that the limit kept them from ordering all the light bulbs they wanted, and a similar number (41.0%) are aware that they could have purchased additional bulbs at a non-incented price elsewhere on the site. In other words, 59.0% of customers who were aware of the incentive limit were not aware that they could have purchased non-incented bulbs beyond the incentive limit (including customers who "don't know / can't recall").

Furthermore, among the 50 participants who said that the incentive limit kept them from buying all the bulbs they wanted, 60.0% are aware that they could have purchased more bulbs at a non-incented price. However, among the 67 participants who said that the incentive limit did not keep

them from buying as many bulbs as they wanted, just 28.4% are aware that they could have purchased additional non-incented bulbs past the limit (significantly different at $p < .05$ using Student's t-test). This indicates that customers who try to purchase more bulbs than the limit allows are about twice as likely to figure out that they can buy additional non-incented bulbs than customers whose desired order size does not approach the incentive limit.

Table 33. Incentive Limits and Light Bulb Purchases (N=206)

	Midwest (count)	Midwest (percent)
<i>Were you aware that there are limits on the number of each type of bulb that you can order from the Savings Store at the final discounted [Incented] price?</i>		
Yes, aware of limits	122	59.2%
Not aware of limits / thought there were no limits	84	40.8%
<i>Did the limit on bulbs keep you from ordering all the bulbs you wanted?</i>	Base: N=122 customers who were aware of limits	
Yes	50	41.0%
No	67	54.9%
Don't know / can't recall	5	4.1%
<i>Did you know that you can buy more bulbs than the discounted-price limit allows if you go to another section of the Store that sells the same bulbs at a slightly higher price?</i>	Base: N=122 customers who were aware of limits	
Yes	50	41.0%
No	67	54.9%
Don't know / can't recall	5	4.1%

Customers who said that they did not purchase all of the bulbs they wanted due to the incentive limits were asked what types of bulbs they wanted to order more of, as shown in Table 34. The bulbs types which are most affected by the incentive limits are globes (22.0% of participants who did not purchase as many bulbs as they wanted), candelabras (22.0%), non-dimmable indoor reflector CFLs (20.0%) and capsule LEDs (18.0%). However, none of these participants wanted to purchase more dimmable spiral CFLs than the incentive limit would allow.

Table 34. Purchases Limited by Incentive Limits by Bulb Type (N=50)

<i>Base: 48 customers who said that the limit on bulbs kept them from ordering all of the bulbs they wanted</i>	Midwest (count)	Midwest (percent)
<i>What kind of bulbs would you have ordered more of if they were available at the final discounted [incented] price?</i>		
Globe	11	22.0%
Candelabra	11	22.0%
Indoor reflector, non-dimmable CFL	10	20.0%
Capsule LED	9	18.0%
Three-way spiral	5	10.0%
Capsule CFL	4	8.0%
Indoor reflector, dimmable CFL	4	8.0%
Outdoor reflector	3	6.0%
Indoor reflector, dimmable LED	2	4.0%
Dimmable spiral	0	0.0%
Don't know / can't recall	2	4.0%

Percentages total to more than 100% because participants could mention more than one bulb type.

Table 35 compares customers who say the incentive limits prevented them from buying as many bulbs as they wanted to according to whether or not they are aware that they can buy bulbs beyond the incentive limit, albeit at a higher (non-incented) price. The customers who are aware that they can buy bulbs past the limit are significantly more likely to have wanted to purchase more globe bulbs (33.3%) than they did. This seems to imply that it may have been the higher cost of non-incented bulbs rather than the limit per se which kept these customers from ordering more globe CFLs.

Table 35. Purchases Limited by Incentive Limits by Bulb Type for Customers Who Are Aware and Not Aware of Being Able to Purchase Bulbs Beyond the Incentive Limit (N=50)

<i>Base: 50 customers who said that the limit on bulbs kept them from ordering all of the bulbs they wanted</i>	Aware of being able to buy bulbs past the limit (N=30)	Not aware of being able to buy bulbs past the limit (N=20)
<i>What kind of bulbs would you have ordered more of if they were available at the final discounted [incented] price?</i>		
Globe	33.3%	10.0%
Candelabra	16.7%	30.0%
Indoor reflector, non-dimmable CFL	20.0%	20.0%
Capsule LEDs	23.3%	10.0%
Capsule CFLs	6.7%	10.0%
Indoor reflector, dimmable CFL	3.3%	15.0%
Outdoor reflector	3.3%	10.0%
Three-way spiral	10.0%	10.0%
Indoor reflector, dimmable LED	6.7%	0.0%
Dimmable spirals	0.0%	0.0%
Don't know / can't recall	3.3%	5.0%

Percentages total to more than 100% because participants could mention more than one bulb type. Differences that are significant at $p < .10$ or better using Student's t-test are marked in the table with bold italics.

Intention to Purchase Light Bulbs if the Savings Store had not Been Available

If the Savings Store had not been available, only about a tenth of customers surveyed (9.7%) would have purchased the same specialty bulbs at the same time. Nearly half (44.2%) would have purchased fewer bulbs at the same time, while another quarter (26.7%) would have delayed their purchase and about one customer in six (17.5%) would not have purchased specialty bulbs at all (Table 36.)

Four customers (1.9%) would have delayed their order but would have purchased the same quantity of bulbs, while two customers (1.0%) would have delayed their order but purchased more bulbs than they did from the Savings Store (one customer who purchased 15 specialty bulbs would have purchased 30 bulbs three months later and one customer who purchased 10 specialty bulbs would have purchased 12 bulbs at an unspecified later date). However, nearly three-quarters of customers who would have delayed their purchase would have purchased fewer bulbs at a later date (72.7% or 40 out of 55).

Table 36. Intention to Buy Light Bulbs in the Absence of the Program (N=206)

<i>If the Savings Store had not been available, would you have . . . ?</i>	Midwest (count)	Midwest (percent)
Purchased the same amount of bulbs at the same time	20	9.7%
Purchased fewer bulbs at the same time	91	44.2%
Purchased bulbs at a later time (total)	55	26.7%
Purchased fewer bulbs at a later time	40	19.4%
Purchased same number of bulbs at a later time	4	1.9%
Purchased more bulbs at a later time	2	1.0%
Purchased bulbs at a later time, not sure how many	9	4.4%
Would not have purchased any bulbs	36	17.5%
Don't know / not sure	4	1.9%

Thirty of the 55 customers who would have purchased fewer bulbs at a later time were able to specifically estimate how long their order would have been delayed; these 30 customers estimate that their purchase would have been delayed an average of 10.4 months if the Savings Store had not been available, though the median estimated delay is only 4.8 months (the average is skewed because one participant estimated that they would have delayed their purchase for “*ten years*”). Among the 25 participants who said they would have purchased bulbs at a later time but did not provide a specific time estimate, 13 (23.6% of 55 who would have delayed their purchases) would have purchased bulbs “as needed” (one at a time as they burn out) in the absence of the program and one customer (1.8% of 55) would have waited “*until the prices come down*”; the other eleven participants who would have delayed purchases (20.0% of 55) do not know how long they would have delayed their purchase in the absence of the program.

Of the 91 participants who would have purchased fewer bulbs at the same time, 85 provided estimates of how many fewer bulbs they would have purchased; these 85 customers purchased 1,673 bulbs from the Savings Store (average 19.7 apiece) and without the Savings Store they report that they would have purchased only 836.5 bulbs¹⁶ at the same time (9.8 apiece, or about half as many bulbs).

Of the 40 customers who would have purchased fewer bulbs at a later time, 25 provided estimates of how many fewer bulbs they would have purchased; these 25 customers purchased 381 bulbs from the Savings Store (average 15.2 apiece), and without the Savings Store they report that they would have purchased only 146.5 bulbs (5.9 apiece, or less than half as many bulbs). However, there are also six participants who would have delayed purchases without reducing the size of their purchase (four would have purchased the same number of bulbs and two would have purchased more bulbs); in total these six participants purchased 75 Savings Store bulbs (12.5 apiece) and without the program they would have purchased 92 bulbs (15.3 apiece), albeit at a later date.

The 36 customers who would not have purchased any bulbs in the absence of the program purchased 503 Savings Store bulbs (average 14.0 apiece).

¹⁶ Fractional bulb totals are a result of interpolating participant responses that were given as ranges rather than specific numbers (for example, “*6 or 7 bulbs*” is reported as 6.5 bulbs).

Across all 206 surveyed program participants, 3,489 bulbs were purchased from the Savings Store (average 16.9 per participant), but in the absence of the program at least 1,573 of these bulbs (average 7.6 per participant) would not have been purchased. Overall, at least 45.1% of the light bulbs purchased by surveyed participants would not have been purchased without the Savings Store.¹⁷

Customers who say they would have purchased the same amount of bulbs at the same time in the absence of the program purchased an average of 10.9 Savings Store bulbs apiece (217 bulbs bought by 20 customers). This is the smallest number of bulbs-per-participant of any of the groups shown in Table 36, and is significantly lower than the amount of bulbs purchased by the 91 customers who would have purchased fewer bulbs at the same time (19.8 apiece, $p < .01$ using ANOVA) and the 55 customers who would have purchased bulbs at a later time (16.6 bulbs apiece, $p < .10$ using ANOVA).

Intention to Shop for Light Bulbs at the Savings Store in the Future

As seen in Table 37, 44.7% of surveyed participants say that the Savings Store will be one of the first places they shop the next time they need light bulbs, and another 18.4% say they will “definitely” shop at the Savings Store again. Overall nine out of ten customers surveyed (90.3%) report that they will at least “probably” shop at the Savings Store again, and only 1.5% say that they will “probably not” or “never” shop at the Savings Store again.

Table 37. Future Intention to Shop for Light Bulbs at the Savings Store (N=206)

	Midwest (count)	Midwest (percent)
The Savings Store will be one of the first places I go the next time I need light bulbs	92	44.7%
I will definitely shop at the Savings Store again	38	18.4%
I will probably shop at the Savings Store again	56	27.2%
I may or may not shop at the Savings Store again	16	7.8%
I will probably not shop at the Savings Store again	2	1.0%
I will never shop at the Savings Store again	1	0.5%
Don't know / not specified	1	0.5%

Participants were also asked to rate the likelihood that they would make purchases from the Savings Store again in the future on a ten-point scale, where “10” is most likely and “1” is not at all likely. The average likelihood rating given by these program participants is 8.68, with a median rating of “9 out of 10”. Nearly half of participants surveyed (45.1%) gave the highest possible “10 out of 10” rating for their likelihood of shopping at the Savings Store again.

Table 38 indicates that shopping at the Savings Store makes most customers more likely to purchase and install CFLs (54.9%), but has less effect on customers’ interest in using LED light bulbs; only 38.3% say they are more likely to use LEDs after the program. There are also small

¹⁷ Participants who responded to survey questions with specific numbers of bulbs said that they would have purchased 1,573 fewer light bulbs in total if the Savings Store had not been available. However this total does not include 19 participants who said they would have purchased fewer bulbs but did not specify how many fewer bulbs, and eleven participants who would have delayed their purchases but do not know how many bulbs they would have purchased in the absence of the program.

percentages who say that the program will make them less likely to use CFLs (8.3%) and less likely to use LEDs (3.9%).

Table 38. Program Effect on Likelihood of Purchasing Efficient Light Bulbs (N=206)

	Midwest (count)	Midwest (percent)
<i>Did your experience ordering energy-efficient specialty bulbs from the Savings Store make it more or less likely that you would purchase and install CFLs in the future?</i>		
More likely	113	54.9%
Neither more nor less likely	76	36.9%
Less likely	17	8.3%
<i>Did your experience ordering energy-efficient specialty bulbs from the Savings Store make it more or less likely that you would purchase and install LEDs in the future?</i>		
More likely	79	38.3%
Neither more nor less likely	119	57.8%
Less likely	8	3.9%

Customers who say they are more likely or less likely to purchase and install efficient bulbs after participating in the program were asked for the reason why. Table 39 shows responses for customers who are more likely to use CFLs and Table 40 shows responses for customers who are more likely to use LEDs.

“Saving energy” is the most-mentioned reason for being more likely to use both CFLs (38.9%) and LEDs (38.0%). However, the second and third most-mentioned reasons differ: participants are more likely to use CFLs due to the low purchase price (22.1%) and saving money on utility bills (22.1%), but they are more likely to use LEDs due to the qualities of LED bulbs and the light they produce (31.6%) and greater longevity (30.4%). Some other significant differences between reasons given for using CFLs and LEDs include the ease and convenience of online ordering (14.2% for CFLs and 2.5% for LEDs) and statements about hoping prices come down in the future (16.5% for LEDs but not mentioned by any respondents for CFLs).

On the whole, reasons for using CFLs are mainly about saving money (on price and utility bills) while reasons for using LEDs are more about the bulbs themselves (longevity, light quality). This may reflect the relative immaturity of the LED market relative to CFLs; these customers are experienced with and accustomed to CFLs and so their main concern about using CFLs is getting the best price for an item they are already familiar with, while LEDs are less familiar and these customers tend to highlight the perceived benefits of LEDs relative to CFLs rather than relative to incandescent bulbs. This reinforces the notion that there is a progression from incandescent to CFL to LED; customers compare CFLs to incandescent bulbs (more efficient, save energy and money) but they tend to compare LEDs to CFLs (about equally efficient, but longer lasting with “better” light). Furthermore, 5.3% of these customers mentioned the phase-out of incandescent bulbs (EISA) as a reason for using CFLs but none mentioned this as a reason for using LEDs (indicating that customers are not comparing LEDs directly with incandescent bulbs).

Table 39. Why Customers are More Likely to Use CFLs as a Result of Participating in the Program (N=113)

Base: 113 customers who are more likely to purchase and install CFLs due to their experience with the Savings Store	Midwest (count)	Midwest (percent)
Saving energy	44	38.9%
Saving money on bulb purchases at Savings Store	25	22.1%
Saving money on utility bills	25	22.1%
Ease and convenience of online ordering at Savings Store	16	14.2%
Efficient bulbs last longer than the old bulbs	14	12.4%
Previous experience using CFLs	11	9.7%
Like qualities of the efficient bulbs / quality of light	7	6.2%
Incandescent bulbs are becoming unavailable	6	5.3%
Helping the environment / "green" reasons	5	4.4%
Availability of particular types of bulb in CFL / selection	5	4.4%
Prices for CFLs have come down from before	3	2.7%
I prefer LEDs, but they are not appropriate in every situation	1	0.9%
I want all the bulbs in a fixture to match (aesthetics)	1	0.9%
Savings Store information about light bulbs convinced me to switch to CFLs	1	0.9%
Don't know / not specified	2	1.8%

Percentages total to more than 100% because participants could mention more than one reason.

Table 40. Why Customers are More Likely to use LEDs as a Result of Participating in the Program (N=79)

Base: 79 customers who are more likely to purchase and install LEDs due to their experience with the Savings Store	Midwest (count)	Midwest (percent)
Saving energy	30	38.0%
Like qualities of the efficient bulbs / quality of light	25	31.6%
Efficient bulbs last longer than the old bulbs	24	30.4%
I want to use LEDs but the prices need to come down	13	16.5%
Saving money on utility bills	9	11.4%
Previous experience using LEDs	6	7.6%
Saving money on bulb purchases at Savings Store	5	6.3%
Availability of particular types of bulb in LED / selection	4	5.1%
LED disposal is easier than CFL disposal	3	3.8%
Ease and convenience of online ordering at Savings Store	2	2.5%
I do not care for CFLs / prefer LEDs (no specific reason given)	2	2.5%
Helping the environment / "green" reasons	1	1.3%
Incandescent bulbs are becoming unavailable	0	0.0%

Percentages total to more than 100% because participants could mention more than one reason.

Seventeen surveyed participants said that participating in this program made them less likely to purchase and install CFLs in the future; their explanations as to why are categorized below. Most of these participants (70.6% of 17) simply state that they prefer LEDs to CFLs.

- I prefer LEDs to CFLs (n=12)
- CFLs take too long to reach full brightness
- CFLs do not last as long as they are supposed to
- Dimmable CFLs do not dim enough

- CFLs make a buzzing noise
- CFLs are more difficult to dispose of

Eight surveyed participants said that participating in this program made them less likely to purchase and install LEDs in the future; their explanations as to why are categorized below. Two participants are not intending to buy LEDs because they are too expensive (though another 13 participants who said they are *more* likely to use LEDs in the future also mentioned that they would like the price to come down, see Table 40). Three participants simply do not know enough about the technology to be interested in using LEDs, while two more participants mentioned specific concerns that also reflect a lack of knowledge about LEDs (that the bulbs require a “special housing” and that there may be disposal concerns). One participant is less interested in LEDs because they find this kind of lighting to be “*too bright.*”

- I do not understand LEDs / do not know benefits (n=3)
- LEDs are too expensive / prices need to come down (n=2)
- I believe that LED bulbs require a special housing
- LEDs are too bright
- I do not know how to dispose of LEDs / safety concerns

Program Bulb Installations

Duke Energy provided program records listing all light bulb sales through the Savings Store, and TecMarket Works interview staff confirmed the bulb types and totals with participant survey respondents.¹⁸ The customer-confirmed bulbs purchased by surveyed participants are shown in Table 41. Among the eight major types of light bulbs sold at the Savings Store, only one was purchased by a majority of customers: capsules are the most popular bulb type, purchased by 50.5% of surveyed participants (combined LED and CFL capsules). The capsules LEDs also account for 75.3% (298 out of 396) of all program LEDs sold to survey participants during the evaluation period.

The least commonly ordered bulbs are the non-incented standard spiral CFLs (2.9%), with dimmable spiral CFLs (16.5%) and outdoor reflectors (17.0%) being the least commonly ordered bulbs sold with an incentive to reduce the price.

Customers who ordered non-dimmable indoor reflector CFLs ordered the largest number of bulbs per order (10.0), and the types of bulbs with the fewest bulbs per customer ordering are outdoor reflector CFLs (4.1), three-way CFLs (4.2) and dimmable spiral CFLs (4.4). Surveyed participants ordered a total of 16.9 bulbs apiece on average, and 88.7% of the bulbs ordered were

¹⁸ For this survey, the confirmation of program records was remarkably high with 98.5% of customers (203 out of 206) agreeing with the program records as to which bulbs they purchased and how many. Only three participants confirmed a different number of bulbs than program records indicated: one participant confirmed the purchase of four capsule LEDs when program records showed they had purchased two capsule LEDs, another confirmed purchasing four capsule LEDs when program records showed three bulbs purchased, and one participant confirmed the purchase of ten standard spiral CFLs when program records did not show this purchase. Two customers were not sure how many Savings Store bulbs they purchased, so for these two participants program records are assumed to be correct. Thus program records showed these 206 customers purchasing 3,476 light bulbs, but the customer confirmed total is 3,489 bulbs (0.4% more bulbs than shown in program records).

CFLs. Among the 26.7% of surveyed customers who ordered LEDs, the average number of LEDs per order was 7.2, compared to 16.8 CFLs per customer among the 89.3% who ordered CFLs.

About one in six surveyed customers (16.0%) ordered both CFLs and LEDs, which is more than the percentage that ordered exclusively LEDs (10.7%). Three out of four customers surveyed (73.3%) ordered exclusively CFLs.

Table 41. Types of Light Bulbs Purchased from the Savings Store by Program Participants

<i>Participant-corrected from program records</i>	Participants ordering (N=206)	Percent of Participants ordering	Bulbs ordered (N=3,489)	Percent of bulbs ordered	Average bulbs per participant ordering
Capsules total	104	50.5%	764	21.9%	7.3
- CFL	63	30.6%	466	13.4%	7.4
- LED	48	23.3%	298	8.5%	6.2
Three-way (CFL)	57	27.7%	242	6.9%	4.2
Candelabras (CFL)	83	40.3%	660	18.9%	8.0
Indoor reflectors total	94	45.6%	907	26.0%	9.6
- Non-dimmable CFL	72	35.0%	717	20.6%	10.0
- Dimmable CFL	17	8.3%	92	2.6%	5.4
- Dimmable LED	14	6.8%	98	2.8%	7.0
Globes (CFL)	73	35.4%	578	16.6%	7.9
Outdoor reflectors (CFL)	35	17.0%	144	4.1%	4.1
Dimmable spiral (CFL)	34	16.5%	149	4.3%	4.4
Standard spiral CFLs (non-incended bulbs)	6	2.9%	45	1.3%	7.5
Total for CFLs	184	89.3%	3,093	88.7%	16.8
Total for LEDs	55	26.7%	396	11.3%	7.2

Table 42 shows the distribution of bulbs ordered by surveyed participants compared to program records provided by Duke Energy for all incended light bulbs sold through the Savings Store to Ohio and Kentucky customers from program inception through the end of June 2014. Surveyed participants purchased a larger proportion of three-way CFLs and candelabra CFLs, and somewhat fewer indoor reflector LEDs, capsule LEDs and outdoor reflector CFLs. Overall, 11.5% of survey participant bulbs ordered are LEDs compared to 16.5% of all customer orders in the Midwest during the evaluation period.

Table 42. Survey Participant Bulbs Ordered Compared to Program Records

<i>This table does not include non-incented bulb categories (standard spiral CFLs and holiday LEDs)</i>	Survey participants incented bulbs ordered (N=3,444)	Survey participant percent of bulbs	Program records from Duke Energy: incented bulbs ordered in OH and KY between 4/26/13 to 6/30/14 (N=142,740)	Program records percent of bulbs	Survey proportion indexed to program records (100=same proportion)
Capsules total	764	22.2%	33,901	23.8%	93*
- CFL	466	13.5%	17,705	12.4%	109*
- LED	298	8.7%	16,196	11.3%	76*
Three-way (CFL)	242	7.0%	7,770	5.4%	129*
Candelabras (CFL)	660	19.2%	21,443	15.0%	128*
Indoor reflectors total	907	26.3%	42,009	29.4%	89*
- Non-dimmable CFL	717	20.8%	31,254	21.9%	95
- Dimmable CFL	92	2.7%	3,387	2.4%	113
- Dimmable LED	98	2.8%	7,368	5.2%	55*
Globes (CFL)	578	16.8%	24,483	17.2%	98
Outdoor reflectors (CFL)	144	4.2%	7,663	5.4%	78*
Dimmable spiral (CFL)	149	4.3%	5,471	3.8%	113
Total for CFLs	3,048	88.5%	119,176	83.5%	106*
Total for LEDs	396	11.5%	23,564	16.5%	70*

* Asterisks denote a statistically significant difference at $p < .05$ or better using Student's t-test.

Disposition of Savings Store Light Bulbs

Table 43 shows the disposition of Savings Store light bulbs purchased by survey participants in terms of bulb counts, and Table 44 presents the same data in percentages. Overall, 57.0% of Savings Store bulbs purchased by these participants are currently installed, though the installation rate is higher for LEDs (67.7%) than CFLs (53.9%, significantly different at $p < .05$ using Student's t-test). More than a third of program bulbs (39.9%) are currently in storage for future use and, relating to the difference in installation rates, a significantly higher percentage of Savings Store CFLs are in storage (39.4%) compared to LEDs (28.8%). About one program bulb in forty (2.5%) had been disposed of by the time of the survey and the disposal rate is significantly higher for CFLs (2.6%) than LEDs (1.3%).¹⁹ The disposition of 0.6% of surveyed participants' program bulbs could not be determined.

¹⁹ These are bulbs that have been disposed of for any reason, including burning out, being or becoming defective, not fitting or functioning with fixtures, and bulbs given away to other people. Bulbs that were returned to the Savings Store are not included (non-functional bulbs that were replaced by functional bulbs are only counted once, and bulbs that were returned for cash or credit are not counted in the total bulbs received by survey participants).

Table 43. Disposition of Savings Store Light Bulbs: Bulb Counts

	Bulbs currently installed	Bulbs in storage	Bulbs disposed (minus bulbs replaced)	Bulbs don't know	Total bulbs ordered (N=3,489)
Capsules total	414	321	14	15	764
- CFL	214	216	11	25	466
- LED	194	97	3	4	298
Three-way (CFL)	148	86	8	0	242
Candelabras (CFL)	350	285	25	0	660
Indoor reflectors total	547	343	17	0	907
- Non-dimmable CFL	374	264	11	68	717
- Dimmable CFL	53	10	3	26	92
- Dimmable LED	74	17	2	5	98
Globes (CFL)	362	209	7	0	578
Outdoor reflectors (CFL)	60	78	4	2	144
Dimmable spiral (CFL)	82	52	11	4	149
Standard spiral CFLs (non-incandent bulbs)	25	19	1	0	45
Total for CFLs	1,668	1,219	81	125	3,093
Total for LEDs	268	114	5	9	396
Grand total all bulbs	1,988	1,393	87	21	3,489

There are 14 capsule and 99 indoor reflector bulbs whose disposition is known at the bulb type category level (capsule, indoor reflector) but whose disposition cannot be determined within these categories (CFL versus LED, dimmable versus non-dimmable); thus subtotals within these two bulb types, and for CFLs and LEDs overall subtotals, do not total to the same numbers as the respective overall totals.²⁰

²⁰ There were 21 bulbs purchased by survey respondents (15 CFL capsules, 4 dimmable spirals and 2 outdoor reflectors) whose disposition is unknown because the participant surveyed could not answer the questions about what happened to the bulbs they purchased. Since the survey asked about bulbs grouped by bulb type (all capsules and indoor reflectors combined) and because questions about bulb installations are not exhaustive (some participants had more installation sites than they were surveyed about) it is not possible to determine the outcome of every program bulb when a customer purchased more than one kind of bulb within a bulb type category. In other words, if a customer purchased both LED and CFL capsules the survey asked them how many capsules in total were stored, installed and disposed of, however it is not always possible to determine exactly which of these bulbs within the category (LED versus CFL) were installed, stored or disposed. Survey participants are only asked about a maximum of three installations or one installation per bulb type if more than three types of bulbs are installed.

Table 44. Disposition of Savings Store Light Bulbs: Bulb Percentages

<i>Rows total to 100%</i>	Bulbs currently installed	Bulbs in storage	Bulbs disposed (minus bulbs replaced)	Bulbs don't know	Total bulbs ordered (N=3,489)
Capsules total	54.2%	42.0%	1.8%	2.0%	764
- CFL	45.9%	46.4%	2.4%	5.4%	466
- LED	65.1%	32.6%	1.0%	1.3%	298
Three-way (CFL)	61.2%	35.5%	3.3%	0.0%	242
Candelabras (CFL)	53.0%	43.2%	3.8%	0.0%	660
Indoor reflectors total	60.3%	37.8%	1.9%	0.0%	907
- Non-dimmable CFL	52.2%	36.8%	1.5%	9.5%	717
- Dimmable CFL	57.6%	10.9%	3.3%	28.3%	92
- Dimmable LED	75.5%	17.3%	2.0%	5.1%	98
Globes (CFL)	62.6%	36.2%	1.2%	0.0%	578
Outdoor reflectors (CFL)	41.7%	54.2%	2.8%	1.4%	144
Dimmable spiral (CFL)	55.0%	34.9%	7.4%	2.7%	149
Standard spiral CFLs (non-incented bulbs)	55.6%	42.2%	2.2%	0.0%	45
Total for CFLs	53.9%	39.4%	2.6%	4.0%	3,093
Total for LEDs	67.7%	28.8%	1.3%	2.3%	396
Grand total all bulbs	57.0%	39.9%	2.5%	0.6%	3,489

The percentages of “don't know” bulbs for sub-categories of capsules and indoor reflectors, and for CFL and LED subtotals, are higher than their respective totals due to incomplete information at the sub-categorical level. See the previous table and accompanying footnote.

Table 45 shows the disposition of bulbs by type in terms of the average numbers of bulbs per respondent. For example, this table shows that the 55 surveyed participants who purchased LEDs installed an average of 4.9 program LEDs apiece, while the 184 customers who purchased CFLs installed an average of 9.1 program CFLs apiece. The typical customer surveyed purchased an average of 16.9 program bulbs in total, and currently has 6.8 of these bulbs in storage and has disposed of 0.4 of their bulbs.

Table 45. Disposition of Savings Store Light Bulbs: Average Number of Bulbs per Participant Ordering Bulbs

	Bulbs purchased per customer	Bulbs installed per customer	Bulbs in storage per customer	Bulbs disposed per customer	Don't know bulbs per customer
Capsules total (N=104)	7.3	4.0	3.1	0.1	0.1
- CFL (N=63)	7.4	3.4	3.4	0.2	0.4
- LED (N=48)	6.2	4.0	2.0	0.1	0.1
Three-way CFL (N=57)	4.2	2.6	1.5	0.1	0.0
Candelabras CFL (N=83)	8.0	4.2	3.4	0.3	0.0
Indoor reflectors total (N=94)	9.6	5.8	3.6	0.2	0.0
- Non-dimmable CFL (N=72)	10.0	5.2	3.7	0.2	0.9
- Dimmable CFL (N=17)	5.4	3.1	0.6	0.2	1.5
- Dimmable LED (N=14)	7.0	5.3	1.2	0.1	0.4
Globes CFL (N=73)	7.9	5.0	2.9	0.1	0.0
Outdoor reflectors CFL (N=35)	4.1	1.7	2.2	0.1	0.1
Dimmable spiral CFL (N=34)	4.4	2.4	1.5	0.3	0.1
Standard spiral CFLs (N=6) (non-incandescent bulbs)	7.5	4.2	3.2	0.2	0.0
Total for CFLs (N=184)	16.8	9.1	6.6	0.4	0.7
Total for LEDs (N=55)	7.2	4.9	2.1	0.1	0.2
Grand total all bulbs (N=206)	16.9	9.7	6.8	0.4	0.1

Program Bulbs Stored for Future Use

Table 46 shows the reasons why customers with stored Savings Store bulbs have not installed all of their bulbs yet. Only about a quarter of surveyed customers (25.7%) confirmed that they have installed (or disposed of) every light bulb that they purchased from the Savings Store. Among the majority who do have spare program bulbs left over, the major reasons for not installing these bulbs are that they are not needed yet: nearly half (47.1%) of participants still have incandescent bulbs in place and are waiting for them to burn out, while another 25.7% report that they already have specialty bulbs installed in every available socket. However, one participant in ten (9.7%) reports that they have Savings Store bulbs that will not work with a lamp or fixture for which they were intended; there were fewer mentions of aesthetic concerns (2.9%), bulbs being too dim (or too bright) for their intended use (2.9%), bulbs not being dimmable (2.4%) and CFLs being slow to achieve full brightness (1.5%).

Table 46. Reasons for Not Installing Stored Light Bulbs from the Savings Store (N=206)

<i>Thinking of the specialty bulbs that you purchased from the Savings Store that you have stored for later use, what are the reasons that you have not installed all of these bulbs?</i>	Midwest (count)	Midwest (percent)
Waiting for other standard bulbs to burn out	97	47.1%
I already have new specialty bulbs installed everywhere they will fit / waiting for efficient bulbs to burn out	53	25.7%
The other lamps or light fixtures in my home don't work with the new specialty bulbs / new bulbs do not fit	20	9.7%
I don't like the way the new specialty bulbs look in some of my fixtures	6	2.9%
I just have not got around to it yet	6	2.9%
The new specialty bulbs are too dim / too bright for where I wanted them	6	2.9%
The new specialty bulbs do not work on a dimmer switch	5	2.4%
I need help with the installation / can't do it by myself	4	1.9%
The new specialty bulbs take too long to get to full brightness	3	1.5%
I am saving these specialty bulbs for high-usage sockets	2	1.0%
The new specialty bulbs flicker	1	0.5%
I intend to install the remaining bulbs in a vacation home out-of-state	1	0.5%
Don't know	1	0.5%
Do not have any Savings Store bulbs in storage (all bulbs are installed or disposed)	53	25.7%

Percentages total to more than 100% because participants could mention more than one reason.

Surveyed customers with spare program bulbs in storage for future use were asked if they intend to use their stored bulbs, and how long they think it will take to use all of these stored bulbs. As seen in Table 47, intention to use stored program bulbs by type runs from a low of 85.7% for candelabras up to 100% for stored outdoor reflectors, dimmable spirals and standard spirals. Generally only about two-thirds of customers with spare bulbs are able to estimate how long it will take them to use all of their installed bulbs; estimates of how many months to use stored bulbs by type ranges from a low of 12 months for standard spirals up to 20 or more months for indoor reflector and globe bulbs. This indicates that most customers who purchase bulbs from the Savings Store may not need to purchase replacement bulbs for at least a year or two (as seen previously in Table 46, at least 74.3% of surveyed participants have spare program bulbs in storage).

Dividing the estimated average number of months to use stored program bulbs by the number of bulbs in storage yields an estimate of the number of months customers believe they will go between bulb replacements. Standard spiral bulbs are estimated to be consumed the fastest, with stored bulbs estimated to be used every 1.9 months on average (though this is based on only three surveyed participants with spare bulbs of this type), while three-way CFLs are estimated to be consumed the slowest, with stored bulbs being used an average of every 6.6 months.²¹

²¹ The expected lifespan of CFL and LED bulbs is much longer than three to ten months. However customers may be referring to how long currently installed incandescent bulbs will last until they need to be replaced with program bulbs. It is also possible that customers who answered this question may tend to underestimate how long efficient bulbs will last; about 30% of respondents were unable to estimate how long their stored program bulbs will last.

Table 47. Intent to Use Stored Bulbs among Customers with Program Bulbs in Storage

Bases: number of customers with some program bulbs in storage	Percent who definitely intend to use stored bulbs	Percent who are able to estimate how long it will take to use stored bulbs	Average estimated months to use stored bulbs (among those able to estimate)	Average number of stored program bulbs per customer with stored bulbs	Average estimated months per stored bulb
Capsules (N=69)	98.6%	71.0%	18.7	4.7	4.0
Three-way (N=35)	94.3%	74.3%	16.4	2.5	6.6
Candelabras (N=49)	85.7%	63.3%	16.8	5.8	2.9
Indoor reflectors (N=65)	95.2%	72.3%	21.1	5.3	4.0
Globes (N=46)	97.8%	78.3%	20.0	4.5	4.4
Outdoor reflectors (N=24)	100.0%	79.2%	14.2	3.3	4.4
Dimmable spiral (N=17)	100.0%	58.8%	16.8	3.1	5.5
Standard spiral (N=3) (non-incandescent bulbs)	100.0%	66.7%	12.0	6.3	1.9

Customers with extra program bulbs in storage who are not certain in their intention to use their stored program bulbs in the future were asked why not; these responses are listed below. As indicated by the table above, most of the stored program bulbs that may not ever be installed are candelabra CFLs (62.2% of 74 program bulbs that customers are not sure will be installed). Six of these customers have not installed any program bulbs of a type that they purchased, accounting for 24 uninstalled candelabra CFLs, 14 indoor reflector CFLs, six capsule CFLs and four capsule LEDs. A few of these customers have concerns about aesthetics and functionality, but the most common reason for not using program bulbs seems to be that the bulbs do not fit in the sockets for which they were intended.

- *Aesthetically, they don't look good.* (Twelve spare candelabra CFLs; none installed)
- *They didn't fit the fixtures as I had thought they would. I am now looking for someone else who can use them.* (Six spare candelabra CFLs; none installed)
- *I don't plan on using these candelabra bulbs because they flicker when turned up all the way.* (Six spare candelabra CFLs; none installed)
- *I thought they would fit in my kitchen, but the fixtures are recessed in the ceiling and are too small for these bulbs.* (Ten spare indoor reflector non-dimmable CFLs; none installed)
- *They don't fit anywhere in my house. I bought them for recessed lighting and they don't fit.* (Four spare indoor reflector non-dimmable CFLs; none installed)
- *I haven't installed these bulbs yet and I'm not sure if I will.* (Six spare capsule CFLs and four spare capsule LEDs; none installed)
- *The three-way functionality stopped working.* (One spare three-way CFL)
- *The light isn't bright enough, but we will likely install them in rooms we don't use much.* (Two spare three-way CFLs)
- *I would prefer to transition to LEDs; CFLs provide inconsistent light over their lifespan.* (One spare candelabra CFL)

- *I won't install the remaining candelabra bulbs because they're too bright and aren't dimmable.* (Four spare candelabra CFLs)
- *I don't really like the way they look in my fixtures; they are white, not clear, and are rather large.* (Seven spare candelabra CFLs)
- *These bulbs are too long for the fixture I was planning to use them in.* (Ten spare candelabra CFLs)
- *I am not sure if I will use them all because these bulbs last a long time and who knows what the future will bring in terms of new technologies.* (One spare indoor reflector non-dimmable CFL)

Table 48 indicates that the effect of reduced pricing and low-priced multi-packaging had a significant effect on customers purchasing spare bulbs that they did not need immediately. One hundred and thirty-four (134) customers reported that the reduced pricing caused them to purchase more bulbs than they otherwise would have, and these households have an average of 8.5 program bulbs currently in storage which is more than twice as many stored bulbs as the 66 respondents who said reduced prices did not affect them (3.4 per household). One hundred (100) customers who reported that multi-pack pricing caused them to purchase more bulbs than they would have otherwise have an average of 9.5 stored program bulbs per household, which is also more than twice as many stored bulbs as the 97 households who said multi-pack pricing did not affect them (4.1 per household). Both of these differences between groups are statistically significant at $p < .01$ using ANOVA (also see Table 32 for complete responses to these survey questions). This analysis indicates that even when pricing and packaging does not motivate customers to purchase more bulbs than they otherwise would have, the average participant household is still purchasing about three or four light bulbs more than their immediate installation needs (out of an average of 16.9 program bulbs purchased per surveyed household).

Table 48. Stored Bulbs and the Effect of Reduced Pricing and Multi-Packaging (N=206)

<i>Numbers in cells are the average number of spare program bulbs currently in storage per household (total all bulb types)</i>	More bulbs than otherwise	Same number of bulbs	Fewer bulbs than otherwise	Don't know / other responses
Reduced pricing caused customer to purchase . . .	8.5	3.4	3.8	4.0
Availability of low-priced multi-packs caused customer to purchase . . .	9.5	4.1	3.0	5.6

Program Bulbs Disposed Of

Surveyed participants who disposed of program bulbs were asked how many were disposed of as well as how and why; these responses are listed for each bulb type below. The number of customers disposing of each particular type of bulb is relatively small, so these findings are more anecdotal than quantitative. The most common reason for disposing of program bulbs is that the bulbs were given to someone else (55.2% or 48 out of 87 disposed bulbs), usually a family member or neighbor. Some customers also report receiving damaged or defective bulbs and many of the customers who received unusable bulbs did not try to return them for replacements or refunds, but merely threw the bulbs away (twelve defective program bulbs which were

replaced with new bulbs are not included in the disposal total, compared to 32 burned out or defective bulbs which were not returned or replaced). Most unusable program bulbs that do not get returned are thrown away rather than recycled: Out of 26 defective or burned out bulbs for which participants were able to recall a disposal method, 21 (80.8%) were thrown in the trash and only five (19.2%) were recycled.

Table 49. Disposed Program Bulbs

	Given to someone	Burned out	Defective	Don't know / other responses	Total disposed
Capsule	8	6	0	0	14
Three-way	5	2	1	0	8
Candelabra	20	4	0	1	25
Indoor reflector	6	8	3	0	17
Globes	4	2	1	0	7
Outdoor reflector	2	2	0	0	4
Dimmable spiral	3	2	0	6	11
Standard spiral (non-incented bulbs)	0	1	0	0	1
Total program bulbs	48	27	5	7	87

Light Bulb Installations by Room

Table 50 shows how many rooms in participant households have different types of program bulbs installed. Capsule bulbs (2.3 rooms), indoor reflectors (2.0 rooms) and three-ways (2.0 rooms) are the bulb types which are installed in the most places, while outdoor reflectors (1.2 locations²²), candelabras (1.4 rooms) and globes (1.5 rooms) are installed in the fewest number of places.

Table 50. Number of Rooms Where Program Bulbs are Installed

<i>Bases: number of customers with bulbs of each type currently installed</i>	Number of rooms with bulbs installed	Average number of rooms installed per household
Capsules (N=82)	192	2.3
Three-way (N=49)	97	2.0
Candelabras (N=64)	89	1.4
Indoor reflectors (N=85)	173	2.0
Globes (N=63)	95	1.5
Outdoor reflectors (N=24)	28	1.2
Dimmable spiral (N=25)	46	1.8
Standard spiral (N=6) (non-incented bulbs)	10	1.7

²² Unlike the other light bulbs sold at the Savings Store, outdoor reflectors are primarily intended for outdoor use and thus are not generally installed in "rooms" (though these bulbs may be installed in more than one exterior location). Among the 24 customers with installed outdoor reflectors from the Savings Store, 21 (87.5%) had these bulbs installed on the exteriors of their homes; two customers (8.3%) installed them in their basements and one customer (4.2%) installed outdoor reflectors in their garage.

Surveyed participants were asked to answer questions about the installation of program bulbs, including where in their home those bulbs are installed. Table 51 shows a cross tabulation of bulb types by rooms installed (note that this table does not show numbers of bulbs installed or the number of participants installing bulbs; the counts in this table are the counts of surveyed installation sites by bulb type²³).

The largest number of surveyed installations are in living and family rooms (99 installation sites), followed by bathrooms (87 sites), kitchens (72 sites), bedrooms (50 master bedrooms plus 22 “other” bedrooms) and outside on the exterior of the home (45 sites). Some bulb types are closely related to installation locations, such as outdoor reflectors being installed on the exterior of the home (87.5% or 21 out of 24), globe bulbs being installed in bathrooms (73.9% or 51 out of 69) and three-way bulbs being installed in living and family rooms (63.8% or 37 out of 58). However, for the remaining bulb types no room received more than about a third of the bulbs of that type installed. In particular, capsule bulbs are installed in many different locations throughout the home (no more than 20.0% or 23 out of 115 capsule bulbs were installed in any one type of room). Candelabra bulbs are used most often in dining rooms (25.0% or 17 out of 68) though in the Midwest 19.1% of candelabra bulbs were installed on the exterior of homes, which means it is the bulb type that is second-most likely to be used outside (after outdoor reflector bulbs).

²³ Customers who purchased three or more types of bulbs were asked about one installation of each bulb type. Customers who purchased two bulb types were asked about one installation of each bulb type, plus a third installation of either type. Customers who purchased only one type of bulb were asked about up to three installations of that bulb type. However, some customers who purchased Savings Store bulbs of a given type had not installed any of them by the time of this evaluation survey (shown as “none installed” in Table 51), and not all customers had as many bulbs installed as this survey asks them about (for example, a customer who bought one type of bulb and only had them installed in one or two places would not be able to answer questions about a third installation). There are also customers who had more installations in their home than they were surveyed about (though the methodology was to survey about at least one installation of every bulb type per household). This data collection approach is not exhaustive, but is meant to maximize installation data collected while not letting the survey interviews get too long or too complicated. Out of 1,988 program bulbs reported installed by survey participants, data was collected about 489 installations which account for 1,585.5 program bulbs (79.8% of all bulbs reported installed; the fractional bulb total is due to one respondent who said they installed “two or three” indoor reflector bulbs in their kitchen, which is reported as 2.5 installed bulbs).

Table 51. Rooms in the Home Where Program Bulbs are Installed

<i>Cells are counts of surveyed installations</i>	Capsule	Three-way	Candelabra	Indoor reflect.	Globe	Outdoor reflect.	Dim. spiral	Std. spiral	Total
Living/family room	23	37	8	17	3	0	10	1	99
Bathroom	21	0	4	7	51	0	2	2	87
Kitchen	13	1	5	47	3	0	3	0	72
Master bedroom	23	10	3	6	4	0	4	0	50
Outdoors/Exterior	7	0	13	2	1	21	1	0	45
Dining room	5	2	17	3	1	0	3	0	31
Basement	3	0	0	16	2	2	1	1	25
Other bedroom	9	1	5	6	1	0	0	0	22
Hall	3	2	3	7	1	0	1	2	19
Office / den	3	2	2	4	0	0	1	0	12
Garage	0	1	0	2	0	1	2	0	6
Entryway / foyer	0	0	4	1	0	0	0	0	5
Closet	2	0	0	0	0	0	0	0	2
Other (misc.)	1	2	3	0	1	0	0	0	7
Don't recall	2	0	1	0	1	0	2	1	7
Total installations	115	58	68	118	69	24	30	7	489
None installed	22	8	18	9	10	11	8	0	86

Seven installations described by surveyed participants were categorized as “other” rooms or locations in the home; these are listed below, along with the type and number of bulbs installed there.

Candelabra installations (N=3)

- Landing: installed 6 bulbs
- Sun room: installed 6 bulbs
- Laundry room: installed 2 bulbs

Three-way installations (N=2)

- Parlor: installed 2 bulbs
- Great room: installed 1 bulb

Capsule installations (N=1)

- Play room: installed 1 bulb

Globe installations (N=1)

- Porch: installed 2 bulbs

The average number of program specialty bulbs installed per room is 3.2, but varies from an average of fewer than two bulbs in offices and dens, hallways and closets to up to four or more in kitchens (4.1 bulbs), dining rooms (4.5 bulbs) and basements (5.6 bulbs). Table 52 also shows that dimmable bulbs are most often found in dining rooms, where about a third (34.8%) of the bulbs replaced with program bulbs were dimmable. None of the surveyed participants had dimmable bulbs installed in halls, closets, garages or entryways, and only one participant reported having dimmable bulbs installed outdoors (accounting for just 0.7% of program bulbs

installed outdoors); dimmable bulbs are also rarely found in bathrooms (6.7%). Overall, about one in ten installed program bulbs (11.0%) replaced a dimmable bulb.

Table 52. Specialty Bulbs Installed per Room and Dimmable Bulbs per Room

	Surveyed installations	Total bulbs installed	Average bulbs per installation	Dimmable bulbs replaced	Percent of dim. bulbs
Living/family room	98	232	2.4	22	9.5%
Bathroom	85	327	3.8	22	6.7%
Kitchen	72	295.5	4.1	37	12.5%
Master bedroom	50	114	2.3	17	14.9%
Outdoors/Exterior	45	137	3.0	1	0.7%
Dining room	31	138	4.5	48	34.8%
Basement	24	134	5.6	18	13.4%
Other bedroom	22	59	2.7	4	6.8%
Hall	17	38	2.2	0	0.0%
Office / den	12	20	1.7	3	15.0%
Garage	6	14	2.3	0	0.0%
Entryway / foyer	5	18	3.6	0	0.0%
Closet	2	2	1.0	0	0.0%
Other (misc.)	7	20	2.9	0	0.0%
Don't recall	6	16	2.7	0	0.0%
Total	482	1564.5	3.2	172	11.0%

This table does not include seven surveyed standard spiral CFL installations (standard spiral CFLs are not "specialty" bulbs).

Sometimes when customers install new light bulbs it is part of a larger remodeling project. Customers who installed program bulbs were asked if they made any changes to the fixture other than installing new light bulbs. As indicated by Table 53, overall about one installation in thirty (3.5%) involves changing something about the fixture beyond replacing the light bulbs. Outdoor reflector (8.3%) and dimmable spiral (6.7%) installations are the most likely to involve fixture changes, while no surveyed participants (0.0%) made fixture changes for three-way or standard spiral CFL installations.

Table 53. Other Changes to Fixtures besides Light Bulb Replacement

<i>Bases: number of customers with bulbs of each type currently installed</i>	Customers who made changes to fixtures (count)	Customers who made changes to fixtures (percent)
Capsules (N=115)	4	3.5%
Three-way (N=58)	0	0.0%
Candelabras (N=68)	2	2.9%
Indoor reflectors (N=118)	5	4.2%
Globes (N=69)	2	2.9%
Outdoor reflectors (N=24)	2	8.3%
Dimmable spiral (N=30)	2	6.7%
Standard spiral (N=7) (non-incanted bulbs)	0	0.0%
All surveyed installations (N=489)	17	3.5%

The seventeen installations that involved additional fixture changes beyond replacing light bulbs are listed below. In a majority of these situations the program bulbs were installed in new fixtures or lamps that did not exist before the program.

Installed a new light fixture or lamp where there was none previously (n=10)

- Indoor reflector (n=4)
- Candelabra (n=2)
- Capsule
- Globe
- Outdoor reflector
- Dimmable spiral

Replaced previous fixture or lamp with a new one (n=2)

- Globe
- Outdoor reflector

Replaced sockets in fixture or lamp to fit the new bulbs (n=2)

- Capsule
- Dimmable spiral

Replaced dimmer switch for compatibility with new bulbs

- Indoor reflector

Reduced the number of bulbs installed in the fixture or lamp

- Capsule

Changed timer or sensor settings

- Capsule

Previously Installed Light Bulbs

Table 54 shows that more than four out of five installed Savings Store specialty bulbs replaced incandescent or halogen bulbs (80.4%), while 11.1% replaced CFLs and only 0.1% replaced LED lighting. Less than one program bulb in thirty (3.0%) was installed in a previously empty socket (or in a newly installed fixture where there previously was no socket).

Table 54. Types of Previously Installed Bulbs Replaced by Program Specialty Bulbs

	Total bulbs installed	Incand. / halogen	CFL	LED	Other / mix of types	No bulb in socket	Don't know
Living/family room	232	82.8%	7.3%	0.4%	7.3%	0.0%	2.2%
Bathroom	327	87.2%	9.8%	0.0%	1.2%	0.9%	0.9%
Kitchen	295.5	77.0%	15.2%	0.0%	3.7%	0.0%	4.1%
Master bedroom	114	74.6%	21.9%	0.0%	0.0%	2.6%	0.9%
Outdoors/Exterior	137	86.9%	2.2%	0.0%	1.5%	0.0%	9.5%
Dining room	138	89.9%	5.1%	0.0%	0.0%	0.7%	4.3%
Basement	134	67.2%	12.7%	0.0%	0.0%	20.1%	0.0%
Other bedroom	59	71.2%	15.3%	0.0%	0.0%	13.6%	0.0%
Hall	38	68.4%	21.1%	2.6%	7.9%	0.0%	0.0%
Office / den	20	65.0%	10.0%	0.0%	0.0%	25.0%	0.0%
Garage	14	57.1%	14.3%	0.0%	0.0%	0.0%	28.6%
Entryway / foyer	18	83.3%	16.7%	0.0%	0.0%	0.0%	0.0%
Closet	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other (misc.)	20	85.0%	15.0%	0.0%	0.0%	0.0%	0.0%
Don't recall	16	75.0%	0.0%	0.0%	0.0%	0.0%	25.0%
Total	1564.5	80.4%	11.1%	0.1%	2.4%	3.0%	3.1%

This table does not include seven surveyed standard spiral CFL installations (standard spiral CFLs are not "specialty" bulbs).

Table 55 shows the average wattage of replaced light bulbs by room type; the highest-wattage bulbs previously installed were in living and family rooms (63.4 watts) and master bedrooms (58.1 watts) along with "other" miscellaneous locations (57.5 watts), outdoor and exterior installations (53.8 watts) and basements (52.4 watts). The lowest average wattages per bulb by room are found in dining rooms (37.9 watts), "other" (non-master) bedrooms (41.7 watts) and hallways (42.6 watts). Overall, the average wattage of light bulbs replaced by Savings Store bulbs is 51.2 watts (average wattages include previously-installed efficient lighting as well as standard bulbs).

Table 55. Wattage of Previously Installed Bulbs Replaced by Program Specialty Bulbs

	Total bulbs installed	Program bulbs replaced other bulbs	No bulbs previously in sockets	Bulbs for which participants reported wattage	Average wattage of replaced bulbs²⁴
Bathroom	327	324	3	285	45.2
Kitchen	295.5	295.5	0	232.5	51.9
Living/family room	232	232	0	182	63.4
Outdoors/Exterior	137	128	0	101	53.8
Master bedroom	114	111	3	83	58.1
Other bedroom	59	51	8	50	41.7
Hall	38	38	0	30	42.6
Dining room	138	131	1	94	37.9
Basement	134	107	27	77	52.4
All other locations	74	69	5	46	57.5
Can't recall location	16	16	0	12	60.0
Total	1564.5	1502.5	47	1192.5	51.2

This table does not include seven surveyed standard spiral CFL installations (standard spiral CFLs are not "specialty" bulbs). Fifteen bulbs which participants could not recall ("don't know" type of bulb) are not shown in this table; therefore, the two middle columns total to 15 fewer bulbs than the leftmost "total bulbs" column. "Bulbs for which participants reported wattage" is the valid number of bulbs used to compute watts per replaced bulb.

Table 56 shows what participants did with their previously installed bulbs after replacing them with Savings Store bulbs. The bulbs from about half of these installations (54.6%) are thrown away, while another 10.0% are recycled (or being stored for future appropriate disposal). Bulbs from a quarter of program installations (24.1%) are being stored for future use, while the old bulbs from roughly one installation in thirty (3.6%) are given away to other people and for 2.1% of installations the old bulbs were moved into other sockets and are still being used. Customers are most likely to store their old bulbs that were replaced by program indoor reflectors (33.3%), three-way bulbs (26.8%) and candelabras (25.8%); previous bulbs that are least likely to be stored are those replaced by program outdoor reflectors (8.7%), dimmable spirals (14.8%) and standard spirals (none of seven surveyed installations).

²⁴ Average wattage of replaced bulbs only includes installations that replaced previously-installed light bulbs where the respondent was able to recall the wattage of the replaced bulbs. This average does not include "no bulbs previously installed" (which would represent zero watts previously used). All types of bulbs (incandescent, halogen, CFL and LED) are combined in the average wattage of replaced bulbs, and adjustment factors are applied for dimmable and three-way bulbs.

Table 56. Disposal of Previously Installed Bulbs

<i>Rows total to 100%. Base: 469 installations with valid responses</i>	Thrown away	Recycled / stored for recycling	Given away	Stored for future use	Being used in different socket	Multiple outcomes	Don't know
Capsules (N=114)	51.8%	14.0%	3.5%	21.1%	0.9%	3.5%	5.3%
Three-way (N=56)	53.6%	5.4%	5.4%	26.8%	7.1%	1.8%	0.0%
Candelabras (N=66)	53.0%	9.1%	6.1%	25.8%	1.5%	0.0%	4.5%
Indoor reflectors (N=108)	50.9%	8.3%	0.9%	33.3%	2.8%	1.9%	1.9%
Globes (N=68)	55.9%	11.8%	4.4%	22.1%	1.5%	1.5%	2.9%
Outdoor reflectors (N=23)	73.9%	8.7%	0.0%	8.7%	0.0%	8.7%	0.0%
Dimmable spiral (N=27)	66.7%	7.4%	3.7%	14.8%	0.0%	0.0%	7.4%
Standard spiral (N=7) (non-incented bulbs)	57.1%	14.3%	14.3%	0.0%	0.0%	14.3%	0.0%
All surveyed installations (N=469)	54.6%	10.0%	3.6%	24.1%	2.1%	2.3%	3.2%

Intention to Install Efficient Lighting in the Absence of the Program and in the Future

Surveyed participants were asked what type of bulbs they would have installed in the sockets where they installed Savings Store bulbs if this program had not been available. Table 57 indicates that nearly half of surveyed installations would have had CFLs or LEDs installed in them in the absence of the program (47.5% combined CFL, LED and “either CFL or LED”), although 41.6% of installations would have still have incandescent or halogen bulbs instead of efficient bulbs. The rooms that are most likely to have had incandescent or halogen lighting installed in the absence of the program are dining rooms (69.2%), outdoors (51.2%) and bathrooms (50.0%). The rooms that are most likely to have had efficient lighting installed in the absence of the program are master bedrooms (61.1%), kitchens (58.7%) and basements (54.5%)

Table 57. Type of Bulbs That Would Have Been Installed in the Absence of the Program by Room

<i>Rows total to 100%. Base: 394 installations by bulb type²⁵</i>	Incandescent	Halogen	CFL	LED	Either CFL or LED	Leave sockets empty	Don't know
Living/family room (N=78)	41.0%	0.0%	37.2%	6.4%	0.0%	0.0%	15.4%
Bathroom (N=72)	48.6%	1.4%	40.3%	2.8%	2.8%	0.0%	2.8%
Kitchen (N=63)	31.7%	1.6%	47.6%	9.5%	1.6%	0.0%	7.9%
Outdoors/Exterior (N=43)	41.9%	9.3%	23.3%	9.3%	2.3%	0.0%	14.0%
Master bedroom (N=36)	27.8%	0.0%	47.2%	5.6%	8.3%	0.0%	11.1%
Dining room (N=26)	69.2%	0.0%	15.4%	0.0%	7.7%	0.0%	7.7%
Basement (N=22)	36.4%	4.5%	50.0%	4.5%	0.0%	4.5%	0.0%
Other bedroom (N=13)	38.5%	0.0%	38.5%	15.4%	0.0%	0.0%	7.7%
Hall (N=11)	27.3%	0.0%	36.4%	9.1%	0.0%	0.0%	27.3%
All other locations (N=25)	28.0%	0.0%	52.0%	4.0%	4.0%	0.0%	12.0%
Can't recall (N=5)	20.0%	0.0%	20.0%	0.0%	0.0%	0.0%	60.0%
Total (N=394)	39.8%	1.8%	38.8%	6.1%	2.5%	0.3%	10.7%

Table 58 shows what types of light bulbs would have been installed in the absence of the program by specialty bulb type, rather than by room as shown in Table 57. The bulbs types which are least likely to have been replaced with efficient lighting in the absence of the program are outdoor reflectors (29.2%), candelabra bulbs (35.4%) and globe bulbs (38.1%); correspondingly, candelabras (60.0%), outdoor reflectors (54.2%) and globes (54.0%) are the bulb types most likely to have been replaced with incandescent or halogen bulbs in the absence of the program. Outdoor reflectors are the bulbs most likely to have been replaced with halogen bulbs in the absence of the program (16.7% of outdoor reflector installations, accounting for 57.1% of seven installations where halogen bulbs would have been used in the absence of program bulbs). Overall, the specialty bulb categories that are most likely to have had CFL or LEDs installed even in the absence of the program are capsule bulbs (59.8%) and indoor reflectors (58.8%). Installations where Savings Store capsule bulbs were installed are the most likely to have had LED lighting installed in the absence of the program (15.9%).

²⁵ Surveyed participants were asked what type of bulbs they would have installed in the absence of the program only for the first bulbs of a type that were installed. Thus if a customer was asked about two or more installations of a particular bulb type, they were only asked what they would have done in the absence of the program once. Questions about additional bulb installations beyond the first of a particular type are limited to the bulb that was replaced and the usage of the socket. Therefore the question about intentions in the absence of the program is asked once "per respondent per bulb type" (a respondent who installed three types of bulbs is asked once for each bulb type, regardless of how many installations per bulb type).

Table 58. Type of Bulbs That Would Have Been Installed in the Absence of the Program by Specialty Bulb Type

<i>Rows total to 100%. Base: 394 installations by bulb type</i>	Incandescent	Halogen	CFL	LED	Either CFL or LED	Leave sockets empty	Don't know
Capsule bulbs (N=82)	28.0%	0.0%	42.7%	15.9%	1.2%	0.0%	12.2%
Three-way bulbs (N=49)	36.7%	0.0%	42.9%	2.0%	0.0%	0.0%	18.4%
Indoor reflectors (N=85)	29.4%	2.4%	49.4%	7.1%	2.4%	1.2%	8.2%
Candelabra bulbs (N=65)	60.0%	0.0%	30.8%	1.5%	3.1%	0.0%	4.6%
Globe bulbs (N=63)	52.4%	1.6%	31.7%	1.6%	4.8%	0.0%	7.9%
Outdoor reflectors (N=24)	37.5%	16.7%	20.8%	4.2%	4.2%	0.0%	16.7%
Dimmable spirals (N=26)	38.5%	0.0%	38.5%	3.8%	3.8%	0.0%	15.4%
Standard spirals (not asked)	NA	NA	NA	NA	NA	NA	NA
Total (N=394)	39.8%	1.8%	38.8%	6.1%	2.5%	0.3%	10.7%

Next, participants were asked what type of lighting they will install when their current program bulbs burn out. Table 59 shows that after participating in this program, customers are only intending to install incandescent bulbs in 2.0% of installations and none of the surveyed customers plan to install any halogen bulbs. Overwhelmingly, these customers say they intend to install CFLs in the places where Savings Store bulbs are currently installed (74.9%), and the number of installations where customers plan to install LEDs is also much higher after the program (14.5%) compared to what their intentions would have been in the absence of the program (6.1%).

Table 59. Type of Bulbs That Will Be Installed When Savings Store Bulbs Burn Out by Room

<i>Rows total to 100%. Base: 394 installations by bulb type</i>	Incandescent	Halogen	CFL	LED	Either CFL or LED	Depends on other factors	Don't know
Living/family room (N=78)	0.0%	0.0%	76.9%	14.1%	0.0%	2.6%	6.4%
Bathroom (N=72)	1.4%	0.0%	84.7%	5.6%	4.2%	1.4%	2.8%
Kitchen (N=63)	1.6%	0.0%	76.2%	17.5%	1.6%	0.0%	3.2%
Outdoors/Exterior (N=43)	0.0%	0.0%	83.7%	14.0%	2.3%	0.0%	0.0%
Master bedroom (N=36)	0.0%	0.0%	63.9%	30.6%	5.6%	0.0%	0.0%
Dining room (N=26)	7.7%	0.0%	61.5%	11.5%	11.5%	3.8%	3.8%
Basement (N=22)	0.0%	0.0%	77.3%	13.6%	0.0%	9.1%	0.0%
Other bedroom (N=13)	15.4%	0.0%	53.8%	23.1%	0.0%	0.0%	7.7%
Hall (N=11)	0.0%	0.0%	72.7%	9.1%	9.1%	9.1%	0.0%
All other locations (N=25)	8.0%	0.0%	64.0%	16.0%	0.0%	0.0%	12.0%
Can't recall (N=5)	0.0%	0.0%	60.0%	0.0%	0.0%	20.0%	20.0%
Total (N=394)	2.0%	0.0%	74.9%	14.5%	2.8%	2.0%	3.8%

Table 60 shows the same data as the previous table, only by specialty bulb type rather than by room. For every bulb type except candelabra bulbs, participants plan to replace at least 90% of their program bulb installations with CFLs or LEDs when their program bulbs burn out (candelabras have the highest percentage of participants saying their bulb choice “depends on other factors”, however 84.6% are still certain that they will replace their program bulbs with CFLs or LEDs). The program bulb types that are most likely to be replaced with incandescent bulbs are candelabra and outdoor reflector bulbs, but participants only plan to revert to the old

bulbs for fewer than 5% of these installations. The installations most likely to be replaced with LED bulbs are those where Savings Store capsule bulbs are installed, where 41.5% of installations will be replaced with LEDs compared to 48.8% being replaced with CFLs. The next more popular style of LED is the indoor reflector with only 15.3% intending to replace these program bulbs with LEDs; for every other type of bulb, participants intend to install LEDs in fewer than 10% of future installations.

Table 60. Type of Bulbs That Will Be Installed When Savings Store Bulbs Burn Out by Specialty Bulb Type

<i>Rows total to 100%. Base: 394 installations by bulb type</i>	Incandescent	Halogen	CFL	LED	Either CFL or LED	Depends on other factors	Don't know
Capsule bulbs (N=82)	1.2%	0.0%	48.8%	41.5%	2.4%	1.2%	4.9%
Three-way bulbs (N=49)	0.0%	0.0%	85.7%	4.1%	0.0%	0.0%	10.2%
Indoor reflectors (N=85)	0.0%	0.0%	77.6%	15.3%	1.2%	3.5%	2.4%
Candelabra bulbs (N=65)	4.6%	0.0%	76.9%	4.6%	3.1%	6.2%	4.6%
Globe bulbs (N=63)	3.2%	0.0%	87.3%	3.2%	4.8%	0.0%	1.6%
Outdoor reflectors (N=24)	4.2%	0.0%	87.5%	4.2%	4.2%	0.0%	0.0%
Dimmable spirals (N=26)	3.8%	0.0%	80.8%	7.7%	7.7%	0.0%	0.0%
Standard spirals (not asked)	NA	NA	NA	NA	NA	NA	NA
Total (N=394)	2.0%	0.0%	74.9%	14.5%	2.8%	2.0%	3.8%

Table 61 presents the average hours of use for sockets where Savings Store bulbs have been installed by room. The rooms where bulbs get the most hours of use are outdoors (6.2 hours per day), in kitchens (5.8 hours), in dining rooms (4.7 hours) and in living and family rooms (4.4 hours). The bulbs that get used the least are in hallways (2.1 hours per day), bathrooms (2.4 hours) and "other" (not master) bedrooms (2.3 hours). There are some slight differences by room in terms of the hours of use before and after the program; the overall average customer-reported hours of use per bulb rounds off to 4.0 hours per day for sockets with program bulbs installed after the program, and to 3.8 hours of usage per day before the program bulbs were installed. The largest changes in hours of use after the program are for outdoor lighting where usage increased by 0.8 hours per day after the program, and basement lighting where usage increased by 0.5 hours; basements are the locations where participants were most likely to have installed bulbs where there previously were empty sockets or no sockets (i.e., they installed new fixtures), meaning hours of use before the program is zero for these installations (see Table 55).

Table 61. Program Specialty Bulb Hours of Use by Room

<i>Base: 482 installations by room with valid responses (not including standard spiral CFLs)</i>	Average hours of use per bulb (current)	Average hours of use per bulb (before program)
Living/family room (N=98)	4.4	4.5
Bathroom (N=85)	2.4	2.3
Kitchen (N=72)	5.8	5.7
Outdoors/Exterior (N=45)	6.2	5.4
Master bedroom (N=50)	2.8	2.7
Dining room (N=31)	4.7	4.5
Basement (N=24)	3.1	2.6
Other bedroom (N=22)	2.3	2.1
Hall (N=17)	2.1	2.5
All other locations (N=32)	3.5	2.9
Can't recall (N=6)	2.0	2.0
Total (N=482)	4.0	3.8

This table does not include seven surveyed standard spiral CFL installations (standard spiral CFLs are not "specialty" bulbs).

Table 62 presents the average hours of use for sockets where Savings Store bulbs have been installed by specialty bulb type (including standard spiral CFLs which are not included in the table above). The types of specialty bulbs that have the highest hours of use are dimmable spiral CFLs (5.7 hours per day), capsule bulbs (4.9 hours) and candelabra bulbs (4.3 hours), while the least hours of use are for standard spirals (2.0 hours) and globe bulbs (2.8 hours).

There is an interesting discrepancy between the hours of use reported for outdoor reflector CFL installations (above; 3.4 hours per day before and after the program) and program bulbs installed outdoors (below; 6.2 hours per day after the program and 5.4 before the program). This indicates that the increase in hours of use for outdoor installations is not due to increased use of outdoor reflectors, but entirely due to increased usage of other types of program bulbs which are installed outdoors. As seen in Table 51, only 21 of 45 surveyed outdoor installations in the Midwest are outdoor reflector CFLs, while 13 are candelabra CFLs and seven are capsule CFLs or LEDs. Thus participants who install these smaller efficient program bulbs outdoors are more likely to leave them on for longer hours than before the program when most of these sockets had incandescent or halogen bulbs. The difference between average hours of use for outdoor installations (above) and outdoor reflectors (below) also indicates that the smaller non-reflector bulbs installed outdoors are used for more hours per day than the outdoor reflectors.

Table 62. Program Specialty Bulb Hours of Use by Bulb Type

<i>Base: 489 installations by bulb type with valid responses</i>	Average hours of use per bulb (current)	Average hours of use per bulb (before program)
Capsule bulbs (N=115)	4.9	4.7
Three-way bulbs (N=58)	4.1	3.7
Indoor reflectors (N=118)	3.8	3.6
Candelabra bulbs (N=68)	4.3	4.2
Globe bulbs (N=69)	2.8	2.7
Outdoor reflectors (N=24)	3.4	3.4
Dimmable spirals (N=30)	5.7	5.7
Standard spirals (N=7)	2.0	2.0
Total (N=489)	4.0	3.8

CFLs and LEDs Installed Before Participating in the Program

Table 63 indicates that 86.4% of participants already had some CFLs installed in their homes before purchasing bulbs from the Savings Store. The 176 surveyed customers who already had CFLs installed before the program and who were able to answer the question “*how many?*” had an average of 13.5 CFLs apiece before the program; including the 27 customers who did not have any CFLs installed before the program, the average number of CFLs installed before the program is 11.7 per household (not including those who did not know if or how many CFLs they had installed). The median number of CFLs per surveyed household installed before the program is ten.

Most of the customers with CFLs installed before the program (59.0%) have been using CFLs for four years or more, and at least 92.1% have been using CFLs for more than a year.

Table 63. Preinstalled CFLs (N=206)

	Midwest (count)	Midwest (percent)
<i>Did you have any CFLs installed before participating in this program?</i>		
No	27	13.1%
Yes, from 1 to 5	36	17.5%
Yes, from 6 to 11	54	26.2%
Yes, 12 or more	86	41.7%
Yes, don't know how many	2	1.0%
Don't know	1	0.5%
<i>How long have you been using CFLs?</i>	<i>N=178 customers with CFLs before the program</i>	
Never until recently (first time user)	2	1.1%
One year or less (but previous to program participation)	6	3.4%
One to two years	13	7.3%
Two to three years	19	10.7%
Three to four years	27	15.2%
Four years or more	105	59.0%
Don't know	6	3.4%

Table 64 indicates that one participant in four (24.3%) had LEDs installed before participating in the Specialty Bulbs program. The 50 surveyed customers who already had LEDs installed before the program and who were able to answer the question “*how many?*” had an average of 4.5 LEDs apiece before the program; including the 153 customers who did not have any LEDs installed before the program, the average number of LEDs installed before the program is 1.1 per household (not including those who did not know if or how many LEDs they had installed). The median number of LEDs per surveyed household installed before the program is zero (since a majority of customers had zero LEDs).

About one in five customers with LEDs installed before the program (20.0%) have been using LEDs for more than four years, while most (58.0%) have been using LEDs for less than two years.

Table 64. Preinstalled LEDs (N=206)

	Midwest (count)	Midwest (percent)
<i>Did you have any LEDs installed before participating in this program?</i>		
No	153	74.3%
Yes, from 1 to 5	34	16.5%
Yes, from 6 to 11	11	5.3%
Yes, 12 or more	5	2.4%
Yes, don't know how many	0	0.0%
Don't know	3	1.5%
<i>How long have you been using LEDs?</i>		
	<i>N=50 customers with LEDs before the program</i>	
Never until recently (first time user)	4	8.0%
One year or less (but previous to program participation)	11	22.0%
One to two years	13	26.0%
Two to three years	9	18.0%
Three to four years	3	6.0%
Four years or more	10	20.0%
Don't know	0	0.0%

Figure 20 shows the distribution of preinstalled CFLs, LEDs and total energy-efficient bulbs (CFLs plus LEDs). A third of these customers (33.0%) already had fifteen or more efficient bulbs installed before purchasing bulbs from the Savings Store, and only 9.7% did not have any efficient bulbs. In total, the 203 customers who answered the questions about the number of efficient bulbs installed before the program confirmed the installation of 2,603.5 efficient bulbs (2,379.5 CFLs and 224 LEDs), for an average of 12.8 efficient bulbs per household (not including the 20 customers with zero efficient bulbs installed before the program, the average is 14.2 efficient bulbs per household with efficient bulbs installed). Overall, the median number of efficient bulbs installed before the program is ten bulbs per household.