MARKET EFFECTS, MARKET ASSESSMENT, PROCESS AND IMPACT EVALUATION OF THE NYSERDA STATEWIDE RESIDENTIAL POINT-OF-SALE LIGHTING PROGRAM: 2010-2012

FINAL

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ABSTRACT

This evaluation of the Residential Point-of-Sale Lighting Program aimed to measure and verify 2010-2012 savings, assess program effectiveness, and identify remaining lighting opportunities. Data were gathered through in-depth interviews with program and implementation staff and lighting manufacturers and retailers; telephone surveys with consumers; and a household socket inventory. The study recommends NTG values by bulb type and year, and includes estimates of first-year savings, net sales, peak demand, and effective net lifetime savings. Some key market findings are that CFL sales and socket saturation appear to be stagnating; LED saturation remains low but LED satisfaction is greater than for CFLs; incandescent stockpiling appears to be limited while significant numbers of phased-out legacy bulbs remain available; and few consumers are aware of the Lighting Facts label or understand lumens. Some key program findings are that eliminating support for standard CFLs sharply reduced program activity and sales volume and affected the mix of retailer partners and the ratio of bulbs sold by channel, while large, frequent program changes resulted in programming gaps and loss of momentum. Recommendations include promoting LEDs more assertively and considering asking for permission to temporarily add bare-spiral CFLs back into the discount portion of the program.

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EXECUTIVE SUMMARY

PURPOSE OF THE RESEARCH

The primary goals of this evaluation of the 2010-2012 NYSERDA Residential Point-of-Sale (POS) Lighting Program (the POS Program) were (1) to measure and verify the savings attributable to the program during the period from July 2010 through the end of 2012, (2) to assess the residential lighting market to identify remaining opportunities for savings, and (3) to assess program efficiency and effectiveness through a process evaluation.

BACKGROUND AND METHODOLOGY

The POS Program aims to transform the residential lighting market throughout the NYSERDA service area. The major activities implemented from 2010 through 2013 to achieve this goal were working with program partners (light bulb manufacturers and retailers) to encourage the sale of energy-efficient bulbs over unqualified bulbs in the service area, and educating consumers. There are two parts to the program: (1) discounts and (2) sales performance.

Through the discount part of the Program, NYSERDA provides incentives or "discounts" to manufacturers and retailers for the purpose of increasing sales of energy-efficient lighting products and permanent product shelf space relative to less efficient bulbs. In 2010 and 2011, the Program offered discounts for both standard (bare spiral) CFLs and a wide range of specialty CFLs (SCFLs). In 2011, screw-base LEDs were added to the Program. At the beginning of 2012, at the direction of the New York Department of Public Service (DPS), the Program dropped support for standard CFLs.

Late in 2012, the DPS approved the addition of a sales performance component, the Sales Performance Program (SPP), focusing on standard (bare spiral) CFLs and A-shaped lamps with no special features. At the same time, approximately 75% of the budget for discounts was re-allocated to this new approach. This part of the program was just getting underway at the time of this study and is not evaluated here.

The evaluation team conducted the following four primary data collection activities for this study between December 2012 and August 2013:

- In-depth interviews with program and implementation staff (8), participating manufacturers (15) and retailers (6), and non-participating manufacturers (3) and retailers (3);
- A random-digit dial telephone survey of consumers in the NYSERDA area (720) and three comparison areas: a Low program activity area (300), a Moderate program activity area (300), and a High program activity area (600); and
- An onsite socket inventory of 259 randomly selected households in the NYSERDA area. NYSERDA participated in the 2014 Northeast Residential Lighting Hours-of-Use (HOU)

Study in conjunction with this evaluation. The results from the HOU study are reported in a separate document.

IMPACT FINDINGS

The evaluation team recommends using the following NTG values:

- *Standard CFLs.* For 2011 and the second half of 2010: 64%.
- *Specialty CFLs.* For 2011: 87%; for 2012: 71%.
- *LEDs.* For 2011: 90%; for 2012: 75%.

The evaluation team estimated the following savings and net sales from the program.

First-year savings:

- 108,439 MWh in the second half of 2010 and 169,077 MWh in 2011, primarily for standard CFLs;
- 8,320 MWh in 2012 for specialty CFLs; and
- 9,860 MWh 2012 for LEDs.

Net sales of program bulbs:[1]

- 1,520,6253 bulbs in the second half of 2010 and 2,732,841 in 2011, primarily for standard CFLs;
- 128,310 bulbs in 2012 for specialty CFLs; and
- 117,668 bulbs in 2012 for LEDs.

Peak demand:

- Peak winter demand savings across the period were highest in 2011 due to having a full year of data and the program still including standard CFLs. Peak winter demand savings for CFLs in 2011 were 34.1 MW, while peak summer demand savings for the same period were 9.1 MW.

Effective net lifetime savings:

- 641,717 MWh in the latter half of 2010 and 967,759 MWh in 2011, primarily from standard CFLs;
- 50,049 MWh from specialty CFLs in 2012; and
- 97,214 MWh from LEDs in 2012.

[1] Net program bulbs refers to the number of bulbs sold under the auspices of the program after adjustment by the Net-to-Gross ratios calculated in this study and presented in Section 6.

KEY FINDINGS ABOUT THE MARKET

CFL sales and socket saturation in the NYSERDA area appear to be stagnating.

- We estimate that households in the NYSERDA area purchased approximately 26.6 million CFLs (21.2 million standard and 5.4 million specialty) in 2012. This is relatively unchanged from 2009, during which we estimate households in the area purchased 25.9 million CFLs.
- CFL socket saturation remained unchanged at 26% for the NYSERDA area Overall between 2011 and 2013. This is likely caused by an increasing number of CFLs replacing CFLs as they burn out. Saturation of CFLs was lower in Manhattan (19%) than Upstate (25%) or Downstate (29%). This may be related to the incidence of specialty sockets, which was higher in Manhattan (52%) than Upstate (35%) or Downstate (46%).

More homes have LEDs installed than in 2010, but saturation is very low. Penetration (i.e., prevalence of at least one installed LED) of LEDs has grown in Downstate and Manhattan households since 2010, from 4% in New York City in 2010 to 18% in Downstate and 11% across the entire NYSERDA service area in 2013. LED saturation, however, is very low across the NYSERDA service area, at only 1% of all sockets.

Satisfaction is greater for LEDs than CFLs. Telephone survey respondents who said they had LEDs installed reported roughly equal rates of being "very satisfied" with LED bulbs compared with CFL users who had CFL bulbs installed (56% in the NYSERDA area Overall for LED and 45% for CFL), but the LED users reported much lower rates of being "very dissatisfied" (0% for LED versus 12% for CFL) with the LED bulbs. Respondents to the onsite study who had both LEDs and CFLs ranked LEDs as superior to CFLs in all aspects except price.

While households have a large number of incandescent bulbs in storage, stockpiling[2] appears to be limited. Just one household in the onsite study appeared to be hoarding bulbs in response to EISA. With this respondent's more than 300 stored bulbs included, study households had enough light bulbs in storage to fill nearly one-third of all sockets; without them, households had enough bulbs to fill nearly one-quarter (23%) of all sockets, assuming a one-to-one ratio for stored bulbs to installed bulbs. Incandescent bulbs comprise more than three-fifths of all bulbs in storage in each area. Among households across the NYSERDA area, there are three times as many incandescent bulbs in storage as CFLs. Despite the substantial stored inventory of incandescent bulbs, the study found little stockpiling activity, which may be partially related to the relatively low awareness of EISA or to minimal concern about EISA. With EISA

[2] The Team flagged households as hoarders if the household was storing enough bulbs to fill more than 100% of its sockets and exceeded a set minimum number of bulbs in storage. More details on stockpiling can be found in Section 5.1.4.

over a year into the phase-in period at the time of the study, just 38% of consumers in the NYSERDA area were found to be aware of EISA, an increase from 33% in 2011. This relatively low rate of awareness may be helping to avoid stockpiling.

There are still a significant number of phased-out legacy incandescent bulbs available. The consumer survey results suggest that a substantial number of 100-Watt incandescent bulbs were still available nearly a year after they were officially phased out under EISA. About one-third (36%) of respondents who had looked for 100-Watt incandescent bulbs in the three months prior to the study were able to find and purchase them.

Few consumers are aware of the Lighting Facts label or understand lumens. Awareness of the Lighting Facts label is very low (14% across the NYSERDA area). Although a higher percentage of NYSERDA-area consumers reported having seen or heard of the term *lumens* in 2013 (57%) than in 2011 (43%), knowledge of the number of lumens in a 60-Watt incandescent bulb is still very low in all areas.

KEY FINDINGS ABOUT THE PROGRAM

Elimination of support for standard CFLs has sharply reduced program activity and sales volume and affected the mix of retailer partners and the ratio of bulbs sold by channel. Program-supported bulb sales dropped from 4.3 million bulbs in 2011, when standard CFLs were still part of the program, to just under 340,000 bulbs in 2012, after their elimination from the program. On average, manufacturer partners sold about 9 out of 10 program-supported bulbs during the period. Along with the elimination of standard CFLs from the program, the share of program-supported bulbs sold by retailers fell from 13% in 2011 to 5% in 2012. Staff members noted that dropping support for standard CFL models from the Program altered the mix of retail partners, resulting in the loss of a number of retail partners in the grocery/drug and home improvement channels. Other program data support this statement: From 2010 to 2012, the number of independent partner storefronts declined by 22%, and the number of chain storefronts dropped by 40%. The chain partner storefront decline came entirely from home improvement stores and grocery/drug stores. Staff noted that the most common feedback they have received from partners concerned the switch away from standard CFLs.

Large, frequent program changes have resulted in programming gaps and loss of partner momentum. In addition to the elimination of standard CFLs from the Program after 2011, which caused the Program to refocus on specialty CFLs and LEDs in 2012, 75% of the Program budget was re-allocated to the SPP for standard and A-shaped CFLs in 2013. Because of the timing of funding, in 2012 lighting promotions were approved only during part of the year. Program and implementation staff interviewees expressed the opinion that the size and frequency of changes to the program during the 2010-2012 cycle resulted in programming gaps and loss of partner momentum. They noted that, when partners are waiting for a program change or guarantee of future funding, they are unable to plan ahead. This creates a lag in activities even after the Program has started up again.

Some partners experience difficultly implementing the Outreach, Education, and Marketing requirement. According to interviewees, very limited retail shelf space for POS materials and stringent corporate guidelines on these materials among larger retailers have made it difficult for some retailers to implement the Outreach, Education, and Marketing requirement. At the same time, partner promotion requirements can be burdensome for smaller partners.

The price threshold and discount limit on bulbs may be a constraint on the POS program. Implementation staff expressed concerns that the price threshold NYSERDA places on CFLs (currently $2.00 per specialty CFL) limits the program, especially in the current price-sensitive consumer environment. This threshold holds even if the partner is willing to provide additional money to offer a deeper discount.

POS program participation is unusually difficult for partners, and the time required to process reimbursements for discounts poses an administrative, and in some cases financial, burden to partners. Partners cited a number of barriers to participation, including:

- The application and approval process;
- Invoicing procedures and timely reimbursement; and
- Sales data submission requirements.

The ENERGY STAR qualifying products list can make it difficult to determine which bulbs qualify for the POS Program. The program and program partners rely on ENERGY STAR Qualifying Products lists to determine which bulbs qualify for the program. These lists are not always accurate or complete, which can cause confusion.

The POS Program has recruited and retained as partners all three of the largest lighting manufacturers, and all of the medium-sized manufacturers. Despite difficulties that staff reported about working with large partners, from 2010 to 2012 the program appears to have had a good track record recruiting and retaining large- and medium-sized manufacturing partners.

The change to NYSERDA picking up 100% of discounts in 2012 for products addressed by the program (LEDs and specialty CFLs) benefitted the program. This change reduced a barrier to participation and appears to have attracted larger players, especially manufacturers, to the program. It also enabled NYSERDA to maintain existing partnerships.

Partners have very positive perceptions of program and implementation staff. Every partner manufacturer and partner retailer interviewee noted that Lockheed Martin and NYSERDA staff are very helpful and easy to work with. Interviewees consistently remarked that the staff are professional, knowledgeable, and enjoyable to work with.

RECOMMENDATIONS TO IMPROVE PROGRAM EFFECTIVENESS

Be more aggressive with lighting to counter the stagnation in socket saturation and sales. To this end, consider (1) promoting LEDs more assertively. If NYSERDA wishes to meet aggressive near-term program goals, also consider (2) asking permission of the DPS to add standard, bare-spiral CFLs back into the discount portion of the Program for a limited period until the LED prices drop somewhat further. The recommendations of the most recent NEEP Regional Northeast Residential Lighting Strategy[3]

Energy Futures Group and Optimal Energy. 2013. *Northeast Residential Lighting Strategy: 2013-2014 Update*. October. Lexington, MA: Northeast Energy Efficiency Partnerships. Accessed March 13, 2014 from http://neep.org/Assets/uploads/files/market-strategies/lighting/2013-ResLighting-Workshop/October%202013%20RLS%20Update_FINAL.pdf.[4] The previous program impact evaluation assessed program attribution and savings through June 2010. In the report, "Results of the Multistate CFL Modeling Effort," Project Number 9875, dated September 25, 2011, the evaluation team assessed program

include accelerating "the use of ratepayer funds to support LED technology in the near term due to rapidly dropping price and superior performance over CFLs." As described above, early LED adopters look upon LEDs very favorably compared to CFLs.

NYSERDA is still faced with ambitious lighting savings goals. The NTG findings argue for bringing back discounts on bare spiral CFLs to increase saturation of high efficiency bulbs and meet the Program's goals. This would help to ensure that standard CFLs are priced competitively in comparison to halogen incandescent bulbs while the prices of LEDs come down enough that more people will buy them and the program can focus its support more narrowly on LEDs while still meeting goals. In conjunction with this, NYSERDA should consider the possibility of lowering or eliminating the previous price threshold for standard CFLs ($1.00). If NYSERDA chooses to pursue this avenue, staff will need to give consideration as to whether, and how, standard CFLs can be promoted simultaneously through both the discount and SPP portions of the program. One possibility, already being pursued by program staff, is to use the SPP as a motivator for partners to obtain additional incentives.

Consider alternative options for increasing retailer participation in the program going forward, and look for ways to facilitate partner participation. The overwhelming majority of program bulbs sold from 2010-2012 were sold through promotions with manufacturers. This was especially true after 2011. NYSERDA should assess the commitment of program resources that would be required to grow and then maintain the retailer partners' sales through the discount program as it is currently configured. In the near term, to the extent that NYSERDA chooses to work with retailers going forward, NYSERDA should focus attention on increasing engagement of home improvement store chains and mass merchandisers in selling screw-base LEDs. The reason for this focus is that (1) these are the top channels where respondents say they are most likely to buy both LEDs and CFLs; (2) larger chains should be more cost-efficient to work with than smaller chains or individual stores; and (3) chains in these channels may be more interested in working with the program to grow their sales in this emerging area than in specialty CFLs. Program and implementation staff should also consider ways to streamline paperwork and requirements for participation, and speed up the reimbursement process.

Consider focusing some marketing attention on selected aspects of consumer education. NYSERDA may wish to focus marketing attention on the following aspects of consumer education for which market progress indicators showed substantial room for growth, such as consumer understanding of key information on the Lighting Facts label; consumer awareness that CFLs use less energy than halogens;

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savings and attribution for 2011 and 2012. Because most evaluation activities took place in 2013, the team applied the savings and attribution findings for 2011 to the second half of 2010 rather than asking about program impacts so long after the fact.

consumer awareness and understanding of important messages about CFL bulbs, such as their cost-effectiveness; and consumer awareness about the energy efficiency and other important characteristics of LEDs. NYSERDA may wish to give additional thought to how best to reach Downstate consumers, as Downstate lags behind Upstate in key indicators of lighting awareness and knowledge.

To help program staff monitor performance on an ongoing basis, request that Lockheed Martin add segmentation categorizations based on store channel to its tracking system and include program sales by channel as part of its regular reporting to NYSERDA. To help improve the quality and cost of data collection down for future evaluations, consider changing the partnership agreement to allow Lockheed Martin to share sales data in confidence with the firm(s) conducting evaluation. Except in the case of grocery stores, Lockheed Martin segments retailers by chain size (national, regional, small, and single store). Adding a segmentation based on store channel (e.g., home improvement store, mass merchandiser, hardware store), and asking Lockheed Martin to supply program staff with aggregated sales by these channels on a regular basis, would provide NYSERDA with valuable program performance information in a timely fashion. This information could help the staff in determining when adjustments may need to be made to the Program. Unlike those of program administrators in other states, NYSERDA's partnership agreements promise partners that only the program implementer, Lockheed Martin, will see sales data provided by the partner. This promise added cost and burden to the evaluation data collection process and resulted in less data being available for analysis. Changing the Products Program partnership agreement to allow Lockheed Martin to share sales data with the evaluation contractor for evaluation purposes is likely to improve the quality and reduce the cost of future evaluations for both the Residential Lighting POS Program and the Products Program.

Consider reducing the price threshold for specialty CFLs. The price threshold and discount limit on bulbs may be a constraint on the program. NYSERDA may wish to consider lowering the price threshold, at least for specialty CFLs.

Investigate the value of co-branding marketing materials. The in-depth interviews revealed that the lack of co-branded marketing materials often creates challenges for partners who are used to co-branding requirements and have design templates which make it easier to do so. Aside from the issue of ease of designing materials, program staff may wish to meet with key partners to discuss what value, if any, there might be in co-branding marketing materials.

Leverage existing partnerships with other organizations, such as NEEP and CEE, to improve information regarding qualifying ENERGY STAR products. The program and program partners rely on ENERGY STAR Qualifying Products lists to determine which bulbs qualify for the program. These lists are not always accurate or complete, which can cause confusion. NYSERDA may wish to work through and leverage regional or national organizations—including those with which it already works, such as NEEP and CEE—to ask EPA ENERGY STAR to address this.

Section 1

INTRODUCTION

The primary goals of this evaluation of the 2010-2012 NYSERDA Residential Point-of-Sale (POS) Lighting Program were to (1) measure and verify the savings attributable to the program during the period from July 2010 through the end of 2012,[4] (2) assess the residential lighting market to identify remaining opportunities for savings, and (3) assess program efficiency and effectiveness through a process evaluation. A secondary goal of the evaluation was to understand the extent to which consumers will choose to replace phased-out incandescent bulbs with CFLs or with less efficient options, like halogens or incandescent bulbs that are still available, as EISA phases in. There were three components to the study: a process evaluation, a market assessment/market effects evaluation, and an impact evaluation.

Following a description of the overall research methods, the evaluation results are presented as listed below. In each section of the report, key observations are offered in boldface italics at the beginning of the section or paragraph in which they are discussed. A complete listing of the observations, plus findings and related recommendations, is offered in the Conclusions section.

- The process evaluation assessed program strengths and areas of improvement, partner satisfaction with the program, and related matters such as customer exposure to program marketing efforts. It was based on a review of program records and interviews with program staff, implementation staff, and representatives of partnering retailers and manufacturers in order to examine the effectiveness of program procedures. The process evaluation results are presented in Section 4.
- The market assessment and market effects evaluation included: (1) tracking of key indicators of program success, such as awareness and knowledge of targeted products and the availability, sales, and market share of targeted products; and (2) estimates of the ratio of net sales to gross sales

[4] The previous program impact evaluation assessed program attribution and savings through June 2010. In the report, "Results of the Multistate CFL Modeling Effort," Project Number 9875, dated September 25, 2011, the evaluation team assessed program savings and attribution for 2011 and 2012. Because most evaluation activities took place in 2013, the team applied the savings and attribution findings for 2011 to the second half of 2010 rather than asking about program impacts so long after the fact.

(Net-to-Gross or NTG) attributable to the program by product and year. The market assessment and market effects evaluation results are presented in Section 5.[5]

- The impact evaluation measured gross savings resulting from the program based on a combination of the NTG ratio and the estimation of parameters such as hours of use, delta watts, and installation rates. These estimates were based on a socket saturation study of the NYSERDA area and a separate study of hours of use among four states, adjusted for the NYSERDA area. The impact results are presented in Section 6.

The program is slated to continue through at least 2016. Future evaluation activities for this program will focus on updating the impact evaluation results and market adoption forecasts on an annual basis and conducting a process and impact evaluation of the new Sales Performance Program, which was launched in November 2013.

[5] As part of the study, the evaluation team also updated the Market Adoption Model, which is a spreadsheet-based tool that computes the energy use of bulbs currently in use as well as energy savings based on the wattages and types of bulbs that consumers said they are likely to install in place of the incandescent bulbs being phased out by EISA. We have provided this to NYSERDA under separate cover.

Section 2

BACKGROUND AND METHODOLOGY

BACKGROUND

The evaluation team conducted four primary data collection activities as part of the Residential Lighting POS Program evaluation. These are listed below. This section provides details about how the data were collected and analyzed for the first three of the four activities. Details for the fourth activity, the Northeast Residential Hours of Use (HOU) study, are addressed separately in the Northeast Residential HOU report. The research also included a review of program records supplied by the implementation contractor, Lockheed Martin, and analysis of purchased secondary sales data for the NYSERDA area and comparison areas. Background and methodology for the secondary sales data analysis are described in Section 2.

The primary data collection activities included:

1. In-depth interviews with program and implementation staff, participating manufacturers and retailers, and non-participating manufacturers and retailers;
2. A random-digit dial (RDD) telephone survey of consumers in the NYSERDA area and three comparison areas;
3. An onsite inventory of lighting in the NYSERDA area; and
4. A regional study of lighting hours of use.

IN-DEPTH INTERVIEWS WITH STAFF, MANUFACTURERS, AND RETAILERS

In January 2013, the evaluation team conducted interviews with NYSERDA staff managing or supporting the Residential Lighting Point-of-Sale program and staff of the implementation contractor for the program, Lockheed Martin. These interviews were part of the process evaluation. Information gathered during these interviews also served to inform the questions that were subsequently asked of lighting manufacturers and retailers who were program partners between 2010 and 2012. The evaluation team conducted eight interviews: five with NYSERDA staff members; one with a staff member from NYSERDA's marketing contractor, Brand Cool; and three with staff members from the implementation contractor, Lockheed Martin. To gain a well-rounded perspective on the program, the evaluation team spoke to staff members who held a variety of roles, with responsibilities ranging from overall program management—including strategy development, operations, and budgeting—to day-to-day project management, operations, reporting, marketing, recruitment, and partner relations.

The evaluation team also conducted a total of 27 in-depth interviews with retailers and manufacturers from May through July of 2013. Eighteen of the interviewees were manufacturers (15 partners and 3 non-partners) and 9 were retailers (6 partners and 3 non-partners). The evaluation team recruited for the manufacturer interviews from a list of all NYSERDA partner manufacturers, including the three largest manufacturers, plus a listing of former partner manufacturers and non-partner manufacturers for which the team was able to obtain contact information. The team recruited for the retailer interviews from a selection of NYSERDA partner retailers of varying sizes and degrees of past program participation across all major bulb sales channels.

Interview guides can be found in Appendix F.

CONSUMER TELEPHONE SURVEY

The consumer telephone survey was designed to enable comparison between respondents in the NYSERDA service area (broken down by Upstate and Downstate) and three comparison areas with varying levels of lighting program activity. Georgia (n=160), Kansas (n=70), and Nebraska (n=70) represented the "Small programs or no program activity" (Low) comparison area (n=300), and data collected from Arizona (n=160), Nevada (n=70), and Florida (n=70) represented the "Moderate levels of sustained program activity or relatively new but substantial program activity" (Moderate) comparison area (n=300). We also collected data from a Northeastern state[6] with even more lighting program activity than NYSERDA to represent the "High program activity" (High) comparison area.

The evaluation team fielded the consumer surveys with households in Upstate and Downstate New York that fell within the NYSERDA service area as well as homes in the comparison areas. The NYSERDA-area survey was also used to recruit households for the multi-state Northeast Residential Lighting HOU study. The sample design for the HOU study called for securing comparable numbers of single-family and multifamily homes. Therefore, respondents from the NYSERDA area were fairly equally divided between those residing in single-family and those residing in multifamily homes.

The NYSERDA-area and comparison-area surveys were fielded from December 2012 through February 2013. The NYSERDA-area survey utilized a dual-frame, random-digit dial (RDD) design with separate

[6] As described in Section 2.1.1, for this analysis the survey data from this comparison state are weighted to demographic characteristics of the NYSERDA service area. As a result, the numbers reported here do not exactly match the numbers reported elsewhere by the state. In order to avoid possible confusion from comparing the two slightly different sets of results, the providers of the data requested that their state not be named.

samples of landlines and wireless telephones. There were separate quota cells by geography (Upstate/Downstate) and housing structure type (single-family/multifamily). Nassau and Suffolk County respondents were excluded from the survey. Downstate respondents were considered to be those in New York, Bronx, Kings, Queens, Richmond, and Westchester Counties, while Upstate respondents were those living in the remaining counties in New York State (less the two Long Island counties). Surveys of the Moderate and Low program activity comparison groups were fielded in a similar fashion, but across each state as a whole without the separate quotas by structure. The High comparison area survey was fielded among a random sample of utility customers. The evaluation team ended the surveys at 720 completions in the NYSERDA service area (340 Upstate and 380 Downstate), 600 completions in the "High program activity" (High) comparison area, and 300 completions each in the "Moderate program activity" (Moderate) and "Low program activity" (Low) comparison areas. This achieves the following sampling errors at the 90% confidence level, assuming a dichotomous response with a 50% proportion: 6.1% for the NYSERDA-area sample, 3.4% for the High comparison area, and 4.8% each for the Moderate and Low comparison areas. The survey cooperation rates[7] were 50% for the NYSERDA area, 50% for the High comparison area, and 47% for the Moderate and Low comparison areas. While the team offered incentives and set aggressive recruiting goals to help reduce non-response bias, this type of bias is unavoidable and, as with all survey efforts, the results of this study are subject to it. Table 1 provides response rate one and response rate three based on the American Association of Public Opinion Research's (AAPOR) standard response rate definitions.[8] Response rate one (RR1) is the number of completed interviews divided by the number of interviews (complete plus partial) plus the number of non-interviews (refusal and break-off plus non-contacts plus others) plus all cases of unknown eligibility. RR1 provides for the lowest possible response rate. Response rate three (RR3) estimates the proportion of cases of unknown eligibility that are likely to be eligible. Additional details on these response rates can be found in the AAPOR standard definitions.

[7] Calculated as defined by the American Association for Public Opinion Research (AAPOR), Standard Definitions, Final Dispositions of Case Codes and Outcome Rates for Surveys (2011), accessed July 2, 2013 from http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions2&Template=/CM/ContentDisplay.cfm&ContentID=3156.

[8] The American Association for Public Opinion Research. 2011. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 7th edition. AAPOR.

Table 1: Response Rates

Area	RR1	RR3
Overall NYSERDA Area	7%	11%
Upstate New York	8%	12%
Downstate New York	7%	10%
Manhattan	8%	10%

The consumer survey can be found in Appendix F. Some of the same or very similar questions were asked by telephone of NYSERDA-area consumers in 2009[9] or 2011.[10] These results are included in tables and graphs when appropriate. For methodological details for the 2009 and 2011 surveys, see the original survey reports.

The statistically significant differences reported in the tables below are all at the 90% confidence level.[11]

2.1.1 Weighting

The evaluation team weighted the NYSERDA-area consumer survey by education and home ownership status so the reported results would better reflect the characteristics of all households. This same weighting scheme, shown in Table 2, was utilized in all comparison areas, including the High program activity comparison area, so that these areas would more closely reflect and represent the NYSERDA service area. It is also comparable to those used by the evaluation team in previous consumer surveys in other states. The breakdown of educational attainment included those with a high school diploma or less, those with some college education or an associate's degree, and those with a bachelor's degree or higher.

As noted earlier, the NYSERDA-area survey was used to recruit households for the multi-state Northeast HOU study. This sample design resulted in a fairly even split between single-family and multifamily homes. As shown in Table 3, the evaluation team's weighting scheme makes both the overall sample and

[9] NMR Group., Inc. 2010. "NYSERDA CFL Expansion Fast Track Program: Random Digit Dial and Onsite Survey Results." Project Number 9875. The results shown here are for the NYSERDA area only (NYS excluding Nassau and Suffolk county) for a survey implemented in Winter 2009 (December 12, 2008, through January 20, 2009).

[10] NMR Group, Inc., Cadmus Group, Inc., and Navigant, Inc. 2012. "Residential Lighting Market Characterization Study." Prepared for NYSERDA. July. The consumer telephone survey was fielded from September, 2011, to November, 2011.

[11] In some cases the differences are large but not statistically significant simply because the sample sizes are too small. Such differences can still be of practical importance.

the individual Upstate and Downstate samples more closely resemble the single-family/multifamily breakdown in the NYSERDA service area,[12] though it brings about differences in sample design from previous waves of NYSERDA-area surveys. The weighting scheme does, however, address the sample differences brought about by the new design.

Further, the same weighting scheme has been utilized in numerous consumer lighting surveys and onsite saturation studies conducted by the evaluation team across the Northeast. Most recently, the same weighting scheme was utilized in a neighboring state also involved in the HOU effort and had the same effect of making the sample more closely resemble that state as a whole. In short, the home ownership by education weighting scheme went a long way toward accomplishing its goal of reducing the impact that any bias in the sample created on the findings, both in the NYSERDA service area and elsewhere.

[12] Accessed from http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

Table 2: Population, Sample Sizes, and Weights for Consumer Surveys

	Households	Overall NYSERDA Area		High Program Activity		Moderate Program Activity		Low Program Activity	
		Sample Size	Weight	Sample Size	Weight	Sample Size	Weight	Sample Size	Weight
State Total	*6,275,695*	*720*[*]		*600*[*]		*300*[*]		*300*[*]	
Owner-occupied housing units									
High school graduate or less	1,109,077	80	1.59	66	1.60	55	0.96	75	0.71
Some college or associate's degree	857,416	93	1.06	97	0.85	68	0.60	51	0.80
Bachelor's degree or higher	1,224,724	226	0.62	205	0.57	113	0.52	107	0.54
Renter-occupied housing units									
High school graduate or less	1,420,971	100	1.63	57	2.38	18	3.77	31	2.19
Some college or associate's degree	759,975	80	1.09	54	1.35	18	2.02	13	2.80
Bachelor's degree or higher	903,532	118	0.87	110	0.79	18	2.40	12	3.60

[*]Respondents who refused to answer either the home ownership or the education question, or both, were assigned a weight of one.

Table 3: Effects of Weighting on Phone Survey Sample[13]

(Base: All onsite respondents)

Area	NY Census		Unweighted Sample		Weighted Sample	
	SF	MF	SF	MF	SF	MF
Overall	**45%**	**55%**	**54%**	**46%**	**51%**	**49%**
Upstate	72	28	84	16	77	23
Downstate	21	79	27	73	26	74

The weighting scheme for the consumer survey differed from that of the onsite saturation study (which specifically accounted for SF/MF and income level). However, based on previously discussed research conducted in other regions, we believe that the home ownership by education scheme adequately accounted for differences in the consumer survey sampling procedure over time. Further, the design of the consumer survey, which relied on obtaining large samples of respondents from several comparison areas, did not lend itself to the time-intensive collection of questions about income level. Historically, refusal rates tend to be highest on survey items querying household income. To address this issue, the evaluation team developed a series of questions in the consumer survey to ascertain whether homes would qualify as low-income or not (an important categorization for the HOU analysis). While the questions successfully grouped respondents into these income categories, they were also time-consuming. In the case of respondents in the comparison areas for whom the "opportunity to help improve local lighting programs" was not a viable recompense for participation, lengthening the survey by asking the low-income series of questions could substantially drop acceptance rates. For these reasons, the team used the home ownership by education weighting scheme for the consumer survey and home type by income level for the onsite saturation work, which took place only among NYSERDA-area residents.

ONSITE INVENTORY

2.1.2 Onsite Data Collection

The purpose of the onsite data collection was to understand use, penetration, saturation, and purchases of lighting products in the NYSERDA area. The findings from the onsite data collection are based on an

[13] The difference in definitions of sample areas between 2011 and 2013 applies to both the onsite saturation study and the consumer telephone survey.

analysis of onsite socket inventories collected for 259 households[14] in the NYSERDA area conducted in January and February 2013. The onsite inventories sought to understand residential lighting use and to characterize lighting conditions. Importantly, the lighting inventories represent lighting conditions one year into the implementation of the Energy Independence and Security Act (EISA) of 2007.[15]

2.1.2.1 RDD Sample Recruitment

The evaluation team recruited households for the onsite surveys in two different ways. First, respondents to the RDD consumer telephone survey were offered an incentive to participate in an onsite visit. After the RDD survey had reached preset quotas, the survey was reduced to a shorter recruit-only survey (5 minutes in length) in order to recruit additional households for the onsite surveys.

2.1.2.2 High-rise Oversample Recruitment

The second recruitment approach involved an oversample of high-rise apartments. The high-rise oversample was designed to focus on the key metrics that are believed to most directly affect lighting hours of use in New York City. For this reason, the evaluation team decided to limit the sample to Manhattan to more readily capture the possible effects of building shading since, among New York City households, Manhattan has the greatest number and concentration of high-rise buildings and therefore is most likely to demonstrate "urban canyon" effects. To recruit the high-rise oversample, the evaluation team developed a list of high-rise buildings in Manhattan using the Primary Land Use Tax Lot Output (PLUTO™) database maintained by the City of New York Department of City Planning. The PLUTO data files contained information for 859,324 building locations across five boroughs in NYC.[16] Focusing on Manhattan, the evaluators identified 31,092 residential high-rise buildings with 868,942 units in Manhattan.[17] Based on the data contained within the PLUTO database, the evaluation team developed a sampling plan stratified by age of building (vintage) and height, with a goal of completing visits to low-income households in proportion to their share of total units.

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[14] The team originally planned to visit 261 households—69 in Upstate, 69 in Downstate, and 123 in Manhattan. Due to the extreme difficulty of identifying and recruiting Manhattan households the team fell two visits short in Manhattan.

[15] The first phase of the new efficiency standards, limiting the manufacturing and import of 100-Watt incandescent bulbs, went into effect in January 2012. In January 2013, similar limitations for 75-Watt bulbs were implemented.

[16] Each location may have multiple buildings.

[17] For the purposes of this study, high-rise buildings were defined as four stories or higher.

Samples of addresses from the PLUTO database were sent to Telematch by Abt SRBI, NYSERDA's survey contractor, on three occasions to obtain phone numbers of residents living in the buildings identified. In total, Telematch returned matches for 1,693 out of 2,438 addresses sent. Telephone recruiting using Computer Assisted Telephone Interviewing (CATI) proved extremely difficult, and only 253 households expressed any interest in participating in the study. Of those 253 households, only 95 said they were interested in participating in the study; the other 158 households said they were willing to be contacted with more information. Ultimately, evaluators were able to schedule and complete visits with 121 Manhattan high-rise households as part of the high-rise oversample.[18] However, an additional 11 high-rise households in Manhattan were identified in the PLUTO database as part of the RDD effort of the base study discussed above.

2.1.2.3 Weighting

Table 4 presents the weighting scheme used in the onsite survey analysis. As described above, the sample comes from two distinct sources: the RDD survey and the recruit-only survey. In creating the sample for the onsite study, careful attention was paid to ensure adequate representation from two often overlooked demographic groups: multifamily households and low-income households. To account for differences in the sample and the population, Upstate, Downstate, and Overall data have been weighted by home type and income status (low-income or not low-income). The Manhattan data have been weighted based on vintage and unit height using the PLUTO database as the population.

[18] Original target for Manhattan was 123 households.

Table 4: Population, Sample Sizes, and Weights for Onsite Survey[1]

(Base: All onsite respondents)

	Households	Sample Size	Proportionate Weight
Upstate Total	***2,745,346***	***64***	***n/a***
Upstate Single Family Low-Income	680,841	23	0.690
Upstate Single Family Not Low-Income	1,699,448	34	1.165
Upstate Multifamily	365,084	7	1.216
Downstate Total	***3,247,717***	***195***	***n/a***
Downstate Single Family Low-Income	408,428	7	3.503
Downstate Single Family Not Low-Income	1,004,358	27	2.234
Downstate Multifamily Low-rise	210,673	5	2.530
Downstate Multifamily High-rise Low-Income	484,610	12	2.425
Downstate Multifamily High-rise Not Low-Income	494,282	12	2.473
Manhattan High-rise Low-Income	189,074	29	0.392
Manhattan High-rise Not Low-Income	456,292	103	0.266
Manhattan Total	***868,779***	***132***	***n/a***
Pre-War, 1st to 4th story unit	277,466	44	0.958
Pre-War, 5th story or higher unit	179,483	25	1.091
Post-War, 1st to 4th story unit	71,879	12	0.910
Post-War, 5th story or higher unit	204,788	19	1.638
Modern, 1st to 4th story unit	31,234	7	0.678
Modern, 5th story or higher unit	103,929	25	0.632
Overall Total	***5,993,063***	***259***	***n/a***
Upstate Single Family Low-Income	680,814	23	1.279
Upstate Single Family Not Low-Income	1,699,448	34	2.160
Upstate Multifamily	365,084	7	2.254
Downstate Single Family Low-Income	408,428	7	2.522
Downstate Single Family Not Low-Income	1,004,358	27	1.608
Downstate Multifamily Low-rise	210,673	5	1.821
Downstate Multifamily High-rise Low-Income	484,610	12	1.745
Downstate Multifamily High-rise Not Low-Income	494,282	12	1.780
Manhattan High-rise Low-Income	189,074	29	0.282
Manhattan High-rise Not Low-Income	456,292	103	0.192

[1] The traditional pre-war period spans from 1900 to 1939. Here we also include those buildings constructed before 1900. Post-war includes buildings constructed between 1940 and 1979. Modern includes buildings constructed between 1980 and 2012 (time of recruitment). Construction dates were obtained from PLUTO™ data files.

2.1.2.4 Comparison of Lighting Inventory to Previous Studies

The evaluators present lighting inventory data primarily from the 2013 lighting inventory study. However, when possible, the evaluators provide comparison data from a similar onsite study completed in 2011.[19] While the NYSERDA CFL Expansion Program Evaluation serves as a point of comparison, the areas examined in the 2011 study do not exactly match those examined by this study. As shown in Table 5, the key difference between definitions of Upstate and Downstate New York is the treatment of Westchester County, which represents approximately 5% of Overall NYSERDA-area households. Westchester was included with Downstate in this study to better match with how NYSERDA defines Upstate and Downstate New York. In past lighting studies, evaluators included Westchester with Upstate New York because the demographics and housing stock of Westchester are more similar to Upstate New York than New York City (the only other area included in Downstate New York). This difference in definition makes direct comparisons imperfect. However, the relatively small population of Westchester County means that differences are likely negligible. For Manhattan high-rise units, no suitable comparison exists from either the 2011 study or any other NYSERDA-area study.

[19] NMR. "NYSERDA CFL Expansion Program: Random Digit Dial and Onsite Survey Results." May 2011.

Table 5: Comparison of 2011 and 2013 Onsite Study Sample Areas

Sample Area	2011 Study		2013 Study	
	Description	**% of Households**	**Description**	**% of Households**
Upstate New York	New York State excluding: New York City and Nassau and Suffolk Counties	52%	New York State excluding: New York City and **Westchester**, Nassau and Suffolk Counties	47%
Downstate New York	New York City	48%	New York City and **Westchester** County	53%
Manhattan	n/a	n/a	Manhattan	9%

Section 3

PROGRAM DESCRIPTION

The Residential Lighting Point-of-Sale (POS) Program ("the Program") aims to transform the residential lighting market throughout the NYSERDA service area. The major activities performed to achieve this goal from 2010 through 2013 were working with program partners (light bulb[20] manufacturers and retailers) and educating consumers. These activities are described in detail below. While the focus of this evaluation is from 2010 to 2012, the program description also includes 2013 activities.

PROGRAM STAFFING

Each of five NYSERDA staff members spends a portion of their time (ranging from 15% to 85%) on the Program. The program manager serves as the lead, managing all project managers involved in the program. The program manager is also responsible for developing strategy and the operations plan as well as managing the budget. He or she is the point person for the Program with the Department of Public Service (DPS). The program manager also oversees the activities of Lockheed Martin, the implementation contractor, and provides input regarding strategic matters, such as the overall vision for the program, long-term goals, and broad issues.

Four NYSERDA project managers are responsible for various aspects of day-to-day program management and interactions with Lockheed Martin and Brand Cool, the firm responsible for marketing in support of the program. One of these project managers focuses on marketing and another focuses on contracts and invoices.

As of late 2012, the Lockheed Martin team for the Program included an operations manager who manages the scope of work, budget, and administrative staff; a technical field lead who oversees account representatives; eight account representatives who recruit and manage partners for the NY Products Program and work with the partners to develop promotions associated with the Residential Lighting POS Program as well as the NY Products Program; and five field representatives. The Lockheed Martin staff

[20] To reduce confusion for readers not familiar with the terminology used by the lighting and energy efficiency industries, this report refers to "bulbs" rather than "lamps." In this report, the term "bulbs" also refers to tube and other shapes of lamps using various forms of lighting technology.

members who work on the Program also devote time to Point-of-Sale activities for the New York Products Program.[21]

PROGRAM APPROACH

Lockheed Martin recruits lighting manufacturers and retailers to become active program participants, known as partners. With the help of Lockheed Martin, partners are expected to develop and submit for NYSERDA's approval plans for product promotions, as well as run promotions once they are approved. In order to become a program partner, a manufacturer or retailer must sign a formal partnership agreement with NYSERDA. This agreement is a legal document that covers the NY Products Program as well as the Residential Lighting POS Program. Lockheed Martin manages and recruits partners for both programs. This involves reaching out to obtain partners through industry events and trade shows, word of mouth, Internet outreach, cold calling, and representatives of multiple manufacturers.

According to interviews and the Statewide Residential Point-of-Sale Program Plan,[22] from 2010 to 2013 the program helped to transform the residential lighting market and increase consumer access to energy-efficient lighting products in the NYSERDA area through the activities described below and summarized in Table 6. These include discounts, marketing and related support, and leveraging relationships with manufacturers and retailers.[23]

3.1.1 Discounts

Through the Program, NYSERDA provides incentives, or "discounts," to manufacturers and retailers[24] for the purpose of increasing sales of energy-efficient lighting products and permanent product shelf space. In

[21] While the Residential Lighting POS Program is technically separate from the New York Products Program, which addresses residential white goods and equipment, according to Lockheed Martin staff the distinction is invisible to many partners, who see the Residential Lighting POS Program activities as just another part of the Products Program.

[22] Statewide Residential Point-of-Sale Program description, October 25, 2011. Accessed March 20, 2014 from http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={ED9E673E-F1D4-471C-993F-7CD04482D41D}.

[23] Note that during this time there were also direct install and rebates through ENERGY STAR Homes and the Home Performance with ENERGY STAR program of about 40,000-50,000 bulbs per year. This represents about 1% of program sales (which were over 4.2 million in 2011).

[24] Discounts provided to manufacturers are referred to as "buydowns"; to retailers, as "markdowns."

2010 and 2011, the Program offered discounts for both standard (bare spiral) CFLs and a wide range of specialty CFLs (SCFLs). Partners were expected to split the cost of the discounts with NYSERDA on a 50%-50% basis. However, partners were allowed to run promotions that included only marketing or educational activities without related discounts. LED bulbs were added to the program in 2011. The amount of the discount varies by promotion. The Program requires that 100% of the discount be passed along to consumers in the form of lower prices. In an effort to prevent future sticker shock, NYSERDA sets a threshold on the sales price of bulbs discounted by the program. NYSERDA does not entertain promotions that would cause the bulb sales price to drop below price thresholds of $1.00 for CFLs and $2.00 for SCFLs. (See Table 6 for details.)

At the beginning of 2012, at the direction of the DPS, the Program dropped support for standard CFLs, required that all promotions include discounts, and changed to covering 100% of the cost of Program discounts in response to feedback from Partners. Thus, in 2012 and much of 2013, the Program focused exclusively on specialty CFL and LED bulbs. Late in 2012, the DPS approved the addition of a sales performance component, the Sales Performance Program (SPP), which allowed for the return of standard CFLs to the program. The SPP includes standard CFLs and A-shaped lamps with no special features. At the same time, approximately 75% of the budget for discounts was re-allocated to this new approach, with the balance continuing to support the other Residential Lighting POS Program activities described below. Participation in the SPP is determined through a competitive bidding process. The SPP is designed to pay successful proposers performance payments for achieving incremental gains in sales of standard CFLs targeted to residential end-users, above a pre-determined, negotiated CFL sales baseline. This approach ensures that payments are made only for sales that would not have occurred without the program. Proposers may use any merchandising, marketing, educational, in-store promotional, or product buy-down tactics to achieve the proposed incremental CFL sales and are no longer required to pass discounts on to customers. NYSERDA released its first Program Opportunity Notice soliciting SPP proposals in May 2013 and its second in November 2013. As of November 2013, the May PON had resulted in an award to one manufacturer, and that manufacturer was beginning to ship program bulbs to participating stores. Proposals in response to the November 2013 PON were due in January 2014 and only applied to standard CFLs, not A-shaped lamps. A separate study will evaluate the effects of these activities.

Table 6 below summarizes program requirements and offerings from 2010 through November 2013.

Table 6: Summary of Program 2010-2013

Activity/Details	2010	2011	2012	2013
Buydowns (for partner manufacturers)/Markdowns (for partner retailers)				
Cost sharing	NYSERDA & Partner split cost 50-50		NYSERDA pays all	
Partner Promotional Marketing				
Required	√	√	√	√
Cost sharing	NYSERDA & Partner split cost 50-50		Partner pays all	
Specific requirement for eligibility of promotion	None		Commensurate with cost of buydown/markdown	
Marketing activity must be tied to specific promotion	No		Yes	
Bulbs Eligible for Promotion				
Non-specialty CFLs	√	√		Via SPP beginning mid-year
Specialty CFLs: Reflectors, Dimmable, 3-Way, A-Lamps	√	√	√	√
Specialty CFLs: Candelabra Shape, Candelabra Base, GU-24	√	√		
LEDs		√	√	√
NYSERDA Marketing				
NYSERDA provides co-op promotional materials for retailer use	√	√	√	√
NYSERDA runs consumer OEM	√	√		
NYSERDA conducts research to develop and test new creative co-op POS materials & messaging and OEM			√	√
NYSERDA provides co-op promotional materials for retailer use	√	√	√	√

Table 6 Continued

Activity/Details	2010	2011	2012	2013
Sales Data Reporting Requirement				
Partners required to report sales of program CFL & LED bulbs with markdown/buydown claim	Manufac-turers, Retailers	Manufac-turers, Retailers	Manufac-turers, Retailers	Manufac-turers, Retailers
Partners required to report monthly sales of the following bulb types, regardless of promotion participation during the period: ENERGY STAR units sold Program Qualified units sold Non-ENERGY STAR units sold ENERGY STAR or Program Qualified bulbs sold through Contractor Sales ENERGY STAR or Program Qualified bulbs sold through the Internet	Retailers	Retailers	Retailers	Retailers
Other Program Details				
Bulb price threshold requirement	√	√	√	√
Cost to retailer for bare spiral CFLs	$0.50	$0.50	NA	NA
Cost to retailer for specialty CFLs	$1.00	$1.00	$1.00 ($0.99)	$1.00 ($0.99)
Retail price threshold for bare spiral CFLs	$1.00 ($0.99)	$1.00 ($0.99)	NA	NA
Retail price threshold for specialty CFLs	$2.00 ($1.99)	$2.00 ($1.99)	$2.00 ($1.99)	$2.00 ($1.99)

3.1.2 Consumer Marketing and Partner Promotional, Marketing & Training Support

The program also provides support for in-store promotions and point-of-purchase information for consumer education about lighting, other consumer marketing and education, co-operative advertising promotions with retail stores and lighting manufacturers, and training of retailer sales staff.

Partners are required to include marketing as part of each promotion and to submit these plans to NYSERDA to obtain promotion approval. As with the discounts, at the beginning of the period, partners were expected to split the cost of the promotions with NYSERDA on a 50%-50% basis. When NYSERDA began paying for 100% of the discounts (specialty CFLs only) at the beginning of 2012, it simultaneously began requiring partners to pay for 100% of the cost of marketing and advertising associated with each promotion. As of 2012, partners were expected to undertake a minimum of two pre-approved POS Outreach, Education, and Marketing (OEM) materials or activities for each promotion, and NYSERDA began requiring more substantial marketing strategies with each promotion. The program supports partner promotions by developing messaging for all partners to use and providing actual POS marketing materials

(or "co-operative marketing"). According to Lockheed Martin staff, the POS marketing materials are used primarily by smaller retailers. These materials are available to partner retailers upon request.

NYSERDA also assists retailers with OEM via press communications, consumer marketing, and public relations. The goal of the marketing and public relations activities is to increase consumer demand for high efficiency lighting products so that shelf space for these products will increase. The Program was most active on this front during 2010 and 2011, when it promoted CFL bulbs through a marketing campaign known as Shining Example. The Shining Example campaign used television advertisements and the Internet to encourage consumers to swap out incandescent bulbs for CFLs. In 2010, Shining Example featured a statewide video and essay contest offering New York residents the opportunity to compete for a free home performance assessment, a free CFL "makeover" for their home and the homes of ten neighbors, and a chance to be featured in a NYSERDA television commercial. The contest was publicized through television commercials, a Website, a Twitter account, and press releases. Also in 2010, the Shining Example campaign received a Communication Award of Distinction and a Bronze Telly Award.[25]

From 2010-2013, as NYSERDA allocated more money to discounts, it shifted OEM efforts to the retailers and manufacturers. At the same time, the NYSERDA OEM budget was cut substantially, with the 2012-2015 OEM budget set for $750,000 total prior to the approval of the SPP[26] versus more than $3.5 million total for 2010 and 2011 combined (Table 7). With the reduced OEM budget and the exclusion of standard bulbs from the program in 2012, NYSERDA began to reconsider the program marketing approach, embarking on a research process to identify better messaging and POS materials. This research was ongoing at the time that data were gathered for this study. It involved an examination of the behavioral aspects of lighting use, including the information consumers use to make lighting purchase decisions as well as testing of creative messaging for POS materials. While the research was underway, NYSERDA's marketing contractor, Brand Cool, created interim communications pieces focusing on general awareness, choosing bulbs based on lumens rather than wattage, light quality, EISA regulations, CFL and LED light bulbs, the ENERGY STAR label, and energy-saving tips. The pieces included "Bulbology," a pocket guide to help consumers select the right bulb, which has a dedicated page on NYSERDA's website and has received some press coverage.[27] In addition to having access to these materials from Lockheed Martin,

[25] http://www.nyserda.ny.gov/About/Newsroom/2011-Announcements/2011-04-12-EPA-Recognizes-NYSERDA-with-Sustained-Excellence-Award.aspx.

[26] "NYSERDA's Statewide Residential Point-of-Sale Program, Response to Comments and Discussions with DPS Staff."

[27] For example, it has been featured on Shining Example Facebook page (Dec. 10, 2012), was mention in the NYT on Feb 15, 2013, and is linked to from a number of websites and online blogs.

partners had the option of developing their own OEM material. Staff interviews suggested that most partners opted to develop their own materials. Early in 2013, when the evaluation team examined these activities, direct-to-consumer marketing included press releases on the phase-out of incandescent bulbs and replacement options, including information about specialty CFLs. While the Shining Example campaign was no longer on the air, NYSERDA maintained a Facebook page for the campaign and posted to it two to three times a week.

As of early 2013, NYSERDA planned to debut a new marketing strategy based on Brand Cool's research. As Table 7 demonstrates, in 2013 the marketing budget for the three-year cycle increased by more than 60%, from approximately $750,000 to more than $1,200,000 over the course of 2013-2015. Staff expected the new funds to enable NYSERDA to expand OEM activities beyond market research and development, with a particular focus on hard-to-reach communities, women age 35 and over, and adults age 21 and over.

Table 7: Program Budgets as of Early 2013[28]

Activity/Details	2010	2011	2012	2013	2014	2015	Total for 2012-2015**
General Administration	*	*	$502,549	$502,549	$502,549	$502,549	
Program	*	*	$5,358,432	$7,463,597	$5,358,433	$3,253,269	$21,433,731
Program Planning	*	*	$0	$0	$0	$0	$0
OEM	$1,925,419	$1,649,322	$413,127	$413,128	$413,128	$413,127	$1,652,510
Trade Ally Training	*	*	$514,485	$514,485	$514,485	$514,485	$2,057,940
Incentives	$3,608,286	$3,668,802	$4,210,327	$6,315,491	$4,210,327	$2,105,164	$16,841,309
Direct Program Implementation	$687,650	$589,144	$220,493	$220,493	$220,493	$220,493	$881,972
Program Evaluation	*	*	$314,093	$314,093	$314,093	$314,093	$1,256,372
NYS Cost Recovery Fee	*	*	$106,791	$106,792	$106,792	$106,792	$427,167
TOTAL	**$6,221,355**	**$5,907,268**	**$6,281,865**	**$8,387,031**	**$6,281,867**	**$4,176,703**	**$25,127,466**

* These categories were not broken out in the 2010 and 2011 program budgets.

** As of the time of this research, a 2016 budget had not been set.

[28] Source: NYSERDA. 2013. *Energy Efficiency Portfolio Standard. Supplemental Revision to the System Benefits Charge (SBC) Operating Plan (2012-2015).* Febuary 15.

During 2010-2012, the Program also provided support through lighting-related training of partners, with a particular focus on training retail sales staff on ways to promote and sell energy-efficient lighting. This was expected to continue in 2013 and subsequent years. In practice, training associated with the Residential Lighting POS Program has dwindled over time. Implementation budget cuts have reduced travel, making it impractical for Lockheed Martin staff to spend much time training partners on site. As of early 2013, NYSERDA was revamping its training strategy and planned to offer training online in short modules, possibly using tools such as Skype. As one interviewee noted, "One-on-one training requires a lot of store visits. Store budgets have been cut [so] you can't pull people to the side [for training]. . . . The training has to be cut into small pieces they can squeeze in." The hope expressed by program and implementation staff is that a shift to e-learning will reduce training costs and allow more flexibility for program partner staff to go through training materials during downtime. Brand Cool will aid in the development of this new training by providing content around key messaging and talking points that resonate with consumers.

3.1.3 Leveraging Relationships with Manufacturers and Retailers

According to the Program Plan, another program activity is leveraging relationships with manufacturers and retailers to forge new distribution channels for energy-efficient lighting products. The degree to which this has borne fruit is discussed in Section 4.

PROGRAM DATA TRACKING

3.1.4 Data Required of Both Partner Manufacturers and Retailers

Tracking of program data is critical to measuring savings and progress toward program goals.[29] Both retailer and manufacturer partners with active promotions are required to provide detailed program sales data to Lockheed Martin. These data are organized by lamp type, model number, and zip code for program bulbs sold in the NYSERDA service area and serve to substantiate partners' discount claims. To ensure compliance, NYSERDA retains 15% of the monthly discount reimbursement until Lockheed Martin has received the data.

3.1.5 Data Required of Partner Retailers Only

Retail partners also agree to provide monthly sales data for bulbs sold in the NYSERDA service area without a program discount. Partner retailers are expected to provide this whether or not they are actively

[29] The savings goals for the program during the 2010-2012 period were 346,879 MWh (2010), 346,879 MWh (2011), and 299,054 MWh (2012). Source: NYSERDA. 2013. *Energy Efficiency Portfolio Standard. Supplemental Revision to the System Benefits Charge (SBC) Operating Plan (2012-2015).* February 15.

participating in a promotion. According to the staff members interviewed, retail partners who do not provide monthly sales data are not eligible to initiate a promotion. If a partner regularly does not provide the data, the partner will ultimately be released from the program. Lockheed Martin staff noted that they have difficulty acquiring data from certain partners. Some partners consider their data proprietary and do not want to share them. As of early 2013, 29% of retailer partners (16% of independents and 61% of chains) were delinquent in the provision of monthly sales data.

The monthly sales data requested of partner retailers is limited to the sales of ENERGY STAR and non-ENERGY STAR LED bulbs and ENERGY STAR and non-ENERGY STAR CFL bulbs. NYSERDA has tried to collect data on incandescent bulb sales on a voluntary basis from partner retailers, but found that the reporting was inconsistent among partners and dropped the requirement. NYSERDA briefly requested partner retailers to submit data on halogen replacement bulbs, but stopped collecting these data amid similar concerns.

Lockheed Martin tracks program activities in an energy information-tracking system (EIS). The information tracked includes applications, partnerships, amount of incentive money approved, dates of promotion, and sales. Currently, Lockheed Martin enters this information by hand. Implementation staff members are looking into ways to allow manufacturers to enter their own data electronically.

Section 4

PROCESS EVALUATION

PROGRAM PARTICIPATION

The observations in this section are based on a review of program participation data supplied by Lockheed Martin.

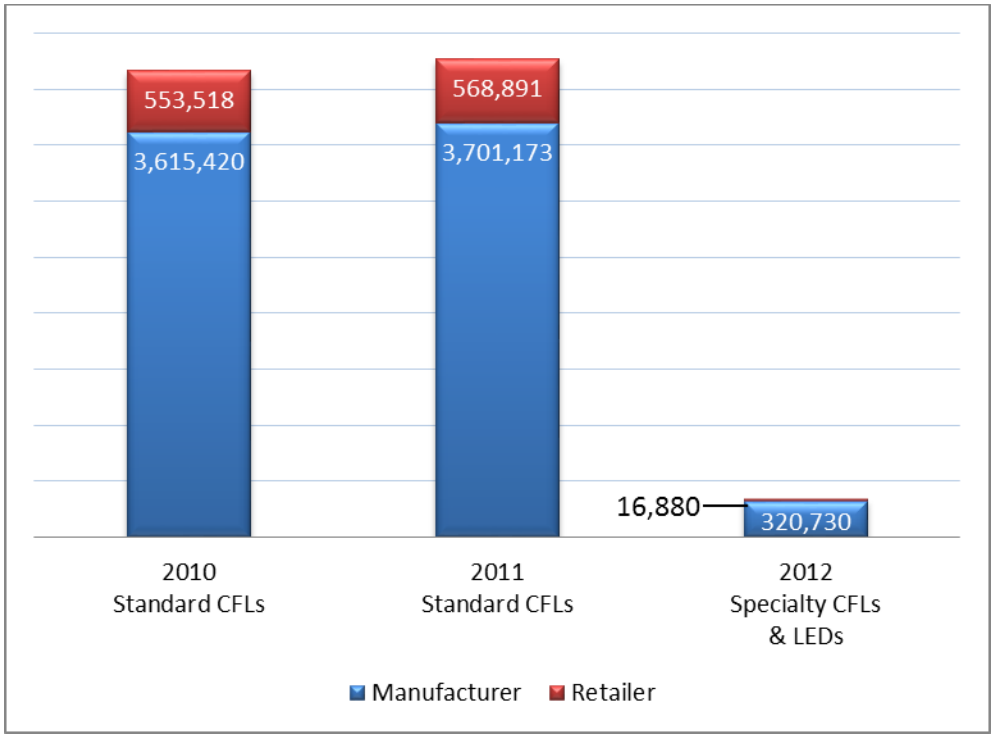
4.1.1 Program-Supported Sales

The lion's share of program-supported bulbs—between 87% and 95%—that were sold during the period from 2010 to 2012 were sold through the auspices of manufacturers who partner with NYSERDA to sell bulbs through retailers.

Program bulb sales dropped from 4.3 million bulbs in 2011, when standard CFLs were still part of the program, to just under 340,000 bulbs in 2012, after their elimination from the program. At the same time, the share of program-supported bulbs sold by retailers fell from 13% to 5% of total sales.

Figure 1 below shows aggregated program-supported bulb sales by year from 2010 through 2012, as collected by Lockheed Martin. As the figure shows, during that three-year period, manufacturer partners sold between 87% and 95% of program-supported bulbs through retailers with whom they worked. (Retailers can participate indirectly in the program through manufacturers without being formal program partners.) After bare spiral CFLs were dropped from the program, program-supported bulb sales dropped to less than one-tenth of their 2011 volume, from 4.3 million bulbs in 2011 to just under 340,000 bulbs in 2012. At the same time, the share of program-supported bulbs sold by retailers fell from 13% to 5% of total sales.

Figure 1: Program-Supported Bulb Sales, 2010-2012



4.1.2 Availability of Sales Data

NYSERDA's current partnership agreements do not allow Lockheed Martin to share detailed sales data with outside parties for purposes of evaluation. This imposes some data collection difficulties and limitations on analysis. To help improve the quality and cost of data collection down for future evaluations, consider changing the partnership agreement to allow Lockheed Martin to share sales data in confidence with the firm(s) conducting evaluation.

Both the impact and process evaluations require analysis of partner sales data. Unlike in other states, such as California or Massachusetts, NYSERDA's partnership agreements promise partners that only Lockheed Martin will see sales data identified by partner. Because of this requirement, the only sales data that the evaluation team was able to obtain directly from Lockheed Martin were data stripped of partner-identifying information. For this reason, the evaluation team could not assess participation numbers in relation to partner sales in the tables that follow. This limitation also affected the evaluation team's ability to conduct Net-to-Gross (NTG) and impact analyses. The evaluation team resolved this by asking partners to supply the program-supported sales data as part of in-depth interviews, but this was a burdensome addition to the process. While Lockheed Martin very helpfully facilitated this transfer of information by sending sales data for the study to each partner with whom the evaluation team secured an interview, most partners who shared the data did so only during the interview, which left little time for other interview questions in support of the process evaluation.

The lack of partner-identified sales data for partners who were not included in the interviews also narrowed the opportunities for analysis available to the evaluation team. Changing the Products Program partnership agreement to allow Lockheed Martin to share sales data with the evaluation contractor for evaluation purposes would improve the quality, and could reduce the cost, of future evaluations for both the Residential Lighting POS Program and the Products Program. For these reasons, NYSERDA may wish to consider changing the partnership agreement to allow Lockheed Martin to share sales data in confidence with the firm(s) conducting evaluation.

4.1.3 Manufacturer Participation

The program has recruited and retained as partners all three of the largest lighting manufacturers and all of the medium-sized manufacturers.

The limited attrition of manufacturer partner ranks has occurred entirely among smaller manufacturers. Despite the difficulties of working with large partners, which were reported to the team during staff interviews, the program appears to have a good track record of recruiting and maintaining partnerships with large manufacturers. The same cannot be said for recruiting and maintaining partnerships with large retailers.

A review of the partner store listings showed that a substantial majority of lighting manufacturers are represented among the partners, including all of the dominant three manufacturers (Table 8). Implementation staff explained that, of these three, one has been an active participant, selling a large volume of program bulbs throughout the study period. The other two large manufacturers have participated considerably less, with a hiatus in partnership in 2011 but a return in 2012. There was a small net decline in the number of manufacturer partners from the beginning to the end of the program period (from 19 to 18), entirely from smaller manufacturers (from 11 to 8) (Table 9).

Table 8: Manufacturer Partners by Size

Manufacturer Partner	2010	2011	2012	2010-2012 Loss/Gain	
Total[*]	*19*	*16*	*18*	*-1*	*-5%*
Largest Three US Lighting Manufacturers	3	1	3	0	0%
All Others	16	15	15	-1	-6%

[*]Excludes one manufacturer partner that went out of business.

Table 9: Manufacturer Partners by Size*

Manufacturer Partner	2010	2011	2012	2010-2012 Loss/Gain	
*Total***	*19*	*16*	*18*	*-1*	*-5%*
Large	3	1	3	0	0%
Medium	4	5	5	1	25%
Small	11	9	8	-3	-27%
Undetermined	1	1	2	1	100%

*As assessed informally by Lockheed Martin staff.

**Excludes one manufacturer partner that went out of business.

4.1.3.1 Manufacturer Program Sales by Channel

Among a subset of manufacturer partners, small hardware stores and warehouse clubs were responsible for close to one-half of 2011 program bulb sales, and large home improvement stores for almost one-sixth (16%).

As part of the in-depth interviews, partner manufacturers were asked about the percentages of bulbs sold through different retail channels in the NYSERDA service area in 2011. Eleven of the 18 partner manufacturers interviewed provided usable responses to this question. These 11 manufacturers' sales represented 56% of the 2011 program sales. The evaluation team calculated the total percentages of these manufacturers' program bulb sales by channel by multiplying their responses to this question by their 2011 program bulb sales. As Table 10 shows, small hardware stores and warehouse clubs were responsible for close to 50% of their program bulb sales, while another 16% were sold through large home improvement stores.

Table 10: Manufacturer Reports of 2011 Program CFL & LED Sales by Retail Channel

Retail Channel	2011 NYSERDA-Discounted Bulb Sales (n=11)*
Small Hardware	25%
Warehouse Clubs	23
Large Home Improvement	16
Other (specialty lighting, etc.)	13
Discount	3
Drug Stores	2
Grocery Stores	2
Mass Merchandise	0
Total	100%

* Represents 56% of total program sales.

4.1.4 Retailer Participation

Except in the case of grocery stores, Lockheed Martin segments retailers by chain size and tracks program sales by chain size rather than retailer channel.

From 2010 to 2012, the number of independent partner storefronts declined by 22%, and the number of chain storefronts dropped by 40%. The chain partner storefront decline came entirely from home improvement stores and grocery/drug stores. Since much of the decline occurred in 2011, the change may not be entirely due to the elimination of standard CFLs from the program. While independent "mom and pop" stores make up a larger proportion of retailer partners when counted as corporate entities, chain partners represented 90% of partner storefronts in 2012 (Table 11) across a variety of sizes (Table 12). From 2010 to 2012, the number of independent partner storefronts declined by 22%, and the number of chain storefronts dropped by 40% (Table 11). A review of chain partners by channel shows that the chain partner storefront decline came entirely from home improvement stores (54% calculated by storefront) and grocery/drug stores (45% calculated by storefront) (Table 13). National home improvement stores are not currently represented among retailer partners. These retailers can participate indirectly in the program without being formally signed up as a partner by agreeing to sell discounted program bulbs supplied to them by a partner manufacturer. One implementation staff interviewee was of the understanding that at least one national warehouse chain[30] sold program bulbs via a manufacturer partner, and this was confirmed later during interviews with partner manufacturers. Since much of the decline occurred in 2011, the change may not be entirely due to the elimination of standard CFLs from the program. Staff expressed the hope that the Sales Performance Program would result in one or more national home improvement stores participating in the program. However, as of November 2013, no national home improvement store had submitted a proposal in response to the PON.

Table 11: Retail Partnerships, Independents versus Chains, by Storefronts

Retail Partner	2010	2011	2012	2010-2012 Loss/Gain	
*Total**	*982*	*667*	*604*	*-378*	*-38%*
Independent Storefronts	78	71	61	-17	-22%
Chain Storefronts	904	596	543	-361	-40%

*Excludes retail partners that went out of business or were otherwise ineligible.

[30] That is, a warehouse club store such as Sam's Club or Costco.

Table 12: Chain Retail Partnerships by Size of Chain

Retail Partner	2010	2011	2012	2010-2012 Loss/Gain	
*Total**	*30*	*26*	*23*	*-7*	*-23%*
<5 Storefronts	12	11	9	-3	-25%
5 to 20 Storefronts	6	5	5	-1	-17%
21 to 40 Storefronts	4	4	4	0	0%
41 to 100 Storefronts	6	5	4	-2	-33%
100+ Storefronts	2	1	1	-1	-50%

*Excludes retail partners that went out of business or were otherwise ineligible.

Table 13: Chain Retail Partnerships by Channel

Retail Partner	2010		2011		2012		2010-2012 Loss/Gain (percent)	
	Part-ners	Store-fronts	Part-ners	Store-fronts	Part-ners	Store-fronts	Part-ners	Store-fronts
*Total**	*30*	*904*	*26*	*596*	*23*	*543*	*-23%*	*-40%*
Home Improvement	10	138	7	69	5	63	-50%	-54%
Grocery/Drug	9	633	8	394	7	347	-22%	-45%
Specialty Appliance/ Lighting	5	17	5	17	5	17	0%	0%
Hardware	4	20	4	20	4	20	0%	0%
Mass Merchandise/ Discount Department	2	96	2	96	2	96	0%	0%
Warehouse	0	0	0	0	0	0	0%	0%

*Excludes retail partners that went out of business or were otherwise ineligible.

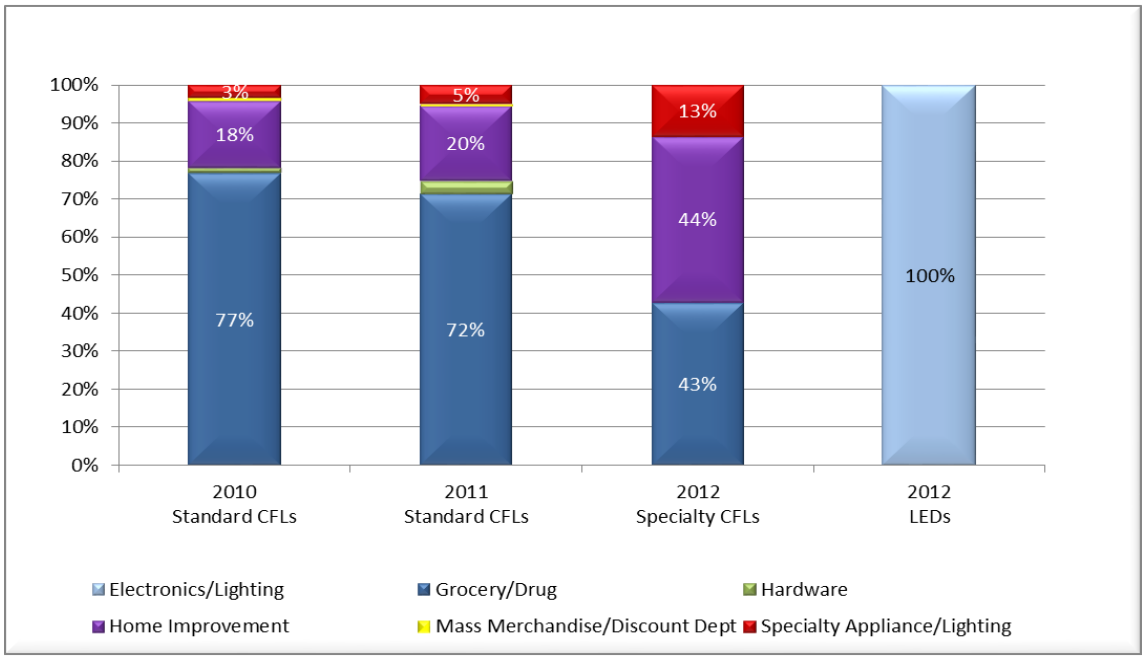
4.1.5 Retailers' Program Sales by Channel

The elimination of standard CFLs from the Program may have affected the mix of retailer partners and the ratio of bulbs sold by channel. At the evaluation team's request, Lockheed Martin categorized de-identified partner retailers' program sales data by retail channel. Figure 2 below shows the percentage of each year's bulb sales through partner retailers by channel. In 2010 and 2011, grocery and drug stores sold at least seven out of ten standard CFL program bulbs—despite the drop in representation among chain grocery and drug stores in 2011—while home improvement stores sold about two out of ten. In 2012, after the program eliminated support for standard CFLs, the percentage of program bulbs sold by home improvement stores more than doubled, to 44%, despite the earlier decline in the number of home improvement store partners. At the same time, grocery/drug store sales nearly halved, to 43%. This outcome is to be expected, given the greater selection of specialty CFLs that home

improvement stores typically carry compared to grocery and drug stores. (As Section 5.1.7 shows, consumers participating in the study much more frequently reported purchasing specialty CFLs from home improvement stores than from grocery or drug stores.) Implementation staff members were of the opinion that dropping support for standard CFL models from the program had altered the mix of retail partners and resulted in the loss of both grocery/drug and home improvement retailers. Staff noted that the grocery and drug stores that continued as partners after standard CFLs were eliminated from the Program were not active in 2012. All of the LED program bulbs sold in that year were sold through electronics/lighting stores.

If Lockheed Martin were to routinely track program retailers' sales by channel, as shown in Figure 2 below, it could help NYSERDA better understand the impact of changes to the program and the market on program sales going forward.

Figure 2: Bulb Sales by Retail Channel, Year and Bulb Type



OBSERVATIONS FROM IN-DEPTH INTERVIEWS

The in-depth interviews with program staff, implementation staff, and manufacturers and retailers yielded a number of important insights about the program. We describe these below, followed by related recommendations for improving the program.

In this section, unless otherwise noted, *staff* refers to both NYSERDA program staff and Lockheed Martin implementation staff interviewed for the study, but not to manufacturer or retailer interviewees.

4.1.6 Effects of Recent Changes to Program

Elimination of support for standard CFLs has reduced program volume, especially—but not only—through partner grocery and drug stores.

It takes time to change the program's course mid-stream, and large, frequent program changes have resulted in programming gaps and loss of partner momentum. Staff interviewees expressed the opinion that the size and frequency of changes to the program in the 2010-2012 cycle has resulted in programming gaps and loss of partner momentum. During the 2010-2012 period, these changes included dropping standard CFLs after 2011, refocusing the program on specialty CFLs and LEDs in 2012, and re-allocating 75% of the program budget for 2013 to the SPP for standard and A-shaped CFLs. In addition, from January to March 2012 and after October 2012, there were no incentives offered through the Residential Lighting POS Program.[31] Two NYSERDA staff members and all three Lockheed Martin staff members noted that program uncertainty and stopping and starting of funding had taken its toll through reduced sales and promotions. When partners are waiting for a program change or a guarantee of future funding, they are unable to plan ahead. This creates a lag in activities even after the program has started up again. Staff noted that NYSERDA has tried to reduce the incidence of program interruption somewhat by creating three-year partner agreements for the 2013-2015 period.[32]

The primary reason for the precipitous drop in program-supported sales from 2011 to 2012 was the elimination of support for standard CFLs. Program staff noted that the most common feedback they had received from partners had to do with the switch away from standard CFLs. Staff interviewees offered some anecdotal evidence to support this. According to one staff interviewee, a partner told them that their 2012 business with the program would have been five times larger if standard CFLs had been included in the Program that year. Another partner wanted clear guidelines on messaging in light of the switch to specialty CFLs and LEDs.

Partner manufacturers and retailers were asked about the impact on sales of eliminating standard CFLs from the program. The majority of these responses concerned a reduction in program sales ranging from 50% to 70% due to the elimination.[33] This topic is discussed in more detail in Section 6.

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[31] This was because EEPS II funding for lighting promotions became available only in April 2012. Promotions were then approved between April and October. New promotion approval ended in October, after the approval of the SPP.

[32] Prior to 2013, partnership contracts had to be renewed annually.

[33] The team investigated the individual responses of manufacturers to search for outliers – responses that could represent "gaming" of the system to over-estimate program influence. One respondent did indicate that without program incentives in 2011, sales would have been 100% lower—a potentially falsified response. However, this was one of the smallest manufacturers we interviewed, and removing their data did not alter the ultimate NTG estimates. Further, when asked how much their sales actually dropped from 2011 to 2012, the same manufacturer indicated that

The change to NYSERDA picking up 100% of discounts in 2012 appears to have benefitted the program. As Table 6 shows, in 2012 the program transitioned from requiring partners to pay for 50% of both discounts and promotional marketing to NYSERDA paying for 100% of discounts and partners paying for 100% of promotional marketing. This change was prompted by feedback from retailers and manufacturers who found the cost share to be a barrier to participation. Some program and implementation staff interviewees believe the change attracted larger players, especially manufacturers, to the program, and that it enabled NYSERDA to maintain existing partnerships. For example, while one of the three largest manufacturers was signed up throughout the 2010-2012 period, this manufacturer was not active on a large scale until the incentive cost-sharing structure changed in 2012. Another did not actually run promotions until 2012 because they claimed the margins did not allow them to split the cost of the discount with NYSERDA. As one staff interviewee put it, "[The retail partner] in no uncertain terms told me, that . . . they will no longer deal with us because they just can't continue to eat up half of the discount. So . . . that is a relationship that was entirely saved by the change in incentive structure."

The shift to online training is largely seen as a positive development. At the same time, having fewer reps in the field has damaged relationships with program partners. As a result of cuts to the implementation budget, training support is moving toward being conducted largely online. Two program staff members see this as an improvement, as retailer sales reps can train during a lull time. At the same time, due to budget constraints, there are fewer Lockheed Martin representatives in the field than in previous years, and the travel budget for these representatives has been limited to one day a week. Visits by NYSERDA staff are also limited by travel restrictions on state employees. Two Lockheed Martin interviewees expressed concern about the detrimental effect on the program of cutting the travel budget, as retailers now must pay for 100% of program promotional activity, and it is difficult to get retailers to spend money on the program in a weak economy. Reducing face time makes it harder to have a personal relationship with the retailer, which in turn reduces the likelihood of the retailer running promotions. It also reduces the opportunity to ensure that promotions are undertaken as proposed. While this issue was not raised directly during the interviews with manufacturers and retailers, one partner stated that other programs have "eyes in the field," which is very helpful and something that the partner thought NYSERDA should consider (e.g., Lockheed Martin could assist with checking in on stores, making sure POS materials are in place). Another partner mentioned the value of regular communication with program staff and noted the success of previous meetings between program staff and partners.

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they sold zero standard CFLs in 2012 once incentives were dropped, corroborating their counterfactual estimate. The majority of counterfactual estimates fell in the range of 50% to 70%.

4.1.7 Barriers to Participation

Program participation is unusually difficult for partners. Eight partner manufacturers and three partner retailers thought the program itself was difficult to participate in and that a number of improvements could be made. The following is a list of common criticisms of the program and some suggestions that were put forth:

- "The approval process is difficult (full of too many challenges and changes) and needs to be streamlined."
- "[It] would be much easier if a budget was set up for the entire year instead of having to bill NYSERDA for funding—it is a lot of back and forth. [The] invoice process is understandable but it takes too long (several weeks) and by that time they can run out of funding and they must shut the program off."
- "NYSERDA has not been as user-friendly as other programs . . . . There is a rigidity to this program that doesn't seem to exist at others."
- The current program is geared entirely toward large manufacturers and retailers—"they have completely cut the little guy out in their quest for volume." NYSERDA should not forget all their smaller retailers who "can't play" in the program because their numbers aren't big enough."

One former partner among the manufacturer interviewees was asked what program changes would need to take place for the manufacturer to reconsider a partnership with NYSERDA. This interviewee noted that NYSERDA would need to make it easier for smaller manufacturers to participate because, currently, smaller manufacturers are being "lock[ed] out of the program." One other non-partner manufacturer suggested that the program is geared toward larger manufacturers' success. Two of the non-partner retailers had the following recommendations:

- Be more flexible with legal documents; NYSERDA is more difficult than other program administrators in this aspect. Renewing the previous year's (i.e., 2011) agreements would assist in this process.
- Have NYSERDA employ field staff who could train store associates on the program in general. Currently, there is a disconnect between the corporate office and retail stores in the NYSERDA area regarding program participation—specifically, its benefits. NYSERDA field staff could help to alleviate this problem.

The price threshold and discount limit on bulbs may be a constraint on the program. Two of the three implementation staff members brought up concerns with NYSERDA's discount limits, which place a price threshold on bulbs. As Table 6 shows, in 2011 the retail price threshold for bare spiral CFLs was $1.00; for specialty CFLs it has been $2.00 since 2010. The price threshold means that NYSERDA limits the discount even if the partner is willing to provide additional money to offer a deeper discount. According to one staff interviewee, the reason for this limit is that NYSERDA does not want consumers to suffer sticker shock in the absence of discounts. Implementation staff noted that partners frequently mention a desire for a higher markdown/buydown on bulbs, and that consumers are particularly price-sensitive in the current economic climate.

When asked about the discount, two of the three non-partner manufacturers and one of the non-partner retailers stated that consumers have come to expect discounted bulb prices as a result of the program. This perspective lends

credence to the argument for a price threshold so that consumers do not suffer sticker shock in the absence of discounts while incandescent bulbs are still widely available. However, another non-partner retailer viewed the consumer price awareness in a different light, suggesting that consumers understand that the current prices are temporary and for promotional purposes, adding that consumers will not "always expect the discount, but will appreciate it." This perspective lends credence to the argument to drop the price threshold. One non-partner manufacturer expressed frustration that NYSERDA "is not reaching a wide enough base because their policy doesn't target hard-to-reach populations."

Partner promotion requirements can be burdensome for smaller partners. According to five staff interviewees, the program requirement for a minimum of two pre-approved pieces of POS Outreach, Education, and Marketing (OEM) can be a burden for smaller retailers, which often do not have the resources for a large marketing campaign. One program staff interviewee expressed the opinion that a small percentage of manufacturers chooses not to participate actively because they do not like NYSERDA rules dictating how much they should promote lighting. Two partner manufacturers strongly believed that the administrative burden placed on them was excessive and impacted their ability to participate. In addition, two partner retailers stated that they had previously relied on suppliers to support the educational materials for which they are now financially responsible.

Staff interviewees offered mixed opinions on NYSERDA's choice not to co-brand promotions. Program and implementation staff interviewees expressed mixed views about the fact that NYSERDA does not co-brand co-op marketing materials or other promotions associated with the program. One implementation staff interviewee sees the lack of co-branding as a burden because larger partners that use their own POS materials use templates that have a space for the program administrator's logo, since other program administrators' lighting programs typically require co-branding. By not co-branding, NYSERDA is effectively forcing these retailers to redesign their OEM materials. As this interviewee put it, "Every single other efficiency program in the country does want to be given credit in POP, to say things like, 'These discounted products brought to you by . . .' Since everybody else wants it, there are a lot of POP templates that these companies have created. They already have it there, and all [that is] needed to do is drop in . . . the NYSERDA logo . . . . The fact that NYSERDA specifically says not to [co-brand], although it seems it would be an easier thing to do, actually makes it harder." This interviewee offered an anecdote about one large partner almost not proceeding with a promotion because they felt that having to ask their graphics department to customize the POP materials to remove references to a partner was too much. On the other hand, another Lockheed Martin staff member enthusiastically supports this strategy, noting that the partners can always use the ENERGY STAR logo or another visual to fill the space where the co-branding logo is typically displayed. The evaluation team notes that the lack of co-branding on OEM materials narrows the range of evaluation approaches available for the program. For example, the team determined that, since the program is not co-branded, a telephone survey of store managers would not be advisable because managers of stores selling program bulbs might not be aware of NYSERDA's role in offering the discounts. This is especially likely in the case of non-partner retailers that obtain program bulbs through partner manufacturers.

According to program staff, NYSERDA typically does not co-brand for residential programs because there is little recognition of the NYSERDA brand among this audience, and it wants to keep the buydowns behind the scenes to facilitate market transformation. Instead, NYSERDA relies on the ENERGY STAR brand for this audience.

None of the manufacturers or retailers interviewed mentioned anything about co-branding.

Program staff interviewees believe that NYSERDA's marketing budget has been insufficient to meet consumer outreach and education needs. The change in the marketing budget for 2013 should help alleviate this problem going forward. As shown in Table 6, in addition to requiring partners to provide promotional materials and activities commensurate with the value of the discounts expected to be offered through a promotion, NYSERDA develops messaging and co-op POS materials for partner use. NYSERDA has conducted its own consumer outreach, education, and marketing campaign around consumer lighting and is in the process of developing a new campaign. Staff expressed concern that not enough marketing money has been allocated to enable NYSERDA to conduct sufficient outreach. (The evaluation team notes that this may be alleviated considerably by the marketing budget increase that went into effect in the 2013 fiscal year.)

Partners lack personnel dedicated to working with efficiency programs. Staff interviewees described a number of different barriers that partners face in participating in the Residential Lighting POS Program. Lack of dedicated energy efficiency personnel among partner staff was the issue raised most often. One staff member noted that partner companies need to hire dedicated energy efficiency personnel in order to work successfully with energy efficiency programs. (The evaluation team notes that this seems reasonable to expect only of larger partners. Based on interviews conducted with manufacturer and retailer partners, it appears that some partners do have dedicated personnel to fill this role.)

Staff turnover is high among larger partners, contributing to a need to constantly nurture new contacts and bring in new partners. Lockheed Martin staff report that large retail chains and manufacturers present a particular challenge because of the high turnover of corporate staff within these companies. If a key contact at one of these organizations leaves, project managers may find themselves starting over to build a relationship with the company. Relationships with large retail chains and manufacturers are particularly important; losing a large chain partner disproportionately impacts the program, as it means that the program loses a great deal of stores all at once. To avoid this, Lockheed Martin staff must constantly work to bring in new contacts at existing partners as well as new partners.

Retailers have very limited shelf space for POS materials. Larger retailers have stringent guidelines about POS materials and restrict their use. According to staff interviewees, very limited shelf space for point-of-sale materials has made it difficult for some retailers to implement the OEM requirement. Big box retailers tend to have restrictions on POS marketing so as to reduce clutter on the shelves. Large retailers in particular often have stringent guidelines about the POS materials they can use in their stores. As one partner manufacturer stated, "It's very tough for us to work with NYSERDA. They require a lot of signage. They need certain things on shelf in-store. In [very large mass market retailer], we can't guarantee that the signage will stay there."

The reimbursement process for discounts poses an administrative, and in some cases a financial, burden to partners. Implementation staff members believe that the amount of time it takes to process markdown/buydown reimbursements poses a financial burden to partners. They noted that larger partners tend to take longer to put together their invoices for NYSERDA due to their own internal processes, thus further lengthening the time from promotion to reimbursement. Partners bill Lockheed Martin after selling discounted bulbs and then wait to be paid; this can take up to 60 days. One interviewee commented that Lockheed Martin's promotion pre-approval process could be streamlined, and that this is something they are already working on. The fact that partners do not always invoice promptly only exacerbates this problem. A few partners also cited administrative challenges with the process for reimbursements, noting that they were not paid in a timely manner and that invoices were not accepted due to the rigid guidelines. One partner retailer that had reduced program participation stated that "the incentive is not worth my time," but indicated that they would consider participating in the NYSERDA program again if the incentives were much better and reporting were easier. Another interviewee—a manufacturer who has worked with NYSERDA off and on for about four or five years—recommended a solution in which partners would submit weekly POS data along with an invoice. According to the partner, this would make it easier for the manufacturer or retailer and would also benefit program staff by allowing them to see more real-time market impacts, leaving them room to "tinker" with incentives and affect customers' buying habits. This interviewee seems to be an outlier, as the recommendation contradicts past NYSERDA experience that partners want less frequent reporting, not more frequent.

4.1.8 Program Kudos

Every partner manufacturer and partner retailer interviewee noted that Lockheed Martin and NYSERDA staffs are very helpful and easy to work with. Interviewees consistently remarked that the staff members are professional, knowledgeable, and enjoyable to work with. Partners made comments such as the following:

- The staff is "the nicest, most thoughtful people you want to work with. I highly commend you on those guys."
- A particular Lockheed Martin staff member was commended for being "incredibly professional and knowledgeable."
- "They are really great to work with, no complaints."

An implementation staff person opined that the quality of Lockheed Martin's good relationships with manufacturers is important to the program's success. One reason for these good relationships is that Lockheed Martin is flexible about how they accept data while ensuring that partners adhere to partnership guidelines. The good relationships keep promotions in the pipeline even during program interruptions and changes.

A program staff interviewee thinks that the program's impact is particularly impressive given its low overhead. Another program staff interviewee commented that the program's use of the ENERGY STAR label is "excellent," both in the program's activities and its branding. This comment was based on focus group findings that highlighted the importance of the label to consumers.

Yet another program staff interviewee saw the introduction of SPP as adding a resource acquisition element to this market transformation-oriented program. In this interviewee's opinion, the combination is the best way to meet the program's aggressive goals.

4.1.9 Other

The ENERGY STAR qualifying products list can make it difficult to determine which bulbs qualify for the program. The program and program partners rely on ENERGY STAR Qualifying Products lists to determine which bulbs qualify for the program. These lists are not always accurate or complete, which can cause confusion. The problem occurs often enough that Lockheed Martin staff keep this in mind every time they help a partner develop a promotion. It is particularly an issue for large manufacturers who have hundreds of SKUs and model numbers that could qualify. NYSERDA may wish to work with and leverage other organizations, such as NEEP and CEE, with which they already work, to ask EPA ENERGY STAR to address this.

Partners view the NYSERDA program as positively impacting sales. Partners were asked to speculate about the likely effects on the sales of specialty CFL and LED products in the NYSERDA service area if NYSERDA were to eliminate its discount program starting in 2013. All partner manufacturers and partner retailers that were still active in the program stated that it would lead to decreased sales. In responding to this question, one retailer stressed the importance of NYSERDA continuing to support the program because such an action could have unintended negative effects, such as consumers questioning "whether these bulbs were a good thing in the first place and [making] them more inclined to choose incandescent bulbs."

NYSERDA and other lighting efficiency programs are important to LED technology development. Partners were asked, "If NYSERDA and other program administrators in other states, such as California and Massachusetts, eliminated their lighting discount programs starting in 2013, what effects would this have on your organization's development or pricing of new LED lighting products?" Seven partner manufacturers and all partner retailers stated that if all program support for LEDs across the country were eliminated, LED prices would be noticeably higher and the product quality would be lower.

The program could provide benefits by working with manufacturers to improve packaging. Staff noted that not all lighting packaging makes it clear which high-efficiency bulbs substitute for which wattage incandescent bulbs or what the color of the light is. Research currently being conducted by NYSERDA points to the importance of these two pieces of information. Staff also noted that there is a high proportion of the population that communicates visually, via images rather than text. (In the opinion of the evaluation team, the Lighting Facts label, which conveys this information on all bulb packaging, is text-heavy.) Additionally, the ENERGY STAR label could be made larger and placed more prominently on packaging, and retailers could place the packaging on the shelf in a way that ensures the label is visible. Staff suggested that the Program could work with manufacturers to improve packaging.

Communications between NYSERDA and Lockheed Martin staff are good. In general, staff interviewees reported good communications between NYSERDA and Lockheed Martin staff. Four staff members we spoke to praised communication levels, with two mentioning that communication is "daily." However, one staff member thought

increased communication between NYSERDA and partners could result in a greater sense of personal connection with NYSERDA staff, which could be helpful in retaining key partners.

Section 5

MARKET ASSESSMENT AND MARKET EFFECTS EVALUATION

The market assessment and market effects evaluation relied on the onsite lighting inventory, consumer surveys, and in-depth interviews with manufacturers and retailers. Where time series data are available for a particular question, we show the time series and discuss any notable results. The findings are organized by topic. Key observations are offered in boldface italics at the beginning of the section or paragraph in which they are discussed.

As part of the 2010 Impact Evaluation of the NYSERDA CFL Expansion Fast Track Program, NMR directly compared data on lighting usage, storage and purchases and found notable differences between the random-digit dial (RDD) and onsite surveys in reported compact fluorescent lamp (CFL) usage, storage, and purchases. As a result of these differences, NMR determined that the onsite observed data would provide more credible and reliable estimates of CFL counts. A detailed discussion of these differences between the two samples that led to this determination is included in the 2010 evaluation report.[34] Throughout this report (current study) we compare findings between the RDD and onsite surveys. As in the 2010 evaluation, NMR found notable differences between data collected and concludes that the onsite observed data provide more credible and reliable estimates and the team prioritizes onsite over RDD data in the reporting that follows.

LIGHTING INVENTORY ANALYSIS AND RELATED CONSUMER SURVEY SELF-REPORTS

5.1.1 Penetration of CFLs and LEDs

The percentage of households using at least one CFL (i.e., penetration) is significantly higher Upstate (95%) compared to Downstate (84%), Manhattan (80%), and Overall (89%).

Penetration of CFLs (i.e., prevalence of at least one installed CFL) in Upstate households has grown significantly since 2011, from 89% to 95%. Observed CFL penetration rates are substantially higher than self-reported penetration rates.

Penetration of LEDs (i.e., prevalence for at least one installed LED) has grown in Downstate and Manhattan households since 2010, from 4% in New York City in 2011 to 20% in Downstate in 2013. Observed LED penetration rates are only marginally higher than self-reported penetration rates.

[34] NMR, NYSERDA CFL Expansion Fast Track Program: Random Digit Dial and Onsite Survey Results. Delivered to NYSERDA in March 2010.

As Figure 3 shows, the percentage of households using at least one CFL (i.e., penetration) is significantly higher in Upstate (95%) compared to Downstate (84%), Manhattan (80%), and Overall (89%). Compared to the 2011 study, CFL penetration among Upstate households in 2013 is significantly higher (95% vs. 89%), while the penetration rates of CFLs in Downstate and Manhattan are relatively similar to that found for New York City in 2011. As expected, these actual penetration rates are substantially higher than the self-reported rates in the consumer survey, which were 64% Upstate, 43% Downstate, and 53% Overall.[35]

The penetration of LEDs observed onsite is significantly higher in Downstate (20%) and Manhattan (20%) compared to Overall (16%).[36] Compared to data collected in 2011, LED penetration among Upstate households in 2013 (13%) is relatively similar to the 2011 rate among Upstate households (12%), while penetration of LEDs in Downstate (17%) and Manhattan (20%) is significantly higher than that found in New York City in 2011 (4%).[37] The actual penetration rates are only somewhat higher than the self-reported rates in the consumer survey, which were 11% each for Overall and Upstate, and 10% Downstate. That the self-reported and actual numbers should be closer for LEDs than CFLs is to be expected given the novelty of LEDs and the substantially higher cost of LEDs compared to CFLs. Despite this growth, self-reported LED penetration was significantly higher in the High comparison area (16%) than in any of the NYSERDA areas. Given the closeness of self-reported and actual LED penetration in the NYSERDA area, it is likely that the actual LED penetration is indeed significantly higher in the High comparison area.

[35] See Table 105 for detailed results.

[36] The onsite visits captured data on all LEDs including medium screw base, candelabra screw base, and other (GU, Pin, Other) base types. Overall, 28% of LEDs were medium screw base, 10% were candelabra base and 62% were "other" base type.

[37] While the penetration of LEDs was not reported in the 2011 study, data were collected to support such an analysis. Evaluators analyzed the data collected for the 2011 study to provide a comparison for this report.

Figure 3: Penetration of CFLs and LEDs

(Base: All onsite respondents)

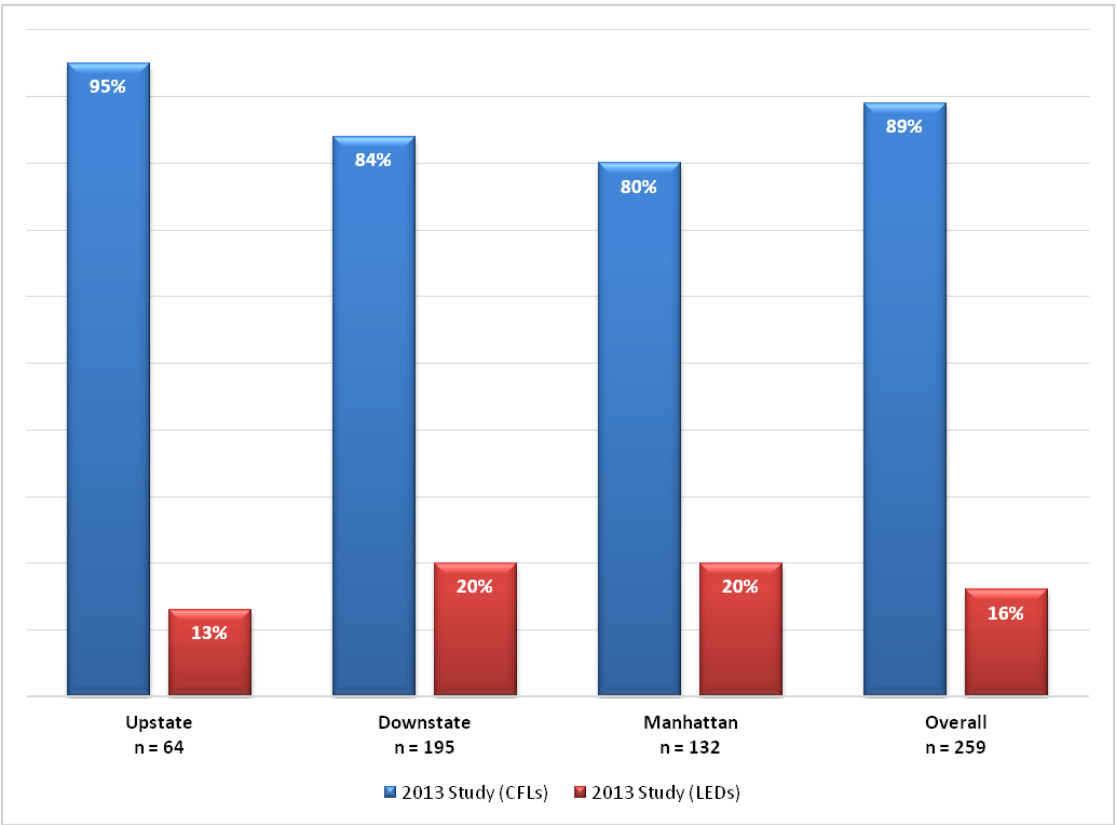


Table 14: Self-Reported LED Penetration

(Base: Telephone survey respondents aware of LED bulbs)

	NYSERDA Area				Comparison Areas		
	2009	2013			2013		
Currently Have LEDs Installed	Overall	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*1001*	*720*	*340*	*380*	*600*	*300*	*300*
Yes	5%a	11%	11%	10%	16%abc	9%d	10%d
No	5	3	3	4	49	7	5
Don't know/refused	<1	1	1	1	3	<1	<1
Not aware of/familiar with LEDs	90%	86	86	86	33 abc	83d	85d

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.2 Socket Saturation

CFL socket saturation (i.e., percentage of all sockets with an installed bulb) remained unchanged between 2011 and 2013. CFL socket saturation rates among Upstate and Downstate households in 2013 are statistically similar to 2011 saturation estimates for Upstate (24% in 2011 and 25% in 2013) and New York City (31% in New York City in 2011 vs. 29% Downstate in 2013) households, respectively.

CFL saturation is lower in Manhattan (19%) than Upstate (25%) and significantly lower than Downstate (29%).

LED saturation is very low across the NYSERDA service area (1% Overall, 1% Upstate, 1% Downstate, and 2% Manhattan).

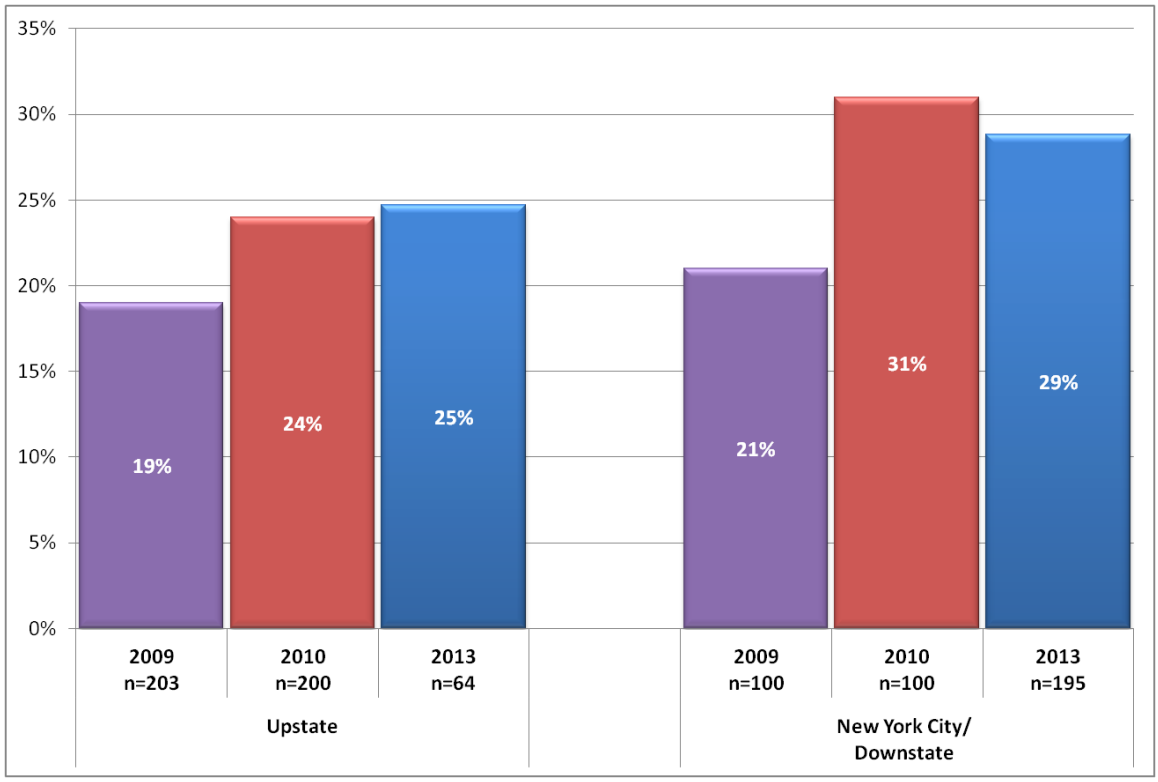
When counted together, halogen and incandescent saturation is significantly higher in Manhattan (69%) than in either Upstate (56%) or Downstate (58%).

Specialty bulbs[38] account for just over one-half (56%) of the remaining potential across the NYSERDA area. The inventory of specialty sockets is higher in Manhattan households (52%) than Upstate (35%) or Downstate (46%), which may account for lower CFL saturation in Manhattan.

[38] Specialty bulbs include: dimmable and three-way bulbs of any kind; circline fluorescents; flood/spot and tube halogens; all non-spiral CFLs, excluding A-line bulbs.

Figure 4: CFL Saturation 2009, 2011 and 2013 – Upstate and Downstate*

(Base: All onsite respondents)



*The 2011 study defined *downstate New York* as New York City, while the 2013 study defined *downstate New York* as New York City and Westchester County.

Saturation of CFLs is just over one-quarter of sockets in onsite homes for the Overall NYSERDA area (26%). CFL saturation in Upstate and Downstate are similar (25% and 29%, respectively); however, saturation of CFLs in Manhattan (19%) is significantly lower than CFL saturation Downstate (Table 15). The confidence intervals around CFL saturations for 2013 are:

- Overall – 25% to 26%
- Upstate – 24% to 26%
- Downstate – 28% to 30%
- Manhattan high rise – 17% to 21%

In 2011, CFL saturation levels were at 24% for Upstate New York and 31% in New York City. Based on the confidence intervals around CFL saturation, these saturation levels are statistically similar to the 2013 Upstate and Downstate estimates. One possible explanation for the plateau in CFL socket saturations is that, due to the increased number of CFLs present in homes (as a result of earlier program activities), CFLs are now failing in sufficient numbers that new CFL sales are replacing other CFLs. In Massachusetts, annual lighting inventories provide a rich

time-series data set that has allowed for this hypothesis to be tested.[39] While available data in NYSERDA's service area are not as comprehensive, based on what data are available, NMR theorizes that a similar phenomenon may be taking place. Additional details on the analysis performed in Massachusetts are presented in Section 5.1.6.

As Table 15 shows, LED saturation is still relatively low in all four areas—ranging from 1% in Upstate to 2% in Manhattan. This is in comparison to 2011 LED saturation levels of 1% for Upstate New York and less than 1% for New York City.

Notably, halogen saturation is significantly higher in Manhattan (18%) when compared to the other three areas (5% for Overall and Upstate; 6% for Downstate). In the 2011 study, halogen saturation was found to be 6% in Upstate New York and 5% in New York City. It is important to note that reporting halogen saturation is inherently problematic. Numerous A-line-style halogens have been added to the market, and they not only look like incandescent bulbs but are technically a specialized type of incandescent bulb. As such, it is unlikely that halogen bulbs have been identified with 100% accuracy during the lighting inventories.[40] For this reason, it may be helpful to look at incandescent and halogen bulbs combined.

When incandescent and halogen bulbs are combined, the saturation of incandescent and halogen bulbs in Manhattan (69%) is significantly higher when compared to the other three areas (Upstate 56%, Downstate 58%, and Overall 57%). This is to be expected given the lower saturation of CFLs in Manhattan.

[39] NMR, Massachusetts Onsite Lighting Saturation Report. Delivered to the Massachusetts Program Administrators on June 7, 2013.

[40] Training efforts and quality control procedures limit misidentification but minor errors can have a disproportionately large impact on estimates for less common bulb types due to small sample sizes.

Table 15: Socket Saturations

(Base: All onsite respondents)

Sockets Containing	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Weighted Sockets	**12,846**	**3,957**	**7,620**	**4,141**
Mean Sockets per Home	50	62	39	31
Incandescent bulbs	52%	51%	52%	51%
CFLs	26	25	29	19c
Fluorescent	10	12	8	6
Halogen	5	5	6	18abc
LEDs	1	1	1	2
Empty[1]	4	5	3	3
Unidentified[2]	1	2	1	1
Any specialty bulb[3]	40%	35%	46%	52%ab
Any specialty CFL[3]	6%	5%	9%	4%c
Any specialty CFL (excluding A-shaped)[3]	6%	4%	8%	4%

[1] Empty sockets did not contain a bulb. For empty sockets, onsite technicians asked respondents if they planned to install a bulb. If they did, the technician recorded information on the planned replacement. Burned out bulbs were treated as active lights (not recorded as empty) if the respondent said they were going to replace the bulb. Therefore, empty sockets represent only those sockets that are expected to remain empty.

[2] Unidentified bulbs are bulbs which field technicians were unable to classify during onsite visits due to: an inability to reach the sockets (too high), unsafe conditions (broken or malfunctioning fixtures), or lack of access to a fixture (customer refused access to a room or fixture).

[3] Specialty bulbs include: dimmable and three-way bulbs of any kind; circline fluorescents; flood/spot and tube halogens; all non-spiral CFLs; and bug, candelabra, flood/spot, globe, and bullet/torpedo incandescent bulbs. Specialty bulbs and specialty CFLs also fall within shape categories and are not additive.

a Statistically different at the 90% confidence level from Overall NY.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from Manhattan.

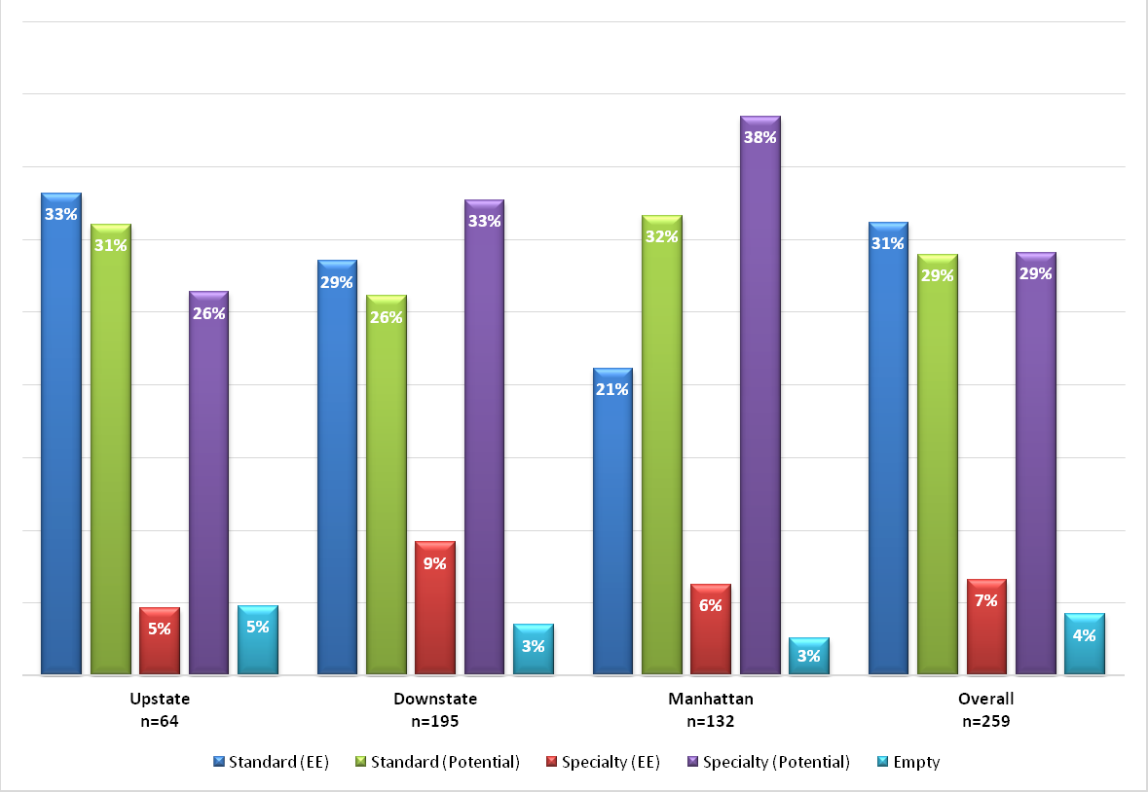
The evaluators also examined the combined saturation of efficient technologies (CFLs, LEDs, and fluorescent bulbs). Efficient bulb saturation is the same in Upstate (38%), Downstate (38%), and Overall (37%). Efficient bulb saturation in Manhattan (27%) is significantly lower compared to Downstate and Overall (Table 73). In 2011, the combined saturation of efficient bulb technologies was 37% among Upstate New York households and 41% among Downstate households, both of which are statistically similar to 2013 saturation levels.

5.1.3 Socket Saturation Remaining Potential for CFLs and LEDs

With fewer CFLs installed, Manhattan has greater potential than the rest of the NYSERDA area to install additional CFLs.

The saturation potential for CFLs and LEDs is similar among Upstate (57%), Downstate (59%), and Overall households (58%) and significantly higher among Manhattan households (70%). When examining saturation potential for CFLs and LEDs, it is important to note that specialty sockets play a critical role. Figure 5 shows the saturation of energy-efficient lights and the remaining potential for CFLs or LEDs by standard and specialty sockets; this is the same saturation data as displayed in Table 15, but grouped by standard and specialty energy-efficient bulb types. Specialty sockets account for nearly one-half of all remaining saturation potential among Upstate households (46%), just under three-fifths of all remaining saturation potential in both Downstate (56%) and Manhattan households (55%), and exactly one-half of remaining saturation potential Overall (50%).

Figure 5: Current Saturation and Remaining Potential for Energy-Efficient Bulbs[1]
(Base: All onsite respondents)



[1] Energy-efficient bulbs include CFLs, LEDs, and fluorescent tubes; saturation potential is defined as all sockets that currently contain halogen and incandescent bulbs. Potential for specialty CFLs and LEDs is the percentage of all halogen and incandescent bulbs that are specialty; this includes non-screw base fixtures that would require

replacement to accommodate screw-type CFLs or LEDs. Note that potential in this chart also includes a small number of unidentified bulbs.

5.1.4 Storage

In total, onsite households in Upstate, Downstate, and Overall had enough light bulbs in storage to replace the bulbs in more than one-third of all sockets. Only one respondent appeared to be hoarding incandescent bulbs.

During onsite visits, field technicians asked respondents to show them all of the light bulbs they had in storage. As Table 16 shows, onsite households had a substantial number of light bulbs in storage. In total, onsite households in Upstate, Downstate, and Overall had enough light bulbs in storage to replace about one-third of all bulbs currently installed in sockets in each area. Manhattan households had enough bulbs in storage to replace over one-half of all bulbs currently installed in sockets. Bulb storage was more common than not. The majority of homes in each area had at least one bulb in storage and nearly one-half of the homes in each had six or more bulbs in storage.

The Team flagged households as hoarders based on two conditions. First, if the household was storing enough bulbs to fill more than 100% of its sockets. Second, if the households had a minimum number of light bulbs in storage equal to 75% of the average socket count for the area (Upstate = 44 sockets; Downstate = 32 sockets; Manhattan = 23 sockets). Based on this definition, we identified sixteen hoarders. Four of these homeowners did not plan to use these bulbs or planned to throw them out or recycle them; two homeowners did not know what they planned to do with their stored bulbs; two homeowners were only storing CFL bulbs; and the remaining eight were mostly storing incandescent bulbs for future use. When considering stored incandescent bulbs only, one home in the Upstate sample could be considered to be hoarding incandescent bulbs in response to EISA. This respondent had a very large number of these bulbs in storage (over 300). With this outlier removed, the total weighted number of bulbs in storage in Upstate is 913, or enough bulbs to replace nearly one-quarter (23%) of all sockets in Upstate. Similarly, when this outlier is removed from the Overall NYSERDA area, the total weighted number of bulbs in storage is 3,243, or enough bulbs to replace one-quarter (25%) of all sockets in the Overall NYSERDA area. When asked why she was storing the bulbs, this outlier reported that all of the bulbs were being stored for future use. Of the 374 stored incandescent bulbs, 10% were 100-Watt bulbs and over one-quarter (28%) were 75-Watt bulbs; these had been purchased as backups to replace 100-Watt and 75-Watt bulbs that were already installed.

Table 16: Stored Bulbs

(Base: All onsite respondents)

Storage	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Total Sockets (including empty)	**12,845**	**3,956**	**7,621**	**4,141**
Total Bulbs in Storage	**3,992**	**1,336**	**2,096**	**2,337**
% of Total Sockets	31%	34%	27%	56%
Mean Sockets (including empty)	49.6	61.8	39.1	31.4
Mean Bulbs in Storage	15.4	20.9	10.7	17.7
Bulbs Stored	**Proportion of Homes**			
Zero	23%	20%	25%	10%abc
One to five	25	20	30	33
Six to fifteen	26	26	26	27
Sixteen or more	26	34	20b	30c

a Statistically different at the 90% confidence level from Overall NY.

b Statistically different at the 90% confidence level from Upstate NY.

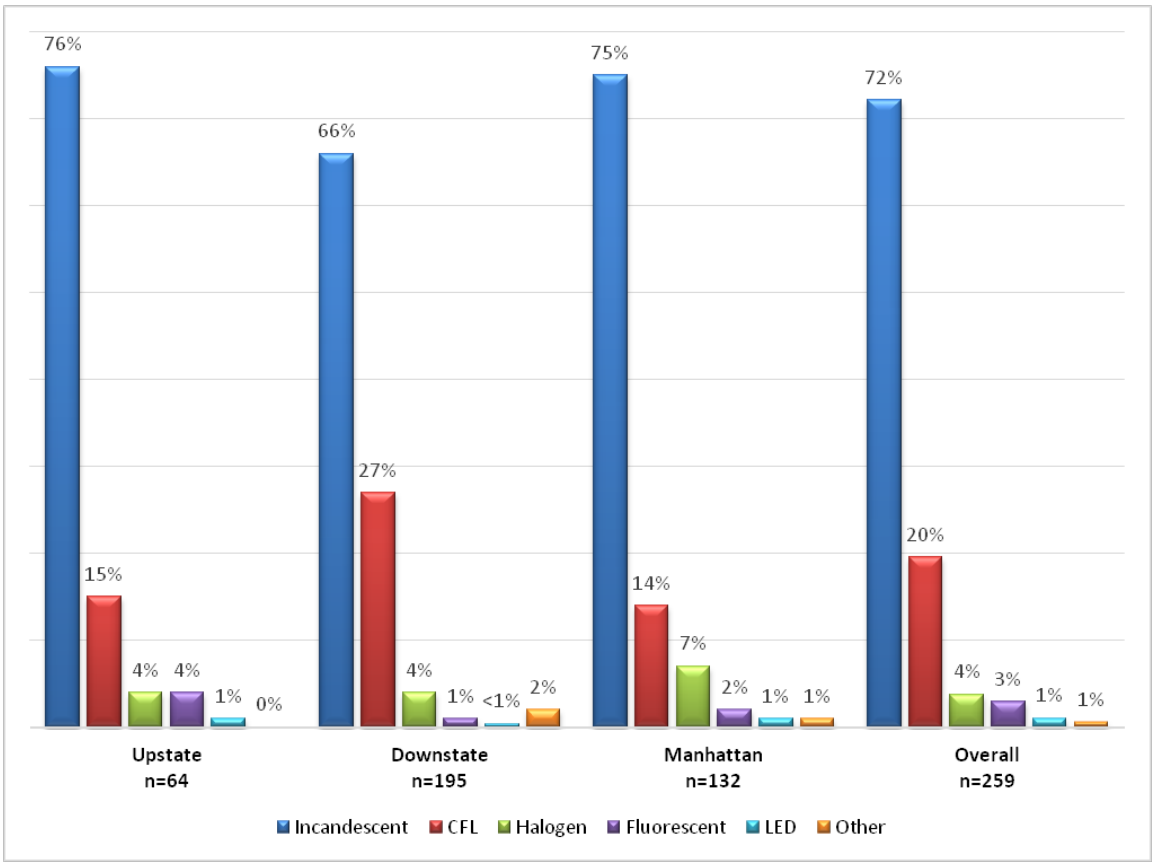
c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from Manhattan.

As Figure 6 illustrates, incandescent bulbs are the most common bulb found in storage, followed by CFLs, halogens, and fluorescents. Incandescent bulbs comprise more than two-thirds of all bulbs in storage in each area. Among Upstate and Manhattan households, there are five times as many incandescent bulbs in storage as CFLs; among Downstate households there are nearly twice as many incandescent bulbs in storage as CFLs, and Overall there are over three times as many incandescent bulbs in storage as CFLs. Not surprisingly, given the high cost and novelty of screw-base LED bulbs, a relatively small number of these bulbs was found in storage.

Figure 6: Storage by Bulb Type

(Base: All onsite respondents)



5.1.5 Disposition of Stored Bulbs and Self-Reported Bulb Replacement

When asked about the potential disposition of bulbs found in storage, most Upstate (49%), Downstate (35%), Manhattan (27%), and Overall (43%) onsite households indicated that they had no specific plans for stored bulbs, regardless of type, but would instead use them as needed to replace whatever bulbs burn out.

In the Overall NYSERDA area, during the onsite visits, households were most likely to report having used a CFL in the previous year to replace an incandescent (84%) versus another CFL (8%). The proportion of households that reported having replaced a CFL with another CFL was substantially higher in Manhattan (20%). By comparison, telephone survey respondents in the Overall NYSERDA area reported having purchased one or more CFLs in the previous three months to replace other CFLs at a considerably higher rate (40%) than onsite respondents in the previous year. Based on previous work directly comparing onsite and telephone survey data, the team is inclined to give more weight to the onsite data. However, both approaches rely on self-reported data.

Households in all four NYSERDA areas have a higher proportion of incandescent bulbs in storage compared to installed bulbs. Combined with the fact that households do not know what type of bulb nearly one-third of the

stored incandescent bulbs will replace may suggest that these incandescent bulbs were not purchased with an intent to replace existing incandescent bulbs in anticipation of EISA, but simply to have bulbs on hand as a matter of convenience. However, saturation could temporarily slip backwards because of the stored bulbs, since these households are likely to install their stored incandescent bulbs as currently installed bulbs fail rather than buy a new, energy-efficient bulb for replacement purposes.

For each bulb found in storage during the onsite visits, field technicians asked respondents what type of bulb the stored bulb would replace. Respondents indicated if the bulb would most likely replace an incandescent bulb, a CFL, whichever kind of bulb needs replacing first *(replacement based on need)*, or another type of bulb. Respondents were also given the option of saying they did not know what type of bulb it would replace. As Table 17 and Table 18 show, responses were mixed across areas and by bulb type. It is important to note that the analysis presented here relies entirely on self-reported intentions, which requires onsite participants to forecast their actions. The Team has more confidence in the estimates presented in Table 18 which, while still relying on self-reported data, eliminates the element of forecasting and simply asked customers to recall what the bulb actually replaced. Among Overall households, the following patterns obtained:

- **All bulbs.** Across all bulbs in storage, just under one-half (43%) were expected to replace whichever bulbs need replacing first—which could include replacing CFLs. In other words, these stored bulbs would be installed based on need (first come, first served) and are not earmarked to replace specific bulbs or bulb types. Just over one-third (34%) of stored bulbs were earmarked specifically to replace incandescent bulbs and only 5% were earmarked to replace CFLs.
- **CFL bulbs.** The vast majority (68%) of CFLs found in storage were expected to replace whichever bulbs need replacing first—which could include replacing another CFL. Just under one-fifth of stored CFLs were earmarked specifically to replace other CFLs (19%) and only 9% of CFLs were expected to specifically replace incandescent bulbs.
- **Incandescent bulbs.** Over two-fifths of incandescent bulbs (44%) in storage were expected to replace another incandescent bulb, while another two-fifths (41%) were expected to replace whichever bulbs need replacing first—which could include replacing CFLs. However, very few incandescent bulbs in storage (1%) were earmarked specifically to replace CFLs. For just over one-tenth (14%) of incandescent bulbs found in storage, respondents said they did not know what type of bulb the incandescent would be used to replace.
- **Other bulbs.** The vast majority (72%) of other bulbs in storage are expected to replace the same type of bulb. Only 13% of other bulbs in storage were earmarked to replace incandescent bulbs, 7% were expected to replace whichever bulbs need replacing first—which could include replacing CFLs—and none were earmarked specifically to replace CFLs.

Table 17: Type of Bulb Stored Bulb Will Replace

(Base: All onsite respondents)

Type of Bulb to be Replaced	All Bulbs	CFLs	Incandescents	Other
Overall				
Number of bulbs	*3,990*	*779*	*2,881*	*328*
Both/whichever needs replacing first (CFL or Incandescent)	43%	68%	41%	7%
Incandescent Bulb	34	9	44	13
CFL Bulb	5	19	1	0
Replace same type of bulb as stored bulb	6	0	0	72
Will use in new/repaired fixture	<1	0	2	0
Do not plan to use/plan to return	<1	<1	<1%	<1%
Don't know	11	3	14	7
Upstate				
Number of bulbs	*1,337*	*199*	*1019*	*119*
Both/whichever needs replacing first (CFL or Incandescent)	49%	79%	48%	7%
Incandescent Bulb	34	6	42	16
CFL Bulb	3	14	2	0
Replace same type of bulb as stored bulb	6	0	0	71
Will use in new/repaired fixture	<1	0	0	2
Do not plan to use/plan to return	0	0	0	0
Don't know	7	1	8	5
Downstate				
Number of bulbs	*2,096*	*569*	*1,375*	*152*
Both/whichever needs replacing first	35%	58%	28%	7%
Incandescent Bulb	34	12	47	5
CFL Bulb	7	24	1	0
Replace same type of bulb as stored bulb	5	0	0	74
Will use in new/repaired fixture	1	1	<1	1
Do not plan to use/plan to return	<1	<1	<1	1
Don't know	13	4	19	5
Manhattan				
Number of bulbs	*2,337*	*332*	*1,757*	*248*
Both/whichever needs replacing first	27%	45%	25%	17%

Type of Bulb to be Replaced	All Bulbs	CFLs	Incandescents	Other
Incandescent Bulb	26	7	33	2
CFL Bulb	6	38	<1	0
Replace same type of bulb as stored bulb	6	0	0	58
Will use in new/repaired fixture	<1	<1	<1	0
Do not plan to use/plan to return	1	1	<1	1
Don't know	35	9	42	22

[1] Other bulb type includes all stored halogen, fluorescent, LED bulbs.

For each *installed* CFL or LED bulb that had been purchased in the *previous year*, onsite respondents were asked what kind of bulb it had replaced. Overall, onsite respondents reported that the majority of CFL bulbs (84%) had replaced incandescent bulbs. An additional 8% had replaced other CFLs. The results did not vary widely across the study areas, with the exception of Manhattan, where a higher proportion of CFL bulbs (20%) had replaced other CFLs. Onsite respondents reported that over one-half (56%) of installed LED bulbs they had purchased in the previous year had replaced incandescent bulbs, and 29% had replaced halogen bulbs.[41] Downstate, LEDs were more likely to replace halogen bulbs than incandescent bulbs. In Manhattan, nearly one-fifth (17%) of installed LEDs had not replaced any bulbs, but had rather been installed in new lamps or fixtures (Table 18). The low rate at which onsite respondents reported replacing CFLs with LEDs is not surprising given that these are early adopters. The evaluation team would expect this group to be particularly judicious about using LEDs to replace inefficient bulbs before replacing CFLs.

The consumer telephone survey asked a similar question to the full complement of respondents who reported having purchased a CFL or LED bulb in the *three months prior to* the survey.[42] Telephone survey respondents in the Overall NYSERDA area reported having purchased one or more CFLs in the previous three months to replace incandescent bulbs at a considerably lower rate (57%) and to replace CFLs at a considerably higher rate (40%) than onsite respondents in the previous year. Telephone survey respondents who reported having installed one or more

[41] It is worth noting that distinguishing incandescent and halogen bulbs can be difficult and as such the proportion of self-reported halogen replacements should be viewed with caution.

[42] While onsite, technicians categorized CFLs and LEDs purchased in the following periods: January to June 2012, July to December 2012, and early 2013 (onsite visits were conducted in January and February 2013). Replacement rates from these three periods were comparable so the Team presents aggregate data here for bulbs purchased after January 1, 2012.

LED bulbs in the previous three months were equally likely to report having used the LED bulb(s) they purchased to replace CFLs as to replace incandescents (33% and 32%, respectively).

The differences in the onsite and telephone survey results are likely due to differences in how the data were collected. During the onsite visits, technicians were able to ask households about specific bulbs, perhaps aiding respondents' recall of what type of bulb was installed in a particular socket before a CFL was installed. By comparison, during the telephone survey, respondents were required to rely completely on recall and asked to think about all bulbs at once. For this reason, the Team gives more weight to the onsite visits. It should be noted that the telephone survey data is not without its merits.

- In both cases, the question asked for respondents to recall an event. In general, respondent recall is more reliable the more recent the event. This is especially true for less memorable activities like the replacement of a light bulb.
- While the use of an in-person enumerator (the technician) results in a more reliable count of physical objects, in the case of a recall question, it could result in more socially desirable responding than might occur with a telephone survey conducted by a faceless interviewer. When visited by a technician asking questions specifically about CFL and LED bulbs, onsite respondents may have felt an unconscious expectation that replacing an incandescent with a CFL was the more "right" thing to do, and so been more inclined to give that answer.

Ultimately, this is an area that may warrant further study in future years. Determining the extent of CFLs replacing CFLs is an important issue that many Program Administrators are facing. One way to remove the element of self-reported data would be to conduct a panel study where onsite technicians return to homes visited in previous years to update lighting inventories. By comparing lighting inventory data for the same home over time, evaluators could observe actual changes in lighting types.

Comparing responses for the three-month period within the telephone survey subgroups, the CFL results did not vary significantly for Upstate or Downstate and were similar to the Moderate comparison area. Respondents in the Low comparison area reported replacing incandescent bulbs with CFLs at substantially higher rates (81%) and replacing CFLs with CFLs at lower rates (27%), while installing them in new fixtures at similar rates to the Overall NYSERDA area (11%). This finding is unsurprising, as the evaluation team would expect CFL saturation to be lower in the Low comparison area due to the relative lack of lighting program activity in these areas, and thus there would be more incandescent bulbs to replace.

Table 18: Type of Bulb That CFLs and LEDs Replaced

(Base: Onsite respondents that reported purchasing CFL or LED bulbs since January 2012)

	Overall	Upstate	Downstate	Manhattan
What Kind of Bulb Did CFLs Replace?				
Sample size	*1,014*	*203*	*881*	*210*
Incandescent Bulb	84%	80%	87%	75%
CFL	8	6	9	20
Bulb was installed in new lamp/fixture	3	3	0	1
Halogen	1	3	0	0
LED	1	2	0	0
Don't know	4	7	2	4
What Kind of Bulb Did LEDs Replace?				
Sample size	*66*	*19*	*42*	*46*
Incandescent Bulb	56%	32%	86%	76%
Halogen	29	53	0	0
Bulb was installed in new lamp/fixture	3	0	7	17
CFL	2	0	2	7
LED	0	0	0	0
Don't know	11	16	5	0

Table 19: Type of Bulb That CFLs and LEDs Replaced

(Base: Telephone survey respondents who had purchased CFLs or LEDs, respectively, in past three months)

	NYSERDA Area 2013			Comparison Areas 2013	
What Kind of Bulb Did CFLs Replace?	**A. Overall**	**B. Upstate**	**C. Downstate**	**E. Moderate**	**F. Low**
Sample size	*123*	*64*	*59*	*40*	*57*
Incandescent Bulb	57%	59%	54%	45%	81%abce
Another CFL	40	35	43	43	27ace
Bulb was installed in new lamp/fixture	15	17	14	11	11
LED	0	0	0	2	0
Halogen	<1	0	1	0	0
Other	5	5	3	2	1
Don't know/refused	2	0	5	14	2
What Kind of Bulb Did LEDs Replace?					
Sample size	*28*	*11*	*17*	*15*	*9*
CFL	33%	16%	38%	13%c	41%
Incandescent Bulb	32	39	30	80abc	66ac
Bulb was installed in new lamp/fixture	19	16	16	13	15
Halogen	9	13	8	0	8
Another LED	6	17	0	0	8
Don't know/refused	4	0	8	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

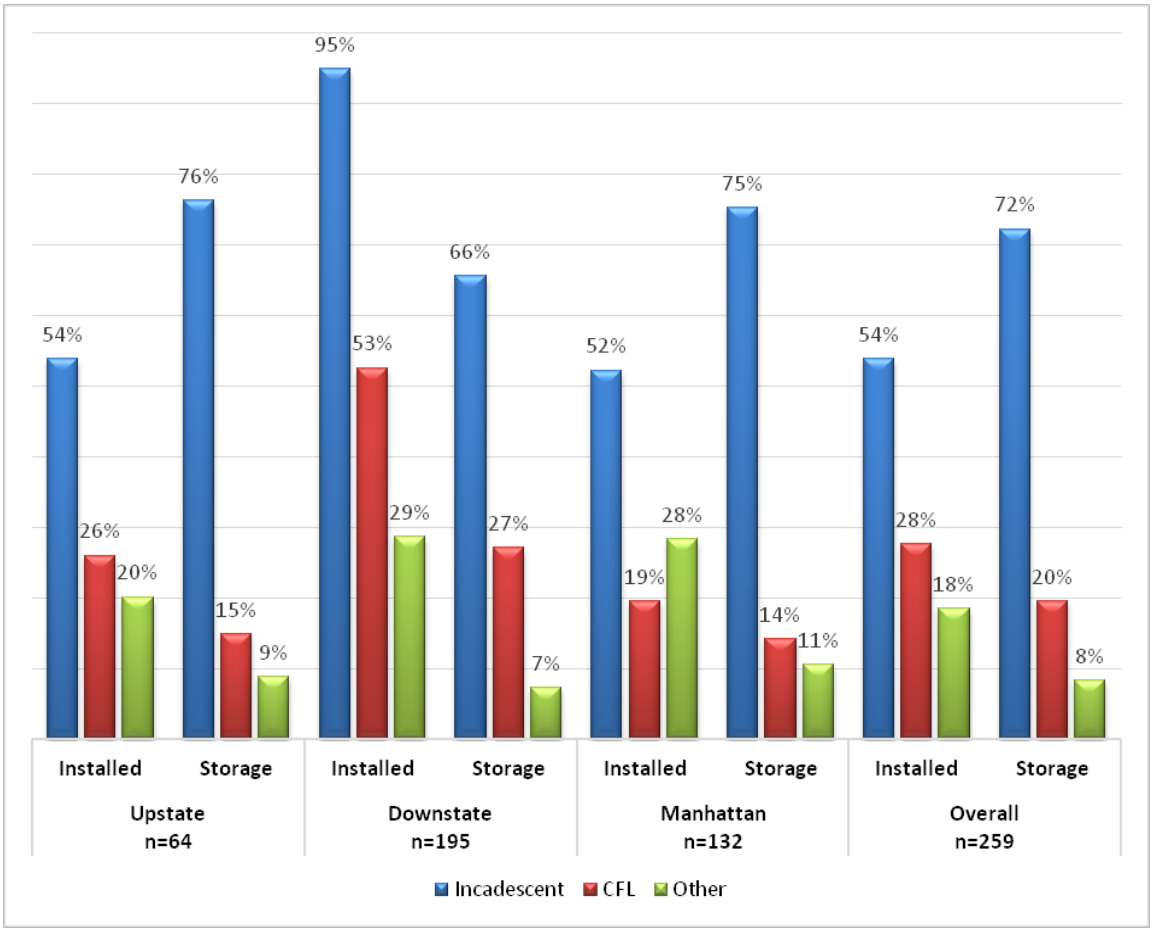
c Statistically different at the 90% confidence level from Downstate NY.

e Statistically different at the 90% confidence level from Moderate program activity comparison areas.

Figure 7 shows lighting inventory and storage side by side. As the figure demonstrates, incandescent bulbs are the most commonly installed and stored bulb type in each of the four NYSERDA areas, followed distantly by CFLs and then other bulb types. It is of note that households in all four NYSERDA areas have a higher proportion of incandescent bulbs in storage compared to those that are installed. This, along with self-reported intentions to use nearly all bulbs in storage, suggests that households are more likely to store and use incandescent bulbs. When combined with the fact that households do not know what type of currently installed bulbs nearly one-third of the stored incandescent bulbs will replace, this suggests that these incandescent bulbs were not purchased with an intent to replace existing incandescent bulbs in anticipation of EISA, but instead simply to have bulbs on hand as a matter of convenience. However, saturation could temporarily slip backwards because of the stored bulbs, since these households may install their stored incandescent bulbs as their currently installed bulbs fail rather than buying a new, energy-efficient bulb for replacement purposes.

Figure 7: Installed and Stored Lighting Inventory by Bulb Type

(Base: All onsite respondents)



5.1.6 Tracking CFLs over Time in Massachusetts

If CFLs in the NYSERDA service area are burning out at a rate comparable to that in Massachusetts, this could mean that the majority of CFLs are in fact being used to replace existing CFLs as they burn out.

In Massachusetts, the Program Administrators (PAs) have been actively tracking CFL use, storage, purchases, and shipments since 2005. Through annual onsite lighting inventory studies, the PAs have developed a rich data set that includes two key data points:

- Total CFLs in homes, based on annual lighting inventories; and
- Market-level sales, based on recently purchased CFLs found as part of annual lighting inventories.

Combining this data with the estimated measure life,[43] the PAs have developed a method for estimating the number of CFLs replacing other CFLs. The results of this analysis were presented to the PAs in a June 2013 report.[44] The data in Table 20 below were taken directly from the Massachusetts report. As the table shows, the approach estimates 2012 CFL burnouts to be about 5.8 million and suggests that a total of 32.1 million CFLs have burned out since the start of the PAs' lighting programs in 1998.

As detailed in Section 5.1.5, households reported that the vast majority of CFLs (89%) found in storage are expected to replace whichever bulbs need replacing first (68%) or are expected to specifically replace other CFLs (19%). If CFLs in the NYSERDA service area are burning out at a rate comparable to that in Massachusetts, this could mean that a significant portion of stored CFLs are in fact being used to replace existing CFLs as they burn out. However, given the relatively low saturation of CFLs and the shorter lifespan of incandescent bulbs, it is likely that there will be more opportunities for CFLs to replace incandescent bulbs than for CFLs to replace other CFLs.

[43] NMR and RLW. *Residential Lighting Measure Life Study.* 2008

[44] NMR, *Massachusetts Onsite Lighting Saturation Report.* Delivered to the Massachusetts Program Administrators on June 7, 2013.

Table 20: Estimated CFLs Replacing Other CFLs in Massachusetts

(Source: 2013 Massachusetts Onsite Saturation Report)

Year after Purchase	Failure Rate	Year	Market Level Purchases (CFLs)	Newly Installed in Given Year (CFLs)[1]	Burned out in a Given Year (CFLs)[2]
First	4%	1998	305,216	235,016	9,039
Second	9%	1999	554,077	457,161	38,674
Third	8%	2000	530,006	494,034	79,202
Fourth	15%	2001	979,811	862,863	149,326
Fifth	10%	2002	892,859	838,483	241,637
Sixth	8%	2003	3,565,495	2,932,698	397,649
Seventh	10%	2004	4,565,862	3,961,549	715,159
Eight	5%	2005	6,308,402	5,670,605	1,110,896
Ninth	5%	2006	10,426,466	9,115,805	1,842,610
Tenth	4%	2007	13,330,771	11,938,180	2,815,756
Eleventh	3%	2008	4,248,761	5,647,270	3,675,034
Twelfth	3%	2009	8,447,382	8,262,437	4,385,247
Thirteenth	2%	2010	10,870,314	9,639,756	5,292,905
Fourteenth	2%	2011	6,611,870	7,022,909	5,483,572
Fifteenth	2%	2012	7,370,732	7,423,682	5,827,452
Cumulative			79,008,024	74,502,450	32,064,157

[1] Sum of 77% of the current year market-level purchases and 10% of each of the two previous years' market-level purchases.

[2] Sum of the burnouts occurring in that year based on all installations occurring prior to that year. To use a simple example, the number of burned out CFLs in 2000 includes 4% of the CFLs obtained in 2000 plus 9% of the CFLs obtained in 1999 and 8% of the CFLs obtained in 1998.

5.1.7 Purchases of Lighting Products

During the onsite visits, field technicians identified CFLs in storage and in use and then asked participants when they had obtained each CFL. The respondent had to account for an estimated purchase date for each CFL found installed or in storage in the home and was looking at the product when providing this reported date of purchase, thus reducing, but not eliminating, self-report error. Onsite respondents were asked when they had purchased each of the CFLs found installed or stored in their homes: early 2013 (January and February), July to December 2012,

January to June 2012, or before 2012. Since few bulbs were purchased in 2013 and the results did not vary by period, here we report the results for all bulb purchases together.[45]

5.1.7.1 Number and Type of CFLs and LEDs Purchased

Respondents in the Manhattan sample were significantly more likely than those in the other three areas not to have purchased any CFLs in the previous year.

Table 21 summarizes the number of CFLs that onsite households recalled purchasing in the year prior to the inventory.[46] Overall, more than one-half of onsite respondents (55%) reported obtaining one or more CFLs in the previous year. Households buying CFLs in 2012 and 2013 usually purchased 15 or fewer CFLs, with the largest percentage of CFL purchasers overall (29%) buying between one and five bulbs. Most of the CFLs purchased by 2013 onsite respondents were standard CFLs; one-half (50%) of respondents bought standard CFLs, while 25% bought specialty CFLs. Purchasers typically bought fewer than five specialty bulbs. Respondents in the Manhattan sample were significantly less likely than those in the other three areas to have purchased any CFLs in the previous year.

[45] Onsite households purchased very few CFLs and LEDs in early 2013 (147 in total); this is similar to early 2012. In an earlier draft, reviewers suggested that we combine the small number of bulbs purchased in the first few months of the new year with those from the previous year.

[46] While self-reported, onsite households recalled when they bought these CFLs while looking at the specific bulb with the onsite technician. Although still subject to self-reporting error, the Team has found this approach to provide more reliable estimates of the number of CFLs purchased in a time period than asking about number of bulbs purchased during a telephone survey.

Table 21: CFLs Purchased in Previous Year by Household and Type

(Base: All onsite respondents)

	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
All CFLs				
Zero	45%	45%	44%	60%abc
One to five	29%	32%	26%	23%
Six to fifteen	15%	12%	18%	15%
Sixteen or more	11%	11%	12%	2%abc
Standard CFLs				
Zero	50%	50%	50%	65%abc
One to five	28%	34%	23%	19%ab
Six to fifteen	15%	9%	20%b	15%
Sixteen or more	7%	7%	7%	2%ac
Specialty CFLs				
Zero	76%	76%	75%	87%abc
One to five	20%	21%	19%	13%a
Six to fifteen	4%	4%	5%	1%ac
Sixteen or more	1%	0%	1%	0%

a Statistically different at the 90% confidence level from Overall NY.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

Standard CFLs accounted for 80% of the most recent purchases, while specialty CFLs accounted for 19%.

Overall, onsite respondents purchased an average of 5.1 CFLs per household in 2012 and early 2013 (Table 22), but purchased bulbs ranged from an average of 5.6 Downstate to 2.3 in the Manhattan sample. Standard CFLs accounted for 80% of the most recent purchases, while specialty CFLs accounted for 19%. These percentages were similar across all four study areas.

Table 22: Number of CFLs Purchased in Previous Year by Type

(Base: All onsite respondents)

	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
All CFLs				
Total CFLs purchased	1,313	282	1,099	298
Mean # of CFLs purchased	5.1	4.4	5.6	2.3
% of all CFLs purchased	100%	100%	100%	100%
Standard CFLs				
Total CFLs purchased	1,059	231	876	255
Mean # of CFLs purchased	4.1	3.6	4.5	1.9
% of all CFLs purchased	80%	82%	80%	86%
Specialty CFLs				
Total CFLs purchased	254	50	223	43
Mean # of CFLs purchased	1.0	0.8	1.1	0.3
% of all CFLs purchased	19%	18%	20%	14%

We estimate that households in the NYSERDA area purchased approximately 26.6 million CFLs (21.2 million standard and 5.4 million specialty) in 2012. This is relatively unchanged from 2009, during which we estimate households in the area purchased 25.9 million CFLs.

In order to extrapolate these purchases to all households in the NYSERDA area, the Team weighted the purchases of CFLs to the population of all households in the NYSERDA area. This extrapolation suggests that households purchased approximately 26.6 million CFLs in the NYSERDA area in 2012 (Table 23). Standard spiral CFLs accounted for 21.2 million of the CFLs purchased, while households purchased a total of 5.4 million specialty CFLs over the same period.

As a comparison, we estimated the 2008 and 2009 sales of CFLs based on data available in the March 2010 and May 2011 NYSERDA CFL Expansion Program evaluations.[47] To compute estimates of sales in 2008 and 2009, we multiplied the reported average CFL sales per household by the population of households as listed in each of the reports. However, it should be noted that the 2010 and 2011 evaluations differed in their treatment of Westchester County compared to the 2013 evaluation.

[47] These 2008 and 2009 purchase data were collected in the same manner as in 2013.

Table 23 compares the mean CFL sales per home for 2008, 2009, and 2012 along with the estimated population-wide sales based on the 2013 population as defined in this report. As the table shows, CFL purchases increased from 2008 to 2009 in both Upstate and Downstate. At the population level, increases in average CFL purchases result in an estimated 5.5 million increase in bulb sales. Compared to 2009, 2012 CFL sales remained relatively unchanged (26.6 million), with a difference of 0.7 million.

Table 23: Estimates of all CFLs Purchased in the NYSERDA Area - 2012

(Base: All onsite respondents)

	2008		2009		2012	
	NYS[1]	NYC[2]	NYS[1]	NYC[2]	Upstate[3]	Downstate[4]
Sample Size	*203*	*100*	*203*	*259*	*64*	*195*
Mean CFLs Purchased	**3.9**	**3.0**	**4.3**	**4.4**	**3.4**	**5.3**
Population	2,926,768	3,021,588	2,926,768	3,021,588	2,745,346	3,247,717
Estimated Sales	11,414,395	9,064,764	12,585,102	13,294,987	9,430,676	17,200,471
Total Combined Sales	20,479,159		25,880,090		26,631,147	

[1] Defined as all of New York less New York City and Long Island.

[2] Defined as the five boroughs of New York City.

[3] Defined as all of New York Less New York City, Long Island, and Westchester County.

[4] Defined as the five boroughs of New York City plus Westchester County.

The number of LEDs purchased in 2012 was less than the number of CFLs purchased during the same period. Overall, only 101 LEDs were purchased by onsite respondents over that period. The sample sizes are too small to extrapolate the results to the population, as doing so would exaggerate potential bias in the estimates. It is likely that, if their price continues to decrease, sales of LEDs will continue to increase over the coming years, as LEDs resolve some of respondents' persistent concerns with CFLs such as mercury, light quality, slowness to brighten, and dimmability.

5.1.7.2 Manufacturers of CFLs and LEDs

During the onsite visits, the team recorded information on the manufacturers or brands of the installed and stored CFLs and LEDs respondents reported purchasing in 2012 and early 2013.

Table 24 lists the number of standard CFLs, specialty CFLs, and LEDs purchased from each manufacturer or brand. EcoSmart (the current Home Depot brand name) accounted for the largest percentage of CFLs (24% of standard CFLs and 39% of specialty CFLs, Overall) that respondents reported purchasing in 2012 and 2013. GE (23% of standard CFLs and 24% of specialty CFLs) and Sylvania (10% of standard CFLs and 6% of specialty CFLs) were the second and third largest manufacturers or brands, respectively. Philips accounted for an additional 8% of standard CFLs and 4% of specialty CFLs. Feit represented the largest percentage of LEDs (18% of LEDs Overall) that respondents reported purchasing in 2012 and 2013.

Table 24: Total Purchases by Manufacturer or Brand

(Base: All onsite respondents)

Manufacturer or Brand	Total Number of Bulbs															
	Overall				Upstate				Downstate				Manhattan			
	Stand	Spec	LED	Tot	Stand	Spec	LED	Tot	Stand	Spec	LED	Tot	Stand	Spec	LED	Tot
Total	**1,061**	**255**	**101**	**1,419**	**231**	**50**	**35**	**317**	**876**	**223**	**50**	**1,151**	**255**	**43**	**58**	**356**
EcoSmart*	24%	39%	3%	25%	21%	16%	5%	18%	26%	52%	0%	30%	31%	26%	0%	25%
GE	23%	24%	5%	22%	23%	49%	0%	25%	23%	10%	14%	20%	17%	11%	0%	13%
Sylvania	10%	6%	2%	9%	17%	1%	0%	12%	5%	9%	5%	6%	7%	9%	0%	6%
Philips	8%	4%	15%	8%	4%	5%	0%	3%	11%	4%	44%	11%	3%	0%	19%	5%
Feit	4%	5%	18%	5%	3%	0%	27%	5%	6%	8%	1%	6%	13%	16%	2%	11%
TCP	5%	0%	<1%	4%	10%	0%	0%	7%	2%	0%	1%	2%	<1%	0%	3%	1%
Other**	24%	18%	55%	25%	20%	20%	67%	25%	26%	17%	34%	25%	27%	34%	66%	34%
Don't know	2%	3%	1%	2%	3%	9%	0%	4%	1%	<1%	3%	1%	4%	4%	10%	5%

* The EcoSmart brand includes N:Vision brand bulbs as well. N:Vision is now EcoSmart.

** "Other" includes Utilitech (the current Lowe's brand name), Conserv Energy, Satco, Helical, IKEA, Great Value, Westpointe, Commercial Electric, Sunlite, Greenlite, Lights of America, Westinghouse, Earthmate, Spring Light, Pharox, Bright Effects, Sunpark, Litetronics, Maxlite, and Ecospiral.

5.1.7.3 Types of Stores where Respondents Purchased Light Bulbs

More than one-third of the CFLs purchased in 2012 and early 2013 by onsite inventory respondents were bought at home improvement stores.

The majority (11 of 19) of onsite inventory participants who were found to have an LED bulb installed most frequently reported purchasing LED bulbs at home improvement stores.

When asked where they had purchased CFL and LED bulbs in the three months prior to the survey, respondents to the telephone survey offered responses in a similar order of frequency to the onsite inventory.

Telephone survey respondents in the Moderate and Low comparison areas were more likely than Overall respondents to report purchasing incandescent and CFL bulbs at a mass merchandiser—i.e., a store with multiple departments, such as Walmart or Target (54% for incandescents for both Moderate and Low, and 49% Moderate and 55% Low for CFLs). Onsite respondents were asked as an open-ended question at which stores they had purchased the CFLs installed and stored in their homes.[48] Figure 8 shows the proportion of bulbs purchased by type of store and, while Table 24 shows total purchases by manufacturer or brand only, Table 25 provides additional details on these bulbs by manufacturers and store type for the Overall area. Additional details on bulb manufacturers by store type for each region can be found in Table 105, Table 106, and Table 107 in Appendix A. Onsite respondents reported buying more than one-third (38%) of the CFLs they had purchased in 2012 and early 2013 at home improvement stores.

Warehouse stores and grocery stores/supermarkets served as the next most common sources of CFLs obtained by onsite respondents in 2012 and early 2013, accounting for 14% and 13% of the bulbs, respectively. Another major source of CFL purchases during this period was mass merchandise or discount stores, which sold 11% of the total CFLs for the year. Smaller quantities were purchased at hardware stores, home furnishing stores, online, or at specialty lighting stores. Fifteen of the bulbs in the current sample were acquired through a utility program, as identified by the respondent.

[48] The store name or type of store where the bulb was purchased is self-reported, which, of course, is not always correct. For example, EcoSmart bulbs are Home Depot's current brand name, yet some respondents reported having purchased these bulbs at a different store or store type. It is unlikely that EcoSmart bulbs were sold outside of Home Depot stores.

Figure 8: Types of Stores where CFL Bulbs Were Purchased - Overall

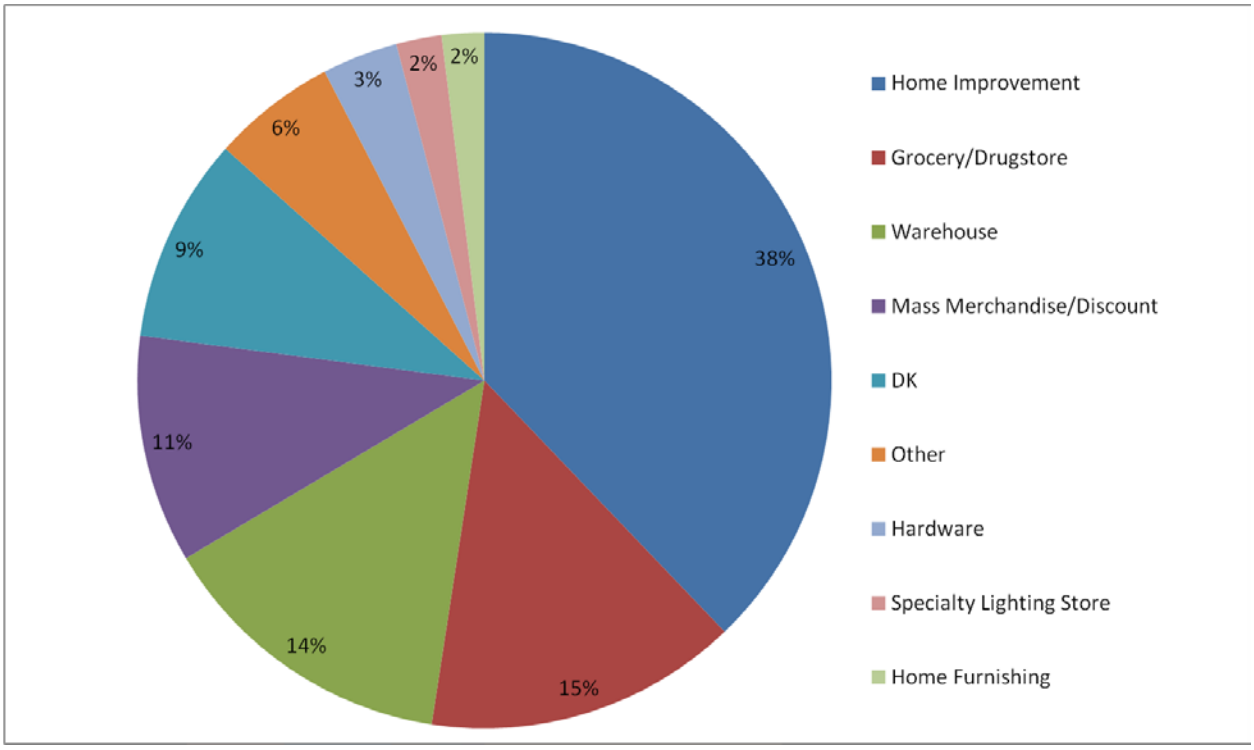


Table 25: Types of Stores[49] Where CFL Bulbs Were Purchased - Overall

(Base: All onsite respondents)

Manufacturer or Brand	Home Improvement	Grocery/ Drugstore	Ware-house	Mass Merchandise/ Discount	Hard-ware	Home Furnishing	Specialty Lighting Store	Other	Don't know	Total
Sample Size	*259*	*259*	*259*	*259*	*259*	*259*	*259*	*259*	*259*	*259*
# of CFLs	**382**	**160**	**142**	**74**	**60**	**37**	**15**	**131**	**78**	**1,079**
EcoSmart*	36%	3%	48%	7%	12%	0%	0%	25%	16%	25%
GE	8%	53%	4%	41%	14%	0%	100%	35%	20%	22%
Sylvania	5%	7%	10%	16%	4%	4%	0%	7%	22%	9%
Philips	13%	7%	6%	0%	10%	4%	0%	1%	4%	8%
Feit	8%	1%	6%	12%	6%	0%	0%	2%	1%	6%
TCP	2%	9%	7%	0%	4%	0%	0%	0%	6%	4%
Other	26%	17%	21%	25%	44%	93%	0%	28%	22%	25%
Don't know	2%	2%	0%	0%	6%	0%	0%	1%	9%	2%

* The EcoSmart brand includes N:Vision brand bulbs as well. N:Vision is now EcoSmart.

[49] Store type definitions: Home Improvement, such as Home Depot or Lowe's; Grocery/Drugstore, such as Shaw's, Stop n Shop, Whole Foods, Walgreen's or CVS; Warehouse, such as Sam's Club, BJ's, or Costco; Mass Merchandise/Discount, such as Wal-Mart, Kohl's, K-Mart, or Target; Hardware, such as True Value or ACE Hardware; Home Furnishing, such as Bed, Bath and Beyond or Pottery Barn; Online; Specialty Lighting Store or electrical store; Other, such as Utility Programs, Landlord/Management purchased bulbs, Received bulb as a gift/for free, and Bargain—such as Building 19, Dollar Store, or Family Dollar.

The 19 onsite inventory participants who were found to have one or more LEDs installed were given a short supplemental paper survey about their experiences with LED bulbs. This included a question about where they had purchased the LEDs. While the small sample size means that the results cannot be generalized to the population, it is worth noting that the top response was home improvement stores (11 of 19), the same as for CFLs and specialty CFLs.

Table 26: Types of Stores Where LED Bulbs Were Purchased - Overall

(Base: Onsite inventory participants with LED bulbs. Multiple responses allowed.)

Retail Channel	Number of Respondents
Sample Size	*19*
Total	**21**
Home Improvement Store (e.g., Lowe's, Home Depot)	11
Store with Multiple Departments (e.g., Walmart, Target)	2
Wholesale Membership Store	2
Online Store	2
Hardware Store	1
Lighting Store	1
Grocery Store	1
Didn't Purchase / Gift	1
Drug Store	0
Fundraiser	0

Respondents to the telephone survey were asked about the types of stores in which they had purchased incandescent, CFL, specialty CFL, and LED bulbs in the three months prior to the survey. Telephone survey respondents reported having purchased all bulb types in the previous three months most frequently from home improvement stores (from 45% for incandescent to 66% for specialty CFLs), followed by mass merchandisers such as Walmart and Target (from 28% for specialty CFLs and LEDs to 32% for incandescents). Telephone respondents in the Overall area were more likely to report having purchased specialty CFLs (23%) and LEDs (22%) at hardware stores than incandescent bulbs (19%) and standard CFLs (11%). There were no statistically significant differences in results between Upstate and Downstate respondents. By comparison, respondents in both the Moderate and Low comparison areas were more likely to purchase incandescent and CFL bulbs at a mass merchandiser—i.e., a store with multiple departments, such as Walmart or Target (54% for incandescents for both Moderate and Low, and 49% Moderate and 55% Low for CFLs).

Table 27: Types of Stores Where Bulbs Purchased in Prior Three Months (Incandescents and CFLs)[50]

(Base: All telephone survey respondents)

Where Do You Buy Bulbs?	NYSERDA Area			Comparison Areas					
	A. Overall			E. Moderate			F. Low		
	Incan-descent	CFL	SCFL	Incan-descent	CFL	SCFL	Incan-descent	CFL	SCFL
Sample size	*329*	*123*	*74*	*112*	*40*	*37*	*143*	*57*	*40*
Home Improvement Store (i.e., Lowe's, Home Depot)	45%	56%*	66%*	42%	53%	49%	29%ae	56%	57%
Store with multiple Depart-ments (i.e., Walmart, Target)	32	28	28	54a	49a	51a	54a	55a	44a
Grocery Store	29	16*	5*ψ	16a	3a	4	20	13e	5
Hardware Store	19	11*	23ψ	10a	5	2a	8a	15	4a
Drug Store	12	6*	0*ψ	1	0	0	6	6	12
Dollar/Discount store	5	4	0	2	0	0	9	2	3
Lighting Store	4	3	0	5	0	5	3	0	0
Don't buy this type of bulb	4	2	1	4	7	0	4	2	0
Other	5	1	0	1	0	0	5	0	2
Don't know/refused	2	1	2	0	2	0	0	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

[50] Not all RDD survey questions were asked in the High comparison area. High comparison area results are shown only for questions asked in this area.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

* Statistically different at the 90% confidence level from incandescent bulbs.

Ψ The meaning of this symbol will be added in the final version of this report.

Table 28: Type of Store Where Bulbs Purchased (LEDs)

(Base: Telephone survey respondents who had purchased LEDs)

Where Do You Buy LED Bulbs?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*34*	*14*	*20*	*15*	*9*
Home Improvement Store (i.e. Lowe's, Home Depot)	50%	50%	50%	65%	55%
Store with multiple Departments (i.e. Walmart, Target)	28	31	28	24	45
Hardware Store	22	21	22	19	0abce
Drug Store	5	19	0	0	0
Grocery Store	5	19	0	6	0
Lighting Store	5	0	8	0	0
Other	13	10	13	6	7
Don't buy this type of bulb	3	8	0	0	0
Don't know/refused	0	0	0	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.7.4 EISA and Possible Stockpiling

While there is substantial stored inventory of incandescent bulbs, as of the date of this research there was little actual or expected stockpiling activity.

As previously mentioned, EISA included new efficiency standards for lighting products. Implementation began in January 2012 when 100-Watt incandescent bulbs could no longer be manufactured or imported into the United States; the phase-out of 75-Watt incandescent bulbs began in January 2013. EISA has naturally raised some concerns about the stockpiling of incandescent bulbs. Indeed, during the in-depth interviews two manufacturers and three retailers expressed the opinion that there was significant stockpiling in some fashion, noting high incandescent bulb sales to retailers and to consumers.

An important aspect of the onsite inventory was to search for evidence of actual stockpiling of incandescent bulbs. Because actual stockpiling behavior may differ from self-reported behavior, the team believes that onsite-verified evidence of stockpiling is a more valid indicator of this behavior.

During the onsite visit, the technician recorded information on all stored bulbs and, in an attempt to address the possibility that EISA was driving incandescent storage, asked all households storing 100-Watt and 75-Watt incandescent bulbs why they were doing so. The most popular response Overall for 100-Watt incandescent bulbs was that they were stored as backups to replace 100-Watt bulbs; likewise, the most popular response for 75-Watt incandescent bulbs was that they were stored as backups to replace 75-Watt bulbs (Table 29). Manhattan differed slightly in that the most popular response for both bulb types was the more general answer of “stored to have extras.”

Coupled with the team’s finding just one household with a substantial stockpile of stored incandescent bulbs, these results suggest that, while there is substantial stored inventory of incandescent bulbs, as of the date of this research there appears to have been little actual or expected stockpiling activity in the NYSERDA area.

Table 29: Why Respondents Purchased and Stored 75- and 100-Watt Incandescents

(Base: Onsite respondents with 75-Watt and 100-Watt incandescents in storage)

Type of Bulb to be Replaced	Overall		Upstate	
	75-Watt Bulbs	100-Watt Bulbs	75-Watt Bulbs	100-Watt Bulbs
Number of bulbs	*52*	*62*	*15*	*17*
Stored as a back-up to replace 100-watt bulbs	3	28	0	8
Stored to have extras	21	20	8	8
Stored as a back-up to replace 75-watt bulbs	19	2	5	0
Don't know/no reason	13	17	5	4
Other	0	0	0	0
Type of Bulb to be Replaced	**Downstate**		**Manhattan**	
	75-Watt Bulbs	**100-Watt Bulbs**	**75-Watt Bulbs**	**100-Watt Bulbs**
Number of bulbs	*33*	*42*	*48*	*40*
Stored as a back-up to replace 100-watt bulbs	4	18	1	13
Stored to have extras	10	9	20	15
Stored as a back-up to replace 75-watt bulbs	13	2	15	2
Don't know/no reason	7	12	11	10
Other	1	1	2	3

OTHER CONSUMER SURVEY SELF-REPORTS AND RELATED MANUFACTURER AND RETAILER PERSPECTIVES

5.1.8 Lighting Awareness and Knowledge

This section describes key preliminary findings from the consumer surveys, with a focus on questions meant as long-term indicators of lighting progress, such as awareness of different bulb types and lighting-related knowledge.

5.1.8.1 Bulb Awareness

Together, the aided and unaided awareness findings from the consumer survey suggest that, among NYSERDA-area consumers, (1) awareness of CFL bulbs is very high (83% Overall, aided), but still has some room to grow; (2) awareness of LED replacements (37% Overall, aided) is growing but has a long way to go; and (3) awareness of halogen replacements for incandescent bulbs (60% Overall, aided) appears to have grown faster than that for LEDs and is unfortunately higher. This may be due in part to the high cost of LEDs, which places them out of

reach of—and thus possibly also out of range to be noticed by—large segments of the population, even when the bulbs are subsidized by NYSERDA.

The results also point both to the remaining opportunity for improvement in Downstate areas and to the difficulty of achieving program gains in these areas compared to Upstate.

The consumer surveys asked about unaided and aided awareness[51] of CFL, LED, and halogen replacements for incandescent bulbs to (1) facilitate comparison of this important market indicator with past NYSERDA studies and with studies conducted by other organizations and (2) ensure that respondents were thinking about the right bulb types in subsequent questions. Not all questions are comparable across all years. Where results may not be comparable due to changes in question wording or other factors, this is noted.

- **Overall.** While the numbers suggest that aided awareness of CFLs across the service area dropped from 2011 to 2013, differences in the answer category options between the two years mean that the results are not comparable. In 2013, aided awareness of CFLs was similar to aided awareness in the High (85%) and Moderate (84%) comparison areas, but substantially higher than in the Low (77%) comparison area. Across all areas, aided awareness of CFLs was higher than unaided awareness in ways that were consistent for the two measurements (Table 30). By comparison, aided LED awareness was substantially lower than unaided awareness in 2013, when both were measured (65% unaided versus 37% aided Overall) (Table 31). The evaluation team suspects that this drop is due to a combination of question wording and lack of consumer familiarity with screw-base LED bulbs. (The unaided question reads, "Before this call today, had you ever heard of L-E-D or light-emitting diode bulbs?" while the aided question describes a screw-base replacement for a standard incandescent and explicitly excludes battery-operated LEDs, holiday lights, and decorative strands.) However, aided and unaided awareness were about the same for halogens (61% aided, 60% unaided). It is the team's opinion that the aided measurement is the more reliable indicator of bulb awareness.
- **Upstate vs. Downstate.** As with past years' studies, in 2013 both aided and unaided awareness of all lamp types were significantly higher Upstate than Downstate. For example, aided awareness of CFLs was 90% Upstate versus 79% Downstate. This dynamic is repeated for LEDs (43% Upstate and 31% Downstate) and halogens (64% Upstate and 56% Downstate), and throughout the findings for many different measurements.
- **Upstate vs. Low comparison area.** In 2013, Upstate aided awareness of LED and halogen bulbs was similar to aided awareness in the Moderate and Low comparison areas. (Aided awareness was not

[51] Aided awareness refers to awareness asked with a description of the product in question. Unaided awareness refers to awareness asked without a description.

measured for these bulbs in the High comparison area.) Upstate aided awareness of CFLs was significantly higher than in the Moderate or Low comparison areas (90% versus 84% and 77%, respectively).

Table 30: Aided Awareness of CFLs, 2011 & 2013

(Base: All telephone survey respondents)

	NYSERDA Area				Comparison Areas		
	2011	2013			2013		
	Overall	A. Overall	B. Upstate	C. Down-state	D. High	E. Moderate	F. Low
Sample size	*1001*	*720*	*340*	*380*	*600*	*300*	*300*
CFL Unaided Awareness							
Yes	-	63%	67%	57%ab	65%c	68%c	53%abe
No	-	32	26	38	33	24	41
Don't know/refused	-	6	7	5	2	8	6
CFL Aided Awareness							
Yes	91%a*	83%	90%a	79%b	85%bc	84%bc	77%abde
No	9	15	9	19	15	14	20
Don't know/refused	0	2	1	2	0	2	3

* Question was asked slightly differently in 2011 from 2013. Results may not be completely comparable.

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison areas.

Table 31: Unaided and Aided Awareness of LEDs & Halogen Bulbs, 2011 & 2013

(Base: All telephone survey respondents)

	NYSERDA Area				Comparison Areas		
	2011	2013			2013		
	Overall	A. Overall	B. Upstate	C. Downstate	D. High	E. Moderate	F. Low
Sample size	*510*	*720*	*340*	*380*	*600*	*300*	*300*
LED Unaided Awareness							
Yes	59%a	65%	75%a	55%ab	-	73%ac	69%bc
No	38	32	22	42	-	24	28
Don't know/refused	3	3	3	3	-	2	4
LED Aided Awareness							
Yes	-*	37%	43%a	31%ab	-	39%c	41%c
No	-	60	54	67	-	58	56
Don't know/refused	-	3	3	3	-	3	2
Halogen Unaided Awareness							
Yes	55%a	61%	68%a	55%ab	-	71%ac	62%ce
No	38	36	30	42	-	27	35
Don't know/refused	7	3	3	3	-	3	3
Halogen Aided Awareness							
Yes	-*	60%	64%	56%b	-	68%a	60%e
No	-	35	31	39	-	30	36
Don't know/refused	-	5	5	5	NA	3	4

*Follow-up awareness of bulbs asked differently in 2011

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison areas.

The 2009 survey asked about degree of familiarity with CFLs. To allow a comparison with this line of questioning, the 2013 survey also asked about this and added a similar question for LEDs. As Table 32 shows, the percentage of NYSERDA-area respondents who are "very" or "somewhat" familiar with CFLs has not changed significantly since 2009 (from 70% to 73% Overall). Upstate households report higher familiarity ("very" or "somewhat") with CFLs

at significantly greater rates than both Downstate (82% versus 67%) and all comparison areas. The familiarity question was asked for LEDs and specialty CFLs for the first time in 2013. NYSERDA-area households reported being "very" or "somewhat" familiar with LEDs at similar rates to those in the Moderate and Low comparison areas (28% in Overall NYSERDA and Moderate areas, 30% in Low areas). Again, familiarity was higher Upstate than in all other areas.

Table 32: Familiarity with CFLs and LEDs

(Base: All telephone survey respondents)

	NYSERDA Area				Comparison Areas		
	2009	2013			2013		
Familiarity with CFLs	**Overall**	**A. Overall**	**B. Upstate**	**C. Down-state**	**D. High**	**E. Moderate**	**F. Low**
Sample size	*1001*	*720*	*340*	*380*	*600*	*300*	*300*
Very or somewhat familiar	70%	73%	82%a	67%ab	64%ab	71%bd	67%ab
Not too or not at all familiar	14a	9	8	11	20abc	12bd	9d
Not aware of CFLs	14a	17	10a	22ab	15bc	16bc	23abde
Familiarity with LEDs							
Very or somewhat familiar	-	28%	34%a	25%b	-	28%b	30%b
Not too or not at all familiar	-	8	10	6	-	12	12
Not aware of LEDs	-	63	57a	70ab	-	61c	59c

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Across the NYSERDA area Overall, households reporting higher levels of familiarity (very or somewhat familiar) with specialty CFLs ranged from a low of 29% (for A-line CFLs) to a high of 42% (for both 3-way and globe CFLs) (Table 33). Research in other states[52] provides evidence that the A-line CFL represents an opportunity for CFL adoption for those who dislike the bulb because of aesthetic or fit-in-fixture reasons. Familiarity with specialty CFLs was fairly consistent across the various comparison areas, with no prominent trends emerging in familiarity levels.

Table 33: Familiarity with Specialty CFLs

(Base: All telephone survey respondents)

		NYSERDA Area			Comparison Areas		
		2013			2013		
Type of Specialty/Familiarity		A. Overall	B. Upstate	C. Down-state	D. High	E. Moderate	F. Low
Sample Size		*720*	*340*	*380*	*600*	*300*	*300*
Dimmable	Very or somewhat familiar	37%	37%	39%	35%	43%ad	35%e
	Not too or not at all familiar	45	52a	39ab	45bc	41b	41b
	Not aware of CFLs	17	10a	22ab	21a	16bcd	23abde
	Don't know/refused	1	1	<1	<1	1	1
3-way	Very or somewhat familiar	42%	43%	42%	39%	42%	45%d
	Not too or not at all familiar	40	46a	36b	40b	39b	31abde
	Not aware of CFLs	17	10a	22ab	21a	16bc	23abde
	Don't know/refused	1	1	1	1	2	1
Flood or Recessed	Very or somewhat familiar	40%	44%	36%	38%	45%	40%
	Not too or not at all familiar	43	47	42	42	39b	36abd

[52] For example: NMR Group., Inc. 2012. "Connecticut Lighting Focus Groups: Exploration of Changes in the Lighting Market and Reactions to Various Efficient Lighting Choices." Delivered to the Connecticut Energy Efficiency Board on May 1, 2012; NMR Group., Inc. 2012. "Connecticut Efficient Lighting Saturation and Market Assessment." Delivered to the Connecticut Energy Efficiency Board on October 2, 2012; NMR Group., Inc. 2013. "Massachusetts Consumer Survey Results Winter 2012." Delivered to the Massachusetts Program Administrators on May 30, 2013.

Type of Specialty/Familiarity		NYSERDA Area			Comparison Areas		
		2013			2013		
		A. Overall	B. Upstate	C. Down-state	D. High	E. Moderate	F. Low
	Not aware of CFLs	17	10a	22ab	21a	16bc	23abde
	Don't know/refused	1	<1	1	0	0	<1
Candelabra	Very or somewhat familiar	40%	42%	39%	29%abc	42%d	39%d
	Not too or not at all familiar	43	48	39b	51ac	42d	37abd
	Not aware of CFLs	17	10a	22ab	21a	16bc	23abde
	Don't know/refused	<1	<1	<1	<1	<1	1
Globe	Very or somewhat familiar	42%	45%	40%	40%	47%c	44%
	Not too or not at all familiar	41	44	38	39	36b	33abd
	Not aware of CFLs	17	10	22	21	16	23
	Don't know/refused	1	1	1	<1	2	<1
A-line	Very or somewhat familiar	29%	31%	28%	32%	32%	31%
	Not too or not at all familiar	54	59	50b	47ab	51b	45ab
	Not aware of CFLs	17	10a	22ab	21a	16bc	23abde
	Don't know/refused	2	1	1	<1	1	1

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.8.2 Knowledge of Relative Energy Use of CFL versus Halogen Bulbs

When asked which type of bulb—CFLs or halogens—uses less energy to produce light, more than one-half (55%) of respondents in the NYSERDA area correctly identified CFLs as being more efficient.

Upstate (57%) and Downstate (52%) consumers do not differ significantly from one another regarding awareness that CFLs use less energy than halogens.

There remains room for improvement on this important measurement of knowledge.

When asked which type of bulb—CFLs or halogens—uses less energy to produce light, about half (55%) of respondents in the NYSERDA area correctly identified CFLs as being more efficient. Upstate and Downstate respondents were equally likely to be correct on this measure. While respondents in the High program activity comparison area showed slightly higher levels of correct responses (63%), which could reflect either higher levels of lighting savvy or the fact that, in the High area, only those respondents who said they were "very" or "somewhat" familiar with this bulb type were asked the question. Given this difference in bases, it is possible that the difference in knowledge between the NYSERDA area and High area may be somewhat overstated. Among those respondents not indicating that CFLs use less energy (10%), answers were fairly evenly split within the Overall group between thinking halogens use less energy (10%), thinking the bulbs use about the same amount of energy (15%), or not knowing which uses less (20%) (Table 34).

Table 34: Respondents' Judgments about Relative Energy Use of CFLs and Halogen Bulbs
(Base: Respondents who were aware of CFLs and Halogens)

	NYSERDA Area			Comparison Areas		
	2013			2013		
Awareness	A. Overall	B. Upstate	C. Down-state	D. High	E. Moderate	F. Low
Sample size	*415*	*217*	*198*	*304*	*192*	*178*
CFLs use less energy	55%	57%	52%	63%ac	55%d	49%d
Halogens use less energy	10	9	12	9	14d	10
They use about the same	15	16	13	14	10ab	19e
Don't know/refused	20	18	23	14c	21d	22d

a Statistically different at the 90% confidence level from Overall NY 2013.
b Statistically different at the 90% confidence level from Upstate NY.
c Statistically different at the 90% confidence level from Downstate NY.
d Statistically different at the 90% confidence level from High program activity comparison area.
e Statistically different at the 90% confidence level from Moderate program activity comparison areas.

5.1.8.3 Awareness of EISA since 2011

Overview of EISA Requirements

The Energy Independence and Security Act (EISA), which was signed into law in 2007, set maximum wattage levels by lumen output for medium screw-base bulbs; they must range from 310 to 2,600 lumens and operate using 110 to 130 volts. The standards take effect through a phased process, which began in 2012 (Stage 1), when general service bulbs were required to use 20% to 30% less energy than current incandescent bulbs. Within Stage 1, the new efficiency standards apply to 100-Watt incandescent bulbs in 2012, 75-Watt incandescent bulbs in 2013, and 40- and 60-Watt incandescent bulbs in 2014. In Stage 2, which begins on January 1, 2020, all general service bulbs are

required to meet a 45 lumen-per-Watt standard (close to the efficacy of many standard CFLs in 2011)—or a more stringent level, if appropriate.[53]

While EISA prohibits the manufacture and import of incandescent bulbs, it does not regulate the sale or use of incandescent bulbs. Therefore, standard incandescent bulbs will remain available to consumers on retailers' shelves until all stock acquired before the relevant effective date is sold. Additionally, as remaining stock sells out, consumers will be able to replace higher-wattage incandescent bulbs with lower-wattage bulbs during the transition period.

Awareness of EISA has risen since 2011, from 33% to 38% overall. The low awareness of EISA may be a factor in the low levels of stockpiling observed in the onsite study.

Close to two out of five (38%) respondents in the NYSERDA area were aware of the Energy Independence and Security Act (EISA) of 2007, which represents a significant increase over the awareness level in 2011 (33%). Upstate respondents (49%) displayed the highest awareness of any group, with significantly greater awareness levels than respondents Downstate (27%) or in the High (41%), Moderate (42%), or Low (40%) program activity areas.

5.1.8.4 Awareness & Knowledge Related to Information on the Lighting Facts Label

Unaided awareness of the Lighting Facts label is very low (6% in the Overall NYSERDA area).

Aided awareness of the Lighting Facts label is higher in the NYSERDA area (14%) than in the Moderate (8%) and Low (10%) comparison areas.

A higher percentage of NYSERDA-area consumers reported having seen or heard of the term* lumens *in 2013 (57%) than in 2011 (43%). The NYSERDA-area rates were not significantly different from comparison-area rates.

While knowledge of the number of lumens in a 60-Watt incandescent bulb is still very low in all areas, the results could be interpreted as suggesting that more consumers are beginning to realize that Watts and lumens are not the same thing. If this is the case, it would be a form of progress.

Respondents also received questions about their awareness of the new Lighting Facts label, which has recently begun appearing on bulb packaging. Based on the Nutrition Facts label, the Lighting Facts label contains information on lumens, bulb life, annual savings, and other measures of interest given the greater variety of new bulbs coming on the market in response to EISA. Unaided awareness of the label was quite low, ranging from only 5% to 6% across all comparison areas and NYSERDA (Table 35). Awareness increased after the respondents were given a description of the label, but still remained fairly low. Respondents in the NYSERDA area, though (16%

[53] Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1573.

Overall, 17% Upstate, 14% Downstate), did show higher aided awareness than those in the Moderate (8%) or Low (10%) program activity comparison areas.

Table 35: Awareness of Lighting Facts Label

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*720*	*340*	*380*	*300*	*300*
Unaided Awareness of Lighting Facts Label					
Yes	6%	5%	6%	5%	5%
No	92	93	91	92	93
Don't know/refused	3	3	3	3	2
Aided Awareness of Lighting Facts Label					
Yes	16%	17%	14%	8%abc	10%ab
No	81	79	82	89	86
Don't know/refused	3	4	4	3	4

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

Of the respondents who had recently purchased bulbs and were aware of the Lighting Facts label, more than one-half of those in the Overall NYSERDA area (54%) had also seen the label on their recent purchase (Table 36). The numbers were equivalent between Upstate (54%) and Downstate respondents (57%). The numbers were lower in the Moderate (33%) and Low (40%) comparison areas, but small sample sizes kept them from reaching significance.

Table 36: Whether Saw Lighting Facts Label on Purchased Bulbs

(Base: Respondents who had purchased bulbs and were aware of Lighting Facts label)

Did you See the Lighting Facts Label on Bulb Packaging?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*25*	*9*	*16*	*12*	*6*
Yes	54%	54%	57%	33%	40%
No	25	17	27	46	11
Don't know/refused	22	29	17	21	49

As indicated throughout this report, given the abundance of new energy-efficient bulb types which use less energy to produce the same amount of light, consumers will now need to focus on aspects of the bulb other than the commonly used wattage measure. As a paper based on recent NYSERDA work explains, "There is no scale associated with the lumens information on the label. Without context, it is questionable whether consumers will know how to interpret the lumens data when they see it on the label. Given this, it would seem that increasing understanding of the term 'lumens' is probably the highest priority for consumer education about information on the Lighting Facts label. Perhaps the single most important lighting consumer education service that energy efficiency programs could play in the next few years is to help consumers transition from thinking about bulb brightness in terms of 40, 60 and 75 watts to thinking about it in terms of 450, 800, and 1,100 lumens."[54] With this in mind, the survey asked all respondents whether they had ever seen or heard of the term *lumens*. Overall, 57% of NYSERDA-area respondents indicated having seen or heard of the term—a significant increase from the 43% reporting awareness in 2011 (Table 37). The highest levels of awareness were recorded for Upstate respondents (65%), with lower levels among Downstate respondents (48%). Awareness in the High (55%), Moderate (62%), and Low (54%) comparison areas were equivalent to the Overall NYSERDA levels in 2013.

[54] Nevius, M., Browne, C., von Trapp, K. and Murray, C. 2012. "Consumer Understanding of Key Lighting Facts and Implications for Energy Savings." In *Proceedings of the 2012 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, D.C.: American Council for an Energy Efficient Economy (ACEEE). Accessed May 15, 2013 from http://www.aceee.org/files/proceedings/2012/start.htm.

Table 37: Whether Respondents Had Seen or Heard the Term Lumens

(Base: All telephone survey respondents)

	NYSERDA Area				Comparison Areas		
	2011	2013			2013		
Have Heard of *Lumens*	**Overall**	**A. Overall**	**B. Upstate**	**C. Downstate**	**D. High**	**E. Moderate**	**F. Low**
Sample size	*510*	*720*	*340*	*380*	*600*	*300*	*300*
Yes	43%a	57%	65%a	48%ab	55%bc	62%cd	54%be
No	57	42	33	50	44	37	44
Don't know/ refused	0	2	2	2	1	1	3

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

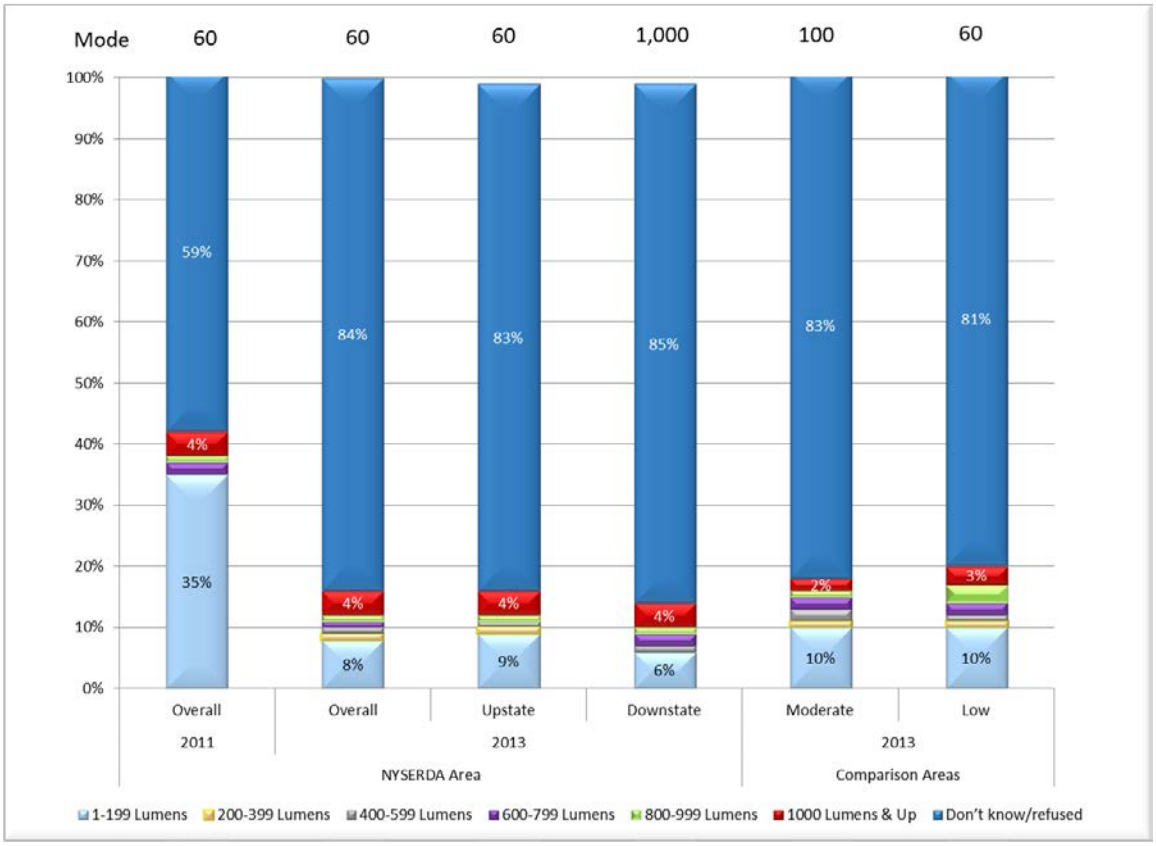
d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison areas.

After giving their definition of *lumens*, respondents who were aware of the term also estimated the number of lumens produced by a standard 60-Watt incandescent bulb. Although the precise number of lumens varies between different bulb manufacturers, a 60-Watt incandescent will generally produce between 800 and 850 lumens. As Figure 9 shows, the percentage of NYSERDA-area consumers who said that they did not know the answer increased significantly from 2011 to 2013 (from 59% to 84%). The majority of those who responded in all comparison areas gave a lumens estimate between 1 and 199 and, with the exception of Downstate consumers, the most frequently offered estimate of lumens produced by a 60-Watt bulb was 60, indicating that most respondents are continuing to confuse lumens and Watts, as in 2011. One possible explanation for the increase in the percentage of "don't know" responses since 2011 is that more consumers are beginning to realize that Watts and lumens are not the same thing. If this is the case, it is a form of progress. However, the increase could also be due to differences in implementation by different survey research firms in 2011 and 2013. The value estimated most frequently by Downstate respondents—1,000 lumens—is quite close to the correct answer of 800 to 850. However, as the number of Downstate respondents offering a response of 1,000 or more was small (weighted, about 4% or eight respondents), it may not be appropriate to generalize from this result.

Figure 9: Estimate of Lumens Produced by a 60-Watt Incandescent Bulb

(Base: Respondents who had seen or heard of lumens)



5.1.8.5 Awareness of ENERGY STAR Label

Of those NYSERDA-area respondents who had purchased CFLs in the past three months and were aware of the ENERGY STAR label, more than one-half (55%) said they had seen the label on the CFL packaging; of those who had purchased an LED in the past three months, about two-thirds (66%) said they had seen the label on the LED packaging. About one-third (35%) of CFL purchasers reported always or sometimes looking for the label. This number could be an important progress indicator for consumer educational efforts going forward and thus warrants tracking.

In preparation for a battery of questions having to do with the ENERGY STAR label, respondents were asked about unaided awareness of the label. Close to three out of four (73%) respondents in the NYSERDA area overall were aware of the label, with Upstate respondents (80%) more likely to report awareness than Downstate respondents (67%) (Table 38). This is very close to the 71% unaided awareness found via the annual CEE Household Awareness

Survey for the Overall NYSERDA area in 2012.[55] The NYSERDA-area respondents in general showed higher levels of ENERGY STAR awareness than those in the Low program activity comparison area (57%), and the Overall NYSERDA and Upstate numbers were also higher than that of the Moderate comparison area (64%).

Table 38: Awareness of the ENERGY STAR Label

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas	
	2013			2013	
Ever Seen or Heard of ENERGY STAR Label?	**A. Overall**	**B. Upstate**	**C. Downstate**	**E. Moderate**	**F. Low**
Sample size	*720*	*340*	*380*	*300*	*300*
Yes	73%	80%a	67%ab	64%ab	57%abce
No	25	19	30	34	41
Don't know/refused	2	1	3	4	1

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Of those NYSERDA-area respondents who had purchased CFLs in the past three months and were aware of the ENERGY STAR label, more than one-half (55%) said they had seen the label on the CFL packaging. Of those NYSERDA-area respondents who had purchased LEDs in the past three months and were aware of the ENERGY STAR label, about two-thirds (66%) said they had seen the label on the LED packaging. Differences among Upstate, Downstate, and comparison areas were not statistically significant in either case. (See Table 135 and Table 136 in Appendix B for details.)

[55] Research Into Action. 2013. *NYSERDA and National Awareness of ENERGY STAR® for 2012: Analysis of Consortium for Energy Efficiency Household Survey*. NYSERDA Project Number 9835. April.

Respondents who had purchased CFLs and were aware of the ENERGY STAR label were asked how consistently they looked for the label when purchasing bulbs. Given that bulbs with the ENERGY STAR label are noted for their efficiency, this measure gives a sense of how important such efficiency measures are to purchasers. In the NYSERDA area overall, 35% of respondents indicated always looking for the label or sometimes looking for it (Table 39). These numbers were the same across the Upstate and Downstate regions of New York. Fewer than one-half of purchasers across all areas indicated that they never looked for the label.

Table 39: Consistency in Looking for ENERGY STAR Label on CFLs

(Base: Telephone survey respondents who had purchased CFLs and were aware of ENERGY STAR label)

How consistently do you look for ENERGY STAR label when shopping for CFLs?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*113*	*62*	*51*	*31*	*49*
Never look for it	44%	44%	44%	41%	41%
Sometimtes look for it	21	21	22	27	21
Often look for it	14	15	10	19	13
Always look for it	21	19	24	13	25
Don't know/refused	1	1	0	0	0

Close to one-third (29%) of telephone survey respondents who were aware of the ENERGY STAR label and had purchased CFLs reported having seen or heard promotions for light bulbs or fixtures related to ENERGY STAR. While this percentage is significantly higher than that in the Moderate comparison area (13%), it is similar to that in the Low comparison area (32%) (Table 40). The lack of difference in rates is to be expected given the reduction in NYSERDA lighting marketing activities in 2012, as described in Section 3.1.2.

Table 40: Awareness of Promotions Related to ENERGY STAR

(Base: Respondents who had purchased CFLs and were aware of ENERGY STAR label)

Seen or Heard any Promotions for Light Bulbs/Fixtures Related to ENERGY STAR?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*113*	*62*	*51*	*31*	*49*
Yes	29%	32%	25%	13%ab	32%e
No	65	64	67	85	68
Don't know/refused	6	4	8	2	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

The survey asked recent bulb shoppers if they had seen any information in the bulb display area that helped them to choose a bulb. In the NYSERDA area Overall, more than one out of four (28%) respondents had seen such information, and the numbers were comparable between Upstate (27%) and Downstate (30%). This is similar to the rates in the Moderate and Low comparison areas (Table 41).

Table 41: Whether Saw Information in Bulb Display Area that Helped in Choosing Bulb

(Base: Respondents who had purchased bulbs in past three months)

Saw Bulb Information?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*329*	*149*	*180*	*112*	*143*
Yes	28%	27%	30%	31%	27%
No	69	70	67	65	68
Don't know/refused	4	3	4	5	5

5.1.8.6 Attitudes toward ENERGY STAR Bulbs and Energy Efficiency

While the penetration results provide evidence that Upstate households are more accepting of CFLs than Downstate households, the attitudinal battery suggests that Upstate households may be somewhat less favorably inclined toward ENERGY STAR-labeled bulbs of any type than Downstate households. In general, respondents in the Overall NYSERDA area exhibit fairly favorable attitudes toward ENERGY STAR bulbs. However, compared to Downstate respondents, Upstate respondents are less often sure that ENERGY STAR bulbs are bright enough (16% versus 22%), last longer than unlabeled bulbs (36% versus 43%), or save the energy that they are supposed to (19% versus 25%).

While the overwhelming majority of respondents in all areas claim that energy efficiency is important to the selection of light bulbs for their homes, Upstate respondents are slightly less likely than Downstate respondents to claim this (52% versus 60%).

The survey included a battery of four attitudinal questions, with answer categories ranging from "strongly disagree" to "strongly agree" on a 5-point scale. The results described below are from Figure 10. For more detailed results, see Table 118 in Appendix B.

"I can always be sure that light from bulbs with the ENERGY STAR label will be bright enough." More than one-half (56%) of Overall NYSERDA-area respondents either somewhat or strongly agreed with this statement.

However, Upstate respondents were slightly more likely to somewhat or strongly *disagree* with this statement (22%) than Downstate respondents (16%).

"I can always be sure that light from bulbs with the ENERGY STAR label will be the right color." Almost four in ten (39%) Overall NYSERDA-area respondents either somewhat or strongly agreed with this statement. There were no statistically significant differences in agreement or disagreement between Upstate and Downstate.

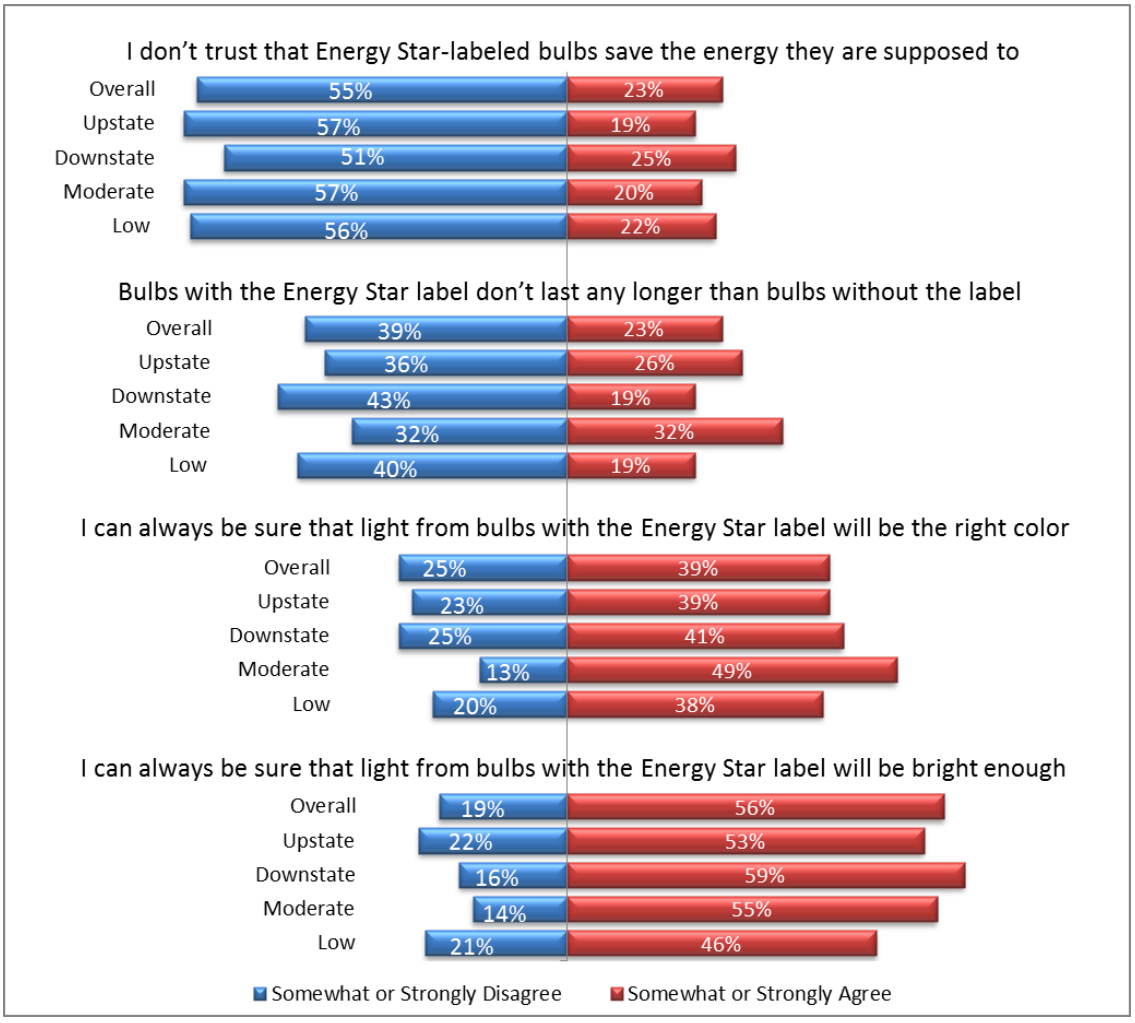
"Bulbs with the ENERGY STAR label don't last any longer than bulbs without the label." Almost four in ten (39%) Overall NYSERDA-area respondents either somewhat or strongly *disagreed* with this statement. Upstate respondents were slightly less likely to somewhat or strongly disagree with this statement (36%) than Downstate respondents (43%).

"I don't trust that ENERGY STAR-labeled bulbs save the energy they are supposed to." About one-half (55%) of Overall NYSERDA-area respondents either somewhat or strongly *disagreed* with this statement—but nearly one-quarter somewhat or strongly *agreed*. Upstate respondents reported agreement with this statement (19%) at significantly lower rates than Downstate respondents (25%).

Respondents were also asked to how important energy efficiency is to their selection of light bulbs for their home. The response scale ranged from 1 ("not at all important") to 5 ("very important"). The mean response for the Overall NYSERDA area was 4.3 out of 5. There were no statistically significant differences in mean response across the areas examined. Downstate respondents were slightly more likely than Upstate respondents to say that energy efficiency is very important (60% Downstate versus 52% Upstate) and slightly less likely to say that it is somewhat important (27% Downstate versus 33% Upstate). (See Table 119 in Appendix B for detailed results.)

Figure 10: Attitudes toward ENERGY STAR Bulbs

(Base: Telephone survey respondents aware of ENERGY STAR label)



5.1.9 Shopping For and Replacement of Bulb Types Affected by EISA

Manufacturers and retailers who were interviewed for the study were asked about their expectations for consumer bulb use and purchasing after EISA applies to 75-Watt bulbs in 2013 and 60-Watt bulbs in 2014. Nine manufacturers and two partner retailers speculated that there would be no change in bulb use because consumers were "hoarding" incandescent bulbs or because these bulbs are still widely available in the supply chain. Overall, the manufacturers and retailers interviewed expect that consumers will primarily choose EISA-compliant halogens and CFLs to replace phased-out bulbs in the near term (in 2013 and 2014), but that LEDs will likely be the primary replacement over the longer term (beyond 2014). Manufacturers and retailers who stated that EISA-compliant halogens would be likely replacements for phased-out bulbs often cited the easy transition and features that are similar to those of incandescent bulbs. Those who indicated that consumers would choose CFLs as replacements often mentioned greater education and awareness of energy-efficient options as the reason for the choice. One non-partner opined that that CFLs will become the "new incandescent, the everyday bulb." Interviewees frequently

mentioned price as a current barrier to adoption of the more the energy-efficient LED bulbs and noted that the price of LEDs will likely drop, making the technology more appealing to consumers. Most manufacturers and retailers (15 out of 27) indicated that rebate programs are critical to keeping costs low for consumers and, because cost is a primary barrier, serve as a useful marketing tool to get consumers to adopt energy-efficient lighting in general, even after incentives are no longer available.

5.1.9.1 100-Watt Bulbs

One-quarter (25%) of respondents in the Overall NYSERDA area had looked for 100-Watt incandescent bulbs in the three months prior to the survey (Table 42), and about one-third (36%) had found them one year after the EISA prohibition.

Respondents who shopped for a 100-Watt incandescent but purchased something else were most likely to report purchasing an incandescent bulb of another wattage (45% Overall) followed by CFLs (31%), screw-base LEDs (23%), and screw-base halogen bulbs (18%).

As described in Section 5.1.8.3, EISA banned the manufacture and import—but not the sale—of 100-Watt incandescent bulbs in January 2012. To understand how consumers were reacting to this and to inform the update of the Market Adoption Model, respondents were asked about shopping for and replacing this bulb type. One out of four respondents in the Overall NYSERDA area had looked for 100-Watt incandescent bulbs in the three months prior to the survey (Table 42). Just over one-third (36%) of Overall respondents who had looked for this bulb type reported having been able to find them a year after EISA prohibited their import and manufacture. Roughly one-half (56%) reported purchasing a different type of bulb instead of a 100-Watt incandescent. When this group was asked what kind of bulb they had purchased, respondents in all areas most frequently answered that they had purchased an incandescent bulb of another wattage (45% Overall, with no statistically significant difference in reporting between Upstate and Downstate). The next most popular replacement among Overall respondents was CFLs (31%), screw-base LEDs (23%), and screw-base halogen bulbs (18%). Upstate respondents were significantly more likely than respondents in all comparison areas to report purchasing an LED to replace a 100-Watt incandescent (28%); Downstate (20%) respondents were also significantly more likely than respondents in the Moderate (3%) or Low (8%) areas to report purchasing an LED to replace a 100-Watt incandescent. The higher self-reported rate of LED purchases Downstate compared to Upstate is in line with the saturation study results in Section 5.1.2.[56]

[56] The actual penetration of LEDs was found to be significantly higher in Downstate (17%) and Manhattan (20%) compared to Overall (11%) in 2013.

Table 42: Questions about Shopping for 100-Watt Incandescent Bulbs

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Moderate	F. Low
Respondent looked for 100-Watt incandescent bulbs in past 3 months (Base: All telephone survey respondents)						
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Percent Yes	25%	23%	28%	9%abc	18%acd	23%d
Purchased 100-Watt incandescent bulbs (Base: Respondents who had looked for 100 Watt incandescent bulbs)						
Sample size	*183*	*78*	*105*	*27*	*60*	*74*
Yes	36%	30%	40%	62%abc	18%abcd	32%de
Purchased another bulb instead of 100-Watt incandescent in past 3 months (Base: Respondents who had looked for 100-Watt incandescent bulbs)						
Sample size	*183*	*78*	*105*	*52*	*60*	*74*
Percent Yes	56%	61%	54%	63%	59%	65%
Type of bulb purchased (% and counts) (Base: Respondents who had purchased another bulb)						
Sample size	*108*	*47*	*61*	*33*	*36*	*51*
Incandescent bulbs of another wattage	45% (49)	39% (18)	51% (29)	81% (24)abc	39% (14)d	47% (22)d
CFLs	31% (32)	38% (18)	24% (14)	30% (9)	39% (14)	44% (21)c
LEDs	23% (24)	28% (13)	20% (12)	9% (3)ab	3% (1)abc	8% (4)abc
Halogen bulbs	18% (19)	20% (9)	15% (9)	20% (6)	8% (3)a	8% (4)ab
Candelabra	1% (1)	0%	2% (1)	3% (1)	6% (2)	2% (1)
Don't know/Refused	6% (6)	7% (3)	4% (2)	0%	6% (2)	3% (2)

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.9.2 75-Watt Bulbs

NYSERDA-area respondents were most likely to say they would use an 18-Watt CFL to replace a 75-Watt incandescent after the latter is phased out, with Upstate respondents being more likely to say this than Downstate respondents (39% vs. 31%).

An important aspect of preparing for the future lighting market is anticipating how consumer purchasing behavior will change once lower-wattage incandescent bulbs are phased out. With this in mind, consumer survey respondents were also asked to speculate what their preferred bulb type would be once the 75-Watt incandescent bulb is no longer available for purchase at the beginning of 2014. Across all comparison areas, the 18-Watt CFL meant to replace a 75-Watt incandescent was the most popular choice, cited by 34% of NYSERDA-area respondents Overall (Table 43). Upstate respondents, however, were significantly more likely to choose the CFL than Downstate respondents (39% vs. 31%), perhaps due to their greater awareness of and familiarity with the bulb. Those in the High and Low comparison areas (25% each) were more likely to choose a lower-wattage incandescent bulb than NYSERDA-area respondents Overall (20%), and those in the Moderate comparison area (14%) were more likely to choose the less efficient 53-Watt halogen than respondents in any other comparison area.

Table 43: Anticipated Replacement for 75-Watt Incandescent Bulbs

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
Bulb Type	A. Overall	B. Upstate	C. Downstate	D. High	E. Moderate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
An 18-Watt screw-in CFL bulb meant to replace a 75-Watt incandescent bulb	34%	39%	31%b	31%b	29%b	36%e
A lower-wattage incandescent bulb	20	19	21	25ab	22	25ab
A Higher Watt incandescent bulb	13	12	13	12	11	13
A 53-Watt screw-in halogen bulb meant to replace a 75-Watt incandescent bulb	8	7	9	9	14abcd	3abcde
A 16- to 18-Watt screw-in LED bulb meant to replace a 75-Watt incandescent bulb	7	8	7	9	8	12abc
Don't know/Refused	18	15	20	14	16	12

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.
d Statistically different at the 90% confidence level from High program activity comparison area.
e Statistically different at the 90% confidence level from Moderate program activity comparison area.

NYSERDA-area respondents' reasons for choosing specific replacements for 75-Watt incandescent bulbs suggest that:

- ***While a large proportion of NYSERDA-area households have absorbed the message that CFLs save energy, more progress remains to be made on other important messages about these bulbs, such as cost-effectiveness.***
- ***More progress could be made in raising consumer awareness about the energy efficiency and other important characteristics of LEDs.***
- ***Compared to Low-area respondents, NYSERDA-area respondents have a more accurate understanding of how halogen incandescent bulbs differ from CFLs and LEDs.***

Respondents were asked why they would choose the particular bulb they favored. Across all areas, those who cited the 18-Watt CFL were most likely to point to the bulb's ability to save energy and be efficient (39% Overall). Other popular reasons among NYSERDA-area respondents included being familiar with or already using CFLs (13% Overall), the fact that the CFL produces the same or a comparable amount of light to what they are used to (13% Overall), and the longevity of the bulb (12% Overall). Taken together, these results suggest that, while a large proportion of NYSERDA-area households have absorbed the message that CFLs save energy, more progress remains to be made on other important messages about these bulbs, such as cost-effectiveness. (For details, see Table 109 in Appendix B.)

Respondents across all comparison areas who said they would purchase an LED when 75-Watt incandescents are no longer available were most likely to mention the energy-saving capabilities of the bulb as a reason for choosing it (46% Overall). Close to one out of three Overall respondents (29%) also mentioned the quality of light from LEDs, and one out of four (24%) mentioned the bulb's longevity. Like the CFL results, these results suggest that, while close to one-half of NYSERDA-area respondents understand that LED bulbs are energy-efficient, more progress could be made in raising consumer awareness about this and other important characteristics of LEDs. (For details, see Table 110 in Appendix B).

One-quarter (25%) of Overall respondents who said that they would choose a lower-wattage incandescent gave as their reason that they simply did not need or want a higher-wattage bulb. About one-fifth (22%) explained that the lower-wattage incandescent uses less energy, and 10% said that it gives a better quality of light. (For details, see Table 111 in Appendix B.)

With the exception of the Low area, saving energy was not the top reason offered by respondents who said they would opt for the 53-Watt halogen bulb. Of those who did say this, NYSERDA-area respondents did so at the lowest rates (11% Overall versus 23% High, 22% Moderate, and 40% Low, with Low the only area for which the difference was statistically significant). The top reasons that Overall NYSERDA-area respondents offered for choosing for the 53-Watt halogen bulb were the quality of the light (34%), the fact that it produces the same or a

comparable amount of light to a 75-Watt incandescent (14%), and being familiar with or already using halogens (12%). By comparison, respondents in the Low area were significantly more likely to cite not just saving energy as their top reason for the choice (40%), but also bulb life (32%). These results suggest that, compared to Low-area respondents, NYSERDA-area respondents have a more accurate understanding of how halogen incandescent bulbs differ from CFLs and LEDs. (For details, see Table 112 in Appendix B.)

Across all areas, respondents who chose the least efficient bulb option, a higher-wattage incandescent, were most likely to cite a better quality of light from this bulb type as the reason for choosing it. This ranged from 72% in the Low area to 83% in the High area. (For detailed results, see Table 113 in Appendix B.)

5.1.9.3 Rate of Purchasing in Previous Three Months

Bulb purchasers in the Low comparison area showed the highest rates of CFL purchasing (51%)—a finding that seems logical given that, with less program activity, the Low area has greater room for growth in CFL purchases.

Respondents who reported having purchased a light bulb of any kind in the three months prior to the survey were asked a series of questions about these purchases. (For rates of purchasing, see Table 120 in Appendix B.) In the telephone survey, 40% of Overall NYSERDA respondents who had purchased any bulbs in the three months prior to the survey reported having purchased CFLs (Table 22).[57] More than one-half (55%) of the subset of respondents who participated in the onsite inventory reported having purchased one or more CFLs in the previous year. Bulb purchasers in the Low comparison area showed the highest rate of CFL purchasing (51%)—a finding that seems logical given that, with less program activity, the Low area has greater room for growth in CFL purchases.

The survey also asked respondents who had purchased CFLs in the previous three months about their specialty CFL purchases. The specialty CFL that respondents in the Overall NYSERDA area most frequently reported purchasing was the globe CFL (26%), closely followed by flood or recessed CFLs (24%) and A-shaped CFLs (21%). There was little change in reported specialty purchases from 2011.

[57] While this number is significantly higher than in 2011, bulb purchasing is somewhat seasonal. The 2011 survey asked about summer and early fall purchases while the 2013 survey asked about late fall and winter purchases. The evaluation team would expect fewer bulbs to be sold in the summer and early fall, when days are longer, than in the late fall and winter, which includes both shorter days and holiday lighting purchases.

Table 44: CFL Purchases in Prior Three Months

(Base: Telephone survey respondents aware of CFLs who had purchased bulbs in past three months)

	NYSERDA Area				Comparison Areas		
	2011	2013			2013		
	Overall	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Purchased a CFL in the Past 3 Months?							
Sample size	*348*	*299*	*140*	*159*	*276*	*96*	*121*
Yes	31%a	40%	45%	36%	45%c	41%	51%ac
No	68	56	51	59	54	57	48
Don't know/refused	1	4	4	5	1	2	1
Purchased this Type of Specialty CFL in the Past 3 Months?							
Sample size	*117*	*123*	*64*	*59*		*40*	*57*
Globe CFL	22%	26%	20%	30%		38%ab	28%
Flood or Recessed Lighting CFL	25	24	28	18		41abc	39ac
A-shaped CFL	16	21	17	24		28	20
Candelabra CFL	21	18	22	15		20	6abce
3-way CFL	19	16	16	15		24	18
Dimmable CFL	13	16	14	17		17	13

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.10 CFL Use and Satisfaction

5.1.10.1 CFL Novice versus Expert

The categorization of CFL users by novice versus expert suggests that respondents who have used CFLs at all are likely to have used them for many lighting needs. They also serve as yet another illustration of lagging CFL use Downstate compared to Upstate.

While the finding above makes it clear that self-reported penetration is not an accurate measure, the self-reported data are nonetheless useful in assessing more qualitative aspects of bulb use. Respondents were asked the number of CFLs installed as a categorical question, and the evaluation team used the results to break the sample down into "CFL experts" (those who report currently using five CFLs or more) and "CFL novices" (those who report currently

using zero to four CFLs).[58] Using this definition, in 2013 almost two-thirds of Overall NYSERDA-area respondents were CFL novices (65%) versus almost one-third (35%) who were experts[59] (Table 45). When respondents who report having zero CFLs are excluded, the ratio of novices to experts flips to one-third (33%) novices and two-thirds (67%) experts. Considering only respondents who report having at least one CFL installed, the proportion of experts was significantly higher Upstate (71%) than Downstate (63%), and significantly higher in all three comparison areas (73%) than Downstate.

The results suggest that respondents who have used CFLs at all are likely to have used them for many lighting needs. They also serve as yet another illustration of lagging CFL use Downstate compared to Upstate. However, it is also important to note that Downstate homes have fewer fixtures than those in other areas, and as the novice versus expert question is based on the raw number of CFLs currently installed, it is understandable that fewer Downstate respondents would be categorized as "experts" given this definition.

[58] The evaluation team believes that the question is likely accurate in capturing respondents who use more versus fewer CFLs.

[59] Including those not aware of CFLs.

Table 45: CFL Novices Versus Experts

(Base: Telephone survey respondents who reported having CFLs installed versus all telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
How many CFLs Currently Installed	**A. Overall**	**B. Upstate**	**C. Down-state**	**D. High**	**E. Mod-erate**	**F. Low**
Sample size (CFLs Currently Installed)	*407*	*228*	*179*	*365*	*196*	*162*
Novice (0 to 4 CFLs installed)	33%	29%	37%b	27%ac	26%ac	25%ac
Expert (5+ CFLs installed)	67	71	63b	73ac	73c	73c
Sample size (All households)	*720*	*340*	*380*	*600*	*300*	*300*
Novice (0 to 4 CFLs installed)	65%	51%a	73%ab	61%bc	56%ac	65%bce
Expert (5+ CFLs installed)	35	49a	27ab	39bc	44ac	35bce

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.10.2 CFL Satisfaction

Close to one-half (45%) of Overall NYSERDA-area respondents reported being somewhat or very satisfied with CFL bulbs, but one in eight (12%) Overall NYSERDA-area respondents reported being very dissatisfied with the CFLs in their homes. Upstate respondents were most likely to cite the mercury or disposal issues related to CFLs (35%), while Downstate respondents were more likely to be dissatisfied with the light color of the bulbs.

Close to one-half (45%) of bulb purchasers in the Overall NYSERDA area reported being "very satisfied" with the CFLs in their homes—but almost one in eight (12%) reported being very dissatisfied. There were no statistically significant differences in CFL satisfaction between Upstate and Downstate or between the NYSERDA and comparison areas (Table 46). The most common reason for dissatisfaction with CFLs in the NYSERDA area and all comparison areas except the High comparison area was insufficient brightness (37% in the NYSERDA area Overall). Upstate respondents were also likely to cite the mercury or disposal issues related to CFLs (35%), whereas Downstate respondents were more likely to be dissatisfied with the light color of the bulbs. Other responses

mentioned by more than 10% of NYSERDA-area respondents were the delay in the light coming on (or bulb "warm-up" time), the bulbs burning out, or issues with fit in fixture.

Table 46: Satisfaction with CFLs

(Base: Telephone survey respondents who had ever used a CFL and had purchased bulbs in past three months)

	NYSERDA Area			Comparison Areas		
	2013			2013		
Level of Satisfaction	**A. Overall**	**B. Upstate**	**C. Downstate**	**D. High**	**E. Moderate**	**F. Low**
Sample size	*231*	*116*	*115*	*401*	*77*	*89*
Very Satisfied	45%	40%	50%	47%	42%	45%
Somewhat Satisfied	29	34	23	31	19	27
Neither Satisfied nor Dissatisfied	6	2	9	8	18	10
Somewhat Dissatisfied	9	11	7	8	15	10
Very Dissatisfied	12	14	11	6	6	7
Don't know/refused	0	0	0	0	1	1

Table 47: Reasons for Dissatisfaction with CFLs (Partial Listing)[60]

(Base: Telephone survey respondents who were somewhat or very dissatisfied with CFLs)

Why are you Dissatisfied with CFLs?	NYSERDA Area				Comparison Areas		
	2009	2013			2013		
	Overall	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*73*	*51*	*29*	*22*	*401*	*12*	*19*
Not bright enough	25%	37%	35%	43%	6%abc	25%d	46%de
Mercury/disposal hazard	11	22	35	4ab	19c	0abd	6abd
Light color	15	14	4	25b	13	8	11
Delay in light coming on	20	14	18	8	20c	12	17
Burned out	18	8	11	4	2	42	17

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.10.3 Removal of Functioning CFLs

Respondents who had ever used a CFL were asked if they had removed a functioning CFL in the prior three months. Almost one out of ten (9%) CFL users in the NYSERDA area Overall indicated that they had removed a functioning CFL in the previous three months (Table 48). Rates of CFL removal in other 2013 comparison areas were comparable to the NYSERDA area Overall.

The small number of respondents who had removed functioning CFLs were asked why. In 2013, far and away the most common reason for CFL removal among 2013 Overall respondents was the quality of the light (41% Overall, up from 24% in 2009). (For details, see Table 126 in Appendix B.)

[60] For a full listing, see Table 122 in Appendix B.

Table 48: Removed a Functioning CFL in Prior Three Months

(Base: Telephone survey respondents who had ever used CFLs)

Have you Removed a CFL that was Functioning in Past 3 Months?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Down-state	E. Moderate	F. Low
Sample size	*449*	*247*	*202*	*212*	*177*
Yes	9%	8%	9%	11%	12%
No	91	91	90	89	88
Don't know/refused	1	1	1	0	0

5.1.10.4 CFL Loyalty

The CFL loyalty results suggest that a net total of 4% of Upstate respondents who had ever used a CFL are likely to promote them by word of mouth (i.e., they are "net promoters")—but Downstate, the total percentage of respondents who are likely to promote CFLs by word of mouth is exceeded by those who are likely to do the opposite.

In 2013, the evaluation team measured consumer loyalty to CFLs for the first time through the measurement and calculation of the proportion of "net promoters" of CFLs as described by Reichheld.[61]

Loyalty is measured on an 11-point scale in response to the question, "On a scale of 0 to 10, with 0 being extremely unlikely and 10 being extremely likely, how likely are you to recommend CFL bulbs to a friend?" Respondents who answer 9 or 10 are considered "promoters"; those who answer 7 or 8 are "passively satisfied"; all others are "detractors." "Net promoters" is the percentage of promoters minus the percentage of detractors.

While it is technically possible to calculate a test of significance for net promoters, since net promoters is a calculation based on proportions of other groups and not a unique group of respondents, the test would not be statistically valid. Thus, the results in Table 49 should be interpreted with caution. With this caveat in mind, Table 49 suggests that 4% of Upstate respondents who had ever used a CFL were net promoters—but Downstate respondents are not promoting CFLs and, in fact, in the aggregate, could be doing the opposite. By comparison, 9% of respondents in the Low comparison area were net promoters. A possible reason why Low comparison-area respondents are so much more enthusiastic about CFLs than respondents in other areas is because CFLs are newer to the Low area, so there is a higher proportion of respondents for whom CFLs are a novelty. Another possible explanation is that respondents in the Low area were less likely to have been exposed to early, less satisfactory CFLs

[61] Reichheld, F. F. 2003. "The One Number You Need to Grow." *Harvard Business Review*, (81)12: 46-54.

than respondents in other areas. Since their experiences have been more positive, they are more likely to recommend CFLs. Following this logic, however, one would expect the rate of net promoters in the Moderate area to be between the Overall NYSERDA area and Low area rates—but at -13%, this is not the case.

Table 49: Net Promoters of CFLs

(Base: Telephone survey respondents who had ever used a CFL and had purchased bulbs in past three months)

	NYSERDA Area 2013			Comparison Areas 2013	
How Likely are you to Recommend CFLs to a Friend?	**A. Overall**	**B. Upstate**	**C. Downstate**	**E. Moderate**	**F. Low**
Sample size	*231*	*116*	*115*	*77*	*89*
Promoters	40%	41%	39%	32%	47%e
Detractors	40	37	42	45	38
Net Promoters*	0	4	-3	-13	9

* Statistical tests between groups of Net Promoters are not valid.

e Statistically different at the 90% confidence level from moderate program activity comparison areas.

5.1.11 LED Use & Satisfaction

Respondents who were found during the onsite inventory to have screw-base LEDs installed were asked to complete a questionnaire about their LED use during the initial onsite saturation visit. Nineteen consumers filled out the questionnaire. Respondents were not required to answer every question, thus creating a small amount of variation in the sample size. These results are reported in this section here along with the telephone survey results.

5.1.11.1 Rate of Purchasing In Previous Three Months and Types of Stores Where Purchased

Almost one out of four (24%) NYSERDA Overall respondents who were aware of LEDs reported purchasing one or more LED bulbs in the three months prior to the survey (Table 128). Only respondents in the Low comparison area reported having purchased LED bulbs at significantly lower rates (12%). (For details, see Table 28 in Section 5.1.7.3.)

5.1.11.2 Reasons for Using LED Bulbs

Onsite study participants were most likely to offer the following as reasons for using LED bulbs: saving electricity (15 respondents), longevity (14 respondents), saving money (12 respondents), and the bulbs' lack of mercury (9 respondents).

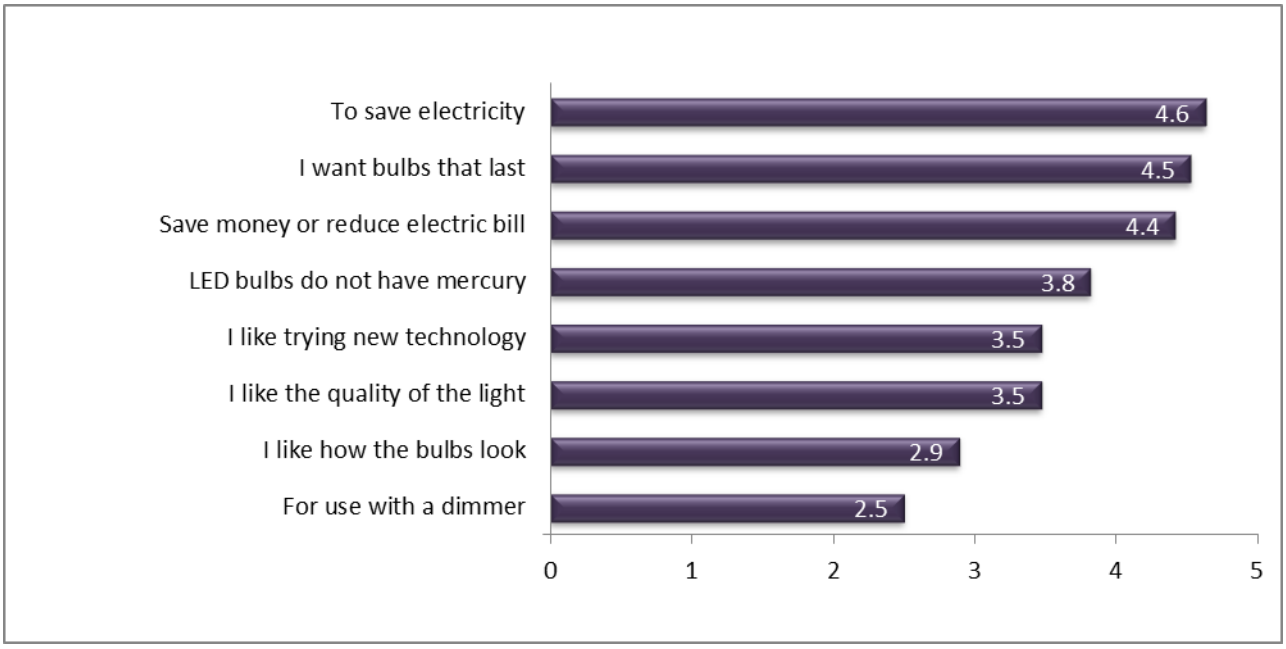
Onsite respondents with LEDs installed were asked to rate their agreement on a 5-point scale (where 1 equals "strongly disagree" and 5 equals "strongly agree") with a series of reasons for using LEDs. Figure 11 shows the

mean responses. Four reasons stood out in that a majority of the 19 respondents strongly agreed with them: saving electricity (15 respondents), longevity (14 respondents), saving money (12 respondents), and the bulbs' lack of mercury (9 respondents) (see Table 130 in Appendix B for details). Respondents also offered six additional reasons for installing LED bulbs: the light from LEDs is similar to incandescent light; a family member encouraged the use of LEDs; LEDs are better for the environment; LEDs withstand cold temperatures; a desire to try LEDs; and the availability of LEDs in specialty colors.

In an open-ended question, we asked customers why they installed LEDs in the particular fixtures in which we found them. Four respondents mentioned that they were looking for bulbs that would be long-lasting for a frequently used fixture, three respondents were replacing bulbs as they burned out, two respondents noted that they were able to find LEDs that fit the particular fixture, and another two expressed general dissatisfaction with CFLs.

Figure 11: Mean Agreement with Reasons for Installing LED Bulbs

(Base: All onsite respondents with LED bulbs installed, n=19)



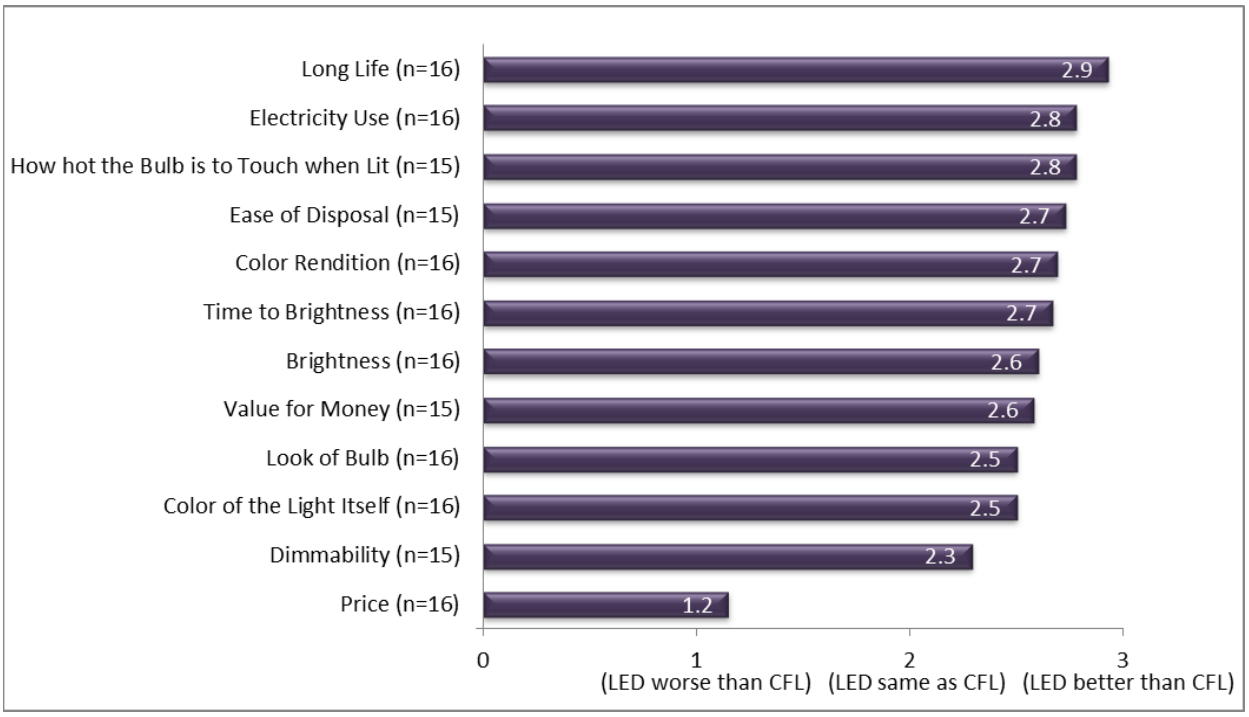
5.1.11.3 Perception of LEDs

Onsite respondents ranked LEDs as superior to CFLs in all aspects except price.

The onsite inventory also asked respondents with LED bulbs how these bulbs compared to CFLs on a number of important characteristics. Responses were given on a 3-point scale, with 1 indicating that LEDs are worse than CFLs, 2 meaning they are both about the same, and 3 meaning LEDs are better than CFLs. As Figure 12 shows, respondents ranked LEDs as superior on all characteristics except price. For example, respondents thought that LEDs had a longer bulb life than CFLs, were not as hot to the touch, used less electricity, were easier to dispose of, and had better color rendition. Further, despite the low marks for price, respondents still ranked LEDs higher than CFLs in the "value for money" category, indicating awareness that while the upfront cost is higher, LEDs also provide greater savings over their lifetime. Overall, respondents were most likely to say that LEDs were superior to CFLs in longevity.

Figure 12: Perception of LED and CFL Characteristics

(Base: Onsite respondents with LED bulbs installed)



5.1.11.4 Satisfaction with LEDs

Fifteen of 19 onsite inventory respondents reported that they were "very satisfied" with their LED bulbs. Telephone survey respondents who said they had LEDs installed reported roughly equal rates of being "very satisfied" with LED bulbs compared to CFL users who had CFL bulbs installed (56% Overall for LEDs and 45% Overall for CFLs), but respondents with LED bulbs installed reported much lower rates of being "very dissatisfied" with LEDs compared to CFL users with CFL bulbs installed (0% Overall for LEDs versus 12% Overall for CFLs).

Respondents to the onsite inventory who were asked what they liked about screw-in LEDs were most likely to cite the long life of the bulbs (7 of 18), light quality and color of LEDs (4 of 18), and value/price, energy efficiency, and brightness (3 each of 18).

Both the onsite inventory and telephone survey asked respondents about their satisfaction with LEDs. Fifteen of 19 onsite inventory respondents reported they were "very satisfied" with their LED bulbs; the mean rating was 4.7 on a 5-point scale (with 1 meaning "very dissatisfied" and 5 meaning "very satisfied"). (See Table 131 in Appendix B for details.) All of these 15 onsite inventory respondents also reported via the telephone survey that they had used CFLs at some point. Only five of the 15 reported being "very satisfied" with the CFLs they had used; the mean rating was 2.6. Telephone survey respondents who said they had LEDs installed reported roughly equal rates of being "very satisfied" with LED bulbs compared to CFL users who had CFL bulbs installed (56% Overall for LEDs and 45% Overall for CFLs), but respondents with LED bulbs installed reported much lower rates of being "very dissatisfied" with LEDs compared to CFL users with CFL bulbs installed (0% Overall for LEDs versus 12% Overall for CFLs, as described in Section 5.1.10.2). There were no significant differences in LED satisfaction between Upstate and Downstate respondents. LED users in the Moderate and Low comparison areas reported comparable levels of LED satisfaction.

Respondents to the onsite inventory were asked an open-ended question concerning what they liked about screw-in LEDs. They were most likely to cite the long life of the bulbs, with 7 of 18 respondents mentioning this clear benefit of the bulb. Four respondents each praised the light quality and color of LEDs, while three respondents each liked the value/price, energy efficiency, and brightness of LEDs. Other positive characteristics offered by one respondent each were the ability to turn the lights on and off frequently without destroying the bulb, the fact that LEDs can withstand cold temperatures, that LEDs do not flicker, that they do not give off heat, that they are dimmable, and that they are better for the environment.

Table 50: Satisfaction with Screw-in LED Bulbs (Onsite Inventory)

(Base: Respondents found to have LED Bulbs Installed)

Satisfaction	Number of Respondents
Sample Size	*18*
Mean	**4.67**
(5) Very Satisfied	13
(4) Somewhat Satisfied	4
(3) Neither Satisfied nor Dissatisfied	1
(2) Somewhat Dissatisfied	0
(1) Very Dissatisfied	0

The most common aspect of LEDs that onsite inventory respondents reported disliking was the price of the bulbs (7 of 18 respondents).

Respondents to the onsite inventory were asked what they *dislike* about LEDs. Not surprisingly, the most common dislike, mentioned by 7 of the 18 respondents, was the price of the bulbs. Two respondents did not like the color and another two expressed dissatisfaction with the availability of sizes and shapes for specialty fixtures. As one respondent explained, "Not all sizes and applications are available. We use a lot of 'flame tip' incandescent [bulbs] that need an attractive LED substitute." One respondent each expressed dissatisfaction with the dimming ability; the time it takes for LEDs to reach full brightness; and the bright, tightly directed light that comes from the LED.

Turning to the telephone survey results, only five respondents across all comparison areas reported dissatisfaction with LEDs. Two of these respondents were from Downstate, and three were from the Moderate comparison area. The two Downstate respondents mentioned the bulbs not being bright enough, being too bright, having poor light color, and not saving as much as expected (one response each). All three dissatisfied respondents in the Moderate comparison area indicated that the LEDs were not bright enough.

5.1.11.5 Dimming Performance

Eight respondents to the onsite inventory answered a question about satisfaction with the dimming performance of their LEDs. As Table 51 shows, the results were mixed, with three respondents very or somewhat satisfied and one very dissatisfied with their bulbs' dimming performance. The dissatisfied respondent reported "some flickering or no dimming at times."

Table 51: Satisfaction with Dimming Performance
(Base: Respondents to onsite inventory with LED bulbs)

Satisfaction	Number of Respondents
Sample Size	*8*
Very or Somewhat Satisfied	3
Neither Satisfied nor Dissatisfied	2
Somewhat or Very Dissatisfied	1
Don't Know	2

5.1.11.6 Change in Lighting Use Due to LEDs

The data offer little evidence of any significant change in lighting use in rooms in which onsite inventory participants had installed LED bulbs.

We also asked onsite respondents if installing LED bulbs caused them to change how they used the lights in any of the rooms in which they were installed. Most respondents (12 out of 18) indicated no change. Of the four respondents who did report a change, three responses suggest the possibility that LEDs could lead to changes in use in ways that might slightly erode potential savings. Specifically, two respondents said that they left the lights on longer, and one said that they no longer worry about turning the light on for a short time. On the other hand, one respondent reported using the LED light *less* because they preferred the light color of the CFL that it had replaced.

5.1.11.7 LED Loyalty

Reponses to the LED loyalty question suggest that 19% of Downstate respondents who had ever used LEDs are likely to promote them by word of mouth ("net promoters"), while the total percentage of Upstate respondents who are likely to promote LEDs by word of mouth is exceeded by those who are likely to do the opposite. This is diametrically opposed to the loyalty finding for CFLs.

LED loyalty was measured similarly to CFL loyalty, as described in Section 5.1.10.3. Also as described in that section, a test of differences in the rate of net promoters across comparison groups would not be statistically valid. Thus, differences in results in Table 52 below should be interpreted with caution.

With this caveat in mind, Table 52 suggests that, in contrast to respondents who had ever used CFLs, 19% of Downstate respondents who had ever used LEDs are net promoters, while 7% of Upstate respondents who had used

these LEDs may actually be detractors—possibly because of the high cost of the bulbs, which is likely more an impediment to Upstate respondents who are, on average, less affluent than Downstate.[62] As with CFLs, respondents in the Low comparison area may be more likely to be net promoters of LEDs (28%). Also as with the CFL results, by this logic the rate of net promoters in the Moderate area should be higher than it is (-17%). The surprisingly low Moderate-area loyalty results for both LEDs and CFLs underline the need to interpret the loyalty results with caution.

Table 52: LED Loyalty

(Base: Telephone survey respondents who had ever used LEDs)

	NYSERDA Area 2013			Comparison Areas 2013	
How Likely are you to Recommend LEDs to a Friend?	**A. Overall**	**B. Upstate**	**C. Down-state**	**E. Moderate**	**F. Low**
Sample size	*63*	*28*	*35*	*28*	*19*
Promoters	45%	40%	45%	26%a	58%be
Detractors	55	61	54	73a	42e
Net Promoters	11	-7	19	-17	28

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

5.1.11.8 Removal of Functioning LEDs

Fewer than one out of ten respondents in the NYSERDA area (8% Overall) reported having removed a functioning LED bulb. (For details, see Table 132 in Appendix B.) The most commonly offered reason that functioning LED bulbs were removed was to move them to another room (4 of 10 bulbs in the Overall NYSERDA area). (For details, see Table 133 in Appendix B.)

[62] An assessment of self-reported income performed by the evaluation team on consumer telephone survey data collected for the 2012 NYSERDA Residential Lighting Market Characterization Study, Report 9875-A, showed that that Upstate survey respondents were more likely than Downstate to report annual incomes of $15,000-$30,000, and Downstate respondents more likely than Upstate to report annual incomes of $100,000 or more.

5.1.12 Manufacturer and Retailer Expectations About the Future Market

When asked what type of bulb they expect consumers to most commonly purchase to replace 60-Watt incandescent bulbs when they are phased out in 2014, similar numbers of interviewees expressed the opinion that EISA-compliant halogens (6), CFLs (7), and LEDs (7) would most commonly be used to replace 60-Watt incandescent bulbs. Just two interviewees thought another type or wattage of incandescent bulb would most commonly replace 60-Watt incandescent bulbs in 2014.

When asked about their expectations for U.S. product sales of EISA-compliant halogen replacements for 60-Watt bulbs, interviewees offered mixed opinions. Seven expect little or no growth in sales of this bulb type over the long term, while four expect significant growth in the short-term but did not see this bulb type having a big place in the market over the long term. (One interviewee sees this bulb type as a bridge from incandescents to LEDs, which will "win the day.") Only three interviewees saw good long-term prospects for EISA-compliant halogen replacements for incandescent bulbs.

Section 6

IMPACT EVALUATION

NET-TO-GROSS ANALYSIS

6.1.1 Background and Data Sources

The evaluation team calculated 2011 Net-to-Gross (NTG) for standard CFLs, and both 2011 and 2012 NTG for specialty CFLs and LEDs. A NTG ratio through mid-2010 has already been calculated as part of the 2011 Multi-State Modeling study.[63] As determined during the planning process, NYSERDA will apply the 2011 NTG retrospectively to the second half of 2010.

The evaluation team took two methodological approaches to measuring NTG: (1) the supplier self-reported counterfactual and (2) adjusted 2011 to 2012 sales reductions. Below are descriptions of the sources of data for these methods.

6.1.1.1 Data Sources for Supplier Self-reported Counterfactual and NYSERDA-area Adjusted 2011 to 2012 Sales Reductions

These methods rely on participants' self-reported estimates of actual or anticipated change in bulb sales in the absence of program support. The evaluation team gathered these estimates as part of in-depth interviews with manufacturers and retailers. The team used data for these analyses only from the subset of interviewees who supplied both program and non-program sales data for the years being examined, a total of 15 partner manufacturer interviewees. These manufacturers' sales represent the following portions of the lighting market in the NYSERDA area:

- 46% of total 2011 program-supported CFL sales and 17% of the team's estimate of total 2011 NYSERDA-area standard CFL sales based on the onsite inventory;
- 75% of total 2012 program-supported specialty CFL sales and 3% of the team's estimate of total 2012 NYSERDA-area specialty CFL sales; and
- 46% of total 2012 program-supported LED sales and 7% of the team's estimate of total 2012 NYSERDA-area LED sales.[64]

[63] NMR Group, Inc. *Final Results of the Multi State Modeling Effort, NYSERDA.* Submitted September 25, 2011.

6.1.1.2 Data Sources for Adjusted 2011 to 2012 Sales Reductions

This method relies on New York statewide market-level sales from certain stores, adjusted to reflect the percentage of the state's population in the NYSERDA service area. The data are point-of-sale (POS) data from retailers in the grocery, drug store, dollar store, mass merchandise, and club/warehouse store sales channels. These sales data represent:

- 16% of the 2011 program-supported CFL sales and 21% of the team's estimate of total 2011 NYSERDA-area market-level CFL sales;
- 22% of the 2012 program-supported specialty CFL sales and 5% of the team's estimate of total 2012 NYSERDA-area market-level specialty CFL sales; and
- Less than 1% each of the 2012 program-supported LED sales and the team's estimate of total 2012 NYSERDA-area market-level LED sales.

Both methods also drew on NYSERDA partner sales data records obtained from Lockheed Martin and the team's estimates of total bulb sales for the NYSERDA area based on the onsite inventory.[65]

6.1.2 NTG Findings and Recommendations

6.1.2.1 Standard CFL 2011 NTG

The evaluation team identified two primary approaches to analyze NYSERDA manufacturer and retailer interview responses to calculate net-to-gross (NTG) estimates for 2011 standard CFLs: (1) counterfactual and (2) adjusted sales reductions. The two methods result in the following NTG estimates for standard CFLs:

[65] As part of this research, the evaluation team also explored the possibility of calculating NTG for standard CFLs in 2012 via a third method, comparing NYSERDA and Massachusetts program sales and POS sales data from these retailers. While the data clearly demonstrated a greater increase in standard CFL sales in Massachusetts between 2011 and 2012 compared to NYSERDA, the retailer POS data purchased for the study were not detailed enough to allow the team to back out a NTG value using this method.

Table 53: Standard CFL 2011 NTG Results

Methodology & Year	CFLs Estimate
2011 Counterfactual	65%
Adjusted 2011 to 2012 Sales Reductions	63%
Final Recommended NTG	64%

Given the convergence of NTG estimates in the two methodologies, the team recommends a NTG of 64% for 2011 standard CFLs.

6.1.2.2 Specialty CFL and LED 2011 and 2012 NTG

Since the program supported specialty CFLs (SCFLs) and LEDs in both 2011 and 2012, this study uses only the counterfactual method, employing manufacturer and retailer interview responses to calculate NTG estimates for specialty CFLs and LEDs for these years. The team recommends using the NTG estimates below for 2011 and 2012 specialty CFL and LED bulbs:

Table 54: Specialty CFL and LED 2011 and 2012 NTG Results

Methodology & Year	Estimate	
Counterfactual	**SCFLs**	**LEDs**
2011	87%	90%
2012	71%	75%

6.1.3 Description of Methods

6.1.3.1 Counterfactual Methodology

The counterfactual method relies purely on the participant self-reported estimated change in sales in absence of program support. As there was no program support for standard CFLs in 2012, this methodology yielded only a 2011 NTG estimate for standard CFLs. For all three types of bulbs in 2011, participants answered the following question:

> *According to our records, in **2011** [business] sold [#] [bulb type] that were discounted through the NYSERDA Products Program. If the NYSERDA discounts had not been available in 2011, would your sales of [bulb type] have been about the same, lower, or higher? If lower or higher, by what percent?*

Respondents answered similar questions for SCFLs and LEDs for 2012:[66]

> *In **2011** [business] sold [#] specialty CFLs that were discounted through the NYSERDA Products Program. If the NYSERDA discounts had not been available in 2011, would [business]'s 2011 sales of specialty ENERGY STAR CFL bulbs have been about the same, lower, or higher? If lower or higher, by what percent?*
>
> *In **2012** [business] sold [#] LEDs that were discounted through the NYSERDA Products Program. If the NYSERDA discounts had not been available in 2012, would [business]'s sales of LED bulbs in the NYSERDA service area have been about the same, lower, or higher? If lower or higher, by what percent?*

Results from these questions (*"% Drop")* were multiplied by their program bulbs, and *program-attributed* bulbs were determined through the following equation:

$$Attributed\ bulbs = program\ bulbs\ \times \%\ drop$$

Program-attributed bulbs are summed and divided by the total *program bulbs* of all the respondents. The result is a weighted NTG estimate for all interview respondents (equation below).

Counterfactual:

$$Weighted\ NTG = \sum Attributed\ bulbs / \sum respondent\ program\ bulbs$$

6.1.3.2 Adjusted 2011 to 2012 Sales Reduction Methodology

Because program incentives for standard CFLs were eliminated in 2012, NYSERDA is in a unique position to analyze NTG based on the reduction of standard CFL sales between a program year (2011) and a non-program year (2012).

To gauge the reduction in standard CFL sales, program participants answered the following two questions:

> *(Q1) During 2011, what percent of your sales of standard CFLs in the NYSERDA service area would you estimate were CFLs discounted through the NYSERDA Products Program*?
>
> And

[66] The initial wording of the 2012 SCFL and LED counterfactual questions confused some respondents, leading them to answer "Don't Know." To address the resulting gaps in the data, we re-contacted those respondents who had been unable to answer over the phone via a combination of email and phone, explaining the question in more detail via email and obtaining responses via phone and email. This brought about very high levels of successful responding. The wording here comes from this follow-up.

> *(Q2) In 2012, NYSERDA eliminated discounts for standard CFLs. This change may have affected [business]'s 2012 sales for standard CFLs in the NYSERDA service area. Were your 2012 sales of standard CFL bulbs in the NYSERDA service area about the same, lower, or higher than in 2011? If lower or higher, by what percent?*

In order to calculate the difference between 2011 and 2012 standard CFL sales, the evaluation team needed store-level sales for both 2011 and 2012. The team requested these sales numbers, but most respondents did not provide actual non-program sales data. For these respondents, in lieu of actual sales data, *2012 bulb sales* were calculated as a function of *2011 total bulb sales*. Specifically, *2011 total bulb sales* were calculated by dividing the number of incented program bulbs[67] by the self-reported proportion of program bulbs (Q1), or:

$$2011\ bulb\ sales = {incented\ bulbs}/{\%\ of\ program\ bulbs\ (Q1)}$$

2012 *bulb sales* were then calculated by the percent reduction of standard CFL bulb sales in 2012 (Q2) multiplied by *2011 total bulb sales,* or:

$$2012\ bulb\ sales = 2011\ total\ bulb\ sales\ \times \%\ 2012\ reduction\ (Q2)$$

To assess the potential impact of other factors that may decrease sales, the evaluation team compared the change in standard CFL sales from 2011 to 2012 for a limited number of retail channels for the NYSERDA area and for Georgia, which did not have significant program support during 2011 or 2012. This analysis included only sales in channels for which point-of-sale data were available.[68] The review of the Georgia data found that there was a naturally occurring 18% decrease in standard CFL sales between 2011 and 2012. In contrast, standard CFL sales decreased in the NYSERDA area by 26% during the same period.

These results led the evaluation team to adjust the baseline to account for a naturally occurring reduction in sales. To adjust the baseline (*naturally occurring sales)*, the evaluation team examined the difference in sales in the NYSERDA area (26%) compared to the reduction of sales in Georgia (18%), with the difference (8%) assumed to be due to lack of program support for standard CFLs in 2012.

To calculate NTG, the evaluation team first multiplied the 2011 NYSERDA-area estimated CFL sales through retailers reporting to the POS vendor by one plus the difference between the change in sales of these retailers from 2011 to 2012 in the NYSERDA area and Georgia.

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[67] As provided by the program implementation contractor.

[68] POS sales data were available for selected grocery, drug, mass merchandiser, club, and dollar stores. These sales are estimated to represent 22% of standard CFL sales in the NYSERDA area in 2011.

$$\begin{aligned} &Baseline\ adjusted\ for\ naturally\ occuring\ sales \\ &= 2011\ NYSERDA\ area\ IRI\ CFL\ sales\ *\ (1 \\ &+ (\%\ change\ in\ NYSERDA\ CFL\ sales\ \ 2011\ to\ 2012 \\ &- \%\ change\ in\ Georgia\ CFL\ sales\ \ 2011\ to\ 2012\ )) \end{aligned}$$

In this methodology, *attributed bulbs* are calculated by the difference between NYSERDA-area 2011 CFL sales through retailers providing POS data and the baseline adjusted for naturally occurring sales, or:

$$Attributed\ bulbs\ (adjusted) = (2011\ NYSERDA\ IRI\ CFL\ sales - baseline\ for\ naturally\ occuring\ sales)$$

The weighted NTG was calculated by:

$$Weighted\ NTG = Attributed\ bulbs\ (adjusted) \Big/ \begin{matrix} NYSERDA\ IRI\ sales \\ through\ the\ program \end{matrix}$$

6.1.3.3 Threats to Validity

Each of the above methodologies has inherent biases/threats to validity. The team has attempted to articulate some of them below.

6.1.3.4 Counterfactual Potential Bias

These self-reported counterfactual NTG questions have been asked repeatedly of the same respondents for many evaluation efforts across the United States. There is the possibility that the respondents may have become informed as to how their responses are used and thus tailored their answers to over-estimate program influence on sales, therefore increasing savings attributed to the program and ensuring continued program incentives for their bulbs.[69] Additionally, because the final NTG estimate is weighted based on program sales, the results can be heavily skewed by a few large program participants.

[69] The team investigated the individual responses of manufacturers to search for outliers (that is, responses that could represent "gaming" of the system to over-estimate program influence). One respondent did indicate that without program incentives in 2011, sales would have been 100% lower. This response initially struck the team as suspect. However, this was one of the smallest manufacturers we interviewed, and removing their data did not alter the ultimate NTG estimates. Further, when asked how much their sales *actually* dropped from 2011 to 2012, the same manufacturer indicated that they sold zero standard CFLs in 2012 once incentives were dropped, corroborating their counter-factual estimate. The majority of counter-factual estimates fell in the range of 50% to 70%.

6.1.3.5 Adjusted 2011 to 2012 Sales Reduction Potential Bias

The adjusted 2012 sales data approach has a number of threats to validity, including the following:

- The demographics and household characteristics of Georgia differ from those of New York.
- The saturation of Georgia is likely different from that of New York, which can lead to different CFL sales over time (i.e., as saturation of CFLs increase, CFL sales will eventually decrease due to longer lifetimes).
- The NTG series does not capture the effects of consumer education, which is an important aspect of the NYSERDA program.
- The change in sales was limited to only those channels where POS data were available; sales in the other channels may have had different changes from 2011 to 2012, potentially leading to different NTG estimates for other channels.
- The Georgia comparison area includes the energy provider Georgia Power. In 2012, Georgia Power began program activity with big box retailers. This could impact results to the extent that there was cannibalization across sales channels. Although the team cannot assess that possibility with the current data, to the extent that it might have occurred it would mean that the drop in the available Georgia POS data was *greater* (i.e., sales shifted away from the available grocery, dollar, discount, club, and mass merchandiser stores to the program stores) and thus lead to a *conservative* NTG estimate for the adjusted sales reduction approach (i.e., the sales drop in the available Georgia stores might not have been as great if the program had not shifted sales away from these stores).
- The change in sales for New York included both participants and non-participants in the grocery/drug/discount channels. Thus, the change in non-participant sales might be reducing the overall reported drop in CFL sales between 2011 and 2012 (i.e., the 26% drop might be greater if the team examined only participating stores in these channels).

ELECTRICITY AND PEAK DEMAND SAVINGS

The evaluation team developed estimates of electricity and peak demand savings for NYSERDA for the latter half of 2010 (from July 1 to December 31) and for all of 2011 and 2012 using the NTG ratios developed in this study. To arrive at these estimates, the team also turned to energy and demand savings parameters set forth in two different technical manuals published by the New York Department of Public Service (DPS) and supplemented with data from the New England Markdown Study of 2009.[70] Other parameters were calculated from data collected or

[70] New York Evaluation Advisory Contractor Team. *New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs: Selected Residential and Small Commercial Measures*. Submitted December 28, 2008 (Prior Technical Manual). 2) New York Evaluation Advisory Contractor Team. *New York Standard Approach*

analyzed as a part of the NYSERDA Residential Point-of-Sale evaluation. Whenever possible, the evaluation team relied on the Current Technical Manual, drawing parameters from other sources only when they fell under the purview of this project (e.g., NTG ratios and wattage of installed CFLs) or when the Current Technical Manual did not list parameters (e.g., estimated measure life of CFLs). Installation rates were not available for SCFLs and LEDs; for this, the team assumed that the SCFL installation rates would mimic the CFL installation rates (found in the NE Measure Life Study) and that LED first-year installation rates would be higher due to the price and single-bulb packaging of LEDs. The HOU numbers reflect efficient bulb HOU adjusted for snapback, as found in the Northeast Residential Lighting HOU Study for efficient bulbs. As recommended in the Northeast HOU report, evaluators prepared separate estimates of savings for Upstate and Downstate New York based on higher HOU for Downstate New York.[71] It is important to note that the impacts for a portion of the bulbs supported by the program in 2010 (a total of 1,792,961 bulbs for the first half of the year) were reported in the CFL Modeling Effort published in 2011.[72] To avoid potentially double counting these impacts, the Team removed these 1,792,961 bulbs from the total 4,168,938 bulbs supported in 2010, calculating impacts for the second half of 2010 based on the remaining 2,375,997 bulbs.

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Table 55 and Table 56 list these parameters and display the calculations for first-year electricity and demand savings for the second half of 2010 and all of 2011, as well as 2012, for Upstate NY and Downstate NY. The estimated first-year savings for Upstate and Downstate combined were:

- 108,439 MWh in the second half of 2010 and 169,077 MWh in 2011, primarily for standard CFLs;
- 8,320 MWh in 2012 for specialty CFLs; and
- 9,860 MWh in 2012 for LEDs.

Similarly, the estimated net sales were:

- 1,520,625 bulbs in the second half of 2010 and 2,732,841 in 2011, primarily for standard CFLs;
- 128,310 bulbs in 2012 for specialty CFLs; and
- 117,668 bulbs in 2012 for LEDs.

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for Estimating Energy Savings from Energy Efficiency Programs: Residential, Multi-family, and Commercial/Industrial Measures. Submitted October 15, 2010 Current Technical Manual). 3) Nexus Market Research, RLW Analytics, and GDS Associates. 2009. *Residential Lighting Markdown Impact Evaluation.* Submitted January 20, 2009 (NE Markdown).

[71] After adjusting for snapback, the Northeast Residential Lighting HOU Study found 2.9 HOU per day for households in Upstate New York and 4.8 HOU per day for households in Downstate New York.

[72] NMR Group, Inc. Final Results of the Multi State Modeling Effort, NYSERDA. Submitted September 25, 2011.

Peak winter demand savings across the period were highest in 2011 due to having a full year of data and the fact that the program still included standard CFLs. Peak winter demand savings for CFLs in 2011 were 34.1 MW, while peak summer demand savings for the same period were 9.1 MW.

Table 55: Calculation of Estimated Electricity and Peak Demand Savings for Upstate NY[1]

Row	Parameter	Source	Second half of 2010 (CFL)	2011 (CFL)	2012 (SCFL)	2012 (LED)
A	Bulbs Supported	NYSERDA	690,493	1,627,046	84,656	69,296
B	Delta Watts	NYSERDA	64	54	59	61
C	Annual Hours of Use	NYSERDA	1,059	1,059	1,059	1,059
D	First-Year Installation Rates	NE Markdown NE Measure Life	77%	77%	77%	95%
E	NTG	Current Study	0.64	0.64	0.71	0.75
F	Net Sales	Row A x Row E	669,075	1,041,309	60,106	51,972
G	Winter Seasonal Peak Coincidence Factor	NE Markdown	30.00%	30.00%	30.00%	30.00%
H	Summer Seasonal Peak Coincidence Factor	NE Markdown	8.00%	8.00%	8.00%	8.00%
I	Gross Annual Potential	(Row A x Row B)/1,00,000 x Row C	70,855	93,044	5,289	4,476
J	Gross First-Year Electricity Savings (MWh)	(Row A x Row B)/1,000,000 x Row C x Row D	54,588	71,644	4,073	4,253
K	Net First-Year Electricity Savings (MWh)	Row E x Row J	34,917	45,852	2,892	3,189
L	Winter Peak Demand Savings (MW)	(Row B x Row D x Row F x Row G)/1,000,000	9.89	12.99	0.82	0.90
M	Summer Peak Demand Savings (MW)	(Row B x Row D x Row F x Row H)/1,000,000	2.64	3.46	0.22	0.24

[1]The NYSERDA TRM states that lighting savings include an HVAC interaction in the calculation—the HVAC interaction terms were provided for household-level data and these calculations are done at a market level, making the TRM HVAC interaction terms inappropriate in this instance. The team is looking into possible solutions and intends to have the issue remedied in the final version of this report.

Table 56: Calculation of Estimated Electricity and Peak Demand Savings for Downstate NY[1]

Row	Parameter	Source	Second half of 2010 (CFL)	2011 (CFL)	2012 (SCFL)	2012 (LED)
A	Bulbs Supported	NYSERDA	896,766	2,643,018	96,063	87,595
B	Delta Watts	NYSERDA	64	54	59	61
C	Annual Hours of Use	NYSERDA	1,752	1,752	1,752	1,752
D	First-Year Installation Rates	NE Markdown NE Measure Life	77%	77%	77%	95%
E	NTG	Current Study	0.64	0.64	0.71	0.75
F	Net Sales	Row A x Row E	851,550	1,691,532	68,205	65,696
G	Winter Seasonal Peak Coincidence Factor	NE Markdown	30.00%	30.00%	30.00%	30.00%
H	Summer Seasonal Peak Coincidence Factor	NE Markdown	8.00%	8.00%	8.00%	8.00%
I	Gross Annual Potential	(Row A x Row B)/1,00,000 x Row C	149,192	250,051	9,930	9,361
J	Gross First-Year Electricity Savings (MWh)	(Row A x Row B)/1,000,000 x Row C x Row D	114,878	192,539	7,646	8,893
K	Net First-Year Electricity Savings (MWh)	Row E x Row J	73,522	123,225	5,429	6,670
L	Winter Peak Demand Savings (MW)	(Row B x Row D x Row F x Row G)/1,000,000	12.59	12.10	0.93	1.14
M	Summer Peak Demand Savings (MW)	(Row B x Row D x Row F x Row H)/1,000,000	3.36	5.63	0.25	0.30

[1]The NYSERDA TRM states that lighting savings include an HVAC interaction in the calculation—the HVAC interaction terms were provided for household-level data and these calculations are done at a market level, making the TRM HVAC interaction terms inappropriate in this instance.

The evaluators then estimated total lifetime savings from the bulbs purchased (Table 57 and Table 58). The approximate measure life of CFLs is 7,665 hours (seven years for UNY CFLs and four years for DNY CFLs). The measure life for CFLs comes from the NE Measure Life Study and is approximately 77% of the ENERGY STAR[73] recommended 10,000 hours. The team did not have a vetted estimation of LED measure life; they applied the 77% rate to the 25,000-hour LED measure life recommended by ENERGY STAR and applied an estimate of 19,250 hours for LED measure life—approximately 17 years for UNY and 10 years for DNY.[74] The evaluators reduced the LED delta watts after 2020, in consideration of EISA. Based on these assumptions, the evaluators estimate the following effective net lifetime savings:

- 641,717 MWh in the latter half of 2010 and 967,759 MWh in 2011, primarily from standard CFLs;
- 50,049 MWh from specialty CFLs in 2012; and
- 34,258 MWh from UNY LEDs and 62,956 MWh from Downstate NY for a total of 97,214 MWh from LEDs in 2012.

[73] Hernandez, T. *Lighting Specification Development Update: Luminaries and Lamps.* Presented at ICF International 2012 ENERGY STAR Products Partner Meeting. St. Paul, MN. October, 2012.

[74] In calculating measure life, the team used estimated HOU unadjusted for snapback—3.0 for Upstate New York and 5.2 for Downstate New York.

Table 57: Calculation of Lifetime Electricity Savings for CFL and SCFLs

Year	2010 (CFL)		2011 (CFL)		2012 (SCFL)	
	UNY	DNY	UNY	DNY	UNY	DNY
2010	34,917	73,522	--	--	--	--
2011	39,906	84,025	45,852	123,225	--	--
2012	44,440	93,573	52,403	140,829	2,892	5,429
2013	44,440	93,573	58,357	156,832	3,305	6,204
2014	44,440	--	58,357	156,832	3,680	6,909
2015	44,440	--	58,357	--	3,680	6,909
2016	44,440	--	58,357	--	3,680	--
2017	--	--	58,357	--	3,680	--
2018	--	--	--	--	3,680	--
Lifetime Savings Estimate	297,024	344,692	390,042	577,717	24,598	25,451
Total Lifetime Savings Estimate	641,717		967,759		50,049	

* Calculated as gross annual potential (Row I in Table 55 and Table 56) x installation rate x NTG (Row E in Table 55 and Table 56). Calculations are spread across seven years as that is the approximate measure life (7 years for UNY, 4 years for DNY) of CFLs as found in the NE Measure Life study.

*Assumes second-year installation rate of 88% and third-year installation rate of 98%.

Table 58: Calculation of Lifetime Electricity Savings for 2012 LEDs

		A		B		C		D	
		Gross Annual Potential		Installation Rate		NTG		Savings	
Year	Formula	UNY	DNY	UNY	DNY	UNY	DNY	UNY	DNY
2012	Col A*Col B*Col C	4,476	9,361	0.95	0.95	0.75	0.75	3,189	6,670
2013	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2014	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2015	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2016	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2017	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2018	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2019	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2020	Col A*Col B*Col C	4,476	9,361	0.98	0.98	0.75	0.75	3,290	6,881
2021	Col A*Col B*Col C	807	1,688	0.98	0.98	0.75	0.75	593	1,241
2022	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
2023	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
2024	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
2025	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
2026	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
2027	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
2028	Col A*Col B*Col C	807	--	0.98	--	0.75	--	593	--
Lifetime Savings Estimate	--	--	--	--	--	--	--	34,258	62,956

Section 7

CONCLUSIONS AND RECOMMENDATIONS

IMPACT EVALUATION FINDINGS

7.1.1 Electricity and Peak Demand Savings

The estimated first-year savings were:

- 108,439 MWh in the second half of 2010 and 169,077 MWh in 2011, primarily for standard CFLs;
- 8,320 MWh in 2012 for specialty CFLs; and
- 9,860 MWh in 2012 for LEDs.

Similarly, the estimated net sales of program bulbs were:

- 1,520,625 bulbs in the second half of 2010 and 2,732,841 in 2011, primarily for standard CFLs;
- 128,310 bulbs in 2012 for specialty CFLs; and
- 117,668 bulbs in 2012 for LEDs.

Peak winter demand savings across the period were highest in 2011 due to having a full year of data and the fact that the program still applied to non-specialty CFLs. Peak winter demand savings for CFLs in 2011 was 34.1 MW, while peak summer demand savings for the same period was 9.1 MW.

These estimates are preliminary. They will be revised in the final version of the report, pending updated HOU estimates and a determination regarding the feasibility of including HVAC interaction effects in the calculations.

7.1.2 NTG

- The evaluation team recommends using a NTG of 64% for standard CFLs for 2011 and the second half of 2010.
- The evaluation team recommends using a NTG for specialty CFLs of 87% for 2011 and 71% for 2012.
- The evaluation team recommends using a NTG for LEDs of 90% for 2011 and 75% for 2012.

FINDINGS ABOUT THE MARKET

7.1.3 Key Findings

CFL sales and socket saturation in the NYSERDA area appear to be stagnating.

- We estimate that households in the NYSERDA area purchased approximately 26.6 million CFLs (21.2 million standard and 5.4 million specialty) in 2012. This is relatively unchanged from 2009, during which we estimate households in the area purchased 25.9 million CFLs.

- CFL socket saturation remained unchanged between 2011 and 2013, at 26% for the NYSERDA area overall. CFL socket saturation estimates for Upstate and Downstate households in 2013 are statistically similar to 2011 saturation estimates for Upstate and New York City households, respectively. Saturation of CFLs was lower in Manhattan (19%) than Upstate (25%) or Downstate (29%).
- One possible explanation for CFL socket saturation reaching a plateau may be that CFLs are increasingly being used to replace other CFLs as they burn out. If CFLs in the NYSERDA service area are burning out at a rate comparable to that in Massachusetts, this could mean that the majority of CFLs are in fact being used to replace existing CFLs as they burn out. This is what we would expect and is supported by the telephone survey finding in which 40% of respondents said that the CFLs they had purchased in the previous three months had replaced other CFLs.
- Specialty sockets account for just over one-half (56%) of the remaining potential across the NYSERDA area. The inventory of specialty sockets is higher in Manhattan households (52%) than in Upstate (35%) or Downstate (46%), which may account for lower CFL saturation in Manhattan. With fewer CFLs installed, Manhattan has greater potential than the rest of the NYSERDA area to install additional CFLs.

More homes had LEDs installed at the time of the study than in 2011, but LED saturation is still very low across the NYSERDA service area (1% Overall, 1% Upstate, 1% Downstate, and 2% Manhattan).

Satisfaction is greater for LEDs than CFLs.

- Onsite respondents ranked LEDs as superior to CFLs in all aspects except price. The most common thing that onsite inventory respondents reported disliking about LEDs was the price of the bulbs (7 of 18 respondents).
- Fifteen of 19 onsite inventory respondents reported that they were “very satisfied” with their LED bulbs. Telephone survey respondents who said they had LEDs installed reported roughly equal rates of being “very satisfied” with LED bulbs compared to CFL users who had CFL bulbs installed (56% Overall for LEDs and 45% Overall for CFLs), but respondents with LED bulbs installed reported much lower rates of being “very dissatisfied” with LEDs compared to CFL users with CFL bulbs installed (0% Overall for LEDs versus 12% Overall for CFLs).
- Respondents to the onsite inventory, when asked what they liked about screw-in LEDs, were most likely to cite the long life of the bulbs (7 of 18), light quality and color (4 of 18), and value/price, energy efficiency, and brightness (3 each of 18).

While households have a substantial inventory of incandescent bulbs in storage, stockpiling appears to be limited.

- We found little actual or expected stockpiling activity. Just one household in the onsite study appeared to be hoarding bulbs.
- With this household’s more than 300 stored bulbs included, study households had enough light bulbs in storage to fill nearly one-third of all sockets; without them, study households had enough bulbs to

fill nearly one-quarter (23%) of all sockets. In total, onsite households in Upstate, Downstate, and Overall had enough light bulbs in storage to fill nearly one-third of all sockets.

- Households in all four NYSERDA areas have a higher proportion of incandescent bulbs in storage compared to installed bulbs. That households do not know what bulb nearly one-third of the stored incandescent bulbs will replace may suggest that the stored incandescent bulbs found among the onsite households were not purchased with the intent to replace existing incandescent bulbs in anticipation of EISA, but simply to have bulbs on hand as a matter of convenience. However, saturation could temporarily slip backwards because of the stored bulbs, since these households are likely to install their stored incandescent bulbs as their currently installed bulbs fail rather than buying a new energy-efficient bulb for replacement purposes.

There are still a significant number of phased-out legacy incandescent bulbs available in retail stores.

- The consumer survey results suggest that a substantial number of 100-Watt incandescent bulbs were still available nearly a year after they were officially phased out under EISA. One-quarter (25%) of respondents in the Overall NYSERDA area had looked for 100-Watt incandescent bulbs in the three months prior to the survey, and about one-third (36%) had found them one year after the EISA prohibition.

Few consumers are aware of the Lighting Facts label or understand lumens.

- Unaided awareness of the Lighting Facts label is very low (6% in the Overall NYSERDA area).
- Aided awareness of the Lighting Facts label is higher in the NYSERDA area (14%) than in the Moderate (8%) or Low (10%) comparison areas.
- A higher percentage of NYSERDA-area consumers reported having seen or heard of the term *lumens* in 2013 (57%) than in 2011 (43%). The NYSERDA-area rates were not significantly different from comparison-area rates.
- While knowledge of the number of lumens in a 60-Watt incandescent bulb is still very low in all areas, the results could be interpreted as suggesting that more consumers may be starting to realize that Watts and lumens are not the same.

7.1.4 Additional Findings

CFL and LED penetration have grown somewhat.

- The percentage of households using at least one CFL (i.e., penetration) is significantly higher in Upstate (95%) compared to Downstate (84%), Manhattan (80%), and Overall (89%).
- Penetration of CFLs (i.e., prevalence of at least one installed CFL) in Upstate households has grown since 2011 from 89% to 95%.

- Penetration of LEDs (i.e., prevalence of at least one installed LED) has grown in Downstate households since 2011, from 4% in New York City in 2011 to 18% Downstate.[75]
- Penetration of CFLs and LEDs in Manhattan high-rise units is 80% and 20%, respectively.

The results of lighting awareness and knowledge questions point both to the remaining opportunity to improve consumer awareness of energy-efficient lighting and knowledge of important lighting information in Downstate areas, and to the difficulty of achieving program gains in these areas compared to Upstate.

- Together, findings from the consumer survey regarding the aided and unaided awareness of different bulb types suggest that, among NYSERDA-area consumers, (1) awareness of CFL bulbs is very high, but still has some room to grow; (2) awareness of LED replacements is growing but has a long way to go; and (3) awareness of halogen replacements for incandescent bulbs appears to have grown faster than for LEDs and is unfortunately higher. This may be due in part to the high cost of LEDs, which places them out of reach—and thus possibly also out of range of notice—for large segments of the population even when the bulbs are subsidized by NYSERDA, as well as to the relatively small amount of shelf space devoted to this bulb type.[76] NYSERDA-area consumers are somewhat less likely than consumers in the High program activity comparison area to be aware that CFLs use less energy than halogens (55% versus 63%). This is one measurement, however, in which Upstate (57%) and Downstate (52%) consumers do not differ significantly. There remains room for improvement on this important measure of knowledge.
- With EISA over a year into the phase-in period at the time of the study, just 38% of consumers in the NYSERDA area were found to be aware of EISA, an increase from 33% in 2011. This relatively low rate of awareness may help to avoid stockpiling and explain the low levels of it observed in the onsite study.
- NYSERDA-area telephone survey respondents' reasons for choosing specific replacements for 75-Watt incandescent bulbs suggest that, while a large proportion of NYSERDA-area households appear to have absorbed the message that CFLs save energy, more progress remains to be made on other important messages about these bulbs, such as cost-effectiveness. More progress could be made in raising consumer awareness about the energy efficiency and other important characteristics of LEDs.

[75] The areas examined in the 2011 study do not exactly match those examined by this study. As discussed in Section 2.1.2.4, the key difference between definitions of Upstate and Downstate New York is the treatment of Westchester County, which represents approximately 5% of Overall NYSERDA-area households.

[76] Lockheed Martin. 2013. *New York Products Program 2012 Participant Practices Report*. October 10.

The Upstate population appears to be more receptive to CFLs, while the Downstate population appears to be more receptive to LEDs. For example,

- Saturation of CFLs is higher Upstate than Downstate, while saturation of LEDs is lower.
- The rate of CFL expert versus novice users is higher Upstate (71%) than Downstate (63%) and significantly higher in all three comparison areas (73%) than Downstate.
- The CFL loyalty results suggest that a net total of 4% of Upstate respondents who had ever used a CFL are likely to promote them by word of mouth (i.e., they are "net promoters")—but Downstate, the total percentage of respondents who are likely to promote CFLs by word of mouth is exceeded by those who are likely to do the opposite. Reponses to the LED loyalty question suggest that 19% of Downstate respondents who had ever used LEDs are likely to promote them by word of mouth ("net promoters"), while Upstate the total percentage of respondents who are likely to promote LEDs by word-of-mouth is exceeded by the percentage of respondents who are likely to do the opposite.

Some other important differences include:

- Compared to Downstate consumers, Upstate consumers demonstrated consistently high aided awareness of different bulb types, awareness of EISA, and awareness of the term *lumens*.
- Compared to Moderate- and Low-area consumers, Upstate consumers demonstrated significantly higher aided awareness of both CFLs and the Lighting Facts label.

Previous NYSERDA residential lighting studies[77,78] show similar systematic differences in survey results between Upstate and Downstate. The process evaluation did not offer any evidence that Upstate received a different level of consumer education or publicity efforts than Downstate during the study period. The research did not bring to light any differences in the educational efforts of retailers and manufacturers or in program promotional activity in the two areas. It seems likely that the differences between the two areas are due to cultural and demographic factors and to differences in building stock. Regardless of the source of the differences, it is clear that residential lighting market transformation is more challenging in the Downstate market, at least for CFLs.

[77] NMR Group, Inc., The Cadmus Group, Inc., and Navigant, Inc. 2012. *Residential Lighting Market Characterization Study.* June. Project Number 9875-A.

[78] NMR Group, Inc. 2009. *Impact Evaluation, NYSERDA CFL Expansion Fast Track Program: Random Digit Dial Survey Results.* August. Project Number 9875.

NYSERDA-area consumers are most likely to shop for standard CFLs, specialty CFLs, and LEDs at home improvement stores, followed by mass merchandisers.

- More than two-thirds of the CFLs purchased in 2012 and early 2013 (38%) were bought at home improvement stores. This is in line with the telephone survey results, which showed that respondents most often reported shopping for CFLs at home improvement stores.
- After home improvement stores, shoppers in the Overall NYSERDA area are most likely to shop for standard and specialty CFLs at mass merchandisers, such as Walmart or Target, followed by grocery stores (for CFLs) and hardware stores (for specialty CFLs). Residential customers most frequently reported purchasing LED bulbs at home improvement stores (11 of 19 onsite and 50% of Overall), followed by mass merchandisers (28% Overall) and hardware stores (22% Overall)—the same order in which customers purchased standard and specialty CFLs.

The results offer mixed evidence regarding the types of bulbs consumers are most likely to use to replace 75-Watt incandescent bulbs after they are phased out.

- NYSERDA-area telephone survey respondents were most likely to say they would use an 18-Watt CFL to replace a 75-Watt incandescent after the latter is phased out, with Upstate respondents more likely to say this than Downstate respondents (39% vs. 31%). Manufacturers and retailers interviewed for this study expect consumers primarily to choose EISA-compliant halogens and CFLs to replace phased-out bulbs in the near term (in 2013 and 2014), and LEDs over the longer term (beyond 2014).

FINDINGS ABOUT THE PROGRAM

7.1.5 Key Findings

Elimination of support for standard CFLs has sharply reduced program activity and sales volume, and changed the mix of retailer partners and the ratio of bulbs sold by channel. Program bulb sales dropped from 4.3 million bulbs in 2011, when standard CFLs were still part of the program, to just under 340,000 bulbs in 2012, after their elimination from the program. On average, manufacturer partners sold about 9 out of 10 program bulbs during the period. Along with the elimination of standard CFLs from the program, the share of program bulbs sold by retailers fell from 13% in 2011 to 5% in 2012. Staff members noted that dropping support for standard CFL models from the program altered the mix of retail partners, resulting in the loss of a number of retail partners in the grocery/drug and home improvement channels. Other program data support this statement: From 2010 to 2012, the number of independent partner storefronts declined by 22%, and the number of chain storefronts dropped by 40%. The chain partner storefront decline came entirely from home improvement stores and grocery/drug stores. Staff noted that the most common feedback they have received from partners concerned the switch away from standard CFLs.

Large, frequent program changes have resulted in programming gaps and loss of partner momentum. In addition to the elimination of standard CFLs from the program after 2011, which caused the Program to refocus on specialty CFLs and LEDs in 2012, 75% of the program budget was re-allocated to the SPP for standard and A-shaped CFLs in

2013. Because of the timing of funding, in 2012 lighting promotions were approved only between April and October. Program and implementation staff interviewees expressed the opinion that the size and frequency of changes to the Program during the 2010-2012 cycle resulted in programming gaps and loss of partner momentum. They noted that when partners are waiting for a program change or guarantee of future funding, they are unable to plan ahead. This creates a lag in activities even after the Program has started up again.

Some partners experience difficultly implementing the Outreach, Education, and Marketing requirement. According to interviewees, very limited retail shelf space for POS materials and stringent corporate guidelines on these materials among larger retailers have made it difficult for some retailers to implement the Outreach, Education, and Marketing requirement. At the same time, partner promotion requirements can be burdensome for smaller partners.

The price threshold and discount limit on bulbs may be a constraint on the POS Program. Implementation staff expressed concerns that the price threshold that NYSERDA places on CFLs (currently $2.00 per specialty CFL) limits the Program, especially in the current price-sensitive consumer environment. This threshold holds even if the partner is willing to provide additional money to offer a deeper discount.

POS program participation is unusually difficult for partners, and the time required to process reimbursements for discounts poses an administrative burden to partners. Partners cited a number of barriers to participation, including:

- The application and approval process;
- Invoicing procedures and timely reimbursement; and
- Sales data submission requirements.

The ENERGY STAR Qualifying Products list can make it difficult to determine which bulbs qualify for the POS Program. The Program and program partners rely on ENERGY STAR Qualifying Products lists to determine which bulbs qualify for the Program. These lists are not always accurate or complete, which can cause confusion.

The POS Program has recruited and retained as partners all three of the largest lighting manufacturers, and all of the medium-sized manufacturers. Despite difficulties that staff reported about working with large partners, from 2010 to 2012 the program appears to have had a good track record recruiting and retaining large- and medium-sized manufacturing partners.

The change to NYSERDA picking up 100% of discounts in 2012 for products addressed by the program (LEDs and specialty CFLs) benefitted the program. This change reduced a barrier to participation and appears to have attracted larger players, especially manufacturers, to the program. It also enabled NYSERDA to maintain existing partnerships.

Partners have very positive perceptions of program and implementation staff. Every partner manufacturer and partner retailer interviewee noted that Lockheed Martin and NYSERDA staff are very helpful and easy to work with. Interviewees consistently remarked that the staff are professional, knowledgeable, and enjoyable to work with.

7.1.6 Additional Findings

- NYSERDA's current partnership agreements do not allow Lockheed Martin to share detailed sales data with outside parties for purposes of evaluation. This imposes data collection difficulties and limitations on analysis that affect the evaluability of the program.
- Partners view the NYSERDA program as positively impacting sales.
- Staff turnover is high among larger partners, contributing to a need to constantly nurture new contacts among existing partners in order to avoid partner attrition and bring in new partners to replace any partners lost in this manner.
- Staff members suggested working with manufacturers to improve packaging to better convey efficiency information, such as the location of the ENERGY STAR label, as a possible new area for program support.
- While staff see the shift to online training largely as a positive development, some believe that having fewer representatives in the field has damaged relationships with program partners.

RECOMMENDATIONS TO IMPROVE PROGRAM EFFECTIVENESS

1. ***Be more aggressive with lighting to counter the stagnation in socket saturation and sales. To this end, consider (1) promoting LEDs more assertively. If NYSERDA wishes to meet aggressive near-term program goals, also consider (2) asking permission of the DPS to add standard, bare spiral CFLs back into the discount portion of the Program for a limited period, until LED prices drop somewhat further.*** The recommendations of the NEEP Regional Northeast Residential Lighting Strategy[79] include accelerating "the use of ratepayer funds to support LED technology in the near term due to rapidly dropping price and superior performance over CFLs." As described above, early LED adopters look upon LEDs very favorably compared to CFLs. While LED prices are coming down, they are still high compared to competing bulb types, and saturation is very low. Another recommendation of the NEEP Regional Northeast Residential Lighting Strategy is to ramp up promotion of ENERGY STAR LEDs. In the face of the sales and socket saturation stagnation, the aggressive goals, and the rapid changes in the LED market, now is the time to promote LEDs more assertively. At a minimum, this will likely require offering more generous discounts for LEDs.

[79] Energy Futures Group and Optimal Energy. 2013. *Northeast Residential Lighting Strategy: 2013-2014 Update.* October. Lexington, MA: Northeast Energy Efficiency Partnerships. Accessed March 13, 2014 from http://neep.org/Assets/uploads/files/market-strategies/lighting/2013-ResLighting-Workshop/October%202013%20RLS%20Update_FINAL.pdf.

NYSERDA is still faced with ambitious lighting savings goals. The NTG findings argue for bringing back discounts on bare spiral CFLs to increase saturation of high efficiency bulbs and meet the Program's savings goals in the near term. This would help to ensure that standard CFLs are priced competitively in comparison to halogen incandescent bulbs while the prices of LEDs come down enough that more people will buy them and the program can focus its support more narrowly on LEDs while still meeting goals. In conjunction with this, NYSERDA should consider the possibility of lowering or eliminating the previous price threshold for standard CFLs. If NYSERDA chooses to pursue this avenue, staff will need to give consideration as to whether, and how, standard CFLs can be promoted simultaneously through both the discount and SPP portions of the program. One possibility may be to use the SPP as a motivator for partners to obtain additional incentives.

2. ***Consider alternative options for increasing retailer participation in the Program going forward, and look for ways to ease partner participation.*** The overwhelming majority of program bulbs sold from 2010-2012 were sold through manufacturers. This was especially true after 2011. NYSERDA should assess the commitment of program resources that would be required to grow and then maintain the retailer partners' sales through the discount program as it is currently configured. In the near term, to the extent that NYSERDA chooses to work with retailers going forward, NYSERDA should focus attention on increasing engagement of home improvement store chains and mass merchandisers in selling screw-base LEDs. The reason for this focus is that (1) these are the top channels where respondents say they are most likely to buy both LEDs and CFLs; (2) larger chains should be more cost-efficient to work with than smaller chains or individual stores; and (3) chains in these channels may be more interested in working with the program to grow their sales in this emerging area than in that of specialty CFLs. Program and implementation staff should also consider ways to streamline paperwork and requirements for participation, and speed up the reimbursement process.

3. ***Consider focusing some marketing attention on selected aspects of consumer education.*** NYSERDA may wish to focus marketing attention on the following aspects of consumer education for which market progress indicators showed substantial room for growth: consumer understanding of key information on the Lighting Facts label; consumer awareness that CFLs use less energy than halogens; consumer awareness and understanding of important messages about CFL bulbs, such as their cost-effectiveness; and consumer awareness about the energy efficiency and other important characteristics of LEDs. NYSERDA may wish to give additional thought to how best to reach Downstate consumers, as Downstate lags behind Upstate in key indicators of lighting awareness and knowledge.

4. ***To help program staff monitor performance on an ongoing basis, request that Lockheed Martin add segmentation categorizations based on store channel to its tracking system and include program sales by channel as part of its regular reporting to NYSERDA. To help improve the quality and cost of data collection down for future evaluations, consider changing the partnership agreement to allow Lockheed Martin to share sales data in confidence with the firm(s) conducting evaluation.*** Except in the case of

grocery stores, Lockheed Martin segments retailers by chain size (national, regional, small, and single store). Adding a segmentation based on store channel (e.g., home improvement store, mass merchandiser, hardware store) and asking Lockheed Martin to supply program staff with aggregated sales by these channels on a regular basis would provide NYSERDA with valuable program performance information in a timely fashion. This information could help the staff in determining when adjustments may need to be made to the program. Unlike those of program administrators in other states, NYSERDA's partnership agreements promise partners that only the program implementer, Lockheed Martin, will see sales data identified by partner. This promise added cost and burden to the evaluation data collection process and resulted in less data being available for analysis. Changing the Products Program partnership agreement to allow Lockheed Martin to share sales data with the evaluation contractor for evaluation purposes is likely to improve the quality and reduce the cost of future evaluations for both the Residential Lighting POS Program and the Products Program.

5. ***Consider reducing the price threshold for specialty CFLs.*** The price threshold and discount limit on bulbs may be a constraint on the program. NYSERDA may wish to consider lowering the price threshold, at least for specialty CFLs

6. ***Investigate the value of co-branding marketing materials.*** The in-depth interviews revealed that the lack of co-branded marketing materials often creates challenges for partners who are used to co-branding requirements and have design templates which make it easier to do so. Aside from the issue of ease of designing materials, program staff may wish to meet with key partners to discuss what value, if any, there might be in co-branding marketing materials.

7. ***Leverage existing partnerships with other organizations, such as NEEP and CEE, to improve information regarding qualifying ENERGY STAR products***. The program and program partners rely on ENERGY STAR Qualifying Products lists to determine which bulbs qualify for the program. These lists are not always accurate or complete, which can cause confusion. NYSERDA may wish to work through and leverage regional or national organizations—including those with which it already works, such as NEEP and CEE—to ask EPA ENERGY STAR to address this.

Appendix A

ADDITIONAL SATURATION ANALYSIS

CURRENT USE OF CFLS

The results reported in this section supplement the saturation findings presented in Section 5. The following tables explore the use of standard and specialty CFLs currently in use across the different regions in this study. Table 59 displays the percentage of households with the following breakdown of CFLs currently installed: zero, one to five, six to 15, and 16 or more CFLs currently installed. Table 60 displays the total number of CFLs in use along with the mean and median number of CFLs in use by region.

Overall:

Overall, 89% of households had at least one CFL currently installed. Overall NYSERDA-area homes had an average of 13 CFLs installed. When examining use by bulb type, over three-quarters (76%) of CFLs in use were standard bulbs and 84% of NYSERDA-area households had at least one standard CFL currently in use. Specialty CFLs were found in less than one-half (49%) of the homes across the state. Just over one-third (35%) had one to five specialty CFLs installed, while a small percentage (14%) of homes had six or more. On average, NYSERDA-area homes had three specialty CFLs installed. However, the median number of specialty CFLs installed (the number falling at the midpoint of all NYSERDA-area homes) was zero, indicating that a small number of homes with many specialty bulbs accounted for the higher average.

Upstate:

The vast majority of Upstate homes (95%) had at least one CFL in use, with an average of 15 CFLs installed per home. Additionally, over one third (33%) had 16 or more CFLs currently installed; significantly more than both Downstate and Manhattan households. Almost all Upstate households (95%) had at least one standard CFL in use in use and had the highest percentage of households with six or more standard CFLs (67%) currently installed as well.

Downstate:

In the Downstate sample, the majority (84%) of homes had at least one CFL installed, with an average of 11 CFLs installed per household. While nearly one-quarter (22%) had sixteen or more CFLs in use, 17% of Downstate homes had no CFLs installed. This was significantly less than the Upstate and Overall samples.

Manhattan:

The majority (72%) of Manhattan homes had one to 15 CFLs installed; while a small percentage (8%) had sixteen or more CFLs in use. One-fifth of Manhattan homes (20%) had no CFLs installed, which was a significantly greater percentage of homes without CFLs than either the Overall or Upstate samples.[80].

Table 59: Current Use of CFLs by Type and Households

(Base: All onsite respondents)

	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
All CFLs				
Zero	11%	5%a	17%ab	20%ab
One to five	29%	25%	33%	32%
Six to fifteen	28%	27%	29%	40%abc
Sixteen or more	32%	43%	22%ab	8%abc
Standard CFLs				
Zero	16%	5%a	26%ab	26%ab
One to five	29%	29%	29%	39%ac
Six to fifteen	32%	34%	30%	28%
Sixteen or more	23%	33%	16%ab	6%abc
Specialty CFLs				
Zero	51%	45%	56%	60%ac
One to five	35%	38%	32%	35%
Six to fifteen	11%	13%	9%	4%ac
Sixteen or more	3%	4%	3%	1%

a Statistically different at the 90% confidence level from Overall NY.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

[80] It should be noted that Manhattan homes also had significantly fewer sockets.

Table 60: Current Use of CFLs

(Base: All onsite respondents)

	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
All CFLs				
Total CFLs in use	3,394	978	2,195	786
Mean number of CFLs in use	13	15	11	6
Median number of CFLs in use	8	14	6	5
% of all CFLs in use	100%	100%	100%	100%
Standard CFLs				
Total CFLs in use	2,565	784	1,543	609
Mean number of CFLs in use	10	12	8	5
Median number of CFLs in use	6	12	5	3
% of all CFLs in use	76%	80%	70%	77%
Specialty CFLs				
Total CFLs in use	829	194	652	176
Mean number of CFLs in use	3	3	3	1
Median number of CFLs in use	0	1	0	0
% of all CFLs in use	24%	20%	30%	22%

Nearly three-quarters (73%) of the CFLs in use statewide were concentrated in homes with 16 or more CFLs installed (Table 61). Just over one-half (53%) of standard CFLs and one-quarter (24%) of all specialty CFLs are in households using 16 or more CFLs. The concentration of all CFL types by number of CFLs in use was similar across the four regions, with the exception of Manhattan where less than one-half (44%) of the standard CFLs in use and more than one-fifth (12%) of specialty CFLs in use were concentrated in homes with six to 15 CFLs installed.

Table 61: Current Use of CFLs by Percentage of CFLs Installed

(Base: All installed CFLs)

	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*3,394*	*978*	*2,195*	*786*
All CFLs				
One to five	6%	5%	8%	13%
Six to fifteen	21%	19%	23%	56%
Sixteen or more	73%	75%	70%	31%
Standard CFLs				
Sample size	*2,565*	*784*	*1,543*	*609*
One to five	5%	5%	6%	10%
Six to fifteen	18%	18%	18%	44%
Sixteen or more	53%	58%	47%	23%
Specialty CFLs				
Sample size	*829*	*194*	*652*	*176*
One to five	1%	1%	2%	3%
Six to fifteen	20%	2%	4%	12%
Sixteen or more	24%	17%	23%	8%

The number of LEDs in use in homes was considerably lower than that of CFLs (Table 62). A small number of households accounted for the majority of LED use: 17% of homes were observed to contain a total of 126 LEDs statewide. The percentage of households with one to five LEDs installed was greatest in Manhattan (17%), though this was not significantly different than the other areas. The mean number of LEDs in use was 0.5 for households Overall.

Table 62: Current Use of LEDs

(Base: All onsite respondents and installed LEDs)

LEDs	A. Overall		B. Upstate		C. Downstate		D. Manhattan	
Sample Size	*259*		*64*		*195*		*132*	
Number of Bulbs	*126*		*32*		*93*		*90*	
Zero	% of Households	84%	% of Households	87%	% of Households	81%	% of Households	81%
	% of LEDs	0%	% of LEDs	0%	% of LEDs	0%	% of LEDs	0%
One to five	% of Households	14%	% of Households	10%	% of Households	18%b	% of Households	17%
	% of LEDs	43%	% of LEDs	33%	% of LEDs	53%	% of LEDs	48%
Six to fifteen	% of Households	2%	% of Households	2%	% of Households	2%	% of Households	1%
	% of LEDs	37%	% of LEDs	33%	% of LEDs	40%	% of LEDs	23%
Sixteen or more	% of Households	1%	% of Households	1%	% of Households	<1%	% of Households	1%
	% of LEDs	20%	% of LEDs	35%	% of LEDs	7%	% of LEDs	29%
Mean # of LEDs in use	0.5		0.5		0.5		0.7	
Median # of LEDs in use	0		0		0		0	

b Statistically different at the 90% confidence level from Upstate NY.

SOCKET SATURATIONS BY LUMENS RANGES

To examine saturation by lumen output, the Team first transformed wattages into lumen ranges based on estimated efficacy from ENERGY STAR.[81] Table 63 displays the wattage ranges and estimated lumen ranges assumed for this analysis and Table 64 presents the maximum allowable wattage by lumen range according to EISA requirements by year. It is important to note that for the purposes of analyzing bulbs by lumen categories, the Team assumed the majority of halogen bulbs installed in homes were *pre-EISA compliant*, so the lumens ranges listed below for halogens are accurate for the majority of halogen bulbs found in homes but are not accurate for the very few EISA-compliant halogens found in homes and now being sold on retailers' shelves.

Table 63: Lumens per Watt by Bulb Type

Lumen Range	Watt Equivalents				
	CFLs	Fluorescent	Halogen	Incandescent	LEDs
<310	<4	<4	<24	<20	<4
310-749	5-12	5-9	25-60	21-50	5-10
750-1,049	13-16	10-13	61-84	51-70	11-14
1,050-1,489	17-23	14-19	85-119	71-99	15-19
1,490-2,600	24-40	20-33	120-208	100-173	20-33
2,600+	41+	34+	209+	174+	34+

81 http://www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact%20Sheet_Lighting%20Technologies.pdf?a2d6-8832

Table 64: Lumens per Watt by Bulb Type

Lumen Range	EISA Requirements (Maximum Watts)			
	2011	2012	2013	2014
<310	40	40	40	29
310-749	60	60	60	43
750-1,049	75	75	53	53
1,050-1,489	100	72	72	72
1,490-2,600	n/a	n/a	n/a	n/a
2,600+	40	40	40	29

As shown in Table 65, the most commonly identified bulbs in all homes, regardless of bulb type, had a lumen range between 750 and 1,049 (41%). This corresponds to 60 Watt incandescent bulbs and 13-16 Watt CFLs. Among standard bulbs, the 750 to 1,049 lumen range is also the most common lumen range (45% of standard bulbs), while among specialty bulbs 310 to 749 lumens was the most common (36% of specialty bulbs). This corresponds to 40 Watt incandescent bulbs and 5-12 Watt CFLs.

CFLs. The majority of CFLs (86%) fell within two lumen ranges. CFLs in the 750-1049 lumen range were the most common (64%), followed by the 1,050-1,489 lumen range which accounted for one-fifth (22%) of CFLs.

Fluorescents. Compared to CFLs, halogens, and incandescent bulbs, fluorescent bulbs fell within higher lumen ranges. Fluorescent bulbs in the 2,600+ range were the most common (59%), followed by the 1,490-2,600 range (33%).

Halogens. Keeping in mind that halogen bulbs found onsite were assumed to be almost exclusively pre-EISA compliant, the halogens observed typically fell in the 310-749 range (50%), followed by the <310 range (26%).

Incandescents. The majority of incandescent bulbs (74%) fell within two lumen ranges. Incandescents in the 750-1,049 lumen range were the most common (41%), followed by the 310-749 lumen range (33%).

LEDs. For just over one-fifth of LEDs found in homes (21%) the wattage was unknown and thus we were unable to determine a lumen range. Many LEDs do not have a wattage displayed on the bulbs making it difficult to identify without the original packaging. For LEDs where the wattage was observable, most fell within the two lowest lumen ranges: <310 (32%) and 310-749 (37%).

Table 65: Saturation by Lumens*

(Base: All installed bulbs)

Lumen Range	All Types	CFLs	Fluorescent	Halogen	Incandescent	LEDs
Overall (n=259)						
<310	5%	<1%	0%	26%	5%	32%
310-749	23%	9%	3%	50%	33%	37%
750-1,049	41%	64%	1%	5%	41%	11%
1,050-1,489	13%	22%	4%	10%	10%	5%
1,490-2,600	11%	5%	33%	3%	11%	1%
2,600+	7%	<1%	59%	6%	1%	14%
Upstate (n=64)						
<310	4%	0%	0%	10%	4%	30%
310-749	22%	8%	<1%	58%	31%	30%
750-1,049	41%	60%	<1%	3%	45%	10%
1,050-1,489	13%	26%	2%	17%	9%	0%
1,490-2,600	10%	5%	27%	3%	9%	3%
2,600+	10%	<1%	71%	9%	1%	27%
Downstate (n=195)						
<310	7%	<1%	<1%	41%	7%	33%
310-749	25%	10%	8%	42%	34%	46%
750-1,049	41%	68%	2%	8%	35%	10%
1,050-1,489	12%	17%	8%	2%	11%	11%
1,490-2,600	12%	5%	49%	2%	12%	0%
2,600+	3%	<1%	32%	5%	1%	0%
Manhattan (n=132)						
<310	12%	<1%	1%	38%	7%	36%
310-749	29%	9%	14%	50%	32%	44%
750-1,049	30%	52%	10%	4%	33%	18%
1,050-1,489	14%	28%	15%	2%	13%	2%
1,490-2,600	12%	9%	42%	3%	14%	0%
2,600+	2%	1%	19%	3%	1%	0%

* Percentages may not add to 100% as bulbs that had an unknown wattage are not included in this table.

CFL SOCKET SATURATION BY BULB AND FIXTURE CHARACTERISTICS

Table 66 through Table 72 present CFL socket saturation by room type, fixture type, socket type and bulb features. Across most room types, 25% to 35% of sockets were filled with CFLs; utility/laundry rooms (34%), halls (35%), bedrooms (32%), and foyers (32%) were the most common room types overall with CFL-filled sockets, while garages (9%) and exteriors (16%) had the lowest saturation rates. CFL socket saturation by room type was fairly consistent across all comparison areas, with the exception of utility/laundry rooms in the Downstate area where CFL socket saturation was 59%, notably higher than other areas. Bedrooms had the highest number of sockets, with an average of 7.7 sockets per household statewide, followed by livings rooms (6.1 sockets per household), bathrooms (6.1 sockets per household), and kitchens (6.1 sockets per household).

Table 66: CFL Socket Saturation by Room Type

(Base: All installed bulbs)

Room Type	A. Overall		B. Upstate		C. Downstate		D. Manhattan	
	%	Avg Total Sockets*	%	Avg Total Sockets*	%	Avg Total Sockets*	%	Avg Total Sockets*
Sample Size	*259*		*64*		*195*		*132*	
Utility/Laundry	35%	1.4	22%	1.9	59%	0.9	29%	0.1
Hall	34%	3.1	34%	3.2	32%	2.9	18%	2.0
Bedroom	32%	7.7	30%	8.9	33%	6.6	25%	6.3
Foyer	32%	1.5	28%	1.4	35%	1.6	24%	1.6
Bathroom	30%	6.1	30%	7.2	30%	5.1	14%	5.0
Living Space	30%	6.1	34%	7.0	26%	5.3	27%	5.0
Den	26%	1.0	25%	1.7	27%	0.5	31%	0.2
Kitchen	25%	6.1	23%	6.5	26%	5.7	11%	4.6
Office	25%	1.6	24%	1.7	26%	1.4	15%	1.7
Basement**	24%	1.7	28%	2.8	11%	0.7	n/a	n/a
Dining Room	21%	4.3	16%	4.9	27%	3.8	14%	2.9
Closet	20%	1.7	19%	2.3	24%	1.1	18%	1.3
Exterior	16%	3.2	14%	4.9	22%	1.7	20%	0.4
Garage**	9%	2.4	7%	4.6	27%	0.4	n/a	n/a
Other	27%	1.7	29%	1.8	24%	1.6	16%	0.4

*Average number of sockets across all rooms of this type in all homes in the study. Note that some homes do not have all room types, hence averages that fall below one.

** Manhattan homes did not have or include any garage or basement fixtures.

When considering saturation by fixture type, CFL saturation was highest in portable fixtures such as floor lamps (38%) and table lamps (35%), followed closely by ceiling fans (31%), flush mount (31%), recessed (31%), and wall mount fixtures (26%) (Table 67). Downstate homes and Manhattan homes differed from the other areas with the highest CFL socket saturation appearing in ceiling fans (39% and 42%, respectively). In the Downstate area, ceiling fans were closely followed in CFL saturation by flush mount (36%) and recessed fixtures (36%). Flush mount fixtures had the highest number of sockets in all areas, ranging from 17.4 sockets per household in the Upstate area to 6.1 sockets per household in Manhattan. Wall mount fixtures had the second highest number of sockets in the Overall sample (8.0 sockets per household), followed by pendant fixtures (7.3 sockets per household) and recessed fixtures (6.1 sockets per household).

Table 67: CFL Socket Saturation by Fixture Type

(Base: All installed bulbs)

Room Type	A. Overall		B. Upstate		C. Downstate		D. Manhattan	
	%	Avg Total Sockets*	%	Avg Total Sockets*	%	Avg Total Sockets*	%	Avg Total Sockets*
Sample Size	*259*		*64*		*195*		*132*	
Floor Lamp	38%	2.2	46%	2.2	32%	2.1	31%	2.7
Table Lamp	35%	5.8	35%	7.2	35%	4.5	31%	5.0
Ceiling Fan	31%	3.0	28%	4.4	39%	1.8	42%	1.2
Flush Mount	31%	12.5	39%	17.4	36%	8.2	25%	6.1
Recessed	31%	6.1	24%	6.3	36%	5.9	9%	2.2
Wall Mount	26%	8.0	27%	8.7	25%	7.3	18%	5.2
Pendant	14%	7.3	9%	9.1	20%	5.6	12%	3.3
Track	11%	1.2	9%	1.3	13%	1.2	1%	2.7
Under Cabinet	1%	1.7	1%	1.6	1%	1.7	0%	2.3
Night Light	<1%	0.2	0%	0.3	3%	0.2	6%	0.2
Other	21%	1.5	22%	2.3	19%	0.7	5%	0.5

*Average number of sockets across all fixtures of this type in all homes in the study. Note that some homes do not have all fixture types, hence averages that fall below one.

Table 67 above displayed CFL saturation for all fixtures of a given type. In contrast, Table 68 presents data only on fixtures with CFLs installed in them and shows the frequency of CFL installations within those fixtures. Overall, 30% of CFLs were installed in ceiling flush mount fixtures, with wall mount fixtures following at 16%. Track, under-cabinet lighting, and night lights represented the lowest percentage of total CFL fixture types installed (1%, <1% and <1%, respectively). The pattern of installation was similar across all areas, although the Manhattan sample showed a higher frequency of table lamps (25%) and floor lamps (14%) than the other areas.

Table 68: CFL Fixture Type Saturation by CFL Total Fixtures

(All onsite respondents)

Fixture Type	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Number of CFLs	**3,399**	**978**	**2,195**	**786**
Flush Mount	30%	33%	26%	25%
Wall Mount	16%	16%	16%	16%
Table Lamp	15%	17%	14%	26%
Recessed	14%	10%	19%	3%
Pendant	8%	5%	10%	7%
Ceiling Fan	7%	8%	6%	8%
Floor Lamp	6%	7%	6%	14%
Track	1%	1%	1%	1%
Night Light	<1%	0%	<1%	<1%
Under Cabinet	<1%	<1%	<1%	0%
Other	2%	3%	1%	<1%

Screw based sockets were by far the most common socket type statewide, with an average of 38.7 screw base sockets per household. Overall, 33% of screw-base sockets were filled with CFL bulbs, the highest saturation of any base-type. Only 10% of GU base sockets were filled with CFLs, and 6% of pin base sockets. Notably, a relatively higher percentage of GU base sockets were filled with CFLs in Downstate households (28%).

Table 69: CFL Socket Saturation by Socket Base Type

(Base: All onsite respondents)

Base Type	A. Overall		B. Upstate		C. Downstate		D. Manhattan	
	%	Avg Total Sockets*	%	Avg Total Sockets*	%	Avg Total Sockets*	%	Avg Total Sockets*
Sample Size	*259*		*64*		*195*		*132*	
Screw base (small/medium)	33%	38.7	32%	47.0	34%	31.2	26%	22.5
GU Base	10%	0.9	2%	1.3	28%	0.5	1%	0.7
Pin base	6%	7.3	2%	9.1	10%	5.6	3%	6.7
Other/Unknown	<1%	0.6	<1%	0.5	<1%	0.6	<1%	0.6

*Average number of sockets across all socket bases of this type in all homes in the study. Note that some homes do not have all socket base types, hence averages that fall below one.

Looking only at sockets with CFLs, the majority of CFLs were installed in screw-base socket types (small/medium types) across all four study areas, ranging from 94% Downstate to 98% Upstate (Table 70). The remaining CFLs were either pin base (3% Overall) or GU base (1% Overall).

Table 70: CFL Socket Base Saturation by Total CFL Socket Base

(Base: All onsite respondents)

Base Type	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Number of CFLs	**3,399**	**978**	**2,195**	**786**
Screw base (small/medium)	96%	98%	94%	96%
Pin base	3%	1%	5%	3%
GU Base	1%	<1%	1%	<1%
Other/Unknown	0%	0%	0%	0%

Table 71 presents CFL socket saturation by bulb shape and specialty controls. Looking first at shape, in the NYSERDA area overall one-fifth (22%) of globes were CFLs, followed by 14% of flood or spot lamps. These percentages were higher in Downstate homes, with CFLs making up over 26% of globes and one-fifth (20%) of flood or spot lamps.[82] Only three percent of A-line bulbs Overall - the most common bulb shape found in homes - were CFLs, largely reflecting the fact that the spiral CFL is meant to replace an A-line incandescent bulb. Looking at specialty controls, the saturation of three-way bulbs and dimmable bulbs that are CFLs is similar across all four study areas. CFLs accounted for only three to seven percent of all dimmable bulbs, but a larger percentage (28% in Overall, Upstate and Downstate and 27% in Manhattan) of three-way bulbs.

Table 71: CFL Socket Saturation by Bulb Features

(Base: All onsite respondents)

Bulb Feature	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Globe	22%	19%	26%	4%
Spot	14%	8%	20%	4%
Tube	11%	8%	17%	12%
Bullet[1]	11%	28%	3%	1%
A-line[2]	3%	2%	3%	1%
Candelabra	3%	0%	5%	2%
Three-way[3]	28%	28%	28%	27%
Dimmable[3]	6%	5%	7%	3%

[1] Differences in the pictures provided to identify CFLs may have influenced whether technicians classified these products as CFLs or other types of lighting. Moreover, sample sizes for bullet-shaped bulbs are small.

[2] A-line bulbs are the typical shape for standard incandescent bulbs. A-line CFLs are made to look and feel like traditional incandescent bulbs.

[3] Dimmable and three-way bulbs also fall within shape categories and therefore are not additive.

[82] We have not shown all bulb types here, as some are found in fewer than 5% of homes and small variations in use by just one or two households can greatly alter the reported percentages.

The spiral-shaped CFL bulb—considered the standard CFL—represented the largest number of CFL bulbs installed overall (79%) (Table 72). In Downstate homes, flood- or spot-shaped CFLs also had a notable level of saturation at 9%.

Table 72: CFL Feature Saturation by Total CFL Feature Sockets

(Base: All onsite respondents)

Bulb Feature	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Number of CFLs	**3,399**	**978**	**2,195**	**786**
Twist	79%	83%	74%	86%
Spot	6%	3%	9%	2%
Tube	6%	5%	6%	7%
Globe[1]	5%	4%	5%	2%
A-line[2]	3%	3%	2%	1%
Bullet	1%	2%	<1%	1%
Candelabra	1%	0%	3%	1%
Bug Light	<1%	<1%	0%	0%
Circline[1]	0%	0%	0%	0%
Other	0%	0%	0%	0%
Three-way[3]	2%	2%	2%	5%
Dimmable[3]	2%	1%	3%	5%

CFL SATURATION BY HOME SIZE AND TYPE

Previous studies performed by the Team suggest that socket saturation varies by home size, with smaller homes often having higher saturation rates—although fewer sockets overall—than larger homes. This analysis also helps to determine if the size of homes in the study were skewed towards larger homes and artificially lowering socket saturation. Likewise, we also examined CFL saturation by home type—meaning single family or multifamily—and by total number of sockets. These three analyses not only help us to understand saturation more completely, but they also provide for an assessment of potential bias in the saturation estimates, particularly those that may have stemmed from the sample design that increased the proportion of multifamily homes included in the 2013 sample.

Table 73 shows the total sockets, average number of sockets, saturation of energy-efficient bulbs, and potential for CFLs or LEDs by home type across all four study areas. Energy-efficient bulb saturation was similar between the Overall sample and the Upstate and Downstate samples (38%, 38% and 40% respectively). Manhattan displayed significantly lower levels of efficient bulb saturation at 27%. As such, the potential for CFLs and LEDs in

Manhattan homes was 69%, which was statistically higher than potential in the NYSERDA area as a whole and Upstate and Downstate study areas.

Table 73: Analysis of Saturation by Home Type

(Base: All onsite respondents)

Home Type	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Single Family Only				
Sample size	*164*	*55*	*85*	*n/a*
Total Sockets	**10,676**	**3,761**	**5,145**	**-**
Average # of Sockets	**65.1**	**68.4**	**60.5**	**-**
EE Bulb Saturation*	39%	38%	33%	-
Potential for CFLs or LEDs**	57%	57%	65%a	-
Don't Know/Empty sockets	5%	5%	3%	-
Multifamily Only				
Sample size	*95*	*9*	*110*	*132*
Total Sockets	**2,144**	**196**	**2,475**	**4,140**
Average # of Sockets	**22.6**	**21.7**	**22.5**	**31.4**
EE Bulb Saturation	34%	38%	33%	27%
Potential for CFLs or LEDs	58%	40%	61%	69%a
Don't Know/Empty sockets	9%	22%	6%	4%
All Homes				
Sample size	*259*	*64*	*195*	*132*
Total Sockets	**12,846**	**3,957**	**7,620**	**4,140**
Average # of Sockets	**49.6**	**61.8**	**39.1**	**31.4**
EE Bulb Saturation	38%	38%	40%	27%ac
Potential for CFLs or LEDs	57%	56%	56%	69%abc
Don't Know/Empty sockets	5%	6%	4%	4%

* EE Bulb Saturation is the percentage of all bulbs that are considered energy efficient. This includes CFLs, LEDs, and Fluorescent bulbs.

**Potential for all CFLs and LEDs is the percentage of all bulbs that are halogen or incandescent bulbs.

a Statistically different at the 90% confidence level from Overall NY.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

Next we examined the total number of sockets by household. As shown in Table 74, the average number of sockets in Overall, Upstate, Downstate, and Manhattan homes differ significantly from each other, with Upstate homes

having the highest average sockets per household at 62 and Manhattan having the lowest average sockets per household at 31. Understandably, the average numbers of sockets per household in Downstate and Manhattan homes are significantly lower than Upstate and Overall homes.

Grouping households by total number of sockets reveals additional differences between the study areas. Over one-half of Downstate and Manhattan homes had 24 sockets or less (50% and 52% respectively), while the largest proportion of Upstate homes had 50 to 74 sockets (37%).

Table 74: Analysis of Total Sockets

(Base: All onsite respondents)

Total Sockets	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
24 or less	36%	19%a	50%ab	52%ab
25 to 49	20%	14%	24%b	23%
50 to 74	26%	37%a	16%ab	22%b
75 to 99	6%	13%	1%ab	3%b
100 to 124	7%	13%	2%ab	0%abc
125 or more	6%	6%	7%	1%ac
Mean	**50**	**62a**	**39ab**	**31abc**
Median	**36**	**58**	**24**	**23**
Standard Deviation	**45**	**38**	**48**	**34**

a Statistically different at the 90% confidence level from Overall NY.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

REMAINING SATURATION POTENTIAL FOR ENERGY-EFFICIENT BULBS

Using the estimate of energy-efficient bulb saturation overall (i.e., 38%), optimistically, if each incandescent, and halogen bulb were converted to a CFL, approximately 62% of sockets in the overall sample could still be converted to screw-in CFLs or LEDs. Specialty sockets (based on non-A-line bulb shape as well as fixture controls) account for 50% of all potential sockets in the home overall. It is unlikely that the potential for CFLs and LEDs will ever be met, however, as some consumers will turn to A-line halogen bulbs, stockpiled incandescents, and still-compliant incandescents to fill certain sockets. Therefore, the achievable saturation for energy-efficient lighting is likely less

than 100%. At this time we have inadequate data to predict what the ultimate saturation rate will be, but the Regional Lighting Strategy has a goal of 90%[83] (Table 75 and Table 76).

Table 75: Percentage of Sockets Filled with Standard or Specialty Bulbs – Overall & Upstate
(Base: All onsite respondents)

Bulb Type	Overall			Upstate		
	All Bulbs	**Standard Bulbs**	**Specialty Bulbs**	**All Bulbs**	**Standard Bulbs**	**Specialty Bulbs**
Sample Size	*259*	*259*	*259*	*64*	*64*	*64*
All Bulb Types	**12,846**	**8,262**	**4,583**	**3,957**	**2,729**	**1,228**
Incandescent	6,330	43%	67%	2,031	44%	68%
CFLs	3,399	32%	16%	978	30%	14%
Fluorescent	1,323	15%	2%	485	17%	1%
Halogen	683	1%	12%	183	1%	13%
Empty sockets	543	7%	0%	18	7%	0%
LEDs	126	1%	<1%	32	1%	0%
Other/Don't know	141	1%	2%	30	<1%	4%
Potential for CFLs or LEDs	**7,313**	**50%**	**50%**	**2,214**	**55%**	**45%**

* Potential for all CFLs and LEDs is the percentage of all bulbs that are halogen or incandescent bulbs.

** Potential for specialty CFLs and LEDs is the percentage of all halogen and incandescent bulbs that are specialty; this includes halogens that are pin-based, although to replace these bulbs with CFLs or LEDs, the entire fixture would have to be replaced to accommodate a screw base bulb.

[83] Lis, D. and C. Miziolek. 2013. *Residential Lighting Stragegy:2012 Update & Future Planning.* Northeast Energy Efficiency Partnerships Webinar held on Friday, May 17, 2013.

Table 76: Percentage of Sockets Filled with Standard or Specialty Bulbs – Downstate & Manhattan
(Base: All onsite respondents)

Bulb Type	Downstate			Manhattan		
	All Bulbs	**Standard Bulbs**	**Specialty Bulbs**	**All Bulbs**	**Standard Bulbs**	**Specialty Bulbs**
Sample Size	*195*	*195*	*195*	*132*	*132*	*132*
All Bulb Types	**7,620**	**4,427**	**3,193**	**4,141**	**2,290**	**1,851**
Incandescent	3,964	42%	66%	2,107	47%	56%
CFLs	2,195	36%	19%	786	27%	9%
Fluorescent	585	11%	3%	257	8%	4%
Halogen	476	2%	11%	750	9%	30%
Empty sockets	265	6%	0%	124	5%	<1%
LEDs	93	2%	1%	90	3%	1%
Other/Don't know	42	1%	<1%	27	1%	<1%
Potential for CFLs or LEDs	**4,440**	**44%**	**56%**	**2,857**	**44%**	**56%**

The Team also examined potential for subsets of households. As Table 77 and Table 78 show, potential exists among a wide variety of households, though it is significantly higher in households with certain demographic characteristics. Overall, owners have significantly more total sockets compared to renters and no-low income households have significantly more sockets compared to low income households. Given the relative number of total fixtures, the majority of potential exists among owners and single family households.

Table 77: Overall Saturation Potential by Demographic Characteristics – Overall and Upstate

(Base: All onsite respondents)

Demographic Characteristic	Overall				Upstate			
	n	Saturation Potential	Average Sockets per Home	Average Saturation Potential Sockets	*n*	Saturation Potential	Average Sockets per Home	Average Saturation Potential Sockets
Ownership status								
Own or buying	*156*	59%	36	24	*49*	57%	56	31
Rent or lease	*100*	48%e	8	4	*14*	48%	5	3
Other[1]	*3*	62%	1	0	*1*	60%	1	1
Type of home								
Single family	*164*	57%	41	23	*55*	57%	59	33
Multifamily	*95*	58%	8	5	*9*	40%	3	1
Income status								
Low income	*96*	42%	11	5	*24*	50%	13	7
Not low income	*163*	61%f	39	24	*40*	58%	49	28

[1] Other includes “Occupied without payment or rent” and “CO-OP”.

e Statistically different at the 90% confidence level from Own or buying.

f Statistically different at the 90% confidence level from Low income.

Table 78: Overall Saturation Potential by Demographic Characteristics – Downstate and Manhattan

(Base: All onsite respondents)

Demographic Characteristic	Downstate				Manhattan			
	n	Saturation Potential	Average Sockets per Home	Average Saturation Potential Sockets	*n*	Saturation Potential	Average Sockets per Home	Average Saturation Potential Sockets
Ownership status								
Own or buying	*91*	62%	29	18	*57*	73%	19	14
Rent or lease	*104*	48%	10	5	*73*	62%e	11	7
Other[1]	*1*	77%	0	0	*2*	80%	1	1
Type of home								
Single family	*85*	57%	26	15	*n/a*	n/a	n/a	n/a
Multifamily	*110*	61%	13	8	*132*	69%	31	22
Income status								
Low income	*70*	33%	9	3	*29*	48%	2	2
Not low income	*125*	66%f	30	20	*103*	72%f	28	20

1 Other includes “Occupied without payment or rent” and “CO-OP”.

e Statistically different at the 90% confidence level from Own or buying.

f Statistically different at the 90% confidence level from Low income.

Similarly, examining the saturation potential by room type suggests that while substantial saturation potential (greater than 30%) for CFLs and LEDs exists across all room types in the overall sample, when the relative number of sockets are factored in, the vast majority of saturation potential (72%) exists among the six rooms with the greatest number of total sockets (Table 79 and Table 80). These rooms are: bedrooms, living spaces, bathrooms, kitchens, dining rooms, and exteriors.

Table 79: Overall Saturation Potential by Room Type – Overall and Upstate

(Base: All onsite respondents)

Room Type	Overall			Upstate		
	Total Sockets	Potential CFL or LED	Potential Sockets	Total Sockets	Potential CFL or LED	Potential Sockets
Sample Size	*259*	*259*	*259*	*64*	*64*	*64*
Total Sockets	**277,839,446**	**155,891,793**	**155,891,793**	**155,618,085**	**86,991,096**	**86,991,096**
Bedroom	44,429,322	57%	25,512,368	23,059,629	62%	14,269,476
Living Space	34,918,371	63%	21,848,359	18,309,659	62%	11,285,097
Bathroom	34,706,384	56%	19,348,163	18,603,947	56%	10,377,940
Kitchen	34,484,118	45%	15,482,147	16,740,382	42%	7,078,447
Dining Room	24,743,815	70%	17,253,952	12,814,101	73%	9,291,837
Exterior	17,199,641	78%	13,421,240	12,365,859	81%	10,073,703
Hall	16,841,434	55%	9,288,721	8,145,921	55%	4,497,514
Garage	12,530,471	30%	3,782,950	11,295,378	26%	2,932,189
Other	9,502,403	57%	5,423,030	4,628,350	53%	2,462,388
Closet	9,256,629	53%	4,889,165	5,829,446	50%	2,920,068
Basement	9,086,856	46%	4,140,391	7,087,629	44%	3,091,024
Office	8,723,776	57%	4,991,867	4,257,213	52%	2,224,387
Foyer	8,412,110	56%	4,739,677	3,512,281	60%	2,089,888
Utility/Laundry	7,610,766	34%	2,599,447	4,866,198	39%	1,912,765
Den	5,393,350	59%	3,170,316	4,102,092	61%	2,484,373
Sockets per Household	49.6	28.2	28.2	60.9	34.1	34.1

Table 80: Overall Saturation Potential by Room Type – Downstate and Manhattan

(Base: All onsite respondents)

Room Type	Downstate			Manhattan		
	Total Sockets	Potential CFL or LED	Potential Sockets	Total Sockets	Potential CFL or LED	Potential Sockets
Sample Size	*195*	*195*	*195*	*132*	*132*	*132*
Total Sockets	**106,357,845**	**58,563,919**	**58,563,919**	**15,863,516**	**10,336,778**	**10,336,778**
Bedroom	18,032,272	51%	9,143,107	3,337,421	63%	2,099,785
Kitchen	15,543,736	47%	7,231,335	2,200,000	53%	1,172,365
Living Space	13,913,535	63%	8,832,564	2,695,177	64%	1,730,698
Bathroom	13,444,041	53%	7,070,395	2,658,396	71%	1,899,828
Dining Room	10,478,711	67%	6,973,598	1,451,003	68%	988,517
Hall	7,763,280	53%	4,089,730	932,233	75%	701,477
Exterior	4,658,531	69%	3,208,399	175,251	79%	139,138
Other	4,636,091	60%	2,778,185	237,962	77%	182,457
Foyer	4,142,986	53%	2,189,056	756,843	61%	460,733
Office	3,723,492	61%	2,259,394	743,071	68%	508,086
Closet	2,862,646	55%	1,577,780	564,537	69%	391,317
Utility/Laundry	2,701,889	25%	670,267	42,679	38%	16,415
Basement	1,999,227	52%	1,049,367	n/a	n/a	n/a
Garage	1,235,093	69%	850,761	n/a	n/a	n/a
Den	1,222,315	52%	639,981	68,943	67%	45,962
Sockets per Household	39.3	22.9	22.9	31.4	21.6	21.6

Interestingly, one area where saturation potential varies substantially is among specialty sockets. As Table 81 and Table 82 point out, while the saturation potential for CFLs or LEDs among standard bulbs overall is 42%, it increases to 79% among specialty bulbs. Because of this disparity, the saturation potential for specialty bulbs is more than half of the total saturation potential for CFLs and LEDs despite there being just two-thirds as many specialty bulbs as standard bulbs on average statewide.

Table 81: Saturation Potential for CFLs & LEDs by Standard or Specialty Bulbs – Overall & Upstate
(Base: All onsite respondents)

	Overall			Upstate		
	Potential CFL or LED	**Avg. Sockets/ Home**	**Potential Sockets/ Home**	**Potential CFL or LED**	**Avg. Sockets/ Home**	**Potential Sockets/ Home**
Sample Size	*259*	*259*	*259*	*64*	*64*	*64*
All bulbs	57%	50	28	56%	62	35
Standard bulbs	42%	30	13	43%	40	17
Specialty bulbs	79%	20	16	80%	22	17

Table 82: Saturation Potential for CFLs & LEDs by Standard or Specialty Bulbs – Downstate & Manhattan
(Base: All onsite respondents)

	Downstate			Manhattan		
	Potential CFL or LED	**Avg. Sockets/ Home**	**Potential Sockets/ Home**	**Potential CFL or LED**	**Avg. Sockets/ Home**	**Potential Sockets/ Home**
Sample Size	*195*	*195*	*195*	*132*	*132*	*132*
All bulbs	58%	39	23	69%	31	22
Standard bulbs	41%	21	9	50%	15	8
Specialty bulbs	78%	18	14	86%	16	14

SOCKET SATURATIONS AND REMAINING POTENTIAL BY SELECTED CHARACTERISTICS

The remaining tables in this section (Table 83 to Table 102) provide detail on saturation for all bulb types and estimate the remaining saturation potential for CFLs and LEDs. It is important to note that the stated potential serves as a best case scenario. Actual saturation potential will be lower due to limitations in fixture shape, lighting application, and the preferences of the homeowner.

As illustrated in Table 83, households had an average of 49.6 sockets across the entire sample, which were most often filled with incandescent bulbs (25.6 bulbs per home on average overall) and CFLs (13.1 bulbs per home on average overall). Bedrooms, bathrooms, kitchens and living spaces had the largest number of bulbs of all types installed on the whole; CFLs and incandescent bulbs accounted for 85% of installed bulbs in both bedrooms and bathrooms. Halogen bulbs were most often installed in exterior spaces and kitchens. Fluorescent bulbs also represented a large percentage of bulbs installed in garages, basements, utility or laundry rooms, and closets. The remaining saturation potential to install a CFL or LED was highest in exterior spaces (79%), dining rooms (70%), living spaces (63%) and dens (60%).[84] LEDs were most often found in foyers, offices or on the exterior of the home (2% of bulbs in each); the majority of rooms had very small numbers of LEDs installed. Upstate, Downstate and Manhattan socket saturation by room type are displayed in Table 84, Table 85, and Table 86. Downstate differs from the Overall sample in that garages have the highest potential for CFLs and LEDs (73%). Notably, cross most room types, Manhattan had lowest CFL saturation; accordingly, this area also had noticeably higher saturation rates of both halogen bulbs and incandescent bulbs and thus, the highest potential for CFLs and LEDs across the majority of room types.

[84] Remaining saturation potential is calculated as the number of incandescent and halogen bulbs which can be replaced with CFLs or LEDs.

Table 83: Socket Saturation – Room Types by Percent of Sockets - Overall

Room Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*259*	*259*	*259*	*259*	*259*	*259*	*259*
Total Sockets	**277,839,446**	**75,760,181**	**28,154,533**	**13,951,863**	**141,939,930**	**2,633,825**	**155,891,793**
Bedroom	16%	32%	3%	6%	53%	1%	59%
Bathroom	12%	30%	5%	2%	55%	1%	57%
Kitchen	12%	25%	17%	9%	37%	1%	46%
Living Space	12%	30%	1%	6%	57%	1%	63%
Dining Room	9%	21%	4%	5%	64%	1%	70%
Exterior	6%	16%	<1%	14%	65%	2%	79%
Hall	6%	34%	4%	3%	54%	1%	57%
Garage	5%	9%	59%	1%	30%	0%	30%
Other	4%	27%	9%	1%	58%	1%	59%
Basement	3%	24%	27%	0%	47%	0%	47%
Closet	3%	20%	23%	1%	53%	1%	53%
Foyer	3%	32%	4%	5%	51%	2%	55%
Office	3%	25%	13%	8%	50%	2%	58%
Utility/Laundry	3%	35%	27%	4%	29%	1%	33%
Den	2%	26%	8%	5%	55%	0%	60%
Sockets per Household	49.6	13.1	5.1	2.6	25.6	0.5	28.2

Table 84: Socket Saturation – Room Types by Percent of Sockets - Upstate

Room Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*64*	*64*	*64*	*64*	*64*	*64*	*64*
Total Sockets	**155,618,085**	**38,617,237**	**18,601,272**	**6,921,784**	**80,069,312**	**1,281,812**	**86,991,096**
Bedroom	15%	30%	1%	7%	56%	1%	63%
Bathroom	12%	30%	4%	<1%	56%	<1%	56%
Living Space	12%	34%	1%	6%	54%	1%	60%
Kitchen	11%	23%	14%	5%	37%	1%	43%
Dining Room	8%	16%	7%	5%	67%	2%	72%
Exterior	8%	14%	<1%	15%	67%	<1%	82%
Garage	8%	7%	65%	1%	25%	0%	26%
Basement	5%	28%	24%	0%	45%	0%	45%
Hall	5%	34%	4%	1%	55%	1%	56%
Closet	4%	19%	29%	0%	49%	1%	49%
Den	3%	25%	6%	6%	54%	0%	61%
Office	3%	24%	19%	1%	52%	1%	53%
Other	3%	29%	8%	2%	51%	2%	54%
Utility/Laundry	3%	22%	34%	6%	31%	0%	38%
Foyer	2%	27%	1%	0%	59%	3%	59%
Sockets per Household	60.9	15.0	7.5	2.8	31.2	0.5	34.1

Table 85: Socket Saturation – Room Types by Percent of Sockets - Downstate

Room Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*195*	*195*	*195*	*195*	*195*	*195*	*195*
Total Sockets	**106,357,845**	**33,656,786**	**8,544,072**	**4,480,885**	**54,083,034**	**967,568**	**58,563,919**
Bedroom	17%	33%	5%	5%	49%	1%	54%
Kitchen	14%	26%	20%	13%	37%	2%	50%
Living Space	14%	26%	2%	6%	60%	<1%	66%
Bathroom	13%	30%	6%	3%	55%	2%	58%
Dining Room	10%	27%	1%	6%	61%	1%	67%
Hall	7%	32%	3%	5%	54%	<1%	59%
Exterior	4%	22%	0%	9%	61%	6%	70%
Foyer	4%	35%	5%	8%	44%	1%	52%
Office	4%	26%	8%	16%	47%	2%	63%
Other	4%	24%	10%	<1%	65%	0%	65%
Closet	3%	24%	13%	3%	59%	<1%	61%
Basement	2%	11%	37%	0%	52%	0%	52%
Utility/Laundry	2%	58%	13%	1%	24%	1%	25%
Den	1%	27%	16%	3%	54%	0%	57%
Garage	1%	27%	0%	0%	73%	0%	73%
Sockets per Household	39.1	11.3	3.0	2.4	20.3	0.5	22.9

Table 86: Socket Saturation – Room Types by Percent of Sockets - Manhattan

Room Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*132*	*132*	*132*	*132*	*132*	*132*	*132*
Total Sockets	**15,863,516**	**3,486,158**	**1,009,189**	**2,549,194**	**7,787,584**	**384,445**	**10,336,778**
Bedroom	20%	24%	2%	19%	50%	1%	68%
Bathroom	16%	14%	4%	7%	66%	4%	73%
Living Space	16%	27%	2%	13%	53%	2%	66%
Kitchen	15%	11%	21%	31%	29%	2%	60%
Dining Room	9%	14%	2%	18%	61%	3%	78%
Hall	6%	18%	3%	33%	43%	2%	76%
Foyer	5%	24%	4%	12%	50%	3%	62%
Office	5%	15%	9%	36%	36%	1%	72%
Closet	4%	18%	12%	5%	64%	1%	68%
Den	1%	31%	0%	12%	58%	0%	69%
Exterior	1%	20%	0%	2%	73%	4%	75%
Other	1%	16%	4%	6%	75%	0%	80%
Utility/Laundry	<1%	29%	29%	0%	36%	0%	36%
Basement	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Garage	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sockets per Household	31.4	6.0	1.9	5.7	16.0	0.7	21.6

As illustrated in Table 87, flush-mount (25%), wall-mount (17%), pendant (15%), recessed (12%), and table lamp (12%) fixture types were the most prevalent fixtures types found statewide. Overall, portable fixture types (table and floor lamps, and night lights) accounted for 17% of all sockets, with permanent fixtures making up the remaining 83%. This differed slightly when looking at the Manhattan sample alone where portable fixture types accounted for 25% of all sockets (Table 90). In the statewide sample, incandescent bulbs were prevalent throughout all fixture types and were greatest in night lights (73%), pendant (64%), ceiling fans (60%), and wall mount (58%) fixtures. Approximately one out of five under cabinet (19%), flush mount (18%) and pendant (18%) fixtures were

filled with fluorescents. Night lights had a notable amount of LED bulbs – 27%. Halogen bulbs tended to fill just under one-half (47%) of the track lighting fixtures. The saturation potential to replace incandescent and halogen bulbs with CFLs or LEDs was greatest in track lighting (83%), night lights (73%), pendant (65%), and wall mount (63%) fixture types. Table 88, Table 89 and Table 90 display socket saturation for fixture types by percent of sockets for the Upstate, Downstate, and Manhattan sample areas, respectively. Manhattan, again, has the highest potential for CFLs and LEDs across most fixture types, with the lowest saturation of CFLs and the highest saturation of halogen and incandescent bulbs.

Table 87: Socket Saturation – Fixture Types by Percent of Sockets - Overall

Fixture Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*259*	*259*	*259*	*259*	*259*	*259*	*259*
Total Sockets	**277,839,446**	**75,760,181**	**28,154,533**	**13,951,863**	**141,939,930**	**2,633,825**	**155,891,793**
Flush Mount	25%	31%	18%	1%	43%	<1%	44%
Wall Mount	17%	26%	5%	6%	58%	1%	63%
Pendant	15%	14%	18%	2%	64%	1%	65%
Recessed	12%	31%	10%	10%	44%	2%	54%
Table Lamp	12%	35%	1%	3%	56%	1%	59%
Ceiling Fan	6%	31%	0%	1%	60%	0%	61%
Floor Lamp	4%	38%	1%	6%	48%	1%	54%
Track	3%	11%	0%	47%	36%	3%	83%
Under Cabinet	3%	1%	19%	14%	40%	1%	54%
Other	2%	14%	19%	7%	52%	3%	59%
Night Light	<1%	0%	0%	0%	73%	27%	73%
Sockets per Household	49.6	13.1	5.1	2.6	25.6	0.5	28.2

Table 88: Socket Saturation – Fixture Types by Percent of Sockets - Upstate

Fixture Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*64*	*64*	*64*	*64*	*64*	*64*	*64*
Total Sockets	**155,618,085**	**38,617,237**	**18,601,272**	**6,921,784**	**80,069,312**	**1,281,812**	**86,991,096**
Flush Mount	29%	29%	18%	1%	46%	<1%	47%
Wall Mount	16%	27%	4%	7%	55%	1%	62%
Pendant	15%	9%	30%	1%	56%	1%	57%
Table Lamp	11%	35%	1%	3%	57%	1%	60%
Recessed	10%	24%	10%	11%	46%	2%	57%
Ceiling Fan	7%	28%	0%	0%	68%	0%	68%
Floor Lamp	4%	45%	0%	4%	44%	1%	48%
Under Cabinet	3%	1%	13%	5%	29%	1%	34%
Other	2%	16%	26%	10%	42%	1%	52%
Track	2%	9%	0%	54%	37%	1%	90%
Night Light	<1%	0%	0%	0%	88%	12%	88%
Sockets per Household	31.8	15.3	7.6	2.6	31.7	0.9	34.6

Table 89: Socket Saturation – Fixture Types by Percent of Sockets - Downstate

Fixture Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*195*	*195*	*195*	*195*	*195*	*195*	*195*
Total Sockets	**106,357,845**	**33,656,786**	**8,544,072**	**4,480,885**	**54,083,034**	**967,568**	**58,563,919**
Flush Mount	21%	36%	17%	2%	38%	<1%	40%
Wall Mount	19%	25%	7%	4%	61%	1%	65%
Recessed	15%	36%	9%	10%	42%	1%	52%
Pendant	14%	20%	<1%	2%	74%	<1%	77%
Table Lamp	11%	35%	1%	4%	54%	1%	58%
Ceiling Fan	5%	39%	0%	3%	45%	0%	48%
Floor Lamp	5%	32%	1%	8%	52%	1%	60%
Under Cabinet	4%	1%	24%	22%	49%	2%	71%
Track	3%	13%	0%	40%	37%	4%	77%
Other	2%	11%	4%	0%	71%	7%	71%
Night Light	<1%	3%	3%	0%	53%	41%	53%
Sockets per Household	39.1	11.3	3.0	2.4	20.3	0.5	22.9

Table 90: Socket Saturation – Fixture Types by Percent of Sockets - Manhattan

Fixture Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*132*	*132*	*132*	*132*	*132*	*132*	*132*
Total Sockets	**15,863,516**	**3,486,158**	**1,009,189**	**2,549,194**	**7,787,584**	**384,445**	**10,336,778**
Flush Mount	20%	24%	15%	5%	50%	1%	55%
Wall Mount	17%	18%	6%	6%	65%	2%	70%
Table Lamp	16%	31%	2%	7%	58%	2%	64%
Pendant	11%	12%	0%	5%	80%	1%	84%
Floor Lamp	9%	30%	4%	15%	44%	3%	59%
Track	9%	1%	0%	68%	26%	3%	94%
Recessed	7%	9%	1%	58%	26%	1%	84%
Under Cabinet	7%	0%	19%	45%	25%	3%	70%
Ceiling Fan	4%	42%	0%	3%	49%	0%	51%
Other	2%	5%	11%	0%	72%	11%	72%
Night Light	1%	6%	6%	0%	55%	30%	55%
Sockets per Household	31.4	6.0	1.9	5.7	16.0	0.7	21.6

As illustrated in Table 91, the socket saturation of screw-base type sockets was 78% statewide. Notably, one-third of the screw based sockets were filled with CFL bulbs (33%), though the remaining two thirds were mostly filled with incandescent bulbs (64%). The majority of pin-based sockets were filled with fluorescent bulbs (69%). As nearly four out of five of GU based sockets were filled with halogens (79%), and all incandescent bulbs had screw-bases, the greatest saturation potential for CFLs and LEDs were in GU based sockets (86%). Table 92, Table 93, and Table 94 show socket saturations for socket types by percent of sockets for the Upstate, Downstate, and Manhattan sample areas. Similar to fixture types and room types, Manhattan has the highest potential for CFLs or LEDs across most socket types.

Table 91: Socket Saturation – Socket Types by Percent of Sockets - Overall

Socket Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*259*	*259*	*259*	*259*	*259*	*259*	*259*
Total Sockets	**277,839,446**	**75,760,181**	**28,154,533**	**13,951,863**	**141,939,930**	**2,633,825**	**155,891,793**
Screw	78%	33%	<1%	2%	64%	1%	66%
Pin	15%	6%	69%	13%	7%	<1%	20%
GU	2%	10%	0%	79%	7%	4%	86%
Other/Unknown	1%	0%	2%	23%	19%	25%	42%
Sockets per Household	49.6	13.1	5.1	2.6	25.6	0.5	28.2

Table 92: Socket Saturation – Socket Types by Percent of Sockets - Upstate

Socket Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*64*	*64*	*64*	*64*	*64*	*64*	*64*
Total Sockets	**155,618,085**	**38,617,237**	**18,601,272**	**6,921,784**	**80,069,312**	**1,281,812**	**86,991,096**
Screw	77%	32%	<1%	2%	65%	1%	68%
Pin	15%	2%	81%	6%	3%	0%	9%
GU	2%	2%	0%	82%	10%	6%	92%
Other/Unknown	1%	0%	0%	39%	11%	17%	50%
Sockets per Household	61.8	15.3	7.6	2.9	31.7	0.5	34.6

Table 93: Socket Saturation – Socket Types by Percent of Sockets - Downstate

Socket Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*195*	*195*	*195*	*195*	*195*	*195*	*195*
Total Sockets	**106,357,845**	**33,656,786**	**8,544,072**	**4,480,885**	**54,083,034**	**967,568**	**58,563,919**
Screw	79%	34%	<1%	2%	63%	1%	65%
Pin	14%	10%	52%	23%	13%	<1%	37%
Other/Unknown	2%	0%	4%	11%	25%	31%	36%
GU	1%	28%	0%	72%	0%	0%	72%
Sockets per Household	39.1	11.3	3.0	2.4	20.3	0.5	22.9

Table 94: Socket Saturation – Socket Types by Percent of Sockets - Manhattan

Socket Type	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*132*	*132*	*132*	*132*	*132*	*132*	*132*
Total Sockets	**15,863,516**	**3,486,158**	**1,009,189**	**2,549,194**	**7,787,584**	**384,445**	**10,336,778**
Screw	72%	26%	<1%	4%	68%	2%	73%
Pin	21%	3%	28%	59%	7%	<1%	66%
GU	2%	1%	0%	98%	1%	0%	99%
Other/Unknown	2%	0%	2%	1%	27%	48%	28%
Sockets per Household	31.4	6.0	1.9	5.7	16.0	0.7	21.6

As illustrated in Table 95, the most prevalent bulb shape for all sockets observed statewide was A-line (28%) followed by twist/spiral (21%). Unsurprisingly, all twist/spiral-shaped bulbs were CFLs, while the majority A-line bulbs were incandescent (96%). Two percent of the remaining A-line bulbs were CFLs, a number that is likely to rise as incandescents are phased out (given the A-line CFLs' similarity in appearance to an incandescent bulb). Bulbs located on dimmable circuits tended to be primarily incandescent (68%) or halogen bulbs (15%), but CFLs also accounted for 6% of dimmable circuits. Three-way bulbs tended to be incandescent bulbs (65%) or CFLs (28%). Specialty bulbs in general were also primarily incandescent. Globe-shaped (77%) and candelabra types (96%) were predominantly incandescent bulbs, although the majority of circline bulbs were fluorescent (97%). Given that the majority of A-line bulbs were incandescent, the greatest saturation potential for CFLs and LEDs lies in replacement of this bulb shape (96%). Candle shaped bulbs (96%), bug lights (94%), bullet shaped bulbs (88%), spot/flood shaped bulbs (82%), and globe-shaped bulbs (77%) also had high saturation potential for replacement with CFLs and LEDs but the total number of these bulbs in homes is much smaller than A-line incandescent bulbs. Table 96, Table 97, and Table 98 present socket saturations for bulb features by percent of sockets for the Upstate, Downstate, and Manhattan sample areas. Downstate households have the highest saturation of incandescent and three-way bulbs, and thus have the highest potential to be filled with CFLs and LEDs with these specialty features. Remarkably, Manhattan has the lowest saturation of spot and bullet shaped incandescent bulbs; however, this area also has the highest saturation of spot and bullet shaped bulbs, and there for has the highest potential for CFLs or LEDs with these shapes.

Table 95: Socket Saturation – Bulb Features by Percent of Sockets - Overall

Bulb Shape	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*259*	*259*	*259*	*259*	*259*	*259*	*259*
Total Sockets	**277,839,446**	**75,760,181**	**28,154,533**	**13,951,863**	**141,939,930**	**2,633,825**	**155,891,793**
A-Line*	28%	2%	0%	<1%	96%	1%	96%
Twist	21%	100%	<1%	0%	0%	0%	0%
Candle	13%	3%	1%	0%	96%	1%	96%
Tube	13%	11%	72%	7%	5%	<1%	12%
Spot	11%	14%	0%	30%	52%	3%	82%
Globe	6%	22%	0%	0%	77%	1%	77%
Bullet	3%	10%	0%	31%	56%	1%	88%
Circline	1%	0%	97%	0%	3%	0%	3%
Don't Know	1%	0%	0%	4%	32%	3%	36%
Bug Light	<1%	6%	0%	6%	88%	0%	94%
Other	<1%	0%	0%	0%	3%	97%	3%
Dimmable**	10%	6%	<1%	15%	68%	1%	83%
Three-way**	2%	28%	2%	2%	65%	<1%	68%
Sockets per Household	49.6	13.1	5.1	2.6	25.6	0.5	28.2

*A-line bulbs are the typical shape for standard incandescent bulbs. A-line CFLs are made to look and feel like traditional incandescent bulbs.

**Dimmable and three-way bulbs also fall within shape categories and therefore are not additive; for non-CFL bulbs types, dimmability was determined by the control type, not by the bulb type.

Table 96: Socket Saturation – Bulb Features by Percent of Sockets - Upstate

Bulb Shape	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*64*	*64*	*64*	*64*	*64*	*64*	*64*
Total Sockets	**155,618,085**	**38,617,237**	**18,601,272**	**6,921,784**	**80,069,312**	**1,281,812**	**86,991,096**
A-Line*	31%	2%	0%	<1%	97%	1%	97%
Twist	21%	100%	0%	0%	<1%	0%	0%
Tube	15%	8%	76%	4%	3%	0%	8%
Candle	11%	0%	1%	0%	98%	1%	98%
Spot	9%	8%	0%	38%	50%	4%	88%
Globe	5%	19%	0%	0%	80%	1%	80%
Bullet	2%	28%	0%	23%	49%	0%	72%
Bug Light	<1%	11%	0%	11%	78%	0%	89%
Circline	<1%	0%	93%	0%	7%	0%	7%
Don't Know	<1%	0%	0%	6%	24%	0%	29%
Other	<1%	0%	0%	0%	0%	100%	0%
Dimmable**	7%	4%	0%	12%	62%	0%	75%
Three-way**	2%	28%	5%	2%	61%	0%	62%
Sockets per Household	61.8	15.3	7.6	2.9	31.7	0.5	34.6

*A-line bulbs are the typical shape for standard incandescent bulbs. A-line CFLs are made to look and feel like traditional incandescent bulbs.

**Dimmable and three-way bulbs also fall within shape categories and therefore are not additive; for non-CFL bulbs types, dimmability was determined by the control type, not by the bulb type.

Table 97: Socket Saturation – Bulb Features by Percent of Sockets - Downstate

Bulb Shape	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*195*	*195*	*195*	*195*	*195*	*195*	*195*
Total Sockets	**106,357,845**	**33,656,786**	**8,544,072**	**4,480,885**	**54,083,034**	**967,568**	**58,563,919**
A-Line*	24%	3%	0%	<1%	96%	1%	96%
Twist	21%	100%	<1%	0%	0%	0%	0%
Candle	14%	5%	<1%	0%	93%	1%	93%
Spot	14%	20%	0%	23%	54%	3%	77%
Tube	10%	17%	63%	12%	7%	<1%	19%
Globe	6%	26%	0%	0%	74%	0%	74%
Bullet	5%	3%	0%	36%	60%	1%	95%
Circline	1%	0%	100%	0%	0%	0%	0%
Don't Know	1%	0%	0%	3%	38%	3%	41%
Other	<1%	0%	0%	0%	3%	97%	3%
Bug Light	0%	0%	0%	0%	0%	0%	0%
Dimmable**	14%	7%	<1%	17%	72%	2%	91%
Three-way**	2%	28%	0%	2%	70%	1%	72%
Sockets per Household	39.1	11.3	3.0	2.4	20.3	0.5	22.9

*A-line bulbs are the typical shape for standard incandescent bulbs. A-line CFLs are made to look and feel like traditional incandescent bulbs.

**Dimmable and three-way bulbs also fall within shape categories and therefore are not additive; for non-CFL bulbs types, dimmability was determined by the control type, not by the bulb type.

Table 98: Socket Saturation – Bulb Features by Percent of Sockets - Manhattan

Bulb Shape	All Sockets	CFL	Fluorescent	Halogen	Incandescent	LED	Potential CFL or LED
Sample Size	*132*	*132*	*132*	*132*	*132*	*132*	*132*
Total Sockets	**15,863,516**	**3,486,158**	**1,009,189**	**2,549,194**	**7,787,584**	**384,445**	**10,336,778**
A-Line*	26%	1%	<1%	<1%	96%	3%	96%
Twist	17%	99%	<1%	<1%	0%	0%	0%
Bullet	12%	1%	<1%	60%	33%	2%	93%
Tube	12%	12%	36%	36%	16%	0%	52%
Spot	10%	4%	0%	64%	30%	2%	94%
Candle	9%	2%	3%	0%	95%	0%	95%
Globe	8%	4%	0%	<1%	96%	0%	96%
Circline	2%	0%	100%	0%	0%	0%	0%
Don't Know	1%	0%	0%	0%	18%	18%	18%
Other	1%	0%	0%	0%	10%	90%	10%
Bug Light	0%	0%	0%	0%	0%	0%	0%
Dimmable**	27%	3%	1%	41%	50%	3%	91%
Three-way**	3%	27%	0%	3%	68%	1%	71%
Sockets per Household	31.4	6.0	1.9	5.7	16.0	0.7	21.6

*A-line bulbs are the typical shape for standard incandescent bulbs. A-line CFLs are made to look and feel like traditional incandescent bulbs.

** Dimmable and three-way bulbs also fall within shape categories and therefore are not additive; for non-CFL bulbs types, dimmability was determined by the control type, not by the bulb type.

Statewide, the number of sockets per fixture stood at about 1.6 overall and for the most common bulb types (e.g. incandescents, CFLs, fluorescents, and halogens) (Table 99). Unsurprisingly, track lighting, pendant fixtures (including chandeliers), and ceiling fans tended to have the largest number of sockets per fixture overall and for both CFLs and incandescents. Table 100, Table 101, and Table 102 show socket saturations for fixture types by the average number of sockets by predominant bulb type for the Upstate, Downstate, and Manhattan sample areas.

Table 99: Socket Saturation – Average Number of Sockets by Predominant Bulb Type by Fixture Type - Overall

Fixture Type	All Fixtures	CFL Fixture	Fluorescent Fixtures	Halogen Fixtures	Incandescent Only Fixtures	LED Fixtures	Unknown Bulb Type Fixtures
Sample Size	*259*	*259*	*259*	*259*	*259*	*259*	*259*
Total Fixtures	**183,051,800**	**56,024,759**	**16,453,449**	**9,704,130**	**92,748,331**	**2,157,678**	**1,590,202**
Track *(n=84)*	3.88	3.64	-	4.88	3.18	3.08	4.00
Pendant *(n=668)*	2.79	2.20	2.31	2.15	3.23	2.41	-
Ceiling Fan *(n=294)*	2.65	2.84	-	1.00	2.63	-	1.00
Under Cabinet *(n=194)*	2.28	2.11	1.32	2.24	3.04	1.77	3.18
Wall Mount *(n=1,332)*	1.69	1.612	1.49	1.49	1.79	1.92	2.00
Other *(n=146)*	1.65	1.62	2.25	1.14	1.75	1.00	1.00
Floor Lamp *(n=370)*	1.54	1.61	1.05	1.12	1.60	1.08	1.00
Flush Mount *(n=2,261)*	1.42	1.40	1.81	1.51	1.33	1.60	1.18
Recessed *(n=1,187)*	1.34	1.38	2.45	1.23	1.22	1.20	1.32
Table Lamp *(n=1,334)*	1.14	1.12	1.69	1.08	1.15	1.00	-
Night Light *(n=57)*	1.00	1.00	1.00	-	1.00	1.00	-
All Fixture Types *(n=7,926)*	1.62	1.51	1.90	1.63	1.66	1.38	2.03

Table 100: Socket Saturation – Average Number of Sockets by Predominant Bulb Type by Fixture Type - Upstate

Fixture Type	All Fixtures	CFL Fixture	Fluorescent Fixtures	Halogen Fixtures	Incandescent Only Fixtures	LED Fixtures	Unknown Bulb Type Fixtures
Sample Size	*64*	*64*	*64*	*64*	*64*	*64*	*64*
Total Fixtures	**109,390,116**	**31,334,107**	**10,682,276**	**5,335,817**	**56,760,496**	**993,831**	**1,022,452**
Track *(n=23)*	3.81	4.50	-	4.72	2.84	4.00	-
Ceiling Fan *(n=108)*	2.65	2.76	-	-	2.59	-	-
Pendant *(n=2227)*	2.58	1.91	2.31	1.00	3.03	2.33	-
Under Cabinet *(n=49)*	1.86	1.00	1.05	1.00	1.83	1.00	3.15
Wall Mount *(n=394)*	1.63	1.64	1.18	1.38	1.73	2.00	-
Floor Lamp *(n=95)*	1.52	1.64	-	1.00	1.54	1.00	-
Other *(n=57)*	1.51	1.77	2.45	1.14	1.29	1.00	1.00
Flush Mount *(n=796)*	1.40	1.33	1.95	1.13	1.32	1.73	1.36
Recessed *(n=269)*	1.18	1.13	2.38	1.23	1.06	1.33	-
Table Lamp *(n=427)*	1.12	1.12	2.05	1.16	1.10	1.00	-
Night Light *(n=18)*	1.00	-	-	-	1.00	1.00	-
All Fixture Types *(n=2,550)*	1.55	1.44	2.00	1.48	1.54	1.49	2.47

Table 101: Socket Saturation – Average Number of Sockets by Predominant Bulb Type by Fixture Type - Downstate

Fixture Type	All Fixtures	CFL Fixture	Fluorescent Fixtures	Halogen Fixtures	Incandescent Only Fixtures	LED Fixtures	Unknown Bulb Type Fixtures
Sample Size	*195*	*195*	*195*	*195*	*195*	*195*	*195*
Total Fixtures	**73,661,684**	**24,690,653**	**5,771,173**	**4,368,313**	**35,987,835**	**1,163,848**	**567,750**
Track *(n=58)*	3.95	3.28	-	5.08	3.62	2.65	3.00
Pendant *(n=341)*	3.15	2.42	2.43	4.63	3.49	4.00	-
Under Cabinet *(n=122)*	2.78	3.00	1.49	2.81	4.76	2.33	4.00
Ceiling Fan *(n=130)*	2.66	2.96	-	1.00	2.77	-	1.00
Other *(n=56)*	2.01	1.26	1.19	-	2.98	1.00	1.00
Wall Mount *(n=831)*	1.77	1.58	1.83	1.81	1.86	1.87	2.00
Floor Lamp *(n=268)*	1.55	1.56	1.05	1.19	1.62	1.24	1.00
Recessed *(n=752)*	1.53	1.60	2.53	1.24	1.46	1.00	1.32
Flush Mount *(n=1,084)*	1.46	1.50	1.60	1.94	1.39	1.00	1.01
Table Lamp *(n=747)*	1.17	1.12	1.26	1.01	1.23	1.00	-
Night Light *(n=34)*	1.00	1.00	1.00	-	1.00	1.00	-
All Fixture Types *(n=4,423)*	1.72	1.59	1.71	1.82	1.83	1.29	1.25

Table 102: Socket Saturation – Average Number of Sockets by Predominant Bulb Type by Fixture Type - Manhattan

Fixture Type	All Fixtures	CFL Fixture	Fluorescent Fixtures	Halogen Fixtures	Incandescent Only Fixtures	LED Fixtures	Unknown Bulb Type Fixtures
Sample Size	*132*	*132*	*132*	*132*	*132*	*132*	*132*
Total Fixtures	**15,863,516**	**4,007,571**	**1,032,170**	**2,578,268**	**7,583,871**	**432,911**	**144,452**
Ceiling Fan *(n=65)*	2.27	2.55	-	1.00	2.23	-	-
Floor Lamp *(n=255)*	1.38	1.51	1.09	1.21	1.40	1.22	1.00
Flush Mount *(n=563)*	1.44	1.43	1.45	1.64	1.43	1.00	1.50
Night Light *(n=32)*	1.00	1.00	1.00	-	1.00	1.00	-
Pendant *(n=152)*	2.87	2.10	6.00	4.33	2.95	4.00	-
Recessed *(n=227)*	1.27	1.16	1.60	1.35	1.12	1.00	4.00
Table Lamp *(n=572)*	1.15	1.10	1.31	1.03	1.20	1.00	-
Track *(n=77)*	4.60	2.75	-	6.01	3.24	2.17	4.00
Under Cabinet *(n=121)*	2.49	-	1.43	3.26	2.71	2.25	3.83
Wall Mount *(n=363)*	1.92	1.91	1.13	1.59	2.06	4.99	1.00
Other *(n=30)*	2.12	1.50	2.00	-	2.72	1.00	1.00
All Fixture Types *(n=2,457)*	1.69	1.49	1.40	2.10	1.70	1.60	2.61

CURRENT STORAGE OF CFLS

During onsite visits, technicians also counted all bulbs found in storage. As seen in Table 103 one- half (50%) of homes in the NYSERDA area were storing CFL bulbs, and over one-third of all homes were storing between one and five CFLs (35%). The mean number of CFLs in storage was similar across all four of the study areas in the range of three to four bulbs.

Table 103: Current Storage of CFLs by Households

(Base: All onsite respondents)

All Stored CFLs	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Zero	50%	43%	56%b	49%
One to five	35%	41%	30%	36%
Six to fifteen	12%	12%	11%	15%
Sixteen or more	3%	4%	3%	1%
Total CFLs in storage	778	199	569	332
Mean CFLs in storage	3	3	3	3

b Statistically different at the 90% confidence level from Upstate NY.

Table 104 presents the number of CFLs in storage for those homes that stored CFLs. Overall, the majority of homes that had CFLs in storage were storing 16 or more of the bulbs (35%). This was most notable in Downstate homes, where more than two-fifths (43%) of homes with CFLs in storage were storing 16 or more. In the Upstate sample, however, households were storing one to five CFLs (37%) or six to fifteen CFLs (37%). In the Manhattan sample, the majority of homes were storing six to 15 CFLs (52%).

Table 104: Current Storage of CFLs by Percentage of CFLs in Storage

(Base: All onsite respondents)

All CFLs	A. Overall	B. Upstate	C. Downstate	D. Manhattan
Sample Size	*259*	*64*	*195*	*132*
Number of CFLs in Storage	**778**	**199**	**569**	**332**
One to five	32%	37%	27%	35%
Six to fifteen	33%	37%	30%	52%bc
Sixteen or more	35%	26%	43%b	13%bc

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

TYPES OF STORES WHERE RESPONDENTS SHOP FOR LIGHT BULBS

Table 105: Types of Stores where Bulbs Were Purchased - Upstate

(Base: All onsite respondents)

Manufacturer or Brand	Home Improvement	Grocery/ Drugstore	Ware-house	Mass Merchandise/ Discount	Hard-ware	Home Furnishing	Specialty Lighting Store	Other	Don't know	Total
Sample Size	*64*	*64*	*64*	*64*	*64*	*64*	*64*	*64*	*64*	*64*
# of CFLs	**131**	**27**	**9**	**58**	**1**	**0**	**14**	**14**	**38**	**292**
EcoSmart*	36%	11%	0%	0%	0%	0%	0%	17%	3%	19%
GE	10%	0%	0%	46%	0%	0%	100%	42%	28%	25%
Sylvania	8%	0%	30%	19%	0%	0%	0%	8%	25%	12%
Philips	2%	26%	0%	0%	0%	0%	0%	0%	0%	3%
Feit	6%	0%	0%	10%	0%	0%	0%	0%	0%	5%
TCP	3%	37%	60%	0%	100%	0%	0%	0%	0%	7%
Other	30%	22%	10%	24%	0%	0%	0%	33%	25%	25%
Don't know	3%	4%	0%	0%	0%	0%	0%	0%	19%	4%

* The EcoSmart brand includes N:Vision brand bulbs as well. N:Vision is now EcoSmart.

Table 106: Types of Stores where Bulbs Were Purchased - Downstate

(Base: All onsite respondents)

Manufacturer or Brand	Home Improvement	Grocery/ Drugstore	Ware-house	Mass Merchandise/ Discount	Hard-ware	Home Furnishing	Specialty Lighting Store	Other	Don't know	Total
Sample Size	*195*	*195*	*195*	*195*	*195*	*195*	*195*	*195*	*195*	*195*
# of CFLs	**251**	**133**	**133**	**16**	**59**	**37**	**1**	**117**	**40**	**787**
EcoSmart*	37%	<1%	53%	37%	13%	0%	0%	28%	29%	30%
GE	5%	71%	4%	11%	15%	0%	0%	31%	12%	20%
Sylvania	2%	9%	7%	0%	3%	5%	0%	7%	18%	6%
Philips	23%	1%	7%	0%	10%	3%	0%	1%	8%	11%
Feit	9%	1%	6%	20%	6%	0%	0%	2%	2%	6%
TCP	1%	0%	1%	0%	0%	0%	0%	0%	12%	2%
Other	22%	16%	22%	31%	46%	92%	0%	28%	18%	25%
Don't know	1%	1%	<1%	0%	6%	0%	0%	1%	0%	1%

* The EcoSmart brand includes N:Vision brand bulbs as well. N:Vision is now EcoSmart.

Table 107: Types of Stores where Bulbs Were Purchased - Manhattan

(Base: All onsite respondents)

Manufacturer or Brand	Home Improvement	Grocery/ Drugstore	Ware-house	Mass Merchandise/ Discount	Hard-ware	Home Furnishing	Specialty Lighting Store	Other	Don't know	Total
Sample Size	*132*	*132*	*132*	*132*	*132*	*132*	*132*	*132*	*132*	*132*
# of CFLs	**105**	**67**	**28**	**0**	**40**	**23**	**1**	**95**	**0**	**359**
EcoSmart*	64%	8%	0%	0%	35%	0%	0%	8%	0%	25%
GE	4%	34%	17%	0%	5%	0%	0%	12%	0%	13%
Sylvania	2%	6%	0%	0%	16%	30%	0%	2%	0%	6%
Philips	4%	0%	13%	0%	0%	13%	0%	4%	0%	4%
Feit	18%	4%	8%	0%	24%	0%	0%	9%	0%	11%
TCP	2%	0%	0%	0%	0%	0%	0%	1%	0%	1%
Other	5%	36%	58%	0%	19%	57%	100%	60%	0%	35%
Don't know	1%	13%	4%	0%	0%	0%	0%	4%	0%	4%

* The EcoSmart brand includes N:Vision brand bulbs as well. N:Vision is now EcoSmart.

Appendix B

ADDITIONAL TELEPHONE SURVEY RESULTS

The tables below supplement the discussion of results consumer survey in Section 5.

SHOPPING FOR AND REPLACEMENT OF BULB TYPES AFFECTED BY EISA

Table 108: Self-Reported CFL Penetration (CFLs Currently Installed in Home)

(Base: All telephone survey respondents)

	NYSERDA Area				Comparison Areas		
	2009	2013			2013		
CFLs	Overall	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Ever Installed *Sample size*	*1,001*	*720*	*340*	*380*	*600*	*300*	*300*
Yes	60%	58%	69%	49%ab	60%bc	64%ac	52%abde
No	31	21	17	26	16	17	21
Don't know/refused	0	4	4	4	3	3	4
Not aware of CFLs	9	17	10a	22ab	21a	16bc	23abde
Currently Installed *Sample size*	-	*720*	*340*	*380*	*600*	*300*	*300*
Yes	-	53%	64%a	43%ab	54%bc	60%acd	48%bde
No	-	5	5	5	6	3	4
Don't know/refused	-	<1	<1	<1	<1	1	1
Not aware of/familiar with CFLs	-	42	31a	51ab	40bc	36ac	48abd

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 109: Reason for Choice of Replacement for 75-Watt Incandescent Bulb Under EISA: 18-Watt CFL

Reasons	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*253*	*140*	*113*	*216*	*98*	*107*
Saves energy/energy efficient	39%	38%	43%	45%	45%	35%
Familiar with/already use this bulb	13	14	11	21abc	23abc	17
Produces same/comparable amount of light	13	15	10	8	11	8
Longevity	12	12	10	10	9	11
Better quality of light (color, brightness, etc.)	8	8	8	24abc	4d	9d
Accessibility	7	5	11	5	6	10
Cost of bulb/cost effective	10	11	8	20abc	11d	14
Saves money on bill	5	6	4	16	5	8
Environmentally friendly	3	2	4	4	2	2
Like/prefer this bulb	4	2	5	1	2	4
Don't need or want higher wattage	3	2	3	4	1	2
Safety concerns	2	2	1	<1	1	1
Appropriate for fixtures	1	1	2	2	1	0
Other	5	7	9	4	5	7
Don't know/refused	<1	1	0	3	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 110: Reason for Choice of Replacement for 75-Watt Incandescent Bulb Under EISA—LED

Reasons	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*56*	*29*	*27*	*60*	*29*	*27*
Saves energy/energy efficient	46%	48%	39%	56%	20%abd	38%d
Better quality of light (color, brightness, etc.)	29	26	29	33	32	30
Longevity	24	16	30	19	17	16
Safety concerns	8	9	8	3	2	0
Familiar with/already use this bulb	9	17	3	8	17	8
Like/prefer this bulb	8	11	6	1	0	0
Produces same/comparable amount of light	3	6	0	2	14c	20c
Saves money on bill	3	6	0	12	2	0
Environmentally friendly	3	0	6	1	0	0
Cost of bulb/cost effective	2	0	4	4	2	2
Accessibility	0	0	0	3	2	0
Don't need or want higher wattage	0	0	0	5	0	0
Appropriate for fixtures	0	0	0	3	0	0
Don't know/refused	0	0	0	4	2	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 111: Reason for Choice of Replacement for 75-Watt Incandescent Bulb Under EISA—Lower-Wattage Incandescent

Reasons	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*132*	*55*	*77*	*133*	*52*	*67*
Don't need or want higher wattage	25%	21%	27%	26%	10%acd	13%acd
Saves energy/energy efficient	22	19	28	26	28	30
Better quality of light (color, brightness, etc.)	10	10	12	19	5d	2d
Familiar with/already use this bulb	10	14	5	22c	31	14
Saves money on bill	5	8	5	20	14	8
Appropriate for fixtures	6	8	4	6	1	5
Cost of bulb/cost effective	8	11	8	11	11	12
Like/prefer this bulb	5	9	1	2	2	2
Longevity	5	4	6	0	0	1
Accessibility	2	0	4	5	0	1
Safety concerns	2	3	2	4	1	2
Produces same/comparable amount of light	0	0	0	0	0	2
Environmentally friendly	0	0	0	1	3	0
Don't know/refused	0	0	0	8	0	3

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

Table 112: Reason for Choice of Replacement for 75-Watt Incandescent Bulb Under EISA—Halogen

Reasons	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*48*	*20*	*28*	*48*	*30*	*10*
Better quality of light (color, brightness, etc.)	34%	26%	39%	17%	5%abc	29%
Produces same/comparable amount of light	14	24	8b	15	9	0abde
Familiar with/already use this bulb	12	18	7	20	9	11
Saves energy/energy efficient	11	9	12	23	22	40ab
Don't need or want higher wattage	6	6	9	0	4	0
Appropriate for fixtures	5	0	8	1	3	0
Cost of bulb/cost effective	6	14	0	9	2	11
Like/prefer this bulb	3	3	3	0	2	9
Longevity	3	5	2	5	18	32abcd
Saves money on bill	3	6	0	11	2	0
Environmentally friendly	3	5	2	1	12	0
Accessibility	0	0	0	1	8	0
Safety concerns	0	0	0	0	0	0
Don't know/refused	0	0	0	17	2	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 113: Reason for Choice of Replacement for 75-Watt Incandescent Bulb Under EISA—Higher Wattage Incandescent

Reasons	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*78*	*32*	*46*	*63*	*30*	*37*
Better quality of light (color, brightness, etc.)	73%	74%	73%	83%	78%	72%
Familiar with/already use this bulb	4	5	3	7	4	8
Like/prefer this bulb	4	4	4	1	3	7
Longevity	4	0	6	2	0	2
Accessibility	3	5	2	0	2	0
Cost of bulb/cost effective	3	3	3	1	0	2
Safety concerns	3	3	3	3	10	5
Produces same/comparable amount of light	2	0	3	2	0	0
Saves energy/energy efficient	2	0	3	1	2	2
Don't need or want higher wattage	1	0	2	0	0	0
Appropriate for fixtures	0	0	0	1	0	0
Saves money on bill	0	0	0	0	0	0
Environmentally friendly	0	0	0	0	0	0
Other	5	2	9	3	13	5
Don't know/refused	2	3	0	3	0	0

TYPES OF STORES WHERE INCANDESCENT AND STANDARD AND SPECIALTY CFLS PURCHASED

Respondents were asked about the types of stores in which they purchase incandescent, CFL, and specialty CFL bulbs.

Forty-five percent of respondents in the NYSERDA area Overall reported purchasing both incandescent and CFL bulbs at Home Improvement stores like Lowe's or Home Depot. This was true for Upstate (48% for incandescent, 50% for CFLs) and downstate (42% for incandescent, 61% for CFLs) (Table 105 and Table 106). By comparison, respondents living in both the moderate and low comparison areas were more likely to purchase incandescent and

CFL bulbs at a mass merchandiser (i.e., a store with multiple departments, such as Walmart or Target (54% for incandescents for both Moderate and Low, and 49% Moderate and 55% Low for CFLs). These multiple department stores were the second most popular option for NYSERDA-area respondents. (For Upstate/Downstate detail, see

Respondents to the consumer survey who reported having purchased a CFL or LED bulb in the three months prior to the survey (which included the subset of households in the onsite study) were asked what kind of bulb it replaced. Overall, 57% said they replaced an incandescent bulb with a CFL, and 40% replaced a CFL with another CFL. Fifteen percent said the bulb was installed in a new fixture, and 5% said other. The results did not vary significantly for Upstate or Downstate, and were similar to the Moderate comparison area. Respondents in the Low comparison area reported replacing incandescent bulbs with CFLs at substantially higher rates (81%) and CFLs with CFLs at lower rates (27%), while installing them in new fixtures at similar rates to the Overall NYSERDA-area (11%). The evaluation team would expect CFL saturation to be lower in the Low comparison area due to the relative lack of lighting program activity in these areas. The evaluation team will keep this in mind when analyzing sales data from the comparison areas.

The few respondents to the consumer survey who reported having purchased LED bulbs said they used them to replace CFL bulbs at nearly the same rate as incandescent bulbs (33% versus 32% Overall). Upstate consumers were more likely to say that the LED replaced an incandescent than a CFL (39% and 16%, respectively), while Downstate were more likely to say that it replaced a CFL than an incandescent (38% and 30%, respectively). These results suggest that as the price of LEDs drop, they may substantially offset CFL sales, especially Downstate. The number of consumer survey respondents who reported installing an LED was quite small, and these respondents had made relatively large investments in the technology (compared to the price of alternatives available). For these reasons the LED results should be interpreted with caution.

Table 114: Type of Bulb That CFLs and LEDs Replaced

(Base: Respondents who had purchased CFLs or LEDs, respectively, in past three months)

	NYSERDA Area 2013			Comparison Areas 2013	
What Kind of Bulb Did CFLs Replace?	**A. Overall**	**B. Upstate**	**C. Down-state**	**E. Moderate**	**F. Low**
Sample size	*123*	*64*	*59*	*40*	*57*
Incandescent Bulb	57%	59%	54%	45%	81%abce
Another CFL	40	35	43	43	27ace
Bulb was installed in new lamp/fixture	15	17	14	11	11
LED	0	0	0	2	0
Halogen	<1	0	1	0	0
Other	5	5	3	2	1
Don't know/refused	2	0	5	14	2
What Kind of Bulb Did LEDs Replace?					
Sample size	*28*	*11*	*17*	*15*	*9*
CFL	33%	16%	38%	13%c	41%
Incandescent Bulb	32	39	30	80abc	66ac
Bulb was installed in new lamp/fixture	19	16	16	13	15
Halogen	9	13	8	0	8
Another LED	6	17	0	0	8
Don't know/refused	4	0	8	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

e Statistically different at the 90% confidence level from Moderate program activity comparison areas.

For CFL purchasers in the NYSERDA and comparison areas, Home Improvements stores tended to be the store type of choice for purchasing regular or spiral CFLs. More than one-half of the respondents in all comparison areas purchased spiral CFLs at Home Improvement stores (Table 23). The next most popular option for purchasing spiral CFLs was a store with multiple departments, like a Walmart or Target.

Table 115: Types of Stores Where Incandescent & Standard & Specialty CFLs Purchased

2013	NYSERDA Area			Comparison Areas					
	A. Overall			E. Moderate			F. Low		
Where Do You Buy Bulbs?	**Incan-descent**	**CFL**	**SCFL**	**Incan-descent**	**CFL**	**SCFL**	**Incandescent**	**CFL**	**SCFL**
Sample size	*329*	*123*	*74*	*112*	*40*	*37*	*143*	*57*	*40*
Home Improvement Store (i.e. Lowe's, Home Depot)	45%	56%*	66%*	42%	53%	49%	29%ae	56%	57%
Store with multiple Departments (i.e. Walmart, Target)	32	28	28	54a	49a	51a	54a	55a	44a
Grocery Store	29	16*	5*Ψ	16a	3a	4	20	13e	5
Hardware Store	19	11*	23Ψ	10a	5	2a	8a	15	4a
Drug Store	12	6*	0*Ψ	1	0	0	6	6	12
Dollar/Discount store	5	4	0	2	0	0	9	2	3
Lighting Store	4	3	0	5	0	5	3	0	0
Don't buy this type of bulb	4	2	1	4	7	0	4	2	0
Other	5	1	0	1	0	0	5	0	2
Don't know/refused	2	1	2	0	2	0	0	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

* Statistically different at the 90% confidence level from incandescent bulbs.

Ψ Statistically different at the 90% confidence level from CFLs.

Table 116: CFLs Currently Installed in Home (Self-reported)

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Downstate	D. High	E. Moderate	F. Low
Currently Have CFLs Installed						
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Yes	53%	64%a	43%ab	54%bc	60%acd	48%bde
No	5	5	5	6	3	4
Don't know/refused	<1	<1	<1	<1	1	1
Not aware of/familiar with CFLs	42	31a	51ab	40bc	36ac	48abd
Number of CFLs Currently Installed (Base: respondents who report CFLs installed)						
Sample size	*407*	*228*	*179*	*365*	*196*	*162*
Four or less	33%	29%	37%b	27%ac	26%ac	25%ac
Five to nine	31	29	35	32	28	36
Ten or more	36	42	27ab	41	45a	37
Don't know/refused	<1	<1	0	<1	1	3

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 117: LEDs Currently Installed in Home (Self-reported)

(Base: All telephone survey respondents)

Currently Have LEDs Installed	NYSERDA Area				Comparison Areas		
	2009	2013			2013		
	Overall	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*1001*	*720*	*340*	*380*	*600*	*300*	*300*
Yes	5%a	11%	11%	10%	16%abc	9%d	10%d
No	5	3	3	4	49	7	5
Don't know/refused	<1	1	1	1	3	<1	<1
Not aware of/familiar with LEDs	90%	86	86	86	33abc	83d	85d

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

ATTITUDES TOWARDS ENERGY STAR BULBS & ENERGY EFFICIENCY

Table 118: Attitudes Towards ENERGY STAR Bulbs

(Base: Respondents who were aware of ENERGY STAR label)

	NYSERDA Area			Comparison Areas	
	2013			2013	
Agreement	**A. Overall**	**B. Upstate**	**C. Downstate**	**E. Moderate**	**F. Low**
I can always be sure that light from bulbs with the Energy Star label will be bright enough					
Sample size	*553*	*283*	*270*	*205*	*190*
Strongly Agree	24%	20%	28%	28%	23%
Somewhat Agree	32	33	31	27	23
Neither Agree nor Disagree	19	17	21	25ab	30abc
Somewhat Disagree	12	14	10	11	18ace
Strongly Disagree	7	8	6	3	3
Don't know/refused	7	9	4	7	2
I can always be sure that light from bulbs with the Energy Star label will be the right color					
Sample size	*553*	*283*	*270*	*205*	*190*
Strongly Agree	20%	19%	21%	20%	15%c
Somewhat Agree	19	20	20	29abc	23
Neither Agree nor Disagree	25	27	22	32ac	37abc
Somewhat Disagree	16	14	16	7	13e
Strongly Disagree	9	9	9	6	7
Don't know/refused	12	11	13	6	4
Bulbs with the Energy Star label don't last any longer than bulbs without the label					
Sample size	*553*	*283*	*270*	*205*	*190*
Strongly Agree	10%	12%	7%	17%ac	6%abe
Somewhat Agree	13	14	12	15	13
Neither Agree nor Disagree	23	24	22	27	33abc
Somewhat Disagree	17	15	20	14c	15
Strongly Disagree	22	21	23	18	25e
Don't know/refused	15	14	16	10	9
I don't trust that Energy Star-labeled bulbs save the energy they are supposed to					
Sample size	*553*	*283*	*270*	*205*	*190*
Strongly Agree	10%	8%	12%	12%	10%
Somewhat Agree	13	11	13	8	12

Agreement	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Neither Agree nor Disagree	16	18	14	19	20c
Somewhat Disagree	20	23	16b	26c	20
Strongly Disagree	35	34	35	31	36
Don't know/refused	8	6	9	4	2

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 119: Importance of Energy Efficiency to Bulb Purchases

(Base: All telephone survey respondents)

How Important is Energy Efficiency in your Bulb Choice?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Down-state	E. Moderate	F. Low
Sample size	*720*	*340*	*380*	*300*	*300*
Mean	4.3	4.3	4.4	4.3	4.2
Not at all important or somewhat unimportant	7%	8%	7%	8%	7%
Neither important nor unimportant	4	5	4	2ab	5e
Somewhat important or very important	87	85	87	90b	87
Don't know/refused	2	2	2	1	2

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

BULB PURCHASES IN PREVIOUS THREE MONTHS

Table 120: Light Bulb Purchases (Any Kind) in the Past Three Months

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
Purchased a Bulb in the Past 3 Months?	**A. Overall**	**B. Upstate**	**C. Down-state**	**D. High**	**E. Mod-erate**	**F. Low**
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Yes	43%	39%	44%	31%abc	32%ab	46%bd
No	56	59	55	69	68	53
Don't know/refused	1	1	1	0	<1	1

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

STOCKPILING

The timing of the RDD survey gave the evaluation team the opportunity to analyze self-reported hoarding of 100-Watt incandescent bulbs, as the first phase of EISA had been underway for a year. Eleven percent of Overall respondents said that they had purchased extra 100-Watt incandescent light bulbs before 2012 to save them for use after EISA went into effect. There was no statistically significant difference in this result within the areas examined.

Respondents were asked how likely they would be to stockpile 75-Watt incandescent bulbs, rated on a scale of 1 (very likely) to 4 (very unlikely). Across all comparison areas, the majority of respondents indicated that they would be very unlikely to buy and save extra 75-Watt incandescent bulbs (62% Overall). These "very unlikely" values ranged from 65% in Upstate and High areas to 57% in the Low area (Table 121). Thirteen percent of respondents said they would be very likely to stockpile 75-Watt bulbs. The average value on the four-point likelihood scale in the Overall area was 3.3 (Table 122). For reference, the onsite inventory found a mean of 15.4 bulbs in storage among Overall NYSERDA-area homes, enough to replace one-quarter of all sockets in the Overall NYSERDA area.

About three-quarters (76%) of these were incandescent. However, the onsite inventory found only one home in which 100-Watt or other wattage incandescent bulbs could be said to have been stockpiled.[85]

[85] Based on past research, the Team concludes that the onsite observed data provide more credible and reliable estimates and the team prioritizes onsite over RDD data.

Table 121: Stockpiling of 100-Watt Incandescent Bulbs

(Base: All telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
Bought extra 100-Watt incandescent light bulbs before 2012 to save them for use after EISA goes into effect	**A. Overall**	**B. Upstate**	**C. Downstate**	**D. High**	**E. Moderate**	**F. Low**
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Yes	11%	12%	10%	9%	11%	12%
No	87	86	87	90	89	87
Don't know/refused	2	2	3	1	<1	1

Table 122: Likelihood of Stockpiling 75-Watt Incandescent Bulbs

(Base: All consumer telephone survey respondents)

	NYSERDA Area			Comparison Areas		
	2013			2013		
Likelihood of Buying Extra 75-Watt incandescent bulbs to save for use once the next phase of EISA has gone into effect	**A. Overall**	**B. Upstate**	**C. Downstate**	**D. High**	**E. Moderate**	**F. Low**
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Mean	3.3	3.3	3.3	3.4	3.3	3.1d
1. Very likely	13%	13%	13%	9%abc	13%d	11%
2. Somewhat likely	11	12	12	11	13	14
3. Somewhat unlikely	10	8	12	12	10	15abe
4. Very unlikely	62	65	59	65	63	57bd
Don't know/refused	3	2	4	3	1	3

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

LEAKAGE

To obtain a measure of "leakage," or the extent to which program-supported bulbs might be installed outside of the program area, the survey queried CFL and LED purchasers as to whether any of those bulbs were purchased with the intention of being installed outside New York. Only 5% of CFL and LED purchasers in New York planned to install those bulbs outside of the State (Table 123). The number of those planning to do so Downstate (9%) was significantly higher than Upstate (2%).

Table 123: Whether Purchased Bulbs to Install outside of NYS

(Base: Respondents who had purchased CFLs or LEDs in NYS)

	NYSERDA Area		
	2013		
Leakage	**A. Overall**	**B. Upstate**	**C. Downstate**
Sample size	*147*	*75*	*72*
Yes	5%	2%	9%b
No	95	98	91
Don't know/refused	0	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

When asked what they intended to do with the bulbs being installed outside of New York, the most common answer was installing them in another property, like a vacation home (Table 124). Others indicated purchasing the bulbs for business properties, or as a gift.

Table 124: What Respondents Did with Bulbs Intended for Use Outside NYS

(Base: Respondents who had purchased CFLs or LEDs with the intention of installing outside NYS)

What Did you do With the Bulbs? (Unweighted count)	NYSERDA Area		
	2013		
	A. Overall	B. Upstate	C. Downstate
Sample size	*8*	*1*	*7*
Used in property outside NYS	3	0	3
Purchased for business properties	2	1	1
Gift	1	0	1
Used/kept as spare bulbs	1	0	1
Other	1	0	1
Don't know/refused	0	0	0

CFL REMOVAL

Table 125: Reasons for Dissatisfaction with CFLs (Full Listing)

(Base: Respondents who were somewhat or very dissatisfied with CFLs)

	NYSERDA Area				Comparison Areas		
	2009	2013			2013		
Why are you Dissatisfied with CFLs?	**Overall**	**A. Overall**	**B. Upstate**	**C. Down-state**	**D. High**	**E. Mod-erate**	**F. Low**
Sample size	*73*	*51*	*29*	*22*	*401*	*12*	*19*
Not bright enough	25%	37%	35%	43%	6%abc	25%d	46%de
Mercury/disposal hazard	11	22	35	4ab	19c	0abd	6abd
Light color	15	14	4	25b	13	8	11
Delay in light coming on	20	14	18	8	20c	12	17
Burned out	18	8	11	4	2	42	17
Non-specific health concerns	0	6	5	7	0	5	0
Longevity	0	6	12	0	6	17	29
Fit in fixture	11	6	0	18	7	0	0
Appearance	1	5	7	4	6	4	4
Broke/stopped working	3	5	9	0	2	0	25
UV radiation hazard	0	4	0	10	0	0	0
Flickering	0	2	0	4	1	0	4
Too bright	0	1	0	4	2	0	0
Don’t dim well	0	1	2	0	2	0	4
Other	0	14	11	16	0	5	13
Don’t know/refused	5	0	0	0	1	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 126: Reasons for CFL Removal

(Base: Respondents who had removed a functioning CFL)

Why Did you Remove it?	NYSERDA Area				Comparison Areas	
	2009	2013			2013	
	Overall	A. Overall	B. Upstate	C. Down-state	E. Moderate	F. Low
Sample size	*277*	*41*	*23*	*18*	*19*	*24*
Quality of light (brightness or color)	24%a	41%	34%	50%	9%abc	27%
Not efficient/burnt out	58	11	10	10	3	11
The lamp broke		11	17	4	10	7
Hazardous materials	1	9	8	9	0	4
Replaced with a different type of bulb	2	7	8	6	11	20
Took too long to get bright	5	6	5	7	3	6
Moved bulb to a different room	0	6	3	14	32ab	22
Flickering/went on and off	1	3	3	4	14	0
Don't know/refused	1	0	0	0	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

LED USE AND PURCHASES

Table 127: LEDs Ever Installed in Home

(Base: All telephone survey respondents)

Have Ever Used an LED	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Down-state	E. Moderate	F. Low
Sample size	*720*	*340*	*380*	*300*	*300*
Yes	14%	15%	14%	17%	15%
No	10	27	15	20	25
Don't know/refused	2	2	1	3	2
Not aware of LEDs	63	57a	70ab	61c	59c

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 128: LED Purchases in Previous Three Months

(Base: Respondents who were aware of LEDs)

Purchased an LED in the Past 3 Months?	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*142*	*71*	*71*	*366*	*50*	*66*
Yes	24%	19%	30%	25%	27%	12%acde
No	75	80	68	74	73	82
Don't know/refused	1	1	2	1	0	7

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 129: Whether LEDs Purchased Were Installed

Note: The numbers of LEDs respondents in Moderate and Low areas reported having installed were so low (15 bulbs in the Moderate area and 9 in Low area) that comparisons with the NYSERDA area are not valid.

(Base: Respondents who had purchased LEDs)

	NYSERDA Area			Comparison Areas	
	2013			2013	
Did you Install the LEDs?	**A. Overall**	**B. Upstate**	**C. Down-state**	**E. Moderate**	**F. Low**
Sample size	*34*	*14*	*20*	*15*	*9*
Yes	78%	65%	83%	100%abc	100%ab
No	22	35	17	0	0
Don't know/refused	0	0	0	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 130: Reasons for Using LED Bulbs (Onsite Inventory)

(Base: Respondents to onsite inventory who had LED bulbs installed)

Agreement	To Save Electri-city	Want Bulbs that Last	To Save Money or Reduce Electric Bill	Important that LED Bulbs do not Have Mercury	Like the Quality of the Light	Like Trying New Tech-nology	Like how the Bulbs Look	Use Mostly With a Dimmer
Sample size	*19*	*19*	*19*	*19*	*19*	*19*	*19*	*19*
Mean	**4.6**	**4.5**	**4.4**	**3.8**	**3.5**	**3.5**	**2.9**	**2.50**
(5) Strongly Agree	15	14	12	9	3	4	1	3
(4) Somewhat Agree	3	3	5	0	5	6	3	1
(3) Neither Agree nor Disagree	0	1	1	5	9	5	9	3
(2) Somewhat Disagree	0	0	0	2	2	3	3	3
(1) Strongly Disagree	1	1	1	1	0	1	2	6
Not Applicable / Don't Know	0	0	0	2	0	0	1	3

Table 131: Satisfaction with Screw-in LED Bulbs (Onsite Inventory)

(Base: Respondents found to have LED bulbs Installed)

Satisfaction	Number of Respondents
Sample Size	*18*
Mean	**4.67**
(5) Very Satisfied	13
(4) Somewhat Satisfied	4
(3) Neither Satisfied nor Dissatisfied	1
(2) Somewhat Dissatisfied	0
(1) Very Dissatisfied	0

Table 132: Removed a Functioning LED in Prior Three Months

(Base: Respondents who had ever used LEDs)

Have you Removed an LED that was Functioning in Past 3 Months?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Down-state	E. Moderate	F. Low
Sample size	*117*	*55*	*62*	*60*	*47*
Yes	8%	4%	12%	2%ac	6%
No	89	93	85	98	94
Don't know/refused	3	4	3	0	0

a Statistically different at the 90% confidence level from Overall NY 2013.

b Statistically different at the 90% confidence level from Upstate NY.

c Statistically different at the 90% confidence level from Downstate NY.

d Statistically different at the 90% confidence level from High program activity comparison area.

e Statistically different at the 90% confidence level from Moderate program activity comparison area.

Table 133: Reasons for LED Removal

(Base: Respondents who had removed a functioning LED)

Why Did you Remove it? (Unweighted counts)	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Down-state	E. Moderate	F. Low
Sample size	*10*	*2*	*8*	*1*	*4*
Moved bulb to a different room	4	1	3	0	0
Quality of light (brightness or color)	2	1	1	0	3
Replaced with a different type of bulb	2	0	2	1	1
Not efficient/burnt out	1	0	1	0	0
Flickering/went on and off	1	0	1	0	0
Don't know/refused	0	0	0	0	0

Table 134: What Respondents Did With Bulbs Intended for Use Outside NYS

(Base: Respondents who had purchased CFLs or LEDs with the intention of installing outside NYS)

What Did you do With the Bulbs? (Unweighted count)	NYSERDA Area		
	2013		
	A. Overall	B. Upstate	C. Downstate
Sample size	*8*	*1*	*7*
Used in property outside NYS	3	0	3
Purchased for business properties	2	1	1
Gift	1	0	1
Used/kept as spare bulbs	1	0	1
Other	1	0	1
Don't know/refused	0	0	0

Table 135: Whether Saw ENERGY STAR Label on Purchased CFLs

(Base: Respondents who had purchased CFLs and were aware of ENERGY STAR label)

Did you See the ENERGY STAR Label on CFL Packaging?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*113*	*62*	*51*	*31*	*49*
Yes	55%	58%	51%	65%	51%
No	17	15	17	4	11
Don't know/refused	29	27	33	31	38

Table 136: Whether Saw ENERGY STAR Label on Purchased LEDs

(Base: Respondents who had purchased LEDs and were aware of ENERGY STAR label)

Did you See the ENERGY STAR Label on LED Packaging?	NYSERDA Area			Comparison Areas	
	2013			2013	
	A. Overall	B. Upstate	C. Downstate	E. Moderate	F. Low
Sample size	*31*	*13*	*18*	*12*	*7*
Yes	66%	72%	65%	65%	42%
No	15	17	11	20	28
Don't know/refused	19	11	25	14	30

HOUSING & SOCIAL CHARACTERISTICS

Table 137: Type of Home

Type of Home	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
One-family detached	44%	74%	18%	40%	72%	78%
One-family attached	8	7	10	10	9	3
Multi-family home	45	15	71	49	12	10
Mobile home	2	3	<1	1	5	6
Condominium	1	1	2	1	1	1
Don't know/refused	0	0	0	0	0	1

Table 138: When Home was Built

When was home built?	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
1930s or earlier	26%	25%	27%	31%	1%	12%
1940s	7	5	8	6	2	4
1950s	12	10	13	15	5	9
1960s	12	13	11	5	10	12
1970s	9	13	6	12	15	16
1980s	7	9	6	13	16	11
1990s	5	7	4	8	18	16
2000 or later	6	8	5	8	31	15
Don't know/refused	16	11	20	2	1	5

Table 139: Ownership of Home

Own or Rent?	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Own/buying	56%	79%	36%	62%	81%	80%
Rent/lease	41	19	61	38	19	19
Occupied without payment or rent	1	2	1	0	0	<1
Don't know/refused	1	1	2	<1	1	1

Table 140: Size of Home

How large is home?	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Less than 1,400 square feet	25%	21%	28%	41%	25%	16%
1,400 – less than 2,000 square feet	18	25	11	32	24	20
2,000 – less than 2,500 square feet	9	12	6	17	16	15
2,500 – less than 3,500 square feet	5	7	3	8	15	14
3,500 – less than 4,000 square feet	2	2	1	1	4	5
4,000 – less than 5,000 square feet	2	2	2	1	2	4
5,000 square feet or more	3	2	3	1	2	2
Don't know/refused	38	28	47	22	13	24

Table 141: Rooms in Home

How many rooms in home not counting bathrooms?	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
1	4%	2%	5%	1%	0%	1%
2	5	3	6	3	3	3
3	15	7	22	12	9	7
4	16	10	22	17	13	11
5	16	15	16	15	18	11
6	16	20	10	17	18	13
7	14	12	4	12	16	15
8	8	13	4	10	9	12
9	8	8	2	5	7	5
10 or more	7	9	6	7	6	18
Don't know/refused	3	2	3	1	1	3

Table 142: Educational Attainment

Highest level of education	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Less than ninth grade	2%	1%	3%	4%	1%	3%
Ninth to twelfth grade, no diploma	2	2	2		2	3
High school graduate (including GED)	21	22	20	17	22	30
Some college, no degree	16	18	14	25	20	17
Associates degree	8	11	6		9	5
Bachelors degree	22	22	22	53	9	18
Graduate or Professional degree	26	21	30		22	21
Don't know/refused	3	3	3	1	3	3

Table 143: Size of Household

How many people live in the home?	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
1	24%	25%	23%	26%	21%	19%
2	33	36	31	37	42	39
3	19	18	20	15	15	17
4	11	11	11	15	12	10
5	7	6	8	5	4	6
6	3	2	3	2	3	3
7	1	1	2		0	1
8 or more	1	1	1		1	2
Don't know/refused	1	1	2	1	1	3

Table 144: Gender

Gender	NYSERDA Area			Comparison Areas		
	2013			2013		
	A. Overall	B. Upstate	C. Down-state	D. High	E. Mod-erate	F. Low
Sample size	*720*	*340*	*380*	*600*	*300*	*300*
Female	56%	58%	54%	49%	56%	58%
Male	44	42	46	51	44	42

Appendix C

ONSITE RESPONDENTS' CHARACTERISTICS

HOUSING AND SOCIAL CHARACTERISTICS

Approximately two-thirds (65%) of Overall participants resided in multifamily homes (Table 145). The remaining one-third (35%) resided in single-family detached or single-family attached homes with four units or less. This was significantly different from the ACS 3-Year 2012 Census estimates in which the opposite is true: approximately two-thirds (65%) of New York state residents live in single-family homes, while one third live in multi-family homes.

Table 145: Home Type - Overall

(Base: All onsite respondents)

	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*8,116,133*
Single Family	35%g	65%
Multi-Family	65%g	33%
Other[1]	-	2%

[1] Other includes "Mobile home" and "Boat, RV, van, etc."

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 146, Table 147, and Table 148 look at home type by region. The majority of Upstate homes were single-family (89%), while the Downstate area was mostly multifamily (83%) homes; all of the Manhattan sample homes were multifamily.

Table 146: Home Type - Upstate

(Base: All Upstate onsite respondents)

	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*3,700,483*
Single Family	89%g	81%
Multi-Family	11%	14%
Other[1]	-	5%

[1] Other includes "Mobile home" and "Boat, RV, van, etc."

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 147: Home Type - Downstate

(Base: All Downstate onsite respondents)

	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*3,378,616*
Single Family	17%g	40%
Multi-Family	83%g	60%
Other[1]	-	<1%

[1] Other includes "Mobile home" and "Boat, RV, van, etc."

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 148: Home Type - Manhattan

(Base: All Manhattan onsite respondents)

	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*563,443*
Single Family	0%	0%
Multi-Family	100%	100%
Other[1]	-	0%

[1] Other includes "Mobile home" and "Boat, RV, van, etc."

Overall, just over one-half of participants owned their home (52%), and slightly less than one-half were renting or leasing their home (46%). This is similar to ACS 3-Year 2012 Census for New York. (Table 149)

Table 149: Tenure-Overall

(Base: All onsite respondents)

	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*7,210,095*
Own/Buying	52%	54%
Rent/Lease	46%	46%
Other	2%	0%

When looking at tenure by region, just over one fifth of Upstate participants (22%) rented or leased their homes, which was statistically different from the ACS 3-Year 2012 Census for the same area (Table 150). The Downstate and Manhattan samples were split fairly evenly between those who owned their homes (45% and 42%, respectively) and those who rented (54% and 56% respectively); these were statistically different from the ACS 3-Year 2012 Census for the same areas (Table 151 and Table 152).

Table 150: Tenure-Upstate

(Base: All Upstate onsite respondents)

	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*3,220,666*
Own/Buying	75%	67%
Rent/Lease	22%g	33%
Other	3%	0%

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 151: Tenure-Downstate

(Base: All Downstate onsite respondents)

	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*3,051,127*
Own/Buying	45%g	32%
Rent/Lease	54%g	68%
Other	1%	0%

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 152: Tenure-Manhattan

(Base: All Manhattan onsite respondents)

	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*563,443*
Own/Buying	42%g	24%
Rent/Lease	56%g	75%
Other	2%	0%

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Overall, just under one-third of participating homes were one-person homes (31%), just over one-third were two-person homes (34%), and the remaining one-third were three or more person homes (36%) (Table 153). This was similar across all areas as is shown in Table 154, Table 155, and Table 156.

Table 153: Number of People Living in Home-Overall

(Base: All onsite respondents)

	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*2,049,526*
One	31%	31%
2	34	31
3	17	15
4	10	13
5	4	6
6	1	2
7	2	1
8 or more	2	1

Table 154: Number of People Living in Home-Upstate

(Base: All Upstate onsite respondents)

	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*1,098,735*
One	23%	30%
2	38	34
3	14	15
4	9	12
5	6	5
6	2	2
7	3	1
8 or more	5g	<1

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 155: Number of People Living in Home-Downstate

(Base: All Downstate onsite respondents)

	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*1,182,182*
One	33%	32%
2	33	28
3	19	16
4	10	13
5	3g	7
6	1	2
7	2	1
8 or more	1	1

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 156: Number of People Living in Home - Manhattan

(Base: All Manhattan onsite respondents)

	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*730,863*
One	36%g	47%
2	33	30
3	17g	11
4	10	8
5	3	3
6	1	1
7	0	<1
8 or more	0	<1

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Overall, fewer than one-third of participants (31%) were low income, and just over two-thirds (69%) were not low income. This was statistically different from the ACS 3-Year 2012 Census for the same area (Table 157). When looking at income by region, just under one-half (47%) of participants were low income while just over one-half (53%) were not low income, which is similar to the ACS 3-Year 2012 Census for the same area (Table 158). Downstate and Manhattan sample areas were statistically different from the ACS 3-Year 2012 Census for the same areas (Table 159 and Table 160).

Table 157: Income - Overall

(Base: All onsite respondents)

	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*6,792,399*
Low Income	31%g	37%
Not Low Income	69g	63%

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 158: Income - Upstate

(Base: All Upstate onsite respondents)

	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*8,381,355*
Low Income	47%	49%
Not Low Income	53	51

Table 159: Income - Downstate

(Base: All Downstate onsite respondents)

	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*3,247,717*
Low Income	26%g	36%
Not Low Income	74g	64

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 160: Income - Manhattan

(Base: All Manhattan onsite respondents)

	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*645,366*
Low Income	22%g	29%
Not Low Income	78g	71

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Overall and across all study areas participant gender was split fairly evenly between male and female. (Table 161, Table 162, Table 163, and Table 164)

Table 161: Gender - Overall

(Base: All onsite respondents)

	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*19,490,373*
Female	52%	52%
Male	48%	48%

Table 162: Gender - Upstate

(Base: All Upstate onsite respondents)

	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*2,745,346*
Female	50%	49%
Male	50%	51

Table 163: Gender - Downstate

(Base: All Downstate onsite respondents)

	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*8,265,445*
Female	52%	48%
Male	48%	52

Table 164: Gender - Manhattan

(Base: All Manhattan onsite respondents)

	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*1,191,607*
Female	53%	47%
Male	47%	53

Nearly two-thirds (62%) of participants Overall had a Bachelor's degree or an Advanced or Graduate degree. This was statistically different from the ACS 3-Year 2012 Census for the same area (Table 165). Table 166, Table 167, and Table 168 show highest level of education attained by region. Notably, more than three quarters (76%) of Manhattan participants had received a Bachelor's degree or higher, with more than one-half (52%) having received an Advanced or Graduate degree.

Table 165: Education - Overall

(Base: All onsite respondents)

Highest Level of Education	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*13,205,241*
Less than high school	5%g	15%
High School or GED	11g	27%
Some College	21	25%
Bachelor's Degree	22	19%
Advanced or Graduate Degree	40g	14%
Don't know/Refused	2	-

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 166: Education - Upstate

(Base: All Upstate onsite respondents)

Highest Level of Education	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*5,641,101*
Less than high school	5%g	11%
High School or GED	22	30
Some College	33	38
Bachelor's Degree	17	17
Advanced or Graduate Degree	23g	14
Don't know/Refused	0	0

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 167: Education - Downstate

(Base: All Downstate onsite respondents)

Highest Level of Education	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*5,628,982*
Less than high school	5%g	20%
High School or GED	7g	25
Some College	17	21
Bachelor's Degree	23	20
Advanced or Graduate Degree	45g	24
Don't know/Refused	3	0

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 168: Education - Manhattan

(Base: All Manhattan onsite respondents)

Highest Level of Education	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*870,107*
Less than high school	3%g	14%
High School or GED	4g	13
Some College	13	14
Bachelor's Degree	24	29
Advanced or Graduate Degree	52g	30
Don't know/Refused	5	0

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

As Table 169 shows, just over two-fifths (42%) of Overall participating homes had at least one child under the age of eighteen living in the home. This was statistically different from the ACS 3-Year 2012 Census for the same area. Table 170, Table 171, and Table 172 show the presence of children under eighteen living in the home by region. Notably, in the Manhattan sample just under one-half (42%) of participating homes reported at least one child under the age of eighteen living in the home while the ACS 3-Year 2012 Census for Manhattan reported only 19% of all homes had at least one child under the age of eighteen living in the home.

Table 169: Presence of Children under Eighteen Living in the Home - Overall

(Base: All onsite respondents)

Children Under 18	Overall	New York Census (ACS 3-Year 2012)
Sample Size	*259*	*7,210,095*
No	58%g	68%
Yes	42g	32%
Don't know/Refused	<1	-

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 170: Presence of Children under Eighteen Living in the Home - Upstate

(Base: All onsite respondents)

Children Under 18	Upstate	New York Census (ACS 3-Year 2012)
Sample Size	*64*	*3,220,666*
No	62%	69%
Yes	38	31
Don't know/Refused	0	-

Table 171: Presence of Children under Eighteen Living in the Home - Downstate

(Base: All onsite respondents)

Children Under 18	Downstate	New York Census (ACS 3-Year 2012)
Sample Size	*195*	*3,051,127*
No	56%g	69%
Yes	43%g	31
Don't know/Refused	1%	-

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Table 172: Presence of Children under Eighteen Living in the Home - Manhattan

(Base: All Manhattan onsite respondents)

Children Under 18	Manhattan	New York Census (ACS 3-Year 2012)
Sample Size	*132*	*563,443*
No	52%g	81%
Yes	48%g	19
Don't know/Refused	1%	-

g Statistically different at the 90% confidence level from ACS 3-Year 2012 New York Census.

Appendix D

ONSITE DATA COLLECTION FORM – LIGHTING (UPSTATE AND DOWNSTATE)

Northeast Regional Hours of Use Study
Onsite Data Collection Form – New York

Customer Name: _____ **Customer ID:** _____

Customer Address: _____

_____

Date: _____ **Time:** _____ **Technician:** _____

Introduction

"Hello, my name is _____, and I am working with NMR. NMR is working under contract with ***NYSERDA (the New York State Energy Research and Development Authority)****. I'm here to meet with _____. As mentioned on the phone, I'm here to walk through your home and record the types of lighting fixtures and bulbs installed in each socket.* ***[Customer should be expecting inspector]****. During my visit I'll also be installing a few lighting loggers to capture hours of use* ***[show customer a logger]****. In six months another technician will return to collect the loggers that I install. The loggers can only tell when a light is turned on and off, they do not record anything else. In appreciation for your time, on behalf of* ***NYSERDA****, we are offering you a payment of $150 today and $100 when we return in six months to remove the loggers. Do you have any questions regarding my visit?"*

Homeowner Verification of Receipt of Incentive Payment

My signature below is provided only to verify that I did receive a $150 incentive check from the visiting inspector, as previously agreed upon, on the date indicated.

Customer Name: _____

Signature: _____

Date: _____

Data Collection

1. Installed bulbs - Exterior:
   - → Walk around the outside of the home in a clockwise direction.
   - → Record information on all exterior lighting sockets.
2. Installed bulb - Interior:
   - → Next, proceed through the inside of the home in a clockwise direction.
   - → Begin with foyer (entry way).
   - → Go through each room and part of the home systematically, in a clockwise direction (or as clockwise as is possible).
3. Stored Bulbs**:**
   - → **Ask:** *"Now, I would like to see all light bulbs and fixtures that are not currently installed. This would include those you have bought and not yet installed as well as those that were installed and then removed."*
   - → Record information on all bulbs in storage.
4. Logger Installation:
   - → Consult logger installation instructions.
   - → Install loggers on selected fixtures (with customer's approval of placement).
5. After Data Collection:
   - → Thank the customer for his/her time
   - → Give him/her the $150 check.
   - → Remind the customer that when we return in six months to retrieve the loggers we will provide them with a check for $100.
   - → Have the customer sign off on your data collection form to indicate that you visited their home and provided him/her with a $150 check.
   - → Leave with the customer the "Logger Participant Frequently Asked Questions" one-page sheet.

Home Schematic

- Sketch a simple dimensionless diagram of home layout.

- Label rooms.

- Clearly indicate the locations of the fixtures with a logger.

Circle the floor drawn on this page:

1st Floor 2nd Floor 3rd Floor

Basement Attic Other: _____

Onsite Saturation Form – First Page

Have you participated in any programs that replaced bulbs in your house with energy efficient bulbs? (Circle response) **YES NO**

If YES, which programs?

													CFL & LEDs ONLY						
	Primary Room?	**Fixture Group**	**Control Type**	**Wall-Mounted Control?**	**Fixture #**	**Multi-Switch?**	**Fixture Type**	**Bulb Type**	**Bulb Shape**	**Socket Type**	**Watts**	**Manufacturer**	**Model #**	**When Purchased**	**What Replaced**	**Where Purchased**	**Online Purchase?**	**Notes**
			OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion sensor None=None B=Breaker				R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light PT=Table PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet O=Other [Specify]	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket O=Other [Specify]	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]				1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012 4=Before 2012	(*If purchased in past year)* 1=Incandescent 2=Halogen 3=CFL 4=LED	Store Name/ Type		
Room	Y/N	#		Y/N	#	Y/N					#	Name	Name/#				Yes/No	**Notes**

Onsite Saturation Form – Additional Pages

Room	Primary Room?	Fixture Group	Control Type	Wall-Mounted Control?	Fixture #	Multi-Switch?	Fixture Type	Bulb Type	Bulb Shape	Socket Type	Watts	CFL & LEDs ONLY						Notes
												Manufacturer	Model #	When Purchased	What Replaced	Where Purchased	Online Purchase?	
			OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion sensor None=None B=Breaker O=Other[Specify]				R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light PT=Table PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet O=Other [Specify]	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket O=Other [Specify]	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]				1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012 4=Before 2012	(*If purchased in past year)* 1=Incandescent 2=Halogen 3=CFL 4=LED	Store Name/ Type		
	Y/N	#		Y/N	#	Y/N					#	Name	Name/#				Yes/No	

Onsite Saturation Form – Additional Pages

												CFL & LEDs ONLY						
	Primary Room?	**Fixture Group**	**Control Type**	**Wall-Mounted Control?**	**Fixture #**	**Multi-Switch?**	**Fixture Type**	**Bulb Type**	**Bulb Shape**	**Socket Type**	**Watts**	**Manufacturer**	**Model #**	**When Purchased**	**What Replaced**	**Where Purchased**	**Online Purchase?**	
			OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion sensor None=None B=Breaker O=Other[Specify]				R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light PT=Table PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet O=Other [Specify]	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket O=Other [Specify]	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]				1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012 4=Before 2012	(*If purchased in past year)* 1=Incandescent 2=Halogen 3=CFL 4=LED	Store Name/ Type		
Room	Y/N	#		Y/N	#	Y/N					#	Name	Name/#				Yes/No	**Notes**

Onsite Stored Bulbs Form

					CFL & LEDs ONLY							100w & 75w ONLY	CUSTOMER SURVEY		
Package Group	**Bulb Type**	**Bulb Shape**	**Base Type**	**Wattage**	**Dimmable and 3-way**	**Manufacturer**	**Model #**	**When Purchased**	**ENERGY STAR Label**	**Where Purchased**	**Online Purchase?**	**Why Purchased/ Stored**	**Reason for storage**	**Type of bulb it will replace**	
# or NA	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen O=Other [Specify]	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]	#	Dim- Dimmable 3W=3-way	Name	Name/#	1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012 4=Before 2012	Yes/No	Store Name/ Type	Yes/No	1= As a back-up/to replace 100w bulbs 2= As a back-up/to replace 75w bulbs 3= To have extras 4= DK/no Reason 5=Other [Specify]	1= Storing for future use 2= Do not plan to use 3= Plan to throw out/ recycle 4= Other [Specify]	1= CFL 2= Incandescent 3= Both/whichever needs replacing first 4=Replace same type of bulb as stored bulb 5= NA 6= Other [Specify]	**Notes**

Logger Information and Location Form – SINGLE FAMILY HOMES

Logger Serial #	Time Installed	Room & Room #	Fixture Group # Fixture Group	Control Type OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion Sensor None=None B=Breaker O=Other[Specify]	Wall-Mounted Control? Y/N	Fixture # #	Multi-switch? Y/N	Fixture Type R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light PT=Table PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet O=Other [Specify]	Bulb Type I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket O=Other [Specify]	Bulb Shape T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	Socket Type S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]	Notes
Logger #1 _____		Dining Room _____										
Logger #2 _____		Exterior _____										
Logger #3 _____		Living Space _____										
Logger #4 _____		Other Room #1: _____										
Logger #5 _____		Other Room #2: _____										
Logger #6 _____		Bedroom _____										
Logger #7 _____		Bathroom _____										
Logger #8 _____		Kitchen _____										

Logger Information and Location Form – MULTI FAMILY HOMES

Logger Serial #	Time Installed	Room & Room #	Fixture Group #	Control Type OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion Sensor None=None B=Breaker O=Other[Specify]	Wall-Mounted Control? Y/N	Fixture #	Multi-switch? Y/N	Fixture Type R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light PT=Table	 PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet O=Other [Specify]	Bulb Type I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket O=Other [Specify]	Bulb Shape T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	Socket Type S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]	Notes
Logger #1 _____		Living Space _____											
Logger #2 _____		Dining Room (or Other Room #1): _____											
Logger #3 _____		Other Room #2: _____											
Logger #4 _____		Bedroom _____											
Logger #5 _____		Bathroom _____											
Logger #6 _____		Kitchen _____											

Appendix E

ONSITE DATA COLLECTION FORM – LIGHTING (MANHATTAN)

Northeast Regional Hours of Use Study

Onsite Data Collection Form – New York City

Customer Name: _____ **Customer ID:** _____

Customer Address: _____

_____

Date: _____ **Time:** _____ **Technician:** _____

Introduction

*"Hello, my name is _____, and I am working with NMR. NMR is working under contract with **NYSERDA (the New York State Energy Research and Development Authority)**. I'm here to meet with _____. As mentioned on the phone, I'm here to walk through your home and record the types of lighting fixtures and bulbs installed in each socket. **[Customer should be expecting inspector]**. During my visit I'll also be installing a few lighting loggers to capture hours of use **[show customer a logger]**. In six months another technician will return to collect the loggers that I install. The loggers can only tell when a light is turned on and off, they do not record anything else. In appreciation for your time, on behalf of **NYSERDA**, we are offering you a payment of $100 today and $100 when we return in six months to remove the loggers. Do you have any questions regarding my visit?"*

Homeowner Verification of Receipt of Incentive Payment

My signature below is provided only to verify that I did receive a $100 incentive check from the visiting inspector, as previously agreed upon, on the date indicated.

Customer Name: _____

Signature: _____

Date: _____

Data Collection

1. Installed bulbs - Exterior:
   → Walk around the outside of the home in a clockwise direction.
   → Record information on all exterior lighting sockets.
2. Installed bulb - Interior:
   → Next, proceed through the inside of the home in a clockwise direction.
   → Begin with foyer (entry way).
   → Go through each room and part of the home systematically, in a clockwise direction (or as clockwise as is possible).
3. Stored Bulbs**:**
   → **Ask:** *"Now, I would like to see all light bulbs and fixtures that are not currently installed. This would include those you have bought and not yet installed as well as those that were installed and then removed."*
   → Record information on all bulbs in storage.
4. Logger Installation:
   → Consult logger installation instructions.
   → Install loggers on selected fixtures (with customer's approval of placement).
5. After Data Collection:
   → Thank the customer for his/her time
   → Give him/her the $150 check.
   → Remind the customer that when we return in six months to retrieve the loggers we will provide them with a check for $100.
   → Have the customer sign off on your data collection form to indicate that you visited their home and provided him/her with a $150 check.
   → Leave with the customer the "Logger Participant Frequently Asked Questions" one-page sheet.
6. Solar Shading Analysis (at street level – outside customers home):
   → Proceed to street-level
   → Consult your home schematic to determine the approximate location of the unit and any windows.
   → Setup the pathfinder and take measurements for any side of the building where a window (in the unit) is present. Measurements should be taken on the east, south, and west sides of the building (if windows are present) but not on the north side of the building.

Home Schematic

- Sketch a simple dimensionless diagram of home layout.

- Label rooms.

- Clearly indicate the locations of the fixtures with a logger.

Circle the floor drawn on this page:

1st Floor 2nd Floor 3rd Floor

Basement Attic Other: _____

Onsite Saturation Form – First Page

Have you participated in any programs that replaced bulbs in your house with energy efficient bulbs? (Circle response) **YES NO**

If YES, which programs?

Room	Primary Room?	Fixture Group	Control Type	Wall-Mounted Control?	Fixture #	Multi-Switch?	Fixture Type		Bulb Type	Bulb Shape	Socket Type	Wattage	CFL & LEDs ONLY						Notes
													Manufacturer	Model #	When Purchased	What Replaced	Where Purchased	Online Purchase?	
			OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion sensor None=None B=Breaker				R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light	PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle	S=Screw P=Pin G=GU Can=Candelabra				1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012	(*If purchased in past year)* 1=Incandescent 2=Halogen 3=CFL			
	Y/N	#	O=Other[Specify]	Y/N	#	Y/N	PT=Table	O=Other [Specify]	O=Other [Specify]	O=Other [Specify]	O=Other [Specify]	#	Name	Name/#	4=Before 2012	4=LED	Store Name/ Type	Yes/No	

Onsite Saturation Form – Additional Pages

													CFL & LEDs ONLY						
	Primary Room?	**Fixture Group**	**Control Type**	**Wall-Mounted Control?**	**Fixture #**	**Multi-Switch?**	**Fixture Type**		**Bulb Type**	**Bulb Shape**	**Socket Type**	**Wattage**	**Manufacturer**	**Model #**	**When Purchased**	**What Replaced**	**Where Purchased**	**Online Purchase?**	
			OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion sensor None=None B=Breaker				R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light	PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle	S=Screw P=Pin G=GU Can=Candelabra				1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012 4=Before 2012	(*If purchased in past year)* 1=Incandescent 2=Halogen 3=CFL 4=LED				
Room	Y/N	#	O=Other[Specify]	Y/N	#	Y/N	PT=Table	O=Other [Specify]	O=Other [Specify]	O=Other [Specify]	O=Other [Specify]	#	Name	Name/#			Store Name/ Type	Y/N	**Notes**

Onsite Stored Bulbs Form

Package	**Bulb Type**	**Bulb Shape**	**Base Type**	**Wattage**				**Notes**

Group					Dimmable and 3-way	Manufacturer	Model #	When Purchased	ENERGY STAR Label	Where Purchased	Online Purchase?	Why Purchased/ Stored	Reason for storage	Type of bulb it will replace	
# or NA	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen O=Other [Specify]	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]	#	Dim-Dimmable 3W=3-way	Name	Name/#	1=2013 2=Jul to Dec 2012 3=Jan to Jun 2012 4=Before 2012	Yes/No	Store Name/ Type	Yes/No	1= As a back-up/to replace 100w bulbs 2= As a back-up/to replace 75w bulbs 3= To have extras 4= DK/no Reason 5=Other [Specify]	1= Storing for future use 2= Do not plan to use 3= Plan to throw out/ recycle 4= Other [Specify]	1= CFL 2= Incandescent 3= Both/whichever needs replacing first 4=Replace same type of bulb as stored bulb 5= NA 6= Other [Specify]	

Logger Information and Location Form

Logger Serial #	Time Installed	Room & Room #	Fixture Group	Control Type	Wall-Mounted Control?	Fixture #	Multi-switch?	Fixture Type		Bulb Type	Bulb Shape	Socket Type	Notes
			#	OF=On-Off Dim-Dimmable 3W=3-way W=Wireless MS=Motion Sensor None=None B=Breaker O=Other[Specify]	Y/N	#	Y/N	R=Recessed P=Pendant FM=Flush mount T=Track CF=Ceiling Fan W=Wall mount N=Night light PT=Table	PF=Floor EP=Porch EPM=Post mount EW=Walkway U=Under cabinet I = In cabinet O=Other [Specify]	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen E=Empty Socket O=Other [Specify]	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spot/Reflector/Flood C=Circline Tub=Tube Can=Candle O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]	
Logger #1 _____		Living Space _____											
Logger #2 _____		Dining Room (or Other Room): _____											
Logger #3 _____		Bedroom _____											
Logger #4 _____		Bathroom _____											
Logger #5 _____		Kitchen _____											

Window Onsite Form for Solar Shading Measurements

	Window Direction	Window Size		Exterior Walls		Solar Shading Measurements			
						Pathfinder Picture	Ground-level angel measurement	Distance to Obstruction	
Room	N NE NW S SE SW E W	Length (inches)	Height (inches)	Length (inches)	Height (inches)	File Name (Corresponding to window direction)	Degree	Inches	Notes

Appendix F

TELEPHONE DATA COLLECTION FORM – MANUFACTURER & RETAILER INTERVIEW GUIDES

PARTNER MANUFACTURER INTERVIEW GUIDE

Interview Guide for PARTNER Manufacturers2011-2012 NYSERDA Residential Lighting POS Program

Introduction

Interviewer: _____

Date of Interview: _____

Time Begun_____ Time Ended _____

Respondent Name: _____

Respondent Title: _____

Contact Information:

Phone Number(s): _____

Fax Number: _____

E-mail Address: _____

Interview was: _____ By phone

_____ In person

Note: If the partner has questions regarding the NYSERDA Program Opportunity Notice (PON), they should be directed to:

Ryan Moore

(518) 862-1090 ext.3267

rtm@nyserda.ny.gov

As I mentioned when we scheduled this interview, I am ____ from [NMR/Apex] calling on behalf of the New York State Energy Research and Development Authority. I am part of the team evaluating the Residential Lighting Point-of-Sale Program. The information you provide will be combined with observations from [program staff, implementers] and other research and will be reported in aggregate. We will make every effort to keep your responses confidential to the extent permitted by law. No comments will be attributed to any individual without their express permission.

Is this still a good time to talk? [If no, arrange for callback time.]

Before we get started with the interview, I would like to confirm the [ORGANIZATION/PERSON] to whom the charitable donation will be made:

Name of charity:

Charity's mailing Address:

Charity's phone number:

Donor's name:

Donor's email address

Donor's mailing address

Donor's phone number

I will be taking notes during this call. I would like to record the call in order to have a backup in case I need to clarify anything for my notes. May I have your permission to record this call for transcription if needed?

__ Yes

__ No

Section 1: Introductory Questions

1-1. According to our records, your company participated in the NYSERDA Products Program during the 2011-2012 period. For more than ten years this program has offered upstream buydowns and midstream markdown discounts for CFL and LED products that are sold through various NYSERDA-area retailers. (By the NYSERDA area, we mean all of New York except Nassau and Suffolk Counties on Long Island.) Are you the person MOST familiar with your company's participation in this program for lighting products? [IF NOT MOST FAMILIAR, FIND OUT WHO IS. IF MANUFACTURERS SAY THEY ARE NOT FAMILIAR WITH IT BECAUSE THE COMPANY DOES NOT PARTICPATE FOR LIGHTING, KEEP GOING ANYWAY, SO WE CAN FIND OUT WHY NOT]

1-2. I will have questions concerning [ORG NAME's] sales of lighting products in the NYSERDA service area. Is this a topic that you are familiar with? [BASED ON ANSWERS TO THIS AND PREVIOUS QUESTION, DETERMINE WHETHER TO CONTINUE WITH INTERVIEW OR GET ALTERNATIVE CONTACT NAME AND RESCHEDULE]

1-3. For how long have you personally dealt with the NYSERDA Products Program as part of your job at [ORG NAME]?

1-4. What were the reasons that [ORG NAME] became involved with the NYSERDA Products Program?

1-5. Do you oversee light bulb sales for non-utility bulbs, as well? For what other areas of the country do you (personally) manage bulb sales?

PARTNERS WHO HAVE *ALREADY SENT* DATA /COUNTS: SECTIONS 3 THROUGH 5

PARTNERS WHO HAVE MADE IT CLEAR THEY ARE NOT WLLING TO SHARE DATA/COUNTS: SECTIONS 6 THROUGH 8

ALL OTHERS: SECTIONS 2 THROUGH 5

Section 2: [PARTNER HAS *NOT* FORWARDED SALES DATA] 2011-2012 Standard CFL Product Sales and NYSERDA Residential Lighting POS Program Trends

[IF PARTNER HAS NOT ALREADY FORWARDED DATA FROM LOCKHEED MARTIN]

Now I'm going to ask you some questions about [ORG NAME]'s sales of specialty and non-specialty CFL and LED bulbs to retailers in the NYSERDA service area. By "specialty" CFL bulbs I mean medium-base bulbs that have special functions or features such as dimmability, three-way light levels, flood lighting, or CFLs that have non-spiral shapes such as A-lamps or globes.

2-1. Can you please tell me how many LED lamps and CFLs [ORG NAME] sold ***through the Program in 2011***? This should be in the summary that Lockheed Martin sent you. [FILL IN CELLS B5 & B6 ON SPREADSHEET] [IF THEY REFUSE TO SUPPLY COUNTS, GO TO 2-3]

2-2. And how many LED lamps and CFLs did [ORG NAME] sell ***through the Program in 2012***? [FILL IN CELLS C5 & C6 ON SPREADSHEET]

THEN SKIP TO 3-1c

[IF THEY REFUSE TO SUPPLY COUNTS]

2-3. I can appreciate your not being comfortable sharing counts of bulbs sold. Would you be able to tell me instead the percentages of your bulb sales in the NYSERDA service area were for each of several different types of medium screw-base bulbs? [IF YES, ASK] First I'd like you to consider your sales

of *all* medium screw base bulbs in 2011 and 2012. What percentage of *all* medium screw-base bulb sales in 2011 were . . . [CHECK THAT PERCENTAGES TOTAL TO 100%]

a. Were the percentages different in 2012? [IF NO, RECORD; IF YES, PROBE FOR DIFFERENCES & FILL OUT 2012 COLUMN]

[SKIP TO QUESTION 6-1 TO FILL IN TABLE. CONTINUE WITH QUESTION SERIES FOR RESPONDENTS NOT WILLING TO SHARE COUNTS]

Section 3: [PARTNER HAS FORWARDED SALES DATA OR IS AGREEING TO SHARE COUNTS] 2011-2012 Standard CFL Product Sales and New York Residential Lighting POS Program Trends

[The objectives of the questions in section include the following:

- To verify that the information in the tracking data is reasonably correct and remind interviewees of the types of products they sold through the NYSERDA program.
- To collect additional sales information needed to assess market effects from the Residential Lighting POS program.
- To serve as a reality check on future free ridership questions.]

Now I'm going to ask you some questions about [ORG NAME]'s sales of specialty and non-specialty CFL and LED bulbs to retailers in the NYSERDA service area. By "specialty" CFL bulbs I mean medium-base bulbs that have special functions or features such as dimmability, three-way light levels, flood lighting, or CFLs that have non-spiral shapes such as A-lamps or globes.

3-1. Thank you for your willingness to share with us the sales data table that Lockheed Martin sent to you. [REPEAT ASSURANCES OF CONFIDENTIALITY] Does the table seem correct in terms of the types and volume of lighting products you sold during 2011 and 2012?

a. [IF NO] [Record any corrections to the table]

b. [IF MISSING DATA] Could you please look up or estimate the missing data so we can complete the table? [RECORD SALES DATA IN EXCEL SPREADSHEET; FILL IN CELLS B5, B6, C5 &, C6 ON SPREADSHEET AS APPROPRIATE]

c. It's important for the evaluation of the Program that we understand [ORG NAME]'s sales of CFL and LED bulbs through the NYSERDA program in the context of ***all*** of [ORG NAME]'s CFL and LED bulb sales in the NYSERDA service area. How many CFL bulbs in total did [ORG NAME] sell in the NYSERDA service area in 2011? And in 2012? [FILL IN CELL H6 FOR 2011, CELL I6 FOR 2012 —NOTE CHANGE IN ORDER FROM SPREADSHEET, WITH CFLS FIRST. THIS IS BECAUSE WE

THINK THESE SALES ARE LESS SENSITIVE THAN LED SALES. MAKE SURE YOU'RE GETTING INDIVIDUAL BULB COUNTS. THEN CHECK TO ENSURE THAT THE CORRESPONDING NON-PROGRAM BULB SALES ARE POSITIVE. IF THEY REFUSE, MOVE ON TO (d)]

a. And how many LED bulbs in total did [ORG NAME] sell in the NYSERDA service area in 2011? [CELL H5] And in 2012? [CELL I5][CHECK TO MAKE SURE NON-PROGRAM BULBS NOT NEGATIVE]

d. What percent of the *program* CFLs sold in 2011 were specialty bulbs? [CELL B7]

e. What percent of the *non-program* CFLs sold in 2011 were specialty bulbs? [CELL E7. IF THEY GIVE D & E SEPARATELY, WE CAN CALCULATE CELL H7. IF THEY CAN'T GIVE D & E SEPARATELY, THEN ASK FOR THE % OF THE TOTAL (CELL H7)].

Table 1

Sample Data Table 2011 & 2012 for MANUFACTURERS—Lighting Sales Data Submitted for NYSERDA Products Program

This is the form we need to complete with each Manufacturer Partner interviewee:

Bulbs Sold (by individual units, not by package)									
	PROGRAM BULBS (# of bulbs sold via Retailers through NYSERDA Products program)			**NON-PROGRAM BULBS** (# of bulbs sold in NYSERDA service area via Retailers, OUTSIDE of NYSERDA Products Program)			**PROGRAM+NON-PROGRAM BULBS** (All bulbs sold in NYSERDA Service Area via Retailers)		
	2011	2012	Total 2011+2012	2011	2012	Total 2011+2012	2011	2012	Total 2011+2012
LED lamps			0	0	0	0			0
CFLs			0	0	0	0			0
% of CFLs that were specialty bulbs		100			100			100	
Non-specialty CFL bulbs	100	0		100	0		100	0	
Total bulb sales (LED+CFL)	0	0	0	0	0	0	0	0	0

Lockheed Martin should have provided interviewees with data in in GREEN cells--if the retailer provided it to Lockheed Martin in the first place, which they might not have. We ask interviewees to provide it from these data, if they had already provided it to LM. (If not, we are

We ask data in Yellow cells and any data missing from green cells.

Data in white cells are calculated; no data in black cells.

[IF NO, MAKE APPROPRIATE CORRECTIONS/CLARIFICATIONS]

3-2. For 2011 and 2012, we are trying to get an understanding of what percentage of your total bulb sales in the NYSERDA service area was for each of several different types of medium screw-base bulbs: LED, CFL, incandescent and EISA-compliant halogen incandescent.

- [PROBE FOR POSSIBILITY OF OBTAINING COUNTS BEARING IN MIND WHATEVER COUNTS THEY MAY HAVE PROVIDED IN QUESTIONS ABOVE. FOR EXAMPLE, ASK

"Would you be willing to share with us the numbers of individual units of incandescent and EISA-compliant halogen bulb types that your organization sold in the NYSERDA service area in 2011 and 2012?" IN THE UNLIKELY EVENT THE ANSWER IS YES, GET COUNTS FOR LAST 2 LINES OF TABLE BELOW (EISA-COMPLIANT HALOGENS & INCANDESCENT BULBS), THEN CONTINUE WITH QUESTION (BECAUSE YOU WON'T HAVE TIME TO CALCULATE THE PERCENTAGES YOURSELF DURING THE CALL. THE UNIT COUNTS ARE A REALITY CHECK AND WE WOULD **LOVE** TO HAVE THEM.] [****IMPORTANT** IF THEY CAN'T GIVE YOU THE NYSERDA SERVICE AREA, THEN ASK FOR NYS AND MAKE A NOTE THAT THAT IS WHAT THEY REPORTED**]

- [IF COUNTS NOT AVAILABLE, LET THEM KNOW YOU THAT'S OK, THEN ASK] Now I'd like you to consider your sales of all medium screw base bulbs in 2011 and 2012. What percentage of all medium screw-base bulb sales in 2011 were . . . [CHECK THAT PERCENTAGES TOTAL TO 100%] . . . And in 2012?

[DEFINITIONS OF EACH BULB TYPE: Non-specialty CFL is Medium (Edison) screw base bare spiral compact fluorescent lamps with integral electronic ballasts (lamps, not packages, all wattages combined). Specialty CFL is all other medium (Edison) screw-base CFL lamps (lamps, not packages, all wattages combined). LED is screw-base LED bulbs suitable for replacing general purpose incandescent bulbs (bulbs, not packages, all wattages combined).]

	2011	2012
Non-specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
Specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
LED bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
EISA compliant halogens (lamps, not packages, all wattages combined)	___%	___%
Incandescents (lamps, not packages, all wattages combined)	___%	___%
Total	100%	100%

3-3. Can you please estimate the percent of NYSERDA-discounted bulbs that were sold through the following retail channels during **2011**? [FILL IN FIRST COLUMN BELOW WITH RESPONSE REMIND THEM THAT NON-SPECIALTY CFL BULBS WERE DROPPED IN 2012, SO WE ARE ASKING THEM TO THINK BACK TO 2011 FOR ALL BULBS]

Retail Channel	Q3-3a: % of NYSERDA CFLs & LEDs	Q3-3b: % Overall CFL & LED distribution
Mass Merchandise (Walmart, Target, etc)		
Warehouse Clubs (Costco, Sam's)		
Large Home Improvement (Lowes, Home Depot)		
Discount (Goodwill, Kmart, 99¢ stores)		
Small Hardware (Ace, True Value)		
Drug Stores (Rite Aid, Walgreens, CVS)		
Grocery Stores		
Other (specialty lighting, Bed and Bath stores,		
Total	***100%***	***100%***

3-4. In 2011 was the retail distribution of NYSERDA bulbs the same as for non-NYSERDA bulbs within the NYSERDA service area?

a. IF NO: Please estimate the percent of ALL CFLs sold through the following retail channels? [FILL IN 2ND COLUMN ABOVE WITH THIS INFO]

b. IF YES: COPY OVER DATA IN FIRST COLUMN IN TABLE ABOVE TO SECOND COLUMN IN TABLE ABOVE

3-5. [ASK ONLY IF PROMOTIONAL RECORDS MISSING OR INCOMPLETE] And what percent of your total *specialty* CFL bulb sales were NYSERDA program bulbs in 2011?

a. [ASK ONLY IF PROMOTIONAL RECORDS MISSING OR INCOMPLETE] How about **2012**? What percent of your total *specialty* CFL bulb sales to NYSERDA area retailers were NYSERDA program bulbs in 2012?

3-6. [ASK ONLY IF PROMOTIONAL RECORDS MISSING OR INCOMPLETE] In 2012, what percent of your total sales of **LED** bulbs to NYSERDA-area retailers were program bulbs?

3-7. As part of this evaluation, we would like to talk to retailers that sold NYSERDA incented light bulbs to learn about their experience with the program.

a. What retailers did you sell the NYSERDA bulbs to?

b. What percent of the 2011 & 2012 NYSERDA bulbs went to this retailer?

c. May I please get the name and contact information so that I may interview them?

	Retailer (a)	**(b) % of NYSERDA Bulbs**	**(c) Retailer Contact info….**
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			
i.			
j.			
	Total	***100%***	

3-8. We are trying to understand how sales to retailers in the NYSERDA service area compared to sales to retailers in some other states during 2011 and 2012. In 2011 did [MANUFACTURER NAME] sell non-specialty CFL bulbs through retailers in Arizona or Georgia? [IF YES] In 2011, were there any clear differences in sales of non-specialty CFL bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about Nevada or Florida?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about Kansas or Nebraska?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

i. And in 2012?

3-9. NYSERDA stopped offering discounts of non-specialty CFLs at the end of 2011. Do you think the ending of discounts had any impact on your non-specialty CFL bulb sales in 2012?

i. Why do you say this?

Section 4: [PARTNER HAS FORWARDED SALES DATA OR IS AGREEING TO SHARE COUNTS] 2011-2012 Specialty CFL Product Sales and NYSERDA Residential Lighting POS Program Trends

Now I'm going to ask you some questions about your sales of ***specialty*** CFL bulbs during 2011-2012.

[IF NEEDED] By "specialty" CFL bulbs I mean medium screw-base bulbs that have special functions or features such as reflectors, dimmability, three-way light levels, or flood lighting or that do not have a spiral profile, such as A-lamps, flame-shaped, or globes.

4-1. We would like to know a little more about the types and distribution of specialty bulbs you sold in the NYSERDA service area during 2012, if available, or 2011 if not. I'm going to read you a list of difference types of screw-base specialty bulbs. For each bulb type, please provide your best estimate of the percent of this type bulb you sold that was CFLs. [PARTNERS ONLY] Also please estimate the percentage of these CFLs sold through the NYSERDA Products Program. (If all, record 100%)

a. Year _____

Lamp Type	% of All Sales that were CFLs	% of CFL Sales that were through the NYSERDA Program (All=100%)
Reflectors/Flood	__%	__%
Globe	__%	__%
A-Lamp	__%	__%
Decorative (e.g., flame)	__%	__%
Dimmable	NA	__%

Lamp Type	% of All Sales that were CFLs	% of CFL Sales that were through the NYSERDA Program (All=100%)
Three-way	__%	__%

4-2. In 2011 or 2012 did [MANUFACTURER NAME] sell specialty CFL bulbs through retailers in Arizona or Georgia?[IF YES] In 2011, were there any clear differences in sales of specialty CFL bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about in Nevada or Florida?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about in Kansas or Nebraska?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

Section 5: [PARTNER HAS FORWARDED SALES DATA OR IS AGREEING TO SHARE COUNTS] 2011-2012 LED Product Sales and NYSERDA Residential POS Lighting Program Trends

Now I'm going to ask you some questions about your sales of LED bulbs during 2011-2012.

5-1. In 2011 or 2012 did [MANUFACTURER NAME] sell LED bulbs through retailers in Arizona or Georgia? [IF YES] In 2011, were there any clear differences in sales of LED bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about in Nevada or Florida?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about in Kansas or Nebraska?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE

DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

i. And in 2012?

[RESUME QUESTIONS FOR ALL MANUFACTURERS - SECTION 9]

Section 6: [NOT WILLING TO SHARE DATA/COUNTS] 2011-2012 Standard CFL Product Sales and New York Residential Lighting POS Program Trends

[The objectives of the questions in section include the following:

- To obtain sales information need to assess market effects from the Residential Lighting POS program.
- To serve as a reality check on future free ridership questions.]

Now I have some questions about [ORG NAME]'s sales of light bulbs in the NYSERDA service area.

6-1. For 2011 and 2012, we are trying to get an understanding of what percentage of your bulb sales in the NYSERDA service area was for each of several different types of medium screw-base bulbs: LED, CFL, incandescent and EISA-compliant halogen incandescent. [PROBE FOR POSSIBILITY OF OBTAINING COUNTS. IF COUNTS NOT AVAILABLE, ASK] First I'd like you to consider your sales of *all* medium screw base bulbs in 2011 and 2012. What percentage of *all* medium screw-base bulb sales in 2011 were . . . [CHECK THAT PERCENTAGES TOTAL TO 100%] . . .

b. Were the percentages different in 2012? [IF NO, RECORD; IF YES, PROBE FOR DIFFERENCES & FILL OUT 2012 COLUMN]

[DEFINITIONS OF EACH BULB TYPE: Non-specialty CFL is Medium (Edison) screw base bare spiral compact fluorescent lamps with integral electronic ballasts (lamps, not packages, all wattages combined). Specialty CFL is all other medium (Edison) screw-base CFL lamps (lamps, not packages, all wattages combined). LED is screw-base LED bulbs suitable for replacing general purpose incandescent bulbs (bulbs, not packages, all wattages combined).]

	2011	2012
Non-specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
Specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
LED bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%

EISA compliant halogens (lamps, not packages, all wattages combined)	___%	___%
Incandescents (lamps, not packages, all wattages combined)	___%	___%
Total	100%	100%

Now I am going to ask you some questions about [ORG NAME]'s sales of *non-specialty* CFL bulbs in 2011 and 2012.

6-2. Please provide your best estimate of the % of non-specialty CFL bulbs that you sold in the NYSERDA service area during 2011 that fit into the following categories:

	2011
First consider the non-specialty CFL bulbs that were discounted by the NYSERDA Products Program. About what % non-specialty CFL bulbs that you sold in the NYSERDA service area during 2011 did these account for?	__%
Next consider the non-specialty CFL bulbs that were *not* discounted by the program. About what % of non-specialty CFL bulbs that you sold in the NYSERDA service area during 2011 did these account for?	__%
Total non-specialty CFL bulbs sold in NYSERDA service area during 2011	100%

6-3. In 2012, were your sales of non-specialty CFL bulbs in the NYSERDA area lower, higher, or about the same as in 2011?

i. [IF LOWER OR HIGHER] I'd like to try to quantify the difference. What percent lower [higher] were non-specialty CFL bulb sales in 2012 compared to 2011? ___% lower/higher

6-4. NYSERDA stopped offering discounts of non-specialty CFLs at the end of 2011. Do you think the ending of discounts had any impact on your non-specialty CFL bulb sales in 2012?

ii. Why do you say this?

6-5. Can you please estimate the percent of NYSERDA-incented bulbs that were sold through the following retail channels during **2011**? [FILL IN FIRST COLUMN BELOW WITH RESPONSE. REMIND

THEM THAT NON-SPECIALTY CFL BULBS WERE DROPPED IN 2012, SO WE ARE ASKING THEM TO THINK BACK TO 2011 FOR ALL BULBS]

Retail Channel	**Q6-5a: % of NYSERDA CFLs & LEDs**	**Q6-5b: % Overall CFL & LED distribution**
Mass Merchandise (Walmart, Target, etc)		
Warehouse Clubs (Costco, Sam's)		
Large Home Improvement (Lowes, Home Depot)		
Discount (Goodwill, Kmart, 99¢ stores)		
Small Hardware (Ace, True Value)		
Drug Stores (Rite Aid, Walgreens, CVS)		
Grocery Stores		
Other (specialty lighting, Bed and Bath stores,		
Total	***100%***	***100%***

6-6. In 2011 was the retail distribution of NYSERDA bulbs the same as for non-NYSERDA bulbs within the NYSERDA service area?

a. IF NO: Please estimate the percent of ALL CFLs sold through the following retail channels? [FILL IN 2ND COLUMN ABOVE WITH THIS INFO]

b. IF YES: COPY OVER DATA IN FIRST COLUMN IN TABLE ABOVE TO SECOND COLUMN IN TABLE ABOVE

6-7. As part of this evaluation, we would like to talk to retailers that sold NYSERDA incented light bulbs to learn about their experience with the program.

a. What retailers did you sell the NYSERDA bulbs to?

b. What percent of the 2011 & 2012 NYSERDA bulbs went to this retailer?

c. May please get the name and contact information so that I may interview them?

	Retailer (a)	**(b) % of NYSERDA Bulbs**	**(c) Retailer Contact info….**
k.			
l.			
m.			
n.			
o.			
p.			
q.			
r.			
s.			
t.			
	Total	***100%***	

6-8. We are trying to understand how sales through retailers in the NYSERDA service area compared to sales through retailers in some other states during 2011 and 2012. In 2011 or 2012 did [MANUFACTURER NAME] sell non-specialty CFL bulbs through retailers in Arizona or Georgia? [IF YES] In 2011, was there any clear differences in sales of non-specialty CFL bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about in Nevada or Florida?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

   i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about in Kansas or Nebraska?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

i. And in 2012?

Section 7: [NOT WILLING TO SHARE DATA/COUNTS] 2011-2012 Specialty CFL Product Sales and NYSERDA Residential Lighting POS Program Trends

Now I'm going to ask you some questions about your sales of ***specialty*** CFL bulbs during 2011-2012.

[IF NEEDED] By "specialty" CFL bulbs I mean medium screw-base bulbs that have special functions or features such as reflectors, dimmability, three-way light levels, or flood lighting or that do not have a spiral profile, such as A-lamps, flame-shaped, or globes.

7-1. Please provide your best estimate of the % of specialty CFL bulbs that you sold in the NYSERDA service area during the 2011-2012 period that fit into the following categories:

	2011	2012
First consider the specialty CFL bulbs that were discounted by the NYSERDA Products Program. About what % specialty CFL bulbs that you sold in the NYSERDA service area during the 2011-2012 period did these account for?	__%	__%
Next consider the specialty CFL bulbs that were *not* discounted by the program. About what % specialty CFL bulbs that you sold in the NYSERDA service area during the 2011-2012 period did these account for?	__%	__%
Total specialty CFL bulbs sold in the NYSERDA service area during the 2011-2012 period	**100%**	**100%**

7-2. We would like to know a little more about the types and distribution of specialty bulbs you sold in the NYSERDA service area during 2012, if available, or 2011 if not. I'm going to read you a list of difference types of screw-base specialty bulbs. For each bulb types, please provide your best estimate of the percent of this type bulb you sold that was CFLs. Also please estimate the percentage of these CFLs were sold through the NYSERDA Products Program. (If all, record 100%)

a. Year _____

Lamp Type	% of All Sales that were CFLs	% of CFL Sales that were through the NYSERDA Program (All=100%)
Reflectors/Flood	__%	__%

Lamp Type	% of All Sales that were CFLs	% of CFL Sales that were through the NYSERDA Program (All=100%)
Globe	__%	__%
A-Lamp	__%	__%
Decorative (e.g., flame)	__%	__%
Dimmable	NA	__%
Three-way	__%	__%

7-3. In 2011 or 2012 did [MANUFACTURER NAME] sell specialty CFL bulbs through retailers in Arizona or Georgia? [IF YES] In 2011, was there any clear differences in sales of specialty CFL bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about in a Nevada or Florida?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about in Kansas or Nebraska?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

Section 8: [NOT WILLING TO SHARE DATA/COUNTS] 2011-2012 LED Product Sales and NYSERDA Residential POS Lighting Program Trends

Now I'm going to ask you some questions about your sales of LED bulbs during 2011-2012.

8-1. Please provide your best estimate of the % of LED bulbs that you sold in the NYSERDA service area during the 2011-2012 period that fit into the following categories:

	2011	2012

First consider the LED bulbs that were discounted by the NYSERDA Products Program. About what % of LED bulbs that you sold in the NYSERDA service area during the 2011-2012 period did these account for?	__%	__%
Next consider the LED bulbs that were *not* discounted by the program. About what % of bulbs that you sold in the NYSERDA service area during the 2011-2012 period did these account for?	__%	__%
Total LED bulbs sold in NYSERDA service area during the 2011-2012 period	**100%**	**100%**

8-2. In 2011 or 2012 did [MANUFACTURER NAME] sell LED bulbs through retailers in Arizona or Georgia? [IF YES] In 2011, were there any clear differences in sales of LED bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about in areas with moderate levels of sustained program activity or relatively new but substantial program activity?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about in areas with small programs or no program activity?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

Section 9: Free Ridership and In-State Spillover [ALL MANUFACTURERS]

My next questions are about the impact that the 2011-2012 NYSERDA Products Program may have had on your NYSERDA-area CFL and LED products sales.

[IN THIS SECTION, PROBE FOR DIFFERENCES BETWEEN ANSWERS FOR 2011 & 2012]

9-1.

a. If the NYSERDA program had not been available in 2011, what percent of your sales would have gone to each retail channel? [READ THE LIST OF RETAIL CHANNELS, THEN RECORD ANSWERS IN COLUMN B]

b. Would the percentages be any different for 2012? [IF YES: RECORD ANSWERS in column C]

	Retail Channel	**A.**	**B. % of 2011 Sales**	**C% of 2012 Sales**
a.	Mass Merchandise (Walmart, Target, etc)	(Y/N)		
b.	Warehouse Clubs (Costco, Sam's)	(Y/N)		
c.	Large Home Improvement (Lowes, Home Depot)	(Y/N)		
d.	Discount (Goodwill, Kmart, 99¢ stores)	(Y/N)		
e.	Small Hardware (Ace, True Value)	(Y/N)		
f.	Drug Stores (Rite Aid, Walgreens, CVS)	(Y/N)		
g.	Grocery Stores	(Y/N)		
h.	Other (specialty lighting, Bed and Bath stores,	(Y/N)		
	Total		***100%***	***100%***

Specialty CFL bulbs Free Ridership [ALL MANUFACTURERS OF SPECIALTY CFL BULBS WITH SPECIALTY CFL PROGRAM SALES IN 2011 OR 2012]

9-2. I understand that in 2012 you received NYSERDA Products Program buydown discounts per bulb for the sale of specialty CFL bulbs. If these discounts and program promotional materials had not been available during 2012, do you think your sales of specialty CFL bulbs *within the NYSERDA service area* would have been about the same, lower, or higher?

a. [IF HIGHER OR SAME] Why do you say this? [RECORD RESPONSE AND THEN SKIP TO 9-3]

b. [IF LOWER] By what percentage do you estimate your sales of specialty ENERGY STAR CFL bulbs *within the NYSERDA service area* would be lower during 2012 if these buydowns and program promotional materials for specialty CFLs had not been available? [RECORD % DECREASE] [BOTH NUMERATOR AND DENOMINATOR ARE NYSERDA AREA]

i. I want to make sure I understand you correctly. You estimate that your sales in the NYSERDA service area would have been [PERCENTAGE FROM QUESTIONb9-2b] % lower without the buydowns. So if you actually sold 100 non-specialty CFLs in a given week, you think you'd have sold only about [100 – (PERCENTAGE FROM QUESTION 9-2b * 100)] in that period if the buydowns hadn't been available? [IF RESPONSE IS ≠ YES THEN CLARIFY ESTIMATED SALES DECREASE]

LED Bulbs Free-ridership [ALL MANUFACTURERS OF LEDS WITH LED PROGRAM SALES IN 2011 OR 2012]

9-3. I understand that in 2012 you received NYSERDA Products Program buydown discounts per bulb for the sale of LED bulbs. If these discounts and program promotional materials had not been available during 2012, do you think your sales of these types of LED bulbs *within the NSYERDA service area* would have been about the same, lower, or higher? [BOTH NUMERATOR AND DENOMINATOR ARE NYSERDA AREA]

a. [IF HIGHER OR SAME] Why do you say this? [RECORD RESPONSE AND THEN SKIP TO 9-4]

b. [IF LOWER] By what percentage do you estimate your sales of LED bulbs would be lower during 2012 if these buydowns and program promotional materials for LED bulbs had not been available? [RECORD % DECREASE]

i. I want to make sure I understand you correctly. You estimate that your sales in the NYSERDA service area would have been [PERCENTAGE FROM QUESTION 9-3b] % lower without the buydowns. So if you actually sold 100 LED bulbs in a given week, you think you'd have sold only about [100 – (PERCENTAGE FROM QUESTION 9-3b. * 100)] in that period if the buydowns hadn't been available? [IF RESPONSE IS ≠ YES THEN CLARIFY ESTIMATED SALES DECREASE]

Effects of Program Changes

9-4. In 2012, NYSERDA did away with the requirement for Partners to cost-share buydown discounts [IF ASKED: NYSERDA would provide $1 for every $2 bulb discount] and replaced it with a requirement that Partners provide educational materials alongside any products discounted by NYSERDA. Were you aware of this change?

a. [IF YES] What effect did this change have on [ORG NAME]'s involvement with the program? [PROBE FOR SPECIFICS, ESPECIALLY INCREASE OR DECREASE]

b. [IF YES] What effect did this change have on the amount of lighting educational material produced by [ORG NAME]? [PROBE FOR SPECIFICS, ESPECIALLY INCREASE OR DECREASE IN VOLUME OR REACH]

Section 10: The Market Impacts of the NYSERDA Program [ALL RESPONDENTS]

Program Effects on Other Lighting Products Sold in the NYSERDA Service Area in 2011-2012

The NYSERDA Products Program has offered buydown discounts on various types of bulbs for over a decade.

10-1. Have the years of NYSERDA lighting discount programs had any effects on the types of specialty or non-specialty CFL products you sell or the way that you sell them?

a.[IF YES] How so?

10-2. Have the years of NYSERDA lighting discount programs had any effects on the types of LED products you sell or the way that you sell them?

a.[IF YES] How so?

10-3. If NYSERDA were to eliminate its specialty CFL and LED discount programs starting in 2013, what effects would this have on the sales levels of specialty CFL and LED products in the NYSERDA service area?

a.Why do you say that? [IF NOT ALREADY MENTIONED, FOLLOW-UP WITH: "Does your response account for the possible impacts of the EISA legislation?]

10-4. If NYSERDA and other program administrators in other states, such as California and Massachusetts, eliminated their lighting discount programs starting in 2013, what effects would this have on your organization's development or pricing (?) of new LED lighting products? [PROBE FOR DIFFERENT EFFECTS ON DIFFERENT PRODUCT TYPES—BULK OF $ LIKELY GOING TO LEDS]

I have a few questions about your predictions about consumers and future bulb sales…

10-5. In 2013, what type bulb do you expect consumers will most commonly purchase to replace 75 watt incandescent bulbs?

10-6. In 2014, what type bulb do you expect consumers will most commonly purchase to replace 60 watt incandescent bulbs?

10-7. What are your expectations for U.S. product sales of EISA compliant halogen replacements for 60 watt incandescent bulbs in 2013 and beyond?

a. Why do you say that?

b. To what extent has your organization been manufacturing and marketing these bulbs?

c. What factors have influenced or encouraged your company to sell halogen replacements for 60 watt incandescent bulbs?

Section 11: Program Satisfaction [ALL RESPONDENTS]

Finally, I have some questions about [ORG NAME]'s participation in and satisfaction with the lighting portion of the NYSERDA Products Program.

11-1. [MANUFACTURER PARTNERS THAT WERE NOT ACTIVE IN 2012 (ANY MANUFACTURER PARTNER THAT TELLS YOU EARLIER IN INTERVIEW THEY SOLD NO BULBS THROUGH THE PROGRAM)] We understand that [ORG NAME] did not promote any bulbs through the program in 2012. What kept [ORG NAME] from being more active in the program in 2012?

a. What could NYSERDA or Lockheed Martin do that would be likely to result in your promoting program bulbs in the future?

11-2. Using a scale of 0 to 10 where 0 = very dissatisfied and 10 = very satisfied, how satisfied have you been with the program managers, contractor and other staff involved in delivering the NYSERDA Products Program?

a. [ASK ONLY IF SATISFACTION RATING IS 0-5] Why do you say that?

11-3. Using the same scale, how would you rate your level of satisfaction with the program in general?

a. [ASK ONLY IF SATISFACTION RATING IS 0-5] Why do you say that?

11-4. In what way could the program processes be improved?

11-5. Using a scale of 0 to 10 where 0 = very dissatisfied and 10 = very satisfied , how satisfied have you been with the Products program lighting materials and any other lighting marketing support provided by the program? Explain. Any suggestions for improvement?

11-6. Are there certain program materials that you particularly find useful or not useful? Why or why not? Probe the following: brochure, hang tag, bag stuffer, shelf wobbler, shelf chipboards, portable floor stand, light box.

11-7. Are you planning to participate in the program going forward?

a. Why do you say that?

11-8. Is there anything else you would like to tell me about the program or the lighting market?

PARTNER RETAILER INTERVIEW GUIDE

Interview Guide for PARTNER Retail Buyers, 2011-2012 NYSERDA Residential Lighting POS Program

Introduction

Interviewer: _____

Date of Interview: _____

Time Begun_____ Time Ended _____

Respondent Name: _____

Respondent Title: _____

Contact Information:

Phone Number(s): _____

Fax Number: _____

E-mail Address: _____

Interview was: _____ By phone

_____ In person

Note: If the partner has questions regarding the NYSERDA Program Opportunity Notice (PON), they should be directed to:

Ryan Moore

(518) 862-1090 ext.3267

rtm@nyserda.ny.gov

As I mentioned when we scheduled this interview, I am ____ from [NMR/Apex] calling on behalf of the New York State Energy Research and Development Authority. I am part of the team evaluating the Residential Lighting Point-of-Sale Program. The information you provide will be combined with observations from [program staff, implementers] and other research and will be reported in aggregate. We will make every effort to keep your responses confidential to the extent permitted by law. No comments will be attributed to any individual without their express permission.

Is this still a good time to talk? [If no, arrange for callback time.]

Before we get started with the interview, I would like to confirm the [ORGANIZATION/PERSON] to whom the charitable donation will be made:

Name of charity:

Charity's mailing Address:

Charity's phone number:

Donor's name:

Donor's email address

Donor's mailing address

Donor's phone number

I will be taking notes during this call. I would like to record the call in order to have a backup in case I need to clarify anything for my notes. May I have your permission to record this call for transcription if needed?

__ Yes

__ No

Section 1: Introductory Questions

1-1. According to our records, your company participated in the NYSERDA Products Program during the 2011-2012 period. For more than ten years this program has offered upstream buydowns and midstream markdown discounts for CFL and LED products that are sold through various NYSERDA-area retailers. (By the NYSERDA area, we mean all of New York except Nassau and Suffolk Counties on Long Island.) Are you the person MOST familiar with your company's participation in this program for lighting products? [IF NOT MOST FAMILIAR, FIND OUT WHO IS. IF RETAILERS SAY THEY ARE NOT FAMILIAR WITH IT BECAUSE THE COMPANY DOES NOT PARTICPATE FOR LIGHTING, KEEP GOING ANYWAY, SO WE CAN FIND OUT WHY NOT]

1-2. I will have questions concerning [ORG NAME's] sales of lighting products in the NYSERDA service area. Is this a topic that you are familiar with? [BASED ON ANSWERS TO THIS AND PREVIOUS QUESTION, DETERMINE WHETHER TO CONTINUE WITH INTERVIEW OR GET ALTERNATIVE CONTACT NAME AND RESCHEDULE]

1-3. For how long have you personally dealt with the NYSERDA Products Program as part of your job at [ORG NAME]?

1-4. What were the reasons that [ORG NAME] became involved with the NYSERDA Products Program?

1-5. Do you oversee light bulb sales for non-utility bulbs, as well? For what other areas of the country do you (personally) manage bulb sales?

PARTNER WHO HAVE *ALREADY SENT* DATA/COUNTS: SECTIONS 3 THROUGH 5

PARTNER WHO HAVE MADE IT CLEAR THEY ARE *NOT* WILLING TO SHARE DATA/COUNTS: SECTIONS 6 THROUGH 8

ALL OTHERS: SECTIONS 2 THROUGH 5

Section 2: [PARTNER HAS *NOT* FORWARDED SALES DATA] 2011-2012 Standard CFL Product Sales and NYSERDA Residential Lighting POS Program Trends

[IF PARTNER HAS NOT ALREADY FORWARDED DATA FROM LOCKHEED MARTIN]

Now I'm going to ask you some questions about [ORG NAME]'s sales of specialty and non-specialty CFL and LED bulbs to retailers in the NYSERDA service area. By "specialty" CFL bulbs I mean medium-base bulbs that have special functions or features such as dimmability, three-way light levels, flood lighting, or CFLs that have non-spiral shapes such as A-lamps or globes.

2-1. Can you please tell me how many LED and CFL bulbs [ORG NAME] sold ***through the Program in 2011***? This should be in the summary that Lockheed Martin sent you. [FILL IN CELLS B5 & B6 ON SPREADSHEET] [IF THEY REFUSE TO SUPPLY COUNTS, GO TO 2-5]

2-2. And how many LED and CFL bulbs did [ORG NAME] sell ***through the Program in 2012***? [FILL IN CELLS C5 & C6 ON SPREADSHEET]

2-3. How many LED and CFL bulbs did [ORG NAME] sell *in total* in 2011? ***This includes both Program and Non-program bulbs***. [FILL IN CELLS H5 & H6 ON SPREADSHEET]

2-4. And how many in 2012? [FILL IN CELLS I5 & I6 ON SPREADSHEET]

THEN SKIP TO 3-1c

[IF THEY REFUSE TO SUPPLY COUNTS]

2-5. I can appreciate your not being comfortable sharing counts of bulbs sold. Would you be able to tell me instead the percentages of your bulb sales in the NYSERDA service area were for each of several different types of medium screw-base bulbs? [IF YES, ASK] First I'd like you to consider your sales of *all* medium screw base bulbs in 2011 and 2012. What percentage of *all* medium screw-base bulb sales in 2011 were . . . [CHECK THAT PERCENTAGES TOTAL TO 100%]

a. Were the percentages different in 2012? [IF NO, RECORD; IF YES, PROBE FOR DIFFERENCES & FILL OUT 2012 COLUMN]

[SKIP TO QUESTION 6-1 TO FILL IN TABLE. CONTINUE WITH QUESTION SERIES FOR RESPONDENTS NOT WILLING TO SHARE COUNTS]

Section 3: [PARTNER HAS FORWARDED SALES DATA OR IS AGREEING TO SHARE COUNTS] 2011-2012 Standard CFL Product Sales and New York Residential Lighting POS Program Trends

[The objectives of the questions in section include the following:

- To verify that the information in the tracking data is reasonably correct and remind interviewees of the types of products they sold through the NYSERDA program.
- To collect additional sales information needed to assess market effects from the Residential Lighting POS program.
- To serve as a reality check on future free ridership questions.]

Now I'm going to ask you some questions about [ORG NAME]'s sales of specialty and non-specialty CFL and LED bulbs in the NYSERDA service area. By "specialty" CFL bulbs I mean medium-base bulbs that have special functions or features such as dimmability, three-way light levels, flood lighting, or CFLs that have non-spiral shapes such as A-lamps or globes.

3-1. Thank you for your willingness to share with us the sales data table that Lockheed Martin sent to you. [REPEAT ASSURANCES OF CONFIDENTIALITY] Does the table seem correct in terms of the types and volume of lighting products you sold during 2011 and 2012?

a. [IF NO] [Record any corrections to the table]

b. [IF MISSING DATA] Could you please look up or estimate the missing data so we can complete the table? [RECORD SALES DATA IN EXCEL SPREADSHEET]

c. What percent of the *program* CFLs sold in 2011 were specialty bulbs? CELL B7]

d. What percent of the *non-program* CFLs sold in 2011 were specialty bulbs? [CELL E7. IF THEY GIVE D & E SEPARATELY, WE CAN CALCULATE CELL H7. IF

THEY CAN'T GIVE D & E SEPARATELY, THEN ASK FOR THE % OF THE TOTAL (CELL H7)].

Sample Data Table 2011 & 2012 for RETAILERS—Lighting Sales Data Submitted for NYSERDA Products Program

This is the form we need to complete with each Retailer Partner interviewee:

DATA TABLE TO FILL OUT FOR PARTNER ***RETAILERS***

Bulbs Sold (by individual units, not by package)									
	PROGRAM BULBS (# of bulbs sold through NYSERDA Products program)			**NON-PROGRAM BULBS** (# of bulbs sold to in NYSERDA service area OUTSIDE of NYSERDA Products Program)			**PROGRAM+NON-PROGRAM BULBS** (All bulbs sold in NYSERDA Service Area)		
	2011	2012	Total 2011+2012	2011	2012	Total 2011+2012	2011	2012	Total 2011+2012
LED lamps			0	0	0	0			0
CFLs			0	0	0	0			0
% of CFLs that were specialty bulbs		100			100			100	
Non-specialty CFL bulbs	100	0		100	0		100	0	
Total bulb sales (LED+CFL)	0	0	0	0	0	0	0	0	0

Lockheed Martin should have provided interviewees with data in in GREEN cells--if the retailer provided it to Lockheed Martin in the first place, which they might not have. We ask interviewees to provide it from these data, if they had already provided it to LM. (If not, we are asking for it fresh.)

We ask data in Yellow cells and any data missing from green cells.

Data in white cells are calculated; no data in black cells.

[IF NO, MAKE APPROPRIATE CORRECTIONS/CLARIFICATIONS]

3-2. For 2011 and 2012, we are trying to get an understanding of what percentage of your total bulb sales in the NYSERDA service area was for each of several different types of medium screw-base bulbs: LED, CFL, incandescent and EISA-compliant halogen incandescent.

- [PROBE FOR POSSIBILITY OF OBTAINING COUNTS. FOR EXAMPLE, ASK "Would you be willing to share with us the numbers of individual units of incandescent and EISA-compliant halogen bulb types that your organization sold in the NYSERDA service area in 2011 and 2012?" IN THE UNLIKELY EVENT THE ANSWER IS YES, GET COUNTS FOR LAST 2 LINES OF TABLE BELOW (EISA-COMPLIANT HALOGENS & INCANDESCENT BULBS), THEN CONTINUE WITH QUESTION (BECAUSE YOU WON'T HAVE TIME TO CALCULATE THE PERCENTAGES YOURSELF DURING THE CALL. THE UNIT COUNTS ARE A REALITY CHECK AND WE WOULD **LOVE** TO HAVE THEM.] [****IMPORTANT** IF THEY CAN'T GIVE YOU THE NYSERDA SERVICE AREA, THEN ASK FOR NYS AND MAKE A NOTE THAT THAT IS WHAT THEY REPORTED**]

- [IF COUNTS NOT AVAILABLE, LET THEM KNOW YOU THAT'S OK, THEN ASK] Now I'd like you to consider your sales of all medium screw base bulbs in 2011 and 2012. What percentage of all medium screw-base bulb sales in 2011 were . . . [CHECK THAT PERCENTAGES TOTAL TO 100%] . . . And in 2012?

[DEFINITIONS OF EACH BULB TYPE: Non-specialty CFL is Medium (Edison) screw base bare spiral compact fluorescent lamps with integral electronic ballasts (lamps, not packages, all wattages combined). Specialty CFL is all other medium (Edison) screw-base CFL lamps (lamps, not packages, all wattages combined). LED is screw-base LED bulbs suitable for replacing general purpose incandescent bulbs (bulbs, not packages, all wattages combined).]

	2011	2012
Non-specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
Specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
LED bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
EISA compliant halogens (lamps, not packages, all wattages combined)	___%	___%
Incandescents (lamps, not packages, all wattages combined)	___%	___%
Total	100%	100%

3-3. [ASK ONLY IF PROMOTIONAL RECORDS MISSING OR INCOMPLETE] And what percent of your total *specialty* CFL bulb sales in the NYSERDA area were NYSERDA program bulbs in 2011?

a. [ASK ONLY IF PROMOTIONAL RECORDS MISSING OR INCOMPLETE] How about **2012**? What percent of your total *specialty* CFL bulb sales in the NYSERDA area were NYSERDA program bulbs in 2012?

3-4. [ASK ONLY IF PROMOTIONAL RECORDS MISSING OR INCOMPLETE] In 2012, what percent of your total **LED** bulb sales in the NYSERDA area do the NYSERDA program bulbs represent?

a. And in 2012?

3-5. NYSERDA stopped offering discounts of non-specialty CFLs at the end of 2011. Do you think the ending of discounts had any impact on your non-specialty CFL bulb sales in 2012?

i. Why do you say this?

Section 4: [PARTNER HAS FORWARDED SALES DATA OR IS AGREEING TO SHARE COUNTS] 2011-2012 Specialty CFL Product Sales and NYSERDA Residential Lighting POS Program Trends

Now I'm going to ask you some questions about your sales of ***specialty*** CFL bulbs during 2011-2012.

[IF NEEDED] By "specialty" CFL bulbs I mean medium screw-base bulbs that have special functions or features such as reflectors, dimmability, three-way light levels, or flood lighting or that do not have a spiral profile, such as A-lamps, flame-shaped, or globes.

4-1. We would like to know a little more about the types and distribution of specialty bulbs you sold in the NYSERDA service area during 2012, if available, or 2011 if not. I'm going to read you a list of difference types of screw-base specialty bulbs. For each bulb type, please provide your best estimate of the percent of this type bulb you sold that was CFLs. [PARTNERS ONLY] Also please estimate the percentage of these CFLs sold through the NYSERDA Products Program. (If all, record 100%)

a. Year _____

Lamp Type	% of All Sales that were CFLs	% of CFL Sales that were through the NYSERDA Program (All=100%)
Reflectors/Flood	__%	__%
Globe	__%	__%
A-Lamp	__%	__%
Decorative (e.g., flame)	__%	__%
Dimmable	NA	__%
Three-way	__%	__%

4-2. Since [ORG NAME] joined the NYSERDA Products Program, what changes have you made to the specialty CFLs you stock in your stores in the NYSERDA service area?

a. [IF CHANGES MADE]

i. Why did you make these changes?

ii. What role did the NYSERDA Products Program play in these changes?

b. [IF DID NOT STOCK SCFLS BEFORE PROGRAM]

i. What made you decide to stock specialty CFLs?

ii. What role did the NYSERDA Products Program play in this decision?

Section 5: [PARTNER HAS FORWARDED SALES DATA OR IS AGREEING TO SHARE COUNTS] 2011-2012 LED Product Sales and NYSERDA Residential POS Lighting Program Trends

Now I'm going to ask you some questions about your sales of LED bulbs during 2011-2012.

5-1. Since [ORG NAME] joined the NYSERDA Products Program, what changes have you made to the LED bulbs you stock in your stores in the NYSERDA service area?

a. [IF CHANGES MADE]

i. Why did you make these changes?

ii. What role did the NYSERDA Products Program play in these changes?

b. [IF DID NOT STOCK LEDS BEFORE PROGRAM]

i. What made you decide to stock LED bulbs?

ii. What role did the NYSERDA Products Program play in this decision?

5-2. [IF STOCKING LED BULBS] Do you have any feedback on how well LED bulbs are received by consumers? Any issues with quality, light output, dimmability, reduced lifetimes, other?

[RESUME QUESTIONS FOR ALL RETAILERS - SECTION 9]

Section 6: [NOT WILLING TO SHARE DATA/COUNTS] 2011-2012 Standard CFL Product Sales and New York Residential Lighting POS Program Trends

[The objectives of the questions in section include the following:

- To obtain sales information need to assess market effects from the Residential Lighting POS program.
- To serve as a reality check on future free ridership questions.]

Now I have some questions about [ORG NAME]'s sales of light bulbs in the NYSERDA service area.

6-1. For 2011 and 2012, we are trying to get an understanding of what percentage of your bulb sales in the NYSERDA service area was for each of several different types of medium screw-base bulbs: LED, CFL, incandescent and EISA-compliant halogen incandescent. [PROBE FOR POSSIBILITY OF OBTAINING COUNTS. IF COUNTS NOT AVAILABLE, ASK] First I'd like you to consider your sales of *all* medium screw base bulbs in 2011 and 2012. What percentage of *all* medium screw-base bulb sales in 2011 were . . . [CHECK THAT PERCENTAGES TOTAL TO 100%] . . .

a. Were the percentages different in 2012? [IF NO, RECORD; IF YES, PROBE FOR DIFFERENCES & FILL OUT 2012 COLUMN]

[DEFINITIONS OF EACH BULB TYPE: Non-specialty CFL is Medium (Edison) screw base bare spiral compact fluorescent lamps with integral electronic ballasts (lamps, not packages, all wattages combined).

Specialty CFL is all other medium (Edison) screw-base CFL lamps (lamps, not packages, all wattages combined). LED is screw-base LED bulbs suitable for replacing general purpose incandescent bulbs (bulbs, not packages, all wattages combined).]

	2011	2012
Non-specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
Specialty CFL bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
LED bulbs (lamps, not packages, all wattages combined, both ES & non)	___%	___%
EISA compliant halogens (lamps, not packages, all wattages combined)	___%	___%
Incandescents (lamps, not packages, all wattages combined)	___%	___%
Total	100%	100%

Now I am going to ask you some questions about [ORG NAME]'s sales of *non-specialty* CFL bulbs in 2011 and 2012.

6-2. Please provide your best estimate of the % of non-specialty CFL bulbs that you sold in the NYSERDA service area during 2011 that fit into the following categories:

	2011
First consider the non-specialty CFL bulbs that were discounted by the NYSERDA Products Program. About what % non-specialty CFL bulbs that you sold in the NYSERDA service area during 2011 did these account for?	__%
Next consider the non-specialty CFL bulbs that were *not* discounted by the program. About what % of non-specialty CFL bulbs that you sold in the NYSERDA service area during 2011 did these account for?	__%
Total non-specialty CFL bulbs sold in NYSERDA service area during 2011	100%

6-3. In 2012, were your sales of non-specialty CFL bulbs in the NYSERDA area lower, higher, or about the same as in 2011?

a. [IF LOWER OR HIGHER] I'd like to try to quantify the difference. What percent lower [higher] were non-specialty CFL bulb sales in 2012 compared to 2011? ___% lower/higher

6-4. NYSERDA stopped offering discounts of non-specialty CFLs at the end of 2011. Do you think the ending of discounts had any impact on your non-specialty CFL bulb sales in 2012?

a. Why do you say this?

Section 7: [NOT WILLING TO SHARE DATA/COUNTS] 2011-2012 Specialty CFL Product Sales and NYSERDA Residential Lighting POS Program Trends

Now I'm going to ask you some questions about your sales of ***specialty*** CFL bulbs during 2011-2012.

[IF NEEDED] By "specialty" CFL bulbs I mean medium screw-base bulbs that have special functions or features such as reflectors, dimmability, three-way light levels, or flood lighting or that do not have a spiral profile, such as A-lamps, flame-shaped, or globes.

7-1. Please provide your best estimate of the % of specialty CFL bulbs that you sold in the NYSERDA service area during the 2011-2012 period that fit into the following categories:

	2011	2012
First consider the specialty CFL bulbs that were discounted by the NYSERDA Products Program. About what % specialty CFL bulbs that you sold in the NYSERDA service area during the 2011-2012 period did these account for?	__%	__%
Next consider the specialty CFL bulbs that were *not* discounted by the program. About what % specialty CFL bulbs that you sold in the NYSERDA service area during the 2011-2012 period did these account for?	__%	__%
Total specialty CFL bulbs sold in the NYSERDA service area during the 2011-2012 period	**100%**	**100%**

7-2. We would like to know a little more about the types and distribution of specialty bulbs you sold in the NYSERDA service area during 2012, if available, or 2011 if not. I'm going to read you a list of difference types of screw-base specialty bulbs. For each bulb types, please provide your best estimate

of the percent of this type bulb you sold that was CFLs. Also please estimate the percentage of these CFLs were sold through the NYSERDA Products Program. (If all, record 100%)

a. Year _____

Lamp Type	% of All Sales that were CFLs	% of CFL Sales that were through the NYSERDA Program (All=100%)
Reflectors/Flood	__%	__%
Globe	__%	__%
A-Lamp	__%	__%
Decorative (e.g., flame)	__%	__%
Dimmable	NA	__%
Three-way	__%	__%

7-3. **[RETAILER PARTNERS]** Since [ORG NAME] joined the NYSERDA Products Program, what changes have you made to the specialty CFLs you stock in your stores in the NYSERDA service area?

c. [IF CHANGES MADE]

i. Why did you make these changes?

ii. What role did the NYSERDA Products Program play in these changes?

d. [IF DID NOT STOCK SCFLS BEFORE PROGRAM]

i. What made you decide to stock specialty CFLs?

ii. What role did the NYSERDA Products Program play in this decision?

Section 8: [NOT WILLING TO SHARE DATA/COUNTS] 2011-2012 LED Product Sales and NYSERDA Residential POS Lighting Program Trends

Now I'm going to ask you some questions about your sales of LED bulbs during 2011-2012.

8-1. Since [ORG NAME] joined the NYSERDA Products Program, what changes have you made to the LED bulbs you stock in your stores in the NYSERDA service area?

a. [IF CHANGES MADE]

i. Why did you make these changes?

ii. What role did the NYSERDA Products Program play in these changes?

b. [IF DID NOT STOCK SCFLS BEFORE PROGRAM]

i. What made you decide to stock LED bulbs?

ii. What role did the NYSERDA Products Program play in this decision?

8-2. [IF STOCKING LED BULBS] Do you have any feedback on how well LED bulbs are received by consumers? Any issues with quality, light output, reduced lifetimes, other?

Section 9: Free Ridership and In-State Spillover [ALL RETAILERS]

My next questions are about the impact that the 2011-2012 NYSERDA Products Program may have had on your NYSERDA-area CFL and LED products sales.

[IN THIS SECTION, PROBE FOR DIFFERENCES BETWEEN ANSWERS FOR 2011 & 2012]

Specialty CFL bulbs Free Ridership [ANY RETAILERS WITH SPECIALTY CFL PROGRAM SALES IN 2011 OR 2012]

9-1. I understand that in 2012 you received NYSERDA Products Program markdown discounts per bulb for the sale of specialty CFL bulbs. If these discounts and program promotional materials had not been available during 2012, do you think your sales of specialty CFL bulbs *within the NYSERDA service area* would have been about the same, lower, or higher?

a. [IF HIGHER OR SAME] Why do you say this? [RECORD RESPONSE AND THEN SKIP TO 9-3]

b. [IF LOWER] By what percentage do you estimate your sales of specialty ENERGY STAR CFL bulbs within the NYSERDA service area would be lower during 2012 if these markdowns and program promotional materials for specialty CFLs had not been available? [RECORD % DECREASE] [BOTH NUMERATOR AND DENOMINATOR ARE NYSERDA AREA]

i. I want to make sure I understand you correctly. You estimate that your sales in the NYSERDA service area would have been [PERCENTAGE FROM QUESTIONb9-2b] % lower without the markdowns. So if you actually sold 100 non-specialty CFLs in a given week, you think you'd have sold only about [100 – (PERCENTAGE FROM QUESTION 9-2b * 100)] in that period if the [markdowns hadn't been available? [IF RESPONSE IS ≠ YES THEN CLARIFY ESTIMATED SALES DECREASE]

LED Bulbs Free-ridership [ANY RETAILERS WITH LED PROGRAM SALES IN 2011 OR 2012]

9-2. I understand that in 2012 you received NYSERDA Products Program markdown discounts per bulb for the sale of LED bulbs. If these discounts and program promotional materials had not been available during 2012, do you think your sales of these types of LED bulbs *within the NSYERDA service area* would have been about the same, lower, or higher? [BOTH NUMERATOR AND DENOMINATOR ARE NYSERDA AREA]

a. [IF HIGHER OR SAME] Why do you say this? [RECORD RESPONSE AND THEN SKIP TO 9-4]

b. [IF LOWER] By what percentage do you estimate your sales of LED bulbs would be lower during 2012 if these markdowns and program promotional materials for LED bulbs had not been available? [RECORD % DECREASE]

i. I want to make sure I understand you correctly. You estimate that your sales in the NYSERDA service area would have been [PERCENTAGE FROM QUESTION 9-3b] % lower without the markdowns. So if you actually sold 100 LED bulbs in a given week, you think you'd have sold only about [100 – (PERCENTAGE FROM QUESTION 9-3b. * 100)] in that period if the markdowns hadn't been available? [IF RESPONSE IS ≠ YES THEN CLARIFY ESTIMATED SALES DECREASE]

Effects of Program Changes

9-3. In 2012, NYSERDA did away with the requirement for Partners to cost-share markdown discounts [IF ASKED: NYSERDA would provide $1 for every $2 bulb discount] and replaced it with a requirement that Partners provide educational materials alongside any products discounted by NYSERDA. Were you aware of this change?

a. [IF YES] What effect did this change have on [ORG NAME]'s involvement with the program? [PROBE FOR SPECIFICS, ESPECIALLY INCREASE OR DECREASE]

b. [IF YES] What effect did this change have on the amount of lighting educational material produced by [ORG NAME]? [PROBE FOR SPECIFICS, ESPECIALLY INCREASE OR DECREASE IN VOLUME OR REACH]

Section 10: The Market Impacts of the NYSERDA Program [ALL RESPONDENTS]

Program Effects on Other Lighting Products Sold in the NYSERDA Service Area in 2011-2012

The NYSERDA Products Program has offered markdown discounts on various types of bulbs for over a decade.

10-1. Have the years of NYSERDA lighting discount programs had any effects on the types of specialty or non-specialty CFL products you sell or the way that you sell them?

a. [IF YES] How so?

10-2. Have the years of NYSERDA lighting discount programs had any effects on the types of LED products you sell or the way that you sell them?

a. [IF YES] How so?

10-3. If NYSERDA were to eliminate its specialty CFL and LED discount programs starting in 2013, what effects would this have on the sales levels of specialty CFL and LED products in the NYSERDA service area?

a. Why do you say that? [IF NOT ALREADY MENTIONED, FOLLOW-UP WITH: "Does your response account for the possible impacts of the EISA legislation?]

I have a few questions about your predictions about consumers and future bulb sales:

10-4. In 2013, what type bulb do you expect consumers will most commonly purchase to replace 75 watt incandescent bulbs?

10-5. In 2014, what type bulb do you expect consumers will most commonly purchase to replace 60 watt incandescent bulbs?

10-6. What are your expectations for U.S. product sales of EISA compliant halogen replacements for 60 watt incandescent bulbs in 2013 and beyond?

a. Why do you say that?

b. To what extent has your organization been marketing these bulbs?

c. What factors have influenced or encouraged your company to sell halogen replacements for 60 watt incandescent bulbs?

Section 11: Program Satisfaction [ALL RESPONDENTS]

Finally, I have some questions about [ORG NAME]'s participation in and satisfaction with the lighting portion of the NYSERDA Products Program.

11-1. [RETAILER PARTNERS THAT WERE NOT ACTIVE IN 2012 (KINNEY DRUGS, CURTIS LUMBER, JACK'S WORLD AND ANY RETAILER PARTNER THAT TELLS YOU EARLIER IN INTERVIEW THEY SOLD NO BULBS THROUGH THE PROGRAM IN 2012)] We understand that [ORG NAME] did not promote any bulbs through the program in 2012. What kept [ORG NAME] from being more active in the program in 2012?

a. What could NYSERDA or Lockheed Martin do that would be likely to result in your promoting program bulbs in the future?

11-2. Using a scale of 0 to 10 where 0 = very dissatisfied and 10 = very satisfied, how satisfied have you been with the program managers, contractor and other staff involved in delivering the NYSERDA Products Program?

a. [ASK ONLY IF SATISFACTION RATING IS 0-5] Why do you say that?

11-3. Using the same scale, how would you rate your level of satisfaction with the program in general?

a. [ASK ONLY IF SATISFACTION RATING IS 0-5] Why do you say that?

11-4. In what way could the program processes be improved?

11-5. Using a scale of 0 to 10 where 0 = very dissatisfied and 10 = very satisfied , how satisfied have you been with the Products program lighting materials and any other lighting marketing support provided by the program? Explain. Any suggestions for improvement?

11-6. Are there certain program materials that you particularly find useful or not useful? Why or why not? Probe the following: brochure, hang tag, bag stuffer, shelf wobbler, shelf chipboards, portable floor stand, light box.

11-7. Are you planning to participate in the program going forward?

a. Why do you say that?

11-8. Is there anything else you would like to tell me about the program or the lighting market?

NON-PARTNER MANUFACTURER INTERVIEW GUIDE

Interview Guide for NON-PARTNER Manufacturers, 2011-2012 NYSERDA Residential Lighting POS Program

Introduction

Interviewer: _____

Date of Interview: _____

Time Begun_____ Time Ended _____

Respondent Name: _____

Respondent Title: _____

Contact Information:

Phone Number(s): _____

Fax Number: _____

E-mail Address: _____

Interview was: _____ By phone

_____ In person

As I mentioned when we scheduled this interview, I am ____ from [NMR/Apex] calling on behalf of the New York State Energy Research and Development Authority. I am part of the team evaluating the Residential Lighting Point-of-Sale Program. The information you provide will be combined with observations from [program staff, implementers] and other research and will be reported in aggregate. We will make every effort to keep your responses confidential to the extent permitted by law. No comments will be attributed to any individual without their express permission.

Is this still a good time to talk? [If no, arrange for callback time.]

Before we get started with the interview, I would like to confirm the [ORGANIZATION/PERSON] to whom the charitable donation will be made:

Name of charity:

Charity's mailing Address:

Charity's phone number:

Donor's name:

Donor's email address

Donor's mailing address

Donor's phone number

I will be taking notes during this call. I would like to record the call in order to have a backup in case I need to clarify anything for my notes. May I have your permission to record this call for transcription if needed?

__ Yes

__ No

Section 1: Introductory Questions

1-1. Are you the person MOST familiar with your company's sales of light bulbs in NYS? [IF NOT MOST FAMILIAR, FIND THE PERSON WHO IS.]

1-2. Prior to my reaching out to schedule this interview, had you heard of the NYSERDA Products program?

1-3. [FORMER PARTNERS] I understand that [ORG NAME] participated in the NYSERDA Products program for lighting products in [MOST RECENT YEAR]?

i. [IF YES] Tell me about [ORG NAME]'s experience in the program. [PROBE: Why is [ORG NAME] no longer participating in the program?

b. Tell me about your understanding of the program.

c. Why hasn't [ORG NAME] chosen to participate in the program?

Section 2: 2011 & 2012 Product Sales [Non-PARTNERS Only]

[The objectives of the questions in section include: obtain 2011 and 2012 sales information from Non-partners to allow comparison against partner data. As Non-partners are very unlikely to provide sales data as counts, we plan to ask for the information as percentages of sales of all bulb types for NY. We ask about differences in sales in comparison areas in a qualitative fashion as we do with the Partner survey.]

2-1. To evaluate the lighting portion of its Products program, NYSERDA is looking for information about the percentage of total bulb sales represented by CFL, LED, incandescent and EISA-compliant halogen bulbs in the NYSERDA service area in 2011 and 2012. We are looking for lamps, not packages, with all wattages combined. For each of these areas, what percentage of [ORG NAME]'s 2011 and 2012 sales to retailers (not to distributors) of all screw-base bulb types was sales of non-specialty CFL bulbs, specialty CFL bulbs, LED bulbs, incandescent bulbs, and EISA-compliant halogen bulbs? [ASSURE CONFIDENTIALITY; IF THEY CAN'T PROVIDE NYSERDA, AREA DATA, THEN ASK FOR NYS DATA. IF THEY NEED A DEFINITION OF THE NYSERDA AREA, SAY "all of NYS except Nassau & Suffolk counties.")]

[DEFINITIONS OF EACH BULB TYPE: Non-specialty CFL is medium (Edison) screw base A-line bare spiral compact fluorescent lamps with integral electronic ballasts (lamps, not packages, all wattages combined). Specialty CFL is all other medium (Edison) screw-base CFL lamps (lamps, not packages, all wattages combined). LED is medium screw-base LED bulbs suitable for replacing general purpose incandescent bulbs (bulbs, not packages, all wattages combined).]

2011-2012 Sales as Percentage of Medium Screw base Bulb Sales	
Indicate if data are for ____NYSERDA AREA or ____NYS	
Non-specialty CFL bulbs (lamps, not packages, all wattages combined)	___%
Specialty CFL bulbs (lamps, not packages, all wattages combined)	___%
LED bulbs (lamps, not packages, all wattages combined)	___%
EISA compliant halogens (lamps, not packages, all wattages combined)	___%
Incandescents (lamps, not packages, all wattages combined)	___%
Total	100%

2-2. We are trying to understand how sales through retailers in the NYSERDA service area compared to sales through retailers in some other states during 2011 and 2012. In 2011 or 2012 did [MANUFACTURER NAME] sell non-specialty CFL bulbs through retailers in Arizona or Georgia?[IF YES] In 2011, was there any clear differences in sales of non-specialty CFL bulbs between the NYSERDA service area and . . . .

a. Arizona? [IF THEY CAN'T SPECIFY AZ, ASK: How about in Nevada or Florida?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    i. And in 2012?

b. Georgia? [IF THEY CAN'T SPECIFY GA, ASK: How about in Kansas or Nebraska?] [SPECIFICALLY PROBE FOR DIFFERENCES AND POSSIBLE REASONS FOR THOSE DIFFERENCES, SUCH AS POPULATION, NUMBER OF STORES, MANUFACTURER ACTIVITY IN THE REGION, ETC.]

    ii. And in 2012?

2-3. [IF STOCKING SPECIALTY CFL PRODUCTS] In 2012, how well did specialty CFLs sell compared to non-specialty CFLs? Were sales higher, lower, or about the same as you expected? Why?

2-4. [IF STOCKING LED BULBS] In 2012, how well did LED bulbs sell compared to specialty CFLs? Were sales higher, lower, or about the same as you expected? Why?

Section 3: Recent Trends & Policies

3-1. In 2007, the Energy Independence and Securities Act was passed that requires new efficiency standards for light bulbs. Are you familiar with this legislation? [IF NO, SKIP TO 3-5]

3-2. In your opinion, what has been the impact of this energy legislation on CFL and LED sales through 2012? [PROBE: Increase/decrease/no change? For what reasons? Any other impacts?]

3-3. What do you expect will be the short term effects of this act (2013-2014)?

3-4. What do you expect will be the long term effects of this act (beyond 2014)?

3-5. In 2013, what type bulb do you expect consumers will most commonly purchase to replace 75 watt incandescent bulbs? [IF DON'T KNOW, SKIP TO 3-9]

3-6. In 2014, what type bulb do you expect consumers will most commonly purchase to replace 60 watt incandescent bulbs?

3-7. What are your expectations for U.S. product sales of EISA compliant halogen replacements for 60 watt incandescent bulbs in 2013 and beyond?

a. Why do you say that?

b. To what extent has your organization been manufacturing and marketing these bulbs?

c. What factors have influenced or encouraged your company to sell halogen replacements for 60 watt incandescent bulbs?

3-8. What are your expectations for U.S. CFL product sales in 2013and beyond? [PROBE FOR PERCENT CHANGES FROM 2013 TO 2014]

a. Why do you say that?

3-9. [IF MANUFACTURE OR SELL LED BULBS] What factors have influenced or encouraged your company to manufacture LED bulbs?

3-10. [IF MENTIONED NYSERDA Program] How did the NYSERDA Products Program influence your decision to manufacture LED bulbs?

3-11. [IF DO NOT MANUFACTURE OR SELL LED BULBS] What factors have influenced your decision to *not* manufacture LED bulbs?

3-12. [FORMER PARTNERS] We understand that [ORG NAME] ceased its partnership with NYSERDA in [YEAR]. What were the factors that contributed to the decision to no longer be a program partner?

a. What could NYSERDA or Lockheed Martin do that could cause you to consider partnership again?

Section 4: The Market Impacts of the NYSERDA Program [ALL RESPONDENTS]

Program Effects on Other Lighting Products Sold in the NYSERDA Service Area in 2011-2012

4-1. What effects do you think program-discounted bulbs have on consumer expectations regarding prices of more efficient lighting products?

4-2. Is there anything else you would like to tell me about the program or the lighting market?

NON-PARTNER RETAILER INTERVIEW GUIDE

Interview Guide for NON-PARTNER Retail Buyers, 2011-2012 NYSERDA Residential Lighting POS Program

Introduction

Interviewer: _____

Date of Interview: _____

Time Begun_____ Time Ended _____

Respondent Name: _____

Respondent Title: _____

Contact Information:

Phone Number(s): _____

Fax Number: _____

E-mail Address: _____

Interview was: _____ By phone

_____ In person

As I mentioned when we scheduled this interview, I am ____ from [NMR/Apex] calling on behalf of the New York State Energy Research and Development Authority. I am part of the team evaluating the Residential Lighting Point-of-Sale Program. The information you provide will be combined with observations from [program staff, implementers] and other research and will be reported in aggregate. We will make every effort to keep your responses confidential to the extent permitted by law. No comments will be attributed to any individual without their express permission.

Is this still a good time to talk? [If no, arrange for callback time.]

Before we get started with the interview, I would like to confirm the [ORGANIZATION/PERSON] to whom the charitable donation will be made:

Name of charity:

Charity's mailing Address:

Charity's phone number:

Donor's name:

Donor's email address

Donor's mailing address

Donor's phone number

I will be taking notes during this call. I would like to record the call in order to have a backup in case I need to clarify anything for my notes. May I have your permission to record this call for transcription if needed?

__ Yes

__ No

Section 1: Introductory Questions

1-1. Are you the person MOST familiar with your company's sales of light bulbs in NYS? [IF NOT MOST FAMILIAR, FIND THE PERSON WHO IS.]

1-2. Prior to my reaching out to schedule this interview, had you heard of the NYSERDA Products program?

And were you aware that lighting is among the products addressed by the Program?

1-3. [FORMER PARTNERS] I understand that [ORG NAME] participated in the NYSERDA Products program for lighting products in [MOST RECENT YEAR]?

i. [IF YES] Tell me about [ORG NAME]'s experience in the program. [PROBE: Why is [ORG NAME] no longer participating in the program?

b. Tell me about your understanding of the program.

c. Why hasn't [ORG NAME] chosen to participate in the program?

Section 2: 2011 & 2012 Product Sales [Non-PARTNERS Only]

[The objectives of the questions in section include: obtain 2011 and 2012 sales information from Non-partners to allow comparison against partner data. As Non-partners are very unlikely to provide sales data as counts, we plan to ask for the information as percentages of sales of all bulb types for NY. We ask about differences in sales in comparison areas in a qualitative fashion as we do with the Partner survey.]

2-1. To evaluate the lighting portion of its Products program, NYSERDA is looking for information about the percentage of total bulb sales represented by CFL, LED, incandescent and EISA-compliant halogen bulbs in the NYSERDA service area in 2011 and 2012. We are looking for lamps, not packages, with all wattages combined. For each of these areas, what percentage of [ORG NAME]'s 2011 and 2012 sales of all screw-base bulb types was sales of non-specialty CFL bulbs, specialty CFL bulbs, LED bulbs, incandescent bulbs, and EISA-compliant halogen bulbs? [ASSURE CONFIDENTIALITY; IF THEY CAN'T PROVIDE NYSERDA, AREA DATA, THEN ASK FOR NYS DATA. IF THEY NEED A DEFINITION OF THE NYSERDA AREA, SAY "all of NYS except Nassau & Suffolk counties.")]

[DEFINITIONS OF EACH BULB TYPE: Non-specialty CFL is medium (Edison) screw base A-line bare spiral compact fluorescent lamps with integral electronic ballasts (lamps, not packages, all wattages combined). Specialty CFL is all other medium (Edison) screw-base CFL lamps (lamps, not packages, all wattages combined). LED is medium screw-base LED bulbs suitable for replacing general purpose incandescent bulbs (bulbs, not packages, all wattages combined).]

2011-2012 Sales as Percentage of Medium Screw base Bulb Sales	
Indicate if data are for ____NYSERDA AREA or ____NYS	
Non-specialty CFL bulbs (lamps, not packages, all wattages combined)	___%
Specialty CFL bulbs (lamps, not packages, all wattages combined)	___%
LED bulbs (lamps, not packages, all wattages combined)	___%
EISA compliant halogens (lamps, not packages, all wattages combined)	___%
Incandescents (lamps, not packages, all wattages combined)	___%
Total	100%

2-2. [IF STOCKING SPECIALTY CFL PRODUCTS] In 2012, how well did specialty CFLs sell compared to non-specialty CFLs? Were sales higher, lower, or about the same as you expected? Why?

2-3. [IF STOCKING LED BULBS] In 2012, how well did LED bulbs sell compared to specialty CFLs? Were sales higher, lower, or about the same as you expected? Why?

2-4. Do you believe that NYSERDA's residential lighting markdown or promotional activities affected sales of CFL or LED bulbs in your stores in the NYSERDA service area in 2011 or 2012?

a. [IF YES] Which bulb types were affected?

b. Were sales of these bulb types lower or higher than they would have been without NYSERDA's activities? [RECORD OPEN ENDED RESPONSE]

c. [IF YES] I'd like to try to quantify how much you think NYSERDA's activities affected [RETAILER NAME]'s sales of bulbs in the NYSERDA service area. [ASK FOR EACH AFFECTED BULB TYPE] You said that ____ bulbs represented [READ IN%] of bulb sales in 2011-12. What percentage [lower/higher] would sales have been higher if NYSERDA had not been running the Products Program? [RECORD % AND INCREASE OR DECREASE]

Section 3: Recent Trends & Policies

3-1. In 2007, the Energy Independence and Securities Act was passed that requires new efficiency standards for light bulbs. Are you familiar with this legislation? [IF NO, SKIP TO 3-5]

3-2. In your opinion, what has been the impact of this energy legislation on CFL and LED sales through 2012? [PROBE: Increase/decrease/no change? For what reasons? Any other impacts?]

3-3. What do you expect will be the short term effects of this act (2013-2014)?

3-4. What do you expect will be the long term effects of this act (beyond 2014)?

3-5. In 2013, what type bulb do you expect consumers will most commonly purchase to replace 75 watt incandescent bulbs? [IF DON'T KNOW, SKIP TO 3-9]

3-6. In 2014, what type bulb do you expect consumers will most commonly purchase to replace 60 watt incandescent bulbs?

3-7. What are your expectations for U.S. product sales of EISA compliant halogen replacements for 60 watt incandescent bulbs in 2013 and beyond?

a. Why do you say that?

b. To what extent has your organization been [manufacturing and] marketing these bulbs?

c. What factors have influenced or encouraged your company to sell halogen replacements for 60 watt incandescent bulbs?

3-8. What are your expectations for U.S. CFL product sales in 2013 and beyond? [PROBE FOR PERCENT CHANGES FROM 2013 TO 2014]

a. Why do you say that?

3-9. [IF SELL SPECIALTY CFL BULBS] What factors have influenced or encouraged your company to sell Specialty CFL bulbs?

a. [IF MENTIONED NYSERDA Program] How did the NYSERDA Products] Program influence your decision to sell Specialty CFL bulbs?

3-10. [IF DO NOT SELL SPECIALTY CFL BULBS] What factors have influenced your decision to *not* sell Specialty CFL bulbs?

3-11. [IF MANUFACTURE OR SELL LED BULBS] What factors have influenced or encouraged your company to sell LED bulbs?

3-12. [IF MENTIONED NYSERDA Program] How did the NYSERDA Products Program influence your decision to sell LED bulbs?

3-13. [IF DO NOT MANUFACTURE OR SELL LED BULBS] What factors have influenced your decision to *not* sell LED bulbs?

3-14. [FORMER PARTNERS] We understand that [ORG NAME] ceased its partnership with NYSERDA in [YEAR]. What were the factors that contributed to the decision to no longer be a program partner?

a. What could NYSERDA or Lockheed Martin do that could cause you to consider partnership again?

Section 4: The Market Impacts of the NYSERDA Program [ALL RESPONDENTS]

Program Effects on Other Lighting Products Sold in the NYSERDA Service Area in 2011-2012

4-1. What effects do you think program-discounted bulbs have on consumer expectations regarding prices of more efficient lighting products?

4-2. Is there anything else you would like to tell me about the program or the lighting market?

Appendix G

TELEPHONE DATA COLLECTION FORM – CONSUMER SURVEY

Study 5701 - The NYSERDA Residential Lighting POS Evaluation

Consumer Telephone Survey (NYSERDA Service Area)

December 7, 2012

Sampling Plan:

Nassau and Suffolk Counties are excluded from this study

Downstate = New York, Bronx, Kings, Queens, Richmond, and Westchester Counties

Upstate = the rest of New York State (excluding Nassau and Suffolk Counties)

Note: Upstate/downstate will initially come from sample, but will be confirmed at Question C3. Single-family and multi-family status will come from DEM1.

Area	# of Households	Total Sample	Landline	Cell
Upstate single-family	2,221,565	180	150	30
Upstate multi-family	847,848	180	150	30
Downstate single-family	893,670	275	230	45
Downstate multi- family	3,074,568	275	230	45
Total	7,037,651	910	760	150

First Survey Tack-up Page

[If necessary, offer the contact name from below as the person to contact with any questions about the study or scheduling a visit.]

Name	Company/Utility	Phone Num.
Kiersten von Trapp	NMR	(617) 284-6230 x18

[If necessary, offer the contact name from below as the person to contact with any questions about the validity of the research.]

Name	Company/Utility	Phone Num.
Victoria Engel-Fowles	NYSERDA	(866) 697-3732 ext 3207

[Questions about timing. **For most people the survey takes only about 15 minutes, but it may take as long as 20 minutes. If now is not a good time, we can set up a more convenient call back time.]**

[How was I selected? **Your number was randomly selected from telephone numbers in New York State.]**

[Who are you? **I am from SRBI, a research firm, calling on behalf of the New York State Energy Research and Development Authority, also known as NYSERDA.]**

[Why are you doing this study? **We are contacting residents throughout New York in order to learn more about how households use energy to help in planning for the future energy needs of state residents.**]

Questionnaire

Overall Interviewing Note: If you reach a respondent and at any time s/he says s/he was a victim of Hurricane Sandy and cannot or does not want to participate, tell them that you are very sorry to have bothered them and disposition the call accordingly.

C2. Just to confirm, are you 18 years of age or older?

1. Yes **[CONTINUE]**
2. No **[THANK AND TERMINATE]**
9. Refused **[THANK AND TERMINATE]**

C3. Can you please tell me in what county you live?

1. Nassau or Suffolk **[THANK AND TERMINATE]**
2. Downstate (Westchester, New York, Kings, Queens, Bronx, Richmond) [CONTINUE]
3. Upstate (All other except choices in 1 and 2) **[CONTINUE]**
4. Not in New York State **[THANK AND TERMINATE]**
8. Don't know [THANK AND TERMINATE]
9. Refused [THANK AND TERMINATE]

DEM1. What type of home do you live in? Is it . . .?

1. A one-family house detached from any other house?
2. A one-family house attached to one or more houses?
3. In a building with 2 or more apartments?
4. A mobile home?
5. Or something else? **[SPECIFY: _____]**
6. (VOL) Condominium
8. DON'T KNOW
9. REFUSED

(PROGRAMMER: IF DEM1=6, GO TO DEM1a. IF DEM1=1, 2, 3 or 4, CONTINUE TO DEM2. IF DEM1=5, 8 or 9, THANK AND TERMINATE)

DEM1a. What type of condominium is it? Is it a . . .(READ LIST)?

1 = A one-family condominium attached to one or more units, with a wall separating the units from basement to roof?

2 = An apartment condominium in a building with 2 or more apartments?

3 = Another type of condominium? [SPECIFY: _____]

8 = Don't Know

9 = Refused

(PROGRAMMER: IF DEM1a=1 or 2, CONTINUE TO DEM2. ELSE THANK AND TERMINATE.)

DEM2. [ASK IF DEM1= 3] How many floors are in your building or home? Include all floors, even if they are used for retail or other business purposes.

[RECORD NUMBER OF STORIES; Range = 1-100, 100=100 or more; 998 = REFUSED, 999 = DON'T KNOW]

DEM3. In the next six months do you have any plans to move?

1. Yes [**CONTINUE**]
2. No [**CONTINUE**]
8. DON'T KNOW [**CONTINUE**]
9. REFUSED [**CONTINUE**]

(Programmer: Create quota check for "Overall Area Quota." See the file "5701-Quota Tables.docx" for definition and targets.)

Awareness of & Familiarity with Energy-Saving Light Bulbs

I'd like to ask you a few questions about your awareness of different types of light bulbs.

S1. Before this call today, had you ever heard of **Compact Fluorescent Light bulbs or CFLs**?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

S2. Compact fluorescent light bulbs – also known as CFLs – usually do not look like regular incandescent bulbs. The most common type of compact fluorescent bulb is made with a glass tube bent into a spiral, resembling soft-serve ice cream, and it fits in a regular light bulb socket. [IF S1=YES: Is this the kind of light bulb you have heard about?] [IF S1 NOT YES: Thinking about it again, before today, had you heard of CFL bulbs?]

1. Yes
2. No [SKIP TO S4]
8. DON'T KNOW
9. REFUSED

[ASK S3 IF S2=1, OTHERWISE SKIP TO S4]

S3. Would you say that you are very familiar, somewhat familiar, not too familiar, or not at all familiar with CFL bulbs?

1. Very familiar
2. Somewhat familiar
3. Not too familiar
4. Not at all familiar
8. DON'T KNOW
9. REFUSED

S4. Before this call today, had you ever heard of **L-E-D or light-emitting diode bulbs**?

1. Yes
2. No
8. DON'T KNOW

9. REFUSED

S5. Recently stores have begun to sell L-E-D bulbs with regular screw bases that fit into most sockets. They are heavier than most other bulbs and have a white or yellow plastic cover over the light portion of the bulb. They are not battery-operated L-E-Ds, holiday lights, or decorative strands and do not need special attachments to work in regular sockets. Before today, had you heard of this kind of screw-in L-E-D bulb?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

[ASK S6 IF S5 = 1, OTHERWISE SKIP TO S7].

S6. Would you say that you are very familiar, somewhat familiar, not too familiar, or not at all familiar with screw-in L-E-D bulbs?

1. Very familiar
2. Somewhat familiar
3. Not too familiar
4. Not at all familiar
8. DON'T KNOW
9. REFUSED

S7. Before this call today, had you ever heard of a screw-in **HALOGEN bulb**?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

S8. **Screw-in Halogen** bulbs fit into most sockets; they do not need special attachments to work in regular sockets. They look very similar to standard incandescent bulbs – in terms of size, shape, and appearance. [**IF S7 NOT YES:** Thinking about it again, before today, had you heard of a screw-in **Halogen** bulb? **IF S7 YES:** Is this the kind of light bulb you have heard about?]

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

S9. **[IF S8=1 AND** S2**=1; OTHERWISE SKIP TO S10]** To your knowledge, which type of bulb uses less energy to produce light — [**RANDOMIZE ORDER AND READ**: "compact fluorescent light bulbs or screw-in halogen bulbs" "screw-in halogen bulbs or compact fluorescent light bulbs"] — or do both bulbs use about the same amount of energy? **[DO NOT READ. ACCEPT ONE RESPONSE.]**

1. Compact fluorescent light bulbs use less energy
2. Screw-in Halogen bulbs use less energy
3. Both bulbs use about the same amount of energy
8. DON'T KNOW
9. REFUSED

To shorten things up, for the rest of my questions I am going to refer to compact fluorescent light bulbs as "CFL" bulbs and light-emitting diode bulbs as "L-E-D" bulbs.

S10. **[ASK IF S2= 1 OTHERWISE SKIP TO EISA1.]** While most CFL bulbs are spiral shaped, CFL bulbs also come in other shapes and some have special features. I'm going to read you a list of different types of CFL bulbs. For each type, please tell me if you are very familiar, somewhat familiar, not too familiar, or not at all familiar with that type of CFL bulb. **[RANDOMIZE ORDER OF A THROUGH F]**

[READ IF NECESSARY WITH EACH ITEM] Are you very familiar, somewhat familiar, not too familiar, or not at all familiar with this type of CFL bulb?

A. Dimmable CFL bulbs. This refers to a CFL bulb that can be used with a dimmer switch to adjust the level of brightness

B. 3-way CFL bulbs. This refers to a CFL bulb that has the ability to shine at 3 different levels of brightness in a 3-way lamp

C. Flood or recessed lighting CFL bulbs—shaped like a regular incandescent floodlight

D. Candelabra CFL bulbs. This refers to a CFL bulb with a small base for use in a decorative fixture, such as a chandelier.

E. Globe CFL bulbs. This refers to a CFL bulb that has a round shape and might be used in a fixture such as a vanity light

F. A-shaped CFL bulbs. This refers to a covered CFL bulb that is made to look like a traditional incandescent or regular light bulb.

1. Very familiar
2. Somewhat familiar
3. Not too familiar
4. Not at all familiar
8. DON'T KNOW
9. REFUSED

EISA Awareness & Future Expectations

EISA1. A recent federal law, the Energy Independence and Security Act of 2007, restricts the sale of standard 100 Watt incandescent bulbs manufactured after January 1, 2012 and standard 75 Watt incandescent bulbs manufactured after January 1, 2013. Had you heard about this law before this call?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

Now I have a few questions about how you **usually** buy light bulbs.

EISA2. Have you looked for 100 Watt incandescent bulbs, or regular 100 Watt bulbs, at any retailers in the past three months, even if you did not buy any?

1. Yes **[CONTINUE]**
2. No **[SKIP TO EISA6]**

8. DON'T KNOW **[SKIP TO EISA6]**

9.REFUSED **[SKIP TO EISA6]**

EISA3. Have you purchased any 100 Watt incandescent bulbs in the past three months?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

EISA4. Now I'd like to ask you about the type of bulbs you might have bought instead of 100 Watt incandescents. Have you purchased any light bulbs instead of 100 Watt incandescents in the past three months?

1. Yes [CONTINUE]
2. No [SKIP TO EISA6]
8. DON'T KNOW [SKIP TO EISA6]
9. REFUSED [SKIP TO EISA6]

EISA5. **[IF EISA4=1]** What type of bulbs did you buy instead of 100 Watt incandescents?

[PROGRAMMER: RANDOMIZE LIST. INCLUDE CODE 2 IN LIST BELOW AND IN THE ACCEPTABLE RESPONSES ONLY IF S2=1; SIMILARLY, INCLUDE CODE 3 ONLY IF S5=1 AND CODE 4 ONLY IF S8=1]

[RANDOMIZE RESPONSES 1 THROUGH 4; MULTIPLE RESPONSE].

1. Incandescent bulbs of another wattage [ASK EISA5aIMMEDIATELY IF YES]

EISA5a. [Ask if EISA5=1]: What wattage bulbs did you buy instead of the 100 watt incandescent bulbs? [RECORD]

_____ [RANGE=15 to 300; 300=300 or more; 998 Don't know 999 Refused

2. Compact fluorescent bulbs or CFLs

3. screw-in LED bulbs

4. screw-in Halogen bulbs

5. Another kind of light bulb [SPECIFY]

8. DON'T KNOW

9. REFUSED

EISA6. We are interested to know the type of bulb you would be likely to use instead of a 75-watt incandescent bulb once this is no longer available for purchase. I'm going to name different types of bulbs that may be options and after I read the list, I'd like you to tell me which one you would be most likely to use instead of the 75-watt incandescent bulb.

[READ ENTIRE LIST BASED ON INSTRUCTIONS BELOW]. THEN IMMEDIATELY ASK: Which <u>one</u> of these bulbs would you be **<u>most</u>** likely to use instead of the 75-watt incandescent?

[PROGRAMMER: RANDOMIZE LIST. INCLUDE 2 IN LIST BELOW AND IN THE ACCEPTABLE RESPONSES ONLY IF S8**=1; SIMILARLY, INCLUDE 3 ONLY IF S2=1, AND INCLUDE 4 ONLY IF S5**=1**]**

BULB TYPES
1. A lower wattage incandescent bulb
2. A 53 Watt screw-in halogen bulb meant to replace a 75 watt bulb
3. An 18 Watt screw-in CFL bulb meant to replace a 75 watt incandescent bulb
4. A 16 to 18 Watt screw-in L-E-D bulb **[SAY THE LETTERS L-E-D]** meant to replace a 75 watt incandescent bulb
5. A higher wattage incandescent bulb
8. DON'T KNOW **[ONLY ALLOW FOR ENTIRE QUESTION]**
9. REFUSED **[ONLY ALLOW FOR ENTIRE QUESTION]**

[IF EISA6 = DK or REF, SKIP TO EISA8]

EISA7. You said you would be most likely to use **[IF EISA6=1 READ:** a lower wattage incandescent bulb]/[**IF EISA6=2 READ:** a 53 Watt screw-in halogen bulb][**IF EISA6=3 READ:** an 18 Watt screw-in CFL bulb**]/[IF EISA6=4 READ:** a 16 to 18 Watt screw-in L-E-D bulb**]/[IF EISA6=5 READ:** a higher wattage incandescent bulb)] instead of a 75-Watt incandescent bulb. Why that bulb?

1. **[RECORD VERBATIM]**

8. DON'T KNOW

9. (REFUSED)

EISA8. The federal law I mentioned earlier restricted the sale of 100 Watt incandescent bulbs in January 2012. Did you buy extra 100 Watt incandescent light bulbs before 2012 to save them for use after this law would go into effect?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

EISA9. How likely are you to buy extra 75 Watt incandescent light bulbs and save them for use once the next phase of the federal law has gone into effect? Would you say you are . . . **[READ LIST]. [RECORD ONE ANSWER]**:

1. Very likely
2. Somewhat likely
3. Somewhat unlikely, or
4. Very unlikely to buy and save 75 Watt incandescent light bulbs for use?
8. DON'T KNOW
9. REFUSED

Bulb Purchases, Use and Satisfaction

USE1. [**ASK IF S2=1**] Have you EVER used a CFL bulb on the inside or outside of your home?

1. Yes
2. No
8. DON"T KNOW
9. REFUSED

USE2. **[ASK IF** S5**=1]** Have you EVER used a screw-in L-E-D bulb on the inside or outside of your home?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

USE3. **[IF USE1=1]** Do you CURRENTLY have CFL bulbs installed on the inside or outside of your home?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

USE4. (**IF USE3= 1**) Approximately how many compact fluorescent bulbs are currently installed on the interior or exterior of your home?

1. Four or less
2. Five to nine
3. Ten or more
8. DON'T KNOW
9. REFUSED

USE5. **[IF USE2=1]** Do you CURRENTLY have any screw-in L-E-D bulbs installed on the inside or outside of your home?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

USE6. Have you purchased *any* light bulbs in the past three months?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

[IF USE6= 2, 8, 9 SKIP TO FAIL1]

USE7. [IF USE6=1] Where do you buy incandescent or regular light bulbs? [READ AND RANDOMIZE CODES 1 through 6). ACCEPT MULTIPLE]

1. Hardware store
2. Drug store
3. Home improvement store, such as Lowe's or Home Depot?
4. Grocery store
5. A store with multiple departments like Walmart or Target
6. Store that sells mostly lighting
7. Another type of store: ____
8. [DO NOT READ, RECORD IF OFFERED] Don't buy this type of bulb
98. DON'T KNOW
99. REFUSED

USE8. [IF S2=1] Have you purchased any CFL bulbs in the past three months?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

CFL Purchasing and Use

USE9. [**IF** USE8**=1**] Where do you buy CFL bulbs? [READ AND RANDOMIZE CODES 1 through 6). ACCEPT MULTIPLE RESPONSE]

1. Hardware store
2. Drug store
3. Home improvement store, such as Lowe's or Home Depot?
4. Grocery store
5. A store with multiple departments, store like Walmart or Target
6. Store that sells mostly lighting
7. Another type of store: ____
8. (do not read, record if offered) Don't buy this type of bulb

98. DON'T KNOW

99. REFUSED

USE10. [**IF USE8=1**]: CFLs can come in different shapes or offer different features. Please say yes or no for each special type of compact fluorescent bulb you purchased in the last 3 months. In the last 3 months, did you buy…[RANDOMIZE AND READ]

a. Dimmable CFLs? [If necessary: This refers to a CFL that can be used with a dimmer switch to adjust the level of brightness.]

b. 3-way CFLs? [If necessary: This refers to a CFL that has the ability to shine at 3 different levels of brightness in a 3-way lamp.]

c. Candelabra CFLs? [If necessary: This refers to a CFL with a small base for use in a decorative fixture, such as a chandelier.]

d. Globe CFLs? [If necessary: This refers to a CFL that has a round shape and might be used in a fixture, such as a vanity light.

e. Flood or recessed lighting CFLs?

f. A-shaped CFLs? [If necessary: This refers to a covered CFL that is made to look and feel like a traditional incandescent or regular light bulb.

1 Yes 2 No 8 Don't know 9 Refused

USE11. [IF YES TO USE10 A,B,C,D,E OR F]: At what type of store did you buy most or all of these special types of CFLs? [READ AND RANDOMIZE CODES 1 through 6. ACCEPT MULTIPLE RESPONSES.]

1. Hardware store
2. Drug store
3. Home improvement store, such as Lowe's or Home Depot?
4. Grocery store
5. A store with multiple- departments, like Walmart or Target
6. Store that sells mostly lighting
7. Another type of store? _____
8. (do not read, record if offered) Don't buy any bulbs

98. DON'T KNOW

99. REFUSED

USE12. **[IF USE8= 1]** What kind of bulbs did the CFL bulbs you purchased in the last three months replace? [READ, RANDOMIZE ORDER OF RESPONSES 1 & 2. ALWAYS ASK 3 & 4 LAST. MULTIPLE RECORD.]

1. Compact fluorescent light bulbs?
2. Incandescent light bulbs?
3. Another kind of light bulb? _____[**Record Verbatim**]
4. Or were bulbs installed in a new lamp or light fixture?

8. DON'T KNOW

9. REFUSED

USE13. [**IF USE1= 1 OR USE3=1** How satisfied are you with the CFL bulbs currently in your home or, if you have no CFL bulbs installed right now, the ones you have used in the past? Would you say you are….?

1. Very satisfied
2. Somewhat satisfied

3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
8. DON"T KNOW
9. REFUSED

USE14. **[IF USE13 = 4 OR 5]** Why are you not satisfied? [Do not read, allow multiple response. if respondent says brightness ask to clarify if too bright or not bright enough; if respondent says did not like ask what about the CFL bulb they didn't like]

1 BURNED OUT

2 BROKE/STOPPED WORKING

3 NOT BRIGHT ENOUGH

4 TOO BRIGHT

5 DELAY IN LIGHT COMING IN

6 LIGHT COLOR

7 FLICKERING

8 FIT IN FIXTURE

9 APPEARANCE

10 MERCURY/DISPOSAL HAZARD

11 UV RADIATION HAZARD

12 OTHER OR NON SPECIFIC HEALTH CONCERNS

13 SAVINGS LESS THAN EXPECTED

14 DON"T DIM/DON"T DIM WELL

15 OTHER [SPECIFY]

98. DON"T KNOW

99. REFUSED

USE15. [**IF USE1= 1 OR USE3=1]**On a scale of 0 to 10, with 0 being extremely unlikely and 10 being extremely likely, how likely are you to recommend CFL bulbs to a friend?

[RECORD NUMBER] 0 1 2 3 4 5 6 7 8 9 10 98 Don't know 99 Refused

LED Purchasing & Use

LED1. **[IF S5= 1]** Have you purchased any screw-in L-E-D bulbs in the past three months?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

[READ IF LED1 = 1] Now I have some questions about the screw-in L-E-D bulbs you purchased.

LED2. **[IF LED1 = 1**] At what type of store did you buy most or all of these screw-in L-E-D bulbs? [READ AND RANDOMIZE CODES 1 through 6. ACCEPT MULTIPLE]

1. Hardware store
2. Drug store
3. Home improvement store, such as Lowe's or Home Depot?
4. Grocery store
5. A store with multiple departments, like Walmart or Target
6. Store that sells mostly lighting
7. Another type of store? _____
8. (do not read, record if offered) Don't buy any bulbs
98. DON'T KNOW
99. REFUSED

LED3. **[IF LED1 = 1]** Did you install the L-E-D bulbs?

1. Yes
2. No
8. DON'T KNOW

9. REFUSED

LED4. **[IF LED3 = 1]** What kind of bulbs did the L-E-D bulbs you purchased replace? [READ, RANDOMIZE 1 & 2, THEN READ 3 & 4. MULTIPLE RECORD]

1. Compact fluorescent light bulbs?
2. Incandescent light bulbs?
3. Another kind of light bulb? _____[**Record Verbatim**]
4. Or were bulbs installed in a new lamp or light fixture?

8. DON"T NOW

9. REFUSED

LED5. **[IF USE2=1 OR USE5=1 OR LED3=1]** How satisfied are you with the screw-in L-E-D bulbs currently in your home or, if you have no LED bulbs installed right now, the ones you have used in the past? Would you say you are….?

1. Very satisfied
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied
8. DON'T KNOW
9. REFUSED

LED6. **[IF LED5 = 4 OR 5]** Why are you not satisfied? [Do not read, allow multiple response. if respondent says brightness ask to clarify if too bright or not bright enough; if respondent says did not like ask what about the L-E-D they didn't like]

1 BURNED OUT

2 BROKE/STOPPED WORKING

3 NOT BRIGHT ENOUGH

4 TOO BRIGHT

5 DELAY IN LIGHT COMING IN

6 LIGHT COLOR

7 FLICKERING

8 FIT IN FIXTURE

9 APPEARANCE

10 MERCURY/DISPOSAL HAZARD

11 OTHER OR NON SPECIFIC HEALTH CONCERNS

12 SAVINGS LESS THAN EXPECTED

13 OTHER [SPECIFY]

98. REFUSED

99. DON'T KNOW

LED7. **[IF USE2=1 OR USE5=1 OR LED3=1]** On a scale of 0 to 10, with 0 being extremely unlikely and 10 being extremely likely, how likely are you to recommend LED bulbs to a friend?

[RECORD NUMBER] 0 1 2 3 4 5 6 7 8 9 10 98 DK 99 REF

CFL & LED Failure

FAIL1. **[IF** USE1= **1 OR USE3=1]** Within the last 3 months, have you removed a CFL bulb that was <u>still functioning</u>?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

FAIL2. **[IF FAIL1= 1]** Why did you remove it? **[Record Verbatim]**

FAIL3. **[IF USE2=1 OR USE5=1 OR LED3=1]** Within the last 3 months, have you removed a screw-in L-E-D bulb that was <u>still functioning</u>?

1. Yes

2. No
8. DON'T KNOW
9. REFUSED

FAIL4. **[IF FAIL3= 1]** Why did you remove it? **[Record Verbatim]**

Leakage

LEAK1. **[IF USE8= 1 OR LED1=1]** Earlier you mentioned that you had purchased one or more CFL or screw-in L-E-D bulbs in the last three months. Did you buy any of these bulbs for any purpose other than installing them in a home in New York State, such as for installing them in a commercial establishment or in an out-of-state vacation home?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

LEAK2. **[IF LEAK1= 1]**What did you do with the bulbs that you did not intend to install in a home in New York State? **[Record Verbatim]]**

Labeling & Program Marketing

BUY1. Have you ever seen or heard of the ENERGY STAR label?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

BUY2. **[IF BUY1=1 AND USE8=1]** Did you see the ENERGY STAR label on the packaging of any of the CFL bulbs you purchased?

1. Yes
2. No

8. DON'T KNOW
9. REFUSED

BUY3. **[IF BUY1=1 AND LED1=1]** Did you see the ENERGY STAR label on the packaging of any of the screw-in L-E-D bulbs you purchased?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

BUY4. **[IF BUY1=1 AND USE8=1]** How consistently do you look for the ENERGY STAR label when you shop for compact fluorescent bulbs? Would you say you . . .

1. Never look for it
2. Sometimes look for it
3. Often look for it
4. Always look for it
8. DON'T KNOW
9. REFUSED

BUY5. **[IF BUY1=1 AND USE8=1]** Now I want you to think about promotions or advertising you've seen for bulbs and light fixtures. Have you seen or heard any promotions for light bulbs or light fixtures related to ENERGY STAR?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

BUY6. **[IF USE6= 1]** When you were shopping for light bulbs, did you see any information in the bulb display area that helped you choose a bulb?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

[ASK **BUY7 THROUGH BUY10 ONLY IF BUY1=1]** Now I am going to read you a series of statements. Please tell me whether you strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, or strongly agree with each of these statements. **[RANDOMIZE ORDER OF BUY7 THROUGH BUY10]**

BUY7. I can always be sure that light from bulbs with the Energy Star label will be bright enough.

BUY8. I can always be sure that the light from bulbs with the Energy Star label will be the right color. [PROBE IF NECESSARY: Light color refers to how objects appear in the bulb's light.]

BUY9. Bulbs with the Energy Star label don't last any longer than bulbs without the label.

BUY10. I don't trust that Energy Star-labeled bulbs save the energy they are supposed to.

[ANSWER CATEGORIES FOR BUY7 THROUGH BUY10]: Read the answer choices below.

1. Strongly disagree
2. Somewhat disagree
3. Neither agree nor disagree
4. Somewhat agree
5. Strongly agree
8. DON'T KNOW
9. REFUSED

BUY11. Have you ever seen or heard of the Lighting Facts label?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

BUY12. The Lighting Facts label looks a lot like the Nutrition Facts label you find on food packages. It started appearing recently on packages of light bulbs. (**[IF BUY11=1]** Is this the label you have seen or heard of before?) (**[IF BUY11=2, 96, 97]** Thinking about it again, before today, had you seen or heard of the Lighting Facts label?)

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

BUY13. **[IF USE6=1 AND BUY12=1]** Did you see the Lighting Facts label on the packaging of any of the light bulbs you purchased?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

BUY14. [IF BUY13=1] How helpful was the Lighting Facts Label to choosing a bulb? Was it…

1. Not at all helpful
2. Slightly helpful
3. Somewhat helpful
4. Very helpful
8. DON'T KNOW
9. REFUSED

Key Lighting Knowledge

P1. Have you seen or heard of the word "lumens" used in relation to lighting?

1. Yes
2. No **[SKIP TO EE1]**

8. DON'T KNOW **[SKIP TO EE1]**

9. REFUSED **[SKIP TO EE1]**

P2. **[IF P1=1]** What does the word "lumens" mean to you? [**DO NOT READ. FILL IN CLOSEST ANSWER CATEGORY OR RECORD VERBATIM. MULTIPLE ANSWERS ALLOWED. IF RESPONDENT SAYS 'LIGHT QUALITY', PROBE FOR EXACTLY WHAT 'QUALITY' THEY MEAN]**

1. Light Output or Brightness
2. Light Color
3. Light [General]
4. Same as Watts
5. OTHER[SPECIFY]_____
8. DON'T KNOW
9. REFUSED

P3. **[IF P1=1]** To the best of your knowledge, how many lumens does a regular 60-watt incandescent bulb produce? **[RECORD VERBATIM]**

1. Gave response
8. Don't know
9. Refused

Importance of Energy Efficiency

EE1. How important is energy efficiency to you in your selection of light bulbs for your home? Is it…?

1 = Not at all important,

2 = Somewhat important,

3 = Neither important nor unimportant

4 = Somewhat important, or

5 = Very important?

8 = (VOL) Don't Know

9 = (VOL) Refused

Customer Demographics & Onsite Study Recruiting

("Now I have a few more questions to ask you.")

(Programmer: IF DEM3=1 or 9, SKIP TO DEM4. ELSE CONTINUE TO R1.)

R1. NYSERDA is offering you the opportunity to take part in an important study. We are offering eligible households $150 to allow a trained technician to visit their homes to gather more information about the lighting products they use. The visit should take about an hour. The visit would involve a trained technician walking through your home and recording the types of lighting products that you are using. The technician will also attach some very small devices to several light sockets in your home to record lighting usage. Most lamp or fixture shades will block the devices from view, so they won't affect your decor. They also won't affect how your lights work. When the technician returns to remove these devices in six months, you'll receive $100, for a total of $250 to participate in the study. During the visits, there will be no attempt to sell you anything. The information gathered will be used to evaluate and improve the energy efficiency programs offered by your electric utility.

Would you be interested in being a part of this type of visit?

1. Yes **[GO TO R3 BELOW FAQ]**
2. No **[GO TO DEM4]**
8. Don't know **[GO TO R2]**
9. REFUSED **[GO TO R2]**

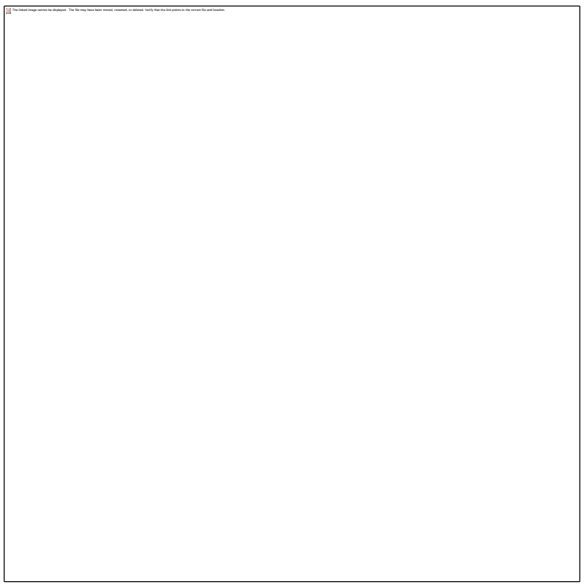
(Programmer: Create quota check for "Onsite Recruit Quota." See the file "5701-Quota Tables.docx" for definition and targets.)

SECOND TACK-UP

Answers to frequently asked questions:

- **What is this device and how do I know what it does?** The device is called a "lighting logger." It is about the size of a business card but is ½ inch thick. The type of lighting logger we use can tell when you turn the light it is attached to on and off, but it does not collect any other information. If you want to know what the loggers look like, they can be found easily through a web search of the term "lighting logger." We will mainly be using the "HOBO" and "DENT" brands.

[THE PICTURE BELOW MAY BE ABLE TO HELP THE INTERVIEWER DESCRIBE THE LOGGER AND ITS SIZE TO THE RESPONDENT]



- **What's in it for me and how long will this take?**
    - We are offering $150 for your time when we install the loggers and $100 when we pick up the logger six months later. This is a total of $250.
    - The visit should take around one hour, depending on the size of your house
- **What does the visit involve?** Technicians will walk around your home and count the various types of lighting products you have installed. They will also install some lighting loggers to record how often you use certain lights. The loggers are very small and will not interfere in any way with the normal use of your lights.
- **When will the visits take place? /Can I schedule a visit now?** We will be calling to schedule the visits within the next XXXXXX weeks.

- **When do you remove the loggers?** The loggers need to remain in place for six months. At the end of six months we will return to remove the loggers. We will schedule the visits at a time that is convenient for you.
- **Who we are?** I am calling for the NMR Group, Inc., a consulting firm. We have been hired by the New York State Energy Research and Development Authority (NYSERDA) to perform this study.
- **Purpose of Study?**
    - Establish customer awareness of lighting options and changes in the lighting market
    - Understand how people use the light bulbs in their home, as this has a large impact on how much energy households use.
    - The results of the study will be used in planning for future energy needs in New York
- **How do I know you are legit?** NYSERDA is sponsoring this program and study. The contact person is Victoria Engel-Fowles. [ONLY IF ASKED] If you have questions, you can reach her at (866) 697-3732 ext 3207. If you prefer email, vse@nyserda.org.

[If necessary, offer the contact name from below as the person to contact with any questions <u>about the study or scheduling a visit</u>.]

Name	Company/Utility	Phone Num.
Kiersten von Trapp	NMR	(617) 284-6230 x18

[If necessary, offer the contact name from below as the person to contact with any questions <u>about the validity of the research</u>.]

Name	Company/Utility	Phone Num.
Victoria Engel-Fowles	NYSERDA	(866) 697-3732 ext 3207

R2. **[IF R1= 8 or 9]** That's OK, you do not have to decide now. Would it be OK if I take your name and have someone call you when we are scheduling these visits?

1. Yes **[CONTINUE TO R3]**
2. No **[GO TO DEM4]**
8. Don't know **[GO TO DEM4]**
9. Refused **[GO TO DEM4]**

R3. **[IF R1=1 OR R2=1 READ]**. I just need to get some contact information from you so we can call and schedule the visit. What is your name? **[RECORD]**_____

R4. **[IF R1=1 OR R2=1 READ]** And is this the best number to call you about a visit? To confirm, the number I dialed was ***(insert PHONE)***?

1 = Yes, that is the best number to call

2 = No, there is a better number to use / The number you have is not correct

9 = Refused

(Programmer: IF R4=1, GO TO R4a. IF R4=2, GO TO R4b. ELSE GO TO R5.)

R4b. What is the best number to call you about a visit?

[ENTER 10 DIGIT NUMBER, IE: 1-800-555-1212 = 8005551212]

_____RECORD #

R4a. Is there a second number that we can also try to call you at?

[ENTER 10 DIGIT NUMBER, IE: 1-800-555-1212 = 8005551212]

1 = Gave Response

2 = No / No other phone #

9 = Refused

EMAIL. IF RESPONDENT VOLUNTEERS THAT THEY PREFER TO BE CONTACTED BY EMAIL COLLECT EMAIL ADDRESS. OTHERWISE, DO NOT COLLECT EMAIL ADDRESS.

[INTERVIEWER…Did the respondent volunteer to give their email address?]

1 = Yes (RECORD EMAIL)

2 = No

R5. [**IF R1=1 OR R2=1 READ**] What is the best time of day to reach you? Morning, afternoon, or evening?

1. Morning
2. Afternoon
3. Evening
4. (VOL) Anytime

8. DON'T KNOW
9. REFUSED

R6. **[IF R1=1 OR R2=1 READ**] In what city do you live, and what is your zip code?

CITY: _____

ZIP CODE: _____

(IF R1=1 or R2=1, read: "When we call to schedule, your caller ID will most likely say "NMR" or will have a 617 area code."***)*** Now, I just have a few more questions about some characteristics of your household. These questions will help us make sure we visit a wide variety of homes in the state.

DEM4. **[ASK DEM4 IF** 0 **= 1, 2. OTHERWISE, SKIP TO DEM5.]**When was your home built? Please stop me when I get to the appropriate category.

1. 1930s or earlier
2. 1940s
3. 1950s
4. 1960s

5. 1970s
6. 1980s
7. 1990s
8. 2000 or later

98. DON'T KNOW

99. REFUSED

DEM5. Do you or members of your household own this home or do you rent?

1. Own/Buying
2. Rent/Lease
3. Occupied without Payment or Rent
4. OTHER (SPECIFY): _____

8. DON'T KNOW
9. REFUSED

DEM5a. Do you or members of your household pay the electric bills for this home?

1. Yes
2. No

8. DON'T KNOW
9. REFUSED

DEM6. Approximately how large is your home in square feet? [DO NOT READ LIST UNLESS NECESSARY]

1. Less than 1,400 square feet
2. 1,400 – less than 2000 square feet
3. 2,000 – less than 2500 square feet
4. 2,500 – less than 3500 square feet
5. 3,500 – less than 4000 square feet

6. 4,000 – less than 5000 square feet
7. 5,000 square feet or more
8. DON'T KNOW
9. REFUSED

DEM7. How many rooms are in your home, not counting bathrooms?

[HELP RESPONDENTS COUNT ROOMS IF NEEDED, KEEPING TRACK ON A PIECE OF PAPER OF THE # OF ROOMS AS THEY NAME THEM]

__ RECORD RESPONSE RANGE = 1 to 20, 20 = 20 or more

98. DON'T KNOW

99. REFUSED

DEM8. What is the highest level of education completed so far by the head of the household [IF MORE THAN ONE HEAD OF HOUSEHOLD, ASK FOR THE EDUCATION LEVEL OF THE HOUSEHOLD HEAD WITH THE HIGHEST DEGREE.]

[READ CATEGORIES, IF NECESSARY.]

1. Less than Ninth grade
2. Ninth to Twelfth Grade, No Diploma
3. High School Graduate (includes GED)
4. Some College, No Degree
5. Associates Degree
6. Bachelors Degree
7. Graduate or Professional Degree
8. DON'T KNOW
9. REFUSED

DEM9. Counting yourself, how many people live in your home for most of the year? [**DO NOT READ RESPONSES**]

1. 1

2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8 or more
98. DON"T KNOW
99. REFUSED

DEM9a. **(ASK IF LANDLINE SAMPLE)** Now thinking about your telephone use… Do you have a working cell phone?

[IF QUESTIONS WHY THIS IS BEING ASKED, RESPOND: "This is essentially a demographic question. We use it to help determine how many households we'll miss if we call only landline phones or call only cell phones. We want to make sure everyone has an equal chance of being included in the study."

1 Yes, have cell phone
2 No, do not
9 (VOL) Don't know/Refused

DEM9b. (**ASK IF DEM9A = 2 or 9 and DEM9 >1):** Does anyone in your household have a working cell phone?

[IF QUESTIONS WHY THIS IS BEING ASKED, RESPOND: "This is essentially a demographic question. We use it to help determine how many households we'll miss if we call only landline phones or call only cell phones. We want to make sure everyone has an equal chance of being included in the study."

1 Yes, someone in household has cell phone
2 No

9 (VOL) Don't know/Refused

DEM9c. **(ASK IF CELL PHONE SAMPLE)** Now thinking about your telephone use… Is there at least one telephone INSIDE your home that is currently working and is not a cell phone?

[IF QUESTIONS WHY THIS IS BEING ASKED, RESPOND: "This is essentially a demographic question. We use it to help determine how many households we'll miss if we call only landline phones or call only cell phones. We want to make sure everyone has an equal chance of being included in the study."

1 Yes home telephone

2 No, home telephone

9 (VOL) Don't know/Refused

DEM10. [IF DEM9=1] Which of these categories best describes your total household income in 2012 before taxes—counting everyone living in your house?

1. Less than $25,700, OR **[GO TO DEM26]**
2. $25,700 or more **[GO TO DEM26]**
8. DON'T KNOW **[GO TO INTRO BEFORE I1]**
9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM11. [IF DEM9=2] Which of these categories best describes your total household income in 2012 before taxes—counting everyone living in your house?

1. Less than $34,000, OR **[GO TO DEM26]**
2. $34,000 or more **[GO TO DEM26]**
8. DON'T KNOW **[GO TO INTRO BEFORE I1]**
9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM12. [IF DEM9=3] Which of these categories best describes your total household income in 2012 before taxes—counting everyone living in your house?

1. Less than $41,500, OR **[GO TO DEM26]**

2. $41,500 or more **[GO TO DEM26]**

8. DON'T KNOW **[GO TO INTRO BEFORE I1]**

9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM13. [IF DEM9=4] Which of these categories best describes your total household income in 2012 before taxes—counting everyone living in your house?

1 Less than $49,400, OR **[GO TO DEM26]**

2. $49,400 or more **[GO TO DEM26]**

8. DON'T KNOW **[GO TO INTRO BEFORE I1]**

9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM14. [IF DEM9=5] Which of these categories best describes your total household income in 2012 before taxes—counting everyone living in your house?

1 Less than $57,300, OR **[GO TO DEM26]**

2. $57,300 or more **[GO TO DEM26]**

8. DON'T KNOW **[GO TO INTRO BEFORE I1]**

9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM15. [IF DEM9=6] Which of these categories best describes your total household income in 2012 before taxes— counting everyone living in your house?

1. Less than $65,200, OR **[GO TO DEM26]**

2. $65,200 or more **[GO TO DEM26]**

8. DON'T KNOW **[GO TO INTRO BEFORE I1]**

9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM16. [IF DEM9=7] Which of these categories best describes your total household income in 2012 before taxes— counting everyone living in your house?

1. Less than $67,600, OR **[GO TO DEM26]**

2. $67,600 or more **[GO TO DEM26]**

8. DON'T KNOW **[GO TO INTRO BEFORE I1]**

9. REFUSED **[GO TO INTRO BEFORE I1]**

DEM17. [IF DEM9=8] Which of these categories best describes your total household income in 2012 before taxes— counting everyone living in your house?

1. Less than $68,100, OR **[GO TO DEM26]**
2. $68,100 or more **[GO TO DEM26]**
8. DON'T KNOW **[GO TO INTRO BEFORE I1]**
9. REFUSED **[GO TO INTRO BEFORE I1]**

[IF DON'T KNOW/REFUSE TO ANY OF DEM10 TO 0, OR IF (DEM9=DON'T KNOW/REFUSED), SAY "NOW I'M GOING TO ASK SOME QUESTIONS ABOUT BENEFITS YOU OR SOMEONE IN YOUR HOUSEHOLD MIGHT RECEIVE." RANDOMIZE I1-DEM25. AS SOON AS ANYONE SAYS "YES" TO ANY OF I1 TO DEM25, SKIP TO DEM26.]

I1. Does anyone in your household receive cash assistance from the Office of Temporary and Disability Assistance, or OTDA?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM18. Does anyone in the household receive Food stamps from the Office of Temporary and Disability Assistance, or OTDA?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM19. Does anyone in the household receive Medicaid from the Office of Temporary and Disability Assistance, or OTDA?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM20. Does anyone in the household receive Medicare Part D subsidy?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM21. Does anyone in the household receive energy bill assistance, or help paying energy bills?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM22. Does anyone in the household receive Weatherization Assistance from a Community Action Agency?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM23. Does anyone in the household receive child care assistance from the Office of Temporary and Disability Assistance, or OTDA?

1. Yes
2. No

8. DON'T KNOW
9. REFUSED

DEM24. Does anyone in the household receive food assistance from WIC [PRONOUNCED "WICK"], or Women, Infants and Children?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM25. Does anyone in the household receive free or reduced-cost meals in a school breakfast or lunch program?

1. Yes
2. No
8. DON'T KNOW
9. REFUSED

DEM26. **[INTERVIEWER: DO NOT READ.]**

Sex:

1. Female
2. Male

Thank you very much. ***(IF R1=1 or R2=1, read: "***As I said, we will be scheduling these visits in the next few weeks and will call you then.***")***

CFL REFERENCE (source: http://www.energystar.gov/index.cfm?c=cfls.pr_cfls_shapes**):**

Bulb Image	**Type of Bulb**

	Spirals
	A-shaped bulbs: Made to look and feel like traditional incandescents.
	Globe: This refers to a CFL that has a round shape and might be used in a fixture, such as a vanity light.
	Tubed
	Candelabra: Small bulbs for use in decorative fixtures where you can see the light bulb. Often used in chandeliers
	Posts, Capsules, Barrels: Covered post bulbs for outdoor fixtures; there are also yellow "bug light" covered posts, designed to keep away insects.
	Indoor Reflectors: Provide directional light; recessed ceiling lights or ceiling fans.

Appendix H

CONSUMER SUVEY DISPOSITION REPORT

	Total		
		Working%	*Dialed%*
TOTAL NUMBERS DIALED	**17325**		**100.0%**
BAD NUMBERS (out of frame)	**2552**	**100.0%**	**14.7%**
BUSINESS/GOVERNMENT NUMBER/NON-RESIDENT	279		1.6%
Cell Phone	2		0.0%
Fax/Modem Number/Computer Tone	37		0.2%
Incomplete Call/Line Problems (Temporary)	112		0.6%
Not In Service / Disconnected	1810		10.4%
Possible Unassigned Number/No Answer All Attempts	312		1.8%
TOTAL GOOD NUMBERS (total sample frame)	**14773**	**100.0%**	**85.3%**
NO CONTACT	4917	33.3%	28.4%
Live Non-Contacts	**4917**	**33.3%**	**28.4%**
Busy	442	3.0%	2.6%
Fax/Modem/Computer tone (live)	184	1.2%	1.1%
No answer	3798	25.7%	21.9%
Live Non Contacts - OVER MAX (max set to 5)	493	3.3%	2.8%
TOTAL CONTACTS	**9856**	**66.7%**	**56.9%**
CONTACTS - NOT SCREENED	8645	58.5%	49.9%
Dead - Not Screened	**232**	**1.6%**	**1.3%**
Away for duration	11	0.1%	0.1%
Foreign Language - NON-SPANISH	168	1.1%	1.0%
Health Problems - LONG TERM	39	0.3%	0.2%
Hearing Problems	14	0.1%	0.1%
Live - Not Screened	**4837**	**32.7%**	**27.9%**
Answering Machine/Voice Mail	4365	29.5%	25.2%
CallBack - CALL BLOCKING	7	0.0%	0.0%
Live Not Screened - OVER MAX (max set to 5)	465	3.1%	2.7%

Callback - Not Screened	**3000**	**20.3%**	**17.3%**
Callback - APPOINTMENTS	267	1.8%	1.5%
Callback - UNSPECIFIED	912	6.2%	5.3%
Hung-up -	438	3.0%	2.5%
Health Problems - SHORT TERM	29	0.2%	0.2%
Foreign Language - SPANISH	435	2.9%	2.5%
Dialer - nuisance hang-up	1	0.0%	0.0%
Callback - CALL BLOCKING (over max)	0	0.0%	0.0%
Hung-up CB - OVER MAX	123	0.8%	0.7%
Callbacks Not Screened - OVER MAX (max set to 5)	795	5.4%	4.6%
Refusals - Not Screened	**576**	**3.9%**	**3.3%**
Refusal - CALL BLOCKING	1	0.0%	0.0%
Refusal - SOFT	310	2.1%	1.8%
Second Soft Refusal	0	0.0%	0.0%
Refusal - HARD (Do Not Callback)	219	1.5%	1.3%
Hung-up REF - OVER MAX	7	0.0%	0.0%
Refusals Not Screened- OVER MAX (max set to 5)	39	0.3%	0.2%
CONTACTS - SCREENED	1211	8.2%	7.0%
Screen-Outs	**876**	**5.9%**	**5.1%**
SCREEN-OUT	0	0.0%	0.0%
S/O @ Q3 -- NOT a High-Rise Bldg	55	0.4%	0.3%
S/O @ Q1 -- NOT 18+	13	0.1%	0.1%
S/O @ Q2 -- NYC is NOT Permanent Address	53	0.4%	0.3%
S/O @ Q4 -- DK/REF to Answer Q4	22	0.1%	0.1%
S/O @ Q5 -- Plan to Move in Next 6 Months	77	0.5%	0.4%
S/O @ R1 -- Declined On-Site (R1=No)	637	4.3%	3.7%
S/O @ R2 -- Declined Callback About On-Site (R2<>Yes)	19	0.1%	0.1%
Quota-Outs	**106**	**0.7%**	**0.6%**
Q/O (OVER QUOTA TERMINATE)	0	0.0%	0.0%
Q/O (OVER QUOTA TERMINATE) 2	106	0.7%	0.6%
Qualified Refusals	**25**	**0.2%**	**0.1%**
Mid-Interview Term	0	0.0%	0.0%
Qualified Soft Refusal - 1	6	0.0%	0.0%
Qualified Hard Refusal - 1	16	0.1%	0.1%
Qualified Refusals - OVER MAX (max set to 5)	3	0.0%	0.0%
Qualified Callbacks	**46**	**0.3%**	**0.3%**
Abandoned Interview	0	0.0%	0.0%

Qualified Callback - 1	31	0.2%	0.2%
Qualified Spanish Callback - 1	3	0.0%	0.0%
Qualified Callbacks - OVER MAX (max set to 5)	12	0.1%	0.1%
Total Completes	**158**	**1.1%**	**0.9%**
Proceed with interview/Completed Interview	158	1.1%	0.9%

Survey Incidence (Screening Incidence)	27.7%
List Incidence (Dialing Incidence)	1.9%
Cooperation Rate 1	65.5%
Cooperation Rate 2	63.8%
Totals Refusals	4.1%
Response Rate 1	7.7%
Response Rate 2	11.8%

Appendix I

ONSITE DATA COLLECTION FORM – LED SURVEY

Light Emitting Diode (LED) Bulb Survey

We found screw-in Light Emitting Diode bulbs, or LED bulbs, installed in fixtures in the circled rooms:

Dining Room	Living Room	Bathroom	Other: _____
Exterior	Bedroom	Kitchen	

Screw-in LED bulbs are a new technology. The New York State Energy Research and Development Authority (NYSERDA) is considering including screw-in LED bulbs in future energy efficiency programs, and is very interested in learning about your experiences using these bulbs. The information you share in this survey will be important to the energy efficiency programs NYSERDA offers to New York residents going forward. The survey should take less than 10 minutes to complete.

Instructions: If possible, the person in the home who most recently bought LED bulbs should fill out this survey. Please complete the survey while the technician is installing loggers on your lights, and return it to the technician before he or she leaves your home.

Below are some examples of what the screw-in LED bulbs in your home may look like:

A. Please think only about the screw-in LED bulbs that you bought most recently. Where did you buy these bulb(s)? (Circle all that apply)

1.	**Home improvement store, such as Lowe's or Home Depot**	
2.	**Hardware store**	
3.	**Store that sells mostly lighting**	
4.	**Store with multiple departments, like Walmart or Target**	
5.	**Wholesale membership store, like Sam's Club or Costco**	
6.	**Grocery store**	
7.	**Drug store**	
8.	**I bought them through a fundraiser, such as for a school or other organization**	
9.	**On-line store *(please write in store name)*:** →	_____
10.	**Another type of store *(please describe)*:** →	_____
11.	**I did not buy them (the bulbs were free or a gift)** →	From whom did you obtain the free or gift bulb? **(Circle ONE)** 1. From a friend, relative, or business associate 2. From some other source (please describe): _____ 99. Don't know

B. Below are statements describing some people's experiences with screw-in LED bulb(s). For each statement, please circle the number in the column that best describes how strongly you disagree or agree with the statement based on your experience with screw-in LED bulbs.

	Strongly disagree	*Somewhat agree*	*Neither agree nor disagree*	*Somewhat agree*	*Strongly agree*	*Don't Know or Not Applicable*
I use screw-in LED bulbs to save electricity.	1	2	3	4	5	DK/NA
I use screw-in LED bulbs to save money or to reduce my electric bill.	1	2	3	4	5	DK/NA
I use screw-in LED bulbs because I want bulbs that last a very long time.	1	2	3	4	5	DK/NA
I use screw-in LED bulbs because I like trying new technology.	1	2	3	4	5	DK/NA
I use screw-in LED bulbs because I like the quality of the light from these bulbs.	1	2	3	4	5	DK/NA
I use screw-in LED bulbs because I like how the bulbs look.	1	2	3	4	5	DK/NA
I use screw-in LED bulbs mostly with a dimmer.	1	2	3	4	5	DK/NA
It was important to my buying decision that screw-in LED bulbs don't have mercury.	1	2	3	4	5	DK/NA

C. Are there any other reasons that you use screw-in LED bulbs? If so, please describe:

_____

_____

D. Why did you choose to install screw-in LED bulbs where you did—that is, in the specific fixture(s) in the room(s) listed above—instead of in some other room or fixture?

_____

_____

_____

If no CFLs, please skip to Question F on page 3.

We found Compact Fluorescent Light bulbs, or CFL bulbs, installed in fixtures in the circled rooms:

Dining Room	Living Room	Bathroom	Other: _____
Exterior	Bedroom	Kitchen	

Below are some examples of what the CFL bulbs in your home may look like:

E. We would like to understand how screw-in LED bulbs compare to CFL bulbs in your experience. For each of the lighting qualities listed below, please tell us if the LED bulb(s) you use are worse than, about the same as, or better than the CFL bulbs you use? (Circle ONE answer per row)

	Worse than CFLs	*About the same as CFLs*	*Better than CFLs*	*Don't Know or Not Applicable*
Brightness	1	2	3	DK/NA
Color of the light itself	1	2	3	DK/NA
Color rendition (color the light gives to people and objects in the room)	1	2	3	DK/NA
Dimmability	1	2	3	DK/NA
Long life	1	2	3	DK/NA
Look of bulb	1	2	3	DK/NA
How hot the bulb is to the touch when lit	1	2	3	DK/NA
Electricity use	1	2	3	DK/NA
Value for the money	1	2	3	DK/NA
Ease of disposal	1	2	3	DK/NA
Length of time to come up to full brightness	1	2	3	DK/NA
Price	1	2	3	DK/NA
Other:_____ _____	1	2	3	DK/NA

F. Thinking now just about screw-in LED bulbs, how satisfied are you with the screw-in L-E-Ds that you currently use in your home? Would you say you are…

1. Very satisfied
2. Somewhat satisfied
3. Neither satisfied nor dissatisfied
4. Somewhat dissatisfied
5. Very dissatisfied

99. Don't know

G. In your experience, what do you like about screw-in L-E-Ds?

1. Some things I like about screw-in LED bulbs are:

_____

_____

_____

2. There's nothing I like about screw-in LED bulbs.

99. Don't know

H. In your experience, what do you NOT like about screw-in L-E-Ds?

1. Some things I don't like about screw-in LED bulbs are:

_____

_____

2. I like everything about screw-in LED bulbs.

99. Don't know

I. How satisfied are you with the dimming performance of screw-in LED bulb(s) in your home that are in a dimmable fixture or controlled by a dimming light switch?

1. Very or Somewhat Satisfied
2. Neither Satisfied nor Dissatisfied
3. Somewhat or very dissatisfied → → Please describe why you are dissatisfied with the dimming performance of your screw-in LED bulb(s):
   _____
   _____
   _____
4. None of the LED bulbs in my home are in dimmable fixtures or controlled by dimming light switches

99. Don't know

J. Has installing screw-in LED bulbs caused you to change how you use the lights in any of the rooms where you have these bulbs?

1. Yes → → → Please explain: _____
   _____
   _____
2. No

99. Don't know

K. On a scale of 0 to 10, with 0 being extremely unlikely and 10 being extremely likely, how likely are you to recommend LED bulbs to a friend?

Extremely Unlikely *Extremely Likely*

0 1 2 3 4 5 6 7 8 9 10

Thank you for sharing your experiences to help in designing New York's future energy efficiency programs. Please return the completed survey to the technician.

If the technician does not take the completed survey, please return it to:
NMR Group, Inc., 50-2 Howard Street, Somerville, MA 02144

NMR ID #_____