APPENDICES

APPENDIX A: NEW YORK END-USER SCREENER SURVEY

NYSERDA C&I Existing Facilities Sector
Non-Participant Spillover Study: End-User Screener Survey
SCREENER SURVEY
May 25, 2012

Hello. My name is _____FIRST AND LAST NAME_____ and I'm calling from [INSERT PHONE CENTER NAME] on behalf of the New York State Energy Research and Development Authority. We are conducting a study about energy efficiency upgrades in commercial and industrial buildings.

Can I speak with **[NAME ON SAMPLE LIST]**?
[IF NAMED RESPONDENT ON PHONE, CONTINUE WITH TEXT BELOW]

[IF TRANSFERRED TO NAMED RESPONDENT, REPEAT INTRO, THEN CONTINUE WITH TEXT BELOW]
[IF NAMED RESPONDENT IS NOT AVAILABLE, ASK:] Is there someone available who could answer questions about any energy-related upgrades that were done at this facility between 2007 and 2010? **[IF TRANSFERRED, REPEAT INTRO, THEN CONTINUE WITH TEXT BELOW]**

I would like to ask you about energy-related equipment in your facility. This should only take about 5 minutes. Your answers will be used for research purposes only and will help inform energy efficiency decision making in New York State.

S1a. DELETED
S1b. Have I reached you today at: **[ADDRESS][CITY]**?
1. YES **[GO TO S1F]**
2. NO **[GO TO S1C]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

S1c. Where is your facility located? Please tell me the street address, city and zip code.
STREET ADDRESS: _____
CITY: _____
ZIP: _____
96. REFUSED **[THANK AND TERMINATE]**

S1d. DELETED
S1e. DELETED

S1f. Can you please tell me if your organization . . . ? [READ CHOICES]
1. Owns the building or buildings that you occupy at this address **[GO TO S1h]**
2. Is a tenant that leases space at this address **[GO TO S1j]**
96. REFUSED **[GO TO S1g]**
97. DON'T KNOW **[GO TO S1g]**

S1g. Is there someone at your company who could tell me this?
1. **[RECORD NAME, TITLE, AND PHONE]** – Thank you very much for your help. Have a good day. **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**

97. DON'T KNOW **[THANK AND TERMINATE]**

ASK S1H IF OWNER OF BUILDING (S1f = 1)

S1h. Are you the appropriate person in your organization to discuss energy-related upgrades to this facility?
1. YES, RESPONDENT ON PHONE IS APPROPRIATE PERSON **[GO TO S2]**
2. NO, OTHER PERSON AT LOCATION IS APPROPRIATE RESPONDENT
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

S1i. Please tell me his/her name and phone number.
1. **[RECORD NAME, TITLE, AND PHONE]** – Thank you very much for your help. Have a good day. **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

ASK S1J IF TENANT (S1f = 2)

S1j. Does your organization lease the whole building or facility, or do you lease only part of the building or facility?
1. WE LEASE THE WHOLE BUILDING/FACILITY **[GO TO S1l]**
2. WE LEASE PART OF THE BUILDING/FACILITY **[GO TO S1l]**
96. REFUSED
97. DON'T KNOW

S1k. Is there someone at your organization who could tell me this?
1. **[RECORD NAME, TITLE, AND PHONE]** – Thank you very much for your help. Have a good day. **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

S1l. Does your organization make decisions about energy-related upgrades to THIS BUILDING OR FACILITY/YOUR PART OF THIS BUILDING OR FACILITY, or does the facility owner or property manager make these decisions?
1. OUR ORGANIZATION MAKES DECISIONS
2. THE BUILDING OWNER/MANAGER MAKES DECISIONS **[GO TO INSTRUCTIONS BEFORE S1o]**
96. REFUSED
97. DON'T KNOW

S1m. Who in your organization would be the appropriate person to discuss energy-related upgrades to THIS BUILDING OR FACILITY/YOUR PART OF THIS BUILDING OR FACILITY?
1. RESPONDENT ON PHONE IS APPROPRIATE PERSON **[CONTINUE TO S2]**
2. OTHER PERSON IN ORGANIZATION IS APPROPRIATE RESPONDENT
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

S1n. Please tell me his/her name and phone number.
1. **[RECORD NAME, TITLE, AND PHONE]** – Thank you very much for your help. Have a good day. **[THANK AND TERMINATE]**

96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

ASK S1o IF RESPONDENT IS TENANT AND THE BUILDING OWNER/MANAGER MAKES DECISIONS: [IF S1l=2]; ELSE SKIP TO S2]

S1o. Can you tell me the name and contact information for the company that manages this building or facility and makes these decisions about energy-related upgrades?

1. **[RECORD NAME, TITLE, AND PHONE, THEN READ TEXT BELOW]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

AFTER RECORDING CONTACT INFORMATION, READ:
Thank you for the building manager contact information. I would like to continue with a few questions on energy-related upgrades to your facility that you may be aware of.

GO TO S2.

S2. We are interested in any changes that may have been made to your facility between 2007 and 2010 that could impact its energy usage**.** I'm going to read a short list of building areas where you may have made energy-related changes. After I read each one, please tell me if you have made a change in this area at this facility in New York State, excluding Long Island, between 2007 and 2010.

Did you make a change to **[INSERT ITEM]**…**RECORD YES OR NO FOR EACH ITEM.**

a. The building shell or envelope, such as adding insulation or replacing windows or adding a cool roof
b. The HVAC systems, such as replacing the air conditioning or heating systems
c. The facility's lighting
d. Motors and drives at the facility
e. Building controls, such as energy management systems
f. Hot water heating systems
g. Industrial processes
h. Combined heat and power (CHP) system

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[IF NONE OF S2 = 1 , GO TO S9A]

ASK S3A IF LIGHTING INSTALLED PER S2 - [IF S2C=1]; ELSE GO TO S6
FOR LIGHTING QUESTIONS, REFER TO LIGHTING EQUIPMENT DESCRIPTIONS DOCUMENT

S3a. What type or types of lighting equipment did you install?
[READ IF NECESSARY; RECORD ALL THAT APPLY]

1. Fluorescent
2. High pressure sodium
3. Metal halide
4. LEDs
5. Halogen
6. Incandescent
7. Any others **(**SPECIFY_____**)**
96. REFUSED
97. DON'T KNOW

ASK S3aa IF FLUORESCENT LIGHTING INSTALLED [S3a, ITEM 1 = YES]

S3aa. What type of fluorescent lighting did you install? Was it . . . ? **[READ LIST] [RECORD ALL THAT APPLY]**

1. T5
2. T8
3. T12
4. CFLs
5. Induction
6. Any others **(**SPECIFY_____**)**
96. REFUSED
97. DON'T KNOW

ASK S3BB IF S3aa = 1 (T5)

S3bb. What type of T5 fluorescent lighting did you install? Was it . . . ? **[READ LIST] [RECORD ALL THAT APPLY]**

1. Standard T5
2. T5 High Output
3. Any others **(**SPECIFY_____**)**
96. REFUSED
97. DON'T KNOW

ASK S3CC IF S3aa = 2 (T8)

S3cc. What type of T8 fluorescent lighting did you install? Was it . . . ? **[READ LIST] [RECORD ALL THAT APPLY]**

1. Standard T8
2. High performance or "Super" T8s
3. Any others **(**SPECIFY_____**)**
96. REFUSED
97. DON'T KNOW

ASK S3DD IF S3A = METAL HALIDE (S3A = 3)

S3dd What type of metal halide lighting did you install? Was it . . . ? **[READ LIST] [RESPONSE CAN BE BOTH PULSE START METAL HALIDE AND CERAMIC METAL HALIDE]**

1. Probe start metal halide
2. Pulse start metal halide
3. Ceramic metal halide
96. REFUSED
97. DON'T KNOW

ASK S3b IF, IN S3a, S3aa, S3bb, S3cc, AND S3dd, THERE IS IN TOTAL MORE THAN ONE TYPE OF LIGHTING MENTIONED

S3b. Which of these lighting technologies accounted for the largest portion of the space served by the lighting project? **[SHOW/ASK ONLY TECHNOLOGIES REPORTED AS INSTALLED IN S3A, S3AA, S3BB, S3CC, AND S3DD]**
[READ IF NECESSARY; SELECT ONE]

1. Standard T5
2. T5 High Output
3. Standard T8
4. High performance or "Super" T8s (includes high bay T8)
5. T12
6. CFLs
7. Induction
8. High pressure sodium
9. Probe start metal halide
10. Pulse start metal halide
11. Ceramic metal halide
12. LEDs
13. Halogen
14. Incandescent
15. Any others **(**SPECIFY**_____)**
16. Fluorescent **[SHOWN ONLY IF (S3aa=96 OR 97) OR (S3bb=96 OR 97) OR (S3cc=96 OR 97)]**
96. REFUSED
97. DON'T KNOW

S4. For the purposes of this interview we use the term "high bay" to describe spaces with ceiling heights of about 15 feet or more. Are there any high bay spaces in your facility, that is, indoor spaces with ceiling heights that are fifteen feet or above?

1. YES
2. NO **[GO TO S6]**
96. REFUSED **[GO TO S6]**
97. DON'T KNOW **[GO TO S6]**

S5. Did your organization install lighting fixtures in these high bay spaces between 2007 and 2010?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[SKIP TO S9A IF RESPONDENT IS A TENANT AND THE OWNER OF BUILDING MAKES DECISIONS ON ENERGY-RELATED UPGRADES (IF S1L=2)]

S6. We are interested in the number of unique energy-related renovation or retrofit projects that your company completed between 2007 and 2010. By unique project we mean energy-related changes made to a single facility at approximately the same time. A unique project can include changes to single or multiple equipment types, such as lighting upgrades and cooling equipment upgrades. Now, thinking about all of the energy-related changes that you mentioned doing between 2007 and 2010, would you say they all were a part of a single project or were they multiple projects? **IF NECESSARY, READ ITEMS MENTIONED AT S2.**

1 Single project **[GO TO S8A]**
2 Multiple projects
96. REFUSED **[GO TO S8A]**
97. DON'T KNOW **[GO TO S8A]**

[ASK S7 IF S6 = MULTIPLE (IF S6 =2); OTHERWISE, SKIP TO S8a]

S7. And, how many unique energy-related projects did your company complete in total at this facility between 2007 and 2010?

1. **[RECORD NUMBER] _____**
96. REFUSED
97. DON'T KNOW

S8a. Approximately how much did THIS PROJECT/ALL OF THE ENERGY-RELATED CHANGES cost to complete? **[READ CATEGORIES IF NECESSARY]**

1 Less than $5,000
2 $5,000 to less than $10,000
3 $10,000 to less than $25,000
4 $25,000 to less than $50,000
5 $50,000 to less than $100,000
6 $100,000 to less than $250,000
7 $250,000 to less than $500,000
8 $500,000 or more
96. REFUSED
97. DON'T KNOW

[ASK S8B IF MULTIPLE PROJECTS DONE PER S6 (IF S6=2); OTHERWISE, SKIP TO S9A]

S8b. What was the approximate cost of a "typical" project?
[READ CATEGORIES IF NECESSARY]

1 Less than $5,000
2 $5,000 to less than $10,000
3 $10,000 to less than $25,000
4 $25,000 to less than $50,000
5 $50,000 to less than $100,000
6 $100,000 to less than $250,000
7 $250,000 to less than $500,000
8 $500,000 or more
96. REFUSED
97. DON'T KNOW

[ASK S9A – S13A OF ALL RESPONDENTS]

S9a. To the best of your knowledge, has your organization participated in any NYSERDA or **New York Energy $mart**[SM] programs since 2007? Please include participation at any facility, not just the one we have been discussing. **[READ IF NECESSARY:]** NYSERDA stands for the New York State Energy Research and Development Authority.

1. Yes, participated in NYSERDA programs
2. No, did not participate in any NYSERDA programs **[GO TO S10]**
96. REFUSED **[GO TO S10]**
97. DON'T KNOW **[GO TO S10]**

S9b. Which NYSERDA Programs has your organization participated in?
[DO NOT READ] [RECORD ALL THAT APPLY.]

1. FLEX TECH/FLEXIBLE TECHNICAL ASSISTANCE
2. NEW CONSTRUCTION PROGRAM
3. EXISTING FACILITIES PROGRAM
4. BUSINESS PARTNERS
5. OTHER **(**SPECIFY_____**)**
96. REFUSED
97. DON'T KNOW

S10. To the best of your knowledge, has your organization participated in any energy efficiency programs operated by your electric or gas utility since 2007?

1. YES, PARTICIPATED IN UTILITY ENERGY EFFICIENCY PROGRAMS
2. NO, DID NOT PARTICIPATE IN ANY UTILITY ENERGY EFFICIENCY PROGRAMS
96. REFUSED
97. DON'T KNOW

READ: I have just a few more questions for you. My final questions pertain to your company's operations at this facility.

S11. What is the primary use of this facility?
[READ RESPONSES IF NECESSARY]

1. Office
2. Education
3. Food sales (Grocery)
4. Food Service
5. Health Care
6. Lodging
7. Retail
8. Services
9. Public Assembly
10. Warehouse & storage
11. Manufacturing – Assembly
12. Manufacturing – Process
13. Other Commercial
14. Other Industrial
15. Other – Specify: _____
16. Government

95. None of the above
96. REFUSED
97. DON'T KNOW

S12. How many square feet of space does your organization occupy in this facility? **[IF RESPONDENT SAYS 'DON'T KNOW', READ]** Please, do your best to estimate.

1. **[RECORD SQUARE FEET] _____**
96. REFUSED
97. DON'T KNOW

S13a. How many employees work at your company? **[IF NEEDED]** Your best estimate is fine.
1. **[RECORD NUMBER] _____[GO TO S13c]**
96. REFUSED
97. DON'T KNOW

S13b. Are there more than four employees?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

S13c. Please tell me your job title at your organization.
1. **[RECORD TITLE] _____**
96. REFUSED
97. DON'T KNOW

[IF NO BUILDING CHANGES INDICATED IN S2 (IF NONE OF S2 = 1), THANK AND TERMINATE]
[IF RESPONDENT IS A TENANT AND THE BUILDING OWNER MAKES DECISIONS ON UPGRADES (IF S1L=2), THANK AND TERMINATE]
[ASK S14A-S14C ONLY IF RESPONDENT INDICATES ANY CHANGES IN S2 (AT LEAST ONE OF S2=1)]

S14a. If we wanted to call back and talk with someone about the energy-related equipment changes we discussed, are you the best person to speak with?
1. YES **[THANK AND TERMINATE]**
2. NO
96. REFUSED/DO NOT CALL BACK **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

S14b. Is there someone else who would have more information about the energy-related equipment changes?

1. YES
2. NO **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

S14c. Can you give me their name and telephone number if it is different than this number?

1. **[RECORD NAME, TITLE, AND PHONE]**
96. REFUSED
97. DON'T KNOW

Thank you for participating in this survey.

APPENDIX B: NEW YORK END-USER SURVEY

NYSERDA C&I Existing Facilities
Non-Participant Spillover Study & Part. & Non-Part HBL End User Survey
May 3, 2011 – Final With New Codes

SAMPLE VARIABLES:
ADDRESS – FACILITY ADDRESS
CITY – FACILITY CITY
MULTIPROJ – NUMBER OF PROJECTS COMPLETED BETWEEN 2007 AND 2010

RESPONDENT
RESPONDENT [INDICATES GROUP IF DETERMINED BY SCREENER SURVEY OR UNDERTERMINED IF ADDITIONAL QUESTIONS NEED TO BE ASKED BEFORE ASSIGNING TO RESPONDENT GROUP]

A	**=**	**GROUP A (Participants who installed HB lighting)**
B1	**=**	**GROUP B1 (Non-Parts who only installed non-HB lighting)**
C1	**=**	**GROUP C1 (Non-Parts who installed only non-lighting measures)**
D1	**=**	**GROUP D1 (Non-Parts who only installed HB lighting)**
U1	**=**	**GROUP UNDETERMINED (Non-parts who installed non-HB lighting and other measures)**
U2	**=**	**GROUP UNDETERMINED HIGH BAY (Non-parts who installed HB lighting and other measures)**

NOTE: WILL ASSIGN U1 AND U2 TO RESPONDENT=B2, C2, C3, D2, AND D3 BASED ON RESPONSES

SAMPLE MEASURE FLAGS
SHELL (READ-IN "WEATHERIZATION") – A FLAG FOR RESPONDENTS WHO PERFORMED BUILDING SHELL UPGRADE FROM 2007 TO 2010 (FROM SCREENER SURVEY)
HVAC (READ-IN "HVAC") – FLAG FOR RESPONDENTS WHO PERFORMED AN HVAC UPGRADE FROM 2007 TO 2010 (FROM SCREENER SURVEY)
LIGHT (READ-IN "LIGHTING") – FLAG FOR RESPONDENTS WHO PERFORMED A LIGHTING UPGRADE FROM 2007 TO 2010 (FROM SCREENER SURVEY)
MOTOR (READ-IN "MOTORS AND DRIVES") – FLAG FOR RESPONDENTS WHO PERFORMED A MOTOR/DRIVES UPGRADE FROM 2007 TO 2010 (FROM SCREENER SURVEY)
CONTROLS (READ-IN "ENERGY MANAGEMENT SYSTEMS") – FLAG FOR RESPONDENTS WHO INSTALLED BUILDING CONTROLS FROM 2007 TO 2010 (FROM SCREENER SURVEY)
HWATER (READ-IN "HOT WATER HEATING") – FLAG FOR RESPONDENTS WHO PERFORMED A HOT WATER HEATING SYSTEM UPGRADE FROM 2007 TO 2010 (FROM SCREENER SURVEY)
IP (READ-IN "INDUSTRIAL PROCESSES") – FLAG FOR RESPONDENTS WHO MADE CHANGES TO INDUSTRIAL PROCESSES FROM 2007 TO 2010 (FROM SCREENER SURVEY)
CHP (READ-IN "COMBINED HEAT AND POWER") – FLAG FOR RESPONDENTS WHO MADE CHANGES TO COMBINED HEAT AND POWER FROM 2007 TO 2010 (FROM SCREENER SURVEY)

INTRODUCTION

Hello. This is_____calling on behalf of the New York State Energy Research and Development Authority, also known as NYSERDA. **[IF CONTACT NAME AVAILABLE: May I speak with [FirstName] [LastName]?]**

[READ IF RESPONDENT=A OR D1]
We spoke with you or someone from your company recently and learned that your company installed **high bay lighting** equipment between 2007 and 2010. We want to ask you some additional questions about this work. I want to assure you this is not a sales call and that the information you provide will be kept strictly confidential. This survey should only take about **[TIME]** minutes of your time.

[GO TO INT0]

[READ IF RESPONDENT=B1]
We spoke with you or someone from your company recently and learned that your company installed **lighting** equipment between 2007 and 2010. We want to ask you some additional questions about this work. I want to assure you this is not a sales call and that the information you provide will be kept strictly confidential. This survey should only take about **[TIME]** minutes of your time.

[GO TO INT0]

[READ IF RESPONDENT=C1 or U1 OR U2]
We spoke with you or someone from your company recently and learned that your company installed **[MEASURES]** equipment between 2007 and 2010. We want to ask you some additional questions about this work. I want to assure you this is not a sales call and that the information you provide will be kept strictly confidential. This survey should only take about **[TIME]** minutes of your time.

[GO TO INT0]

SECTION INT

INT0. Are you the person at your facility who is most familiar with these recent installations?
1. YES **[GO TO INSTRUCTIONS BEFORE INT2a]**
2. NO
96. REFUSED

INT1. May I please speak to the person at your facility who is most familiar with these recent installations?
1. YES **[RECORD NAME OF APPROPRIATE CONTACT AND REPEAT INTRODUCTION AND INT0 FOR NEW CONTACT]**
2. CORRECT RESPONDENT NOT AVAILABLE **[ASK WHEN TO CALLBACK]**
96. REFUSED **[THANK AND TERMINATE]**

[IF RESPONDENT=A, D1, or U2, READ: "For this interview, when I refer to high bay lighting, I mean lighting for spaces with ceiling heights of about 15 feet or more."]

[IF (RESPONDENT=A OR D1) AND MULTIPROJ=0, GO TO INSTRUCTIONS BEFORE FIRM1]
[ASK INT2A IF (RESPONDENT=A OR D1) AND MULTIPROJ ≠0]
INT2A. Did you conduct more than one high bay lighting retrofit project between 2007 and 2010?
1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE FIRM1]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE FIRM1]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE FIRM1]**

[READ IF INT2A=1]

For the purpose of this interview, I would like you to focus on a single high bay lighting retrofit project and the facility where you did this work. By single project we mean energy related equipment and building changes planned and done in a single facility at approximately the same time. Please focus on a high bay lighting project that is typical of the type of changes you made between 2007 and 2010.

[IF RESPONDENT=B1 AND MULTIPROJ =0 GO TO SURVEY VARIABLE INSTRUCTIONS]
[ASK INT2B IF RESPONDENT=B1 AND MULTIPROJ ≠0]

INT2B. Did you conduct more than one lighting retrofit project between 2007 and 2010?

1. YES
2. NO **[GO TO SURVEY VARIABLE INSTRUCTIONS]**
96. REFUSED **[GO TO SURVEY VARIABLE INSTRUCTIONS]**
97. DON'T KNOW **[GO TO SURVEY VARIABLE INSTRUCTIONS]**

[READ IF INT2B=1]
For the purpose of this interview, I would like you to focus on a single lighting retrofit project and the facility where you did this work. By single project we mean energy related equipment and building changes planned and done in a single facility at approximately the same time. Please focus on a lighting project that is typical of the type of changes you made between 2007 and 2010.

[IF RESPONDENT=C1 AND MULTIPROJ =0 GO TO INSTRUCTIONS BEFORE FIRM1]
[ASK INT2C IF RESPONDENT=C1 AND MULTIPROJ ≠0]

INT2C. Did you conduct more than one retrofit or remodel project between 2007 and 2010?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE FIRM1]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE FIRM1]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE FIRM1]**

[READ IF INT2C=1]
For the purpose of this interview, I would like you to focus on a single retrofit or remodel project and the facility where you did this work. By single project we mean energy related equipment and building changes planned and done in a single facility at approximately the same time. A unique project can include changes to single or multiple equipment types, such as lighting and cooling equipment upgrades. Please focus on a project that is typical of the type of changes you made between 2007 and 2010.

[IF RESPONDENT=U1 AND MULTIPROJ =0 GO TO INSTRUCTIONS BEFORE FIRM1]
[ASK INT2U1 IF RESPONDENT=U1 AND MULTIPROJ ≠0]

INT2U1. Did you conduct more than one retrofit or remodel project between 2007 and 2010?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE FIRM1]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE FIRM1]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE FIRM1]**

[READ IF INT2U1=1]
For the purpose of this interview, I would like you to focus on a single retrofit or remodel project and the facility where you did this work. By single project we mean energy related equipment and building changes planned and done in a single facility at approximately the same time. A unique project can include changes to single or multiple equipment types, such as lighting and cooling equipment upgrades. Please focus on a project that is typical of the type of changes you made between 2007 and 2010.

[IF RESPONDENT=U2 AND MULTIPROJ =0 GO TO INSTRUCTIONS BEFORE FIRM1]
[ASK INT2U2 IF RESPONDENT=U2 AND MULTIPROJ ≠0]

INT2U2. Did you conduct more than one high bay lighting retrofit project between 2007 and 2010?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE FIRM1]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE FIRM1]**

97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE FIRM1]**

[READ IF INT2U2=1]
For the purpose of this interview, I would like you to focus on a single high bay lighting retrofit project and the facility where you did this work. By single project we mean energy related equipment and building changes planned and done in a single facility at approximately the same time. Please focus on a high bay lighting project that is typical of the type of changes you made between 2007 and 2010.

SECTION FIRM: FIRMOGRAPHICS AND END-USER CHARACTERISTICS

[IF MULTIPROJ=0, READ: "I'd like you to focus just on the project you did between 2007 and 2010 that included [MEASURES]"

[ASK FIRM1 IF RESPONDENT=A OR C1 OR U1 OR U2]
FIRM1/PROJAREA. Now that you have this retrofit project in mind, what **[IF RESPONDENT=A OR U2 READ:** other**]** building area or areas were impacted by this single project? Did the project impact [INSERT ITEM]?

a. The building shell or envelope (such as adding insulation or replacing windows)
b. The HVAC systems (such as replacing the air conditioning or heating systems)
c. **[SKIP IF RESPONDENT=A OR C1] [IF RESPONDENT=U1, READ:** "The facility's lighting"; **IF RESPONDENT=U2, READ:** "The facility's non-high bay lighting"]
d. Motors and drives at the facility
e. Building controls such as energy management systems
f. Hot water heating systems
g. Industrial processes
h. Combined heat and power (CHP)

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

SURVEY VARIABLE INSTRUCTIONS – FOR PROGRAMMER

MEASURE PROJECT FLAGS*: CREATE FROM FIRM1A-FIRM1H IF ASKED; OTHERWISE COMPUTE FROM SAMPLE MEASURE FLAGS. READ-IN TEXT WILL BE USED TO MEAKE MEASURE1 AND MEASURE2.*
IF FIRM1A=1, SHELL_PROJ=1 (READ-IN "WEATHERIZATION")
IF FIRM1B=1, HVAC_PROJ =1 (READ-IN "HVAC")
IF FIRM1C=1 OR RESPONDENT=A, LIGHT_PROJ =1 (READ-IN "LIGHTING")
IF FIRM1D=1, MOTOR_PROJ =1 (READ-IN "MOTORS AND DRIVES")
IF FIRM1E=1, CONTROLS_PROJ =1 (READ-IN "ENERGY MANAGEMENT SYSTEMS")
IF FIRM1F=1, HWATER_PROJ =1 (READ-IN "HOT WATER HEATING")
IF FIRM1G=1, IP_PROJ =1 (READ-IN "INDUSTRIAL PROCESSES")
IF FIRM1H=1, CHP_PROJ=1 (READ-IN "COMBINED HEAT AND POWER")

RESPONDENT GROUP ASSIGNMENTS

U1 GROUP ASSIGNMENTS (REASSIGN ALL U1 CASES TO NEW GROUPS):
[IF RESPONDENT= U1 AND TWO OR LESS MEASURE PROJECT FLAGS=1: IF LIGHT_PROJ=1,

MAKE RESPONDENT=B2; IF LIGHT_PROJ ≠ 1, MAKE RESPONDENT=C3]
[IF RESPONDENT=U1 AND MORE THAN TWO MEASURE PROJECT FLAGS=1, RANDOMLY SELECT TWO. AFTER RANDOM SELECTION, IF LIGHT_PROJ WAS SELECTED, MAKE RESPONDENT=B2. IF LIGHT_PROJ NOT SELECTED, MAKE RESPONDENT=C2]

U2 GROUP ASSIGNMENTS (REASSIGN ALL U2 CASES TO NEW GROUPS):
[IF RESPONDENT =U2 AND ONLY MEASURE PROJECT FLAG=1 IS LIGHT_PROJ OR NO MEASURE PROJECT FLAGS SELECTED, MAKE RESPONDENT=D2]
[IF RESPONDENT =U2 AND ANY NON-LIGHTING MEASURE PROJECT FLAG IS EQUAL TO 1, RANDOMLY ASSIGN 50% OF RESPONDENTS TO=D3. FOR REMAINING 50%, IF TWO OR LESS MEASURE PROJECT FLAGS AND LIGHT_PROJ=1, MAKE RESPONDENT=B2; IF TWO OR LESS MEASURE PROJECT FLAGS AND LIGHT_PROJ IS NOT SELECTED, MAKE RESPONDENT=C3. IF MORE THAN TWO MEASURE PROJECT FLAGS=1, RANDOMLY SELECT TWO. AFTER RANDOM SELECTION, IF LIGHT_PROJ WAS SELECTED, MAKE RESPONDENT=B2. IF LIGHT_PROJ NOT SELECTED, MAKE RESPONDENT=C2]

MEASURE SELECTION STEPS: *ALL CASES WITH HAVE 2 OR LESS MEASURES SELECTED*
[IF RESPONDENT =C1 AND MORE THAN TWO MEASURE PROJECT FLAGS=1, RANDOMLY SELECT TWO]
[IF RESPONDENT =A, B1 OR D1, D2 OR D3, MAKE MEASURE1=LIGHTING, MEASURE2=BLANK]
[IF RESPONDENT = C2 OR C3, MEASURE1=SURVEY MEASURE1 AND MEASURE2=SURVEY MEASURE2]
[IF RESPONDENT = B2, MEASURE1=LIGHTING AND MEASURE2=SURVEY MEASURE2]
[IF RESPONDENT = D1, READ: "For the purpose of this interview, I would like you to focus on the high bay lighting retrofit project that you did between 2007 and 2010."]

[IF RESPONDENT = B2, READ: "For the purpose of this interview, when I ask you about lighting, I would like you to think of all lighting work done for this project that you did between 2007 and 2010."]

FIRM2. What was the approximate cost of this retrofit project? **[READ]**

9	Less than $5,000
10	$5,000 to less than $10,000
11	$10,000 to less than $25,000
12	$25,000 to less than $50,000
13	$50,000 to less than $100,000
14	$100,000 to less than $250,000
15	$250,000 to less than $500,000
16	$500,000 or more
96.	REFUSED
97.	DON'T KNOW

I would like to start by asking you a few questions about you, your company, and the facility where you did this retrofit project. Throughout the rest of this interview, whenever I say "your facility" or "this facility" I mean the facility where this retrofit project was done**.**

FIRM3/FC2(Z2). Does your organization own or lease the facility where you conducted the retrofit project?

1.	OWNS **[GO TO FIRM6]**
2.	LEASES
3.	OWNS A PART AND LEASES THE REMAINDER (Vol.)
96.	REFUSED
97.	DON'T KNOW

FIRM4/FC3. Does your organization pay your own electricity bills or is electricity included in your lease payment for this facility?

1.	PAY OWN ELECTRIC BILLS

2. INCLUDED IN LEASE
96. REFUSED
97. DON'T KNOW

FIRM6a/S10. What is the primary use of this facility? **[READ RESPONSES IF NECESSARY. SELECT ONE. IF FACILITY IS USED FOR MORE THAN ONE PURPOSE AND RESPONDENT CANNOT IDENTIFY ONE AS 'PRIMARY' PLEASE RECORD BOTH IN 'OTHER'.]**

1. Office
2. Education/Child Care
3. Food sales (Grocery)
4. Food Service
5. Health Care
6. Lodging
7. Retail
8. Services
9. Public Assembly
10. Warehouse & storage
11. Manufacturing – Assembly
12. Manufacturing – Process
13. Vehicle Repair/Storage
14. Residential/Specialized Housing Facility
95. OTHER **[SPECIFY]**
94. NONE OF THE ABOVE **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

[NOTE: FIRM6b = SECOND RESPONSE IF MULTIPLE RESPONSES VOLUNTEERED IN "OTHER"]

FIRM7/FC5(Z7).What is the approximate age of this facility? **[IF NEEDED:** Your best estimate is fine.**]**

1. **[RECORD NUMBER OF YEARS]**
96. REFUSED
97. DON'T KNOW

FIRM8/S11(Z4).How many square feet of space does your organization occupy in this facility? **[IF RESPONDENT SAYS 'DON'T KNOW', READ]** Please, do your best to estimate.

1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

FIRM9/Z3. Approximately how many square feet did your retrofit project affect?

1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

[ASK FIRM10 IF MEASURE1 OR MEASURE2=LIGHTING, ELSE SKIP TO NEXT SECTION]

FIRM 10. Before you conducted the lighting project we are discussing, to the best of your knowledge, in what year was the lighting at this facility last remodeled?

1. **[RECORD YEAR]**
96. REFUSED
97. DON'T KNOW

SECTION HB: HIGH BAY LIGHTING TYPES

[ASK SECTION IF RESPONDENT = A, D1, D2, D3; ELSE GO TO NEXT SECTION]

For the purposes of this interview we use the term "high bay" to describe spaces with ceiling heights of about 15 feet or more.

HB3/SL3. Next I would like you to think of the various types of high bay lighting equipment currently in your facility. I would like you to tell me what percent of your HIGH BAY lighting falls into the following four equipment categories. These percentages should sum to 100%. What percentage of your total high bay space is served by [INSERT ITEM]?

a. High Intensity Discharge Lamps
b. Fluorescent Tube Fixtures
c. Compact Fluorescent Fixtures
d. Incandescent Fixtures

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER NOTE: CONFIRM PERCENTAGES ADD TO 100]
[INTERVIEWER NOTE: IF NEEDED, READ ITEM DESCRIPTIONS BELOW]
"High Intensity Discharge Lamps" are large fixtures consisting of a ballast that generates an arc discharge into a heavy glass bulb that contains pressurized gas, and a reflective housing.
"Fluorescent Tube Fixtures" consist of a ballast, a reflective housing, and 2 to 4 fluorescent tubes that are 4 to 8 feet long and 5/8 to one inch diameter.
"Compact Fluorescent Fixtures" consist of a cluster of compact fluorescent lamps in a reflective housing.
"Incandescent Fixtures" use standard, high wattage incandescent bulbs.

SECTION LEQ: PURCHASE AND INSTALLATION OF LIGHTING EQUIPMENT

[ASK IF RESPONDENT =A, B1, B2, D1, D2, OR D3, ELSE GO TO SEL1]
[IF RESPONDENT =A, D1, D2, OR D3 READ "HIGH BAY LIGHTING", IF RESPONDENT =B1 OR B2 READ "LIGHTING"]

Let's discuss the purchase and installation of **[HIGH BAY LIGHTING/LIGHTING]** equipment that was part of this project.

LEQ1. Approximately, how old was the equipment that was removed as part of the **[HIGH BAY LIGHTING/LIGHTING]** retrofit? Was it..[READ]?

1. Less than five years old
2. Between 5 and 10 years old
3. Between 10 and 15 years old
4. More than 15 years old
96. REFUSED
97. DON'T KNOW

[ASK LEQ2 IF RESPONDENT =A, D1, D2, OR D3, ELSE SKIP TO SEL1]

LEQ2/PL1a. Roughly what percentage of the high bay space in your facility is lit by the equipment you purchased and installed as part of this project? **[IF NEEDED:** Your best estimate is fine**]**.

1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

LEQ3/PL2. And roughly what percentage of the **[HIGH BAY LIGHTING/LIGHTING]** equipment installed as part of this project was accounted for by the following types of equipment. These percentages should sum to 100%. What percent of the installed equipment are [INSERT ITEM]?

a. High Intensity Discharge Lamps
b. Fluorescent Tube Fixtures
c. Compact Fluorescent Fixtures

d. Incandescent Fixtures
e. OTHER **[SPECIFY]**
1. [RECORD PERCENTAGE] (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER NOTE: CONFIRM PERCENTAGES ADD TO 100]

[IF LEQ3A=0%, 96 REFUSED, 97 DON'T KNOW, SKIP LEQ4]

LEQ4/PL3a. What type or types of high intensity discharge equipment did you install? **[READ; CHECK ALL THAT APPLY]**
1. Metal halide
3. Pressurized sodium
4. High pressure sodium
5. Mercury vapor
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ5 IF LEQ4 INCLUDES MORE THAN ONE RESPONSE, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ5a]

LEQ5/PL3b. Which of those high intensity discharge technologies accounted for the largest portion of the space served by this lighting installation project? **[SHOW OPTIONS SELECTED FROM LEQ4 ONLY; IF 95 "OTHER" WAS SELECTED, INSERT VERBATIM] [SELECT ONE]**
1. Metal halide
3. Pressurized sodium
4. High pressure sodium
5. Mercury vapor
95. OTHER
96. REFUSED
97. DON'T KNOW

[ASK LEQ5a IF LEQ4=1, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ6]

LEQ5a. What type of metal halide lighting did you install? Was it [INSERT ITEM]? [**CHECK ALL THAT APPLY]**
1. Probe start metal halide
2. Pulse start metal halide
3. Ceramic metal halide
96. REFUSED
97. DON'T KNOW

[IF LEQ3B=0%, 96 REFUSED, 97 DON'T KNOW, SKIP LEQ6]

LEQ6/PL4a. What type or types of fluorescent tube equipment did you install? **[READ; CHECK ALL THAT APPLY]**
1. T12
2. T8
3. T5
4. Induction
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ7 IF MORE THAN ONE RESPONSE TO LEQ6, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ7a]

LEQ7/PL4b. Which of those technologies accounted for the largest portion of the space served by this installation project? **[SHOW OPTIONS SELECTED FROM LEQ7 ONLY] [SELECT ONE]**

1. T12
2. T8
3. T5
4. Induction
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ7a IF LEQ6=3, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ7b]

LEQ7a. What type of T5 florescent lighting did you install? Was it [INSERT ITEM]? [**CHECK ALL THAT APPLY]**

1. Standard T5
2. T5 High Output
95. Any others **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ7b IF LEQ6=2, ELSE SKIP TO NEXT SECTION]

LEQ7b. What type of T8 florescent lighting did you install? Was it [INSERT ITEM]? [**CHECK ALL THAT APPLY]**

1. Standard T8
2. High performance or "Super" T8s
95. Any others **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SECTION SEL: EQUIPMENT SELECTION PROCESS

[ASK SEL1-SEL5 OF ALL RESPONDENTS]
[ASK SEL1 THROUGH SEL5 FOR MEASURE1 AND THEN REPEAT FOR MEASURE2]

I'm interested in learning more about the equipment that you replaced.

[ASK SEL1 IF MEASURE1 OR MEASURE2=LIGHTING, HVAC, MOTORS AND DRIVES, OR HOT WATER HEATING, ELSE SKIP TO SEL3]

SEL1/SC9 (C8). How would you describe the condition of your old **[MEASURE#]**? Was it in good condition, fair condition, poor condition or was it not working?

1. GOOD CONDITION
2. FAIR CONDITION
3. POOR CONDITION
4. NOT WORKING
96. REFUSED
97. DON'T KNOW

SEL2/SC9 (C8). Why did you decide to replace **[MEASURE#]**? **[PROMPT IF NEEDED; SELECT ALL THAT APPLY]**

1. EQUIPMENT WAS INEFFICIENT/WANTED TO INCREASE EQUIPMENT EFFICIENCY
2. EQUIPMENT REQUIRED FREQUENT MAINTENANCE

3. I NEEDED EQUIPMENT OF DIFFERENT TYPE
4. EQUIPMENT WAS OLD AND WOULD NEED TO BE REPLACED SOON ANYWAY
5. PART OF LARGER RENNOVATION/REMODEL PROJECT
6. FUNDS/INCENTIVES/PROGRAMS WERE AVAILABLE FOR NEW EQUIPMENT
7. EQUIPMENT WAS NOT WORKING AND NEEDED IMMEDIATE REPLACEMENT
8. APPEARANCE/FUNCTIONING OF EQUIPMENT WAS NOT IDEAL
9. WANTED TO ADD ON OR MODIFY EXISTING EQUIPMENT/SYSTEM
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL3/PL6. Was the person or people who specified or recommended the type of equipment used in this **[MEASURE#]** project from outside of your organization?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE SEL6]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE SEL6]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE SEL6]**

SEL3a. How much influence did this equipment recommendation have on your decision to install the **[MEASURE#]** equipment that you did – a great deal, some, not very much or no influence?

1. NO INFLUENCE
2. NOT VERY MUCH INFLUENCE
3. SOME INFLUENCE
4. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

SEL4/ PL6a. Who specified or recommended the type of **[MEASURE#]** equipment you installed? **[PROMPT IF NEEDED; SELECT ALL THAT APPLY]**

1. Architect or interior designer
2. Engineer
3. Lighting Distributor
4. General Contractor
5. Electrical Contractor
6. Lighting Contractor
7. Friend/work colleague
8. Trade association **[SPECIFY]**
9. HVAC/Plumbing Contractor
10. Utility or NYERDA Representative
11. Consultant
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK SEL5 IF SEL4 INCLUDES MORE THAN ONE RESPONSE, ELSE SKIP TO INSTRUCTIONS BEFORE SEL6]
[SHOW OPTIONS MENTIONED IN SEL4 ONLY; IF 95 "OTHER" MENTIONED, SHOW VERBATIM]

SEL5/PL6b. Which of those firms or individuals you named had the greatest influence on your organization's selection of **[MEASURE#]** equipment? **[SELECT ONLY ONE]**

1. Architect or interior designer
2. Engineer
3. Lighting Distributor
4. General Contractor

5. Electrical Contractor
6. Lighting Contractor
7. Friend/work colleague
8. Trade association
9. HVAC/Plumbing Contractor
10. Utility or NYERDA Representative
11. Consultant
95. OTHER
96. REFUSED
97. DON'T KNOW

[ASK IF RESPONDENT = A, D1, D2 OR D3 ELSE GO TO SEL17]
[ASK IF SEL3=1, ELSE GO TO SEL8]

SEL6/PL8. Did your lighting vendor, contractor, or designer specify or recommend the use of pulse start metal halide equipment for your high bay lighting project?

1. YES
2. NO **[GO TO SEL8]**
96. REFUSED **[GO TO SEL8]**
97. DON'T KNOW **[GO TO SEL8]**

[ASK SEL7 IF SEL6 = 1 AND LEQ5a≠2]

SEL7/PL9. Earlier you indicated that you did not install pulse start metal halide equipment for this project. Why did you choose not to install pulse start metal halide equipment for this project even though they were recommended? **[CHECK ALL THAT APPLY]**

1. TOO EXPENSIVE
2. ENERGY SAVINGS DID NOT JUSTIFY ADDITIONAL COST
3. UNSATISFACTORY PREVIOUS EXPERIENCE
4. TOO DIFFICULT TO MAINTAIN
5. QUALITY OF LIGHT
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL8/PL9a. Had you heard of pulse start metal halide equipment for indoor use prior to undertaking this project?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE SEL10]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE SEL10]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE SEL10]**

SEL9/ PL9b. How had you heard about pulse start metal halide equipment? **[READ RESPONSES; ACCEPT MULTIPLE]**

1. Lighting vendors
2. Architects/engineers
3. Internal staff
4. Experience with previous projects
5. Colleagues or competitors in the industry
6. Trade or industry representatives
7. Utility programs or representatives
8. Personal research
95. Other **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK IF SEL3=1, ELSE GO TO SEL12]

SEL10/PL10. Did your lighting vendor, contractor, or designer specify or recommend the use of fluorescent tube or compact fluorescent equipment for your high bay lighting project?

1. YES
2. NO **[GO TO SEL12]**
96. REFUSED **[GO TO SEL12]**
97. DON'T KNOW **[GO TO SEL12]**

[ASK SEL11 IF SEL10=1 AND LEQ3b=0]

SEL11/PL11. Earlier you indicated that you did not install high efficiency fluorescent tube lighting in for this project. Why did you choose not to install high efficiency fluorescent equipment for this project even though they were recommended? **[CHECK ALL THAT APPLY]**

1. TOO EXPENSIVE
2. ENERGY SAVINGS DID NOT JUSTIFY ADDITIONAL COST
3. UNSATISFACTORY PREVIOUS EXPERIENCE
4. TOO DIFFICULT TO MAINTAIN
5. QUALITY OF LIGHT
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL12/PL12a. Had you heard of fluorescent equipment for high bay lighting applications prior to undertaking this project?

1. YES
2. NO **[GO TO SEL14]**
96. REFUSED **[GO TO SEL14]**
97. DON'T KNOW **[GO TO SEL14]**

SEL13/ PL12b. How had you heard about fluorescent high bay lighting equipment? **[READ RESPONSES; ACCEPT MULTIPLE]**

1. Lighting vendors
2. Architects/engineers
3. Internal staff
4. Experience with previous projects
5. Colleagues or competitors in the industry
6. Trade or industry representatives
7. Utility programs or representatives
8. Work in lighting field
9. Personal research
95. Other **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL14/PL13. What types of lighting controls were used for this highbay lighting project? **[PROMPT IF NEEDED; ACCEPT MULTIPLE RESPONSES]**

1. Simple on/off
2. Occupancy or motion sensor
3. Photo sensor
4. Time clock
5. Building or energy management system
6. Daylighting controls
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL15/PL13a. Did your contractor recommend the installation of energy efficient lighting controls?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE SEL17]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE SEL17]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE SEL17]**

[IF SEL14=2-97, GO TO SEL17]

SEL16/PL13b. Why did you choose not to install lighting controls that were more energy efficient as part of this project?

1. Wanted Manual Control
2. No Need Because of Continual Usage
95. Other (Specify)
96. REFUSED
97. DON'T KNOW

[ASK IF RESPONDENT=A, B1, B2, D1, D2, OR D3]

SEL17/PL14. On a scale of 1 to 10, where 1 means "Not at all important," and 10 means "Very important", how important were the following features in your choice of lighting equipment for this project? How important was the…

a. Quality of light provided?
b. Appearance of the fixtures?
c. Cost of maintenance?
d. Amount of energy use?
e. Installation cost?

1. NOT AT ALL IMPORTANT
2.
3.
4.
5.
6.
7.
8.
9.
10. VERY IMPORTANT
96. REFUSED
97. DON'T KNOW

[ASK SEL18 AND SEL19 OF ALL RESPONDENTS]
[ASK SEL18 FOR MEASURE1 AND MEASURE2, THEN GO TO SEL19]

SEL18. Before beginning this project, did you develop or receive an estimate of how much you could save by installing **[FOR SHELL, HVAC, LIGHT, MOTOR, AND HWATER READ: energy efficient [MEASURE#] [FOR CONTROLS, IP, AND CHP READ: [MEASURE#]?**

1. YES
2. NO **[GO TO EE1]**
96. REFUSED **[GO TO EE1]**
97. DON'T KNOW **[GO TO EE1]**

SEL19. In general, thinking about **[THIS ESTIMATE/BOTH OF THESE ESTIMATES],** How confident were you that you would actually save the amount that was estimated? Would you say very confident, somewhat confident, not very confident or not at all confident?

1. NOT AT ALL CONFIDENT
2. NOT VERY CONFIDENT
3. SOMEWHAT CONFIDENT
4. VERY CONFIDENT
96. REFUSED

97. DON'T KNOW

SECTION EE1: SELF-ASSESSMENT OF ENDUSE ENERGY EFFICIENCY

[ASK ALL RESPONDENTS]

[ASK EE1 FOR MEASURE1 AND THEN ASK AGAIN FOR MEASURE2]

EE1/C5. I'm interested in learning about the energy efficiency of the equipment you installed as part of this project. When selecting new energy using equipment, you get to choose from different options that use more or less energy to do the same job. Typically, the equipment that uses less energy costs more. To the best of your knowledge, how efficient was the **[MEASURE#]** you installed? Please use a 5-point scale where 1 means everything was standard efficiency and 5 means the equipment and designs were the highest efficiency available.

1. STANDARD EFFECIENCY
2.
3.
4.
5. HIGHEST EFFICIECNY AVAILABLE
96. REFUSED
97. DON'T KNOW

SECTION INFL: UTILITY PROGRAM RECOGNITION, PARTICIPATION, INFLUENCE

[ASK ALL RESPONDENTS]

INFL1/B1E. Before this interview today, how familiar were you with programs operated by NYSERDA in New York State to help companies like yours reduce their energy use and costs? Please answer on a 1-5 scale where 1 means "not at all familiar," and 5 means "very familiar."

1. NOT AT ALL FAMILIAR
2.
3.
4.
5. VERY FAMILIAR

96. REFUSED
97. DON'T KNOW

[ASK INFL2 IF INFL1=2, 3, 4, 5, ELSE SKIP TO PP1]

INFL2 What programs are you familiar with? **[SELECT ALL THAT APPLY]**

1. FLEX TECH/FLEXIBLE TECHNICAL ASSISTANCE
2. NEW CONSTRUCTION PROGRAM
3. EXISTING FACILITIES PROGRAM
4. BUSINESS PARTNERS
5. REFERENCED NYSERDA GENERALLY/OTHER NYSERDA PROGRAM NOT PRELISTED
6. MENTIONED UTILITY COMPANY/UTILITY PROGRAM
7. GENERAL LIGHTING PROGRAM
8. GENERAL RENEWABLE ENERGY PROGRAM
9. GENERAL GAS/HEATING PROGRAMS
10. GENERAL AUDIT PROGRAMS
11. OTHER GENERAL ENERGY EFFICIENCY PROGRAMS

95. OTHER (SPECIFY_____)
96. REFUSED

97. DON'T KNOW

[ASK INFL2a IF RESPONDENT=A, D1, D2, D3, AND INFL1=2, 3, 4, or 5; ELSE SKIP TO INSTRUCTIONS BEFORE INFL3]

INFL2a. To the best of your knowledge, did your organization receive a financial incentive from NYSERDA to defray a portion of the costs of the lighting project we are discussing?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK INFL3 THROUGH INFL9 FOR MEASURE1 AND THEN REPEAT FOR MEASURE2]

INFL3/D1. Did your familiarity with or the existence of NYSERDA's New York Energy Smart programs have ANY influence on the way you performed your **[MEASURES#]** project?

1. YES
2. NO **[IF TWO MEASURES, REPEAT INFL3 FOR MEASURE2, OTHERWISE GO TO PP1]**
96. REFUSED [**IF TWO MEASURES, REPEAT INFL3 FOR MEASURE2, OTHERWISE GO TO PP1]**
97. DON'T KNOW **[IF TWO MEASURES, REPEAT INFL3 FOR MEASURE2, OTHERWISE GO TO PP1]**

INFL4/D2. Specifically thinking about your **[MEASURE#]** project that you completed between 2007 and 2010, Please describe how NYSERDA's programs affected your **[MEASURE#]** project.

1. CAUSED US TO UNDERTAKE PROJECT
2. ASSISTED WITH FINANCING/MADE MORE AFFORDABLE
3. MADE US MORE AWARE OF EQUIPMENT/PROJECT OPTIONS
4. IMPROVED EFFICIENCY OF PROJECT
5. PROVIDED INFORMATION/ADVICE FOR UNDERTAKING PROJECT
6. NO EFFECT ON THIS PROJECT
7. GENERAL COMMENT THAT INCENTIVE HELPED/MADE PROJECT EASIER
96. REFUSED
97. DON'T KNOW

INFL5/D2a. Did NYSERDA's New York Energy Smart programs influence you to complete your **[MEASURE#]** project earlier than you had planned or did NYSERDA'S programs not influence when you completed the project?

1. YES, INFLUENCED TO COMPLETE PROJECT EARLIER
2. NO, DID NOT INFLUENCE TO COMPLETE PROJECT EARLIER **[GO TO INSTRUCTIONS BEFORE INFL8]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE INFL8]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE INFL8]**

INFL6/D2b. How much earlier was the **[MEASURE#]** project completed? **[OPEN END]**

1. [RECORD NUMBER OF YEARS]
2. [RECORD NUMBER OF MONTHS]

96. REFUSED
97. DON'T KNOW

[ASK INFL8 IF MEASURE1 OR MEASURE2=WEATHERIZATION, HVAC, LIGHTING, MOTORS AND DRIVES, HOT WATER HEATING OR INDUSTRIAL PROCESSES, ELSE SKIP TO INSTRUCTIONS BEFORE INFL9]

INFL8/D4. How much influence did NYSERDA's New York Energy Smart programs have on the energy efficiency level of your **[MEASURE#]**? Use a 1-5 scale where 1 means "not at all influential" and 5 means "very influential."

1. NOT AT ALL INFLUENTIAL
2.
3.
4.
5. VERY INFLUENTIAL

96. REFUSED
97. DON'T KNOW

[ASK INFL9 IF MEASURE1 OR MEASURE2 = ENERGY MANAGEMENT SYSTEMS OR COMBINED HEAT AND POWER, ELSE SKIP TO INFL10]

INFL9/D4A. How would you rate the influence of the NYSERDA New York Energy Smart program on your decision install **[MEASURE#]**? Use a 1-5 scale where 1 means "not at all influential" and 5 means "very influential."

1. NOT AT ALL INFLUENTIAL
2.
3.
4.
5. VERY INFLUENTIAL

96. REFUSED
97. DON'T KNOW

INFL10. Is there a specific NYSERDA staff member assigned to your firm and with whom your firm typically interacts?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

INFL11. Does your firm have an assigned electric utility account representative? [**READ IF NECESSARY: "SOMEONE AT YOUR UTILITY WHO ASSISTS YOUR COMPANY WITH QUESTIONS, ISSUES WITH SERVICE, THAT KIND OF THING"]**

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

SECTION PP1: ENERGY EFFICIENCY PRACTICES AND POLICIES

[ASK THIS SECTION OF ALL RESPONDENTS]

I have just a few more questions. I'm interested in learning about your organization's policies and practices regarding energy management.

PP1/EP0. Is there a person or people in your organization in charge of managing the organization's energy use and costs?

1. YES
2. NO **[GO TO PP4]**

96. REFUSED **[GO TO PP4]**
97. DON'T KNOW **[GO TO PP4]**

PP2/ EP1. Is the entity involved with managing your organization's energy use a single person, a group, OR a department?
1. PERSON
2. GROUP
3. DEPARTMENT
96. REFUSED
97. DON'T KNOW

PP4/EP3. Does your organization have energy use reduction goals for this facility?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP5/EP5a. Does your organization have any corporate environmental or sustainability initiatives?
1. YES
2. NO [**GO TO PP8]**
96. REFUSED **[GO TO PP8]**
97. DON'T KNOW **[GO TO PP8]**

PP6/EP5c. Is energy management part of your corporate environmental or sustainability initiative?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP7. Do you have a process for measuring progress towards your sustainability goals?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP8/EP6. How does your organization learn about technologies and equipment for saving energy?
[PROMPT IF NEEDED; ACCEPT MULTIPLE RESPONSES]
1. Manufacturer's literature
2. Manufacturer representative/Manufacturer Seminar
3. Distributor/Vendor
4. Installation contractor/Service Provider
5. Colleagues in your own industry
6. Your industry trade or professional organization
7. Trade or industry publications
8. Friends/Family
9. Consultant/Engineer/Architect/Audit
10. Online research
11. NYSERDA
12. Word of mouth/Networking
13. Experience with Projects/Our Work
14. TV/Magazine/Newspaper/Media
15. Advertisements/General Solicitations
16. Employees/Corporate/Other Departments
17. Utility Company/Energy Provider
95. OTHER (SPECIFY_____)
96. REFUSED

97. DON'T KNOW

[ASK PP9 IF MORE THAN 1 RESPONSE TO PP8, ELSE SKIP TO PP10]

PP9/EP7. Which of these sources do you find most useful? **[SHOW OPTIONS SELECTED FROM PP8 ONLY; IF 95 "OTHER" SELECTED, SHOW VERBATIM; CHECK ONLY ONE RESPONSE]**

1. Manufacturer's literature
2. Manufacturer representative/Manufacturer Seminar
3. Distributor/Vendor
4. Installation contractor/Service Provider
5. Colleagues in your own industry
6. Your industry trade or professional organization
7. Trade or industry publications
8. Friends/Family
9. Consultant/Engineer/Architect/Audit
10. Online research
11. NYSERDA
12. Word of mouth/Networking
13. Experience with Projects/Our Work
14. TV/Magazine/Newspaper/Media
15. Advertisements/General Solicitations
16. Employees/Corporate/Other Departments
17. Utility Company/Energy Provider
95. OTHER
96. REFUSED
97. DON'T KNOW

PP10/CAPB2. Energy efficient investments pay for themselves through reduced utility bills over time. Considering projects your company would approve, what is the longest period of time your organization would allow for an energy efficient investment to pay for itself?

1. Less than 1 year
2. 1 to less than 3 years
3. 3 to less than 5 years
4. 5 to less than 10 years
5. 10 or more years
6. Varies depending on projects
95. Other (Specify)
96. REFUSED
97. DON'T KNOW

APPENDIX C: NEW YORK CONTRACTOR SURVEY

NYSERDA C&I Existing Facilities
Non-Participant Spillover & HBL Studies: Contractor Survey
Final Instrument With New Codes
March 31, 2012

SAMPLE VARIABLES
Sample = "Lighting" if SIC=17319903, 17319904, 87119905, 87489907
Sample = "HVAC" if SIC=171101, 171102, 171104, 171199
Sample= "Other" if SIC=15419909, 15420103, 17310101, 17310201, 17310202, 17310203, 17969904, 17969907, 50840000, 87119903, 87119906, 87310301, 87489904

SAMPLE FLAG TEXT
IF Sample = "Lighting", INSERT='Lighting projects'
IF Sample= "HVAC", INSERT='HVAC projects'
IF Sample = "Other", INSERT='remodel, renovation, or retrofit projects'

INTRODUCTION 1

[READ IF INTRO=1, ELSE SKIP TO INTRODUCTION 2]
Hello. May I speak with **[NAME]**?

[READ WHEN RESPONDENT IS ON PHONE]
Hello. My name is _____ and I'm calling on behalf of the New York State Energy Research and Development Authority, also known as NYSERDA. Recently, you should have received a letter from NYSERDA thanking you for your past participation in a NYSERDA survey and informing you of a new study that we are hoping you may be able to help us with. For this survey, NYSERDA is gathering information from knowledgeable and experienced contractors and service providers such as you about equipment recommendations to customers. We are only talking to a small carefully selected sample of firms and would really appreciate your participation in this important research effort. This survey should only take about 15 minutes of your time.

[IF NECESSARY: NYSERDA is conducting this research to better understand the impact of its programs on the adoption of energy efficient technologies in New York state.

[SKIP TO SCR3]

INTRODUCTION 2

[READ IF INTRO=2]
Hello. This is _____ calling on behalf of the New York State Energy Research and Development Authority, also known as NYSERDA. We are conducting research for NYSERDA to better understand the impact of its programs on adoption of energy efficient technologies. May I please speak with someone who is knowledgeable about the equipment recommendations that you make to customers and your work practices?

[CONTINUE WITH CORRECT CONTACT AND REPEAT INTRODUCTION AS NECESSARY OR SCHEDULE CALL BACK]
This survey will take about 15 minutes of your time. Your answers will be used for research purposes only and will help inform energy efficiency decision making in New York State.

SCREENER

SCR1. Does your company operate in New York State not including Long Island?
1. YES
2. NO **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

SCR2/I1. During the past four years, did your company
[IF Sample= Lighting, READ: do any work in the design or installation of lighting equipment
IF Sample=HVAC, READ: do any work in the installation of heating, ventilation, or air conditioning equipment
IF Sample=Other, READ: work on the design or the installation of equipment for any remodels, renovations, or retrofits]
for commercial or institutional facilities in New York State?
1. YES
2. NO DON'T DO COMMERCIAL WORK **[THANK AND TERMINATE]**
3. NO, DON'T DO THIS TYPE OF WORK **[THANK AND TERMINATE]**
4. NO, OTHER REASON (SPECIFY) **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

SCR3/H3. In which geographic areas of New York State does your company operate? **[READ RESPONSE OPTIONS. ACCEPT ALL THAT APPLY]**
1. New York City and Westchester
2. Upstate New York – north of the City
3. Long Island
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

[IF SCR3≠3, GO TO SCR4. IF SCR3=3 ONLY, THANK AND TERMINATE]

SCR3a. What percentage of your projects are done on Long Island?
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

[IF SCR3a=100%, THANK AND TERMINATE]

SCR4/Z7. Is your firm a(n)..? **[READ RESPONSE OPTIONS. ACCEPT ALL THAT APPLY]**
1. Architectural firm
2. Engineering/Consulting firm
3. Electrical contractor
4. HVAC contractor

5. An Energy Service Company **[READ IF NEEDED: "An ESCO is a commercial business that installs and maintains the equipment during its payback period."]**
6. Construction/Building Firm
7. General/Mechanical Contractor
8. Equipment Supplier/Installer
95. Something else (Specify _____)
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

I'm interested in the work your company did during the last four years in New York State not including Long Island. **[READ IF SCR3=3:** To the best of your ability, please exclude any work you might have done on Long Island when answering my questions.] We are only interested in work you did for commercial and industrial facilities. Please focus on your commercial and industrial work when answering the rest of the survey.

SCR5/SC5/I2a. Approximately how many commercial and industrial **[INSERT SAMPLE FLAG TEXT]** did your company perform during the past four years?

1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

SCR6/I2b**.** On average, during the past four years, what percentage of the facilities where you worked fell into the following size categories? These percentages should sum to 100%.

[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. 0 to 2,000 sq feet.
b. 2,001 to 4,000
c. 4,001 to 6,000
d. 6,001 to 8,000
e. 8,001 to 10,000
f. 10,000+

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER: CHECK THAT SCR6a-f SUMS TO 100% BEFORE PROCEEDING]

SCR7/D1b. During the past four years, approximately what percentage of all of your projects dealt with each of the following areas?

a. The building shell or envelope (such as adding insulation or replacing windows)
b. HVAC systems (such as replacing the air conditioning or heating systems)
c. Lighting
d. Motors and drives
e. Building controls such as energy management systems
f. Hot water heating systems
g. Industrial processes
h. Combined heat and power (CHP)

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK SCR8 IF SAMPLE=LIGHTING; ELSE SKIP TO SCR9]

SCR8/LS1. Considering all the commercial and industrial lighting projects that your firm completed during the past four years, approximately what percentage of the lighting projects involved high bay applications? **[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]**

[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]
1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER: ASSIGN HIGHBAY=1 IF SCR8 > 0%]

SCR9/D1c. During the past four years, approximately what percentage of your projects included the following activities? **[READ IF NEEDED: THIS SHOULD BE BASED ON THE TOTAL NUMBER OF PROJECTS THAT YOU HAVE WORKED ON]**
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. Studies/Audits

b. Design
c. Installation work
d. Maintenance/Commissioning

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

ENERGY EFFICIENCY RECOMMENDATIONS

[READ IF HIGHBAY=1: "FOR THE NEXT THREE QUESTIONS, I WOULD FIRST LIKE YOU TO FOCUS ONLY ON YOUR COMMERICAL AND INDUSTRIAL HIGH BAY LIGHTING PROJECTS. I WILL THEN REPEAT THESE QUESTIONS AND ASK YOU TO ANSWER THEM THINKING JUST ABOUT ALL OF YOUR COMMERICIAL AND INDUSTRIAL LIGHTING PROJECTS."]

[ASK ER1HB – ER3HB IF HIGHBAY=1; ELSE SKIP TO ER1]

ER1HB/LS4. How often do you recommend energy efficient types of equipment for your high bay lighting projects? Would you say it is always, most of the time, sometimes, rarely or never?
[INTERVIEWER: IF RESPONDENT ASKS WHAT WE MEAN BY "ENERGY EFFICIENT", IT IS WHATEVER THEY CONSIDER TO BE ENERGY EFFICIENT. READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]
1. ALWAYS
2. MOST OF THE TIME
3. SOMETIMES
4. RARELY
5. NEVER [**GO TO ER3HB]**
96. REFUSED
97. DON'T KNOW

ER2HB/LS6. In cases where you recommend energy efficient high bay lighting equipment, how often do customers follow this recommendation? Would you say always, most of the time, sometimes, rarely or never?
[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]
1. ALWAYS
2. MOST OF THE TIME
3. SOMETIMES
4. RARELY
5. NEVER

96. REFUSED
97. DON'T KNOW

ER3HB/LS7. Roughly what percent of customers are aware of the full range of options for energy efficient high bay lighting equipment available to them **[READ IF ER1HB≠5: BEFORE YOU PROVIDE RECOMMENDATIONS ABOUT THE EQUIPMENT]?**

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.] [IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

1. **[RECORD PERCENTAGE]** (ACCEPT 0%-100%)
96. REFUSED
97. DON'T KNOW

[READ IF HIGHBAY=1: "FOR THE NEXT THREE QUESTIONS, PLEASE THINK ABOUT ALL OF YOUR COMMERCIAL AND INDUSTRIAL LIGHTINGPROJECTS, INCLUDING HIGH BAY AND NON-HIGH BAY."]

ER1/LS4. How often do you recommend energy efficient types of equipment for your **[INSERT SAMPLE FLAG TEXT]?** Would you say it is always, most of the time, sometimes, rarely or never? **[INTERVIEWER: IF RESPONDENT ASKS WHAT WE MEAN BY "ENERGY EFFICIENT", IT IS WHATEVER THEY CONSIDER TO BE ENERGY EFFICIENT. READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]**

1. ALWAYS
2. MOST OF THE TIME
3. SOMETIMES
4. RARELY
5. NEVER [**GO TO ER3]**
96. REFUSED
97. DON'T KNOW

ER2/LS6. In cases where you recommend energy efficient [**IF Sample = Lighting, READ "LIGHTING"/IF SAMPLE=HVAC, READ "HVAC"]** equipment, how often do customers follow this recommendation? Would you say always, most of the time, sometimes, rarely or never?

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. ALWAYS
2. MOST OF THE TIME
3. SOMETIMES
4. RARELY
5. NEVER
96. REFUSED
97. DON'T KNOW

ER3/LS7. Roughly what percent of customers are aware of the full range of options for energy efficient **[IF Sample = Lighting, READ "LIGHTING"/IF SAMPLE = HVAC, READ "HVAC"]** equipment available to them **[READ IF ER1≠5: BEFORE YOU PROVIDE RECOMMENDATIONS ABOUT THE EQUIPMENT]?**
[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]
[IF NEEDED] Your best estimate is fine.

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

ER4. We are interested in the role you play in assisting your customers with selecting the type of equipment installed in their facilities. I am going to ask you about three different types of customers and would like to know the percentage of your customers that fall into each of the three categories. The percentages should add up to 100%. We can go back and adjust your answers at the end as necessary.
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. What percent of your customers want you to tell them what equipment to install and will simply go with your recommendation?
b. What percent of your customers want your equipment recommendations but want to work with you to make a final decision about what to install?
c. What percent of your customers don't want your recommendations because they have already selected the equipment and just want you to install it?

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER: CHECK THAT ER4a-c SUM TO 100% BEFORE PROCEEDING]

PROGRAM AWARENESS AND PARTICIPATION

PP1/PP1. Before this interview today, were you aware of NYSERDA's New York Energy Smart programs that help commercial customers reduce their energy use and costs? **[READ IF NECESSARY:** NYSERDA stands for the New York State Energy Research and Development Authority**]**.

1. YES
2. NO [**GO TO PP7]**
96. REFUSED [**GO TO PP7]**
97. DON'T KNOW [**GO TO PP7]**

PP2/J1. How familiar are you with the NYSERDA New York Energy Smart programs in general? Please answer on a 1-5 scale where 1 means "not at all familiar," and 5 means "very familiar."

1. NOT AT ALL FAMILIAR
2.
3.
4.
5. VERY FAMILIAR

96. REFUSED
97. DON'T KNOW

[ASK PP3 IF PP2=2-5, ELSE SKIP TO PP4]

PP3/J1B-J1H. Are you familiar with the following NYSERDA programs? First, [INSERT ITEM]

a. Flex Tech/Flexible Technical Assistance

b. New Construction Program
c. Existing Facilities Program
d. Peak Load Management Program (PLPM) or Peak Load Reduction Program (PLRP)
e. Enhanced Commercial and Industrial Performance Program, ECIPP
f. Smart Equipment Choices Program
g. Industrial and Process Efficiency Program, IPE
h. Business Partners

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP4/PP2/C1. To the best of your knowledge, did your company work on any projects during the last four years that received incentives through NYSERDA's New York Energy Smart programs?

1. YES
2. NO **[GO TO PP7]**
96. REFUSED **[GO TO PP7]**
97. DON'T KNOW **[GO TO PP7]**

[PROGRAMMER: ASSIGN PART=1 IF PP4=1]

PP5. Roughly what percentage of your total projects during the last four years received financial incentives through NYSERDA?
[IF NEEDED] Your best estimate is fine.

1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

[ASK EACH PP6a-h IF CORRESPONDING PP3a-h= 1]

PP6/C2. Did these projects receive incentives through… [INSERT ITEM]?

a. Flex Tech/Flexible Technical Assistance
B. New Construction Program
C. Existing Facilities Program
D. Peak Load Management Program (PLMP) or Peak Load Reduction Program (LPRP)
E. Enhanced Commercial and Industrial Performance Program, ECIPP
F. Smart Equipment Choices Program
G. Industrial and Process Efficiency Program, IPE
H. Business Partners

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK PP6aa IF ALL PP6Aa– h=2; ELSE SKIP TO PP7]

PP6aa. What NYSERDA programs provided incentives for these projects?

1. **[RECORD VERBATIM]**
96. REFUSED
97. DON'T KNOW

PP7/PP2/C1. To the best of your knowledge, did your company work on any projects during the last four years that received incentives through energy efficiency programs offered by utilities in New York State?

1. YES
2. NO **[GO TO PI1]**
96. REFUSED **[GO TO PI1]**
97. DON'T KNOW **[GO TO PI1]**

PP8/PP4**.** Roughly, what percentage of your total projects during the last four years received financial incentives through utilities in New York State?
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

PROGRAM INFLUENCE

[ASK THIS SECTION ONLY IF PP2=2-5; ELSE GO TO CD1]

[READ IF PART=1: FOR THE NEXT FEW QUESTIONS I WOULD LIKE YOU TO THINK ONLY ABOUT THE PROJECTS THAT YOU COMPLETED DURING THE PAST FOUR YEARS THAT DID NOT RECEIVE INCENTIVES THROUGH NYSERDA'S NEW YORK ENERGY SMART PROGRAMS.]

PI1/J5a. When installing new energy using equipment, there are often different equipment options that use more or less energy to do the same job. Approximately what percentage of the **[INSERT SAMPLE FLAG TEXT]** that you completed during the past four years involved the installation of energy efficient equipment?
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]
1. **[RECORD PERCENTAGE]** [ACCEPT 0-100]
96. REFUSED
97. DON'T KNOW

[**READ BELOW AND ASK PI2 IF PI1>0% OR PI1==96, 97, ELSE SKIP TO CD1]**

The next few questions ask about factors that might have influenced your recommendations to your customers. When answering these questions, please think about your **[INSERT SAMPLE FLAG TEXT]** over the past four years **[READ IF PART=1: THAT DID NOT RECEIVE INCENTIVES THROUGH NYSERDA'S NEW YORK ENERGY SMART PROGRAMS.]**

PI2/D4. Has your experience with, or the existence of, NYSERDA's New York Energy Smart programs had ANY influence on the way you conduct **[INSERT SAMPLE FLAG TEXT]** in commercial or institutional facilities?
1. YES
2. NO **[GO TO CD1]**
96. REFUSED **[GO TO CD1]**
97. DON'T KNOW **[GO TO CD1]**

PI3/J3. Please describe how NYSERDA's New York Energy Smart programs have affected your work.
2. Programs have attracted more customers/generated more work/increased sales
3. Programs have led firm to use/recommend more efficient or qualifying equipment
4. Programs have provided knowledge/information about equipment/work practices/ the market
5. Rebates/incentives have saved customers money/impacted customer product choices/allowed us to up-sell

6. Programs have changed the focus of our work/projects
7. Programs have had a negative influence or firm is dissatisfied with rebates/information/approval process
95. Other (Specify)
96. REFUSED
97. DON'T KNOW

PI4/D4. I'm going to read a list of ways that NYSERDA may have influenced your work. For each one, please tell me, how much influence NYSERDA's New York Energy Smart programs have had on that aspect of your work. Please use a scale that ranges from 1-5 where 1 means "no influence" and 5 means "a great deal of influence". The first one is…[INSERT ITEM]

a. The efficiency levels of the equipment you recommend to your customers
b. How you explain the benefits of energy efficient equipment to your customers
c. The methods or techniques you use to do your work
d. Encouraging manufacturers and distributors to stock higher efficiency equipment

1. NO INFLUENCE
2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

PI8. To the best of your knowledge, what percentage of your **[INSERT SAMPLE FLAG TEXT]** over the last four years included high efficiency equipment because of NYSERDA's influence on your firm?

[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK PI9 IF HIGHBAY=1, ELSE GO TO INSTRUCTIONS BEFORE CD1]

PI9. Thinking specifically about your high bay lighting projects, how much influence have NYSERDA's programs had on the efficiency levels of the high bay lighting equipment you recommend to your customers? Please use a 1-5 scale where 1 means "no influence" and 5 means "a great deal of influence".

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. NO INFLUENCE
2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

PI10. Again, just focusing on your high bay lighting projects, how much influence do you think NYSERDA's programs have had on the efficiency levels of the high bay lighting equipment that your customers choose to install? Please use a 1-5 scale where 1 means "no influence" and 5 means "a great deal of influence."

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. NO INFLUENCE

2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

BUILDING CODES

[ASK CD1 – CD4 IF HIGHBAY=1, ELSE GO TO FIRM1]
Now, I would like to ask you about the influence that building codes have on your **high bay** lighting projects.
[READ IF PART=1: PLEASE ANSWER THESE QUESTIONS THINKING ABOUT ALL OF THE HIGH BAY PROJECTS YOU COMPLETED DURING THE PAST FOUR YEARS INCLUDING THOSE THAT RECEIVED INCENTIVES THROUGH NYSERDA'S NEW YORK ENERGY SMART PROGRAMS.]
[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

CD1/CD2. For the projects you completed during the past four years, did the building codes influence your selection of high bay lighting equipment?
1. YES
2. NO **[GO TO CD4]**
96. REFUSED **[GO TO CD4]**
97. DON'T KNOW **[GO TO CD4]**

CD2/CD3. What percent of the high bay lighting projects completed during the past four years were influenced by the building codes?
[**IF NEEDED]** Your best estimate is fine.
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

CD3/CD4. Please rate the influence of these codes on your selection of high bay lighting equipment using a scale of 1 to 5, where 1 indicates that the codes had "little influence on your selection" and 5 indicates that the codes "completely determined the type of high bay lighting equipment you installed"?
1. LITTLE INFLUENCE ON YOUR SELECTION
2.
3.
4.
5. COMPLETELY DETERMINED THE TYPE OF HIGH BAY LIGHTING EQUIPMENT YOU INSTALLED
96. REFUSED
97. DON'T KNOW

CD4. Approximately what percentage of the high bay lighting projects that you completed during the past four years were more efficient than building codes required?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**
1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK CD5 IF CD4 > 0% and PI2 = 1]
CD5. How much influence did NYSERDA's programs have on these projects being more efficient than codes required? Please use a 1 to 5 scale where 1 means NYSERDA had "no influence" and 5 means NYSERDA had "a great deal of influence".
1. NO INFLUENCE
2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

HIGH BAY LIGHTING TYPES

[ASK THIS SECTION IF HIGHBAY=1; ELSE GO TO FIRM1]

HB1/LS2b. I'm going to read a list of different types of lighting technologies. Thinking about all of the **high bay** lighting fixtures that your firm installed in the past four years, what percentage were…?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**
a. Fluorescent tube lighting
b. HID lighting including metal halide, high and low pressure sodium and mercury vapor **[IF NECESSARY: HID IS "HIGH INTENSITY DISCHARGE"]**
c. LEDs
d. Other technologies
1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK HB2 IF HB1a > 0%; ELSE GO TO INSTRUCTIONS BEFORE HB4]
HB2. When it comes to T8 fluorescent lights, have you heard of high performance or reduced wattage or Super T8s?
1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE HB3B]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE HB3B]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE HB3B]**

HB3A/LS2b. Thinking about all of the FLUORESCENT high bay lighting fixtures that your firm installed in the past four years, what percentage were [INSERT ITEM]?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**
a. T5 (all varieties)
b. High performance, reduced wattage, or super T-8
c. Standard T-8
d. T-12
1. [RECORD PERCENTAGE] (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK HB3b IF HB2 =2,96, 97, ELSE GO TO INSTRUCTIONS BEFORE HB4]

HB3b/LS2B. Thinking about all of the FLUORESCENT high bay lighting fixtures that your firm installed in the past four years, what percentage were [INSERT ITEM]?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE**].

a. T5 (all varieties)
b. T-8s (all varieties)
c. T-12

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK HB4 IF HB1b > 0%; ELSE GO TO HB5]

HB4/LS2B. Thinking about all of the HID high bay lighting fixtures that your firm installed in the past four years, what percentage were [INSERT ITEM]?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**

a. Pulse start metal halide
b. Probe start metal halide
c. High pressure sodium
d. Low-pressure sodium
e. Mercury vapor

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

HB5/LS3. I'm going to read a list of different types of lighting equipment. After I read each one, please tell me if you consider that type of equipment to be energy efficient or not energy efficient in high bay applications. If you don't recognize a type of equipment, just let me know and we can move on to the next one. How about [INSERT ITEM]

a. T5 (all varieties)
b. High performance, reduced wattage or super T-8
c. Standard T-8
d. T-12
e. Pulse start metal halide (HID)
f. Probe start metal halide (HID)
g. High pressure sodium (HID)
h. Low-pressure sodium (HID)
i. Mercury vapor (HID)
j. LED
k. Induction

1. ENERGY EFFICIENT
2. NOT ENERGY EFFICIENT
96. REFUSED
97. DON'T KNOW

We have been talking a lot about the last **four** years. For these next few questions, I want you to think about the past **two** years.

HB6/HFL1b. Based on your work experience, have fluorescent lighting installations in high bay spaces increased, decreased, or stayed about the same over the **past two years** compared to other technologies?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED **[GO TO HB9]**
97. DON'T KNOW **[GO TO HB9]**

HB7/HFL1c. Do you expect this market share will increase, decrease, or stay about the same over the **next two**

years?
1. INCREASE
2. DECREASE
3. STAY THE SAME
96. REFUSED
97. DON'T KNOW

HB8/HFL2. In your opinion, what will be the main factors in determining the market share of high bay fluorescent lighting in the next two years? **[DO NOT READ. SELECT ALL THAT APPLY]**
1. COST OF ELECTRICITY
2. LOWER PURCHASE PRICE OF EQUIPMENT THAT INVOLVES NEW TECHNOLOGIES
3. REBATES FROM NYSERDA/UTILITIES
4. CONCERN/GREATER AWARENESS OF SAVING ENERGY
5. BETTER PERFORMANCE FROM NEW TECHNOLOGIES
6. GOVERNMENT REGULATIONS/BUILDING CODES
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

HB9/HFL3. What kinds of objections, if any, have you heard from customers when you propose installing fluorescent equipment in high bay applications? **[DO NOT READ; SELECT ALL THAT APPLY]**
1. PURCHASE PRICE/INSTALLATION COST
2. LIGHT QUALITY
3. COST MORE TO MAINTAIN
4. WOULD REQUIRE ADDITIONAL ELECTRICAL WORK
94. NO OBJECTIONS
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

HB10/HID1b. Based on your work experience, have pulse start metal halide lighting installations increased, decreased, or stayed about the same over the **past two years** compared to other technologies?
1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED **[GO TO HB13]**
97. DON'T KNOW **[GO TO HB13]**

HB11/HID1c. Do you expect this market share will increase, decrease, or stay about the same over the **next two years?**
1. INCREASE
2. DECREASE
3. STAY THE SAME
96. REFUSED
97. DON'T KNOW

HB12/HID2. In your opinion, what will be the main factors in determining the market share of high bay pulse-start metal halide lighting in the next two years? **[DO NOT READ; SELECT ALL THAT APPLY]**
1. COST OF ELECTRICITY
2. LOWER PURCHASE PRICE OF EQUIPMENT, NEW TECHNOLOGIES
3. REBATES FROM NYSERDA/UTILITIES
4. CONCERN/GREATER AWARENESS OF SAVING ENERGY
5. BETTER PERFORMANCE FROM NEW TECHNOLOGIES

6. GOVERNMENT REGULATIONS/BUILDING CODES
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

HB13/HID3. What kinds of objections, if any, have you heard from customers when you propose installing pulse-start metal halide equipment in high bay applications? **[DO NOT READ; SELECT ALL THAT APPLY]**

1. PURCHASE PRICE/INSTALLATION COST
2. LIGHT QUALITY
3. COST MORE TO MAINTAIN
4. WOULD REQUIRE ADDITIONAL ELECTRICAL WORK
94. NO OBJECTIONS
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

CONTROLS

Next I'd like to talk about how the lights are controlled in your high bay lighting projects.
[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

CT1/CT1**.** Of the high bay lighting projects that your firm completed in the past two years, what percent **installed** the following types of lighting controls…
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. Simple on/off switches
b. Occupancy or motion sensors
c. Photo sensors
d. Time clocks
e. Building or energy management systems
f. Daylight controls
    1. [RECORD PERCENTAGE] (ACCEPT 0-100)
    96. REFUSED
    97. DON'T KNOW

CT2/CT2**.** Of the high bay lighting projects that your firm completed in the past two years, in what percent did your firm **recommend** installing the following types of lighting controls…
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. Simple on/off switches
b. Occupancy or motion sensors
c. Photo sensors
d. Time clocks
e. Building or energy management systems
f. Daylight controls
    1. [RECORD PERCENTAGE] (ACCEPT 0-100)
    96. REFUSED
    97. DON'T KNOW

CHAINS AND FRANCHISES

Next, I'd like to talk to you about your experiences installing high bay lighting equipment for chains and franchises. **[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]**

CF1/CF1. Thinking again about the past four years, has your firm installed high bay lighting at a facility that is part of a chain or franchise during the past four years?
1. YES
2. NO **[GO TO FIRM1]**
96. REFUSED **[GO TO FIRM1]**
97. DON'T KNOW **[GO TO FIRM1]**

CF2/CF2. What percent of the high bay lighting projects that your firm completed in the past four years were for chains and franchises?
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

CF3/CF3. Did any of these organizations have lighting specification policies for high bay applications?
1. YES
2. NO **[GO TO FIRM1]**
96. REFUSED **[GO TO FIRM1]**
97. DON'T KNOW **[GO TO FIRM1]**

CF4/CF4. Did these lighting policies incorporate fixture and control technologies that are energy efficient?
1. YES
2. NO **[GO TO FIRM1]**
96. REFUSED **[GO TO FIRM1]**
97. DON'T KNOW **[GO TO FIRM1]**

CF5/CF5. In your experience, do chains and franchises tend to use the same specifications across facilities for high bay lighting applications?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

FIRMOGRAPHICS

I just have a few more questions, and then we will be done. These questions are for statistical purposes only.

FIRM1/SC3. Approximately, how many full-time-equivalent (FTE) employees do you have at this location?
1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

FIRM2/SC4. How many locations does your firm have in New York State excluding Long Island?
1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

FIRM3/SC6. Which of the following best characterizes your company's revenue at this location? **[READ RESPONSES]**

1. Up to $250,000
2. More than $250,000 to $500,000
3. More than $500,000 to $1 million
4. More than $1 million to $2 million
5. More than $2 million to $5 million
6. More than $5 million to $10 million
7. More than $10 million

96. REFUSED
97. DON'T KNOW

APPENDIX D: CROSS-STATE COMPARISON AREA END-USER SURVEY

NYSERDA C&I Existing Facilities
HBL Comparison Study:
Cross State Comparison Area Survey (MS, AL, SC, GA)
July 20, 2012 – Final with New Codes

SCREENER SURVEY

Hello. My name is **[INTERVIEWER NAME]** and I'm calling from **[INSERT PHONE CENTER]** on behalf of the New York State Energy Research and Development Authority.

[READ IF CASE HAS NOT COMPLETED SCREENER]
I'm calling because we are conducting research with businesses and organization in your state, and I'd like to take one minute of your time to ask about the lighting in your facility.

[READ IF CASE COMPLETED SCREENER AND IS BEING CALLED BACK FOR SCHEDULED INTERVIEW]
We spoke to you recently and found out you made high bay lighting changes at your facility between 2007 and 2010. I'm calling back to ask additional questions about this work. These questions will take about 10 minutes, and we are offering a $100 incentive if you complete the survey. **[GO TO INT0]**

S4. Are there any high bay spaces in your facility? By high bay spaces, I mean areas with ceiling heights that are fifteen feet or above. **[INT NOTE: IF RESPONDENT DOES NOT KNOW, ASK IF ANYONE AVAILABLE WHO COULD ANSWER THIS]**
1. YES
2. NO **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**

S5. Did your organization install or upgrade any **lighting fixtures** in these high bay spaces between **2007 and 2010**? **[INT NOTE: IF RESPONDENT DOES NOT KNOW, ASK IF ANYONE AVAILABLE WHO COULD ANSWER THIS]**
1. YES
2. NO **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**

S13a. How many employees work at your company? **[IF NEEDED:** Your best estimate is fine**]**.
1. **[RECORD NUMBER] [IF LESS THAN 5, THANK AND TERMINATE; IF 5 OR MORE, GO TO S1b]**
96. REFUSED **[GO TO S13b]**
97. DON'T KNOW **[GO TO S13b]**

S13b. Are there more than four employees?
1. YES
2. NO **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**

S1b. Just to confirm, have I reached you today at: **[INSERT ADDRESS AND CITY]**?

1. YES
2. NO **[GO TO S1C]**
96. REFUSED **[THANK AND TERMINATE]**

S1c. Where is your facility located? Please tell me the street address, city and zip code.

1. **[RECORD ADDRESS, CITY, ZIP CODE]**
96. REFUSED **[THANK AND TERMINATE]**

S14. Great. We would like to learn more about the high bay lighting changes made to this facility between 2007 and 2010 that you just told me about. Would you be the best person to speak to about these changes? **[IF NEEDED:** We would like to speak to whoever in your organization is most familiar with this work. These questions would take about 10 minutes and we are offering a $100 incentive if that person completes the interview. **]**

1. YES **[GO TO S16]**
2. NO **[GO TO S15]**
96. REFUSED **[THANK AND TERMINATE]**

S15. Who would be the best person in your organization to speak with about this work? **[IF NEEDED:** If there is anyone in your organization who is knowledgeable about this work, we would like to speak to them and are offering a $100 if they complete an interview and a $25 incentive to you if you can schedule an interview for us and he/she completes the interview.**]**

1. [RECORD CONTACT INFORMATION] **[READ:** ***Thank you for your assistance. Have a nice day*****.] [THANK AND TERMINATE]**
2. NO ONE IN ORGANIZATION IS FAMILIAR WITH THIS WORK **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**

S16. We would like to ask you these additional questions now. These questions will take about 10 minutes, and if you complete the interview, you will be sent a check for $100 as a token of our appreciation for your participation. Can we start?

1. YES **[GO TO INT2b]**
2. NO, BUSY NOW **[SCHEDULE CALLBACK]**
3. NO, NOT INTERESTED **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**

[INT NOTE: IF RESPONDENT HESITANT, READ: ***We are only talking to a few organizations in your state, and your help would be greatly appreciated for this research effort. We can work to accommodate your schedule for a time that is convenient for you.*****]**

FULL SURVEY

SECTION INT

INT0. Just to confirm, are you the person at your facility who is most familiar with these HIGH BAY LIGHTING installations?

3. YES **[GO TO INSTRUCTIONS BEFORE INT2b]**
4. NO

97. REFUSED

INT1. May I please speak to the person at your facility who is most familiar with these recent HIGH BAY LIGHTING installations?

3. YES **[RECORD NAME OF APPROPRIATE CONTACT AND REPEAT INTRODUCTION AND INT0 FOR NEW CONTACT]**
4. CORRECT RESPONDENT NOT AVAILABLE **[ASK WHEN TO CALLBACK]**
96. REFUSED **[THANK AND TERMINATE]**

INT2b. Did you conduct more than one HIGH BAY LIGHTING retrofit project between 2007 and 2010?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[READ IF INT2b=1]
For the purpose of this interview, I would like you to focus on a single HIGH BAY LIGHTING retrofit project and the facility where you did this work. By 'single project' we mean energy related equipment and building changes planned and done in a single facility at approximately the same time. Please focus on a high bay lighting project that is typical of the type of high bay lighting changes you made between 2007 and 2010.

Throughout the rest of this interview, whenever I say "your facility" or "this facility" I mean the facility where this retrofit project was done**.**

[READ IF INT2b≠1]
For the purpose of this interview, I would like you to focus on this one HIGH BAY LIGHTING retrofit project and the facility where you did this work.

Throughout the rest of this interview, whenever I say "your facility" or "this facility" I mean the facility where this retrofit project was done**.**

SECTION FIRM: FIRMOGRAPHICS AND END-USER CHARACTERISTICS

FIRM1/PROJAREA. Now that you have this HIGH BAY LIGHTING retrofit project in mind, what, if any, other building area or areas were impacted by this single project? Did the lighting project also impact [INSERT ITEM]?

a. The building shell or envelope (such as adding insulation or replacing windows)
b. The HVAC systems (such as replacing the air conditioning or heating systems)
c. The facility's NON-High Bay lighting
d. Motors and drives at the facility
e. Building controls such as energy management systems
f. Hot water heating systems
g. Industrial processes
h. Combined heat and power (CHP)

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

FIRM2. What was the approximate cost of this HIGH BAY LIGHTING retrofit project? **[READ]**

1. Less than $5,000
2 $5,000 to less than $10,000
3 $10,000 to less than $25,000
4 $25,000 to less than $50,000
5 $50,000 to less than $100,000
6 $100,000 to less than $250,000
7 $250,000 to less than $500,000
8 $500,000 or more

96. REFUSED
97. DON'T KNOW

FIRM3/FC2(Z2). Does your organization own or lease the facility where you conducted the retrofit project?

1. OWNS **[GO TO FIRM6]**
2. LEASES
3. OWNS A PART AND LEASES THE REMAINDER (Vol.)
96. REFUSED
97. DON'T KNOW

FIRM4/FC3. Does your organization pay your own electricity bills or is electricity included in your lease payment for this facility?

1. PAY OWN ELECTRIC BILLS
2. INCLUDED IN LEASE
96. REFUSED
97. DON'T KNOW

FIRM6/S10. What is the primary use of this facility? **[READ RESPONSES IF NECESSARY. SELECT ONE. IF FACILITY IS USED FOR MORE THAN ONE PURPOSE AND RESPONDENT CANNOT IDENTIFY ONE AS 'PRIMARY' PLEASE RECORD BOTH IN 'OTHER'.]**

1. Office
2. Education/Child Care
3. Food sales (Grocery)
4. Food Service
5. Health Care
6. Lodging
7. Retail
8. Services
9. Public Assembly
10. Warehouse & storage
11. Manufacturing – Assembly
12. Manufacturing – Process
13. Vehicle Repair/Storage
14. Residential/Specialized Housing Facility
95. OTHER **[SPECIFY]**
94. NONE OF THE ABOVE **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

[NOTE: FIRM6b = SECOND RESPONSE IF MULTIPLE RESPONSES VOLUNTEERED IN "OTHER"]

FIRM7/FC5(Z7).What is the approximate age of this facility? **[IF NEEDED:** Your best estimate is fine.**]**

1. **[RECORD NUMBER OF YEARS]**
96. REFUSED
97. DON'T KNOW

FIRM8/S11(Z4).How many square feet of space does your organization occupy in this facility? **[IF RESPONDENT SAYS 'DON'T KNOW', READ]** Please, do your best to estimate.

1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

FIRM9/Z3. Approximately how many square feet did your retrofit project affect?

1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

FIRM 10. Before you conducted the lighting project we are discussing, to the best of your knowledge, in what year was the lighting at this facility last remodeled?

1. **[RECORD YEAR]**
96. REFUSED
97. DON'T KNOW

SECTION HB: HIGH BAY LIGHTING TYPES

HB3/SL3. Next I would like you to think of the various types of high bay lighting equipment currently in your facility. I would like you to tell me what percent of your HIGH BAY lighting falls into the following four equipment categories. These percentages should sum to 100%. What percentage of your total high bay space is served by [INSERT ITEM]?

a. High Intensity Discharge Lamps
b. Fluorescent Tube Fixtures
c. Compact Fluorescent Fixtures
d. Incandescent Fixtures

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER NOTE: CONFIRM PERCENTAGES ADD TO 100]

[INTERVIEWER NOTE: IF NEEDED, READ ITEM DESCRIPTIONS BELOW]
"High Intensity Discharge Lamps" are large fixtures consisting of a ballast that generates an arc discharge into a heavy glass bulb that contains pressurized gas, and a reflective housing.
"Fluorescent Tube Fixtures" consist of a ballast, a reflective housing, and 2 to 4 fluorescent tubes that are 4 to 8 feet long and 5/8 to one inch diameter.
"Compact Fluorescent Fixtures" consist of a cluster of compact fluorescent lamps in a reflective housing.
"Incandescent Fixtures" use standard, high wattage incandescent bulbs.

SECTION LEQ: PURCHASE AND INSTALLATION OF LIGHTING EQUIPMENT

Let's discuss the purchase and installation of HIGH BAY LIGHTING equipment that was part of this project.

LEQ1. Approximately, how old was the equipment that was removed as part of the HIGH BAY LIGHTING retrofit? Was it..**[READ]**?

1. Less than five years old
2. Between 5 and 10 years old
3. Between 10 and 15 years old
4. More than 15 years old
96. REFUSED

97. DON'T KNOW

LEQ2/PL1a. Roughly what percentage of the high bay space in your facility is lit by the equipment you purchased and installed as part of this project? **[IF NEEDED:** Your best estimate is fine**]**.
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

LEQ3/PL2. And roughly what percentage of the HIGH BAY LIGHTING equipment installed as part of this project was accounted for by the following types of equipment. These percentages should sum to 100%. What percent of the installed equipment are [INSERT ITEM]?
a. High Intensity Discharge Lamps
b. Fluorescent Tube Fixtures
c. Compact Fluorescent Fixtures
d. Incandescent Fixtures
e. OTHER **[SPECIFY]**
1. [RECORD PERCENTAGE] (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER NOTE: CONFIRM PERCENTAGES ADD TO 100]

[IF LEQ3A=0%, 96 REFUSED, 97 DON'T KNOW, SKIP LEQ4]

LEQ4/PL3a. What type or types of high intensity discharge equipment did you install? **[READ; CHECK ALL THAT APPLY]**
1. Metal halide
3. Pressurized sodium
4. High pressure sodium
5. Mercury vapor
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ5 IF LEQ4 INCLUDES MORE THAN ONE RESPONSE, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ6]

LEQ5/PL3b. Which of those high intensity discharge technologies accounted for the largest portion of the space served by this lighting installation project? **[SHOW OPTIONS SELECTED FROM LEQ4 ONLY; IF 95 "OTHER" WAS SELECTED, INSERT VERBATIM] [SELECT ONE]**
1. Metal halide
3. Pressurized sodium
4. High pressure sodium
5. Mercury vapor
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ5a IF LEQ4=1, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ6]

LEQ5a. What type of metal halide lighting did you install? Was it [INSERT ITEM]? [**CHECK ALL THAT APPLY]**
4. Probe start metal halide
5. Pulse start metal halide
6. Ceramic metal halide
96. REFUSED
97. DON'T KNOW

[IF LEQ3B=0%, 96 REFUSED, 97 DON'T KNOW, SKIP LEQ6]

LEQ6/PL4a. What type or types of fluorescent tube equipment did you install? **[READ; CHECK ALL THAT APPLY]**

1. T12
2. T8
3. T5
4. Induction
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ7 IF MORE THAN ONE RESPONSE TO LEQ6, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ7a]

LEQ7/PL4b. Which of those technologies accounted for the largest portion of the space served by this installation project? **[SHOW OPTIONS SELECTED FROM LEQ7 ONLY] [SELECT ONE]**

1. T12
2. T8
3. T5
4. Induction
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ7a IF LEQ6=3, ELSE SKIP TO INSTRUCTIONS BEFORE LEQ7b]

LEQ7a. What type of T5 florescent lighting did you install? Was it [INSERT ITEM]? [**CHECK ALL THAT APPLY]**

3. Standard T5
4. T5 High Output
96. Any others **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK LEQ7b IF LEQ6=2, ELSE SKIP TO NEXT SECTION]

LEQ7b. What type of T8 florescent lighting did you install? Was it [INSERT ITEM]? [**CHECK ALL THAT APPLY]**

3. Standard T8
4. High performance or "Super" T8s
96. Any others **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SECTION SEL: EQUIPMENT SELECTION PROCESS

I'm interested in learning more about the equipment that you replaced.

SEL1/SC9 (C8). How would you describe the condition of your old high bay lighting? Was it in good condition, fair condition, poor condition or was it not working?

1. GOOD CONDITION
2. FAIR CONDITION
3. POOR CONDITION
4. NOT WORKING
96. REFUSED

97. DON'T KNOW

SEL2/SC9 (C8). Why did you decide to replace the high bay lighting? **[PROMPT IF NEEDED; SELECT ALL THAT APPLY]**

1. EQUIPMENT WAS INEFFICIENT/WANTED TO INCREASE EQUIPMENT EFFICIENCY
2. EQUIPMENT REQUIRED FREQUENT MAINTENANCE
3. I NEEDED EQUIPMENT OF DIFFERENT TYPE
4. EQUIPMENT WAS OLD AND WOULD NEED TO BE REPLACED SOON ANYWAY
5. PART OF LARGER RENNOVATION/REMODEL PROJECT
6. FUNDS/INCENTIVES/PROGRAMS WERE AVAILABLE FOR NEW EQUIPMENT
7. EQUIPMENT WAS NOT WORKING AND NEEDED IMMEDIATE REPLACEMENT
8. APPEARANCE/FUNCTIONING OF EQUIPMENT WAS NOT IDEAL
9. WANTED TO ADD ON OR MODIFY EXISTING EQUIPMENT/SYSTEM
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL3/PL6. Was the person or people who specified or recommended the type of equipment used in this high bay lighting project from outside of your organization?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE SEL6]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE SEL6]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE SEL6]**

SEL3a. How much influence did this equipment recommendation have on your decision to install the high bay lighting equipment that you did – a great deal, some, not very much or no influence?

1. NO INFLUENCE
2. NOT VERY MUCH INFLUENCE
3. SOME INFLUENCE
4. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

SEL4/ PL6a. Who specified or recommended the type of high bay lighting equipment you installed? **[PROMPT IF NEEDED; SELECT ALL THAT APPLY]**

1. Architect or interior designer
2. Engineer
3. Lighting Distributor
4. General Contractor
5. Electrical Contractor
6. Lighting Contractor
7. Friend/work colleague
8. Trade association **[SPECIFY]**
9. HVAC/Plumbing Contractor
10. Utility Representative
11. Consultant
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

[ASK SEL5 IF SEL4 INCLUDES MORE THAN ONE RESPONSE, ELSE SKIP TO INSTRUCTIONS BEFORE SEL6]
[SHOW OPTIONS MENTIONED IN SEL4 ONLY; IF 95 "OTHER" MENTIONED, SHOW VERBATIM]

SEL5/PL6b. Which of those firms or individuals you named had the greatest influence on your organization's selection of **[MEASURE#]** equipment? **[SELECT ONLY ONE]**

1. Architect or interior designer
2. Engineer
3. Lighting Distributor
4. General Contractor
5. Electrical Contractor
6. Lighting Contractor
7. Friend/work colleague
8. Trade association
9. HVAC/Plumbing Contractor
10. Utility Representative
11. Consultant
95. OTHER
96. REFUSED
97. DON'T KNOW

[ASK IF SEL3=1, ELSE GO TO SEL8]

SEL6/PL8. Did your lighting vendor, contractor, or designer specify or recommend the use of pulse start metal halide equipment for your high bay lighting project?

1. YES
2. NO **[GO TO SEL8]**
96. REFUSED **[GO TO SEL8]**
97. DON'T KNOW **[GO TO SEL8]**

[ASK SEL7 IF SEL6=1 AND LEQ5a≠2]

SEL7/PL9. Earlier you indicated that you did not install pulse start metal halide equipment for this project. Why did you choose not to install pulse start metal halide equipment for this project even though they were recommended? **[CHECK ALL THAT APPLY]**

1. TOO EXPENSIVE
2. ENERGY SAVINGS DID NOT JUSTIFY ADDITIONAL COST
3. UNSATISFACTORY PREVIOUS EXPERIENCE
4. TOO DIFFICULT TO MAINTAIN
5. QUALITY OF LIGHT
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL8/PL9a. Had you heard of pulse start metal halide equipment for indoor use prior to undertaking this project?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE SEL10]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE SEL10]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE SEL10]**

SEL9/ PL9b. How had you heard about pulse start metal halide equipment? **[READ RESPONSES; ACCEPT MULTIPLE]**

1. Lighting vendors
2. Architects/engineers
3. Internal staff
4. Experience with previous projects
5. Colleagues or competitors in the industry
6. Trade or industry representatives
7. Utility programs or representatives
8. Personal research
95. Other **[SPECIFY]**

96. REFUSED
97. DON'T KNOW

[ASK IF SEL3=1, ELSE GO TO SEL12]

SEL10/PL10. Did your lighting vendor, contractor, or designer specify or recommend the use of fluorescent tube or compact fluorescent equipment for your high bay lighting project?

1. YES
2. NO **[GO TO SEL12]**
96. REFUSED **[GO TO SEL12]**
97. DON'T KNOW **[GO TO SEL12]**

[ASK SEL11 IF SEL10=1 AND LEQ3b=0]

SEL11/PL11. Earlier you indicated that you did not install high efficiency fluorescent tube lighting in for this project. Why did you choose not to install high efficiency fluorescent equipment for this project even though they were recommended? **[CHECK ALL THAT APPLY]**

1. TOO EXPENSIVE
2. ENERGY SAVINGS DID NOT JUSTIFY ADDITIONAL COST
3. UNSATISFACTORY PREVIOUS EXPERIENCE
4. TOO DIFFICULT TO MAINTAIN
5. QUALITY OF LIGHT
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL12/PL12a. Had you heard of fluorescent equipment for high bay lighting applications prior to undertaking this project?

1. YES
2. NO **[GO TO SEL14]**
96. REFUSED **[GO TO SEL14]**
97. DON'T KNOW **[GO TO SEL14]**

SEL13/ PL12b. How had you heard about fluorescent high bay lighting equipment? **[READ RESPONSES; ACCEPT MULTIPLE]**

1. Lighting vendors
2. Architects/engineers
3. Internal staff
4. Experience with previous projects
5. Colleagues or competitors in the industry
6. Trade or industry representatives
7. Utility programs or representatives
8. Work in lighting field
9. Personal research
95. Other **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

SEL14/PL13. What types of lighting controls were used for this high bay lighting project? **[PROMPT IF NEEDED; ACCEPT MULTIPLE RESPONSES]**

1. Simple on/off
2. Occupancy or motion sensor
3. Photo sensor
4. Time clock
5. Building or energy management system
6. Daylighting controls
95. OTHER **[SPECIFY]**
96. REFUSED

97. DON'T KNOW

SEL15/PL13a. Did your contractor recommend the installation of energy efficient lighting controls?

1. YES
2. NO **[GO TO SEL17]**
96. REFUSED **[GO TO SEL17]**
97. DON'T KNOW **[GO TO SEL17]**

[IF SEL14=2-97, GO TO SEL17]

SEL16/PL13b. Why did you choose not to install lighting controls that were more energy efficient as part of this project?

3. Wanted Manual Control
4. No Need Because of Continual Usage
5. Cost Considerations
96. Other (Specify)
96. REFUSED
97. DON'T KNOW

SEL17/PL14. On a scale of 1 to 10, where 1 means "Not at all important," and 10 means "Very important", how important were the following features in your choice of lighting equipment for this project? How important was the…

a. Quality of light provided?
b. Appearance of the fixtures?
c. Cost of maintenance?
d. Amount of energy use?
e. Installation cost?

1. NOT AT ALL IMPORTANT
2.
3.
4.
5.
6.
7.
8.
9.
10. VERY IMPORTANT
96. REFUSED
97. DON'T KNOW

SEL18. Before beginning this project, did you develop or receive an estimate of how much you could save by installing energy efficient lighting?

1. YES
2. NO **[GO TO EE1]**
96. REFUSED **[GO TO EE1]**
97. DON'T KNOW **[GO TO EE1]**

SEL19. In general, thinking about this estimate how confident were you that you would actually save the amount that was estimated? Would you say very confident, somewhat confident, not very confident or not at all confident?

1. NOT AT ALL CONFIDENT
2. NOT VERY CONFIDENT
3. SOMEWHAT CONFIDENT
4. VERY CONFIDENT
96. REFUSED
97. DON'T KNOW

SECTION EE1: SELF-ASSESSMENT OF ENDUSE ENERGY EFFICIENCY

EE1/C5. I'm interested in learning about the energy efficiency of the lighting equipment you installed as part of this project. When selecting new energy using equipment, you get to choose from different options that use more or less energy to do the same job. Typically, the equipment that uses less energy costs more. To the best of your knowledge, how efficient was the lighting you installed? Please use a 5-point scale where 1 means everything was standard efficiency and 5 means the equipment and designs were the highest efficiency available.

1. STANDARD EFFECIENCY
2.
3.
4.
5. HIGHEST EFFICIECNY AVAILABLE
96. REFUSED
97. DON'T KNOW

SECTION INFL: UTILITY PROGRAM RECOGNITION, PARTICIPATION, INFLUENCE

[ASK ALL RESPONDENTS]

INFL1/B1E. Before this interview today, how familiar were you with programs operated by your electric utility to help companies like yours reduce their energy use and costs? Please answer on a 1-5 scale where 1 means "not at all familiar," and 5 means "very familiar."

6. NOT AT ALL FAMILIAR
7.
8.
9.
10. VERY FAMILIAR

96. REFUSED
97. DON'T KNOW

[ASK INFL2a IF INFL1=2, 3, 4, or 5; ELSE SKIP TO NEXT SECTION]

INFL2a. To the best of your knowledge, did your organization receive a financial incentive from your electric utility to defray a portion of the costs of the lighting project we are discussing?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

SECTION PP1: ENERGY EFFICIENCY PRACTICES AND POLICIES

I have just a few more questions. I'm interested in learning about your organization's policies and practices regarding energy management.

PP1/EP0. Is there a person or people in your organization in charge of managing the organization's energy use and costs?

1. YES
2. NO **[GO TO PP4]**
96. REFUSED **[GO TO PP4]**
97. DON'T KNOW **[GO TO PP4]**

PP2/ EP1. Is the entity involved with managing your organization's energy use a single person, a group, OR a department?

1. PERSON
2. GROUP
3. DEPARTMENT
96. REFUSED
97. DON'T KNOW

PP4/EP3. Does your organization have energy use reduction goals for this facility?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP5/EP5a. Does your organization have any corporate environmental or sustainability initiatives?

1. YES
2. NO [**GO TO PP8]**
96. REFUSED **[GO TO PP8]**
97. DON'T KNOW **[GO TO PP8]**

PP6/EP5c. Is energy management part of your corporate environmental or sustainability initiative?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP7. Do you have a process for measuring progress towards your sustainability goals?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

PP8/EP6. How does your organization learn about technologies and equipment for saving energy? **[PROMPT IF NEEDED; ACCEPT MULTIPLE RESPONSES]**

1. Manufacturer's literature
2. Manufacturer representative/Manufacturer Seminar
3. Distributor/Vendor
4. Installation contractor/Service Provider
5. Colleagues in your own industry
6. Your industry trade or professional organization
7. Trade or industry publications

8. Friends/Family
9. Consultant/Engineer/Architect/Audit
10. Online research
11. NYSERDA
12. Word of mouth/Networking
13. Experience with Projects/Our Work
14. TV/Magazine/Newspaper/Media
15. Advertisements/General Solicitations
16. Employees/Corporate/Other Departments
17. Utility Company/Energy Provider
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

[ASK PP9 IF MORE THAN 1 RESPONSE TO PP8, ELSE SKIP TO PP10]

PP9/EP7. Which of these sources do you find most useful? **[SHOW OPTIONS SELECTED FROM PP8 ONLY; IF 95 "OTHER" SELECTED, SHOW VERBATIM; CHECK ONLY ONE RESPONSE]**

1. Manufacturer's literature
2. Manufacturer representative/Manufacturer Seminar
3. Distributor/Vendor
4. Installation contractor/Service Provider
5. Colleagues in your own industry
6. Your industry trade or professional organization
7. Trade or industry publications
8. Friends/Family
9. Consultant/Engineer/Architect/Audit
10. Online research
11. NYSERDA
12. Word of mouth/Networking
13. Experience with Projects/Our Work
14. TV/Magazine/Newspaper/Media
15. Advertisements/General Solicitations
16. Employees/Corporate/Other Departments
17. Utility Company/Energy Provider
95. OTHER
96. REFUSED
97. DON'T KNOW

PP10/CAPB2. Energy efficient investments pay for themselves through reduced utility bills over time. Considering projects your company would approve, what is the longest period of time your organization would allow for an energy efficient investment to pay for itself?

7. Less than 1 year
8. 1 to less than 3 years
9. 3 to less than 5 years
10. 5 to less than 10 years
11. 10 or more years
12. Varies depending on projects
96. Other (Specify)
96. REFUSED
97. DON'T KNOW

APPENDIX E: CROSS-STATE COMPARISON AREA CONTRACTOR SURVEY

NYSERDA C&I Existing Facilities
HBL Comparison Study:
Comparison Area Contractor Survey (MS, AL, SC, GA)
Final with New Codes
July 10, 2012

INTRODUCTION

Hello. This is _____ calling on behalf of the New York State Energy Research and Development Authority. I'm calling because we are conducting research in your state with lighting contractors, lighting designers, and electrical contractors and engineers to better understand the lighting upgrade work you do for commercial customers. May I please speak with someone who is knowledgeable about your firm's work with commercial customers?

[READ IF NECESSARY] This survey will take about 15 minutes of your time. Your answers will be used for research purposes only. We are only talking to a small carefully selected sample of contractors in your state and we would really appreciate your participation in this important research effort.

SCREENER

SCR2/I1. During the past four years, did your company do any work in the design or installation of lighting equipment for commercial or institutional facilities in your state?

1. YES
2. NO DON'T DO COMMERCIAL WORK **[THANK AND TERMINATE]**
3. NO, DON'T DO THIS TYPE OF WORK **[THANK AND TERMINATE]**
4. NO, OTHER REASON (SPECIFY) **[THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

SCR4/Z7. Is your firm a(n)..? **[READ RESPONSE OPTIONS. ACCEPT ALL THAT APPLY]**

1. Architectural firm
2. Engineering firm
3. Electrical contractor
95. Something else (Specify _____)
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

I'm interested in the lighting work your company did during the last four years. We are only interested in work you did for commercial and industrial facilities. Please focus on your commercial and industrial work when answering the rest of the survey.

SCR5/SC5/I2a. Approximately how many commercial and industrial lighting projects did your company perform during the past four years?

1. **[RECORD NUMBER] [IF 0, THANK AND TERMINATE]**
96. REFUSED
97. DON'T KNOW

SCR6/I2b**.** On average, during the past four years, what percentage of the facilities where you worked fell into the following size categories? These percentages should sum to 100%.

[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. 0 to 2,000 sq feet.

b. 2,001 to 4,000
c. 4,001 to 6,000
d. 6,001 to 8,000
e. 8,001 to 10,000
f. 10,000+

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

SCR8/LS1. Considering all the commercial and industrial lighting projects that your firm completed during the past four years, approximately what percentage of the lighting projects involved high bay applications? **[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]**
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100) **[IF 0%, THANK AND TERMINATE]**
96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

[PROGRAMMER: CHECK THAT SCR6a-f SUMS TO 100% BEFORE PROCEEDING]

SCR9/D1c. During the past four years, approximately what percentage of your projects included the following activities? **[READ IF NEEDED: THIS SHOULD BE BASED ON THE TOTAL NUMBER OF PROJECTS THAT YOU HAVE WORKED ON]**
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. Studies/Audits
b. Design
c. Installation work
d. Maintenance/Commissioning

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

ENERGY EFFICIENCY RECOMMENDATIONS

ER1HB/LS4. How often do you recommend energy efficient types of equipment for your high bay lighting projects? Would you say it is always, most of the time, sometimes, rarely or never?
[INTERVIEWER: IF RESPONDENT ASKS WHAT WE MEAN BY "ENERGY EFFICIENT", IT IS WHATEVER THEY CONSIDER TO BE ENERGY EFFICIENT. READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. ALWAYS
2. MOST OF THE TIME
3. SOMETIMES
4. RARELY
5. NEVER [**GO TO ER3HB]**
96. REFUSED
97. DON'T KNOW

ER2HB/LS6. In cases where you recommend energy efficient high bay lighting equipment, how often do customers follow this recommendation? Would you say always, most of the time, sometimes, rarely or never?

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. ALWAYS
2. MOST OF THE TIME
3. SOMETIMES
4. RARELY
5. NEVER
96. REFUSED
97. DON'T KNOW

ER3HB/LS7. Roughly what percent of customers are aware of the full range of options for energy efficient high bay lighting equipment available to them **[READ IF ER1HB≠5: BEFORE YOU PROVIDE RECOMMENDATIONS ABOUT THE EQUIPMENT]?**
[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.] [IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

1. **[RECORD PERCENTAGE]** (ACCEPT 0%-100%)
96. REFUSED
97. DON'T KNOW

ER4. We are interested in the role you play in assisting your customers with selecting the type of equipment installed in their facilities. I am going to ask you about three different types of customers and would like to know the percentage of your customers that fall into each of the three categories. The percentages should add up to 100%. We can go back and adjust your answers at the end as necessary.
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. What percent of your customers want you to tell them what equipment to install and will simply go with your recommendation?
b. What percent of your customers want your equipment recommendations but want to work with you to make a final decision about what to install?
c. What percent of your customers don't want your recommendations because they have already selected the equipment and just want you to install it?

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER: CHECK THAT ER4a-c SUM TO 100% BEFORE PROCEEDING]

PROGRAM AWARENESS AND PARTICIPATION

PP1/PP1. Are you aware of any programs run by electric and gas utilities in your state that help commercial customers reduce their energy use and costs?

1. YES
2. NO [**GO TO PP7]**
96. REFUSED [**GO TO PP7]**
97. DON'T KNOW [**GO TO PP7]**

PP2/J1. How familiar are you with these utility programs in general? Please answer on a 1-5 scale where 1 means "not at all familiar," and 5 means "very familiar."

6. NOT AT ALL FAMILIAR
7.
8.
9.
10. VERY FAMILIAR

96. REFUSED
97. DON'T KNOW

PP7/PP2/C1. To the best of your knowledge, did your company work on any lighting projects during the last four years that received incentives through energy efficiency programs offered by utilities in your state?

1. YES
2. NO **[GO TO PI1]**
96. REFUSED **[GO TO PI1]**
97. DON'T KNOW **[GO TO PI1]**

[PROGRAMMER: ASSIGN PART=1 IF PP7=1]

PP8/PP4**.** Roughly, what percentage of your total lighting projects during the last four years received financial incentives through utilities in your state?
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

PROGRAM INFLUENCE

[ASK THIS SECTION ONLY IF PP2=2-5; ELSE GO TO CD1]

[READ IF PART=1: FOR THE NEXT FEW QUESTIONS I WOULD LIKE YOU TO THINK ONLY ABOUT THE PROJECTS THAT YOU COMPLETED DURING THE PAST FOUR YEARS THAT DID NOT RECEIVE INCENTIVES THROUGH UTILITY PROGRAMS IN YOUR STATE.]

PI1/J5a. When installing new energy using equipment, there are often different equipment options that use more or less energy to do the same job. Approximately what percentage of the lighting projects that you completed during the past four years involved the installation of energy efficient equipment?
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]
1. **[RECORD PERCENTAGE]** [ACCEPT 0-100]
96. REFUSED
97. DON'T KNOW

[**READ BELOW AND ASK P12 IF PI1>0% OR PI1==96, 97, ELSE SKIP TO CD1]**

The next few questions ask about factors that might have influenced your recommendations to your customers. When answering these questions, please think about your lighting projects over the past four years **[READ IF PART=1: THAT DID NOT RECEIVE INCENTIVES THROUGH UTILITY PROGRAMS IN YOUR STATE.]**

PI2/D4. Has your experience with, or the existence of, these utility programs had ANY influence on the way you conduct lighting projects in commercial or institutional facilities?
1. YES
2. NO **[GO TO CD1]**
96. REFUSED **[GO TO CD1]**
97. DON'T KNOW **[GO TO CD1]**

PI3/J3. Please describe how the utility programs have affected your work.

2. Programs have attracted more customers/generated more work/increased sales
4. Programs have provided knowledge/information about equipment/work practices/the market
5. Rebates/incentives have saved customers money/impacted customer product choice/allowed us to upsell
95. Other (Specify)

96. REFUSED
97. DON'T KNOW

PI9. Thinking specifically about your high bay lighting projects, how much influence have utility programs had on the efficiency levels of the high bay lighting equipment you recommend to your customers? Please use a 1-5 scale where 1 means "no influence" and 5 means "a great deal of influence".

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. NO INFLUENCE
2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

PI10. Again, just focusing on your high bay lighting projects, how much influence do you think utility programs have had on the efficiency levels of the high bay lighting equipment that your customers choose to install? Please use a 1-5 scale where 1 means "no influence" and 5 means "a great deal of influence."

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

1. NO INFLUENCE
2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

BUILDING CODES

Now, I would like to ask you about the influence that building codes have on your **high bay** lighting projects.

[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

CD1/CD2. For the projects you completed during the past four years, did the building codes influence your selection of high bay lighting equipment?

1. YES
2. NO **[GO TO CD4]**
96. REFUSED **[GO TO CD4]**
97. DON'T KNOW **[GO TO CD4]**

CD2/CD3. What percent of the high bay lighting projects completed during the past four years were

influenced by the building codes?
[**IF NEEDED]** Your best estimate is fine.
1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

CD3/CD4. Please rate the influence of these codes on your selection of high bay lighting equipment using a scale of 1 to 5, where 1 indicates that the codes had "little influence on your selection" and 5 indicates that the codes "completely determined the type of high bay lighting equipment you installed"?
1. LITTLE INFLUENCE ON YOUR SELECTION
2.
3.
4.
5. COMPLETELY DETERMINED THE TYPE OF HIGH BAY LIGHTING INSTALLED
96. REFUSED
97. DON'T KNOW

CD4. Approximately what percentage of the high bay lighting projects that you completed during the past four years were more efficient than building codes required?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**
1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK CD5 IF CD4 > 0% and PI2 = 1]
CD5. How much influence did utility programs have on these projects being more efficient than codes required? Please use a 1 to 5 scale where 1 means the programs had "no influence" and 5 means the programs had "a great deal of influence".
1. NO INFLUENCE
2.
3.
4.
5. A GREAT DEAL OF INFLUENCE
96. REFUSED
97. DON'T KNOW

HIGH BAY LIGHTING TYPES

HB1/LS2b. I'm going to read a list of different types of lighting technologies. Thinking about all of the **high bay** lighting fixtures that your firm installed in the past four years, what percentage were…?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**
a. Fluorescent tube lighting
b. HID lighting including metal halide, high and low pressure sodium and mercury vapor **[IF NECESSARY: HID IS "HIGH INTENSITY DISCHARGE"]**
c. LEDs
d. Other technologies
1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[PROGRAMMER: CHECK THAT HB1a-HB1d SUMS TO 100% BEFORE PROCEEDING]

[ASK HB2 IF HB1a > 0%; ELSE GO TO INSTRUCTIONS BEFORE HB4]
HB2. When it comes to T8 fluorescent lights, have you heard of high performance or reduced wattage or Super T8s?

1. YES
2. NO **[GO TO INSTRUCTIONS BEFORE HB3B]**
96. REFUSED **[GO TO INSTRUCTIONS BEFORE HB3B]**
97. DON'T KNOW **[GO TO INSTRUCTIONS BEFORE HB3B]**

HB3A/LS2b. Thinking about all of the FLUORESCENT high bay lighting fixtures that your firm installed in the past four years, what percentage were [INSERT ITEM]?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**

a. T5 (all varieties)
b. High performance, reduced wattage, or super T-8
c. Standard T-8
d. T-12

1. [RECORD PERCENTAGE] (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK HB3b IF HB2 =2,96, 97, ELSE GO TO INSTRUCTIONS BEFORE HB4]

HB3b/LS2B. Thinking about all of the FLUORESCENT high bay lighting fixtures that your firm installed in the past four years, what percentage were [INSERT ITEM]?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE**].

a. T5 (all varieties)
b. T-8s (all varieties)
c. T-12

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

[ASK HB4 IF HB1b > 0%; ELSE GO TO HB5]

HB4/LS2B. Thinking about all of the HID high bay lighting fixtures that your firm installed in the past four years, what percentage were [INSERT ITEM]?
[**IF NEEDED: YOUR BEST ESTIMATE IS FINE.]**

a. Pulse start metal halide
b. Probe start metal halide
c. High pressure sodium
d. Low-pressure sodium
e. Mercury vapor

1. **[RECORD PERCENTAGE]** (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

HB5/LS3. I'm going to read a list of different types of lighting equipment. After I read each one, please tell me if you consider that type of equipment to be energy efficient or not energy efficient in high bay applications. If you don't recognize a type of equipment, just let me know and we can move on to the next one. How about [INSERT ITEM]

a. T5 (all varieties)
b. High performance, reduced wattage or super T-8
c. Standard T-8
d. T-12
e. Pulse start metal halide (HID)
f. Probe start metal halide (HID)
g. High pressure sodium (HID)
h. Low-pressure sodium (HID)
i. Mercury vapor (HID)
j. LED
k. Induction

1. ENERGY EFFICIENT

2. NOT ENERGY EFFICIENT
96. REFUSED
97. DON'T KNOW

We have been talking a lot about the last **four** years. For these next few questions, I want you to think about the past **two** years.

HB6/HFL1b. Based on your work experience, have fluorescent lighting installations in high bay spaces increased, decreased, or stayed about the same over the **past two years** compared to other technologies?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED **[GO TO HB9]**
97. DON'T KNOW **[GO TO HB9]**

HB7/HFL1c. Do you expect this market share will increase, decrease, or stay about the same over the **next two years**?

1. INCREASE
2. DECREASE
3. STAY THE SAME
96. REFUSED
97. DON'T KNOW

HB8/HFL2. In your opinion, what will be the main factors in determining the market share of high bay fluorescent lighting in the next two years? **[DO NOT READ. SELECT ALL THAT APPLY]**

1. COST OF ELECTRICITY
2. LOWER PURCHASE PRICE OF EQUIPMENT THAT INVOLVES NEW TECHNOLOGIES
3. REBATES FROM UTILITIES
4. CONCERN/GREATER AWARENESS OF SAVING ENERGY
5. BETTER PERFORMANCE FROM NEW TECHNOLOGIES
6. GOVERNMENT REGULATIONS/BUILDING CODES
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

HB9/HFL3. What kinds of objections, if any, have you heard from customers when you propose installing fluorescent equipment in high bay applications? **[DO NOT READ; SELECT ALL THAT APPLY]**

1. PURCHASE PRICE/INSTALLATION COST
2. LIGHT QUALITY
3. COST MORE TO MAINTAIN
4. WOULD REQUIRE ADDITIONAL ELECTRICAL WORK
94. NO OBJECTIONS
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

HB10/HID1b. Based on your work experience, have pulse start metal halide lighting installations increased, decreased, or stayed about the same over the **past two years** compared to other technologies?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED **[GO TO HB13]**
97. DON'T KNOW **[GO TO HB13]**

HB11/HID1c. Do you expect this market share will increase, decrease, or stay about the same over the **next two years?**

1. INCREASE
2. DECREASE
3. STAY THE SAME
96. REFUSED
97. DON'T KNOW

HB12/HID2. In your opinion, what will be the main factors in determining the market share of high bay pulse-start metal halide lighting in the next two years? **[DO NOT READ; SELECT ALL THAT APPLY]**

1. COST OF ELECTRICITY
2. LOWER PURCHASE PRICE OF EQUIPMENT, NEW TECHNOLOGIES
3. REBATES FROM UTILITIES
4. CONCERN/GREATER AWARENESS OF SAVING ENERGY
5. BETTER PERFORMANCE FROM NEW TECHNOLOGIES
6. GOVERNMENT REGULATIONS/BUILDING CODES
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

HB13/HID3. What kinds of objections, if any, have you heard from customers when you propose installing pulse-start metal halide equipment in high bay applications? **[DO NOT READ; SELECT ALL THAT APPLY]**

1. PURCHASE PRICE/INSTALLATION COST
2. LIGHT QUALITY
3. COST MORE TO MAINTAIN
4. WOULD REQUIRE ADDITIONAL ELECTRICAL WORK
94. NO OBJECTIONS
95. OTHER **[SPECIFY]**
96. REFUSED
97. DON'T KNOW

CONTROLS

Next I'd like to talk about how the lights are controlled in your high bay lighting projects.
[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]

CT1/CT1**.** Of the high bay lighting projects that your firm completed in the past two years, what percent **installed** the following types of lighting controls…
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. Simple on/off switches
b. Occupancy or motion sensors
c. Photo sensors
d. Time clocks
e. Building or energy management systems
f. Daylight controls

1. [RECORD PERCENTAGE] (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

CT2/CT2**.** Of the high bay lighting projects that your firm completed in the past two years, in what percent did your firm **recommend** installing the following types of lighting controls…
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

a. Simple on/off switches
b. Occupancy or motion sensors
c. Photo sensors
d. Time clocks
e. Building or energy management systems
f. Daylight controls

1. [RECORD PERCENTAGE] (ACCEPT 0-100)
96. REFUSED
97. DON'T KNOW

CHAINS AND FRANCHISES

Next, I'd like to talk to you about your experiences installing high bay lighting equipment for chains and franchises. **[READ IF NEEDED: FOR THE PURPOSES OF THIS INTERVIEW WE USE THE TERM "HIGH BAY" TO DESCRIBE SPACES WITH CEILING HEIGHTS OF ABOUT 15 FEET OR MORE.]**

CF1/CF1. Thinking again about the past four years, has your firm installed high bay lighting at a facility that is part of a chain or franchise during the past four years?

1. YES
2. NO **[GO TO FIRM1]**
96. REFUSED **[GO TO FIRM1]**
97. DON'T KNOW **[GO TO FIRM1]**

CF2/CF2. What percent of the high bay lighting projects that your firm completed in the past four years were for chains and franchises?
[IF NEEDED: YOUR BEST ESTIMATE IS FINE.]

1. **[RECORD PERCENTAGE]** (ACCEPT 1-100)
96. REFUSED
97. DON'T KNOW

CF3/CF3. Did any of these organizations have lighting specification policies for high bay applications?

1. YES
2. NO **[GO TO FIRM1]**
96. REFUSED **[GO TO FIRM1]**
97. DON'T KNOW **[GO TO FIRM1]**

CF4/CF4. Did these lighting policies incorporate fixture and control technologies that are energy efficient?

1. YES
2. NO **[GO TO FIRM1]**
96. REFUSED **[GO TO FIRM1]**
97. DON'T KNOW **[GO TO FIRM1]**

CF5/CF5. In your experience, do chains and franchises tend to use the same specifications across facilities for high bay lighting applications?

1. YES
2. NO

96. REFUSED
97. DON'T KNOW

FIRMOGRAPHICS

I just have a few more questions, and then we will be done. These questions are for statistical purposes only.

FIRM1/SC3. Approximately, how many full-time-equivalent (FTE) employees do you have at this location?
1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

FIRM2/SC4. How many locations does your firm have in your state?
1. **[RECORD NUMBER]**
96. REFUSED
97. DON'T KNOW

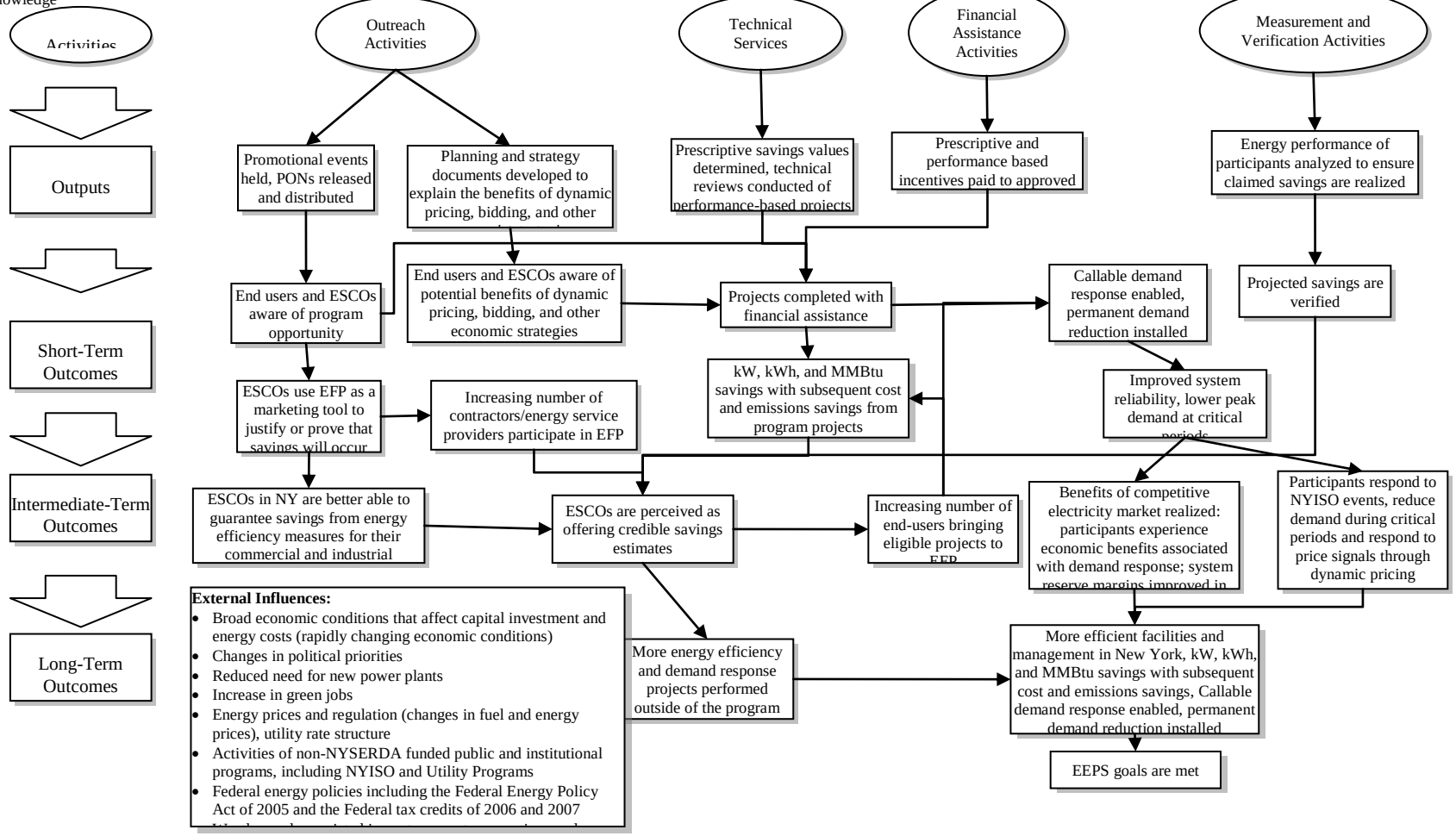
FIRM3/SC6. Which of the following best characterizes your company's revenue at this location? **[READ RESPONSES]**
1. Up to $250,000
2. More than $250,000 to $500,000
3. More than $500,000 to $1 million
4. More than $1 million to $2 million
5. More than $2 million to $5 million
6. More than $5 million to $10 million
7. More than $10 million
96. REFUSED
97. DON'T KNOW

APPENDIX F: NYSERDA PROGRAM LOGIC MODEL DIAGRAMS FOR C&I EXISTING BUILDINGS PROGRAMS

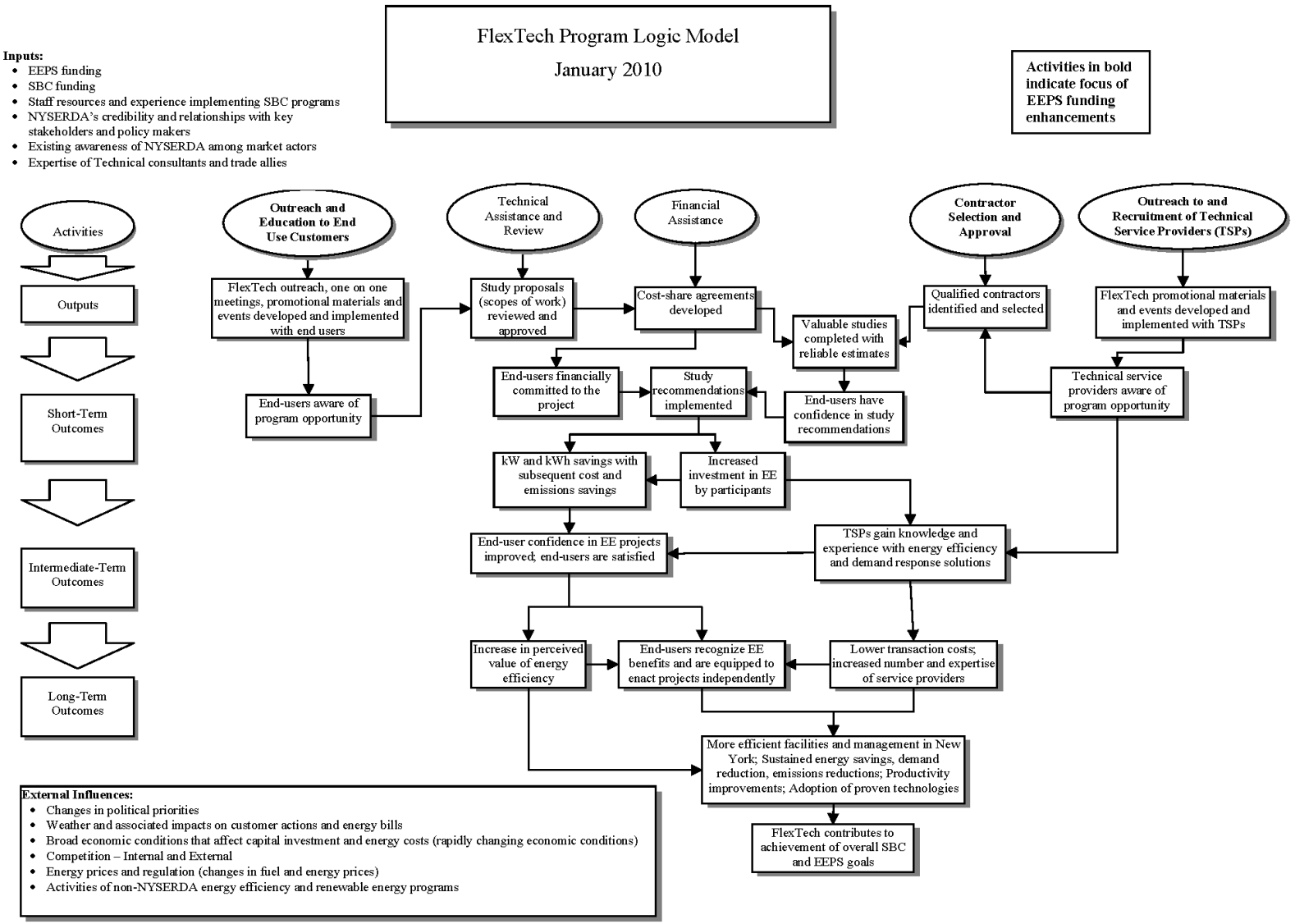
Inputs:

- SBC & EEPS funding
- NYSERDA's program staff and related project-specific contract staff and their related C/I expertise
- Relationship between this program and other NYSERDA programs (cross promotion/coordination)
- Trade ally and contractor expertise
- Staff experience implementing the **New York Energy $mart**[SM] program
- NYSERDA's credibility and relationship with key stakeholders, policy makers and key market actors
- Market knowledge

Existing Facilities Program
Logic Model Diagram
November 2010

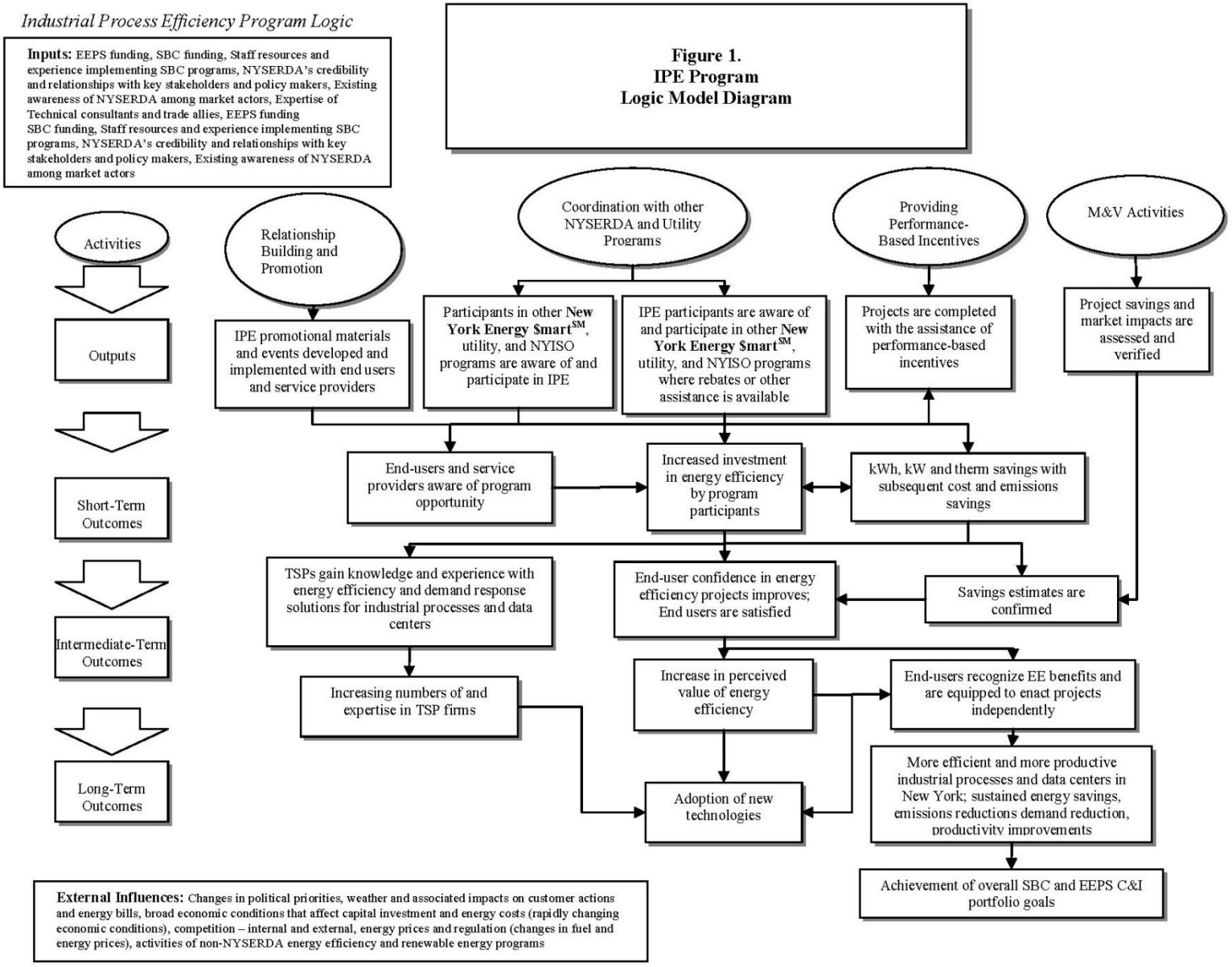


EFP Logic Model diagram to be replaced with 1 that copies as readable picture for NYSERDA report


FlexTech Program Logic Model
January 2010
Activities in bold indicate focus of EEPS funding enhancements
Inputs:
EEPS funding
SBC funding
Staff resources and experience implementing SBC programs
NYSERDA's credibility and relationships with key stakeholders and policy makers
Existing awareness of NYSERDA among market actors
Expertise of Technical consultants and trade allies
Activities
Outputs
Short-Term Outcomes
Intermediate-Term Outcomes
Long-Term Outcomes
Outreach and Education to End Use Customers
Technical Assistance and Review
Financial Assistance
Contractor Selection and Approval
Outreach to and Recruitment of Technical Service Providers (TSPs)
FlexTech outreach, one on one meetings, promotional materials and events developed and implemented with end users
Study proposals (scopes of work) reviewed and approved
Cost-share agreements developed
Qualified contractors identified and selected
FlexTech promotional materials and events developed and implemented with TSPs
Valuable studies completed with reliable estimates
End-users aware of program opportunity
End-users financially committed to the project
Study recommendations implemented
End-users have confidence in study recommendations
Technical service providers aware of program opportunity
kW and kWh savings with subsequent cost and emissions savings
Increased investment in EE by participants
End-user confidence in EE projects improved; end-users are satisfied
TSPs gain knowledge and experience with energy efficiency and demand response solutions
Increase in perceived value of energy efficiency
End-users recognize EE benefits and are equipped to enact projects independently
Lower transaction costs; increased number and expertise of service providers
More efficient facilities and management in New York; Sustained energy savings, demand reduction, emissions reductions; Productivity improvements; Adoption of proven technologies
FlexTech contributes to achievement of overall SBC and EEPS goals
External Influences:
Changes in political priorities
Weather and associated impacts on customer actions and energy bills
Broad economic conditions that affect capital investment and energy costs (rapidly changing economic conditions)
Competition – Internal and External
Energy prices and regulation (changes in fuel and energy prices)
Activities of non-NYSERDA energy efficiency and renewable energy programs

Industrial Process Efficiency Program Logic

Figure 1.
IPE Program
Logic Model Diagram

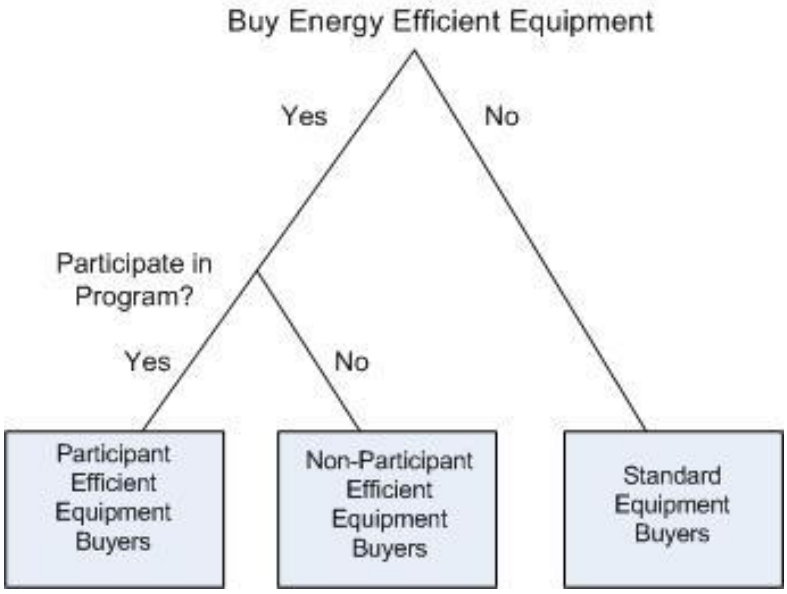


APPENDIX G: METHODOLOGY FOR A NESTED LOGIT STUDY AS AN ALTERNTIVE FREE RIDERSHIP METHOD

A nested logit model is a form of discrete choice modeling.[1] Nested logits have been used in other evaluations to estimate naturally occurring conservation investments or actions to derive program free ridership.[2, 3] The underlying construct of the nested logit model is to estimate the joint probability of measure installation and the probability of program participation given the measure will be adopted. Nested multinomial logit (NML) analysis examines three possible outcomes: (a) the probability of not installing the high efficiency option, (b) the probability of installing the high efficiency option but without program support, and (c) the probability of installing the high efficiency option with program support. The nested logit model explicitly tests the joint decision-making between the decision to participate in the program and the decision to adopt the technology.

Figure G-1 displays the logic of the nested logit model. The nesting represents the fact that participating in the program requires the purchase of energy efficient equipment and participants often have knowledge about the program when they make their decision. Thus the decisions to participate and to purchase the efficient equipment are made jointly. The decision to install the efficient equipment and the decision to participate in the program are both discrete choices. In these cases, they are yes/no choices.[4]

Figure G-1. The Nested Logit Model for Adoption and Participation Decisions



[1] The work deriving the formulas for discrete choice modeling starting from utility functions (basic economic starting point where individuals receive the same benefits/happiness from two alternative choices) was developed by Dr. Daniel McFadden (who later received a Nobel Prize in Economics for his work). The steps in the derivation result in very useful formulas that provide the probability of a customer choosing the different options.

[2] K. Train, S. Buller, B. Mast, E Paquette, and K. Parikh. 1994. "Estimation of Net Savings for Rebate Programs," ACEEE Conference Proceedings.

[3] Itron, Inc. 2010. *Small Commercial Contract Group Direct Impact Evaluation Report*. Prepared for the California Public Utilities Commission.

[4] The binary (yes/no) choice allows the use of the logit model rather than multinomial logit model. However, the methods described here are applicable to both. There is also research that documents the general simplification to logit methods instead of the need to use the more complex probit form of discrete choice analysis.

These two decisions could be seen as two separate discrete choice or logit models. (Logit and probit models are types of discrete choice models.) Though somewhat useful, using two separate models loses the primary advantage of the method, which allows for the joint decision-making.

The nested logit is framed as the probability of a customer choice given the options available. The fitted value, the calculation of the customer's choice when less than the full set of choices are available, provides "the answer". That is, the fitted value calculation tells us the probability that the participant would have chosen efficient equipment if the choice of program participation had not existed.

A full representation of the probability that the customer chooses option A is as follows:

$$P(A/A,B,C) = \frac{e^{\beta xA/(1-\lambda)}\left[e^{\beta xA/(1-\lambda)} + e^{\beta xB/(1-\lambda)}\right]^{-\lambda}}{\left[e^{\beta xA/(1-\lambda)} + e^{\beta xB/(1-\lambda)}\right]^{1-\lambda} + e^{\beta xC}}$$

where

x's are vectors of observed variables relating to alternative A (xA), B (xB) and C (xC) that depends on attributes of alternatives A, B and C

β is the vector of coefficients associated with the observed variables for alternatives A, B and C[5]

λ is a measure of the similarity or correlation between the utility function of choices A and B

The probability of choosing option B is essentially same formula. The probability that the customer chooses option C is given below:

$$P(C/A,B,C) = \frac{e^{\beta xC}}{\left[e^{\beta xA/(1-\lambda)} + e^{\beta xB/(1-\lambda)}\right]^{1-\lambda} + e^{\beta xC}}$$

Self-selection occurs due to the fact that those who would adopt the efficient equipment without the program are more likely to be program participants. This "self-selection" into the program means that a direct comparison of the adoption rates for participants to those of non-participants creates the potential for bias. The specific format of a nested logit controls for the self-selection bias through the inclusion of a term (λ) to reflect the similarity or correlation between the utility function of choices A and B. λ is not directly measured; rather, it is derived from the maximum likelihood calculation of the nested logit. The λ occurs in each branch of the nested logit to reflect the joint decisions. (A more complete presentation of the derivation path from utility functions to the applied formula above for the nested logit will be provided as an Appendix in the final report and an initial draft of this appendix will be provided ahead of the draft report so reviewers are provided this information earlier within the study process.)

The data for this effort will be obtained via telephone surveys with participants, non-participants that purchased inefficient alternatives, and non-participants that purchased program-eligible technology without program assistance.

Due to the nature of the analysis, the analysis must be focused on a single technology. There are three criteria for the selection of the technology for a nested logit study. First, the technology/measure selected needs to be one about which non-participants can provide accurate information. Second, the technology needs to be one that is done quite frequently to achieve the survey sample sizes needed to conduct the analysis method (nested logit). Finally, the selected technology needs to be specific enough to allow for a detailed focus on the decision-making criteria involved.

[5] The vector β covers coefficients that are common to all three alternatives. Additional variables specific to each alternative may also be included in the models, but are omitted from this equation for clarity.

APPENDIX H: ADDITIONAL INFORMATION FROM THE SURVEYS

New York End-User Survey, Selected Additional Information

Table H-1. NY End-User Survey Respondents' Energy-Related Retrofit Project Cost

Energy-Related Retrofit Project Cost	Number of Respondents[1]	Weighted Frequency[2] Less than $5,000	Weighted Average[2] Project Cost[3] $5,000 to $500,000	Weighted Frequency[2] More than $500,000
Any Energy-Related Retrofit Project in 2007-2010	437	88% (Wgt Freq= 170.3)	$59,648.71	12% (Wgt Freq= 22.7)
Building shell or envelope	20	5	$27,051	1
HVAC systems	33	12	$40,430	-
Lighting	180	99	$79,042	4
Motors and drives	2	1	$7,500	-
Building controls	7	5	$12,500	-
Water heating systems	24	15	$41,217	-
Industrial processes[4]	0	-	-	-
Combined heat and power (CHP) system	7	3	$30,425	-
Total (for the breakdown by Measure)	273	140	128	5

[1] This table is for New York excluding Long Island end-user remodeling respondents. The measure breakdown is only for respondents with one measure as this question was not asked per measure and the cost of the measure could not then be determined.

[2] Does not include "Don't Know" or "Refused".

[3] Using the midpoint of each category between $5,000 and $500,000

[4] No one had Industrial processes as their only measure.

Table H-2. Profession or Contact that Specified (Recommended) the Retrofit Equipment

Energy-Related Retrofit Project Type (Inquiry made for up to 2 measures) Part 1 of 2	Weighted Percent of Respondents Citing…			
	Lighting Contractor or Distributor[1]	Engineer[1]	Electrical Contractor[1]	Consultant[1]
Building shell or envelope	7%	6%	6%	-
HVAC systems	2%	11%	0%	2%
Lighting	9%	7%	19%	9%
Motors and drives	5%	13%	5%	11%
Building controls	6%	25%	6%	-
Water heating systems	0%	12%	1%	-
Industrial processes	37%	9%	-	-
CHP system	2%	11%	11%	-

[1] Weighted percentage of the responses for who specified or recommended the type of equipment installed (those using outside sources). Does not include "Don't Know" or "Refused".

Energy-Related Retrofit Project Type (Inquiry made for up to 2 measures) Part 2 of 2	Weighted Percent of Respondents Citing…				
	HVAC or Plumbing Contractor[1]	Architect or Interior Designer[1]	General Contractor[1]	Utility or NYSERDA Representative[1]	Other[2]
Building shell or envelope	6%	18%	29%	1%	27%
HVAC systems	46%	14%	11%	-	13%
Lighting	1%	13%	10%	19%	12%
Motors and drives	20%	5%	9%	-	25%
Building controls	37%	11%	-	3%	11%
Water heating systems	56%	5%	10%	4%	13%
Industrial processes	37%	-	9%	-	9%
CHP system	9%	12%	14%	9%	29%

[1] Weighted percentage of the responses for who specified or recommended the type of equipment installed (those using outside sources). Does not include "Don't Know" or "Refused".

[2] Other includes trade association, friend or colleague or answered "other".

In Section 4, in the area discussing NYSERDA influence on non-participating end-users the next two tables are presented. They are included here too to provide the context for the information given below along with the "Other" responses.

Table H-3. Familiarity with NYSERDA Programs

Familiarity of NYSERDA programs to help companies reduce energy use and costs – On a scale of 1 to 5.	Weighted Number of NY End-User Survey Respondents[1]	Weighted Percent of NY End-Users[1]
Not at all familiar[2]	170	34%
2a	91	18%
3a	98	20%
4a	73	14%
Very familiar	68	14%

[1] Sampling weights were applied as described in Section 2. End users located in Long Island were excluded from this study and totals do not include respondents that indicated "Don't Know" or "Refused".

[2] Respondents answering "not at all" are not asked any of the other influence questions in this section of the survey.

a The survey does not specifically place words to these scores and our doing so might not fit all respondents in their thoughts for providing this score.

Table H-4. NYSERDA Programs Familiar With (Open-Ended Response Categorized)

	Weighted Percent of NY[1] End-User Respondents Familiar with This NYSERDA Program/ Response[2] (n=240)
FlexTech/ Flexible Technical Assistance	3%
New Construction Program	3%
Existing Facilities Program	4%
Business Partners	9%
Referenced NYSERDA Generally or Another NYSERDA Program Not Pre-listed	14%
Mentioned Utility Company/ Utility Program	8%
General Lighting Program	28%
General Renewable Energy Program	7%
General Gas/ Heating Programs	5%
General Audit Programs	5%
Other General Energy Efficiency Programs	34%
Other	10%

[1] Sampling weights were applied as described in Section 2. End users located in Long Island were excluded from this study and totals do not include respondents that indicated "Don't Know" or "Refused".

[2] Mulitple responses possible.

The "Other" responses are presented below in . These responses came from the same open-ended question cited in the table above. Multiple responses were possible so these "Other" responses could occur in addition to the categories cited above.

Table H-5. Other Responses Provided to the Question on Familiar with Which NYSERDA Programs

Response
Small Business Energy Efficiency
Have received information but never did anything until this guy came here to talk to me in person - but bathroom fixture and switch and 3 fixtures in the storage room are not completed.
This one and appliances. (But none listed.)
Just this one. (But none listed.)
Most of what you do.
Just this one. (But none listed.)
Training reimbursement.
Green Leed certified.
I just see the ads for efficiency surveys and recommendations that can be done in building.
Frequent website to see what is available.
I was the gentlemen who ran one of the energy insulation programs with one of the local businesses.
Anything how to save electricity, the environmental and the recycling, all of that.
The program that you all are talking to me about right now. The first time I heard of it was when you called me the last time.
I'm familiar with the multi-family program. We did an apartment building that got partly funded by NYSERDA. Also ENERGY STAR certified appliances, bulbs, insulation and light fixtures, as well lo-flow toilets and faucets.
1613 ARRA
It would be a project similar to the retrofit that we did.
ENERGY STAR
Just in passing I've seen ads and emails. I don't have any kind of in-depth knowledge.
Just this one. (But none listed.)
EPA
Audit program and low cost loans.
It's not programs but I talk with different individuals. I knew that getting better quality light on the darker days was going to enhance the ability to see. I knew the lighting was going to have to be changed over the years and the lighting was not the best available.
This is the only one to date.
Just you guys calling me and surveying me. That's about the extent of it.

APPENDIX I: MARKET ACTOR SIC CODES BY SECTOR

Sector	SIC Code	SIC Description
Lighting	87489907	Lighting consultant
	87119905	Electrical or electronic engineering
	17319904	Lighting contractor
	17319903	General electrical contractor
HVAC	171101	Boiler and furnace contractors
	171102	Plumbing contractors
	171104	Heating and air conditioning contractors
	171199	Plumbing, heating and air conditioning
Other	15419909	Renovation, remodeling and repairs: industrial buildings
	15420103	Commercial and office buildings, renovation and repair
	17310101	Cogeneration specialization
	17310201	Computerized controls installation
	17310202	Energy management controls
	17310203	Environmental system control installation
	17969904	Machinery installation
	17969907	Power generating equipment installation
	50840000	Industrial machinery installations
	87119903	Consulting engineer
	87119906	Energy conservation engineering
	87310301	Energy research
	87489904	Energy conservation consultant

APPENDIX J: NYSERDA RESPONSE TO COMMENTS ON DRAFT REPORT FROM DPS REVIEWERS

M E M O R A N D U M

To: **Tracey DeSimone, Judeen Byrne, NYSERDA**

From: **Kathryn Parlin, West Hill Energy and Computing, Inc., Lori Lewis, Megdal & Associates, and Jon Maxwell, Energy & Resource Solutions, Inc. (ERS)**

Subject: **Draft Response to DPS Comments on the NPSO Draft Report**

Date: **June 10, 2013**

This memo is in response to the DPS comments on draft report for the commercial and industrial (C&I) NPSO evaluation, dated May 19, 2013. The Impact Evaluation Team appreciates the DPS reviewers' discussion of the strengths of the study. Following the status update memo of December 14, 2012 and the decision by NYSERDA and the DPS to proceed with the report as planned rather than add supplemental evaluation components, the Impact Evaluation Team has worked hard to meet the DPS spillover guidelines of September, 2012, to the extent possible given that this study was designed and largely implemented prior to the time that the guidelines were issued.

The DPS reviewers identified five areas with the potential for bias. The Impact Evaluation (IE) Team has carefully considered each of these five areas, including performing a sensitivity analysis and other additional analyses, and concluded that the potential for downward bias (underestimating spillover) is a greater threat to the validity of the results than the potential for upward bias. In the following sections, a summary of the sensitivity analysis is provided, followed by a discussion of each of the DPS's five areas of potential bias. The remainder of the memo covers the more general comments made by DPS reviewers and a brief final statement.

1.1 RESPONSE TO DPS COMMENTS ON POTENTIAL SOURCES OF BIAS

In the process of conducting the NPSO analysis, the Impact Evaluation Team made a number of conservative assumptions. While the DPS reviewers have raised legitimate issues relating to the interpretation of the survey responses, the sensitivity analysis suggests that the total potential magnitude of the upward bias discussed in the first four DPS comments are small in magnitude in comparison to the conservative assumption regarding the undercounting of remodeling activity in the non-participant market.

As shown in Table 1, a review of the NPSO analysis indicates that the issues raised in the DPS comments could possibly result in an overstatement of the NPSO of about 4 percentage points at most. However, the undercounting of remodeling activity has the potential to double the NPSO rate. Under these circumstances, the Impact Evaluation Team has concluded that the NPSO rate as provided in the report is a reasonable and conservative estimate of the actual NPSO activity.

Table 1: Sensitivity Analysis

Comment from DPS Reviewers	Combined OSO-Adjusted NPSO MWh/Year	Combined OSO-Adjusted NPSO as Percent of Program Savings	Notes
Draft Report	58,217	25%	
Comment #1: Lower Limit Double Counting of Contractor and End User NPSO	52,415	23%	Removes all indirect, contractor SO
Comment #2: Lower Limit Over-Optimism in the Interpretation of End-User Self-Reports of Program Influence	47,734	21%	Adjusted influence factors down by 20%
Comment #3: Lower Limit Potential Inclusion of Some In-Program Net Impacts in Indirect Spillover	52,415	23%	Removes all indirect, contractor SO
Comment #4: Lower Limit Taking Contractor Self-Reports of the Efficiency of Out-of-Program Projects on Face Value	52,415	23%	Removes all indirect, contractor SO
Comment #5: Upper Limit Undercounting the Total Number of Remodeling Projects	113,494	49%	Assumes 1.6 projects per site, which is substantially lower than the 2.2 projects per site from the screener survey.

Two sections of the report will be edited to provide further clarification as follows: 1) the calculation of the overall NPSO rate (Table 4-24) will be modified to show that the indirect contractor SO is largely captured in the OSO estimates from EFP and FlexTech and 2) the discussion of bias provided in Table 4-25 will be modified to better reflect the magnitude of the potential biases.

The following sections address each of the areas of comments in detail.

1. **DPS Bias Comment #1**: *Under-Adjustment for Double Counting in the Partitioning of Direct and Indirect Spillover.* DPS reviewers stated: "We are generally supportive of the attempt to identify and count contractor-

mediated NPSO that end-users may not be aware of. Unfortunately, however, we believe there is a subtle problem with the specific approach that was used to attempt to avoid double counting between the direct NPSO reported by end-users and the indirect NPSO reported by contractors, and that this problem may be leading to significant double counting. The problem revolves around what we see as a likely positive correlation between the ability of end-users and of contractors to identify NYSERDA influence on a particular project....

" The fundamental problem we see with this approach is that *it assumes that whether an end-user and a contractor will identify a given project as program-influenced is uncorrelated, and that the distribution of cases across cells can therefore be calculated simply by multiplying the row and column totals.* If end-user and contractor attribution for individual cases is correlated, then the distribution of cases across cells cannot be calculated in any straightforward fashion from the row and column totals. and the indirect NPSO reported by contractors, and that this problem may be leading to significant double counting. The problem revolves around what we see as a likely positive correlation between the ability of end-users and of contractors to identify NYSERDA influence on a particular project."

"IE Team Response: The IE Team interprets the DPS comments as follows:

The area of non-participant facilities with no direct spillover as recognized by the end user was determined by taking the total area of non-participant facilities and subtracting the total area of facilities where the end user survey respondents reported NYSERDA influence. Indirect spillover from contractors was then calculated from the contractors' survey responses and applied to the area of non-participant facilities with no direct spillover. However, contractors were reporting NYSERDA influence from their own perspective and their estimate of the percentage of projects influenced by NYSERDA may well include some projects that were (or could have been) reported by end users as being influenced by NYSERDA. The end result would be that the contractor's estimate of the percent of projects influenced by NYSERDA could be overstated.

As the DPS reviewers recognize, the C&I space eligible for contractor indirect spillover was estimated by removing the area of C&I facilities with end user spillover from the total C&I area. For the purposes of clarity, the potential remaining overlap due to the possible overstatement of the percent of projects influenced by NYSERDA as reported by the contractors, will be referred to as "residual overlap." This overlap would be expected to be only a small fraction of the overlap which was removed using the method presented in the NPSO report.

While the total indirect NPSO savings from contractors are substantial, once the outside spillover (OSO) from FlexTech and EFP have been removed, the actual impact on the NPSO from this component is quite small, as shown in Table 2 below. Table 4-24 in the draft NPSO report will be updated to clarify the relationship between OSO and indirect NPSO.

Table 2: Comparison of Direct and Indirect NPSO to Outside Spillover

SO Component	SO MWh/Year	SO as Percent of Program Savings	Source
Total Indirect NPSO from Contractors	78,944	34%	Table 4-24
OSO from FlexTech and EFP 2007-2008 Impact Evaluations	73,142	32%	Table 4-24
OSO-Adjusted Indirect NPSO from Contractors	5,802	2%	Calculated
Direct NPSO from End Users	52,415	23%	Table 4-24
Total NPSO (Direct and Indirect) Adjusted for OSO	58,217	25%	Table 4-24

Given that the OSO adjusted indirect NPSO from contractors (in the third row of Table 2) contributes only 2% to the total OSO-adjusted NPSO (in the last row of Table 2) of 25%, any possible upward bias in the contractors' self reports would have a negligible impact on the final NPSO estimate.

In addition, end users reported a low level of NYSERDA influence. While the overall influence factor for calculating the direct spillover was about 10%, the "no-influence" factor used to estimate the facility size available for indirect spillover was 16%, as this was the percent of facility space where end users reported no NYSERDA influence of any kind. Given that 84% of end users either reported no awareness of NYSERDA (34%) or no NYSERDA influence (50%), it seems entirely likely that many contractors did not work with any end users who would have reported NYSERDA influence.

It is also worth noting that the 16% "no-influence factor" incorporates some conservative assumptions, as discussed below.

1) It does not include the end users who passed the initial screening question about general NYSERDA influence but then responded that NYSERDA had no influence on the efficiency level of the specific measure(s) covered in the survey.

2) All respondents who answered "don't know" or "refused" were assumed to have reported no NYSERDA influence, rather than the more common method of assuming that these respondents as a group would have answered in the same way as the respondents who provided valid responses.

The impact of the conservative assumptions was tested by modifying the analysis to include respondents mentioned in item 1) above and use the more common method for addressing non-response discussed in item 2), the "no-influence" factor would be 10% as opposed to 16%, thus increasing the potential for indirect contractor spillover from 84% of the C&I remodeled facility space to 90%. These adjustments increase the NPSO from 25% to 30%, and the indirect contractor influence portion from 2% to 7%. The potential understatement from these conservative assumptions is likely to be larger in magnitude than the potential upward bias from residual overlap between end user and contractor self reports.

DPS Bias Comment #2: "*Over-Optimism in the Interpretation of End-User Self-Reports of Program Influence*. Central to the analysis of the end-user results is an assumption that when the end-user says the program was strongly influential in an out-of-program project, this is synonymous with the program being the sole cause of the project happening. This assumption is reflected in assignment of 100% program influence to projects for which the end-user gives a 'strong influence' response."

IE Team Response: The Impact Evaluation Team finds this issue to be quite complicated. The reality is that our use of self-report program influence is a simplification of decision-making that can be seen as counter-balancing between "over-optimism" in the sense that the NYSERDA program may not be the sole influence and the reality that most decisions require a minimum of several supports. The issue of influence is not just one of the "sole influence." It is likely that there is seldom a sole influence.

While specific factors may vary in the degree of importance, there is also a difference between necessary and sufficient. For example, advertisers have concluded that messages need to be heard multiple times before the listener takes action. While the seventh time may produce the action, it is the cumulative effect of the multiple times the ad is aired that makes the difference. So to the extent that NYSERDA influence is one of several but adds up to provide the "sufficient" influence to tip the balance toward the efficiency action, then the efficiency action would not occur without the NYSERDA influence even if the NYSERDA influence is not the sole influence. If each influence is "necessary," then each influence should be given credit.

Seasoned professionals in our field may well disagree on this subject and clearly more research is needed. Future evaluations will have a different evaluation design that may improve our understanding of how the decision making process is done. Given the survey wording and the information currently available, the Impact Evaluation Team does not see an effective way to address this issue. However, in the spirit of cooperation, the Impact Evaluation Team conducted an alternative analysis to reflect the DPS reviewers suggestion that influence responses by weighted downward by 20% and this analysis is summarized in Table 2 below. The OSO-adjusted NPSO rate would be reduced to 21%.

DPS Bias Comment #3: "*Potential Inclusion of Some In-Program Net Impacts in Indirect Spillover*. The report acknowledges, and we agree, that given the design of the survey there is significant potential for contractor self-reports [of spillover] of the percentage of projects influenced by the program to capture some degree of in-program savings."

IE Team Response: While the Impact Evaluation Team recognizes that there may be an issue, the small contribution of the indirect contractor NPSO to the total OSO-adjusted NPSO indicates that the overall magnitude of the potential bias is likely to be very small, resulting in a change in the NPSO rate of less than 1%. The Impact Evaluation Team will update Table 4-25 to reflect this result.

DPS Bias Comment #4: *"Taking Contractor Self-Reports of the Efficiency of Out-of-Program Projects on Face Value.* ...[C]ontractor self-reports on the prevalence and degree of efficiency of efficient out-of-program projects are taken at face value, on the basis that contractors should be able to correctly identify efficiency, and reported a high degree of efficiency in their out-of-program jobs. While we recognize that it is possible for reasonable people to disagree on this issue, our own experience from many contractor surveys is that general population contractors tend to systematically over-state the efficiency of their projects."

IE Team Response: While the IE Team is aware of older studies suggesting that contractors systematically overstate the efficiency of their installation, hat our professional opinion isthat the overstatement of efficiency is unlikely to be a substantial factor in this evaluation for the following reasons:

1. While we agree that the overrepresentation of efficiency levels may be common in residential markets, contractors and many end users in the C&I existing buildings market are quite sophisticated in terms of their understanding of building science, available equipment and efficiency levels.

2. The survey shows that many contractors have worked with NYSERDA programs on some level, and, thus, are likely to have direct knowledge of the efficiency levels required by NYSERDA.

3. In general, NYSERDA is promoting well-tested technologies that contractors are likely to recognize and have some experience with. It seems reasonable that these contractors are familiar with these efficient products and have installed them in the past.

In addition, the indirect contractor SO was estimated on a different basis than the end user SO, and there is no simple equivalent of the approach used for the end user SO. The questions used to estimate the indirect contractor SO revolved around the prevalence and acceptance of high efficiency recommendations to the end user and the percent of projects that were efficient due to NYSERDA influence. It is more difficult to incorporate an "efficiency level" adjustment into this type of analysis, other than simply down rating the entire contractor spillover. However, given the small contribution of the contractor indirect SO to the overall NPSO rate as discussed above, this adjustment would have a negligible impact on the results.

DPS Bias Comment #5: *"Undercounting the Total Number of Remodeling Projects.* The report notes that ignoring instances of multiple remodeling by the same end-user is a source of downward bias in the final estimate of NPSO. We agree. It seems to us that it should be possible to develop some relatively straightforward adjustment to correct for this downward bias."

IE Team Response: There are two key inputs into the NPSO rate that relate to remodeling and site-level estimation of savings:

- The annual remodeling rate
- The kWh per square foot of facility space used to approximate savings

The annual remodeling rate is intended to reflect the percentage of C&I facilities that conduct some type of energy-related upgrade of equipment each year. The overall remodel rate for the entire period of 2007 through 2010 was calculated from the total number of facilities that reported any type of energy related upgrade divided by all respondents who provided a valid response to this series of questions. This value was then divided by four to get the annual remodel rate. The annual remodel rate was then multiplied by the total area of non-participating C&I facilities to get the total area that was involved in energy-related remodeling activities.

The kWh saved per square foot is the other key input. It was calculated from the EFP tracking data, aggregated to the site (address) to be consistent with the screener survey which asked respondents to consider energy-related projects at the specific facility where they were located. Given this approach, the kWh per square foot value of 0.79 reflects all program activity at that site during the program years 2007 to 2010.

The estimation of the remodeling rate is correct in that it reflect the percent of facilities where any type of energy-related project was completed. However, it does not account for the number and scope of the projects at a particular site in comparison to participating projects. As the kWh per square foot used to estimate NPSO kWh savings is based on program savings, the underlying assumption is that the non-participant energy-related upgrades are with the same size and scope as the participating projects.

Additional analysis was conducted to address this issue. While survey respondents reported completing 2.2 projects at their facility, on average, the program kWh per square foot reflects 1.1 projects per site.[6] The IE Team compared the survey and program data to determine whether a "project" as identified by the end user screener respondents at the site is more or less equivalent to the "project" activity recorded by program staff at a specific site.

For this additional analysis, the EFP tracking data for program years 2007 through 2010 were used and project cost was used as a proxy for the scope of the project, as this field was available in both data sets. The project costs from the screening survey and the program tracking data were compared using the same cost categories as used in the screening survey. This analysis indicates that average project costs are in the same range ($100 K for the program data as compared to $110 K for the screener survey respondents), further suggesting that the scope of a program "project" is reasonably consistent with a "project" as defined by the screener respondents (within 10%).

Since the screener respondents reported 2.2 projects per site on average and the methods used in the NPSO were based on 1.1 projects per site, the NPSO savings are likely to be substantially understated. Selecting a value halfway between the 1.1 projects per site and 2.2 projects per site should provide a conservative estimate of the scope of the potential downward bias. If we re-calculate the NPSO with the assumption that the actually energy-remodeling activity is 1.6 projects per site, the kWh per square foot would increase to 1.12[7], and the NPSO rate almost doubles from 25% to 49%.[8]

Summary of Bias Review

1.2 RESPONSE TO OTHER DPS COMMENTS

The following sections summarize our response to other DPS comments.

DPS Other Comment #1: *"Clarification of Sampling Methods.* Although the report provides a fair amount of information regarding the sample design and weights, our understanding of these elements would improve if, for each survey, tables were constructed that show the strata, strata boundary definitions, populations within each stratum, achieved samples within each stratum, and how weights were calculated and applied. They should also explain why they calculated relative weights for the screener surveys and case weights for the New York end user and contractor surveys."

IE Team Response: As mentioned in the DPS reviewer's initial comments, this report devoted a section to sampling weights, which is rarely done. The tables were designed to provide sufficient information to calculate the expansion and relative weights. Providing additional information as currently requested would be time consuming, and the budget for this project has already been expended. In addition, more detail on weights will increase the length of the

[6] Only 4% of the program sites had more than one project during the four year period.

[7] As discussed in the report, the kWh per square foot for the end user direct spillover was derated to account for possible overly optimistic estimates of efficiency levels. In the original analysis, a value of 0.55 kWh/sf was used. If 1.6 projects per site is used, this factor increases to 0.78 kWh/sf.

[8] Using the 2.2 projects per site would approximately triple the NPSO rate from that in the report.

study and may make the report more confusing to lay readers. Consequently, the Impact Evaluation Team would prefer to leave the sampling section largely as is (with minor edits for clarification and corrections as needed).[9]

Relative weights were used for all of the survey analysis. The reference to case weights was made in error.

DPS Other Comment #2*: "Relative Precision.* Although the discussion of uncertainty was well done, it would be helpful if the contractors explained how the relative precision of 15% at the 90% confidence level was calculated for the NPSO rate. It would help if standard errors were reported for other key inputs such as size of *C&I non-participant facilities remodeled annually*. Sensitivity analysis could be done to assess the stability of the estimate while systematically modifying key inputs. In the event that calculating confidence and precision for the total NPSO rate gets too messy, this would also serve as a way to estimate the plausible error bounds around the estimate, a form of bootstrapping."

IE Team Response: The IE Team is willing and ready to discuss the POE methods with the DPS reviewers. The standard error of the size of the C&I non-participant facilities could be easily added to the report. As with the sampling detail discussed above, the IE Team is concerned about adding too much detail to the report as it may detract from the readability and we are also experiencing budgetary constraints.

DPS Other Comment #3: "*Seeking explanations for the differences in results between the quasi-experimental high-bay study and the self-report study.* As we have all discussed, it is entirely possible that the surface inconsistencies between the results of the two studies are due to the national high-bay lighting market having matured since the California study, and/or to the effects of differences in code iterations. However, we believe it would be useful to drill down a bit into the self-report results in order to get a better handle on just how inconsistent the results of the two studies are. Our understanding is that we have a known sub-sample of lighting contractors within the overall contractor sample, and that these contractors gave the same self-reports on program influence as did other types of contractors and that these contractors gave the same self-reports on program influence as did other types of contractors. If this is correct, it should be possible to perform a self-report analysis specifically for lighting contractors that is similar to that performed for the entire sample of contractors. By zeroing in on lighting, such an analysis would help us to better understand the true magnitude of the differences in lighting results across the two studies...."

IE Team Response: The IE Team agrees that the DPS reviewers are suggesting an interesting analysis. However, review of the survey instruments indicates that there is insufficient data to support this type of analysis.

DPS Other Comment #4: "*Use of the program theory and logic model*. The logic model and program theory were not used to support the spillover claims. However, it is probably too late to include a detailed review of the logic models and identification of causal mechanisms for NYSERDA's C&I programs (see section 4.3.3). Perhaps this could be done in a subsequent study."

IE Team Response: The IE Team understands that the DPS reviewers would like to tie the SO mechanisms to the program theory and logic model. For this reason, the IE Team distributed a memo in November of 2012 laying out the possible strategies for completing the NPSO report and included an option to review the logic models and survey data for causal links. Subsequently, the DPS, DPS reviewers, NYSERDA and the IE Team had a conference call and jointly decided to move ahead with the report as it was originally planned, *i.e.*, without this component. This decision was summarized in a subsequent status memo distributed in December of 2012.

In addition, it is the IE Team's understanding that the previous logic models did not provide much detail regarding the spillover mechanisms and that this lack of detail is currently in the process of being remedied. Thus, the next round of logic models may be much more useful for this type of review and analysis.

In the absence of such a review, the IE Team made substantial efforts to incorporate relevant information into the report regarding the decision making process as obtained through the end user and contractor surveys.

Final Comments

[9] Table 2-10 in the report is incorrectly labeled, as it reflects the NY HBL contractor survey rather than the end user survey. This will be corrected, along with related corrections to the surrounding language, as needed.

The IE Team appreciates the detailed review conducted by the DPS consultants and will make the modifications discussed above in the final report. In addition, comments provided in the report itself will be addressed in the process of completing the report. Given the results of this analysis, the IE Team proposes that no changes be made to the NPSO rate as presented in the NPSO draft report.