

# NATIONAL EVALUATION OF THE STATE ENERGY PROGRAM: AN EVALUATION OF SELECT ACTIVITIES CONDUCTED UNDER THE STATE ENERGY PROGRAM

## VOLUME IV: APPENDIX L

Prepared for the US Department of Energy under the  
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## **APPENDIX L. ALL DATA COLLECTION INSTRUMENTS (ICR AND NON-ICR)**



## L.1. ID-1: CODES AND STANDARDS (PROGRAM MANAGERS)

### OMB Control No. 1910-5170

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

#### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

#### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to improve building energy codes and their enforcement that received funding in from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the

Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. The survey should take no more than 95 minutes for you to complete.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that you are the program manager for Codes and Standards programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Codes & Standards programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Codes & Standards programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded Codes & Standards programs	[Ask for correct person for Codes and Standards Programs]
No – There were no SEP/ARRA funded Codes & Standards programs	[Thank you and terminate. Contact main state energy office representative to verify that there were no programs that corresponded to description in the PAGE database.]

1. Were you involved in the design and/or management of programs to improve building energy codes and/or their enforcement in [STATE] that received SEP/ARRA funding in [PROGRAM YEAR]?

- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON]

Yes	[GO TO Q3]
No	[ASK Q2]

2. Who else at your organization is most knowledgeable about the overall allocation of funding to Non-Residential retrofit programs that received SEP/ARRA funding?

Name/contact info/role: \_\_\_\_\_  
 Name/contact info/role: \_\_\_\_\_  
 Name/contact info/role: \_\_\_\_\_

3. [IF OTHERS MENTIONED IN Q2] Among you and [INSERT QUESTION 2 RESPONSE], who is most familiar with the activities conducted by your organization for [PROGRAM] in [PROGRAM YEAR]?  
[IF NOT RESPONDENT, THANK AND TERMINATE AND CONTACT MOST KNOWLEGEABLE PERSON]
4. What were your responsibilities in regard to retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?
5. In what year did you first become involved with the retrofit programs that received SEP ARRA funding?
6. Are you still involved with managing this program? If not, when did your involvement end?
7. How long have you been involved in administering programs funded by SEP?
8. Based on information provided by DOE, you received \$\_\_\_\_\_ in SEP/ARRA funding for Codes and Standards programs. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]
	[REMAINING AMOUNT]

**PART 3: PROGRAM DESIGN AND OPERATIONS**

**This next set of questions seeks information on the design and operations of the program.**

9. What specific activities is your organization carrying out to promote the adoption of improved energy codes or improvement in code enforcement and compliance. This would include all activities, whether funded by the U. S. Department of Energy or other sources. Examples would include technical support for adoption of energy efficiency codes at the state and local level, support for legislative deliberations on code adoption, training of local code officials, training of builders and designers, and so forth.
10. Which of these activities receives funding from the U. S. Department of Energy’s State Energy Program (SEP) or the American Recovery and Reinvestment Act (ARRA)?
11. What percentage of total funding from the U. S. Department of Energy for Codes and Standards efforts do each of these separate activities receive? [SHOULD ADD TO 100%.]
12. Which of these components receive resources such as funding, staff support, or other in-kind contributions from other organizations? Please identify the organization and briefly characterize the kinds of assistance provided.

RESPONSE MATRIX FOR ITEMS 9 - 12

9.	10.	11.	12.

Activity to Support Code Improvements	SEP Funded?	% SEP Funding	Other Organizations Providing Support/Nature of Support/Funding Dollars
a.			
b.			
c.			
d.			
e.			

**FOR EACH PROGRAM MENTIONED IN ITEM 9, ASK 13-15**

13. Do these activities have separate program names? If so, what are they?
14. Are you or another program manager in charge of any of these programs? [IF THERE ARE OTHER PROGRAM MANAGERS, ASK Q15]
15. Can we contact the program manager regarding [PROGRAM NAME]? [IF YES, RECORD THEIR NAME AND CONTACT INFORMATION]

**RESPONSE MATRIX FOR ITEMS 13-15**

13. Program Name	14. Additional program manager	15. Permission to contact
a.	[YES/NO]	[RECORD CONTACT INFO]
b.	[YES/NO]	[RECORD CONTACT INFO]
c.	[YES/NO]	[RECORD CONTACT INFO]
d.	[YES/NO]	[RECORD CONTACT INFO]
e.	[YES/NO]	[RECORD CONTACT INFO]

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM'S DOMAIN FOR ATTRIBUTION PURPOSES.]**

16. What were the ultimate objectives of [PROGRAM NAME], as originally planned?

\_\_\_\_\_

17. Have these objectives changed since the inception of the program? IF YES: Please describe the current objectives and the rationale for changing them from the original.

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18. Has your organization developed a formal logic model for [PROGRAM NAME]?

[IF 18 = YES, then ASK 19]

19. Can you please share it with us?

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20. In what year did the program begin?

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21. Please provide additional details on the activities you are carrying out to advance energy efficiency building codes and their enforcement. [PROBE ON EACH OF THE FOLLOWING]:

ADVOCACY FOR CODE IMPROVEMENTS/ADOPTION AT THE STATE LEVEL	
TECHNICAL SUPPORT FOR CODE IMPROVEMENTS/ADOPTION AT THE STATE LEVEL	
ADVOCACY FOR CODE IMPROVEMENTS/ADOPTION AT THE LOCAL LEVEL	
TECHNICAL SUPPORT FOR CODE IMPROVEMENTS/ADOPTION AT THE LOCAL LEVEL	
OUTREACH AND GENERAL EDUCATION ACTIVITIES TARGETED TO LOCAL BUILDING DEPARTMENTS AND CODE OFFICIALS:	
TRAINING AND TECHNICAL ASSISTANCE TARGETED TO LOCAL BUILDING DEPARTMENTS AND CODE OFFICIALS	
PROVISION OF FINANCIAL OR IN-KIND SUPPORT FOR IMPROVED ENERGY CODE ENFORCEMENT ACTIVITIES BY BUILDING DEPARTMENTS.	
OUTREACH AND GENERAL EDUCATION ACTIVITIES TARGETED TO BUILDERS, CONSTRUCTION MANAGERS, AND	

DESIGNERS:	
TRAINING AND TECHNICAL ASSISTANCE TARGETED TO BUILDERS, CONSTRUCTION MANAGERS, AND DESIGNERS	
OTHER: (SPECIFY) _	
OTHER: (SPECIFY) _	
OTHER: (SPECIFY) _	

22. INPUTS: What resources are being used to deliver the program? [PROBE EACH OF THE FOLLOWING]

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME	
OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME	
STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME	
CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT	
TECHNICAL SERVICES	
FINANCIAL SERVICES	
MARKETING SERVICES	
ADMINISTRATIVE SERVICES	

23. OUTSIDE FUNDING: Are organizations other than the U. S. Department of Energy and the state government contributing funding to this program? IF YES, PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF OUTSIDE FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD)



PERCENTAGE OF TOTAL OVERALL FUNDING FOR THE PA UNDER  
EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT  
REPRESENTED BY OUTSIDE FUNDING.

USES OF THE FUNDING PROVIDED

24. RESULTS/OUTPUTS: Could you summarize the results your program has achieved so far?

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP  
ATTENDANCE, ETC)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

25. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans and applications to the U. S. Department of Energy?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

## A. Characterization of Baseline Construction Practices

This next set of questions seeks information on common construction practices related to energy efficiency during the period immediately prior to [PROGRAM YEAR]. In particular we are interested in practices related to lighting, heating, cooling and related controls, shell insulation and air sealing. Are you able to provide information on standard practices in your jurisdiction, based on your experience in reviewing plans and inspecting projects or on your experience in overseeing such operations? Your general impressions and best approximations are fine for these purposes.

Yes: PROCEED TO BASELINE QUESTIONS

No: IS THERE SOMEONE ELSE IN THE ORGANIZATION WHO CAN PROVIDE THAT INFORMATION?

PROBE TO IDENTIFY STAFF WITH EXPERIENCE IN EITHER RESIDENTIAL, COMMERCIAL, OR BOTH.

26. In this question, I am going to read a specifications for a series of commercial building elements that reflect the International Code Council's 2009 International Energy Conservation Code. I would like you to tell me what percent of the projects your organization reviewed in the year prior to [PROGRAM YEAR] met this specification. I would also like you to tell me what the most frequent value for the specification was. So, for example, the IECC 2009 requires that unitary cooling equipment from 65,000 to 135,000 BTU/hr have an EER of at least 11.0. We would like to know what percent of projects with cooling equipment of that type met the 11.0 EER standard, and what the typical alternative EER level was in the year prior to [PROGRAM YEAR]. Finally, since construction practices vary a great deal in the commercial sector, we are seeking your best estimates for three different building types: offices, retail, and institutional, such as schools. REFER TO THE ANSWER GRID. IT MAY BE BEST TO EMAIL THE ANSWER GRID IN ADVANCE AND HAVE THE RESPONDENT FILL IT OUT PRIOR TO THE CALL.

a. What percentage of [Office, Retail, Schools] projects completed in [YEAR PRIOR TO PROGRAM YEAR] met the following specifications?

b. What was the typical alternative specification at the time?

27. In this question, I am seeking the same kind of information for residential buildings from single family homes to 4 units, and for multifamily buildings with 5 or more units.

## 26. Commercial Baseline Practices

Component	IECC 2009 Specification*	a. % Meeting Spec.			b. Alternative Specification
		Office	Retail	Inst.	If Applicable
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers				
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation				
Maximum Window Area	40% of above-grade wall area				
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tonsSEER 65 – 135 kBtu/hr, ~ 10 tnsEE 135 – 240 kBtu/hr ~ 20 tnsE > 240 kBtu/hr EER 9.5				
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3				
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton				
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week				
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf				
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply				
Economizers	Required in all cooling systems $\geq$ 54 kBtu				
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors				
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy sensors				

Interior Lighting Power Density	Office	1.0 Watt/sf				
	Retail	1.5 Watt/sf				
	School/University	1.2 Watt/sf				
Exterior Lighting Control	Motion sensor or time clock					

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

## 27. Residential Baseline Practices

Component	IECC 2009 Specification	a. % Meeting Spec.		b. Alternative Specification If Applicable
		1 - 4 units	≥ 5 units	
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49			
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21			
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38			
Basement Insulation	CZ 1-2 0 CZ 3R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19			
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth			
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 - 8 0.35			
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector			
Duct Insulation	R-8 for all supply ducts in attic; others R-6			
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space			

Mechanical Ventilation	Automatic or gravity dampers on all outdoor air intakes and exhausts			
Heating & Cooling System Sizing	Per Manual J or International Residential Code			
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)			

**B. Effect of Program on Acceleration of Statewide Code Adoption**

**IF ONE OF THE OBJECTIVES OF THE PROGRAM WAS TO ACCELERATE ADOPTION OF IECC 2009 AS THE STATEWIDE ENERGY EFFICIENCY CODE, ASK THIS SECTION. OTHERWISE SKIP TO NEXT SECTION.**

28. Please describe the process by which changes to building codes are introduced and approved in your state. PROBE ROLES OF VARIOUS STATE AND LOCAL GOVERNMENT UNITS AND BRANCHES OF GOVERNMENT.

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29. On what date was IECC 2009 adopted as part of the state’s building code?

30. What is the effective date of the code change?

31. What energy conservation or efficiency codes, if any, were in place prior to the adoption of IECC 2009?

32. Do you think your state would have adopted or updated the statewide energy code by 2020 in the absence of the incentives and supports offered by ARRA?

- a. Yes
- b. No
- c. Don’t know

33. IF 32 = NO, ASK: Why do you say that?

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34.32 =YES, ASK: In the absence of the requirement that the state adopt IECC 2009 as its energy code, in what year do you think the it would have come into effect in this state?

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

35. What are your main reasons for this assessment?

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**Additional follow-up questions**

36. During the 5 years prior to [PROGRAM YEAR], had there been efforts to adopt or update a statewide energy efficiency building code?

- a. Yes
- b. No
- c. Don't know

37. IF 36 = YES, ASK: Which organizations advocated for adoption of a new statewide energy efficiency code?

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38. What organizations or constituencies opposed adoption of new codes?

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39. What were their principal objections to the adoption of new codes?

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40. How effective were the advocates and opponents of the code in enlisting political support for their views? What evidence do you have for this assessment?

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41. What were the outcomes of these efforts? Was a new or updated code adopted?

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42. On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important was your state energy office's involvement in the development and adoption of the energy efficiency building code?

ENTER 1 - 10, 99 FOR DK/REF: \_\_\_\_\_

43. Why do you say that?

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44. Were there other business, economic, or political factors in the state that were supporting or working against the adoption of energy codes immediately prior to [PROGRAM YEAR]? IF YES: What were they?

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### C. Effect of the Program on Local Code Adoption

**IF ONE OF THE OBJECTIVES OF THE PROGRAM WAS TO SUPPORT AND ACCELERATE ADOPTION OF LOCAL ENERGY EFFICIENCY CODES, ASK THIS SECTION. OTHERWISE SKIP TO NEXT SECTION. YOU SHOULD NOT ASK THIS SECTION IF YOU HAVE ASKED SECTION D.**

According to descriptions of the state activities provided to us, one of their objectives was to promote the development and adoption of energy efficiency codes in selected local jurisdictions, including yours.

45. What building energy efficiency codes, if any, were in place in those jurisdictions prior to this effort?

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46. Can you describe the codes that those jurisdictions adopted with the assistance of the state energy office?

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47. Do you think your jurisdiction would have adopted *any* building energy code by 2020 in the absence of the programs and support offered by the state energy office?
- Yes
  - No
  - Don't know

48. IF 47 = NO, ASK: Why do you think that?

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49. IF 48 = YES, ASK: In the absence of the programs and support you received from the state energy office, in what year do you think that the energy efficiency codes?

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

50. What are your main reasons for this assessment?

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#### D. Effects of Programs to Strengthen Code Enforcement

**ASK THIS SECTION ONLY IF PA INCLUDES ELEMENTS TO IMPROVE CODE ENFORCEMENT AT THE LOCAL OR STATE LEVELS. SUCH ELEMENTS INCLUDE TRAINING OF CODE OFFICIALS, TECHNICAL ASSISTANCE TO CODE OFFICIALS, STIPENDS TO HIRE ADDITIONAL CODE OFFICIALS, PURCHASE OF COMPLIANCE SOFTWARE, ETC.**

51. Did you observe changes in the quality or level of code enforcement activities among the local building departments that you assisted through programs funded by SEP or ARRA?
- Yes
  - No
  - Don't know

52. IF YES: Could you describe those changes for me?

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53. On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that the participating jurisdictions would have undertaken these improvements to your enforcement activities if the support from the state energy office had not been available?

ENTER 1 - 10, 99 IF DK OR REF \_\_\_\_\_

54. Why do you say that? PROBE AVAILABILITY OF RESOURCES, LEVELS OF TRAINING, AVAILABILITY OF COMPLIANCE TOOLS, LEVELS OF UNDERSTANDING, ETC.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

55. Do you believe that the efforts of the participating jurisdictions to improve enforcement have resulted in improved compliance with energy efficiency elements of the building code?

- a. Yes
- b. No
- c. Too early to tell
- d. DK/REF

56. IF 55 = Yes or No, ASK: What observations lead you to say that?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

57. Are there factors other than increased enforcement efforts that have contributed to increased compliance rates? IF YES: Could you identify those factors.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

58. IF 57 = YES: Compared to these other factors, would you say your enforcement efforts had less, more, or about the same level of influence in changes in compliance rate?

- a. Less
- b. More
- c. About the same
- d. DK/REF

**E. Effects of Programs to Train Builders and Architects in Code Issues**

**ASK THIS SECTION ONLY IF PA INCLUDES ELEMENTS TO EDUCATE BUILDERS AND DESIGNERS ON CODE REQUIREMENTS AND COMPLIANCE MECHANISMS**

59. Do you believe that builders and designers who made use of your training and education programs in building energy codes made changes in their practices in regard to design and code compliance?

- a. Yes
- b. No
- c. DK/REF

60. IF 59 = YES: Could you describe those changes for me?

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61. What factors, other than your organization's efforts, have led to changes in voluntary levels of compliance with energy efficiency aspects of the building codes?

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62. IF 65 = YES: Compared to other these other factors, would you say these education efforts have had less, more, or about the same level of influence in changes in compliance practice?

- a. Less
- b. More
- c. About the same
- d. DK/REF

#### **PART 4. RESOURCE CONTRIBUTIONS FROM OTHER PROGRAMS**

**[ASK PART 4 IF OTHER ORGANIZATIONS SUCH AS UTILITIES OR OTHER GOVERNMENT COOPERATED IN THE DELIVERY OF THE PA THROUGH CONTRIBUTIONS OF STAFF TIME, FUNDING, OR OTHER SERVICES.]**

**LEAD-IN: Earlier we spoke about contributions that other organizations made to the non-residential retrofit programmatic activity. I'd like to ask a few more questions about that.**

63. First, prior to [PROGRAM YEAR/PERIOD]., had you cooperated with this (these) organization(s) in delivering energy programs to increase energy efficiency programs?

IF YES, ASK

- a. Please describe how you worked together with the other organization(s) and what specific activities they undertook.
- b. What kinds of resources did the other organizations provide?

64. Did your organization take the initiative to arrange for cooperative activities related to the program? Did the other organizations take the initiative? Or did the cooperation arise through some other mechanism?

65. Did representatives of the two (or more) organizations meet to jointly plan how the organizations would cooperate in the development of the program?
66. Do representatives of the organization meet on a regular basis to review program accomplishments and plan future activities?
- IF YES: How often does that occur?
67. Is there regular interaction among the organizations in delivering the program services?
- IF YES: Could you describe that interaction for me?
68. What do you believe are the other organizations' main motivations for contributing to the delivery of the program?
69. If the opportunity to offer joint programming with your agency had not been available, do you believe the other organizations would offer programs to promote energy efficiency in non-residential facilities?
- YES/NO  
Why do you say that?
70. If the other organizations had not cooperated in delivering the program as they did, would your organization have changed the type of services it provides to promote energy efficiency in non-residential facilities?
- YES/NO
- IF YES, PROBE:
- . How would your organization have changed the roster of services provided?
  - . In the absence of cooperation from other organizations, would the level of resources your organization dedicated to these services have been less, the same, or greater?
  - . Why do you say that?

**PART 6: DATA AVAILABILITY**

**[ONLY ASK THIS SECTION IF DATA ARE NOT AVAILABLE ALREADY]  
[ASK SECTION 4 FOR EACH OF THE PROGRAMS LISTED IN REPSONSE MATRIX A.  
IF NECESSARY, SCHEDULE A CALLBACK WITH THE APPROPRIATE PROGRAM  
MANAGER]**

**NOTE: QUESTIONS 31-34 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

71. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:

- 
- a) Key contacts from the implementation organization (including contact information)
  - b) Program participants, that is, local code officials, workshop attendees or training recipients, recipients of technical assistance, with contact information

(IF DATA IS AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE/DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE CAN PROVIDE SUCH DATA THEN THANK AND TERMINATE).

- 72. Have there been any evaluations of this program? Are data from these evaluations available?
- 73. (FOR EACH TYPE OF DATA AVAILABLE) Is this data in electronic format? (If yes, discuss steps needed to secure permission to access the data via secure file transfer. If no, determine how data records are maintained and how they could be accessed.)

**Thank you for your time and insights**



## L.2. ID-2: CODES AND STANDARDS PROGRAMS (STATE AND LOCAL CODE OFFICIAL)

**OMB Control No. 1910-5170**  
**BACKGROUND INFORMATION (to be filled in prior to interview):**

Programmatic Activity Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Types of Services Provided through Programmatic Activity:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### A. Introduction

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of programs supported by the State Energy Program and the American Recovery and Reinvestment Act (ARRA) to upgrade energy efficiency building codes and improve the enforcement. The information you supply will be used to characterize the program in [PROGRAM YEAR]. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. The survey should take no more than 75 minutes for you to complete

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?]. Characterization of Code Organization and Operations

First, I'd like to get some information about your department, your job and experience regarding energy efficiency elements of the building codes in force in your jurisdiction.

1. What elements of building code development and enforcement is your organization responsible for?
  - a. Technical support for building code adoption by executive or legislative bodies

- b. Training and oversight of code enforcement officials
  - c. Oversight of local code administration from the state level
  - d. Review of plans for compliance prior to construction
  - e. Inspection of construction in progress
  - f. Issue of occupancy permits
  - g. Other: \_\_\_\_\_
2. What are the geographic boundaries for the jurisdiction of your organization?
- 
3. How many building permits were issued by <ORGANIZATION NAME> in the latest year for which you have data?
- a. Residential building permits #: \_\_\_\_\_ in year \_\_\_\_\_
  - b. Commercial building permits #: \_\_\_\_\_ in year \_\_\_\_\_
  - c. Don't know \_\_\_\_\_
    - i. Would someone else in your agency be able to answer this question?  
\_\_\_\_\_
4. How many employees (FTEs) currently work in this organization? \_\_\_\_\_
5. And how many or what percentage of those employees work directly in plan review and inspection? \_\_\_\_\_
6. What are your specific job responsibilities?
7. IF ORGANIZATION CONDUCTS PLAN REVIEWS OR INSPECTIONS, ASK: What specific compliance elements is your organization responsible for inspecting?
- a. Electrical
  - b. Mechanical
  - c. Plumbing
  - d. Structural
  - e. Energy
  - f. Other: \_\_\_\_\_
  - g. Other: \_\_\_\_\_
8. Is compliance with code elements related to energy efficiency, such as the efficiency of lighting systems, levels of insulation, and efficiency of heating and cooling equipment required for the issuance of occupancy permits in your jurisdiction?
- a. Yes
  - b. No
  - c. Under some circumstances
    - i. PROBE FOR EXPLANATION OF PRACTICES
9. What methods does your organization or the organizations you oversee use to assess compliance with energy-related code elements for commercial buildings?
10. IF MORE THAN ONE METHOD USED, ASK: What percentage of total projects are assessed using [METHOD]?

	<b>9. Method</b>	<b>10. Percent of Projects</b>
a	Checklist of prescriptive features	
b	Compliance software such as ComCheck	
c	Building simulation modeling of total building performance	
d	Other (Specify)	
e	Don't assess compliance for energy elements	
f	Don't Know/Refused	

11. What methods does your organization or the organizations you oversee use to assess compliance with energy-related code elements for residential buildings?
12. IF MORE THAN ONE METHOD USED, ASK: What percentage of total projects are assessed using [METHOD]?

	<b>11. Method</b>	<b>12. Percent of Projects</b>
a	Checklist of prescriptive features	
b	Compliance software such as ResCheck	
c	Building simulation modeling of total building performance	
d	Other (Specify)	
e	Don't assess compliance for energy elements	
f	Don't know/Refused	

**B. Characterization of Baseline Construction Practices**

This next set of questions seeks information on common construction practices related to energy efficiency during the period immediately prior to [PROGRAM YEAR]. In particular we are interested in practices related to lighting, heating, cooling and related controls, shell insulation and air sealing. Are you able to provide information on standard practices in your jurisdiction, based on your experience in reviewing plans and inspecting projects or on your experience in overseeing such operations? Your general impressions and best approximations are fine for these purposes.

Yes: PROCEED TO BASELINE QUESTIONS

No: IS THERE SOMEONE ELSE IN THE ORGANIZATION WHO CAN PROVIDE THAT INFORMATION?

PROBE TO IDENTIFY STAFF WITH EXPERIENCE IN EITHER RESIDENTIAL, COMMERCIAL, OR BOTH.

13. In this question, I am going to read a specifications for a series of commercial building elements that reflect the International Code Council's 2009 International Energy Conservation Code. I would like you to tell me what percent of the projects your organization reviewed in the year prior to [PROGRAM YEAR] met this specification. I would also like you to tell me what the most frequent value for the specification was. So, for example, the IECC 2009 requires that unitary cooling equipment from 65,000 to 135,000 BTU/hr have an EER of at least 11.0. We would like to know what percent of projects with cooling equipment of that type met the 11.0 EER standard, and what the typical alternative EER level was in the year prior to

PROGRAM YEAR]. Finally, since construction practices vary a great deal in the commercial sector, we are seeking your best estimates for three different building types: offices, retail, and institutional, such as schools. REFER TO THE ANSWER GRID. IT MAY BE BEST TO EMAIL THE ANSWER GRID IN ADVANCE AND HAVE THE RESPONDENT FILL IT OUT PRIOR TO THE CALL.

- a. What percentage of [Office, Retail, Schools] projects completed in [YEAR PRIOR TO PROGRAM YEAR] met the following specifications?
- b. What was the typical alternative specification at the time?

14. In this question, I am seeking the same kind of information for residential buildings from single family homes to 4 units, and for multifamily buildings with 5 or more units.

**15. Commercial Baseline Practices**

Component	IECC 2009 Specification*	a. % Meeting Spec.			b. Alternative Specification
		Office	Retail	Inst.	If Applicable
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers				
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation				
Maximum Window Area	40% of above-grade wall area				
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tonsSEER 65 – 135 kBtu/hr, ~ 10 tnsEE 135 – 240 kBtu/hr ~ 20 tnsE > 240 kBtu/hr EER 9.5				
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3				
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton				
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week				
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40				

	persons/1000 sf				
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply				
Economizers	Required in all cooling systems $\geq$ 54 kBtu				
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors				
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy sensors				
Interior Lighting Power Density	Office 1.0 Watt/sf Retail 1.5 Watt/sf School/University 1.2 Watt/sf				
Exterior Lighting Control	Motion sensor or time clock				

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

16. Residential Baseline Practices

Component	IECC 2009 Specification	a. % Meeting Spec.		b. Alternative Specification If Applicable
		1 – 4 units	≥ 5 units	
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49			
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21			
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38			
Basement Insulation	CZ 1-2 0 CZ 3R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19			
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth			
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 – 8 0.35			
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector			
Duct Insulation	R-8 for all supply ducts in attic; others R-6			
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space			

Mechanical Ventilation	Automatic or gravity dampers on all outdoor air intakes and exhausts			
Heating & Cooling System Sizing	Per Manual J or International Residential Code			
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)			

**C. Effect of Program on Acceleration of Statewide Code Adoption**

**IF ONE OF THE OBJECTIVES OF THE PROGRAM WAS TO ACCELERATE ADOPTION OF IECC 2009 AS THE STATEWIDE ENERGY EFFICIENCY CODE, ASK THIS SECTION. OTHERWISE SKIP TO NEXT SECTION.**

As you may know, the Governor agreed to adopt IECC 2009 as part of your state’s building code as a condition of receiving funding for energy projects through the American Recovery and Reinvestment Act. The date of adoption of the code is \_\_\_\_\_ and the effective date is \_\_\_\_\_. In this set of questions I would like to gather your thoughts on the likely timing of adoption for new statewide energy codes in the absence of the incentives and supports offered through ARRA.

17. First, do you think your state would have adopted *any* statewide energy code by 2020 in the absence of the incentives and supports offered by ARRA?
- d. Yes
  - e. No
  - f. Don’t know

18. IF 15 = NO, ASK: Why do you say that?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

19. IF 15 =YES, ASK: In the absence of the requirement that the state adopt IECC 2009 as its energy code, in what year do you think the it would have come into effect in this state?

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

20. What are your main reasons for this assessment?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Additional follow-up questions**



21. During the 5 years prior to [PROGRAM YEAR], had there been efforts to adopt or update a statewide energy efficiency building code?

- g. Yes
- h. No
- i. Don't know

22. IF 19 = YES, ASK: Which organizations advocated for adoption of a new statewide energy efficiency code?

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23. What organizations or constituencies opposed adoption of new codes?

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24. What were their principal objections to the adoption of new codes?

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25. How effective were the advocates and opponents of the code in enlisting political support for their views? What evidence do you have for this assessment?

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26. Were there other business, economic, or political factors in the state that were supporting or working against the adoption of energy codes immediately prior to [PROGRAM YEAR]? IF YES: What were they?

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27. What were the outcomes of these efforts? Was a new or updated code adopted?

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28. To your knowledge, was your state's energy office, also known as [NAME OF OFFICE], involved in developing or supporting the development and adoption of this code?

- j. Yes
- k. No
- l. Don't know

29. IF 26 = YES, ASK: What specific activities did the [NAME OF OFFICE] undertake to support the development and adoption of the new energy code?

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30. On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important was your state energy office's involvement in the development and adoption of the energy efficiency building code?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

31. Why do you say that?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. Effect of the Program on Local Code Adoption**

**IF ONE OF THE OBJECTIVES OF THE PROGRAM WAS TO SUPPORT AND ACCELERATE ADOPTION OF LOCAL ENERGY EFFICIENCY CODES, ASK THIS SECTION. IT IS ADDRESSED TO CODE OFFICIALS IN JURISDICTIONS THAT PARTICIPATED IN CODE DEVELOPMENT PROCESSES. OTHERWISE SKIP TO NEXT SECTION. YOU SHOULD NOT ASK THIS SECTION IF YOU HAVE ASKED SECTION D.**

According to descriptions of the state activities provided to us, one of their objectives was to promote the development and adoption of energy efficiency codes in selected local jurisdictions, including yours.

32. First, can you describe the activities the state energy office or its contractors undertook to support the development and adoption of energy efficiency building codes in your jurisdiction?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

33. What building energy efficiency codes, if any, were in place prior to this effort?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

34. Can you describe the codes that your jurisdiction adopted with the assistance of the state energy office?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

35. What is the date on which these codes became or will become effective?

Month \_\_\_\_\_ Year \_\_\_\_\_

36. Do you think your jurisdiction would have adopted *any* building energy code by 2020 in the absence of the programs and support offered by the state energy office?

- m. Yes
- n. No
- o. Don't know

37. IF 34 = NO, ASK: Why do you think that?

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38. IF 34 =YES, ASK: In the absence of the programs and support you received from the state energy office, in what year do you think that your jurisdiction would have adopted energy efficiency codes?

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

39. What are your main reasons for this assessment?

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**Additional follow-up questions**

40. During the 5 years prior to [PROGRAM YEAR], had there been efforts to adopt or update a energy efficiency building codes in your jurisdiction?

- p. Yes
- q. No
- r. Don't know

41. IF 38 = YES, ASK: Which organizations advocated for adoption of a new statewide energy efficiency code?

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42. What organizations or constituencies opposed adoption of new codes?

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43. What were their principal objections to the adoption of new codes?

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44. How effective were the advocates and opponents of the code in enlisting political support for their views? What evidence do you have for this assessment?

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45. Were there other business, economic, or political factors in the jurisdiction that were supporting or working against the adoption of energy codes immediately prior to [PROGRAM YEAR]? IF YES: What were they?

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46. On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important was your state energy office's involvement in the development and adoption of the energy efficiency building codes?

ENTER 1 - 10, 99 FOR DK/REF: \_\_\_\_\_

47. Why do you say that?

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**E. Non-compliance Rates**

**ASK THIS SECTION ONLY IF PA HAS TARGETED ACCELERATION OF ADOPTION OF STATEWIDE OR LOCAL CODES; THAT IS, ONLY IF YOU HAVE ASKED SECTIONS D OR E.**

In this set of questions we seek your views on the extent to which various provisions of the energy efficiency codes you have adopted are being complied with.

48. What percent of permitted projects in your jurisdiction meet each of the following code requirements, taking into account the resources available for enforcement and current practices of builders and construction professionals active in the jurisdiction. A response of 100 percent means that all projects permitted in your jurisdiction meet the code specifications. A response of 90 percent means that 10 percent of the permitted projects do not meet specifications, due to lack of understanding or motivation on the part of the builder or lack of enforcement resources.

49. FOR FEATURES WITH ESTIMATED COMPLIANCE RATE BELOW 90 PERCENT, ASK: What are the principal reasons for lack of compliance for this component?

**Commercial Code Compliance**

<b>Component</b>	<b>IECC 2009 Specification*</b>	<b>46. Compliance Rate</b>	<b>47. Principal Reasons for Non-compliance</b>
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers		
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation		
Maximum Window Area	40% of above-grade wall area		
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tons SEER 13.0 65 – 135 kBtu/hr, ~ 10 tnsEER 11.0 135 – 240 kBtu/hr ~ 20 tnsEER 10.6 > 240 kBtu/hr EER 9.5		
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3		
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton		
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week		
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf		
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply		
Economizers	Required in all cooling systems $\geq$ 54 kBtu		
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors		
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy sensors		
Interior Lighting	Office 1.0 Watt/sf		

Power Density	Retail 1.5 Watt/sf School/University 1.2 Watt/sf		
Exterior Lighting Control	Motion sensor or time clock		

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

**Residential Code Compliance**

<b>Component</b>	<b>IECC 2009 Specification</b>	<b>46. Compliance Rate</b>	<b>47. Principal Reasons for Non-compliance</b>
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49		
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21		
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38		
Basement Insulation	CZ 1-2 0 CZ 3R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19		
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth		
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 – 8 0.35		
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector		
Duct Insulation	R-8 for all supply ducts in attic; others R-6		
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space		
Mechanical Ventilation	Automatic or gravity dampers on all outdoor air intakes and exhausts		
Heating &	Per Manual J or International		



Cooling System Sizing	Residential Code		
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)		

**F. Effects of Programs to Strengthen Code Enforcement**

**ASK THIS SECTION ONLY IF PA INCLUDES ELEMENTS TO IMPROVE CODE ENFORCEMENT AT THE LOCAL OR STATE LEVELS. SUCH ELEMENTS INCLUDE TRAINING OF CODE OFFICIALS, TECHNICAL ASSISTANCE TO CODE OFFICIALS, STIPENDS TO HIRE ADDITIONAL CODE OFFICIALS, PURCHASE OF COMPLIANCE SOFTWARE, ETC. THESE QUESTIONS ARE TO BE ADDRESSED TO REPRESENTATIVES OF JURISDICTIONS THAT RECEIVED SUCH ASSISTANCE.**

50. According to program records, the state energy office provided assistance to your jurisdiction to improve enforcement of the energy efficiency elements of building codes in force at the time. Is that correct?
- s. Yes
  - t. No
  - u. Don't know

IF 48 = NO, ASCERTAIN THE NATURE OF THE SERVICES PROVIDED AND ASK THE APPROPRIATE SET OF QUESTIONS.

51. What services and resources did the state energy office provide to your organization to improve enforcement of the energy efficiency elements of state or local building codes? CHECK ALL THAT APPLY.
- v. Education and training of code officials and inspectors \_\_\_\_\_
  - w. Technical assistance to code officials and inspectors \_\_\_\_\_
  - x. Funding to hire additional code officials and inspectors \_\_\_\_\_
  - y. Funding to acquire code compliance software and other tools \_\_\_\_\_
  - z. Other (Specify) \_\_\_\_\_

52. What changes did you make to your organization and operations to improve the level of code enforcement as a result of these activities?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

53. On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that your organization would have undertaken these improvements to your enforcement activities if the support from the state energy office had not been available?

ENTER 1 - 10, 99 IF DK OR REF \_\_\_\_\_

54. IF 51 > 3, ASK: In what year would you most likely have made these changes?

ENTER YEAR: \_\_\_\_\_

55. What conditions would have been necessary for these changes to occur – for example availability of funding from tax revenues or other sources, appropriations from City Council, etc.?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

56. Do you believe that your efforts to improve enforcement have resulted in improved compliance with energy efficiency elements of the building code?

- aa. Yes
- bb. No
- cc. Too early to tell
- dd. DK/REF

57. IF 54 = Yes or No, ASK: What observations lead you to say that?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

58. IF 54 = YES. For which of the following code elements has compliance improved?

59. FOR EACH ELEMENT IDENTIFIED ASK:

- ee. What was the compliance rate prior to the start of the program?
- ff. What is the current compliance rate?

60. Are there factors other than your increased enforcement efforts that have contributed to increased compliance rates? IF YES: Could you identify those factors.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

61. IF 58 = YES: Compared to these other factors, would you say your enforcement efforts had less, more, or about the same level of influence in changes in compliance rate?

- gg. Less
- hh. More
- ii. About the same
- jj. DK/REF

**Commercial Code Compliance**

<b>Component</b>	<b>IECC 2009 Specification*</b>	<b>56. Compliance Improved</b>	<b>57a. Pre-Program Compliance Rate</b>	<b>57b. Current Compliance Rate</b>
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers			
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation			
Maximum Window Area	40% of above-grade wall area			
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tons SEER 13 65 – 135 kBtu/hr, ~ 10 tnsEE 135 – 240 kBtu/hr ~ 20 tnsEE > 240 kBtu/hr EER 9.5			
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3			
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton			
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week			
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf			
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply			
Economizers	Required in all cooling systems $\geq$ 54 kBtu			
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors			
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy			

	sensors			
Interior Lighting Power Density	Office	1.0 Watt/sf		
	Retail	1.5 Watt/sf		
	School/University	1.2 Watt/sf		
Exterior Lighting Control	Motion sensor or time clock			

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

### Residential Code Compliance

Component	IECC 2009 Specification	56. Compliance Improved	57a. Pre-Program Compliance Rate	57b. Current Compliance Rate
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49			
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21			
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38			
Basement Insulation	CZ 1-2 0 CZ 3R-5 Sheathing or R-13 Cavi CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19			
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth			
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 - 8 0.35			
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector			
Duct Insulation	R-8 for all supply ducts in attic; others R-6			
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space			
Mechanical	Automatic or gravity dampers on all outdoor air intakes and			

Ventilation	exhausts			
Heating & Cooling System Sizing	Per Manual J or International Residential Code			
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)			

**G. Effects of Programs to Train Builders and Architects in Code Issues**

**G. ASK THIS SECTION ONLY IF PA INCLUDES ELEMENTS TO EDUCATE BUILDERS AND DESIGNERS ON CODE REQUIREMENTS AND COMPLIANCE MECHANISMS**

62. Based on your experience, would you say that builders' and architects' awareness of the energy efficiency requirements of the building code has increased, decreased, or stayed about the same since [YEAR PRIOR TO PROGRAM YEAR]?
- kk. Increased
  - ll. Decreased
  - mm. Stayed about the same
  - nn. DK/REF

63. What observations lead you to conclude that?

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64. Would you say that the level of voluntary compliance with the energy efficiency aspects the building codes among builders and architects has increased, decreased, or stayed about the same since [YEAR PRIOR TO THE PROGRAM YEAR]?
- oo. Increased
  - pp. Decreased
  - qq. Stayed about the same
  - rr. DK/REF

65. What observations lead you to conclude that?

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66. IF 62 = a OR b ASK: What factors do you believe have led to changes in voluntary levels of compliance with energy efficiency aspects of the building codes?

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67. Are you aware of efforts by the state energy office to inform and train builders and architects concerning building code requirements and compliance strategies?

- ss. Yes
- tt. No



68. IF 65 = YES: Compared to other factors affecting levels of code compliance, would you say these education efforts have had less, more, or about the same level of influence in changes in compliance rate?

uu. Less

vv. More

ww. About the same

xx. DK/REF

Thank you for your time and insights

## L.3. ID-3: CODES AND STANDARDS PROGRAMS (CONSTRUCTION FIRM REPS)

**OMB Control No. 1910-5170  
BACKGROUND INFORMATION (to be filled in prior to interview):**

Programmatic Activity Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Types of Services Provided through Programmatic Activity:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### Introduction

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of programs supported by the State Energy Program and the American Recovery and Reinvestment Act (ARRA) to upgrade energy efficiency building codes and improve the enforcement. The information you supply will be used to characterize the program in [PROGRAM YEAR]. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. The survey should take no more than 75 minutes for you to complete.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

### Characterization of Firm and Respondent

First, I'd like to get some information about your firm, your job and experience regarding energy efficiency elements of the building codes in force in [STATE IN WHICH PROGRAM IS LOCATED].

1. Which of the following services does your firm offer in [STATE]?
  - a. Architectural services



- b. Electrical Engineering
  - c. Mechanical Engineering
  - d. Code compliance assessment for other designers and builders
  - e. Commercial construction management
  - f. Commercial construction
  - g. Residential construction
2. How many commercial new construction and major renovation projects did your firm work on in [STATE] during 2011? Your best estimate is fine.
- NUMBER OF PROJECTS: \_\_\_\_\_
3. Roughly what percentage of your projects were accounted for by the following kinds of facilities:
- a. Private Office \_\_\_\_\_
  - b. Retail \_\_\_\_\_
  - c. Schools \_\_\_\_\_
  - d. Other institutional \_\_\_\_\_
4. Is your firm involved in construction of single family homes or multifamily buildings?
- a. Yes
  - b. No
  - c. DK/REF
5. IF 4 = YES: Roughly how many single family homes did your company build or design in 2011?
- ENTER NUMBER \_\_\_\_\_
6. IF 4 = YES: Roughly how many multi-family building projects did your firm work on in 2011?
- ENTER NUMBER \_\_\_\_\_
7. What are your specific job responsibilities?
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
8. Are you familiar with the methods your company uses to ensure energy code compliance in [STATE]?
- a. Yes
  - b. No
  - c. DK/REF
9. IF 8 = NO OR DK/REF, ASK: Can you refer me to someone in your firm who is familiar with energy code compliance procedures in [STATE]?
- a. Name: \_\_\_\_\_
  - b. Title: \_\_\_\_\_
  - c. Telephone: \_\_\_\_\_
  - d. E mail address: \_\_\_\_\_

WHEN APPROPRIATE INDIVIDUAL IS IDENTIFIED, ASK:

10. What methods does your firm use to assess compliance with energy-related code elements for commercial building projects on which it works?
11. IF MORE THAN ONE METHOD USED, ASK: What percentage of total projects are assessed using [METHOD]?

	<b>10. Method</b>	<b>11. Percent of Projects</b>
a	Checklist of prescriptive features	
b	Compliance software such as ComCheck	
c	Building simulation modeling of total building performance	
d	Other (Specify)	
e	Don't assess compliance for energy elements	
f	Don't Know/Refused	

12. What methods does your organization or the organizations you oversee use to assess compliance with energy-related code elements for residential buildings?
13. IF MORE THAN ONE METHOD USED, ASK: What percentage of total projects are assessed using [METHOD]?

	<b>12. Method</b>	<b>13. Percent of Projects</b>
a	Checklist of prescriptive features	
b	Compliance software such as ResCheck	
c	Building simulation modeling of total building performance	
d	Other (Specify)	
e	Don't assess compliance for energy elements	
f	Don't know/Refused	

### Characterization of Baseline Construction Practices

This next set of questions seeks information on common construction practices related to energy efficiency during the period immediately prior to [PROGRAM YEAR]. In particular we are interested in practices related to lighting, heating, cooling and related controls, shell insulation and air sealing. Are you able to provide information on standard practices in your jurisdiction, based on your experience in reviewing plans and inspecting projects or on your experience in overseeing such operations? Your general impressions and best approximations are fine for these purposes.

Yes: PROCEED TO BASELINE QUESTIONS

No: IS THERE SOMEONE ELSE IN THE ORGANIZATION WHO CAN PROVIDE THAT INFORMATION?

PROBE TO IDENTIFY STAFF WITH EXPERIENCE IN EITHER RESIDENTIAL, COMMERCIAL, OR BOTH.

14. IF FIRM DID  $\geq$  5 COMMERCIAL PROJECTS, ASK: In this question, I am going to read specifications for a series of commercial building elements that reflect the International Code Council's 2009 International Energy Conservation Code. I would like you to tell me what percent of the projects your firm worked on in the year prior to [PROGRAM YEAR] met these



specifications. I would also like you to tell me what the most frequent value for the specification was. So, for example, the IECC 2009 requires that unitary cooling equipment from 65,000 to 135,000 BTU/hr have an EER of at least 11.0. We would like to know what percent of projects with cooling equipment of that type met the 11.0 EER standard, and what the typical alternative EER level was in the year prior to PROGRAM YEAR]. Finally, since construction practices vary a great deal in the commercial sector, we are seeking your best estimates for three different building types: offices, retail, and institutional, such as schools. REFER TO THE ANSWER GRID. IT MAY BE BEST TO EMAIL THE ANSWER GRID IN ADVANCE AND HAVE THE RESPONDENT FILL IT OUT PRIOR TO THE CALL.

a. What percentage of [Office, Retail, Schools] projects completed in [YEAR PRIOR TO PROGRAM YEAR] met the following specifications?

b. What was the typical alternative specification at the time?

15. IF FIRM DID  $\geq$  5 RESIDENTIAL PROJECTS, ASK: In this question, I am going to read specifications for a series of residential building elements that reflect the International Code Council's 2009 International Energy Conservation Code. I would like you to tell me what percent of the residential projects your firm worked on in the year prior to [PROGRAM YEAR] met this specification. I would also like you to tell me what the most frequent value for the specification was. So, for example, the IECC 2009 requires that roofs be insulated to R-38 in moderately cold climate zones. We would like to know what percent of projects with cooling equipment of that type met that specification, and what the typical alternative insulation level was in the year prior to PROGRAM YEAR] in new construction. REFER TO THE ANSWER GRID. IT MAY BE BEST TO EMAIL THE ANSWER GRID IN ADVANCE AND HAVE THE RESPONDENT FILL IT OUT PRIOR TO THE CALL.

a. What percentage of single and multifamily projects completed in [YEAR PRIOR TO PROGRAM YEAR] met the following specifications?

b. What was the typical alternative specification at the time?

16. Commercial Baseline Practices

Component	IECC 2009 Specification*	a. % Meeting Spec.			b. Alternative Specification
		Office	Retail	Inst.	If Applicable
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers				
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation				
Maximum Window Area	40% of above-grade wall area				
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tons SEER 65 – 135 kBtu/hr, ~ 10 tns EER 135 – 240 kBtu/hr ~ 20 tns EER > 240 kBtu/hr EER 9.5				
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3				
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton				
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week				
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf				
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply				
Economizers	Required in all cooling systems $\geq$ 54 kBtu				
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors				
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy sensors				

Interior Lighting Power Density	Office	1.0 Watt/sf				
	Retail	1.5 Watt/sf				
	School/University	1.2 Watt/sf				
Exterior Lighting Control	Motion sensor or time clock					

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

17. Residential Baseline Practices

Component	IECC 2009 Specification	a. % Meeting Spec.		b. Alternative Specification If Applicable
		1 – 4 units	≥ 5 units	
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49			
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21			
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38			
Basement Insulation	CZ 1-2 0 CZ 3R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19			
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth			
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 – 8 0.35			
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector			
Duct Insulation	R-8 for all supply ducts in attic; others R-6			
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space			

Mechanical Ventilation	Automatic or gravity dampers on all outdoor air intakes and exhausts			
Heating & Cooling System Sizing	Per Manual J or International Residential Code			
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)			

**Effect of Program on Acceleration of Statewide Code Adoption**

**IF ONE OF THE OBJECTIVES OF THE PROGRAM WAS TO ACCELERATE ADOPTION OF IECC 2009 AS THE STATEWIDE ENERGY EFFICIENCY CODE, ASK THIS SECTION. OTHERWISE SKIP TO NEXT SECTION.**

As you may know, the Governor of [STATE] agreed to adopt IECC 2009 as part of your state’s building code as a condition of receiving funding for energy projects through the American Recovery and Reinvestment Act. The date of adoption of the code is \_\_\_\_\_ and the effective date is \_\_\_\_\_. In this set of questions I would like to gather your thoughts on the likely timing of adoption for new statewide energy codes in the absence of the incentives and supports offered through ARRA.

18. First, do you think [STATE] would have adopted *any* statewide energy code by 2020 in the absence of the incentives and supports offered by ARRA?
- yy. Yes
  - zz. No
  - aaa. Don’t know

19. IF 18 = NO, ASK: Why do you say that?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

20. IF 18 =YES, ASK: In the absence of the requirement that the state adopt IECC 2009 as its energy code, in what year do you think the it would have come into effect in this state?

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

21. What are your main reasons for this assessment?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Additional follow-up questions**



22. During the 5 years prior to [PROGRAM YEAR], had there been efforts to adopt or update a statewide energy efficiency building code?

- a. Yes
- b. No
- c. Don't know

23. IF 22 = YES, ASK: Which organizations advocated for adoption of a new statewide energy efficiency code?

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24. What organizations or constituencies opposed adoption of new codes?

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25. What were their principal objections to the adoption of new codes?

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26. How effective were the advocates and opponents of the code in enlisting political support for their views? What evidence do you have for this assessment?

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27. Were there other business, economic, or political factors in the state that were supporting or working against the adoption of energy codes immediately prior to [PROGRAM YEAR]? IF YES: What were they?

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28. What were the outcomes of these efforts? Was a new or updated code adopted?

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29. To your knowledge, was your state's energy office, also known as [NAME OF OFFICE], involved in developing or supporting the development and adoption of this code?

- a. Yes
- b. No
- c. Don't know

30. IF 29 = YES, ASK: What specific activities did the [NAME OF OFFICE] undertake to support the development and adoption of the new energy code?

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31. On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important was your state energy office's involvement in the development and adoption of the energy efficiency building code?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

32. Why do you say that?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Effect of the Program on Local Code Adoption**

**IF ONE OF THE OBJECTIVES OF THE PROGRAM WAS TO SUPPORT AND ACCELERATE ADOPTION OF LOCAL ENERGY EFFICIENCY CODES, ASK THIS SECTION. OTHERWISE SKIP TO NEXT SECTION. YOU SHOULD NOT ASK THIS SECTION IF YOU HAVE ASKED SECTION D.**

According to descriptions of the state activities provided to us, one of their objectives was to promote the development and adoption of energy efficiency codes in selected local jurisdictions, including the following: INSERT LOCAL JURISDICTIONS THAT RECEIVED STATE ENERGY OFFICE SUPPORT FOR CODE DEVELOPMENT AND ADOPTION.

33. Were you aware of the efforts of the state energy office to support the adoption of energy efficiency building codes in these jurisdictions?

- a. Yes
- b. No
- c. DK/REF

34. Do you think these jurisdictions would have adopted *any* building energy code by 2020 in the absence of the programs and support offered by the state energy office?

- a. Yes
- b. No
- c. Don't know

35. IF 34 = NO, ASK: Why do you think that?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

36. IF 34 =YES, ASK: In the absence of the programs and support you received from the state energy office, in what year do you think that these jurisdiction would hav adopted any energy efficiency codes?

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

37. What are your main reasons for this assessment?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

38. Are you aware of business, economic, or political conditions in the jurisdictions that received support from the state energy office for code adoption that supported the adoption of energy codes immediately prior to [PROGRAM YEAR]? That worked against code adoption? IF YES: What were they?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

39. On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important was your state energy office's involvement in the development and adoption of the energy efficiency building codes?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

40. Why do you say that?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Non-compliance Rates**

**ASK THIS SECTION ONLY IF PA HAS TARGETED ACCELERATION OF ADOPTION OF STATEWIDE OR LOCAL CODES; THAT IS, ONLY IF YOU HAVE ASKED SECTIONS D OR E.**

In this set of questions we seek your views on the extent to which various provisions of the energy efficiency codes in force in your state are being complied with. Here we are referring not only to projects your firm has completed but to other projects of which you are aware.

41. What percent of permitted projects in your jurisdiction meet each of the following code requirements, taking into account the resources available for enforcement and current practices of builders and construction professionals active in the jurisdiction. A response of 100 percent means that all projects permitted in your jurisdiction meet the code specifications. A response of 90 percent means that 10 percent of the permitted projects do not meet specifications, due to lack of understanding or motivation on the part of the builder or lack of enforcement resources.

42. FOR FEATURES WITH ESTIMATED COMPLIANCE RATE BELOW 90 PERCENT, ASK: What are the principal reasons for lack of compliance for this component?

**Commercial Code Compliance**

<b>Component</b>	<b>IECC 2009 Specification*</b>	<b>46. Compliance Rate</b>	<b>47. Principal Reasons for Non-compliance</b>
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers		
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation		
Maximum Window Area	40% of above-grade wall area		
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tons SEER 13.0 65 – 135 kBtu/hr, ~ 10 tnsEER 11.0 135 – 240 kBtu/hr ~ 20 tnsEER 10.6 > 240 kBtu/hr EER 9.5		
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3		
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton		
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week		
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf		
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply		
Economizers	Required in all cooling systems $\geq$ 54 kBtu		
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors		
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy sensors		
Interior Lighting	Office 1.0 Watt/sf		

Power Density	Retail 1.5 Watt/sf School/University 1.2 Watt/sf		
Exterior Lighting Control	Motion sensor or time clock		

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

### Residential Code Compliance

Component	IECC 2009 Specification	46. Compliance Rate	47. Principal Reasons for Non-compliance
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49		
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21		
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38		
Basement Insulation	CZ 1-2 0 CZ 3R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19		
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth		
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 – 8 0.35		
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector		
Duct Insulation	R-8 for all supply ducts in attic; others R-6		
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space		
Mechanical Ventilation	Automatic or gravity dampers on all outdoor air intakes and exhausts		
Heating &	Per Manual J or International		



Cooling System Sizing	Residential Code		
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)		

**Effects of Programs to Strengthen Code Enforcement**

**ASK THIS SECTION ONLY IF PA INCLUDES ELEMENTS TO IMPROVE CODE ENFORCEMENT AT THE LOCAL OR STATE LEVELS. SUCH ELEMENTS INCLUDE TRAINING OF CODE OFFICIALS, TECHNICAL ASSISTANCE TO CODE OFFICIALS, STIPENDS TO HIRE ADDITIONAL CODE OFFICIALS, PURCHASE OF COMPLIANCE SOFTWARE, ETC.**

43. On a scale of 1 to 10 where 1 means "not at all effective" and 10 means "very effective", how effective do you believe local code officials in [STATE] are in regard to: ENTER 1 – 10; 99 FOR DK/REF

- a. Identifying instances of non-compliance with energy codes in plan reviews and inspections \_\_\_\_\_
- b. Informing architects and builders of energy code compliance issues in the course of plan reviews and inspections \_\_\_\_\_
- c. Suggesting energy code compliance strategies in the course of plan reviews and inspections \_\_\_\_\_

44. Would you say that local energy code enforcement activities have become more effective, less effective, or remained about the same over the past five years?

- a. More effective
- b. Less effective
- c. Stayed about the same
- d. DK/REF

45. How about over the period since [PROGRAM YEAR]?

- a. More effective
- b. Less effective
- c. Stayed about the same
- d. DK/REF

46. IF 44 OR 45 = a or b, ASK: Can you provide any examples of changes in enforcement activities that are associated with the changes in effectiveness?

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47. Has your firm made any changes in the procedures it follows to ensure compliance with energy efficiency elements of the building code since [PROGRAM YEAR]? IF YES: What are those procedures?

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48. On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that your firm would have undertaken these changes if code enforcement activities had not changed?

ENTER 1 - 10, 99 IF DK OR REF \_\_\_\_\_

49. Has the percentage of your firm's projects that meet the specifications for key exterior, mechanical, and lighting elements of energy efficiency codes increased, decreased, or stayed about the same since [PROGRAM YEAR]?

- a. Increased
- b. Decreased
- c. Stayed about the same
- d. DK/REF

IF 49 = INCREASED, ASK. For which of the following code elements has compliance improved?

50. FOR EACH ELEMENT IDENTIFIED ASK:

- a. What was the compliance rate prior to the start of the program?
- b. What is the current compliance rate?

ASK FOR COMMERCIAL AND RESIDENTIAL PROJECTS AS APPROPRIATE PER PRIOR RESPONSES IN SECTION B.

51. Are there factors other than increased enforcement efforts that have contributed to increased compliance rates? IF YES: Could you identify those factors.

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52. IF 51 = YES: Compared to these other factors, would you say your enforcement efforts had less, more, or about the same level of influence in changes in compliance rate?

- a. Less
- b. More
- c. About the same
- d. DK/REF

**Commercial Code Compliance**

<b>Component</b>	<b>IECC 2009 Specification*</b>	<b>46. Compliance Improved</b>	<b>47a. Pre-Program Compliance Rate</b>	<b>47b. Current Compliance Rate</b>
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers			
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation			
Maximum Window Area	40% of above-grade wall area			
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tons SEER 13 65 – 135 kBtu/hr, ~ 10 tnsEE 135 – 240 kBtu/hr ~ 20 tnsEE > 240 kBtu/hr EER 9.5			
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3			
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton			
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week			
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf			
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply			
Economizers	Required in all cooling systems $\geq$ 54 kBtu			
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors			
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy			

	sensors			
Interior Lighting Power Density	Office	1.0 Watt/sf		
	Retail	1.5 Watt/sf		
	School/University	1.2 Watt/sf		
Exterior Lighting Control	Motion sensor or time clock			

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

### Residential Code Compliance

Component	IECC 2009 Specification	46. Compliance Improved	47a. Pre-Program Compliance Rate	47b. Current Compliance Rate
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49			
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21			
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38			
Basement Insulation	CZ 1-2 0 CZ 3 R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19			
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth			
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 - 8 0.35			
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector			
Duct Insulation	R-8 for all supply ducts in attic; others R-6			
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space			
Mechanical	Automatic or gravity dampers on all outdoor air intakes and			

Ventilation	exhausts			
Heating & Cooling System Sizing	Per Manual J or International Residential Code			
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)			

**Effects of Programs to Train Builders and Architects in Code Issues**

**ASK THIS SECTION ONLY IF PA INCLUDES ELEMENTS TO EDUCATE BUILDERS AND DESIGNERS ON CODE REQUIREMENTS AND COMPLIANCE MECHANISMS.**

**THESE QUESTIONS ARE TO BE ADDRESSED TO PARTICIPANTS IN THE PROGRAM.**

53. In [PROGRAM YEAR], the [NAME OF PROGRAM SPONSOR OR CONTRACTOR, AS APPROPRIATE] offered workshops/training programs/[OTHER INFORMATION RESOURCES] to construction professionals on the [CONTENT RELATED TO BUILDING CODES]. According to program records, you or other members of your firm attended one or more of these sessions [OR OTHERWISE MADE USE OF THE INFORMATIONAL RESOURCES]. Is this correct?

- a. Yes
- b. No
- c. Don't Know

**IF 53 = NO OR DON'T KNOW, ASK:** Is there someone in your firm who may be more familiar with your participation in the education/training/information program?  
May I speak with that person?

**ONCE THE APPROPRIATE RESPONDENT IS IDENTIFIED, PROCEED.**

54. How many members of your firm participated in the program?

ENTER NUMBER OF ATTENDEES: \_\_\_\_\_

55. What positions or roles do these individuals have in your firm?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

56. What kinds of information or techniques did members of your firm learn about in these sessions [from these information resources]?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

57. Has your firm made any changes in the procedures it follows to ensure compliance with energy efficiency elements of the building code since participating in the program? IF YES: What are those procedures?

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58. On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that your firm would have undertaken these changes if code enforcement activities had not changed?

ENTER 1 – 10, 99 IF DK OR REF \_\_\_\_\_

59. Has the percentage of your firm's projects that meet the specifications for key exterior, mechanical, and lighting elements of energy efficiency codes increased, decreased, or stayed about the same since [PROGRAM YEAR]?

- a. Increased
- b. Decreased
- c. Stayed about the same
- d. DK/REF

IF 59 = INCREASED, ASK. For which of code elements has compliance improved?

60. FOR EACH ELEMENT IDENTIFIED ASK:

- a. What was the compliance rate prior to the start of the program?
- b. What is the current compliance rate?

ASK FOR COMMERCIAL AND RESIDENTIAL PROJECTS AS APPROPRIATE PER PRIOR RESPONSES IN SECTION B.

61. Are there factors other than the information and training you received from [PROGRAM SPONSOR] that have contributed to increased compliance rates? IF YES: Could you identify those factors.

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62. IF 61 = YES: Compared to these other factors, would you say your enforcement efforts had less, more, or about the same level of influence in changes in compliance rate?

- a. Less
- b. More
- c. About the same
- d. DK/REF

**Commercial Code Compliance**

<b>Component</b>	<b>IECC 2009 Specification*</b>	<b>46. Compliance Improved</b>	<b>47a. Pre-Program Compliance Rate</b>	<b>47b. Current Compliance Rate</b>
Roof Insulation	R-19 for standing seam roof /single fiberglass layer; R-19 + R13 for multiple layers			
Wall Insulation	R-19 for single faced fiberglass insulation layer between wall panels & steel frame. R-13 + 5.6 rigid insulation			
Maximum Window Area	40% of above-grade wall area			
Unitary AC/Air Cooled	< 65 kBtu/hr, ~ 5 tons SEER 13 65 – 135 kBtu/hr, ~ 10 tnsEEER 12.5 135 – 240 kBtu/hr ~ 20 tnsEEER 12.3 > 240 kBtu/hr EER 9.5			
Packaged Thermal AC & Heat Pumps	AC EER 12.5 HP EER 12.3			
Water cooled chillers	< 300 tons .634 kW/ton 300 – 600 tons .576 kW/ton			
Thermostatic Controls	Automatic setback and shut-off capability for 7 daily schedules/week			
Demand Control Ventilation	Required in all spaces > 500 sf with average occupancy > 40 persons/1000 sf			
Energy (Heat) Recovery Ventilation	All fans $\geq$ 5,000 CFM and $\geq$ 70% outside air supply			
Economizers	Required in all cooling systems $\geq$ 54 kBtu			
Interior Lighting Controls	Dual switching to reduce connected load by 50% or occupancy sensors			
Interior Lighting Controls	Automatic shut-off via time clock, EMS, or occupancy			

	sensors			
Interior Lighting Power Density	Office	1.0 Watt/sf		
	Retail	1.5 Watt/sf		
	School/University	1.2 Watt/sf		
Exterior Lighting Control	Motion sensor or time clock			

\* Some specifications for shell elements change depending on climate zone. Consult IECC 2009 for correct values.

### Residential Code Compliance

Component	IECC 2009 Specification	46. Compliance Improved	47a. Pre-Program Compliance Rate	47b. Current Compliance Rate
Ceiling Insulation	CZ 1-3 R-30 CZ 4-5 R-38 CZ 6-8 R-49			
Wall Insulation	CZ 1-4 except Marine R-13 CZ 4 Marine-6 R-20 CZ 7-8 R-21			
Floor Insulation	CZ 1-2 R-13 CZ 3-4 except Marine R-19 CZ 4 Marine - 6 R-30 CZ 7-8 R-38			
Basement Insulation	CZ 1-2 0 CZ 3 R-5 Sheathing or R-13 Cavity Fill CZ 4 Marine - 6 R-10/R-13 CZ 7-8 R-15/R-19			
Slab Insulation	CZ 1-3 0 CZ 4-5 R-10 to 2 ft depth CZ 6-8 R-10 to 4 ft depth			
Fenestration U Factor	CZ 1 1.20 CZ 2 0.65 CZ 3 0.50 CZ 4 - 8 0.35			
Air Leakage	Tested – maximum 7 air changes/hr at 33.5 psf (50 pascals) or detailed visual inspection by independent inspector			
Duct Insulation	R-8 for all supply ducts in attic; others R-6			
Duct leakage	Rough-in and post construction testing of all ducts in non-conditioned areas. Maximum 8 cfm leakage per 100 sf of conditioned space			
Mechanical	Automatic or gravity dampers on all outdoor air intakes and			

Ventilation	exhausts			
Heating & Cooling System Sizing	Per Manual J or International Residential Code			
Interior Lighting	50% of lamps in permanent fixtures must be high efficacy (Fluorescent, CFL, LED)			

**THESE QUESTIONS ARE TO BE ADDRESSED TO ALL A/E AND CONSTRUCTION FIRMS IN THE SAMPLE**

63. Based on your experience, would you say that builders' and architects' awareness of the energy efficiency requirements of the building code has increased, decreased, or stayed about the same since [YEAR PRIOR TO PROGRAM YEAR]?
- a. Increased
  - b. Decreased
  - c. Stayed about the same
  - d. DK/REF

64. What observations lead you to conclude that?

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65. Would you say that the level of voluntary compliance with the energy efficiency aspects the building codes among builders and architects has increased, decreased, or stayed about the same since [YEAR PRIOR TO THE PROGRAM YEAR]?
- a. Increased
  - b. Decreased
  - c. Stayed about the same
  - d. DK/REF

66. What observations lead you to conclude that?

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67. IF 65 = a OR b ASK: What factors do you believe have led to changes in voluntary levels of compliance with energy efficiency aspects of the building codes?

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68. **IF RESPONDENT FIRM DID NOT PARTICIPATE IN TRAINING PROGRAMS, ASK:** Are you aware of efforts by the state energy office to inform and train builders and architects concerning building code requirements and compliance strategies?
- a. Yes
  - b. No

69. IF 68 = YES: Compared to other factors affecting levels of code compliance, would you say these education efforts have had less, more, or about the same level of influence in changes in compliance rate?
- a. Less
  - b. More
  - c. About the same
  - d. DK/REF



Thank you for your time and insights

## L.4. ID-11A-NR: RETROFITS (PROGRAM MANAGERS) NON-RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Understood structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to talk with organizations involved with the management of your Non-Residential-retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that you are the program manager for Non-Residential retrofit programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Non-Residential retrofit programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Non-Residential retrofit programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded Non-Residential retrofit programs	[Ask for correct person for Non-Residential programs]
No – There were no SEP/ARRA funded Non-Residential retrofit programs	[Thank you and terminate]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 50 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

I would like to ask you some questions about the Non-Residential retrofit activities that received SEP/ARRA funding in [PROGRAM YEAR].

1. Were you involved in the design and/or management of retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?

- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON]

Yes	[GO TO Q3]
No	[ASK Q2]

2. Who else at your organization is most knowledgeable about the overall allocation of

funding to Non-Residential retrofit programs that received SEP/ARRA funding?

Name/contact info/role: \_\_\_\_\_

Name/contact info/role: \_\_\_\_\_

Name/contact info/role: \_\_\_\_\_

3. [IF OTHERS MENTIONED IN Q2] Among you and [INSERT QUESTION 2 RESPONSE], who is most familiar with the activities conducted by your organization for [PROGRAM] in [PROGRAM YEAR]?

[IF NOT RESPONDENT, THANK AND TERMINATE AND CONTACT MOST KNOWLEGEABLE PERSON]

4. What were your responsibilities in regard to retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?
5. In what year did you first become involved with the retrofit programs that received SEP ARRA funding?
6. Are you still involved with managing this program? If not, when did your involvement end?
7. How long have you been involved in administering programs funded by SEP?
8. Based on information provided by DOE, you received \$\_\_\_\_\_ in SEP/ARRA funding for Non-Residential retrofit programs. Our understanding is that these funds may have been applied to programmatic activities supporting non-residential retrofits through either direct payment to targeted retrofit projects or through loans, grant or incentive based retrofit programs. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]
	[REMAINING AMOUNT]

[IF LESS FUNDS WERE APPLIED TO NON-RESIDENTIAL RETROFITS THAN INDICATED IN THE TRACKING DATA ASK 8a-8c]

- 8a. To which of the following other types of programmatic activities was the remaining SEP/ARRA funding applied?
- **Residential Retrofit Programs** – Provides financial incentives for building retrofit and equipment replacement projects in residential buildings. Incentives allocated according to an open application process for eligible customer groups. Financial incentives are the principal program offering, but may be combined with others such as audits.
  - **Renewable Energy Projects** – Provides financial incentives and/or technical assistance to support the development of renewable energy facilities including: solar, wind, biomass, small hydro. Projects directly result in increased generation of energy through the adoption of new solar, wind, biogas, biomass, or other renewable

sources. Facilities may be customer sited or utility-oriented. Specific projects or customers may be identified in the SEP funding application or the program may be open to applications from eligible customers. Includes renewable projects installed on residential buildings.

- **Renewable Energy Manufacturing** – PAs develop or expand existing manufacturing capacity for renewable energy equipment or components. At least some portion of the output of the new or expanded capacity is intended for domestic installation.
- **Alternative Fuels, Ride Share and Traffic Optimization** – Provides training, financial support, technical assistance, marketing assistance, and/or administrative assistance to facilitate the development and operation of car and van pools. Supports capital improvements to support substitution of renewable fuels or electricity for conventional transportation fuels. Supports improvements to fleet vehicle efficiency and operations.
- **Clean Energy Policy support** – Develops and obtains legislative, executive, or regulatory approval for policies to facilitate the completion of renewable energy facilities. Examples might include statewide zoning laws, feed-in tariffs, favorable back-up tariffs, and renewable portfolio standards.
- **Building Code Development and Support** – Provides technical and administrative support for the development of more energy-efficient state and federal equipment standards. Provides marketing support for products that meet the higher energy efficiency standards. Provides training to vendors in marketing and installation of products that meet the higher energy efficiency standards.
- **Policy and Market Studies; Legislative Support** – Develops and obtains legislative, executive, or regulatory approval for policies to facilitate the completion of renewable energy facilities. Examples might include statewide zoning laws, feed-in tariffs, favorable back-up tariffs, renewable portfolio standards.
- **Non-retrofit Targeted Training and/or Certification (Participants are traceable)** – Training for facility managers, trades contractors, and engineering/design professionals. Topics for EE, renewables, transportation and other technical topics. i.e. roundtable discussions etc. Includes certification programs and other pre-requisite type training & education programs.
- **Non-retrofit Generalized Workshops and Demonstrations** – Marketing and outreach support to raise awareness, provide general information, encourage behavior change, etc. Not targeted at a specific site or project, but may be targeted at specific segments or types of projects. Recipients of the education are not traceable.
- **Non-retrofit Technical Assistance to Building Owners** – Provides technical assistance *other than audits* for building retrofit or equipment replacement projects: e.g. technical studies for specific improvements, building modeling, project financial analysis, support in negotiating with contractors. Open to commercial, industrial, and agricultural facility owners or specified subgroups thereof. May be combined with financial incentives.
- **Other [DEFINE]**

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8b. [IF 8a = "YES" FOR ANY ACTIVCITY TYPE, RECORD AMOUNT]

- 
- [IF 8a = "YES" FOR ANY ACTIVITY TYPE ask 8c]
- 8c. Can we contact the appropriate program manager for this activity? [RECORD NAME]

**RESPONSE MATRIX A: Questions 8a – 8c**

Activity	8a. Funds applied	8b. Funding	8c. Permission	
Residential retrofit programs	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Non-residential renewable energy projects	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Residential renewable energy projects	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Renewable energy manufacturing	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Alternative Fuels, Ride Share and Traffic Optimization	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Building Code Development and Support	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Policy and Market Studies; Legislative Support	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Targeted Training and/or Certification (Participants are traceable)	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Generalized Workshops and Demonstrations	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Technical Assistance to Building Owners	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Other [DEFINE]	[YES/NO]	[AMOUNT ]	[RECORD NAME]	

**[PLEASE READ]**

**For the remainder of this interview, I'd like to focus on just the non-residential retrofit programs that received SEP/ARRA.**

9. Were the SEP/ARRA funds your organization received used to fund Non-Residential retrofit programs in [YEAR] distributed across multiple programs?

[IF YES ASK Q10 – 14; ELSE GO TO Q15]

10. How many separate programs? \_\_\_\_\_

**FOR EACH PROGRAM MENTIONED ASK 12-15**

11. What are the names of these programs?

- 
12. What percent of the total SEP/ARRA funds used to for Non-Residential retrofit programs was used for each of these programs?
  13. Are you or another program manager in charge of any of these programs? [IF THERE ARE OTHER PROGRAM MANAGERS, ASK Q15]
  14. Can we contact the program manager regarding [PROGRAM NAME]? [IF YES, RECORD THEIR NAME AND CONTACT INFORMATION]

**Response Matrix C: FOR QUESTIONS 12-15, USE REPSONSE GRID BELOW**

12. Program Name	13. Percent	14. Additional program manager	15. Permission to contact
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]

**PART 3: PROGRAM DESIGN (LOGIC MODEL)**

**[ASK SECTIONS 3 – 6 FOR EACH OF THE PROGRAMS LISTED IN RESPONSE MATRIX A. IF NECESSARY, SCHEDULE A CALLBACK WITH THE APPROPRIATE PROGRAM MANAGER]**

**[PLEASE READ] In this next set of questions, I’d like to understand the rationale behind the program design.**

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM’S DOMAIN FOR ATTRIBUTION PURPOSES.]**

15. Has your organization developed a formal logic model for [PROGRAM NAME]?

[IF 16 = YES, then ASK 16a]

16a. Can you please share it with us?

16. What were the ultimate objectives of [PROGRAM NAME]?

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17a. In what year did the program begin?

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17. Please describe how the program is operating now in regard to its activities, the resources it uses, and the outcomes it is achieving.

17A. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO PARTICIPANTS:  
RECRUITMENT OF PARTICIPANTS:  
RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN  
GUARANTEES  
INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

17B. INPUTS: What resources are being used to deliver the program? PROBE:

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME

OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT  
OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE,  
APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

17C. OUTSIDE FUNDING: Are organizations other than the U. S. Department of  
Energy and the state government contributing funding to this program? IF YES,  
PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF OUTSIDE FUNDING PROVIDED IN THE PERIOD UNDER  
EVALUATION (2008 OR ARRA PERIOD)

PERCENTAGE OF TOTAL OVERALL FUNDING FOR THE PA UNDER  
EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT  
REPRESENTED BY OUTSIDE FUNDING.

USES OF THE FUNDING PROVIDED

17D. RESULTS/OUTPUTS: Could you summarize the results your program has  
achieved so far? PROBE: Are organizations other than the U. S. Department of  
Energy and the state government contributing funding to this program? IF YES,  
PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP ATTENDANCE, ETC)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

17E. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans and applications to the U. S. Department of Energy?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

18. [IF PROGRAM EXISTED PRIOR TO 2008 ASK] Did you make any important changes to program operations or the resources available to it between 2007 and 2008? [IF PROGRAM EXISTED PRIOR TO ARRA AND RECEIVED ARRA FUNDING ALSO ASK] Did you make any important changes to program operations or the resources available to it between 2008 and the period funded primarily by ARRA?

19a. Why did you make those changes?

19b. Did you achieve the results you were seeking through those changes? PROBE SPECIFIC RESULTS.

19c. FOR ARRA PERIOD PROGRAMS ASK. Would your organization have been able to make these changes without the support provided by the ARRA round of funding?

YES/NO

PROBE REASONS FOR THIS ASSESSMENT.

#### **PART 4. RESOURCE CONTRIBUTIONS FROM OTHER PROGRAMS**

**[ASK PART 4 IF OTHER ORGANIZATIONS SUCH AS UTILITIES OR OTHER GOVERNMENT COOPERATED IN THE DELIVERY OF THE PA THROUGH CONTRIBUTIONS OF STAFF TIME, FUNDING, OR OTHER SERVICES.]**

**LEAD-IN: Earlier we spoke about contributions that other organizations made to the non-residential retrofit programmatic activity. I'd like to ask a few more questions about that.**

19. First, prior to [PROGRAM YEAR/PERIOD]., had you cooperated with this (these) organization(s) in delivering energy programs to increase energy efficiency programs?

IF YES, ASK

a. Please describe how you worked together with the other organization(s) and what specific activities they undertook.

b. What kinds of resources did the other organizations provide?

20. Did your organization take the initiative to arrange for cooperative activities related

to the program? Did the other organizations take the initiative? Or did the cooperation arise through some other mechanism?

21. Did representatives of the two (or more) organizations meet to jointly plan how the organizations would cooperate in the development of the program?

22. Do representatives of the organization meet on a regular basis to review program accomplishments and plan future activities?

IF YES: How often does that occur?

23. Is there regular interaction among the organizations in delivering the program services?

IF YES: Could you describe that interaction for me?

24. What do you believe are the other organizations' main motivations for contributing to the delivery of the program?

25. If the opportunity to offer joint programming with your agency had not been available, do you believe the other organizations would offer programs to promote energy efficiency in non-residential facilities?

YES/NO

26a. Why do you say that?

26. If the other organizations had not cooperated in delivering the program as they did, would your organization have changed the type of services it provides to promote energy efficiency in non-residential facilities?

YES/NO

IF YES, PROBE:

27a. How would your organization have changed the roster of services provided?

27b. In the absence of cooperation from other organizations, would the level of resources your organization dedicated to these services been less, the same, or greater?

27c. Why do you say that?

## **PART 5: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

27. Do you believe that this program has had an impact on the long-term capabilities of non-residential facility owners in the state to carry out energy efficiency retrofit

projects?

YES/NO

- a. In what specific ways did your program contribute to that result?
  - b. Can you provide any examples of these kinds of results?
28. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install energy-efficient retrofit projects in non-residential facilities?

YES/NO

- a. In what specific ways did your program contribute to that result?
  - b. Can you provide any examples of these kinds of results?
29. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
  - b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
  - c. How many of these FTEs will be retained after 2008 or the ARRA period, depending on which is relevant?
  - d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?
30. In the course of carrying out this program, has your organization developed any new capabilities or resources that will support the delivery of energy efficiency services to non-residential facilities in the future. PROBE:
- a. Contacts and relationships with market actors
  - b. Tools such as building analysis software
  - c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula

**PART 6: DATA AVAILABILITY**

**[ONLY ASK THIS SECTION IF DATA ARE NOT AVIALABLE ALREADY]**

**[ASK SECTION 4 FOR EACH OF THE PROGRAMS LISTED IN REPSONSE MATRIX A. IF NECESSARY, SCHEDULE A CALLBACK WITH THE APPROPRIATE PROGRAM MANAGER]**

**NOTE: QUESTIONS 31-34 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

31. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:
- c) Key contacts from the implementation organization (including contact information)
  - d) Program participants, that is, facility owners/renters, non-residential property managers who received support with the project, workshop attendees or training recipients, recipients of technical assistance, with contact information
  - e) Measures installed by participant, including the type and quantity of measures installed with program support, energy savings, incentive levels, other services received by participants, workshop or training description. [PROBE TO CLARIFY DATA THAT THE PM HAS ACCESS TO (EITHER IN-HOUSE OR AT A SEP FUNDED/PARTNERED ORGANIZATION) VERSUS DATA ANY EXTERNAL LEVERAGED ORGANIZATION MIGHT BE KEEPING.]
  - f) Participating trade allies (including contact information)

(IF DATA IS AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE/DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE CAN PROVIDE SUCH DATA THEN THANK AND TERMINATE).

32. Have there been any evaluations of this program? Are data from these evaluations available?
33. (FOR EACH TYPE OF DATA AVAILABLE) Is this data in electronic format? (If yes, discuss steps needed to secure permission to access the data via secure file transfer. If no, determine how data records are maintained and how they could be accessed.)

Are you aware of other data available that would be useful for our evaluation? If so could you describe it for me? Is it possible to access this information? PROBE FOR CONTACTS. IF MAKING COPIES IS AN ISSUE, ASK WHETHER WE CAN MAKE COPIES. IF STILL RELUCTANT, ASK WHETHER THEY HAVE A SUMMARY OF RETROFITTED PROPERTIES WITH MINIMAL INFOORMAITON SO WE CAN SELECT A SAMPLE AND COPY ONLY THOSE RECORDS.]

**Thank you for your time and insights**



## L.5. ID-13A-NR: RETROFITS (NON-SEP PROGRAM MANAGERS) NON-RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts that received funding from the State Energy Program and the American Recovery and Reinvestment Act to promote the energy efficient retrofits of non-residential buildings in [STATE]. As part of that effort we are speaking with managers and administrators of programs offered by other organizations that sought to achieve similar objectives. This interview is being conducted as part of an evaluation of the State Energy

Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

## **PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

These first few questions are meant simply to verify that we are speaking with the right person.

1. First, did your organization operate any activities to promote energy efficient retrofits of non-residential buildings between the beginning of [PROGRAM YEAR/PERIOD] and the present time?
  - a. Yes → CONTINUE
  - b. No → VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION AND REPORT TO STATE ENERGY OFFICE CONTACT
  - c. DK/Ref → ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of those activities over the past two years?
  - a. Yes → CONTINUE
  - b. No → ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 50 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [\[ORNL CONTACT INFORMATION\]](#).

## **PART 3 – ORGANIZATION**

**NOTE: FILL IN AS MUCH OF THE INFORMATION REQUESTED IN THIS SECTION AS POSSIBLE USING THE ORGANIZATION'S WEB SITE AND OTHER PUBLIC SOURCES. ASK QUESTIONS BELOW ONLY IF NEEDED TO VERIFY OR VALIDATE INFORMATION.**

3. What is the formal name of your organization?

\_\_\_\_\_



4. Briefly, what is the overall mission of your organization?

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5. Can you briefly outline the range of activities your organization undertakes in pursuit of that mission?

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**PART 4 - ACTIVITIES RELATED TO THE SEP PA**

6. What specific activities did your organization take to promote energy efficient retrofits in non-residential buildings during the period [PROGRAM YEAR/PERIOD]?

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7. In what year did these efforts begin? \_\_\_\_\_

8. What were your responsibilities in regard to these programs?

9. I'd like to get a little more detail about the programs if I could.

a. Let's start with ACTIVITIES. PROBE:

- MARKETING AND OUTREACH TO PARTICIPANTS
- RECRUITMENT OF PARTICIPANTS
- RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS
- DELIVERY OF INFORMATION AND TECHNICAL SERVICES
- PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES
- INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

b. What resources are being used to deliver the program? PROBE:

ORGANIZATION STAFF: NUMBER, TYPE, PERCENT OF TIME



STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

c. What are the sources of financial support for the program? PROBE:

SOURCES OF FUNDING

LEVEL OF FUNDING FROM EACH SOURCE IN THE MOST RECENT YEAR

OVERALL FUNDING LEVELS IN PAST YEARS/TRENDS IN FUNDING LEVELS AND SOURCES

ROUGH ALLOCATION OF OPERATING FUNDS TO KEY FUNCTIONS: MARKETING, TECHNICAL SERVICES, PROJECT SUPPORT, ADMINISTRATION

SOURCES OF PROJECT FUNDING: TYPE OF ORGANIZATION, MECHANISM (APPROPRIATION OF PUBLIC FUNDS, PUBLIC BENEFITS CHARGES, LOANS, LOAN GUARANTEES)

TYPE OF PROJECT FUNDING: LOANS, GRANTS, REBATES, LOAN GUARANTEES

AMOUNT OF PROJECT FUNDING: BY SOURCE AND TYPE

d. Could you summarize the results your program has achieved? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP ATTENDANCE, ETC)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

18E. RESULTS VERSUS GOALS: Have you been able to achieve the level of results you targeted?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

**PART 5. INTERACTION WITH SEP PA**

10. Are you aware of the efforts of [NAME OF STATE ENERGY OFFICE] to promote energy efficiency improvements in non-residential facilities?

- a. Yes → CONTINUE
- b. No → ASK IF THERE IS ANYONE ELSE WHO HAS BEEN INVOLVED IN THE PLANNING OF THE PROGRAMS WHO MIGHT BE FAMILIAR WITH THE STATE ENERGY OFFICE PROGRAMS? COMPLETE THIS SECTION OF THE INTERVIEW GUIDE WITH THAT INDIVIDUAL.

11. What is your understanding of the services and resources these programs offer?

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12. Did your organization and the [STATE ENERGY OFFICE] have any contact to plan, coordinate, or deliver programs that promote energy efficient retrofits in non-residential facilities?

- a. Yes → CONTINUE
- b. No → SKIP TO QUESTION XX

13. Please describe how your organization and the [STATE ENERGY OFFICE] have worked together to plan or coordinate the efforts in this area.

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14. Do representatives of the organizations meet on a regular basis to review program accomplishments and plan future activities?

IF YES: How often does that occur?

15. Is there regular interaction among the organizations in delivering the program services?

IF YES: Could you describe that interaction for me?

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16. Why did your organization decide to work together with the [STATE ENERGY OFFICE] to plan and/or deliver programs to promote energy efficiency retrofits in non-residential facilities? PROBE:

- a. SEO's ability to deliver technical services
- b. SEO's contacts to key market actors or facility owners
- c. SEO's contacts and relationships with regulators and other government agencies
- d. SEO's access to funding for projects of interest to the respondent's organization
- e. Other (Specify) \_\_\_\_\_

17. Did your organization take into account the SEO's capabilities and resources in planning your activities to promote energy efficiency retrofits in non-residential facilities?

- a. Yes → ASK: Please describe how you took the SEO's capabilities and resources into account.

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- b. No

18. If the opportunity cooperate with the [STATE ENERGY OFFICE] had not been available, do you believe that your organization would now be offering programs to promote energy efficiency in non-residential facilities?

YES/NO

18a. Why do you say that?

19. If the [STATE ENERGY OFFICE] had not cooperated in delivering the program as it did, would your organization have changed the type of services it provides to

promote energy efficiency retrofits in non-residential facilities?

YES/NO

IF YES, PROBE:

19a. How would your organization have changed the roster of services provided?

20. If the [STATE ENERGY OFFICE] had not cooperated in delivering the program as it did, would your organization have increased the level of resources used to promote energy efficiency retrofits in non-residential facilities since [PROGRAM YEAR/PERIOD]., decreased the level, or left it about the same?

INCREASED

DECREASED

LEFT THE LEVEL ABOUT THE SAME

DK/REF

IF INCREASED OR DECREASED, PROBE:

a. Why do you say that?

b. By what percentage would you have increased/decreased the amount of resources your organization allocated to promote energy efficiency retrofits in non-residential facilities?

## **PART 6: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

**IF THE RESPONDENT ORGANIZATION HAS COOPERATED WITH THE STATE ENERGY OFFICE IN THE DELIVERY OF SERVICES TO PROMOTE ENERGY EFFICIENCY RETROFITS, ASK THE QUESTIONS IN THIS SESSION.**

21. Do you believe that the program that your organization delivered with the [STATE ENERGY OFFICE] has had an impact on the long-term capabilities of non-residential facility owners in the state to carry out energy efficiency retrofit projects?

YES/NO

a. In what specific ways did your program contribute to that result?

b. Can you provide any examples of these kinds of results?

22. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install energy-efficient retrofit projects in non-residential facilities?

YES/NO

a. In what specific ways did your program contribute to that result?

b. Can you provide any examples of these kinds of results?

- 
23. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
  - b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
  - c. How many of these FTEs will be retained after the current round of program funding?
  - d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?
24. In the course of carrying out this program, has your organization developed any new capabilities or resources that will support the delivery of energy efficiency services to non-residential facilities in the future. PROBE:
- a. Contacts and relationships with market actors
  - b. Tools such as building analysis software
  - c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula

**Thank you for your time and insights**

## L.6. ID-10A-NR: RETROFITS (VENDORS, INSTALLERS, PROJECT DEVELOPERS): NON-RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

**PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy’s State Energy Program has hired us to gather information on the results of efforts to promote retrofits to increase energy efficiency in non-residential facilities in [STATE] that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we’ll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

**PART 2. QUALIFY THE RESPONDING FIRM/IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that your firm is engaged in the engineering and/or installation of energy efficiency retrofits in non-residential facilities in [STATE]? Is that correct?

Yes: CONTINUE

No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Through your professional activities, have you had the opportunity to observe the development of the market for energy efficiency retrofits in non-residential facilities in [STATE] over the past four years?

Yes – Correct person	[Continue]
No – Incorrect person	[Ask to speak with someone who has the relevant experience and view of the market] If no such person, thank, terminate, and substitute another vendor]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we’ll go on to the next question. The length of the interview

varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [\[ORNL CONTACT INFORMATION\]](#).

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION’S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

1. What are the primary services that your firm delivers?
  - a. TYPES OF TECHNOLOGIES ENGINEERED, SOLD, SUPPORTED INSTALLED
  - b. RANGE OF SERVICES PROVIDED: ENGINEERING, DESIGN, FEASIBILITY ASSESSMENT, EQUIPMENT SALES , INSTALLATION, COMMISSIONING, MAINTENANCE.
  - c. PROJECT FINANCING OPTIONS PROVIDED OR BROKERED TO CUSTOMERS: LOANS, LOAN GUARANTEES, LEASESPUBLIC GOODS INCENTIVES APPLICATIONS, ETC.
2. How long has your organization been in business in [STATE]?
3. Roughly how many projects did you work on in [STATE] in 2011 that involved retrofitting or replacement of major electrical or mechanical systems in non-residential facilities motivated at least in part to reduce energy use?
  - a. Number of projects: \_\_\_\_\_
  - b. What types of technologies were most often involved in these projects?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - c. What types of facilities do you work in most frequently?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PART 3: KNOWLEDGE OF AND EXPERIENCE WITH THE PROGRAM**

- 4. According to our records, can you confirm that you have been an ally of [PROGRAM NAME]?
- 5. IF 4 = YES:
  - a. When did you first hear of the program?
  - b. From what sources did you hear of the program?
- 6. To your knowledge, have you engineered or installed non-residential retrofits or equipment replacements that received support from [PROGRAM NAME]?
- 7. IF 6 = YES: How many such projects has your firm been involved in? Your best estimate will be fine.
- 8. IF 6 = YES: To the best of your knowledge, what types of projects received support from [PROGRAM NAME]?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 9. IF 6 = YES: To your knowledge, what kinds of support did those projects receive from [PROGRAM NAME]?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 10. IF 6 = YES: On a scale of 1 to 10, where 1 means "no importance" and 10 means "very important", how important were the services provided [PROGRAM NAME] in convincing and enabling your customers to undertake the supported projects

ENTER 1 - 10, 99 FOR DK/REF: \_\_\_\_\_

- 11. IF 10 = 1 - 10, ASK: Why do you say that? PROBE SPECIFIC BARRIERS OR ISSUES THE SERVICES FROM THE SEP PA HELPED TO ADDRESS, HELP FROM OTHER PROGRAMS, PREDISPOSITION OF THE FACILITY OWNERS.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 12. In your opinion, what percentage of these projects would facility owners and developers have completed in the absence of the support from [PROGRAM NAME]?

ENTER PERCENT: \_\_\_\_\_ %

- 13. What observations lead you to that estimate?

\_\_\_\_\_  
\_\_\_\_\_



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14. Over the past year, what number [or percentage] of your firm's retrofit and replacement projects has been motivated in part by a facility owner's interest in reducing energy usage? Has this annual number been increasing, decreasing or staying the same since [YEAR OF PROGRAM LAUNCH]?

15. IF 14 = INCREASED OR DECREASED: By approximately what percentage would you say the number of non-residential renewable projects has increased/decreased?

ENTER PERCENT, 999 FOR DK/REF: \_\_\_\_\_

16. Which factors or conditions do you believe most influenced the volume of non-residential renewable energy systems installed in [STATE] since [YEAR OF PROGRAM LAUNCH]? [DO NOT READ. MARK ALL FACTORS MENTIONED.]

- a. Electricity rates
- b. Federal tax laws and policies
- c. Customers' needs to reduce operating budgets
- d. Changes in public awareness of global warming and other environmental issues related to energy use
- e. Improved performance of energy efficiency equipment
- f. PROGRAM NAME
- g. Programs offered by utilities and other sponsors
- h. OTHER: SPECIFY

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17. ASK IF [PROGRAM NAME] MENTIONED, ELSE SKIP TO 19: Compared to the other factors you mentioned, would you consider [PROGRAM NAME] the one with:

- a. The greatest influence on the volume of non-residential renewable energy project installations
- b. Among the most amount of influence
- c. Roughly equal influence as the others
- d. Somewhat less influence than the others
- e. Much less influence than the others
- f. DK/REF

18. ASK IF 17 = a - e: Why do you say that?

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19. IF [PROGRAM NAME] NOT MENTIONED IN 16, ASK: What was the main reason you did not mention [PROGRAM NAME] as a factor affecting changes in the volume of non-residential renewable projects installed in [STATE]?

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**Thank you for your time and insights**

## L.7. ID-12A-NR: RETROFIT (PROGRAM DELIVERY CONTRACTORS) NON-RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to promote the development retrofit and equipment replacement projects to reduce energy consumption in non-residential facilities that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that your organization was responsible for delivering a program to promote the development of retrofit energy projects in non-residential facilities or as free-standing projects to sell electricity. Is that correct?

- Yes: CONTINUE
- No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Our understanding is that you served or serve as the program manager for Non-Residential Retrofit programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Non-Residential retrofit programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Non-Residential retrofit programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded Non-Residential retrofit programs	[Ask for correct person for Non-Residential Retrofit Project Development programs]
No – There were no SEP/ARRA funded Non-Residential retrofit programs	[Thank you and terminate. Contact main state energy office representative to verify that there were no programs that corresponded to description in the PAGE database.]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 50 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

I would like to ask you some questions about the activities to promote Non-Residential Retrofit energy projects that received SEP/ARRA funding in [PROGRAM YEAR].

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION’S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

1. What are the primary services that your organization delivers?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. How long has your organization been in business?

3. How long has your organization provided the specific services you delivered for the [PROGRAM]?

4. Were you involved in the management of retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?

- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON. CONTINUE THE INTERVIEW WITH THAT INDIVIDUAL.]

Yes	[GO TO Q3]
No	[ASK Q2]

5. What were your responsibilities in regard to retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?

6. In what year did you first become involved with the retrofit programs that received SEP ARRA funding?

7. Are you still involved with managing this program? If not, when did your involvement end?

8. According to information provided by the State Energy Office, you received a contract valued a roughly \$\_\_\_\_\_ to operate programs that promote the development of Non-Residential Retrofit projects. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]
	[REMAINING AMOUNT]

**PART 3: PROGRAM DESIGN (LOGIC MODEL)**

9. As you understand them, what were the ultimate objectives of [PROGRAM NAME]?

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10. Did your organization commit to any quantitative goals for the program, such as number of projects developed or kW of capacity installed?

- a. Yes
- b. No
- c. DK

11. IF 10 = YES: What were those goals?

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12. In terms of the timeline of your contract:

- a. When did you initiate development of the program?
- b. When did you launch the program to the public?

13. Please describe how the program is operating now in regard to its activities, the resources it uses, and the outcomes it is achieving.

13A. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO PARTICIPANTS  
RECRUITMENT OF PARTICIPANTS  
RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES TO FACILITY OWNERS  
DELIVERY OF INFORMATION AND TECHNICAL SUPPORT TO VENDORS, ENGINEERS, AND INSTALLATION CONTRACTORS INVOLVED IN THE PROGRAM  
PROVISION OF TECHNICAL AND PROJECT DEVELOPMENT SERVICES, SUCH AS SITE ASSESSMENTS, ENGINEERING SUPPORT, FEASIBILITY STUDIES, FINANCIAL MODELING, ETC.  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES TO SUPPORT PROJECTS  
INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

OTHER (SPECIFY)

13B. INPUTS: What resources are being used to deliver the program? PROBE:

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME

OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF, DOLLAR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

- 13C. OUTSIDE FUNDING: Are organizations other than the State Energy Office contributing funding to this program? IF YES, PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD, FOR EACH FUNDER IF AVAILABLE)

PERCENTAGE OF TOTAL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT.

USES OF THE FUNDING PROVIDED

- 13D. RESULTS/OUTPUTS: Could you summarize the results your program has achieved so far? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (TECHNICAL SERVICES, LOANS AND GRANTS, DOLLAR VOLUME OF LOANS AND GRANTS)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

- 13E. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans or quantitative goals?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

14. [IF PROGRAM EXISTED PRIOR TO 2008 ASK] Did you make any important changes to program operations or the resources available to it between 2007 and 2008? [IF PROGRAM EXISTED PRIOR TO ARRA AND RECEIVED ARRA FUNDING ALSO ASK] Did you make any important changes to program operations or the resources available to it between 2008 and the period funded primarily by ARRA?

- a. Why did you make those changes?
- b. Did you achieve the results you were seeking through those changes? PROBE SPECIFIC RESULTS.
- c. [FOR ARRA PERIOD PROGRAMS ASK] Would your organization have been able to make these changes without the support provided by the ARRA round of funding?

YES/NO

PROBE REASONS FOR THIS ASSESSMENT.

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM'S DOMAIN FOR ATTRIBUTION PURPOSES.]**

15. Has your organization or the state energy office developed a formal logic model for [PROGRAM NAME]?
- a. Can you share it with us?

#### **PART 4: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

16. Do you believe that this program has had an impact on the long-term capabilities of non-residential facility owners to develop retrofit energy projects in [STATE]?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

17. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install energy-efficient retrofit projects in non-residential facilities?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

18. Did your organization add any positions to carry out or administer the program(s) we

have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
- c. How many of these FTEs will be retained after 2008 or the ARRA period, depending on which is relevant?
- d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?

**PART 5: DATA AVAILABILITY**

**[ONLY ASK THIS SECTION IF WE HAVE NOT BEEN ABLE TO ACQUIRE PROGRAM DATA FROM THE STATE ENERGY OFFICE]**

**NOTE: QUESTIONS 36-38 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

19. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:
  - g) Program participants, that is, facility owners/renters, non-residential property managers who received support with the project, workshop attendees or training recipients, recipients of technical assistance, with contact information
  - h) Measures installed by participant, including the type and quantity of measures installed with program support, energy savings, incentive levels, other services received by participants, workshop or training description. [PROBE TO CLARIFY DATA THAT THE PM HAS ACCESS TO (EITHER IN-HOUSE OR AT A SEP FUNDED/PARTNERED ORGANIZATION) VERSUS DATA ANY EXTERNAL LEVERAGED ORGANIZATION MIGHT BE KEEPING.]
  - i) Participating trade allies (including contact information)

(IF DATA ARE AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE OR DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE WHO CAN PROVIDE SUCH DATA THEN THANK AND TERMINATE).

20. Have there been any evaluations of this program? Are data from these evaluations available?
21. (FOR EACH TYPE OF DATA AVAILABLE) Are these data in electronic format? (If yes, discuss steps needed to secure permission to access the data via secure file transfer.



If no, determine how data records are maintained and how they could be accessed.)

Are you aware of other data available that would be useful for our evaluation? If so could you describe it for me? Is it possible to access this information? PROBE FOR CONTACTS. IF MAKING COPIES IS AN ISSUE, ASK WHETHER WE CAN MAKE COPIES. IF STILL RELUCTANT, ASK WHETHER THEY HAVE A SUMMARY OF RETROFITTED PROPERTIES WITH MINIMAL INFORMATION SO WE CAN SELECT A SAMPLE AND COPY ONLY THOSE RECORDS.]

**Thank you for your time and insights**

## L.8. CT-3A-NR: RETROFITS: NON-RESIDENTIAL SECTOR

OMB Control No. 1910-5170

### DATABASE VARIABLES

&INTERVIEWER NAME....name of the caller  
&CONTACT .....contact name from program database  
&SPONSOR.....organization that sponsored the program  
&PROGRAM .....program name  
&DATES .....dates of program operation funded by SEP or of research interest  
&APPOINT .....date/time to call back  
&NAME .....person to call back  
&PHONE.....extension or phone number to call back  
&SERV\_ADDR .....service address where measure(s) were installed  
&CITY .....city where measure(s) were installed  
&CORRECT .....corrected service address  
&MEASURE\_TYPE .....lighting, cooling, heating, refrigeration, motors, or other  
&MEASURE.....specific technology within measure type, e.g. T8 fluorescent lights  
&TARGET\_YEARS .....programs years under evaluation  
&LIGHTING .....boolean that is true if respondent installed lighting measures  
&COOLING .....boolean that is true if respondent installed cooling measures  
&HEATING.....boolean that is true if respondent installed heating measures  
&REFRIGERATION .....boolean that is true if respondent installed refrigeration measures  
&MOTORS .....boolean that is true if respondent installed motors  
&OTHER.....boolean that is true if respondent installed other measures  
&LI\_TECH.....specific lighting technology, e.g. T8 fluorescent lights  
&LI\_NUM.....number of &LI\_TECH installed  
&C\_TECH .....specific cooling technology, e.g. Split AC system  
&CTECH\_NUM.....number of &C\_TECH installed  
&CTECH\_CAP.....total capacity of &C\_TECH measures installed  
&CTECH\_CAP\_UNIT .....unit of &CTECH\_CAP  
&CTECH\_EFF .....efficiency rating of &C\_TECH  
&CTECH\_EFF\_UNIT.....unit of &CTECH\_EFF  
&C\_TECH\_REM.....cooling technology removed during installation of &CTECH  
&H\_TECH .....specific heating technology, e.g. Furnace  
&HTECH\_NUM.....number of &H\_TECH installed  
&HTECH\_CAP.....total capacity of &H\_TECH measures installed  
&HTECH\_CAP\_UNIT .....unit of &HTECH\_CAP  
&HTECH\_EFF .....efficiency rating of &H\_TECH  
&HTECH\_EFF\_UNIT .....unit of &HTECH\_EFF  
&H\_TECH\_REM .....heating technology removed during installation of &HTECH

### INTRODUCTION AND FINDING CORRECT RESPONDENT

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from [&INTERVIEWER ORGANIZATION](#). May I please speak with &CONTACT, or the person at this location who is most knowledgeable about your organizations' participation in &SPONSOR's &PROGRAM, which operated during the period &DATES?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how &PROGRAM worked.

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me transfer you to_____]	4	[GO TO INTRO3:s]
[No, that is the wrong person]	5	[GO TO HI]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't Know]	97	[GO TO APPOINT]
[Refused]	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO3(99).** Thank you for your time. We need to speak with the person at your organization that is most familiar with your participation in the &PROGRAM. Those are all of the questions I have for you today **[TERMINATE; ASSIGN DISPOSITION & REMOVE FROM CALL ORDER]**

**HI.** Who would be the person at this location who is most knowledgeable about your organizations' participation in &SPONSOR's &PROGRAM?

	RECORD NAME AS &CONTACT	[GO TO MAY_I]
[Don't Know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO INTRO3(99)]

**MAY\_I.**

May I speak with him/her?

[Yes]	1	[GO TO INTRO3:s]
[No]	2	[GO TO EXT]
[Don't know]	-97	[GO TO EXT]
[Refused]	-98	[GO TO EXT]

**INTRO3:s.**

Hello, this is <INTERVIEWER NAME> calling on behalf of the Department of Energy from &INTERVIEWER ORGANIZATION.

This is not a sales call. This is a fact-finding survey only. According to our records, your organization participated in &SPONSOR's &PROGRAM.

I was told that you are the person most knowledgeable about this program. Is this correct?

[Yes]	1	[GO TO PURPOSE]
[No]	2	[GO TO HI]
[No one knows about the program]	3	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[GO TO EXT]

**EXT.**

we call back?

Is there a phone extension or phone number you recommend we use when

[Yes]	1	RECORD EXTENSION OR PHONE NUMBER AS &PHONE; [GO TO APPOINT]
[No]	2	[GO TO APPOINT]
[Don't know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO APPOINT]

**PURPOSE.**

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as

amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. We are calling you today to learn about your organization's response to the &SPONSOR's &PROGRAM. The information we gather will be used by the Department of Energy to understand how the program has worked. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way. The survey should take no more than 80 minutes for you to complete.

**SCREENER**

**SC1.** First, I'd like to ask you a few questions about your organization and facility. Our records show your organization occupies a facility at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO COMMENT3]
[No]	2	[GO TO CORRECT]
[Don't know]	-97	[GO TO COMMENT1]
[Refused]	-98	[GO TO COMMENT1]

**COMMENT1.** We were attempting to reach the customer at &SERV\_ADDR and since you cannot confirm this address, those are all the questions that we have for you today, on behalf of the Department of Energy, thank you for your time.

**CORRECT** May I have your address?

[Yes]	1	RECORD IN &CORRECT  [GO TO COMPARE]
[No]	2	[COMMENT2]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[ GO TO COMMENT2]

**COMPARE.** **[DO NOT READ] Are these addresses similar or totally different?**  
**Computer Address - &SERV\_ADDR**  
**Corrected Address - &CORRECT**

[Similar]	1	SET &SERV_ADDR = &CORRECT
-----------	---	---------------------------

		[GO TO COMMENT3]
[Totally different]	2	[GO TO COMMENT2]

**COMMENT2.** We were attempting to reach the customer at &SERV\_ADDR in &CITY and since that does not match your address, then we must have mis-dialed the telephone number. Those are all the questions that we have for you today, on behalf of the Department of Energy. Thank you for your time and cooperation.

**COMMENT3.** The questions in this survey will refer to your "FACILITY," which means ALL of the buildings owned or occupied by your organization at &SERV\_ADDR.  
**[INTERVIEWERS SHOULD RE-READ THIS STATEMENT AS NEEDED THROUGHOUT THE SURVEY TO REMIND THE RESPONDENTS]**

**SC2.** Our records show that your organization received support from &PROGRAM to carry out energy efficiency improvements in the facility located at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO SC3]
[No]	2	[GO TO COMMENT4]
[Don't know]	97	[GO TO COMMENT4]
[Refused]	98	[GO TO COMMENT4]

**COMMENT4.** Can you refer me to someone who would be likely to be familiar with such a project?

[Yes]	1	[GO TO HI]
[No]	2	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO INTRO3(99)]
[Refused]	-98	[GO TO INTRO3(99)]

**SC3.** Are you familiar with your organization's decision to participate in &PROGRAM and the nature of the energy efficiency measures carried out with its assistance?

[Yes]	1	[GO TO RI1]
[No]	2	[GO TO COMMENT4]



[Don't know]	-97	<a href="#">[GO TO COMMENT4]</a>
[Refused]	-98	<a href="#">[GO TO COMMENT4]</a>

**RESPONDENT INFO: ROLE IN THE PROJECT**

**RI1.** I'd like to start getting a little information about you. What is your job title?  
**[RECORD JOB TITLE]** \_\_\_\_\_

**RI2.** Which of the following best describes your role in making decisions regarding the purchase and installation of major energy systems such as lighting, heating, and cooling in your facility? **[READ OPTIONS, SELECT ONE]**

Sole responsibility for decisions	1	
Part of a group that makes decisions	2	<a href="#">[GO TO RI2a]</a>
Provide recommendations to decisions makers	3	<a href="#">[GO TO RI2a]</a>
Not involved in making decisions	.4	<a href="#">[GO TO RI2a]</a>
Something else [SPECIFY____]	5	<a href="#">[GO TO RI2a]</a>

**RI2a.** Who else was involved in the decisions?

RECORD NAME	_____	<a href="#">[GO TO RI3]</a>
RECORD PHONE NUMBER/EXTENSION	_____	<a href="#">[GO TO RI3]</a>
[Don't know]	-97	<a href="#">[GO TO RI3]</a>
[Refused]	-98	<a href="#">[GO TO RI3]</a>

**RI3.** Which of the following roles did you play in regard to the project or projects supported by &SPONSOR's &PROGRAM? **[READ OPTIONS, MARK ALL THAT APPLY]**

Prepared applications to the program or otherwise solicited support	1	<a href="#">[GO TO NEXT SECTION]</a>
Identified some or all of energy efficiency opportunities	2	<a href="#">[GO TO NEXT SECTION]</a>
Hired contractors or engineers to identify energy efficiency opportunities	3	<a href="#">[GO TO NEXT SECTION]</a>
Developed request for project authorization from higher management or political leaders	4	<a href="#">[GO TO NEXT SECTION]</a>
Sought and/or secured funding for the project from sources internal to your organization	5	<a href="#">[GO TO NEXT SECTION]</a>
Sought and/or secured funding for the project from <b>external</b> sources	6	<a href="#">[GO TO NEXT SECTION]</a>
Oversaw project design and equipment selection	7	<a href="#">[GO TO NEXT SECTION]</a>
Oversaw project installation and construction	8	<a href="#">[GO TO NEXT SECTION]</a>
Oversaw commissioning and early operations of the equipment	9	<a href="#">[GO TO NEXT SECTION]</a>
Something else (Specify) _____	10	<a href="#">[GO TO NEXT SECTION]</a>
[Don't know]	- 97	<a href="#">[GO TO COMMENT4]</a>
[REFUSED]	- 98	<a href="#">[GO TO COMMENT4]</a>

## INITIAL VERIFICATION INVENTORY

**NOTE: THE SEGMENTS VY AND VN ELICIT THE SAME TYPE OF INFORMATION FROM CUSTOMERS IN PROGRAMS THAT ARE ABLE TO PROVIDE MEASURE-LEVEL DATA FOR PROJECTS SUPPORTED BY THE PROGRAM (VY) AND THOSE FOR WHICH MEASURE-LEVEL DATA ARE NOT AVAILABLE (VN). THE ANSWERS TO BOTH SEQUENCES ARE ANSWERED IN THE SAME INITIAL VERIFICATION GRID BELOW. THE OBJECTIVE OF THIS SEQUENCE IS TO PROVIDE VERIFICATION OF THE OVERALL SCOPE OF THE PROJECT, CHARACTERIZE THE SCOPE OF SUPPORT PROVIDED BY THE SEP PROGRAM AND OTHER PROGRAMS, AND ELIMINATE THE NEED FOR REPETITIVE QUESTIONS IN THE DETAILED MEASURE SECTIONS. SEQUENCE VB IS ADDRESSED TO ALL RESPONDENTS.**

**V1.** I'd like to ask you about the scope of the project at &SERV\_ADDR.

**SEQUENCE VY: FOR CUSTOMERS IN PROGRAMS WITH MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**[REPEAT THIS SERIES FOR EACH MEASURE IN THE TRACKING DATA]**

**VY1a.** According to &SPONSOR records, your organization installed &MEASURE as part of the project. Is this correct?

[Yes]	1	[GO TO VY2c]
[No]	2	[GO TO VY2a]
[Don't know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**VY2a.** Why was &MEASURE not installed at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY]**

Never planned to install as part of project	1	[GO TO VY1a FOR NEXT MEASURE]
Project proved to be technically infeasible	2	[GO TO VY2b]
Financial resources were not available	3	[GO TO VY2b]
Still plan to install, haven't had time to complete project	4	[GO TO VY2b]
[Other (Specify)] _____	5	[GO TO VY2b]
[Don't know]	-97	[GO TO VY2b]
[Refused]	-98	[GO TO VY2b]

**VY2b.** Do you plan to install &MEASURE within the next year?

[Yes]	1	[GO TO VY2c]
[No]	2	[GO TO VY2c]
[Don't know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**VY2c.** Which of the following best characterizes the current status of work on this measure?

Installation is complete and in use	1	[GO TO VY1a FOR NEXT MEASURE]
Installation is complete but not now in use	2	[GO TO VY1a FOR NEXT MEASURE]
Work on the project has not started	3	[GO TO VY1a FOR NEXT MEASURE]
Project concept developed but no designs or equipment specified	4	[GO TO VY1a FOR NEXT MEASURE]
Designs and equipment specified but no detailed cost estimates	5	[GO TO VY1a FOR NEXT MEASURE]
Contractor selected but installation work not begun	6	[GO TO VY1a FOR NEXT MEASURE]
Installation work underway	7	[GO TO VY1a FOR NEXT MEASURE]
Other (Specify) _____	8	[GO TO VY1a FOR NEXT MEASURE]
[Don't Know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VY SEQUENCE FOR ALL MEASURES IN TRACKING DATABASE]**

**SEQUENCE VN: FOR CUSTOMERS IN PROGRAMS WITH NO MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**VN1a.** Which of the following types of measures were installed as part of the project?

**[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

Lighting	1	[GO TO VN1b]
Cooling	2	[GO TO VN1b]
Heating	3	[GO TO VN1b]
Refrigeration	4	[GO TO VN1b]
Motors/Drives	5	[GO TO VN1b]
Other Efficiency Measures	6	[GO TO VN1b]

**[ASK VN1b FOR EACH MEASURE TYPE IDENTIFIED IN VN1a]**

**VN1b.** Which of the following best characterizes the current status of work on this measure?

Installation is complete and in use	1	[GO TO VN1c]
Installation is complete but not now in use	2	[GO TO VN1c]
Work on the project has not started	3	[GO TO VN1c]
Project concept developed but no designs or equipment specified	4	[GO TO VN1c]
Designs and equipment specified but no detailed cost estimates	5	[GO TO VN1c]
Contractor selected but installation work not begun	6	[GO TO VN1c]
Installation work underway	7	[GO TO VN1c]
Other (Specify) _____	8	[GO TO VN1c]
[Don't know]	-97	[GO TO VN1c]
[Refused]	-98	[GO TO VN1c]

**VN1c.** Were there any measures for which your organization received support from &PROGRAM in &TARGET\_YEARS that have not yet been installed?

[Yes]	1	[GO TO VN1c]
[No]	2	[GO TO VB1]
[Don't know]	-97	[GO TO VB1]
[Refused]	-98	[GO TO VB1]

**VN1d.** Which measures or types of measures received support from &PROGRAM but have not yet been installed? **[MARK ALL THAT APPLY IN LIST IN THE GRID.]**

Lighting	1	[GO TO VN2a]
Cooling	2	[GO TO VN2a]
Heating	3	[GO TO VN2a]
Refrigeration	4	[GO TO VN2a]
Motors/Drives	5	[GO TO VN2a]
Other Efficiency Measures	6	[GO TO VN2a]

**FOR EACH MEASURE TYPE MARKED IN VN1c, ASK VN2a THROUGH VN2b.**

**VN2a.** Why was &MEASURE\_TYPE not installed at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY]**

Never planned to install as part of project	1	[GO TO VN2a FOR NEXT MEASURE]
Project proved to be technically infeasible	2	[GO TO VN2b]
Financial resources were not available	3	[GO TO VN2b]
Still plan to install, haven't had time to complete project	4	[GO TO VN2b]
[Other (Specify)] _____	5	[GO TO VN2b]
[Don't know]	-97	[GO TO VN2b]
[Refused]	-98	[GO TO VN2b]

**VN2b.** Do you plan to install &MEASURE within the next year?

[Yes]	1	[GO TO VN2a FOR NEXT MEASURE]
[No]	2	[GO TO VN2a FOR NEXT MEASURE]
[Don't know]	-97	[GO TO VN2a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VN2a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VN2a – VN2b SEQUENCE FOR ALL APPLICABLE MEASURES]**

## VY AND VN SEQUENCE RESPONSE GRID FOR SEP SUPPORTED EFFORTS

	1a	1c (N only)	2a	2b	2c
Measure type	Installed?	Not Installed	Why not installed?	Plan to install in Yr?	Current Status?
<b>Efficiency Measures</b>					
<b>Lighting</b>					
<b>Cooling</b>					
<b>Heating</b>					
<b>Refrigeration</b>					
<b>Motors/Drives</b>					
<b>Other Efficiency Measures</b>					

### **SEQUENCE VB: DIRECTED TO ALL CUSTOMERS.**

**VB1.** What kinds of assistance and support did you receive from &SPONSOR's program in completing the project at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY. PROMPT IF NEEDED.]**

Financial grant or rebate for measures installed	1	[GO TO VB2]
Subsidy for design or engineering work	2	[GO TO VB2]
Reduced interest loan or loan interest subsidy	3	[GO TO VB2]
Loan guarantee	4	[GO TO VB2]
Assistance in entering into performance contracts	5	[GO TO VB3]
Energy audit or other technical assistance in identifying & characterizing opportunities	6	[GO TO VB3]
Referrals to qualified vendors	7	[GO TO VB3]
General information on energy efficiency opportunities	8	[GO TO VB3]
Other (Specify in enough detail to understand the support received to use in attribution analysis) _____	9	[GO TO VB3]
[Don't know]	97	[GO TO VB3]
[Refused]	98	[GO TO VB3]

### **[IF VB1 INCLUDES 1, 2, 3, OR 4 ASK VB2, ELSE VB3]**

**VB2.** What was the amount of the incentive, subsidy, or loan provided by the program? Your best approximation will be fine.

[RECORD AMOUNT]	\$_____	[GO TO VB3]
[Don't know]	-97	[GO TO VB3]
[Refused]	-98	[GO TO VB3]

**VB3.** And, what was the total overall cost of the project supported by &PROGRAM including equipment and labor *before* any incentives or subsidies were applied? Again, your best approximation will be fine

[RECORD AMOUNT]	\$_____	[GO TO VB4]
[Don't know]	-97	[GO TO VB4]
[Refused]	-98	[GO TO VB4]

**[IF MULTIPLE MEASURES INSTALLED ASK VB4 THROUGH VB6, ELSE NEXT SECTION.]**

**VB4.** Can you recall how these costs were allocated among the different measures installed?

[Yes]	1	[GO TO VB5]
[No]	2	[GO TO NEXT SECTION]
[Don't know]	-97	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**VB5.** Can you tell me the cost of purchasing and installing &MEASURE **[STARTING FROM FIRST IN GRID OR DATABASE?]**

**VB6.** **[IF RESPONDENT CANNOT PROVIDE A COST AMOUNT:]** What percentage of the total overall costs of the project supported by &PROGRAM did &MEASURE\_TYPE account for?

	<b>VB5</b>	<b>VB6</b>
<b>Measure type</b>	<b>Cost</b>	<b>% of Total</b>
<b>Lighting</b>		
<b>Cooling</b>		
<b>Heating</b>		
<b>Refrigeration</b>		
<b>Motors/Drives</b>		
<b>Other Efficiency Measures</b>		

**[RECORD VERIFIED MEASURES FOR MEASURE SPECIFIC QUESTIONS BELOW. RESPONDENTS WILL ONLY BE ASKED MEASURE SPECIFIC QUESTIONS FOR MEASURE GROUP IS CONFIRMED]**

- [&LIGHTING]**
- [&COOLING]**
- [&HEATING]**
- [&REFRIGERATION]**
- [&MOTORS]**
- [&OTHER]**

**LIGHTING****[IF &LIGHTING = TRUE]****In the next section we'll be discussing the lighting project that received support from &SPONSOR &PROGRAM.****[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK LI1a THROUGH LI1c. IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK LI2a THROUGH LI2c.]****[REPEAT LI1a - LI1c. FOR EACH &LI\_TECH IN THE TRACKING DATA. ]****LI1a.** Our records indicate that your organization installed &LI\_NUM of &LI\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO LI1A FOR NEXT &LI_TECH]
[Did not install any of that technology]	2	[GO TO LI1A FOR NEXT &LI_TECH]
[Technology correct, number wrong]	3	[GO TO LI1num]
[Don't Know]	-97	[GO TO LI1A FOR NEXT &LI_TECH]
[Refused]	-98	[GO TO LI1A FOR NEXT &LI_TECH]

**LI1num.** What is the correct number of &LI\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO LI1c]
[Don't Know]	-97	[GO TO LI1A FOR NEXT &LI_TECH]
[Refused]	-98	[GO TO LI1A FOR NEXT &LI_TECH]

**LI1c.** Why did you install a different number of &LI\_TECH?

Have no idea why numbers differ	1	[GO TO LI1A FOR NEXT &LI_TECH]
Put some in storage	2	[GO TO LI1A FOR NEXT &LI_TECH]
Installed some at another facility	3	[GO TO LI1A FOR NEXT &LI_TECH]
Insufficient financial resources to complete full amount	4	[GO TO LI1A FOR NEXT &LI_TECH]
[Other, Specify_____]	5	[GO TO LI1A FOR NEXT &LI_TECH]
[Don't know]	-97	[GO TO LI1A FOR NEXT &LI_TECH]
[Refused]	-98	[GO TO LI1A FOR NEXT &LI_TECH]

**[ONCE ALL &LI\_TECHS FROM TRACKING DATA EXHAUSTED, SKIP TO LI3]****[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK LI2a THROUGH LI2c.]****LI2a.** Which of the following kinds of lighting fixtures, if any, did you install with the support provided by the &PROGRAM? **[IF DON'T KNOW, ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES.]****LI2b.** Which kinds of lighting controls, if any, did you install with the support provided by the &PROGRAM? **[IF DON'T KNOW, ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES.]**



**LI2num.**      Approximately how many lighting fixtures did you purchase using the funds or technical support from the &SPONSOR &PROGRAM?

## RESPONSE GRID FOR LI1 AND LI2

	<b>&amp;LI_TECH</b>	<b>LI1a Tracking Verified?</b>	<b>LI1num Corrected # Install</b>	<b>LI1c Reason for Diff</b>	<b>LI2a/b Untracked Tech Inst</b>	<b>LI2num Untracked # Install</b>
	<b>Lamps &amp; Fixtures</b>					
1	High performance T8 (1" diameter bulbs)					
2	T8 fluorescent fixtures (1" diameter bulbs)					
3	T-5 Fixtures					
4	HID (High Density Discharge) Fixtures, Pulse Start					
5	High bay fluorescent lighting					
6	Compact Fluorescent, Screw-in Modular					
7	Compact Fluorescent, Hardwire					
8	Exit Signs, Compact Fluorescent					
9	Exit Signs, LED					
10	LED Overhead Fixtures					
11	T12 fluorescent fixtures (1.5" diameter bulbs)					
77	Other Fixtures (Specify _____)					
	<b>Controls</b>					
12	Timeclock controls					
13	Occupancy sensors					
14	Bypass/Delay Timers					
15	Photocell, light sensors					
16	Daylighting control strategies					

78	Other controls (Specify_____)					
----	----------------------------------	--	--	--	--	--

**[FOR EACH FIXTURE TYPE REPORTED IN LI1a AND LI2a, ASK LI3]**

**LI3.** What types of fixtures, if any, were replaced when installing &LI\_TECH [ALLOW MULTIPLE RESPONSES.]

Did not replace anything - new equipment	0
High performance T8 (1" diameter bulbs)	1
T8 fluorescent fixtures (1" diameter bulbs)	2
T10 fluorescent fixtures	3
T12 Fixtures (1.5" diameter bulbs)	4
HID (High Density Discharge) Fixtures, Compact	5
Compact Fluorescent, Screw-in Modular	6
Compact Fluorescent, Hardwire	7
Incandescent	8
Exit Signs, Compact Fluorescent	9
Exit Signs, LED	10
Halogen	11
Electronic Ballast	13
Magnetic Ballast	14
Other Fluorescent	19
Fat/Thick Tubes	20
Skinny/Thin Tubes	21
T5 Fixtures (5/8" diameter)	22
High pressure sodium	23
Metal Halide	24
Mercury Vapor	25
Other (Specify_____)	77
Don't know	-97
Refused	-98

**[FOR EACH FIXTURE TYPE REPLACED, ASK LI3a]**

**LI3a.** Did you remove the same number of old fixtures as you installed through the project?

[Yes]	1	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[No]	2	[GO TO LI3b]
[Don't know]	-97	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[Refused]	-98	[GO TO LI3a FOR NEXT FIXTURE TYPE]

**LI3b.** Did you remove fewer or more fixtures than you installed through the project?

[More]	1	[GO TO LI3c]
[Fewer]	2	[GO TO LI3c]
[Don't know]	97	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[Refused]	98	[GO TO LI3a FOR NEXT FIXTURE TYPE]

**LI3c.** How many fewer/more fixtures did you install?

ENTER NUMBER	_____	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[Don't know]	9997	[GO TO LI3a FOR NEXT FIXTURE TYPE]

**LI3d.** On average, approximately how old were the fixtures that were removed and replaced with &LI\_TECH? Would you say...

RECORD YEARS OLD	_____	[GO TO LI3a FOR NEXT FIXTURE TYPE]
Don't know	97	[GO TO LI3a FOR NEXT FIXTURE TYPE]
Refused	98	[GO TO LI3a FOR NEXT FIXTURE TYPE]

**RESPONSE GRID FOR LI3**

	<b>&amp;LI_TECH</b>	<b>LI3 Equipment replaced</b>	<b>LI3a Replaced same #</b>	<b>LI3b Replaced fewer/more</b>	<b>LI3c # Different</b>	<b>LI3d Age of Equip</b>
	<b>Lamps &amp; Fixtures</b>					
0	No fixtures removed: new construction or addition					
1	High performance T8 (1" diameter bulbs)					
2	T8 fluorescent fixtures (1" diameter bulbs)					
3	T-5 Fixtures					
4	HID (High Density Discharge) Fixtures, Pulse Start					
5	High bay fluorescent lighting					
6	Compact Fluorescent, Screw-in Modular					
7	Compact Fluorescent, Hardwire					
8	Exit Signs, Compact Fluorescent					
9	Exit Signs, LED					
10	LED Overhead Fixtures					
11	T12 fluorescent fixtures (1.5" diameter bulbs)					
77	Other fixture, Specify _____					

**[FOR EACH FIXTURE TYPE REPORTED IN LI1 AND LI2, ASK LI4a]**

**LI4a.** How much total space do the &LI\_TECH serve?

ENTER SQUARE FEET	_____	[GO TO LI4b]
[Don't know]	-9997	[GO TO LI4a FOR NEXT FIXTURE TYPE]
[Refused]	-9998	[GO TO LI4a FOR NEXT FIXTURE TYPE]

**LI4b – LI4l.** What percent of the space served by the &LI\_TECH falls into each of the following categories?

LI4b	Office/ Professional
LI4c	Warehouse
LI4d	Food sales
LI4e	Health Care
LI4f	Public Assembly
LI4g	Food Service
LI4h	Hotel/Motel/Dorm
LI4i	Retail
LI4j	Service (excluding food)
LI4k	Education
LI4l	Other

[PROGRAMMER: PROGRAM SHOULD VERIFY THAT PERCENTS SUM TO 100%]

RESPONSE GRID FOR LI4

	<b>&amp;LI_TECH</b>	<b>LI4a Sq Ft Lit</b>	<b>LI4b % office/ profes sional</b>	<b>LI4c % wareh ouse</b>	<b>LI4d % food sales</b>	<b>LI4e % health care</b>	<b>LI4f % public assem bly</b>	<b>LI4g % food service</b>	<b>LI4h % hotel/ motel/ dorm</b>	<b>LI4i % retail</b>	<b>LI4j % non- food service</b>	<b>LI4k % educat ion</b>	<b>LI4l % other</b>
	<b>Lamps &amp; Fixtures</b>												
1	High performance T8 (1" diameter bulbs)												
2	T8 fluorescent fixtures (1" diameter bulbs)												
3	T-5 Fixtures												
4	HID (High Density Discharge) Fixtures, Pulse Start												
5	High bay fluorescent lighting												
6	Compact Fluorescent, Screw-in Modular												
7	Compact Fluorescent, Hardwire												
8	Exit Signs, Compact Fluorescent												
9	Exit Signs, LED												
10	LED Overhead Fixtures												
11	T12 fluorescent fixtures												
77	Other fixture (Specify)												

**[FOR EACH CONTROL TYPE REPORTED IN LI1 AND LI2, ASK LI5A]**

**LI5a.** What is the total wattage controlled by &LI\_TECH?

**LI5b.** Before installing the &LI\_TECH, how many hours per day did the lighting controlled by the &LI\_TECH operate?

**LI5c.** What is the percent reduction in operating hours for the lighting controlled by &LI\_TECH?

	<b>Controls</b>	<b>LI5a total wattage controlled</b>	<b>LI5b hours/day before controls</b>	<b>LI5c % reduction in operating hours</b>
1 2	Timeclock controls			
1 3	Occupancy sensors			
1 4	Bypass/Delay Timers			
1 5	Photocell, light sensors			
1 6	Daylighting control strategies			
7 8	Other Controls			

**COOLING EQUIPMENT BATTERY****[IF &COOLING = TRUE]****Now we would like to discuss the cooling project that received funding from  
&SPONSOR &PROGRAM****[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK CL1 THROUGH CL6a.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, SKIP TO CL-N1]****[REPEAT CL1 THROUGH CL6a FOR EACH &C\_TECH IN THE TRACKING DATA. ]****CL1.** Our records indicate that you installed &CTECH\_NUM &C\_TECH through the  
&PROGRAM. Is that correct?

[Yes, installed that number]	1	[GO TO CL3]
[Did not install any of that technology]	2	[GO TO CL1 FOR NEXT &C_TECH]
[Technology correct, number wrong]	3	[GO TO CL2a]
[Don't Know]	-97	[GO TO CL1 FOR NEXT &C_TECH]
[Refused]	-98	[GO TO CL1 FOR NEXT &C_TECH]

**CL2a.** How many &C\_TECH did you install?

RECORD NUMBER	_____	[GO TO CL2b]
Don't know	-97	[GO TO CL2b]
Refused	-98	[GO TO CL2b]

**CL2b.** Why did you install a different number of &C\_TECH?

Have no idea why numbers differ	1	[GO TO CL3]
Put some in storage	2	[GO TO CL3]
Installed some at another facility	3	[GO TO CL3]
Insufficient financial resources to complete full amount	4	[GO TO CL3]
[Other, Specify_____]	5	[GO TO CL3]
[Don't know]	-97	[GO TO CL3]
[Refused]	-98	[GO TO CL3]

**CL3.** Our records indicate that the &CTECH\_NUM &C\_TECH had a total capacity of  
&CTECH\_CAP &CTECH\_CAP\_UNITS. Is that correct?

Yes	1	[GO TO CL5]
No	2	[GO TO CL4a]
Don't know	-97	[GO TO CL5]
Refused	-98	[GO TO CL5]

**CL4a.** What is the correct total capacity?

RECORD CAPACITY NUMBER	_____	[GO TO CL4b]
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	_____	[GO TO CL4b]
Don't know	-97	[GO TO CL4b]
Refused	-98	[GO TO CL4b]

**CL4b.** Why was the capacity of &C\_TECH different?

Have no idea why numbers differ	1	[GO TO CL5]
Put some in storage	2	[GO TO CL5]
Installed some at another facility	3	[GO TO CL5]
Insufficient financial resources to complete full amount	4	[GO TO CL5]
[Other, Specify_____]	5	[GO TO CL5]
[Don't know]	-97	[GO TO CL5]
[Refused]	-98	[GO TO CL5]

**CL5.** Our records indicate the &CTECH have an efficiency rating of &CTECH\_EFF &CTECH\_EFF\_UNITS Is that correct?

Yes	1	[GO TO CL7]
No	2	[GO TO CL6a]
Don't know	-97	[GO TO CL7]
Refused	-98	[GO TO CL7]

**CL6a.** What is the correct efficiency rating?

RECORD EFFICIENCY NUMBER		[GO TO CL1 FOR NEXT &C_TECH]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON, or specify other)		[GO TO CL1 FOR NEXT &C_TECH]
Don't know	-97	[GO TO CL1 FOR NEXT &C_TECH]
Refused	-98	[GO TO CL1 FOR NEXT &C_TECH]

**RESPONSE GRID FOR CL1 TO CL6a**

	ITEM	CL1	CL2a	CL2b	CL3	CL4a	CL4b	CL5	CL6a	CL7a	CL7b
<b>1</b>	<b>Split system</b> (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)										
<b>2</b>	<b>Packaged systems</b> (one component; rooftop units)										
<b>3</b>	<b>Package Terminal A/C or Heat Pump</b> (e.g., Hotel/Motel units)										
<b>4</b>	<b>Evaporative coolers</b> (swamp coolers)										
<b>6</b>	<b>Water Chiller/Cooling Towers</b> (Central plant)										
<b>6</b>	<b>Individual A/C or Heat Pump Units</b> (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business)										
<b>7</b>	<b>Window/Wall Units</b>										
<b>77</b>	Other (Specify)										
<b>97</b>	Don't Know										
<b>98</b>	Refused										

**[AFTER ALL MEASURES IN TRACKING DATA EXHAUSTED, SKIP TO CL7a]**

**USE THE CL-N1 TO CL-N4 SEQUENCE IF THE PROGRAM TRACKING DATABASE DOES NOT CONTAIN MEASURE-LEVEL DATA**

**CL-N1.** What types of cooling equipment did you install with the assistance of &PROGRAM at &SERV\_ADD?**[ALLOW MULTIPLE ANSWERS]**

Split system	1	[GO TO CL-N2]
Packaged system	2	[GO TO CL-N2]
Packaged Terminal AC or Heat pump	3	[GO TO CL-N2]
Evaporative cooler	4	[GO TO CL-N2]
Water chiller / Cooling tower	5	[GO TO CL-N2]
Individual AC or Heat pump units	6	[GO TO CL-N2]
Window / Wall units	7	[GO TO CL-N2]
[Other (Specify_____)]	77	[GO TO CL-N2]
[Don't Know]	-97	<b>[ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO KNOWS. THEN NEXT SECTION]</b>
[Refused]	-98	<b>[GO TO NEXT SECTION]</b>

**CL-N2.** How many units of &C\_TECH did you install?

RECORD NUMBER		[GO TO CL-N3]
Don't know	97	[GO TO CL-N3]
Refused	98	[GO TO CL-N3]

**CL-N3.** What is the total capacity of the units you installed?

RECORD CAPACITY NUMBER	_____	[GO TO CL-N4]
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	_____	[GO TO CL-N4]

Don't know	97	[GO TO CL-N4]
Refused	98	[GO TO CL-N4]

<b>CL-N4.</b> What was the efficiency rating of the &CTECH_EFF units that you installed through &PROGRAM? <b>[RECORD FOR ALL UNITS INSTALLED THROUGH &amp;PROGRAM.]</b> RECORD EFFICIENCY NUMBER		[GO TO NEXT CL-N1]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT CL-N1]
Don't know	-97	[GO TO NEXT CL-N1]
Refused	-98	[GO TO NEXT CL-N1]

**RESPONSE GRID FOR CL-N1 TO CL-N4**

	ITEM	CL-N1	CL-N2	CL-N3 Number	CL-N3 Units	CL-N4 Number	CL-N4 Units	CL7a	CL7b
1	<b>Split system</b> (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)								
2	<b>Packaged systems</b> (one component; rooftop units)								
3	<b>Package Terminal A/C or Heat Pump</b> (e.g., Hotel/Motel units)								
4	<b>Evaporative coolers</b> (swamp coolers)								
6	<b>Water Chiller/Cooling Towers</b> (Central plant)								
6	<b>Individual A/C or Heat Pump Units</b> (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business)								
7	<b>Window/Wall Units</b>								
77	Other (Specify)								

**[ASK CL7a AND CL7b FOR EACH MEASURE IDENTIFIED IN CL1 AND CL-N1]**

**CL7a.** Are the operating hours for the &C\_TECH equipment independent of the weather? For example, is the equipment used for process cooling, a data center, or something else that requires it to run even when it is cool outside?

Yes	1	[GO TO CL7b]
No	2	[GO TO CL8a]
[Don't know]	-97	[GO TO CL7b]
[Refused]	-98	[GO TO CL7b]

**CL7b.** How many hours per year does the equipment operate?

RECORD NUMBER	_____	[GO TO CL8a]
Don't know	-97	[GO TO CL8a]
Refused	-98	[GO TO CL8a]

**ASK CL8a THROUGH CL8f FOR EACH MEASURE IDENTIFIED IN CL1 AND CL-N1]**

**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new cooling equipment though the program.**

**CL8a.** What types of cooling equipment, if any, were replaced when installing the new &C\_TECH? **[SELECT ALL THAT APPLY]**

SELECT EQUIPMENT TYPE		[RECORD AS &C_TECH_REM]
[Don't Know]	-97	[GO TO CL8a FOR NEXT &C_TECH]
[Refused]...	-98	[GO TO CL8a FOR NEXT &C_TECH]

**CL8b.** How many units were removed?

RECORD NUMBER	_____
Don't know	-97
Refused	-98

**CL8c.** What was the total capacity of the units you removed?

RECORD CAPACITY NUMBER	
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	
[Don't know]	-97
[Refused]	-98

**CL8d.** Generally, how would you describe the condition of &C\_TECH\_REM that was removed and replaced? Was it...

Inoperable (broken)	1
Poor condition	2
Fair condition	3
Good condition	4
[Don't know]	-97
[Refused]	-98

**CL8e.** What was the efficiency rating of the removed &C\_TECH\_REM?

RECORD EFFICIENCY NUMBER		<a href="#">[GO TO NEXT CL8a]</a>
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		<a href="#">[GO TO NEXT CL8a]</a>
[Don't know]	-97	<a href="#">[GO TO CL8f]</a>
[Refused]	-98	<a href="#">[GO TO CL8f]</a>

**CL8f.** On average, how old was the &C\_TECH\_REM that was removed and replaced? Would you say...

RECORD NUMBER OF YEARS	___	<a href="#">[GO TO NEXT CL8a]</a>
[Don't know]	97	<a href="#">[GO TO NEXT CL8a]</a>
[Refused]	98	<a href="#">[GO TO NEXT CL8a]</a>

## RESPONSE GRID FOR CL8

		CL8a	CL8b	CL8c	CL8d	CL8e Number	CL8e Units	CL8f
<b>0</b>	<b>No A/C Removed</b>		skip	skip	skip	skip	skip	skip
<b>1</b>	<b>Split system</b> (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)							
<b>2</b>	<b>Packaged systems</b> (one component; rooftop units)							
<b>3</b>	<b>Package Terminal A/C or Heat Pump</b> (e.g., Hotel/Motel units)							
<b>4</b>	<b>Evaporative coolers</b> (swamp coolers)							
<b>5</b>	<b>Water Chiller/Cooling Towers</b> (Central plant)							
<b>6</b>	<b>Individual A/C or Heat Pump Units</b> (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business)							
<b>7</b>	<b>Window/Wall Units</b>							
<b>77</b>	Other (Specify)							

**CL9a.** Did you install any heating or cooling controls or variable speed drives as part of the project supported by &PROGRAM in the facility at &SERV\_ADDR? .

Yes	1	<a href="#">[GO TO CL9b]</a>
No	2	<a href="#">[GO TO NEXT SECTION]</a>
Don't know	97	<a href="#">[GO TO NEXT SECTION]</a>
Refused	98	<a href="#">[GO TO NEXT SECTION]</a>

**CL9b. What kinds of controls did you install? [SELECT ALL THAT APPLY]**

Adjustable Speed Drives	1	[GO TO CL9c]
Energy Management System	2	[GO TO CL9c]
HVAC Controls: Manual thermostat	3	[GO TO CL9c]
HVAC Controls: Bypass Timer	4	[GO TO CL9c]
HVAC Controls: Time Clock	5	[GO TO CL9c]
HVAC Controls: Set-Back Programmable Thermostat	6	[GO TO CL9c]
CO2 Sensors/Demand Control Ventilation	7	[GO TO CL9c]
Economizers	8	[GO TO CL9c]
Other (Specify)	77	[GO TO CL9c]
Don't know	97	[GO TO CL9c]
Refused	98	[GO TO CL9c]

**[FOR EACH CONTROL TECHNOLOGY MENTIONED IN CL9b, ASK CL9c THROUGH CL9f]**

**CL9c. What percentage of the total enclosed floor space in your facility do those new controls serve?**

ENTER PERCENT	_____	[GO TO CL9d]
Don't know	97	[GO TO CL9d]
Refused	98	[GO TO CL9d]

**CL9d.** What kinds of controls, if any, did the new equipment replace? **[SELECT ALL THAT APPLY]**

No controls replaced/new construction or addition	0	[GO TO NEXT CONTROL TYPE FROM CL9b]
Adjustable Speed Drives	1	[GO TO CL9e]
Energy Management System	2	[GO TO CL9e]
HVAC Controls: Manual thermostat	3	[GO TO CL9e]
HVAC Controls: Bypass Timer	4	[GO TO CL9e]
HVAC Controls: Time Clock	5	[GO TO CL9e]
HVAC Controls: Set-Back Programmable Thermostat	6	[GO TO CL9e]
CO2 Sensors/Demand Control Ventilation	7	[GO TO CL9e]
Economizers	8	[GO TO CL9e]
Other (Specify)	77	[GO TO CL9e]
[Don't know]	-97	[GO TO CL9e]
[Refused]	-98	[GO TO CL9e]

**CL9e.** Generally, how would you describe the condition of the heating and cooling control equipment that was removed and replaced? Was it...

Inoperable (broken)	1	[GO TO CL9f]
Poor condition	2	[GO TO CL9f]
Fair condition	3	[GO TO CL9f]
Good condition	4	[GO TO CL9f]
Don't Know	97	[GO TO CL9f]
Refused	98	[GO TO CL9f]

**CL9f.** On average, how old was the control equipment that was removed and replaced?  
Would you say...

Less than 5 years old	1	<a href="#">[GO TO NEXT SECTION]</a>
Between 5 and 10 years old	2	<a href="#">[GO TO NEXT SECTION]</a>
10 to 20 years old	3	<a href="#">[GO TO NEXT SECTION]</a>
more than 20 years old	4	<a href="#">[GO TO NEXT SECTION]</a>
[Don't know]	97	<a href="#">[GO TO NEXT SECTION]</a>
[Refused]	98	<a href="#">[GO TO NEXT SECTION]</a>

**RESPONSE GRID FOR CL9**

		CL9c	CL9d	CL9e	CL9f
<b>1</b>	Adjustable Speed Drives				
<b>2</b>	Energy Management System				
<b>3</b>	HVAC Controls: Manual thermostat				
<b>4</b>	HVAC Controls: Bypass Timer				
<b>5</b>	HVAC Controls: Time Clock				
<b>6</b>	HVAC Controls: Set-Back Programmable Thermostat				
<b>7</b>	CO2 Sensors/Demand Control Ventilation				
<b>8</b>	Economizers				
<b>77</b>	Other (Specify)				
<b>98</b>	Don't know				
<b>99</b>	Refused				

**HEATING EQUIPMENT BATTERY****[IF &HEATING = TRUE]****Now we would like to discuss the heating project that received funding from &SPONSOR &PROGRAM****[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK HT1 THROUGH HT6a. IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, SKIP TO HT-N1]****[REPEAT HT1 THROUGH HT6a FOR EACH &H\_TECH IN THE TRACKING DATA. ]****HT1.** Our records indicate that you installed &HTECH\_NUM &H\_TECH through the &PROGRAM. Is that correct?

[Yes, installed that number]	1	[GO TO HT3]
[Did not install any of that technology]	2	[GO TO HT1 FOR NEXT &H_TECH]
[Technology correct, number wrong]	3	[GO TO HT2a]
[Don't Know]	-97	[GO TO HT1 FOR NEXT &H_TECH]
[Refused]	-98	[GO TO HT1 FOR NEXT &H_TECH]

**HT2a.** How many &H\_TECH did you install?

RECORD NUMBER	_____	[GO TO HT2B]
Don't know	-97	[GO TO HT3]
Refused	-98	[GO TO HT3]

**HT2b.** Why did you install a different number of &H\_TECH?

Have no idea why numbers differ	1
Put some in storage	2
Installed some at another facility	3
Insufficient financial resources to complete full amount	4
[Other, Specify_____]	5
[Don't know]	-97
[Refused]	-98

**HT3.** Our records indicate that the &HTECH\_NUM &H\_TECH had a total capacity of &HTECH\_CAP &HTECH\_CAP\_UNITS. Is that correct?

Yes	1	[GO TO HT5]
No	2	[GO TO HT4a]
Don't know	-97	[GO TO HT5]
Refused	-98	[GO TO HT5]

**HT4a.** What is the correct total capacity?

RECORD CAPACITY NUMBER	_____
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	_____
Don't know	-97
Refused	-98

**HT4b.** Why was the capacity of &H\_TECH different?

Have no idea why numbers differ	1
Put some in storage	2
Installed some at another facility	3
Insufficient financial resources to complete full amount	4
[Other, Specify _____]	5
[Don't know]	-97
[Refused]	-98

**HT5.** Our records indicate the &HTECH have an efficiency rating of &HTECH\_EFF &HTECH\_EFF\_UNITS. Is that correct?

Yes	1	<a href="#">[GO TO HT8a]</a>
No	2	<a href="#">[GO TO HT6a]</a>
[Don't know]	-97	<a href="#">[GO TO HT8a]</a>
[Refused]	-98	<a href="#">[GO TO HT8a]</a>

**HT6a.** What is the correct efficiency rating?

RECORD EFFICIENCY NUMBER		<a href="#">[GO TO HT1 FOR NEXT &amp;H_TECH]</a>
RECORD EFFICIENCY UNIT (AFUE, thermal efficiency, or specify other)		<a href="#">[GO TO HT1 FOR NEXT &amp;H_TECH]</a>
Don't know	-97	<a href="#">[GO TO HT1 FOR NEXT &amp;H_TECH]</a>
Refused	-98	<a href="#">[GO TO HT1 FOR NEXT &amp;H_TECH]</a>

**RESPONSE GRID FOR HT1 TO HT6a**

	<b>ITEM</b>	<b>HT1</b>	<b>HT2a</b>	<b>HT2b</b>	<b>HT3</b>	<b>HT4a</b>	<b>HT4b</b>	<b>HT5</b>	<b>HT6a</b>	<b>HT7a</b>	<b>HT7b</b>
<b>1</b>	Central Boilers										
<b>2</b>	Packaged Heating Units										
<b>3</b>	Individual Space Heater / Portable Room Heater / Strip Heating										
<b>4</b>	Split-system Heat Pumps										
<b>5</b>	Central Furnaces										
<b>6</b>	District Steam or Hot Water										
<b>7</b>	Radiant Heaters										
<b>77</b>	Other (Specify)										
<b>97</b>	Don't Know										
<b>98</b>	Refused										

**[AFTER ALL MEASURES IN TRACKING DATA EXHAUSTED, SKIP TO HT7a]**

**USE THE HT-N1 TO HT-N4 SEQUENCE IF THE PROGRAM TRACKING DATABASE DOES NOT CONTAIN MEASURE-LEVEL DATA**

**HT-N1.** What types of heating equipment did you install with the assistance of &PROG at &SERV\_ADD? **[ALLOW MULTIPLE ANSWERS]**

Central Boilers	1	[GO TO HT-N2]
Packaged Heating Units	2	[GO TO HT-N2]
Individual Space Heater / Portable Room Heater / Strip Heating	3	[GO TO HT-N2]
Split-system Heat Pumps	4	[GO TO HT-N2]
Central Furnaces	5	[GO TO HT-N2]
District Steam or Hot Water	6	[GO TO HT-N2]
Radiant Heaters	7	[GO TO HT-N2]
Other (Specify)	77	[GO TO HT-N2]
[Don't Know]	-97	ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES KNOW.  [THEN GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**HT-N2.** How many units of &H\_TECH did you install?

RECORD NUMBER		[GO TO HT-N3]
Don't know	-97	[GO TO HT-N3]
Refused	-98	[GO TO HT-N3]

**HT-N3.** What is the total capacity of the units you installed?

RECORD CAPACITY NUMBER	_____
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	_____
[Don't know]	-97
[Refused]	-98

**HT-N4.** What was the efficiency rating of the &HTECH\_EFF units that you installed?  
 [RECORD FOR ALL UNITS INSTALLED THROUGH &PROGRAM.]

RECORD EFFICIENCY NUMBER		[GO TO NEXT HT-N1]
RECORD EFFICIENCY UNIT (AFUE, Thermal efficiency, specify other)		[GO TO NEXT HT-N1]
Don't know	-97	[GO TO NEXT HT-N1]
Refused	-98	[GO TO NEXT HT-N1]

**RESPONSE GRID FOR HT-N1 TO HT-N4**

	ITEM	HT-N1	HT-N2	HT-N3 Number	HT-N3 Units	HT-N4 Number	HT-N4 Units	HT7a	HT7b
1	Central Boilers								
2	Packaged Heating Units								
3	Individual Space Heater / Portable Room Heater / Strip Heating								
4	Split-system Heat Pumps								
5	Central Furnaces								
6	District Steam or Hot Water								
7	Radiant Heaters								
77	Other (Specify)								

**ASK HT8a THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT1 AND HT-N1]**  
 Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new heating equipment through the program.

**HT8a.** What types of heating equipment, if any, were replaced when installing the new &H\_TECH? **[SELECT ALL THAT APPLY]**

SELECT EQUIPMENT TYPE		[GO TO RECORD AS &H_TECH_REM]
[Don't Know]	-97	[GO TO HT8a FOR NEXT &H_TECH]
[Refused]...	-98	[GO TO HT8a FOR NEXT &H_TECH]

**[ASK HT8b THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT8a]**

**HT8b.** How many units were removed?

RECORD NUMBER	_____	[GO TO HT8c]
[Don't know]	97	[GO TO HT8c]
[Refused]	98	[GO TO HT8c]

**HT8c.** What was the total capacity of the units you removed?

RECORD CAPACITY NUMBER		[GO TO HT8d]
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)		[GO TO HT8d]
[Don't know]	-97	[GO TO HT8d]
[Refused]	-98	[GO TO HT8d]

**HT8d.** Generally, how would you describe the condition of &H\_TECH\_REM that was removed and replaced? Was it...

Inoperable (broken)	1
Poor condition	2
Fair condition	3
Good condition	4
[Don't know]	-97
[Refused]	-98

**HT8e.** What was the efficiency rating of the removed &H\_TECH\_REM?

RECORD EFFICIENCY NUMBER		[GO TO NEXT HT8a]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT HT8a]

[Don't know]	-97	[GO TO HT8f]
[Refused]	-98	[GO TO HT8f]

**HT8f.** On average, how old was the &H\_TECH\_REM that was removed and replaced?  
Would you say...

Less than 5 years old	1	[GO TO NEXT HT8a]
Between 5 and 10 years old	2	[GO TO NEXT HT8a]
10 to 20 years old	3	[GO TO NEXT HT8a]
more than 20 years old	4	[GO TO NEXT HT8a]
[Don't know]	-97	[GO TO NEXT HT8a]
[Re-fused]	-98	[GO TO NEXT HT8a]

**RESPONSE GRID FOR HT8**

		HT8a	HT8b	HT8c	HT8d	HT8e Number	HT8e Units	HT8f
<b>0</b>	<b>No heating Removed</b>		skip	skip	skip	skip	skip	skip
<b>1</b>	Central Boilers							
<b>2</b>	Packaged Heating Units							
<b>3</b>	Individual Space Heater / Portable Room Heater / Strip Heating							
<b>4</b>	Split-system Heat Pumps							
<b>5</b>	Central Furnaces							
<b>6</b>	District Steam or Hot Water							
<b>7</b>	Radiant Heaters							
<b>77</b>	Other (Specify)							

**HT9a.** Did you install any heating or heating controls or variable speed drives as part of the project supported by &PROGRAM in the facility at &SERV\_ADDR? .

Yes	1	[GO TO HT9b]
No	2	[GO TO NEXT SECTION]
Don't know	97	[GO TO NEXT SECTION]
Refused	98	[GO TO NEXT SECTION]

**HT9b.** What kinds of controls did you install? **[SELECT ALL THAT APPLY]**

Adjustable Speed Drives	1
Energy Management System	2
HVAC Controls: Manual thermostat	3
HVAC Controls: Bypass Timer	4
HVAC Controls: Time HTock	5
HVAC Controls: Set-Back Programmable Thermostat	6
CO2 Sensors/Demand Control Ventilation	7
Economizers	8
Other (Specify)	77
Don't know	-97
Refused	-98

**[FOR EACH CONTROL TECHNOLOGY MENTIONED IN HT9b, ASK HT9c THROUGH HT9f]**

**HT9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

ENTER PERCENT	_____
Don't know	-97
Refused	-98

**HT9d.** What kinds of controls, if any, did the new equipment replace? **[SELECT ALL THAT APPLY]**

No controls replaced/new construction or addition	0	NEXT CONTROL TYPE FROM HT9b
Adjustable Speed Drives	1	<a href="#">[GO TO HT9e]</a>
Energy Management System	2	<a href="#">[GO TO HT9e]</a>
HVAC Controls: Manual	3	<a href="#">[GO TO HT9e]</a>

thermostat		
HVAC Controls: Bypass Timer	4	[GO TO HT9e]
HVAC Controls: Time HTock	5	[GO TO HT9e]
HVAC Controls: Set-Back Programmable Thermostat	6	[GO TO HT9e]
CO2 Sensors/Demand Control Ventilation	7	[GO TO HT9e]
Economizers	8	[GO TO HT9e]
Other (Specify)	77	[GO TO HT9e]
Don't know	-97	[GO TO HT9e]
Refused	-98	[GO TO HT9e]

**HT9e.** Generally, how would you describe the condition the heating and heating control equipment that was removed and replaced? Was it...

Inoperable (broken)	1
Poor condition	2
Fair condition	3
Good condition	4
Don't Know	-97
Refused	-98

**HT9f.** On average, how old was the control equipment that was removed and replaced? Would you say...

RECORD NUMBER OF YEARS	_____	[GO TO NEXT SECTION]
[Don't know]	-97	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**RESPONSE GRID FOR HT9**

		HT9c	HT9d	HT9e	HT9f
<b>1</b>	Adjustable Speed Drives				
<b>2</b>	Energy Management System				
<b>3</b>	HVAC Controls: Manual thermostat				

<b>4</b>	HVAC Controls: Bypass Timer				
<b>5</b>	HVAC Controls: Time HTock				
<b>6</b>	HVAC Controls: Set-Back Programmable Thermostat				
<b>7</b>	CO2 Sensors/Demand Control Ventilation				
<b>8</b>	Economizers				
<b>77</b>	Other (Specify)				
<b>-97</b>	[Don't know]				
<b>-98</b>	[Refused]				

## Refrigeration

[IF &REFRIGERATION = TRUE]

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK RF1a THROUGH RF1c.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK RF2a THROUGH RF2c

[REPEAT RF1a THROUGH RF1c. FOR EACH &RF\_TECH IN THE TRACKING DATA.]

**RF1a.** Our records indicate that your organization installed &RF\_NUM of &RF\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO NEXT &RF_TECH]
[Did not install any of that technology]	2	[GO TO NEXT &RF_TECH]
[Technology correct, number wrong]	3	[GO TO RF1b]
[Refused]	-98	[GO TO NEXT &RF_TECH]
[Don't Know]	-97	[GO TO NEXT &RF_TECH]

**RF1b.** What is the correct number of &RF\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO NEXT &RF_TECH]
Refused]	-98	[GO TO NEXT &RF_TECH]
[Don't Know]	-97	[GO TO NEXT &RF_TECH]

**RF1c.** Why did you install a different number of &RF\_TECH?

Have no idea why numbers differ	1	[GO TO RF2d]
---------------------------------	---	--------------

Put some in storage	2	[GO TO RF2d]
Installed at another facility	3	[GO TO RF2d]
Funding insufficient to complete full amount	4	[GO TO RF2d]
Other	77	[GO TO RF2d]
[Don't know]	-97	[GO TO RF2d]
[Refused]	-98	[GO TO RF2d]

**[ONCE CORRECTIONS RECORDED, IF RF1a ≠ 1 THEN ASK RF2d FOR EACH CORRECTED TECHNOLOGY; ELSE GO TO RF3a]**

**[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK RF2a THROUGH RF2d.]**

**RF2a.** Which of the following kinds of refrigeration equipment, did you install through the program?

**RF2b.** Which kinds of refrigeration controls, if any, did you install through the program?

**RF2c.** Approximately how many &RF\_TECH were purchased using the &SPONSOR &PROGRAM funding?

**RF2d.** How many of the &RF\_TECH purchased using the &SPONSOR &PROGRAM funding were used to replace existing &RF\_TECH units?

**RF2e.** Please confirm, <(&RF\_NUM or Number from RF1b or RF2c) – (RF2d)> of the &RF\_TECH units purchased using the &SPONSOR &PROGRAM funding were used to increase your refrigeration capacity?

Yes	1	GO TO RF2f]
No	2	[REPEAT RF2d and RF2e]
Refused]	-98	[GO TO NEXT &RF_TECH]
[Don't Know]	-97	[GO TO NEXT &RF_TECH]

**[IF RF2c > 0 THEN ASK RF2f]**

**RF2f.** Approximately what was the total size of the units installed to replace existing &RF\_TECH units,

**RF2g.** [Ask for units]?

ENTER SIZE	_____	ENTER UNITS	_____	[GO TO RF2j]
[Don't know]	-97	Don't know	97	[GO TO RF2h]
[Refused]	-98	Refused	98	[GO TO RF2h]

**[IF RF2e > 0 THEN ASK RF2h]**

**RF2h.** Approximately what was the total size of the units installed for new refrigeration capacity.

**RF2i.** [Ask for units]?

ENTER SIZE	_____	ENTER UNITS	_____	[GO TO RF2j]
[Don't know]	-97	Don't know	97	[GO TO RF2j]
[Refused]	-98	Refused	98	[GO TO RF2j]

**[IF &RF\_TECH = 10 or 11 THEN ASK RF2j; ELSE GO TO RF3a]**

**RF2j.** How many hours per day is the refrigerator left open, including for stocking and in and out?

ENTER HOURS	_____	[GO TO RF2k]
[Don't know]	-97	[GO TO RF2k]
[Refused]	-98	[GO TO RF2k]

**RF2k.** When the refrigerator/freezer is NOT left open, what is the average traffic through the door per hour (# times opened per hour)?

ENTER	_____	[GO TO RF2d]
[Don't know]	-97	[GO TO RF2d]
[Refused]	9-8	[GO TO RF2d]

**RF2l.** Does your &RF\_TECH have strip curtains or another type of insulation?

Yes- Strip Curtains	1
Yes - Other Type of Insulation [RECORD TYPE _____]	2
No	3
[Refused]	-98
[Don't Know]	-97

**RESPONSE GRID FOR RF1 AND RF2**

	<b>&amp;RF_TECH</b>	<b>RF1a Tracking Verified</b>	<b>RF1b Corrected # Install</b>	<b>RF1c Reason for Diff</b>	<b>RF2a/b Untracked Tech Inst</b>	<b>RF2c Untracked # Install</b>	<b>RF2d # Replace</b>	<b>RF2e # New Capacity</b>	<b>RF2f Size</b>	<b>RF2g Size units</b>	<b>RF2h Size New Capacity</b>	<b>RF2i Units New Capacity</b>	<b>RF2j Hours Open</b>	<b>RF2k Traffic</b>	<b>RF2l Insulation</b>	
<b>1</b>	Residential Sized Refrigerator															
<b>2</b>	Residential Sized Freezer															
<b>3</b>	Larger Standard Refrigerator (>30 cf)															
<b>4</b>	Self Contained - Coffin/Horizontal Case															
<b>5</b>	Self Contained - Vertical Case (multi shelf)															
<b>6</b>	Single-Deck display cases - Open single-deck															
<b>7</b>	Single-Deck display cases -															
<b>8</b>	Multi-Deck (vertical) display cases - Open/reach-in															





<b>20</b>	Floating head pressure controllers														
<b>21</b>	Vending machine controllers														
<b>77</b>	Other (specify)														
<b>88</b>	Refused (skip to RXX)														
<b>99</b>	Don't know (99 skip to RXX)														

**FOR EACH TYPE OF EQUIPMENT RECORDED AS INSTALLED IN RF1a OR RF2 WHERE &RF\_TECH EQUALS 1 – 11 or 77 and RF2d >0, ASK RF3 EXCEPT .**

**RF3a.** Did you remove the same amount of refrigeration equipment as you installed through the project, in terms of <&RF2g UNITS> of capacity?

[Yes]	1	[GO TO RF3d]
[No]	2	[GO TO RF3b]
[Refused]	-98	[GO TO RF3d]
[Don't Know]	-97	[GO TO RF3d]

**RF3b.** Did you remove more or less equipment than you installed through the project?

[More]	1	[GO TO RF3c]
[Less]	2	[GO TO RF3c]
[Refused]	-98	[GO TO RF3d]
[Don't Know]	-97	[GO TO RF3d]

**RF3c.** How much more/fewer <&RF2e UNITS> of capacity did you install?

ENTER SIZE	_____	UNITS	_ <b>&amp;RF2e</b> _
Don't know	-97	Don't know	
Refused	-98	Refused	

**RF3d.** What year was the old equipment removed?

2008	1
2009	2
2010	3
2011	4
[Refused]	-98
[Don't Know]	-97

**RF3e** On average, how old was the removed equipment ?

<b>1</b>	Less than 5 years old	1
<b>2</b>	Between 5 and 10 years old	2
<b>3</b>	10 to 20 years old	3
<b>4</b>	More than 20 years old	4
<b>-98</b>	[Refused]	-98

**RF3f.** What percent of the removed &RF\_TECH capacity was disposed of using the following methods?

Never removed equipment	1	[GO TO RF3a FOR NEXT &RF_TECH]
Sent to a landfill	2	[GO TO RF3a FOR NEXT &RF_TECH]
Moved to another location of our firm	3	[GO TO RF3a FOR NEXT &RF_TECH]
Sold or given to another firm or residence for use	4	[GO TO RF3a FOR NEXT &RF_TECH]
Recycled or sold for scrap	5	[GO TO RF3a FOR NEXT &RF_TECH]
Refused	-97	[GO TO RF3a FOR NEXT &RF_TECH]
Don't know	-98	[GO TO RF3a FOR NEXT &RF_TECH]

**RESPONSE GRID FOR RF1 AND RF2**

	<b>&amp;RF_TECH</b>	<b>RF3a Remove same amount Y/N</b>	<b>RF3b More of less removed</b>	<b>RF3c Amount removed</b>	<b>RF3d Year removed</b>	<b>RF3e Age</b>	<b>RF3f Percent not removed</b>	<b>RF3f Percent Landfil l</b>	<b>RF3f Percent Moved</b>	<b>RF3f Percent Sold</b>	<b>RF3f Percent Scrappe d</b>
<b>1</b>	Residential Sized Refrigerator										
<b>2</b>	Residential Sized Freezer										
<b>3</b>	Larger Standard Refrigerator (>30 cf)										
<b>4</b>	Self Contained - Coffin/Horizontal Case										
<b>5</b>	Self Contained - Vertical Case (multi shelf)										
<b>6</b>	Single-Deck display cases - Open single- deck										
<b>7</b>	Single-Deck display cases -										
<b>8</b>	Multi-Deck (vertical) display cases - Open/reach-in										
<b>9</b>	Multi-Deck (vertical) display cases - Glass-door cases										

<b>10</b>	Walk-Ins - Freezer/Low Temp										
<b>11</b>	Walk-Ins - Cooler/Med Temp										
<b>77</b>	Other (specify)										
- <b>98</b>	Refused (skip to RXX)										
- <b>97</b>	Don't know (99 skip to RXX)										

**MOTORS BATTERY**

[IF &MEASURE = MOTOR]

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK MT1a THRU MT1c.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK MT2a.]

[REPEAT MT1a THRU MT1c. FOR EACH &MT\_TECH IN THE TRACKING DATA. ]

**MT1a.** Our records indicate that your organization installed &MT\_NUM of electric motors through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO MT2b]
[Did not install any of that technology]	2	[GO TO NEXT TECHNOLOGY]
[Technology correct, number wrong]	3	[GO TO MT1b]
[Refused]	-98	[GO TO NEXT TECHNOLOGY]
[Don't Know]	-97	[GO TO NEXT TECHNOLOGY]

**MT1b.** What is the correct number of electric motors that you installed through the &PROGRAM?

[ENTER NUMBER]	_____	
[Don't know]	97	[GO TO NEXT TECHNOLOGY]
[Refused]	98	[GO TO NEXT TECHNOLOGY]

**MT1c.** Why did you install a different number of motors?

Have no idea why numbers differ	1
Put some in storage	2
Installed at another facility	3
Funding insufficient to complete full amount	4
Other	77
[Refused]	-98
[Don't know]	-97

[AFTER ALL &M\_TECH IN THE TRACKING DATA ARE VERIFIED, GO TO MT2b]

[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK MT2a]

**MT2a.** How many electric motors did you purchase and install through the program?

[ENTER NUMBER]	_____	
----------------	-------	--

[Don't know]	97	[GO TO NEXT TECHNOLOGY]
[Refused]	98	[GO TO NEXT TECHNOLOGY]

**[FOR EACH HORSEPOWER CATEGORY IN GRID MT1, ASK MT2b –MT2g]**

**MT2b.** How many motors between &LHP and &HHP did you purchase with the assistance of the &PROGRAM?

**[TOTAL SHOULD ADD TO MT1a or MT2a]**

[ENTER NUMBER]	_____
[Don't know]	-97
[Refused]	-98

**MT2c.** Approximately what percentage of the total number of motors that you purchased through the program are between &LHP and &HHP?

[ENTER NUMBER]	_____
[Don't know]	-97
[Refused]	-98

**MT2d.** How many of the motors between &LHP and &HHP that you purchased through the program were used in new construction, that is to operate additional (new) equipment rather than replacing an existing motor.?

[ENTER NUMBER]	_____
[Don't know]	-97
[Refused]	-98

**MT2e.** How many of the motors between &LHP and &HHP that you purchased through the program were put into storage and not installed? Your best approximation is fine.

[ENTER NUMBER]	_____
[Don't know]	-97
[Refused]	-98

**MT2f.** How many of the motors between &LHP and &HHP that you installed through the program were fitted with variable frequency drives? Your best approximation is fine.

[ENTER NUMBER]	_____
[Don't know]	-97
[Refused]	-98

**READ:** In this survey we use the term "NEMA Premium motors" to refer to very high efficiency motors that meet specific performance criteria developed by the National Electrical Manufacturers Association.

**MT2g.** How many of the motors between &LHP and &HHP that you installed through the program were NEMA Premium motors or were characterized as "premium efficiency" motors by your motor vendor?

[ENTER NUMBER]	_____	[GO TO MT3a]
[Don't know]	-97	[GO TO MT3a]
[Refused]	-98	[GO TO MT3a]

**RESPONSE GRID MT1**

	MT HP Category	MT1a Tracking Verified?	MT1b Corrected # Install	MT c Reason for Diff	MT 2a/b Mot Inst	MT 2c % by HP Category	MT2d New Construction	MT2e Put in Storage	MT 2f # w/ VFDs	MT 2g # NEMA Premium
	All									
1	1-5									
2	6-20									
3	21 - 50									
4	51- 100									
5	101 - 200									
6	200 - 500									

**REPLACEMENT/BASELINE EFFICIENCY:**

[FOR EACH MT HP GROUP POPULATED IN MT1 GRID, ASK MT3]

**NOTE: GIVEN THAT THE EPACT 1992 STANDARDS WENT INTO EFFECT IN 1997, WE WILL ASSUME THAT MOTORS REPLACED MET EPACT 1992 STANDARDS UNLESS THEY HAD BEEN REWOUND, IN WHICH CASE WE WILL ASSUME THEY WERE PRE-EPACT STANDARD MOTORS. IF RESPONDENT CANNOT PROVIDE ANSWERS BY HP CATEGORY, ACCEPT ANSWERS FOR ALL MOTORS.**

**MT3a.** How many motors between &LHP and &HHP did you remove and replace through this project?

[ENTER NUMBER]	_____	[GO TO MT3b]
[Don't know]	-97	[GO TO MT3c]
[Refused]	-98	[GO TO MT3c]

**MT3b.** And how many of those motors between &LHP and &HHP had been rewound?

[ENTER NUMBER] <996 FOR ALL OR 0 FOR NONE >	_____	[GO TO MT3c]
[Don't know]	-97	[GO TO MT3c]
[Refused]	-98	[GO TO MT3c]

**MT3c.** What kind of equipment do motors in this horsepower category drive in your facility?

**[PICK LIST OF MOTOR APPLICATIONS – SELECT ALL THAT APPLY]**

HVAC equipment	1
Pump	2
Fan	3
Air Compressor	4
Conveyor belt or other materials handling	5
Production process machinery	6
Other (specify)	77
[Refused]	-98
[Don't Know]	-97

**RESPONSE GRID MT3**

	MT HP Category	MT3a # Motors Replaced	MT3b # Motors Rewound	MT 3c 1 Equipt Driven	MT 3c 2 Equipt Driven	MT 3c 3 Equipt Driven	MT 3c 4 Equipt Driven	MT 3c 5 Equipt Driven	MT 3c 6 Equipt Driven
1	1-5								
2	6-20								
3	21 – 50								
4	51- 100								
5	101 – 200								
6	200 – 500								
7	All motors								

**HOURS OF OPERATION**

**NOTE: FOR MOTORS ATTACHED TO HVAC EQUIPMENT, WE WILL USE FULL LOAD HOURS ESTIMATES IN TECHNICAL RESOURCE MANUALS. THESE QUESTIONS ARE DESIGNED TO PROBE OPERATING HOURS FOR MOTORS THAT OPERATE PRODUCTION EQUIPMENT.**

**IF ANY MT3c1 THROUGH MT3c6 = 2 – 77, ASK MT4 SEQUENCE, ELSE SKIP NEXT TECHNOLOGY.**

**READ:** Now I would like to ask you a few questions about the hours of operation for motors that drive machinery **other than heating, cooling, and ventilation**. This would include industrial process machinery, pumps used for industrial processes or wastewater systems, compressed air systems, and material handling systems.

**MT4a.** In the past month, how many hours per day did this &MT3c equipment typically operate?

[RECORD HOURS]	_____
Refused	-98
Don't Know	-97

<b>MT4b.</b> And how many days per week?[RECORD DAYS]	_____
Refused	-98
Don't Know	-97

**MT4c.** Are there any months during the year when the operating schedule for this equipment differs significantly from what you just described?

Yes	1	[GO TO MT4d]
No	2	[GO TO MT3a FOR NEXT MT3c]
Refused	-98	[GO TO MT3a FOR NEXT MT3c]
Don't know	-97	[GO TO MT3a FOR NEXT MT3c]

<b>MT4d.</b> How many hours per day does the <b>MT3c</b> equipment typically operate during the periods with different operating schedules?[RECORD HOURS]	_____
[Refused]	98
[Don't Know]	97

<b>MT4e.</b> And how many days per week does the equipment typically operate during the periods with different operating schedules?[RECORD DAYS]	_____
[Refused]	98

[Don't Know] 97

<b>MT4f.</b> How many months per year does the equipment run on the alternative schedule?[RECORD DAYS]	_____	MT4a FOR NEXT MT3c
[Refused]	98	MT4a FOR NEXT MT3c
[Don't Know]	97	MT4a FOR NEXT MT3c

**RESPONSE GRID MT4**

	<b>Equipment Category</b>	<b>MT4a Hours per day</b>	<b>MT4b Days per week</b>	<b>MT 4c 1 Months diff sched</b>	<b>MT 4d Hours per day diff sched</b>	<b>MT 4e Days per week diff sched</b>	<b>MT 3f Months per year diff sched</b>
1	Pump						
2	Fan						
3	Air Compressor						
4	Conveyor belt or other materials handling						
5	Production process machinery						
6	Other (specify)						

**OTHER EQUIPMENT BATTERY**

[IF & OTHER = TRUE]

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK OE1a THRU OE1c.

IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]

[REPEAT OE1a THRU OE1c. FOR EACH &OE\_TECH IN THE TRACKING DATA. ]

**OE1a.** Our records indicate that your organization installed &OE\_NUM of &OE\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO OE1a FOR NEXT &OE_TECH]
[Did not install any of that technology]	2	[GO TO OE1a FOR NEXT &OE_TECH]
[Technology correct, number wrong]	3	[GO TO OE1b]

Refused]	-98	[GO TO OE1a FOR NEXT &OE_TECH]
[Don't Know]	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**OE1b.** What is the correct number of &OE\_TECH that you installed through the &PROGRAM?

[ENTER NUMBER]	_____	[GO TO OE1c]
[Don't know]	-97	[GO TO OE1c]
[Refused]	-98	[GO TO OE1c]

**OE1c.** Why did you install a different number of &OE\_TECH? [ACCEPT MULTIPLE ANSWERS]

Have no idea why numbers differ	1	[GO TO OE1a FOR NEXT &OE_TECH]
Put some in storage	2	[GO TO OE1a FOR NEXT &OE_TECH]
Installed at another facility	3	[GO TO OE1a FOR NEXT &OE_TECH]
Funding insufficient to complete full amount	4	[GO TO OE1a FOR NEXT &OE_TECH]
Other	77	[GO TO OE1a FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE1a FOR NEXT &OE_TECH]
Don't know	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**[ONCE CORRECTIONS RECORDED THEN ASK OE2d FOR EACH CORRECTED TECHNOLOGY; ELSE GO TO OE3]**

**[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]**

**OE2a.** Did you install any other kinds of energy efficiency measures through the program?

Yes	1	[GO TO OE2b]
No	2	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]
[Don't Know]	-97	[GO TO NEXT SECTION]

**OE2b.** Which kinds of additional measures did you install through the program?

**OE2c. [FOR EACH MEASURE TYPE MENTIONED.]** Approximately how many &OE\_TECH were purchased using the &SPONSOR &Program funding?

**OE2d.** Approximately what percentage of your facility's total square footage was served by these purchases?

**OE2e.** How many of the &OE\_TECH purchased using the &SPONSOR &PROGRAM funding were used to replace existing &OE\_TECH units?

**RESPONSE GRID FOR OE1 AND OE2**

	OE_TECH	OE1a Tracking Verified?	OE1b Corrected # Install	OE1c Reason for Diff	OE2a/b Untracked Tech Inst	OE2c Untracked # Install	OE2d % Space Served	OE2e # replacing existing construction
1	Specify:							
2	Specify:							
3	Specify:							
4	Specify:							
5	Specify:							
6	Specify:							

**[FOR EACH MEASURE TYPE REPORTED IN OE1 AND OE2 where OE2e > 0, ASK OE3]**

**OE3.** What types of equipment were replaced when installing &OE\_TECH

None/New construction	1	[GO TO OE3 FOR NEXT &OE_TECH]
SPECIFY	_____	[GO TO OE3a]
Don't know	-97	[GO TO OE3 FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE3 FOR NEXT &OE_TECH]

**[FOR EACH EQUIPMENT TYPE REPLACED, ASK OE3a]**

**OE3a.** Did you remove the same amount of &OE\_TECH as you installed through the project?

Yes	1	[GO TO OE3d]
No	2	[GO TO OE3b]
Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3b.** Did you remove more or less &OE\_TECH than you installed through the project?

More	1	[GO TO OE3c]
Fewer	2	[GO TO OE3c]
[Refused]	-98	[GO TO OE3d]

[Don't Know]	-97	[GO TO OE3d]
--------------	-----	--------------

**OE3c.** How much more/less &OE\_Tech did you install?

[ENTER NUMBER]	_____	[GO TO OE3d]
Don't know	-97	[OE3d]
Refused	-98	[OE3d]

**OE3d.** What was the condition of the removed equipment?

Inoperable (broken)	<b>1</b>
Poor condition	<b>2</b>
Fair condition	<b>3</b>
Good condition	<b>4</b>
Refused	<b>-98</b>
Don't know	<b>-97</b>

**OE3e.** How old was the removed equipment?

<b>1</b>	Less than 5 years old
<b>2</b>	Between 5 and 10 years old
<b>3</b>	10 to 20 years old
<b>4</b>	More than 20 years old
<b>-98</b>	Refused
<b>-97</b>	Don't know

**RESPONSE GRID OE3**

	<b>OE3</b>	<b>OE3a Remove same amount</b>	<b>OE3b Remove more or less</b>	<b>OE3c Amount removed</b>	<b>OE3d Condition removed equip</b>	<b>OE3d Age removed equip</b>
1	Specify:					
2	Specify:					
3	Specify:					
4	Specify:					
5	Specify:					
6	Specify:					

**DIRECT ATTRIBUTION**

**Now, I'd like to ask you a few questions about the effect that the &PROGRAM had on your organization's decision to undertake the project we have been discussing.**

**OVERALL INFLUENCE**

[FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DA0 THROUGH DA ]

**DA0.** Without the &SPONSOR &PROGRM, would you say the likelihood of [installing / performing] the &MEASURE was... [READ LIST]

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

## TIMING

**ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

AT1. I'd like to know about the effect, if any, that &PROGRAM had on the timing of your project. Without the support from the &PROGRAM, would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all in the absence of the program?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2
<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF DAT1a ≠ LATER, SKIP TO AT2a]**

**AT1b.** Approximately how many months later?  
[Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	DAT1b_ &MEASURE
[RECORD # OF MONTHS]	_____
[Don't know]	-97

## EFFICIENCY

**This section applies for any measure where there is a standard efficiency option. For example, variable frequency drives do not have a "standard efficiency" option, so you should skip this section for VFDs even though installing a VFD will result in energy savings. Heat recovery, lighting controls, and steam trap replacement also fall into this category. Circle "5" not applicable for the measure in the table below and skip to DAT3.**

**ASK EFFICIENCY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

AE1. Without the &PROGRAM would you have installed &MEASURE of the exact same energy efficiency as t the equipment you installed you installed, or would you have installed lower efficiency, or higher efficiency equipent?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same</b>	1	1	1	1
<b>Lower</b>	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]
<b>Higher</b>	3	3	3	3
[Not applicable]	-88	-88	-88	-88
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AE1a.** Why do you say that? [RECORD VERBATIM]: \_\_\_\_\_  
**[IF AE1 ≠ LOWER, SKIP TO AQ1.]**

**AE2.** Without the support of the program , would you have installed <measure> that was:

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Standard efficiency or according to code</b>	1	1	1	1
<b>Slightly higher than standard efficiency</b>	2	2	2	2
<b>Between standard efficiency and the efficiency that was installed</b>	3	3	3	3
<b>Slightly lower than the high efficiency that was installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

## QUANTITY

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**Finally, I'd like to know about the effect, if any, that your participation in the &PROGRAM had on the scale of the project you completed with the support of the program.**

**AQ1.** Without the support from &SPONSOR &PROGRAM would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a
More or larger	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AQ3\_0. Why do you say that? [RECORD VERBATIM] \_\_\_\_\_**  
**[IF AQ3 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

Calculate percent:  $\text{abs}([( \text{amount installed} ) / ( \text{amount would have installed} )] - 100\%)$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Organization installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Organization installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Organization installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Organization installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

## EFFECT OF OTHER PROGRAMS

**OP1** In completing the project[s] supported by [NAME OF SEP PA], did you make use of financial or technical support programs offered by other sponsors, such as, local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers?

[YES]	1	[ASK OP2]
[NO]	2	[GO TO BC1]
[DON'T KNOW]	-97	[GO TO BC1]
[REFUSED]	-98	[GO TO BC1]

**OP2.** Which organization[s] sponsored the [those] program[s]?

**[RECORD RESPONSE]** \_\_\_\_\_

**IF ONLY ORGANIZATIONS MENTIONED ARE MANUFACTURERS, DISTRIBUTORS, CONTRACTORS, OR ENGINEERS, SKIP TO SKIP TO BC1.**

**OP3.** What kinds of services did you receive from those programs in support of the project?

Information to guide project planning and equipment selection	1	[GO TO OP5]
Technical training on the design and installation of the project	2	[GO TO OP5]
Technical assistance such as feasibility assessments, financial analyses, and design support	3	[GO TO OP5]
Identification of qualified contractors	4	[GO TO OP5]
Financial incentives: grants, rebates, others that do not need to be repaid	5	[ASK OP4]
Financial incentives: reduced interest loans, loan guarantees, leases, etc.	6	[ASK OP4]
Support for negotiation and contracting with vendors	7	[GO TO OP5]
Inspections of completed work for quality control	8	[GO TO OP5]
Other (Specify) _____	9	[GO TO OP5]
Don't know	-97	[GO TO OP5]

Refused	-98	[GO TO OP5]
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**OP4** What percent of the total funding for the energy efficiency project we have been discussing did you receive from the programs other than &PROGRAM? Your best estimate will be fine?

ENTER PERCENT		[GO TO OP5]
[DON'T KNOW]	97	[GO TO OP4a]
[REFUSED]	98	[GO TO OP4a]

**OP4a** Would you say that the amount of the incentive[s] you received from the other programs you have mentioned was much larger, somewhat larger, much smaller, somewhat smaller, or about the same as the amount you received from &PROGRAM?

[MUCH LARGER]	1	[GO TO OP5]
[SOMEWHAT LARGER]	2	[GO TO OP5]
[MUCH SMALLER]	3	[GO TO OP5]
[SOMEWHAT SMALLER]	4	[GO TO OP5]
[ABOUT THE SAME]	5	[GO TO OP5]
[DON'T KNOW]	97	[GO TO OP5]
[REFUSED]	98	[GO TO OP5]

**READ:** We would like to understand how much the other programs you used affected your motivation and ability to carry out the energy efficiency project we have been discussing, beyond what you would most likely have done using the resources from the &SPONSOR &PROGRAM alone.

**OP5.** If you had been able to access *only* the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used, how likely is it that you would have carried out the &MEASURE? Would you say the likelihood of undertaking that measure was ... [READ LIST]

RESPONSE	OP5_MID1	OP5_MID2	OP5_MID3	OP5_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**OP6.** If you had been able to access **only** the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used , would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	OP6_MID1	OP6_MID2	OP6_MID3	OP6_MID4
Same amount	1	1	1	1
Less or smaller	2 Read OP7	2 Read OP7	2 Read OP7	2 Read OP7
More or larger	3 Read OP7	3 Read OP7	3 Read OP7	3 Read OP7
None at all	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF OP6 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**OP7.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

RESPONSE	OP7_MID1	OP7_MID2	OP7_MID3	OP7_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OP8.** Did you first become aware of the opportunities to reduce energy use in &STR\_ADDRESS through &SPONSOR &PROGRAM, through the other energy efficiency programs in which you participated, or through some other source?

Through the SEP PA	1	<a href="#">[GO TO OP9]</a>
Through other energy efficiency program [s]	2	<a href="#">[GO TO OP9]</a>
Through another source	3	<a href="#">[GO TO OP9]</a>
[DON'T KNOW]	-97	<a href="#">[GO TO OP9]</a>
[REFUSED]	-98	<a href="#">[GO TO OP9]</a>

**OP9** In your opinion, was the &SPONSOR's &PROGRAM more important in encouraging and enabling you [your organization] to carry out the energy efficiency project we have been discussing; was the other program more important; or were they both equally important?

SEP PA	1
Other program	2
Both equally important	3
[Don't know]	-97
[Refused]	-98

**OP10** Why do you say that?

[\[RECORD VERBATIM\]](#) \_\_\_\_\_

## BUILDING CHARACTERISTICS

Now I'd like to ask you some questions about you facility.

**BC1.** How many square feet is your facility in which this project was installed?

	Square feet <a href="#">[GO TO BC3a]</a>	
-97	Refused	-98
-98	Don't know	-97

**BC2.** Would you say that the heated or cooled floor area is ...?

Less than 1,500 sq ft	1
Between 1,500 - 5,000 sq ft	2
Between 5,000 - 10,000 sq ft	3
Between 10,000 - 25,000 sq ft	4
Between 25,000 - 50,000 sq ft	5
Between 50,000 - 75,000 sq ft	6
Between 75,000 - 100,000 sq ft	7
Over 100,000 sq ft	8
Refused	-98
Don't know	-97

**BC3.** Is your space heated using electricity or gas?

Electricity	1
Gas	2
Propane	3
Both electricity and gas	4
Neither	5
OPEN\Other-RECORD	6
Refused	-98
Don't know	-97

**BC4.** In what year was your facility built?

Year	<a href="#">[GO TO BC6]</a>	<b>&amp;YRB</b>
Refused		-98
Don't know		-97

**BC5.** If don't know, would you say it was...

After 2000	1
In the 1990's	2
1980s	3
1970s	4
1960s	5
1950	6
Before 1950	7
Refused	-98
Don't know	-97

## FIRMOGRAPHICS

**FM1.** What is the main business ACTIVITY at this facility?

Office	1
Retail (non-food)	2
College/University	3
School	4
Grocery Store	5
Restaurant	6
Health Care (other than Hospital)	7
Hospital	8
Hotel or Motel	9
Warehouse	10
Construction	11
Community Service/Church/Temple/Municipality	12
Industrial Process/ Manufacturing/ Assembly	13
Condo Assoc./Apartment Mgr.	14
Greenhouse	15
Laundry/Cleaners	16
OPEN\Other - SPECIFY	17
Refused	-98
Don't Know	-97

**FM5.** How many people are currently working at the facility, including both full and part time? (IF DON'T KNOW ASK FOR BEST GUESS)

Number of people	&NUM
Refused	-98
Don't know	-87

**ON SITE RECRUITING  
TO SCHEDULE ONSITE VERIFICATION**

As we've discussed, the &Program is an important component of the SEP's ongoing efforts to save energy and reduce emissions affecting climate change. In order to improve this program's performance, DOE would like to make an accurate measurement of the energy savings associated with energy efficiency equipment installed by collecting and analyzing information from selected facilities.

Your input to this research is extremely important.

**COMMENT.** Our verification technician will need to meet a facilities representative of your company. This should be either the manager of the facility or part of the facilities staff.

**OS\_NAME1.** May I please have the name of the person who our technician can call to set up an appointment time?

<b>&amp;OS_NAME1</b>	NAME OF PRIMARY CONTACT	OS_PHONE1
-98	Refused	T&T
-97	Don't know	T&T

**OS\_PHONE1.** May I also have the best phone number for the technician to reach this person?

<b>&amp;OS_PHONE1</b>	PHONE FOR PRIMARY CONTACT	OTHER
-98	Refused	T&T
-97	Don't know	T&T

**OTHER.** Is there another person that the technician might speak with at your company, if this primary person is not available?

<b>&amp;OTHER</b>	Get name	OS_NAME2
-98	Refused	T&T
-97	Don't know	T&T

**OS\_PHONE2.** May I also have the best phone number for the technician to reach them?

<b>&amp;OS_PHONE2</b>	Get phone number	VERIFY
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

**VERIFY. For verification purposes only, may I please have your name?**

	Get name	OS_REC
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

**TO SCHEDULE INSTALLATION OF LIGHTING LOGGERS**

**If CFL = 1 OR T-8 = 1 ASK LIGHTING LOGGER BATTERY**

In order to improve this program's performance, &SPONSOR would also like to make an accurate measurement of the energy savings associated with fluorescent lighting by collecting and analyzing information from selected customers.

If you agree to participate, & INTERVIEWER ORGANIZATION, on behalf of &SPONSOR, will come to your business to install lighting logger devices on your lights to record when each light is in use. The lighting loggers would then be installed in an unobtrusive place and would be removed by us at the end of the research project.

We expect the site visit to take about two hours. We'll come back and remove the logger devices after about one month. Note, the electric use data will be used strictly for the study of the &Program and will not affect your electric service at all. You will need to sign a brief participation agreement.

**OS\_REC. Are you interested in participating in this project?**

<b>1</b>	Yes	Comment
<b>2</b>	No	T&T
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

<b>END.</b>	Those are all the questions I have for today. Thank you for your time and help in this important study.	
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## L.9. CT-1A-NR: RETROFITS: RECIPIENT OF TA, WORKSHOPS, TRAINING FOR NON-RESIDENTIAL SECTOR

**OMB Control No. 1910-5170**

*Note that this survey instrument will be used for programs where the program database includes participant information but does not include information on the specific projects completed. This includes sample points that fall under the following sub-categories: "Generalized Workshop or Demonstration," "Targeted Training or Certification," or "Technical Assistance" under two BPAC categories: (1) Building Retrofits and (2) Loans and Grants. Note that a similar survey will be created for the sub-categories that fall within the Renewable Energy*

### DATABASE VARIABLES

&INTERVIEWER NAME....name of the caller  
 &CONTACT .....contact name from program database  
 &SPONSOR.....organization that sponsored the effort being researched  
 &PROGRAM .....program name  
 &DATE .....dates of workshop, demonstration, training funded by SEP  
 &APPOINT .....date/time to call back  
 &NAME .....person to call back  
 &PHONE.....extension or phone number to call back

&WORKSHOP/DEMONSTRATION/TRAINING.....Name of workshop, demonstration, or training  
 & TECHNICAL ASSISTANCE.....Name of technical assistance

&BPAC.....Will indicate the specific-BPAC for sample

NOTE THAT OTHER VARIABLES ARE SHOWN IN THE DOCUMENT AS THEY ARE CREATED

### INTRODUCTION AND FINDING CORRECT RESPONDENT

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from & **INTERVIEWER ORGANIZATION**. May I please speak with &CONTACT, [IF CONTACT NAME AVAILABLE]?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how you used the information provided through the [&WORKSHOP/TRAINING/DEMONSTRATION; &TECHNICAL ASSISTANCE].

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]

[Yes, let me transfer you to_____]	4	[GO TO INTRO3:s]
[No, that is the wrong person]	5	[GO TO INITIAL]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't Know]	97	[GO TO APPOINT]
[Refused]	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO.** On &DATE, you [attended a &WORKSHOP/TRAINING/DEMONSTRATION]/[received &TECHNICAL ASSISTANCE] offered by &SPONSOR. In an effort to determine what actions you may have taken as a result of participating, we ask that you complete this brief survey. Your input will help &SPONSOR understand the effects of their past efforts. The survey should take no more than 70 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

**SCREENER**

**S1.** Do you recall [attending the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[receiving &TECHNICAL ASSISTANCE] on &DATE?

[Yes]	1	[GO TO RI1]
[No]	2	[THANK AND TERMINATE]
[Don't know]	98	[THANK AND TERMINATE]
[Refused]	99	[THANK AND TERMINATE]

#### RESPONDENT INFO: ROLE IN THE PROJECT

**RI1.** I'd like to start getting a little information about you. What is your job title?  
**[RECORD JOB TITLE]** \_\_\_\_\_

**AC1.** Which of the following best describes where you intended to apply the information you received? **[READ CATEGORIES]**

**NOTE: IF THE ANSWER IS "SOMEWHERE ELSE", SPECIFY THEN PROBE FOR WHICH OF THE FIVE CLASSIFICATIONS BEST DESCRIBES THEM.**

At my home	1	[GO TO ALTERNATIVE RES SURVEY/TERMINATE]
At the facility(ies) my business occupies	2	[GO TO NEXT Q]
At the facility(ies) my business manages (e.g. Property managers)	3	[GO TO NEXT Q]
In facilities occupied or managed by customers to whom I provide services (e.g. Architects, engineering firms, contractors, code inspectors)	4	[TERMINATE]
In the classroom where I teach	5	[TERMINATE]
Somewhere else: Specify_____	6	[GO TO NEXT Q]

#### RESPONDENT TYPE DEFINED FOR DISPOSITION

**[CLASSIFY AC1=1 AS REU (RESIDENTIAL END-USE CUSTOMER)]**

**[CLASSIFY AC1=2, 3 AS CEU (COMMERCIAL END-USE CUSTOMER)]**

**[CLASSIFY AC1= 4 AS MA (MARKET ACTOR)]**

**[CLASSIFY AC1=5 AS TEA (TEACHER)]**

**[CLASSIFY AC1=6 AS DEFAULT ASSUMED RESPONDENTS BASED ON PROGRAM TARGET]**

## INITIAL INVENTORY

**VN1.** Since &DATE, have you installed any equipment or made any behavioral changes to your facility or facilities in any of the following areas? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

a. Lighting	1	[GO TO NEXT Q]
b. Cooling	2	[GO TO NEXT Q]
c. Heating	3	[GO TO NEXT Q]
d. Refrigeration	4	[GO TO NEXT Q]
e. Motors/Drives	5	[GO TO NEXT Q]
f. Any other changes?	7	[GO TO NEXT Q]

## EFFECT OF OTHER PROGRAMS

**OP1** In completing the project[s] that you just discussed, did you make use of financial support such as incentives or loans offered by sponsors, such as, local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers.

[YES]	1	[ASK OP2]
[NO]	2	[GO TO OP4]
[DON'T KNOW]	-97	[GO TO OP4]
[REFUSED]	-98	[GO TO OP4]

**OP2.** Which organization[s] sponsored the [those] program[s]?

State/ State Energy Office	1	[GOTO OP3]
Other, Specify	2	[GOTO OP3]
	[RECORD RESPONSE]	
[DON'T KNOW]	-97	[GOTO OP3]
[REFUSED]	-98	[GOTO OP3]

**OP3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] inform you about the assistance and support that you received?

[Yes]	1	[GO TO NEXT SECTION]
[No]	2	[GO TO OP4]

[Don't know]	98	[GO TO OP4]
[Refused]	99	[GO TO OP4]

**OP4.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] provide you with any options for assistance and support?

[Yes]	1	[GO TO NEXT SECTION]
[No]	2	[GO TO NEXT SECTION]
[Don't know]	98	[GO TO NEXT SECTION]
[Refused]	99	[GO TO NEXT SECTION]

## DETERMINE APPROPRIATE END-USE BATTERIES

### DETERMINED BASED ON VN1.

[&LIGHTING]  
 [&COOLING]  
 [&HEATING]  
 [&REFRIGERATION]  
 [&MOTORS]  
 [&OTHER]

ASK IF MULTIPLE MEASURES

**MM1.** You indicated that you made changes across a number of areas. Which ones would you say resulted in the most energy savings?

**NOTE: DEFAULT TO HVAC, LIGHTING ACTION, INSERT BY LEVEL OF ENERGY SAVINGS**

	Rank 1	Rank2	Rank 3	DK/REF
Lighting				
Cooling				
Heating				
Refrigeration				
Motors				
Others will be added based on training:				
Change_a (TBD)				
Change_b (TBD)				

### REASSIGN TO MAX 2

[&LIGHTING]  
 [&COOLING]  
 [&HEATING]  
 [&REFRIGERATION]  
 [&MOTORS]  
 [&OTHER]

*Note that all end-use specific sections use questions from the building retrofit survey effort.*

**LIGHTING EQUIPMENT**

**[IF &LIGHTING = TRUE]**

**In the next section we'll be discussing changes that you made to lighting systems.**

**LI0.** You stated that you made a change to your lighting system. Which of the following best describes the specific change(s) you made? [READ LIST. LIST WILL BE SHORTENED FOR SPECIFIC PROGRAM]

	<b>Fixtures</b>
1	High performance T8 (1" diameter bulbs)
2	T8 fluorescent fixtures (1" diameter bulbs)
3	T-5 Fixtures
4	HID (High Density Discharge) Fixtures, Pulse Start
5	High bay fluorescent lighting
6	Compact Fluorescent, Screw-in Modular
7	Compact Fluorescent, Hardwire
8	Exit Signs, Compact Fluorescent
9	Exit Signs, LED
10	LED Overhead Fixtures
11	T12 fluorescent fixtures (1.5" diameter bulbs)
77	Other Fixtures (Specify_____)
	<b>Controls</b>
12	Timeclock controls
13	Occupancy sensors
14	Bypass/Delay Timers
15	Photocell, light sensors
16	Daylighting control strategies
78	Other controls (Specify_____)
17-35	[LIST SPECIFIC Lighting Behaviors/Behavioral changes]
98	[Don't know]
99	[Refused]

**RESPONSE = &LI\_TECH**

**[FOR ANY LI0=1-16, Equipment Installed]**

**[FOR EACH FIXTURE TYPE REPORTED]**

**LI1.** How many &LI\_TECH did you install?

ENTER NUMBER	_____	[GO TO LI2]
[Don't know]	9997	[GO TO LI2]

**[FOR EACH FIXTURE TYPE REPORTED]**

**LI2.** What types of fixtures, if any, were replaced when installing &LI\_TECH [ALLOW MULTIPLE RESPONSES.]

Did not replace anything - new equipment	0
High performance T8 (1" diameter bulbs)	1

T8 fluorescent fixtures (1" diameter bulbs)	2
T10 fluorescent fixtures	3
T12 Fixtures (1.5" diameter bulbs)	4
HID (High Density Discharge) Fixtures, Compact	5
Compact Fluorescent, Screw-in Modular	6
Compact Fluorescent, Hardwire	7
Incandescent	8
Exit Signs, Compact Fluorescent	9
Exit Signs, LED	10
Halogen	11
Electronic Ballast	13
Magnetic Ballast	14
Other Fluorescent	19
Fat/Thick Tubes	20
Skinny/Thin Tubes	21
T5 Fixtures (5/8" diameter)	22
High pressure sodium	23
Metal Halide	24
Mercury Vapor	25
Other (Specify _____)	77
Don't know	-97
Refused	-98

**[FOR EACH FIXTURE TYPE REPLACED, ASK LI3a]**

**LI3a.** Did you remove the same number of old fixtures as you installed through the project?

[Yes]	1	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[No]	2	[GO TO LI3b]
[Don't know]	-97	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[Refused]	-98	[GO TO LI3a FOR NEXT FIXTURE TYPE]

**LI3b.** Did you remove fewer or more fixtures than you installed through the project?

[More]	1	[GO TO LI3c]
[Fewer]	2	[GO TO LI3c]
[Don't know]	97	[GO TO LI3a FOR NEXT FIXTURE TYPE]
[Refused]	98	[GO TO LI3a FOR NEXT FIXTURE TYPE]

**LI3c.** How many fewer/more fixtures did you install?

ENTER NUMBER	_____	[GO TO LI3d]
[Don't know]	9997	[GO TO LI3d]

**LI3d.** On average, approximately how old were the fixtures that were removed and replaced with &LI\_TECH? Would you say...

RECORD YEARS OLD	_____	[GO TO LI3a FOR NEXT FIXTURE TYPE]
Don't know	97	[GO TO LI3a FOR NEXT FIXTURE TYPE]

Refused	98	[GO TO LI3a FOR NEXT FIXTURE TYPE]
---------	----	------------------------------------

**RESPONSE GRID FOR LI EQUIPMENT**

	<b>&amp;LI_TECH</b>	<b>LI1. Number</b>	<b>LI2. Equipment replaced</b>	<b>LI3a Replaced same #</b>	<b>LI3b Replaced fewer/more</b>	<b>LI3c # Difference</b>	<b>LI3d Age of Equip</b>
	<b>Lamps &amp; Fixtures</b>						
0	No fixtures removed: new construction or addition						
1	High performance T8 (1" diameter bulbs)						
2	T8 fluorescent fixtures (1" diameter bulbs)						
3	T-5 Fixtures						
4	HID (High Density Discharge) Fixtures, Pulse Start						
5	High bay fluorescent lighting						
6	Compact Fluorescent, Screw-in Modular						
7	Compact Fluorescent, Hardwire						
8	Exit Signs, Compact Fluorescent						
9	Exit Signs, LED						
10	LED Overhead Fixtures						
11	T12 fluorescent fixtures (1.5" diameter bulbs)						
77	Other fixture, Specify _____						

**LIGHTING --CONTROLS**

**[FOR EACH CONTROL TYPE REPORTED IN LI0 ASK]**

**LI5a.** What is the total wattage controlled by &LI\_TECH?

**LI5b.** Before installing the &LI\_TECH, how many hours per day did the lighting controlled by the &LI\_TECH operate?

**LI5c.** What is the percent reduction in operating hours for the lighting controlled by &LI\_TECH?

**RESPONSE GRID FOR LI CONTROLS**

	<b>Controls</b>	<b>LI5a total wattage controlled</b>	<b>LI5b hours/day before controls</b>	<b>LI5c % reduction in operating hours</b>
1 2	Timeclock controls			
1 3	Occupancy sensors			

1 4	Bypass/Delay Timers			
1 5	Photocell, light sensors			
1 6	Daylighting control strategies			
7 8	Other Controls			

### LIGHTING COSTS/PART OF ATTRIBUTION FOR INSTALLATIONS

**[ASK IF OP1=1]**

**ATR1a.** For your lighting projects, what percentage of the total costs of the project were covered by the financial support that you received?

	<b>ATR1</b>
<b>Measure type</b>	<b>% of Total</b>
<b>a. Lighting</b>	
<b>[Don't know]</b>	
<b>[Refused]</b>	

### LIGHTING OPERATIONS AND MAINTENANCE CHANGES

**LOP1.** Did you make any changes to the operation and maintenance of your lighting system?

Yes	1	[GO TO LOP2]
No	2	[GO TO NEXT SECTION]
Don't know	97	[GO TO NEXT SECTION]
Refused	98	[GO TO NEXT SECTION]

**LI\_OMCHANGE IF LOP1=1**

**LOP2.** What changes did you make? **[OPEN END]**

OPEN END (Specify)	1	[GO TO COP3]
Don't know	97	[GO TO COP3]
Refused	98	[GO TO COP3]

### LIGHTING -ALL CHANGES

**You stated that you [read in &LI\_TECH or "Made a change to your operation and maintenance"**

**[FOR EACH CHANGE]**

**LI4.** Do you remember when you made this change?

MONTH	_____	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]
-------	-------	--

YEAR	_____	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	98	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]
[Refused]	99	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]

**[FOR EACH CHANGE]**

**LI4a.** Thinking about the changes that you made. How much total space did this effect?

ENTER SQUARE FEET	_____	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	-9997	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]
[Refused]	-9998	[GO TO NEXT &LI_TECH/OMCHANGE THEN NEXT Q]

**[ASK FOR EACH CHANGE]**

**LI4b – LI4l.** What percent of the space served by the &LI\_TECH/OMCHANGE falls into each of the following categories?

LI4b	Office/ Professional
LI4c	Warehouse
LI4d	Food sales
LI4e	Health Care
LI4f	Public Assembly
LI4g	Food Service
LI4h	Hotel/Motel/Dorm
LI4i	Retail
LI4j	Service (excluding food)
LI4k	Education
LI4l	Other

[PROGRAMMER: PROGRAM SHOULD VERIFY THAT PERCENTS SUM TO 100%]

*\*Note that we will get hours of operation indirectly from the space use question. We will use secondary research (perhaps our on-sites) to tell us the average wattage of each technology type in each space type.*

RESPONSE GRID FOR LI4

	<b>&amp;LI_TECH</b>	<b>LI4. When ?</b>	<b>LI4a Sq Ft Lit</b>	<b>LI4b % office /profe ssiona l</b>	<b>LI4c % wareho use</b>	<b>LI4d % food sales</b>	<b>LI4e % heal th care</b>	<b>LI4f % public assemb ly</b>	<b>LI4g % food service</b>	<b>LI4h % hotel/ motel/ dorm</b>	<b>LI4i % retail</b>	<b>LI4j % non- food service</b>	<b>LI4k % educati on</b>	<b>LI4l % othe r</b>
	<b>Lamps &amp; Fixtures</b>													
1	High performance T8 (1" diameter bulbs)													
2	T8 fluorescent fixtures (1" diameter bulbs)													
3	T-5 Fixtures													
4	HID (High Density Discharge) Fixtures, Pulse Start													
5	High bay fluorescent lighting													
6	Compact Fluorescent, Screw-in Modular													
7	Compact Fluorescent, Hardwire													
8	Exit Signs, Compact Fluorescent													
9	Exit Signs, LED													
10	LED Overhead Fixtures													
11	T12 fluorescent fixtures													
77	Other fixture (Specify)													
	OM CHANGE													

**COOLING EQUIPMENT BATTERY**

**[IF &COOLING = TRUE]**

**Now we would like to discuss changes that you made to your cooling systems.**

**CL-N1.** You stated that you made a change to your cooling system. Which of the following best describes the specific change(s) you made? [READ LIST. LIST WILL BE SHORTENED FOR SPECIFIC PROGRAM]

**[ALLOW MULTIPLE ANSWERS]**

None	0	<b>[GO TO NEXT SECTION]</b>
Split system	1	[GO TO CL-N2]
Packaged system	2	[GO TO CL-N2]
Packaged Terminal AC or Heat pump	3	[GO TO CL-N2]
Evaporative cooler	4	[GO TO CL-N2]
Water chiller / Cooling tower	5	[GO TO CL-N2]
Individual AC or Heat pump units	6	[GO TO CL-N2]
Window / Wall units	7	[GO TO CL-N2]
[Other (Specify_____)]	77	[GO TO CL-N2]
[Don't Know]	-97	<b>[ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO KNOWS. THEN NEXT SECTION]</b>
[Refused]	-98	<b>[GO TO NEXT SECTION]</b>

**CL-N2.** How many units of &C\_TECH did you install?

RECORD NUMBER		[GO TO CL-N3]
Don't know	97	[GO TO CL-N3]
Refused	98	[GO TO CL-N3]

**CL-N3.** What is the total capacity of the units you installed?

RECORD CAPACITY NUMBER	_____	[GO TO CL-N4]
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	_____	[GO TO CL-N4]

Don't know	97	[GO TO CL-N4]
Refused	98	[GO TO CL-N4]

<b>CL-N4.</b> What was the efficiency rating of the &CTECH_EFF units that you installed through &PROGRAM? <b>[RECORD FOR ALL UNITS INSTALLED THROUGH &amp;PROGRAM.]</b> RECORD EFFICIENCY NUMBER		[GO TO NEXT CL-N1]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT CL-N1]
Don't know	-97	[GO TO NEXT CL-N1]
Refused	-98	[GO TO NEXT CL-N1]

## RESPONSE GRID FOR COOLING EQUIPMENT

	ITEM CL-N1	CL-N2 Units	CL-N3 Capacity	CL-N4 Efficiency
<b>1</b>	<b>Split system</b> (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)			
<b>2</b>	<b>Packaged systems</b> (one component; rooftop units)			
<b>3</b>	<b>Package Terminal A/C or Heat Pump</b> (e.g., Hotel/Motel units)			
<b>4</b>	<b>Evaporative coolers</b> (swamp coolers)			
<b>6</b>	<b>Water Chiller/Cooling Towers</b> (Central plant)			
<b>6</b>	<b>Individual A/C or Heat Pump Units</b> (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business)			
<b>7</b>	<b>Window/Wall Units</b>			
<b>77</b>	Other (Specify)			

[ASK CL7a AND CL7b FOR EACH MEASURE IDENTIFIED IN CL-N1]

**CL7a.** Are the operating hours for the &C\_TECH equipment independent of the weather? For example, is the equipment used for process cooling, a data center, or something else that requires it to run even when it is cool outside?

Yes	1	[GO TO CL7b]
No	2	[GO TO CL8a]
[Don't know]	-97	[GO TO CL7b]
[Refused]	-98	[GO TO CL7b]

**CL7b.** How many hours per year does the equipment operate?

RECORD NUMBER	_____	[GO TO CL8a]
Don't know	-97	[GO TO CL8a]
Refused	-98	[GO TO CL8a]

**ASK CL8a THROUGH CL8f FOR EACH MEASURE IDENTIFIED IN CL-N1]**

**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new cooling equipment.**

**CL8a.** What types of cooling equipment, if any, were replaced when installing the new &C\_TECH? **[SELECT ALL THAT APPLY]**

<b>SELECT EQUIPMENT TYPE [RECORD AS &amp;C_TECH_REM]</b>	
<b>No A/C Removed</b>	<b>0</b>
<b>Split system</b> (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)	<b>1</b>
<b>Packaged systems</b> (one component; rooftop units)	<b>2</b>
<b>Package Terminal A/C or Heat Pump</b> (e.g., Hotel/Motel units)	<b>3</b>
<b>Evaporative coolers</b> (swamp coolers)	<b>4</b>
<b>Water Chiller/Cooling Towers</b> (Central plant)	<b>5</b>
<b>Individual A/C or Heat Pump Units</b> (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business)	<b>6</b>
<b>Window/Wall Units</b>	<b>7</b>
Other (Specify)	<b>77</b>

**CL8b.** How many units were removed?

RECORD NUMBER	_____
Don't know	-97
Refused	-98

**CL8c.** What was the total capacity of the units you removed?

RECORD CAPACITY NUMBER	
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	
[Don't know]	-97
[Refused]	-98

**CL8d.** Generally, how would you describe the condition of &C\_TECH\_REM that was removed and replaced? Was it...

Inoperable (broken)	1
Poor condition	2
Fair condition	3
Good condition	4
[Don't know]	-97
[Refused]	-98

**CL8e.** What was the efficiency rating of the removed &C\_TECH\_REM?

RECORD EFFICIENCY NUMBER		<a href="#">[GO TO NEXT CL8a]</a>
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		<a href="#">[GO TO NEXT CL8a]</a>
[Don't know]	-97	<a href="#">[GO TO CL8f]</a>
[Refused]	-98	<a href="#">[GO TO CL8f]</a>

**CL8f.** On average, how old was the &C\_TECH\_REM that was removed and replaced? Would you say...

RECORD NUMBER OF YEARS	_____	<a href="#">[GO TO NEXT CL8a]</a>
[Don't know]	97	<a href="#">[GO TO NEXT CL8a]</a>
[Refused]	98	<a href="#">[GO TO NEXT CL8a]</a>

## RESPONSE GRID FOR COOLING REPLACED SYSTEM

		Number	Capacity	Condition	Efficiency	Age
<b>0</b>	<b>No A/C Removed</b>					
<b>1</b>	<b>Split system</b> (two components; compressor is separate from the supply air fan, air conditioner, or heat pump)					
<b>2</b>	<b>Packaged systems</b> (one component; rooftop units)					
<b>3</b>	<b>Package Terminal A/C or Heat Pump</b> (e.g., Hotel/Motel units)					
<b>4</b>	<b>Evaporative coolers</b> (swamp coolers)					
<b>5</b>	<b>Water Chiller/Cooling Towers</b> (Central plant)					
<b>6</b>	<b>Individual A/C or Heat Pump Units</b> (e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business)					
<b>7</b>	<b>Window/Wall Units</b>					
<b>77</b>	Other (Specify)					

## COOLING CONTROLS

**CL9a.** Did you install any cooling controls or variable speed drives? .



Yes	1	<a href="#">[GO TO CL9b]</a>
No	2	<a href="#">[GO TO NEXT SECTION]</a>
Don't know	97	<a href="#">[GO TO NEXT SECTION]</a>
Refused	98	<a href="#">[GO TO NEXT SECTION]</a>

**CL9b.** What kinds of controls did you install? **[SELECT ALL THAT APPLY]**

Adjustable Speed Drives	1	<a href="#">[GO TO CL9c]</a>
Energy Management System	2	<a href="#">[GO TO CL9c]</a>
HVAC Controls: Manual thermostat	3	<a href="#">[GO TO CL9c]</a>
HVAC Controls: Bypass Timer	4	<a href="#">[GO TO CL9c]</a>
HVAC Controls: Time Clock	5	<a href="#">[GO TO CL9c]</a>
HVAC Controls: Set-Back Programmable Thermostat	6	<a href="#">[GO TO CL9c]</a>
CO2 Sensors/Demand Control Ventilation	7	<a href="#">[GO TO CL9c]</a>
Economizers	8	<a href="#">[GO TO CL9c]</a>
Other (Specify)	77	<a href="#">[GO TO CL9c]</a>
Don't know	97	<a href="#">[GO TO CL9c]</a>
Refused	98	<a href="#">[GO TO CL9c]</a>

**[FOR EACH CONTROL TECHNOLOGY MENTIONED IN CL9b, ASK CL9c THROUGH CL9f]**

**CL9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

ENTER PERCENT	_____	<a href="#">[GO TO CL9d]</a>
Don't know	97	<a href="#">[GO TO CL9d]</a>
Refused	98	<a href="#">[GO TO CL9d]</a>

**CL9d.** What kinds of controls, if any, did the new equipment replace? **[SELECT ALL THAT APPLY]**

No controls replaced/new construction or addition	0	<a href="#">[GO TO NEXT CONTROL TYPE FROM CL9b]</a>
Adjustable Speed Drives	1	<a href="#">[GO TO CL9e]</a>
Energy Management System	2	<a href="#">[GO TO CL9e]</a>
HVAC Controls: Manual thermostat	3	<a href="#">[GO TO CL9e]</a>
HVAC Controls: Bypass Timer	4	<a href="#">[GO TO CL9e]</a>
HVAC Controls: Time Clock	5	<a href="#">[GO TO CL9e]</a>
HVAC Controls: Set-Back Programmable Thermostat	6	<a href="#">[GO TO CL9e]</a>
CO2 Sensors/Demand Control Ventilation	7	<a href="#">[GO TO CL9e]</a>
Economizers	8	<a href="#">[GO TO CL9e]</a>
Other (Specify)	77	<a href="#">[GO TO CL9e]</a>
[Don't know]	-97	<a href="#">[GO TO CL9e]</a>
[Refused]	-98	<a href="#">[GO TO CL9e]</a>

**CL9e.** Generally, how would you describe the condition cooling control equipment that was removed and replaced? Was it...

Inoperable (broken)	1	<a href="#">[GO TO CL9f]</a>
Poor condition	2	<a href="#">[GO TO CL9f]</a>
Fair condition	3	<a href="#">[GO TO CL9f]</a>
Good condition	4	<a href="#">[GO TO CL9f]</a>
Don't Know	97	<a href="#">[GO TO CL9f]</a>
Refused	98	<a href="#">[GO TO CL9f]</a>

**CL9f.** On average, how old was the control equipment that was removed and replaced?  
Would you say...

Less than 5 years old	1	<a href="#">[GO TO NEXT SECTION]</a>
Between 5 and 10 years old	2	<a href="#">[GO TO NEXT SECTION]</a>
10 to 20 years old	3	<a href="#">[GO TO NEXT SECTION]</a>
more than 20 years old	4	<a href="#">[GO TO NEXT SECTION]</a>
[Don't know]	97	<a href="#">[GO TO NEXT SECTION]</a>
[Refused]	98	<a href="#">[GO TO NEXT SECTION]</a>

### RESPONSE GRID FOR CONTROLS

		CL9c	CL9d	CL9e	CL9f
<b>1</b>	Adjustable Speed Drives				
<b>2</b>	Energy Management System				
<b>3</b>	HVAC Controls: Manual thermostat				
<b>4</b>	HVAC Controls: Bypass Timer				
<b>5</b>	HVAC Controls: Time Clock				
<b>6</b>	HVAC Controls: Set-Back Programmable Thermostat				
<b>7</b>	CO2 Sensors/Demand Control Ventilation				
<b>8</b>	Economizers				
<b>77</b>	Other (Specify)				
<b>98</b>	Don't know				
<b>99</b>	Refused				

### COOLING COSTS/BACK UP FOR ATTRIBUTION

**[ASKIF OP1=1]**

**ATR1c.** For your cooling projects, what percentage of the total costs of the project were supported by the financial support that you received?

	ATR1
Measure type	% of Total
<b>Cooling</b>	
<b>[Don't know]</b>	
<b>[Refused]</b>	

### COOLING OPERATIONS AND MAINTENANCE CHANGES

**COP1.** Did you make any behavioral or operation and maintenance changes to your heating or cooling system?

Yes	1	[GO TO COP2]
No	2	[GO TO NEXT SECTION]
Don't know	97	[GO TO NEXT SECTION]
Refused	98	[GO TO NEXT SECTION]

**COP2.** What changes did you make? **[OPEN END]**

OPEN END (Specify, Probe for equipment effected and specific changes)	1	[GO TO COP3]
Don't know	97	[GO TO COP3]
Refused	98	[GO TO COP3]

**COOLING –ALL CHANGES**

**You stated that you [read in &C\_TECH or “made a change to your operations and maintenance”]**

**[FOR EACH CHANGE]**

**CI4a.** Do you remember when you made this change?

MONTH	_____	[GO TO NEXT &C_TECH/OMCHANGE THEN NEXT Q]
YEAR	_____	[GO TO NEXT &C_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	98	[GO TO NEXT &C_TECH/&LC_OMCHANGE THEN NEXT Q]
[Refused]	99	[GO TO NEXT &C_TECH/OMCHANGE THEN NEXT Q]

**[FOR EACH CHANGE -- NOT CONTROLS]**

**CI4b.** Thinking about the changes that you made. How much total space did this effect?

ENTER SQUARE FEET	_____	[GO TO NEXT &C_TECH/&LC_OMCHANGE THEN NEXT Q]
[Don't know]	-9997	[GO TO NEXT &C_TECH/&LC_OMCHANGE THEN NEXT Q]
[Refused]	-9998	[GO TO NEXT &C_TECH/&LC_OMCHANGE THEN NEXT Q]

**[ASK FOR EACH CHANGE—NOT CONTROLS]**

**CI4b – CI4I.** What percent of the space served by the &C\_TECH/OMCHANGE falls into each of the following categories?

CI4b	Office/ Professional
CI4c	Warehouse
CI4d	Food sales
CI4e	Health Care
CI4f	Public Assembly

CI4g	Food Service
CI4h	Hotel/Motel/Dorm
CI4i	Retail
CI4j	Service (excluding food)
CI4k	Education
CI4l	Other

[PROGRAMMER: PROGRAM SHOULD VERIFY THAT PERCENTS SUM TO 100%]

**HEATING EQUIPMENT BATTERY**

**[IF &HEATING = TRUE]**

**I want to ask you about the heating projects.**

**HT-N1.** You stated that you made a change to your heating system. Which of the following best describes the specific change(s) you made? [READ LIST. LIST WILL BE SHORTENED FOR SPECIFIC PROGRAM]

**[ALLOW MULTIPLE ANSWERS]**

<b>ITEM</b>	<b>Number</b>
Central Boilers	<b>1</b>
Packaged Heating Units	<b>2</b>
Individual Space Heater / Portable Room Heater / Strip Heating	<b>3</b>
Split-system Heat Pumps	<b>4</b>
Central Furnaces	<b>5</b>
District Steam or Hot Water	<b>6</b>
Radiant Heaters	<b>7</b>
Other (Specify)	<b>77</b>

**RESPONSE= &H\_TECH**

**HT-N2.** How many units of &H\_TECH did you install?

RECORD NUMBER		[GO TO HT-N3]
Don't know	-97	[GO TO HT-N3]
Refused	-98	[GO TO HT-N3]

**HT-N3.** What is the total capacity of the units you installed?

RECORD CAPACITY NUMBER	__ [GO TO HT-N4]
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)	__ [GO TO HT-N4]
[Don't know]	-97 [GO TO HT-N4]
[Refused]	-98 [GO TO HT-N4]

**HT-N4.** What was the efficiency rating of the &H\_TECH\_EFF units that you installed?

[RECORD FOR ALL UNITS INSTALLED]

RECORD EFFICIENCY NUMBER		[GO TO HT-N2 FOR NEXT &H_TECH ]
RECORD EFFICIENCY UNIT (AFUE, Thermal efficiency, specify other)		[GO TO HT-N2 FOR NEXT &H_TECH ]
Don't know	-97	[GO TO HT-N2 FOR NEXT &H_TECH ]
Refused	-98	[GO TO HT-N2 FOR NEXT &H_TECH ]

[ASK FOR EACH MEASURE IDENTIFIED IN HT-N1]

**HT-N5.** How many hours per year does the equipment operate?

RECORD NUMBER	_____	[GO TO CL8a]
Don't know	-97	[GO TO CL8a]
Refused	-98	[GO TO CL8a]

**RESPONSE GRID FOR HEATING EQUIPMENT**

	ITEM	Number	Capacity	Efficiency	Hours
<b>1</b>	Central Boilers				
<b>2</b>	Packaged Heating Units				
<b>3</b>	Individual Space Heater / Portable Room Heater / Strip Heating				
<b>4</b>	Split-system Heat Pumps				
<b>5</b>	Central Furnaces				
<b>6</b>	District Steam or Hot Water				
<b>7</b>	Radiant Heaters				
<b>77</b>	Other (Specify)				

**ASK HT8a THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT-N1]**

**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new heating equipment.**

**HT8a.** What types of heating equipment, if any, were replaced when installing the new &H\_TECH? **[SELECT ALL THAT APPLY]**

NONE	1	
SELECT EQUIPMENT TYPE FROM LIST	2	[RECORD AS &H_TECH_REM]
[Don't Know]	-97	[GO TO HT8a FOR NEXT &H_TECH]
[Refused]...	-98	[GO TO HT8a FOR NEXT &H_TECH]

**[ASK HT8b THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT8a]**

**HT8b.** When you installed &H\_TECH?, how many units were removed?

RECORD NUMBER	_____	[GO TO HT8c]
[Don't know]	97	[GO TO HT8c]
[Refused]	98	[GO TO HT8c]

**HT8c.** What was the total capacity of the units you removed?

RECORD CAPACITY NUMBER		[GO TO HT8d]
RECORD CAPACITY UNITS (TONS, BTU/HOUR, THERM, ETC)		[GO TO HT8d]
[Don't know]	-97	[GO TO HT8d]
[Refused]	-98	[GO TO HT8d]

**HT8d.** Generally, how would you describe the condition of &H\_TECH\_REM that was removed and replaced? Was it...

Inoperable (broken)	1
Poor condition	2
Fair condition	3
Good condition	4
[Don't know]	-97
[Refused]	-98

**HT8e.** What was the efficiency rating of the removed &H\_TECH\_REM?

RECORD EFFICIENCY NUMBER		[GO TO NEXT HT8a]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT HT8a]
[Don't know]	-97	[GO TO HT8f]
[Refused]	-98	[GO TO HT8f]

**HT8f.** On average, how old was the &H\_TECH\_REM that was removed and replaced?  
Would you say...

Less than 5 years old	1	[GO TO NEXT HT8a]
Between 5 and 10 years old	2	[GO TO NEXT HT8a]
10 to 20 years old	3	[GO TO NEXT HT8a]
more than 20 years old	4	[GO TO NEXT HT8a]
[Don't know]	-97	[GO TO NEXT HT8a]
[Re-fused]	-98	[GO TO NEXT HT8a]

#### RESPONSE GRID FOR HEATING EQUIPMENT REPLACED

		Number	Capacity	Condition	Efficiency	Age
<b>0</b>	<b>No heating Removed</b>		<b>skip</b>	<b>Skip</b>	<b>skip</b>	<b>skip</b>
<b>1</b>	Central Boilers					
<b>2</b>	Packaged Heating Units					
<b>3</b>	Individual Space Heater / Portable Room Heater / Strip Heating					
<b>4</b>	Split-system Heat Pumps					
<b>5</b>	Central Furnaces					
<b>6</b>	District Steam or Hot Water					
<b>7</b>	Radiant Heaters					
<b>77</b>	Other (Specify)					

## HEATING CONTROLS

### [IF & HEATING = TRUE]

**HT9a.** Did you install any heating or heating controls or variable speed drives?

Yes	1	[GO TO HT9b]
No	2	[GO TO NEXT SECTION]
Don't know	97	[GO TO NEXT SECTION]
Refused	98	[GO TO NEXT SECTION]

**HT9b.** What kinds of controls did you install? **[SELECT ALL THAT APPLY]**

Adjustable Speed Drives	1	[GO TO HT9c]
Energy Management System	2	[GO TO HT9c]
HVAC Controls: Manual thermostat	3	[GO TO HT9c]
HVAC Controls: Bypass Timer	4	[GO TO HT9c]
HVAC Controls: Time HTock	5	[GO TO HT9c]
HVAC Controls: Set-Back Programmable Thermostat	6	[GO TO HT9c]
CO2 Sensors/Demand Control Ventilation	7	[GO TO HT9c]
Economizers	8	[GO TO HT9c]
Other (Specify)	77	[GO TO HT9c]
Don't know	-97	[GO TO HT9c]
Refused	-98	[GO TO HT9c]

### [FOR EACH CONTROL TECHNOLOGY MENTIONED IN HT9b, ASK HT9c THROUGH HT9f]

**HT9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

ENTER PERCENT	_____
Don't know	-97
Refused	-98

**HT9d.** What kinds of controls, if any, did the new equipment replace? **[SELECT ALL THAT APPLY]**

No controls replaced/new construction or addition	0	NEXT CONTROL TYPE FROM HT9b
Adjustable Speed Drives	1	[GO TO HT9e]

Energy Management System	2	<a href="#">[GO TO HT9e]</a>
HVAC Controls: Manual thermostat	3	<a href="#">[GO TO HT9e]</a>
HVAC Controls: Bypass Timer	4	<a href="#">[GO TO HT9e]</a>
HVAC Controls: Time HTock	5	<a href="#">[GO TO HT9e]</a>
HVAC Controls: Set-Back Programmable Thermostat	6	<a href="#">[GO TO HT9e]</a>
CO2 Sensors/Demand Control Ventilation	7	<a href="#">[GO TO HT9e]</a>
Economizers	8	<a href="#">[GO TO HT9e]</a>
Other (Specify)	77	<a href="#">[GO TO HT9e]</a>
Don't know	-97	<a href="#">[GO TO HT9e]</a>
Refused	-98	<a href="#">[GO TO HT9e]</a>

**HT9e.** Generally, how would you describe the condition the heating and heating control equipment that was removed and replaced? Was it...

Inoperable (broken)	1
Poor condition	2
Fair condition	3
Good condition	4
Don't Know	-97
Refused	-98

**HT9f.** On average, how old was the control equipment that was removed and replaced? Would you say...

RECORD NUMBER OF YEARS	_____	<a href="#">[GO TO NEXT SECTION]</a>
[Don't know]	-97	<a href="#">[GO TO NEXT SECTION]</a>
[Refused]	-98	<a href="#">[GO TO NEXT SECTION]</a>

## RESPONSE GRID FOR HEATING EQUIPMENT REPLACED

		HT9c	HT9d	HT9e	HT9f
<b>1</b>	Adjustable Speed Drives				
<b>2</b>	Energy Management System				
<b>3</b>	HVAC Controls: Manual thermostat				
<b>4</b>	HVAC Controls: Bypass Timer				
<b>5</b>	HVAC Controls: Time HTock				
<b>6</b>	HVAC Controls: Set-Back Programmable Thermostat				
<b>7</b>	CO2 Sensors/Demand Control Ventilation				
<b>8</b>	Economizers				
<b>77</b>	Other (Specify)				
<b>- 97</b>	[Don't know]				
<b>- 98</b>	[Refused]				

## HEATING COSTS/ATTRIBUTION

[ASK IF OP1=1]

**ATR1c.** For your heating projects, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1
Measure type	% of Total
<b>c. Heating</b>	
[Don't know]	
[Refused]	

## HEATING OPERATIONS AND MAINTENANCE CHANGES

**HOP1.** Did you make any changes to the operation and maintenance of your heating system?

Yes	1	[GO TO NEXT SECTION]
No	2	[GO TO NEXT Q]
Don't know	97	[GO TO NEXT Q]
Refused	98	[GO TO NEXT Q]

**HOP2.** What changes did you make? **[OPEN END]**

OPEN END (Specify)	1	[GO TO NEXT Q]
--------------------	---	----------------

Don't know	97	[GO TO NEXT Q]
Refused	98	[GO TO NEXT Q]

### HEATING –ALL CHANGES

**You stated that you [read in &H\_TECH or “made a change to your operations and maintenance”]**

**[FOR EACH CHANGE]**

**HI4a.** Do you remember when you made this change?

MONTH	_____	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]
YEAR	_____	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	98	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]
[Refused]	99	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]

**[FOR EACH CHANGE – NOT CONTROLS]**

**HI4b.** Thinking about the changes that you made. How much total space did this effect?

ENTER SQUARE FEET	_____	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	-9997	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]
[Refused]	-9998	[GO TO NEXT &H_TECH/OMCHANGE THEN NEXT Q]

**[ASK FOR EACH CHANGE –NOT CONTROLS]**

**HI4b – HI4l.** What percent of the space served by the &H\_TECH/OMCHANGE falls into each of the following categories?

HI4b	Office/ Professional
HI4c	Warehouse
HI4d	Food sales
HI4e	Health Care
HI4f	Public Assembly
HI4g	Food Service
HI4h	Hotel/Motel/Dorm
HI4i	Retail
HI4j	Service (excluding food)
HI4k	Education
HI4l	Other

[PROGRAMMER: PROGRAM SHOULD VERIFY THAT PERCENTS SUM TO 100%]

### REFRIGERATION

**[IF &REFRIGERATION = TRUE]**

**[FOR EACH REFRIGERATION TECHNOLOGY MENTIONED IN RF2a, ASK RF2c THROUGH RF2I]**

**RF2a.** Which of the following kinds of refrigeration equipment, did you install? [READ LIST]

<b>&amp;RF_TECH</b>	<b>1</b>
Residential Sized Refrigerator	<b>2</b>
Residential Sized Freezer	<b>3</b>
Larger Standard Refrigerator (>30 cf)	<b>4</b>
Self Contained - Coffin/Horizontal Case	<b>5</b>
Self Contained - Vertical Case (multi shelf)	<b>6</b>
Single-Deck display cases - Open single-deck	<b>7</b>
Single-Deck display cases -	<b>8</b>
Multi-Deck (vertical) display cases - Open/reach-in	<b>9</b>
Multi-Deck (vertical) display cases - Glass-door cases	<b>10</b>
Walk-Ins - Freezer/Low Temp	<b>11</b>
Walk-Ins - Cooler/Med Temp	<b>12</b>
Night covers for display cases	<b>13</b>
Strip curtains	<b>14</b>
Glass doors on vertical open display cases	<b>15</b>
Main door cooler/freezer door gaskets	<b>16</b>
Auto closers for coolers/freezers	<b>17</b>
Anti-sweat heat controllers	<b>21</b>
Insulate bare suction pipes	<b>18</b>
Multiplex compressor systems	<b>19</b>
Condensers	<b>20</b>
Floating head pressure controllers	<b>21</b>
Vending machine controllers	<b>77</b>
Other (specify)	<b>88</b>
Refused (skip to RXX)	<b>99</b>
Don't know (99 skip to RXX)	

**RF2b.** Which kinds of refrigeration controls, if any, did you install? [ADD LIST]

**RF2c.** Approximately how many &RF\_TECH did you purchase?

ENTER NUMBER	_____	<a href="#">[GO TO RF2d]</a>
[Don't know]	9997	<a href="#">[GO TO RF2d]</a>

**RF2d.** How many of the &RF\_TECH replaced existing &RF\_TECH units?

ENTER NUMBER	_____	<a href="#">[GO TO RF2f]</a>
[Don't know]	9997	<a href="#">[GO TO RF2f]</a>

**RF2f.** Approximately what was the total size of the units installed to replace existing &RF\_TECH units?

Square footage	_____	[GO TO RF2g]
[Don't know]	9997	[GO TO RF2g]

**RF2g.** [Ask for units]?

ENTER SIZE	_____	ENTER UNITS	_____	[GO TO RF2j]
[Don't know]	-97	Don't know	97	[GO TO RF2h]
[Refused]	-98	Refused	98	[GO TO RF2h]

**RF2h.** Approximately what was the total size of the units installed for new refrigeration capacity

[Ask for units]?

ENTER SIZE	_____	ENTER UNITS	_____	[GO TO RF2j]
[Don't know]	-97	Don't know	97	[GO TO RF2j]
[Refused]	-98	Refused	98	[GO TO RF2j]

**RF2j.** How many hours per day is the refrigerator left open, including for stocking and in and out?

ENTER HOURS	_____	[GO TO RF2k]
[Don't know]	-97	[GO TO RF2k]
[Refused]	-98	[GO TO RF2k]

**RF2k.** When the refrigerator/freezer is NOT left open, what is the average traffic through the door per hour (# times opened per hour)?

ENTER	_____	[GO TO RF2l]
[Don't know]	-97	[GO TO RF2l]
[Refused]	-98	[GO TO RF2l]

**RF2l.** Does your &RF\_TECH have strip curtains or another type of insulation?

Yes- Strip Curtains	1	[GO TO RF2c FOR NEXT &RF_TECH]
Yes - Other Type of Insulation [RECORD TYPE _____]	2	[GO TO RF2c FOR NEXT &RF_TECH]
No	3	[GO TO RF2c FOR NEXT &RF_TECH]
[Refused]	- 98	[GO TO RF2c FOR NEXT &RF_TECH]
[Don't Know]	- 97	[GO TO RF2c FOR NEXT &RF_TECH]

**RESPONSE GRID FOR REFRIGERATION**

	&RF_TECH	Number	RF2d # Replac e	RF2e # New Capacit y	RF2f Size	RF2g Size units	RF2h Size New Capacit y	RF2i Units New Capacity	RF2j Hours Open	RF2k Traffic	RF2l Insulati on
<b>1</b>	Residential Sized Refrigerator										
<b>2</b>	Residential Sized Freezer										
<b>3</b>	Larger Standard Refrigerator (>30 cf)										
<b>4</b>	Self Contained - Coffin/Horizontal Case										
<b>5</b>	Self Contained - Vertical Case (multi shelf)										
<b>6</b>	Single-Deck display cases - Open single-deck										
<b>7</b>	Single-Deck display cases -										
<b>8</b>	Multi-Deck (vertical) display cases - Open/reach-in										

<b>9</b>	Multi-Deck (vertical) display cases - Glass-door cases										
<b>10</b>	Walk-Ins - Freezer/Low Temp										
<b>11</b>	Walk-Ins - Cooler/Med Temp										
<b>12</b>	Night covers for display cases										
<b>13</b>	Strip curtains										
<b>14</b>	Glass doors on vertical open display cases										
<b>15</b>	Main door cooler/freezer door gaskets										
<b>16</b>	Auto closers for coolers/freezers										
<b>17</b>	Anti-sweat heat controllers										
<b>21</b>	Insulate bare suction pipes										
<b>18</b>	Multiplex compressor systems										
<b>19</b>	Condensers										

<b>20</b>	Floating head pressure controllers										
<b>21</b>	Vending machine controllers										
<b>77</b>	Other (specify)										
<b>88</b>	Refused (skip to RXX)										
<b>99</b>	Don't know (99 skip to RXX)										

**[ASK RF3d – RF3f FOR EACH MEASURED IDENTIFIED IN RF2a]**

**RF3d.** What year was the old equipment removed?

2008	1	<a href="#">[GO TO RF3e]</a>
2009	2	<a href="#">[GO TO RF3e]</a>
2010	3	<a href="#">[GO TO RF3e]</a>
2011	4	<a href="#">[GO TO RF3e]</a>
[Refused]	-98	<a href="#">[GO TO RF3e]</a>
[Don't Know]	-97	<a href="#">[GO TO RF3e]</a>

**RF3e** On average, how old was the removed equipment?

<b>1</b>	Less than 5 years old	1 <a href="#">[GO TO RF3f]</a>
<b>2</b>	Between 5 and 10 years old	2 <a href="#">[GO TO RF3f]</a>
<b>3</b>	10 to 20 years old	3 <a href="#">[GO TO RF3f]</a>
<b>4</b>	More than 20 years old	4 <a href="#">[GO TO RF3f]</a>
<b>-98</b>	[Refused]	-98 <a href="#">[GO TO RF3f]</a>
<b>-97</b>	[Don't know]	-97 <a href="#">[GO TO RF3f]</a>

**RF3f.** What percent of the removed &RF\_TECH capacity was disposed of using the following methods?

Never removed equipment	1	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>
Sent to a landfill	2	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>
Moved to another location of our firm	3	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>
Sold or given to another firm or residence for use	4	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>
Recycled or sold for scrap	5	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>
Refused	-97	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>
Don't know	-98	<a href="#">[GO TO RF3a FOR NEXT &amp;RF_TECH]</a>

**RESPONSE GRID FOR REFRIGERATION**

	<b>&amp;RF_TECH</b>	<b>RF3d Year removed</b>	<b>RF3e Age</b>	<b>RF3f Percent not removed</b>	<b>RF3f Percent Landfill</b>	<b>RF3f Percent Moved</b>	<b>RF3f Percent Sold</b>	<b>RF3f Percent Scrapped</b>
<b>1</b>	Residential Sized Refrigerator							
<b>2</b>	Residential Sized Freezer							
<b>3</b>	Larger Standard Refrigerator (>30 cf)							
<b>4</b>	Self Contained - Coffin/Horizontal Case							
<b>5</b>	Self Contained - Vertical Case (multi shelf)							
<b>6</b>	Single-Deck display cases - Open single- deck							
<b>7</b>	Single-Deck display cases -							
<b>8</b>	Multi-Deck (vertical) display cases - Open/reach-in							
<b>9</b>	Multi-Deck (vertical) display cases - Glass- door cases							
<b>10</b>	Walk-Ins - Freezer/Low Temp							
<b>11</b>	Walk-Ins - Cooler/Med Temp							

<b>77</b>	Other (specify)							
- <b>98</b>	Refused (skip to RXX)							
- <b>97</b>	Don't know (99 skip to RXX)							

**REFRIGERATION COSTS/BACK UP FOR ATTRIBUTION**

**[ASK IF OP1=1]**

**ATR1d.** For your refrigeration projects, what percentage of the total costs of the project were covered by the financial support that you received?

	<b>ATR1</b>
<b>Measure type</b>	<b>% of Total</b>
<b>Refrigeration</b>	
<b>[Don't know]</b>	
<b>[Refused]</b>	

**REFRIGERATION OPERATIONS AND MAINTENACE CHANGES**

**ROP1.** Did you make any other changes to the operation and maintenance of your refrigeration systems?

Yes	1	[GO TO ROP2]
No	2	[GO TO NEXT SECTION]
Don't know	97	[GO TO NEXT SECTION]
Refused	98	[GO TO NEXT SECTION]

**ROP2.** What changes did you make? **[OPEN END]**

OPEN END (Specify. Probe for specific equipment and number affected as well as a description of effects)	1	[GO TO ROP3]
Don't know	97	[GO TO ROP3]
Refused	98	[GO TO ROP3]

**REFRIGERATION –ALL CHANGES**

**You stated that you [read in &R\_TECH or “made a change to your operations and maintenance”]**

**[FOR EACH CHANGE]**

**RI4a.** Do you remember when you made this change?

MONTH	_____	[GO TO NEXT &R_TECH/OMCHANGE THEN NEXT Q]
YEAR	_____	[GO TO NEXT &R_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	98	[GO TO NEXT &R_TECH/OMCHANGE THEN NEXT Q]
[Refused]	99	[GO TO NEXT &R_TECH/OMCHANGE THEN NEXT Q]

**MOTORS BATTERY**

**[IF &MEASURE = MOTOR]**

**You mentioned that you installed or made changes to motors.**

**MT2a.** How many electric motors did you purchase and install?

[ENTER NUMBER]	_____	
[Don't know]	97	[GO TO NEXT TECHNOLOGY]
[Refused]	98	[GO TO NEXT TECHNOLOGY]

**[FOR EACH HORSEPOWER CATEGORY IN GRID MT1, ASK MT2b –MT2g]**

**MT2c.** Approximately what percentage of the total number of motors that you purchased are between &LHP and &HHP?

[ENTER NUMBER]	_____	[GO TO NEXT Q]
[Don't know]	-97	[GO TO NEXT Q]
[Refused]	-98	[GO TO NEXT Q]

**MT2d.** How many of the motors between &LHP and &HHP that you purchased were used to operate additional (new) equipment rather than replacing an existing motor?

[ENTER NUMBER]	_____	[GO TO NEXT Q]
[Don't know]	-97	[GO TO NEXT Q]
[Refused]	-98	[GO TO NEXT Q]

**MT2e.** How many of the motors between &LHP and &HHP that you purchased were put into storage and not installed? Your best approximation is fine.

[ENTER NUMBER]	_____	[GO TO NEXT Q]
[Don't know]	-97	[GO TO NEXT Q]
[Refused]	-98	[GO TO NEXT Q]

**MT2f.** How many of the motors between &LHP and &HHP were fitted with variable frequency drives? Your best approximation is fine.

[ENTER NUMBER]	_____	[GO TO NEXT Q]
[Don't know]	-97	[GO TO NEXT Q]
[Refused]	-98	[GO TO NEXT Q]

**READ:** In this survey we use the term "NEMA Premium motors" to refer to very high efficiency motors that meet specific performance criteria developed by the National Electrical Manufacturers Association.

**MT2g.** How many of the motors between &LHP and &HHP that you installed were NEMA Premium motors or were characterized as "premium efficiency" motors by your motor vendor?

[ENTER NUMBER]	_____	[GO TO MT3a]
[Don't know]	-97	[GO TO MT3a]
[Refused]	-98	[GO TO MT3a]

**RESPONSE GRID FOR MOTORS**

	MT HP Category	MT2a How Many	MT 2c % by HP Category	MT2d New Construction	MT2e Put in Storage	MT 2f # w/ VFDs	MT 2g # NEMA Premium
	All						
1	1-5						
2	6-20						
3	21 – 50						
4	51- 100						
5	101 – 200						
6	200 – 500						

**REPLACEMENT/BASELINE EFFICIENCY:**

**NOTE: GIVEN THAT THE EPACT 1992 STANDARDS WENT INTO EFFECT IN 1997, WE WILL ASSUME THAT MOTORS REPLACED MET EPACT 1992 STANDARDS UNLESS THEY HAD BEEN REWOUND, IN WHICH CASE WE WILL ASSUME THEY WERE PRE-EPACT STANDARD MOTORS. IF RESPONDENT CANNOT PROVIDE ANSWERS BY HP CATEGORY, ACCEPT ANSWERS FOR ALL MOTORS.**

**MT3a.** How many motors between &LHP and &HHP did you remove and replace?

[ENTER NUMBER]	_____	[GO TO MT3b]
[Don't know]	-97	[GO TO MT3c]
[Refused]	-98	[GO TO MT3c]

**MT3b.** And how many of those motors between &LHP and &HHP had been rewound?

[ENTER NUMBER] <996 FOR ALL OR 0 FOR NONE >	_____	[GO TO MT3c]
[Don't know]	-97	[GO TO MT3c]
[Refused]	-98	[GO TO MT3c]

**MT3c.** What kind of equipment do motors in this horsepower category drive in your facility?

**[PICK LIST OF MOTOR APPLICATIONS – SELECT ALL THAT APPLY]**

HVAC equipment	1
Pump	2
Fan	3
Air Compressor	4
Conveyor belt or other materials handling	5
Production <u>process</u> machinery	6

Other (specify)	77
[Refused]	-98
[Don't Know]	-97

### RESPONSE GRID MT3

	MT HP Category	MT3a # Motors Replaced	MT3b # Motors Rewound	MT 3c 1 Equipt Driven	MT 3c 2 Equipt Driven	MT 3c 3 Equipt Driven	MT 3c 4 Equipt Driven	MT 3c 5 Equipt Driven	MT 3c 6 Equipt Driven
1	1-5								
2	6-20								
3	21 – 50								
4	51- 100								
5	101 – 200								
6	200 – 500								
7	All motors								

### HOURS OF OPERATION

**NOTE: FOR MOTORS ATTACHED TO HVAC EQUIPMENT, WE WILL USE FULL LOAD HOURS ESTIMATES IN TECHNICAL RESOURCE MANUALS. THESE QUESTIONS ARE DESIGNED TO PROBE OPERATING HOURS FOR MOTORS THAT OPERATE PRODUCTION EQUIPMENT.**

**IF ANY MT3c = 2 – 77, ASK MT4 SEQUENCE, ELSE SKIP NEXT TECHNOLOGY.**

**READ:** Now I would like to ask you a few questions about the hours of operation for motors that drive machinery **other than heating, cooling, and ventilation**. This would include industrial process machinery, pumps used for industrial processes or wastewater systems, compressed air systems, and material handling systems.

**MT4a.** In the past month, how many hours per day did this &MT3c equipment typically operate?

[RECORD HOURS]	_____ [GO TO MT4b]
Refused	-98 [GO TO MT4b]
Don't Know	-97 [GO TO MT4b]

<b>MT4b.</b> And how many days per week?[RECORD DAYS]	_____ [GO TO MT4c]
Refused	-98 [GO TO MT4c]
Don't Know	-97 [GO TO MT4c]

**MT4c.** Are there any months during the year when the operating schedule for this equipment differs significantly from what you just described?

Yes	1	[GO TO MT4d]
No	2	[GO TO MT3a FOR NEXT MT3c]
Refused	-98	[GO TO MT3a FOR NEXT MT3c]
Don't know	-97	[GO TO MT3a FOR NEXT MT3c]

<b>MT4d.</b> How many hours per day does the <b>MT3c</b> equipment typically operate during the periods with different operating schedules?[RECORD HOURS]	_____ [GO TO MT4e]
[Refused]	98 [GO TO MT4e]
[Don't Know]	97 [GO TO MT4e]

<b>MT4e.</b> And how many days per week does the equipment typically operate during the periods with different operating schedules?[RECORD DAYS]	_____ [GO TO MT4f]
[Refused]	98 [GO TO MT4f]
[Don't Know]	97 [GO TO MT4f]

<b>MT4f.</b> How many months per year does the equipment run on the alternative schedule?[RECORD DAYS]	_____	[GO TO MT4a FOR NEXT MT3c]
[Refused]	98	[GO TO MT4a FOR NEXT MT3c]
[Don't Know]	97	[GO TO MT4a FOR NEXT MT3c]

### RESPONSE GRID MOTORS

	Equipment Category	MT4a Hours per day	MT4b Days per week	MT 4c 1 Months diff sched	MT 4d Hours per day diff sched	MT 4e Days per week diff sched	MT 3f Months per year diff sched
1	Pump						
2	Fan						
3	Air Compressor						
4	Conveyor belt or other						



	materials handling						
5	Production process machinery						
6	Other (specify)						

**MOTOR COSTS/WILL BE BACK-UP FOR ATTRIBUTION**

**[ASK IF OP1=1]**

**ATR1d.** For your motor projects, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1
Measure type	% of Total
Motor	
[Don't know]	
[Refused]	

**MOTORS –ALL CHANGES**

**You stated that you [read in &M\_TECH or “made a change to your operations and maintenance”]**

**[FOR EACH CHANGE]**

**MI4a.** Do you remember when you made this change?

MONTH	_____	[GO TO NEXT &M_TECH/OMCHANGE THEN NEXT Q]
YEAR	_____	[GO TO NEXT &M_TECH/OMCHANGE THEN NEXT Q]
[Don't know]	98	[GO TO NEXT &M_TECH/OMCHANGE THEN NEXT Q]
[Refused]	99	[GO TO NEXT &M_TECH/OMCHANGE THEN NEXT Q]

**OTHER CHANGE BATTERY**

**[IF &OTHER = TRUE]**

**OE2a.** Did you install any other kinds of energy efficiency measures or make any other changes since [&DATE]?

Yes	1	[GO TO OE2b]
No	2	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]
[Don't Know]	-97	[GO TO NEXT SECTION]

**OE2b.** Which kinds of additional measures did you install?

[Open End 1]	1	[GO TO OE2c]
[Open End 2]	2	[GO TO OE2c]
[Open End 3]	3	[GO TO OE2c]
[Don't know]	97	[GO TO NEXT SECTION]
[Refused]	98	[GO TO NEXT SECTION]

**OE2c. [FOR EACH MEASURE TYPE MENTIONED.]** Approximately how many &OE\_TECH did you purchase?

[OE2c _Open End 1]	___	[GO TO OE2d]
[OE2c _Open End 2]	___	[GO TO OE2d]
[OE2c _Open End 3]	___	[GO TO OE2d]
[Don't know]	97	[GO TO OE2d]
[Refused]	98	[GO TO OE2d]

**OE2d.** Approximately what percentage of your facility's total square footage was served by these changes?

Square Footage	_____	[GO TO OE2e]
[Don't know]	97	[GO TO OE2e]
[Refused]	98	[GO TO OE2e]

**OE2e.** How many of the &OE\_TECH purchased were used to replace existing &OE\_TECH units?

Numeric Open End	_____	[GO TO OE3]
[Don't know]	97	[GO TO OE3]
[Refused]	98	[GO TO OE3]

**RESPONSE GRID FOR OTHER**

	<b>OE_TECH</b>	<b>How many</b>	<b>Sq. Footage</b>	<b>Replacement?</b>
1	Specify:			
2	Specify:			
3	Specify:			
4	Specify:			
5	Specify:			
6	Specify:			

**[FOR EACH MEASURE TYPE REPORTED where OE2e > 0, ASK OE3]**

**OE3.** What types of equipment were replaced when installing &OE\_TECH

None/New construction	1	[GO TO OE3 FOR NEXT &OE_TECH]
SPECIFY	_____	[GO TO OE3a]
Don't know	-97	[GO TO OE3 FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE3 FOR NEXT &OE_TECH]

**[FOR EACH EQUIPMENT TYPE REPLACED, ASK OE3a]**

**OE3a.** Did you remove the same amount of &OE\_TECH as you installed through the project?

Yes	1	[GO TO OE3d]
No	2	[GO TO OE3b]
Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3b.** Did you remove more or less &OE\_Tech than you installed through the project?

More	1	[GO TO OE3c]
Fewer	2	[GO TO OE3c]
[Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3c.** How much more/less &OE\_Tech did you install?

[ENTER NUMBER]	_____	[GO TO OE3d]
Don't know	-97	[OE3d]
Refused	-98	[OE3d]

**OE3d.** What was the condition of the removed equipment?

Inoperable (broken)	1	[GO TO OE3e]
Poor condition	2	[GO TO OE3e]
Fair condition	3	[GO TO OE3e]
Good condition	4	[GO TO OE3e]
Refused	-98	[GO TO OE3e]
Don't know	-97	[GO TO OE3e]

**OE3e.** How old was the removed equipment?

Less than 5 years old	1	[GO TO NEXT SECTION]
Between 5 and 10 years old	2	[GO TO NEXT SECTION]
10 to 20 years old	3	[GO TO NEXT SECTION]
More than 20 years old	4	[GO TO NEXT SECTION]
Refused	-98	[GO TO NEXT SECTION]
Don't know	-97	[GO TO NEXT SECTION]

**RESPONSE GRID OTHER REPLACED**

		<b>OE3a Remove</b>	<b>OE3b Remove</b>	<b>OE3c Amount</b>	<b>OE3d Condition</b>	<b>OE3e Age</b>
--	--	------------------------	------------------------	------------------------	---------------------------	---------------------

	OE3	same amount	more or less	removed	removed equip	removed equip
1	Specify:					
2	Specify:					
3	Specify:					
4	Specify:					
5	Specify:					
6	Specify:					

**OTHER COSTS/WILL BE BACK-UP FOR ATTRIBUTION**

**[ASK IF OP1=1]**

**ATR1e.** For these additional projects, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1
Measure type	% of Total
Other	
[Don't know]	
[Refused]	

**OTHER –ALL CHANGES**

**You stated that you [read in &OE\_TECH]**

**[FOR EACH CHANGE]**

**OI4a.** Do you remember when you made this change?

MONTH	_____	<a href="#">[GO TO NEXT &amp;OE_TECH THEN NEXT Q]</a>
YEAR	_____	<a href="#">[GO TO NEXT &amp;OE_TECH THEN NEXT Q]</a>
[Don't know]	98	<a href="#">[GO TO NEXT &amp;OE_TECH THEN NEXT Q]</a>
[Refused]	99	<a href="#">[GO TO NEXT &amp;OE_TECH THEN NEXT Q]</a>

**DIRECT ATTRIBUTION**

**Now, I'd like to ask you a few questions about the effect that the [ &WORKSHOP/DEMONSTRATION/TRAINING]/ [ &TECHNICAL ASSISTANCE] had on your organization's decision to undertake the project we have been discussing. [FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DA0 THROUGH DA]**

**DA0.** Without the &SPONSOR [ &WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], would you say the likelihood of [installing / performing] the &ACTION was... [READ LIST]

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4

[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**TIMING**

**ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM).**

AT11a. I'd like to know about the effect, if any, that [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] had on the timing of your project. Without attending the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE], would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2
<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF DAT1a ≠ LATER, SKIP]**

AT11b. Approximately how many months later?  
 [Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	DAT1b_&MEASURE
[RECORD # OF MONTHS]	_____
[Don't know]	-97

**EFFICIENCY**

**This section applies for any measure where there is a standard efficiency option. For example, variable frequency drives do not have a "standard efficiency" option, so you should skip this section for VFDs even though installing a VFD will result in energy savings. Heat recovery, lighting controls, and steam trap replacement also fall into this category. Circle "5" not applicable for the measure in the table below and skip to DAT3.**

**ASK EFFICIENCY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM).**

AE1a. Without the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] would you have installed &MEASURE of the exact same energy efficiency as the equipment you installed you installed, or would you have installed lower efficiency, or higher efficiency equipment?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
----------	-----------	-----------	-----------	-----------

<b>Same</b>	1	1	1	1
<b>Lower</b>	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]
<b>Higher</b>	3	3	3	3
[Not applicable]	-88	-88	-88	-88
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AE1b.** Why do you say that? [RECORD VERBATIM]: \_\_\_\_\_

**[IF AE1a ≠ LOWER, SKIP TO AQ1.]**

**AE2.** Without the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE], would you have installed <measure> that was:

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Standard efficiency or according to code</b>	1	1	1	1
<b>Slightly higher than standard efficiency</b>	2	2	2	2
<b>Between standard efficiency and the efficiency that was installed</b>	3	3	3	3
<b>Slightly lower than the high efficiency that was installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

## QUANTITY

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**Finally, I'd like to know about the effect, if any, that your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] had on the scale of the project you completed.**

**AQ1a.** Without the support from [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2 [READ AQ3a]	2 [READ AQ3a]	2 [READ AQ3a]	2 [READ AQ3a]
More or larger	3 [READ AQ3a]	3 [READ AQ3a]	3 [READ AQ3a]	3 [READ AQ3a]
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97



[Refused]	-98	-98	-98	-98
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**AQ1b. Why do you say that? [RECORD VERBATIM] \_\_\_\_\_**  
**[IF AQ1 = SAME or NOT INSTALLED ANY, SKIP TO OP5]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed?

Calculate percent:  $\text{abs}([\text{amount installed}] / [\text{amount would have installed}]) - 100\%$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Organization installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Organization installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Organization installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Organization installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OVERALL INFLUENCE CHECK IF RECEIVED FUNDING FROM ANY SOURCE**

*This battery has been shortened from the retrofit survey given that this survey is for an information or technical assistance effort that does not offer incentives. Will just be used to over context to overall attribution.*

**[ASK ONLY IF OP1=1]**

**OP9.** In your opinion, was the &SPONSOR's [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], more important in encouraging and enabling [your organization] to carry out the energy efficiency project we have been discussing; was the rebate more important; or were they both equally important?

SEP PA &WORKSHOP/DEMONSTRATION/TRAINING/ &TRAINING	1
Rebate	2
Both equally important	3
[Don't know]	-97
[Refused]	-98

**OP10** Why do you say that?

**[RECORD  
VERBATIM]** \_\_\_\_\_

**ATTRIBUTION – MARKET CONTEXT**

**TRAINING OBJECTIVES**

**TO1.** The [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], was designed to achieve the following objectives: &USE COURSE SPECIFIC BELOW.

**NOTE: WE WILL PROVIDE COURSE SPECIFICS BASED UPON A REVIEW OF CURRICULA, PARTICIPANT DATABASES AND INPUTS FROM INSTRUCTOR SURVEY DATA.**

**[INSERT TWO SENTENCE OR LESS DESCRIPTIONS OF EACH SPECIFIC EFFORT]**

**TO2.** Prior to taking this course, had you searched for courses with similar curricula content?

[Yes]	1	[GO TO TO3]
[No]	2	[GO TO KA1]
[Don't know]	98	[GO TO KA1]
[Refused]	99	[GO TO KA1]

**TO3.** Using a scale of 1 to 10 where 1 is no courses available and 10 is many courses available, how would you rate the availability of courses with similar curricula prior to &DATE?

None Available	1	[GO TO KA1]
	2	[GO TO KA1]
	3	[GO TO KA1]
	4	[GO TO KA1]

	5	[GO TO KA1]
	6	[GO TO KA1]
	7	[GO TO KA1]
	8	[GO TO KA1]
	9	[GO TO KA1]
Many Available	10	[GO TO KA1]
Don't know	98	[GO TO KA1]
Refused	99	[GO TO KA1]

## KNOWLEDGE AND AWARENESS EFFECTS

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CHANGES TO KNOWLEDGE AND AWARENESS AS A RESULT OF PARTICIPATION IN THE COURSE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**KA1.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], provide you with any new information?

[Yes]	1	[GO TO KA2a]
[No]	2	[GO TO KA2a]
[Don't know]	98	[GO TO KA2a]
[Refused]	99	[GO TO KA2a]

**KA2a.** Using a scale of 1 to 10 where 1 is no knowledge and 10 is significant knowledge, how would you rate your level of knowledge regarding the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], objectives prior to your participation in &DATE?

No Knowledge	1	[GO TO KA2b]
	2	[GO TO KA2b]
	3	[GO TO KA2b]
	4	[GO TO KA2b]
	5	[GO TO KA2b]
	6	[GO TO KA2b]
	7	[GO TO KA2b]
	8	[GO TO KA2b]
	9	[GO TO KA2b]
Significant Knowledge	10	[GO TO KA2b]
Don't know	98	[GO TO KA2b]
Refused	99	[GO TO KA2b]

**[SKIP IF KA1=2]**

**KA2b.** On the same scale, how would you rate your [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], objectives knowledge after your participation?

No Knowledge	1	[GO TO KA3]
	2	[GO TO KA3]
	3	[GO TO KA3]

	4	[GO TO KA3]
	5	[GO TO KA3]
	6	[GO TO KA3]
	7	[GO TO KA3]
	8	[GO TO KA3]
	9	[GO TO KA3]
Significant Knowledge	10	[GO TO KA3]
Don't know	98	[GO TO KA3]
Refused	99	[GO TO KA3]

**KA3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] increase your awareness of ways to improve the energy efficiency at your &INSERT HOME, FACILITY, JOBS, CLASSROOM?

[Yes]	1	[GO TO KA4]
[No]	2	[GO TO KA4]
[Don't know]	98	[GO TO KA4]
[Refused]	99	[GO TO KA4]

**KA4.** Did your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], make you more likely to take energy saving actions?

[Yes]	1	[GO TO FIN1]
[No]	2	[GO TO FIN1]
[Don't know]	98	[GO TO FIN1]
[Refused]	99	[GO TO FIN1]

## CAPACITY BUILDING

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CAPACITY BUILDING THAT RESULTED FROM PARTICIPATION IN THE COURSE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS. THESE QUESTIONS WILL REFLECT FINDINGS FROM INSTRUCTOR INTERVIEWS.**

[ASK IF AC1=2, 3, ELSE ASK BC1]

**CPC2.** Please tell me if you would agree with any of the following statements. As a result of the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE]

**CPC2a.** I have acquired additional energy efficiency skills that I can apply at my facility or the facilities I manage.

**CPC2b.** I have received a certification or accreditation that is relevant to my profession.

**CPC2c.** I have shared the information with colleagues or decision makers at my job.

**CPC2d.** The quality of the maintenance and operation of energy efficient equipment at my business has increased as a result of participating in the &TRAINING/WORKSHOP.

**CPC2e.** I have received access to financing sources to facilitate energy efficient/renewable energy offerings for my clients.

**CPC2f.** &INSERT TRAINING SPECIFIC CAPACITY AREA

	CAPACITY BUILDING	CPC2a EE Skills	CPC2b Certification	CPC2c Shared Info	CPC2d Maint enanc	CPC2e Financing	CPC2f &INSERT TRAINING
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					e		SPECIFIC CAPACITY AREA
1	Yes						
2	Somewhat agree						
3	No						
5	[Don't know]						
6	[Refused]						

**[ASK IF CPM2a-f <3]**

**CPM2.** You indicated that you agreed with &[READ IN CPM2a-f]. How specifically did the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION/&TECHNICAL ASSISTANCE allow you to &[READ IN CPM2a-f]?

**BUILDING CHARACTERISTICS**

**Now I'd like to ask you some questions about your facility or the facilities that you have been discussing.**

**BC1.** How many square feet is your facility (or facilities) in which these projects occurred?

	Square feet	[GO TO BC3]
-97	Refused	-98
-98	Don't know	-97

**BC2.** Would you say that the heated or cooled floor area is ...?

Less than 1,500 sq ft	1	[GO TO BC3]
Between 1,500 - 5,000 sq ft	2	[GO TO BC3]
Between 5,000 - 10,000 sq ft	3	[GO TO BC3]
Between 10,000 - 25,000 sq ft	4	[GO TO BC3]
Between 25,000 - 50,000 sq ft	5	[GO TO BC3]
Between 50,000 - 75,000 sq ft	6	[GO TO BC3]
Between 75,000 - 100,000 sq ft	7	[GO TO BC3]
Over 100,000 sq ft	8	[GO TO BC3]
Refused	-98	[GO TO BC3]
Don't know	-97	[GO TO BC3]

**BC3.** Is your space heated using electricity or gas?

Electricity	1	[GO TO BC4]
Gas	2	[GO TO BC4]
Propane	3	[GO TO BC4]
Both electricity and gas	4	[GO TO BC4]

Neither	5	<a href="#">[GO TO BC4]</a>
OPEN\Other-RECORD IF MULTIPLE	6	<a href="#">[GO TO BC4]</a>
Refused	-98	<a href="#">[GO TO BC4]</a>
Don't know	-97	<a href="#">[GO TO BC4]</a>

**BC4.** In what year was your facility built?

Year		<a href="#">[GO TO BC6]</a>
Refused	-98	<a href="#">[GO TO BC5]</a>
Don't know	-97	<a href="#">[GO TO BC5]</a>

*\*Using as a proxy for building envelope.*

**BC5.** If don't know, would you say it was...

After 2000	1	<a href="#">[GO TO NEXT SECTION]</a>
In the 1990's	2	<a href="#">[GO TO NEXT SECTION]</a>
1980s	3	<a href="#">[GO TO NEXT SECTION]</a>
1970s	4	<a href="#">[GO TO NEXT SECTION]</a>
1960s	5	<a href="#">[GO TO NEXT SECTION]</a>
1950	6	<a href="#">[GO TO NEXT SECTION]</a>
Before 1950	7	<a href="#">[GO TO NEXT SECTION]</a>
Refused	-98	<a href="#">[GO TO NEXT SECTION]</a>
Don't know	-97	<a href="#">[GO TO NEXT SECTION]</a>

## FIRMOGRAPHICS

**FM1.** What is the main business ACTIVITY at your facility or facilities?

Office	1	<a href="#">[GO TO FM2]</a>
Retail (non-food)	2	<a href="#">[GO TO FM2]</a>
College/University	3	<a href="#">[GO TO FM2]</a>
School	4	<a href="#">[GO TO FM2]</a>
Grocery Store	5	<a href="#">[GO TO FM2]</a>
Restaurant	6	<a href="#">[GO TO FM2]</a>
Health Care (other than Hospital)	7	<a href="#">[GO TO FM2]</a>
Hospital	8	<a href="#">[GO TO FM2]</a>
Hotel or Motel	9	<a href="#">[GO TO FM2]</a>
Warehouse	10	<a href="#">[GO TO FM2]</a>
Construction	11	<a href="#">[GO TO FM2]</a>
Community Service/Church/Temple/ Municipality	12	<a href="#">[GO TO FM2]</a>
Industrial Process/ Manufacturing/ Assembly	13	<a href="#">[GO TO FM2]</a>
Condo Assoc./Apartment Mgr.	14	<a href="#">[GO TO FM2]</a>
Greenhouse	15	<a href="#">[GO TO FM2]</a>
Laundry/Cleaners	16	<a href="#">[GO TO FM2]</a>
OPEN\Other - SPECIFY	17	<a href="#">[GO TO FM2]</a>
Refused	-98	<a href="#">[GO TO FM2]</a>
Don't Know	-97	<a href="#">[GO TO FM2]</a>

**FM2.** WHAT IS THE ZIPCODE OF THE BUILDING OR BUILDINGS THAT YOU HAVE BEEN DISCUSSING?

Zip Code (s)	<u>          </u>	<a href="#">[TERMINATE]</a>
Refused	-98	<a href="#">[TERMINATE]</a>
Don't know	-97	<a href="#">[TERMINATE]</a>



## L.10. CT-3B-NR: RENEWABLES: NON-RESIDENTIAL SECTOR

OMB Control No. 1910-5170

### DATABASE VARIABLES

&INTERVIEWER\_NAME....name of the caller  
&CONTACT .....contact name from program database  
&SPONSOR.....organization that sponsored the program  
&PROGRAM .....program name  
&DATES .....dates of program operation funded by SEP or of research interest  
&APPOINT .....date/time to call back  
&NAME .....person to call back  
&PHONE.....extension or phone number to call back  
&SERV\_ADDR .....service address where measure(s) were installed  
&CITY .....city where measure(s) were installed  
&CORRECT .....corrected service address  
&MEASURE\_TYPE .....wind, pv, solar heat, biomass biogas, geothermal, fuel cell, or other  
&MEASURE.....specific technology within measure type,  
&TARGET\_YEARS .....programs years under evaluation  
&PV .....boolean that is true if respondent installed photovoltaic measures  
&PV\_TECH.....specific photovoltaic technology,  
&PV\_NUM.....number of modules installed by pv technology  
&PVINV\_TECH.....specific pv inverter technology  
&PVINV\_NUM.....number of pv inverters installed by technology  
&WIND .....boolean that is true if respondent installed wind turbine measures  
&W\_TECH .....specific wind turbine technology,  
&W\_NUM.....number of wind turbine measures installed by technology  
&WINV\_TECH .....specific wind turbine inverter installed by technology  
&WINV\_NUM .....number of wind turbine inverters installed by technology  
&SHW .....boolean that is true if respondent installed solar heating measures  
&SHW\_TECH.....specific solar heating technology,  
&SHW\_NUM.....number of solar hot water modules installed by technology  
&BM .....boolean that is true if respondent installed biomass measures  
&BM\_TECH .....specific biomass technology,  
&BM\_NUM .....  
&BIOGAS .....boolean that is true if respondent installed biogas measures  
&BIOGAS\_CAPTECH.....specific biogas capturing technology,  
&BIOGAS\_GENTECH .....specific biogas power generation technology,  
&BIOGAS\_NUM .....  
&OTHER.....boolean that is true if respondent installed other measures

**INTRODUCTION AND FINDING CORRECT RESPONDENT**

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from & INTERVIEWER ORGANIZATION.  
 May I please speak with &CONTACT, or the person at this location who is most knowledgeable about your organizations' participation in &SPONSOR's &PROGRAM, which operated during the period &DATES?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how &PROGRAM worked.

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me transfer you to _____]	4	[GO TO INTRO3:s]
[No, that is the wrong person]	5	[GO TO HI]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't Know]	97	[GO TO APPOINT]
[Refused]	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO3(99).** Thank you for your time. We need to speak with the person at your organization that is most familiar with your participation in the &PROGRAM. Those are all of the questions I have for you today **[TERMINATE; ASSIGN DISPOSITION & REMOVE FROM CALL ORDER]**

**HI.** Who would be the person at this location who is most knowledgeable about your organizations' participation in &SPONSOR's &PROGRAM?

	RECORD NAME AS &CONTACT	[GO TO MAY_I]
[Don't Know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO INTRO3(99)]

**MAY\_I.** May I speak with him/her?

[Yes]	1	[GO TO INTRO3:s]
[No]	2	[GO TO EXT]
[Don't know]	-97	[GO TO EXT]

[Refused]	-98	[GO TO EXT]
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**INTRO3:s.** Hello, this is <INTERVIEWER NAME> calling on behalf of the Department of Energy from [INTERVIEWER ORGANIZATION](#) . This is not a sales call. This is a fact-finding survey only. According to our records, your organization participated in &SPONSOR's &PROGRAM.

I was told that you are the person most knowledgeable about this program. Is this correct?

[Yes]	1	[GO TO PURPOSE]
[No]	2	[GO TO HI]
[No one knows about the program]	3	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[GO TO EXT]

**EXT.** Is there a phone extension or phone number you recommend we use when we call back?

[Yes]	1	RECORD EXTENSION OR PHONE NUMBER AS &PHONE;  [GO TO APPOINT]
[No]	2	[GO TO APPOINT]
[Don't know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO APPOINT]

**PURPOSE.** The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. We are calling you today to learn about your organization's response to the &SPONSOR's &PROGRAM. The information we gather will be used by the Department of Energy to understand how the program has worked. The survey should take no more than 50 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way.

**SCREENER**

**SC1.** First, I'd like to ask you a few questions about your organization and facility. Our records show your organization occupies a facility at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO COMMENT3]
[No]	2	[GO TO CORRECT]
[Don't know]	-97	[GO TO COMMENT1]
[Refused]	-98	[GO TO COMMENT1]

**COMMENT1.** We were attempting to reach the customer at &SERV\_ADDR and since you cannot confirm this address, those are all the questions that we have for you today, on behalf of the Department of Energy, thank you for your time.

**CORRECT** May I have your address?

[Yes]	1	RECORD IN &CORRECT [GO TO COMPARE]
[No]	2	[COMMENT2]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[GO TO COMMENT2]

**COMPARE.** **[DO NOT READ] Are these addresses similar or totally different?**  
**Computer Address - &SERV\_ADDR**  
**Corrected Address - &CORRECT**

[Similar]	1	SET &SERV_ADDR = &CORRECT [GO TO COMMENT3]
[Totally different]	2	[GO TO COMMENT2]

**COMMENT2.** We were attempting to reach the customer at &SERV\_ADDR in &CITY and since that does not match your address, then we must have mis-dialed the telephone number. Those are all the questions that we have for you today, on behalf of the Department of Energy. Thank you for your time and cooperation.

**COMMENT3.** The questions in this survey will refer to your "FACILITY," which means ALL of the buildings owned or occupied by your organization at &SERV\_ADDR.  
**[INTERVIEWERS SHOULD RE-READ THIS STATEMENT AS NEEDED THROUGHOUT THE SURVEY TO REMIND THE RESPONDENTS]**

**SC2.** Our records show that your organization received support from &PROGRAM to carry out renewable energy generation projects in the facility located at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO SC3]
[No]	2	[GO TO COMMENT4]
[Don't know]	97	[GO TO COMMENT4]
[Refused]	98	[GO TO COMMENT4]

**COMMENT4.** Can you refer me to someone who would be likely to be familiar with such a project?

[Yes]	1	[GO TO HI]
[No]	2	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO INTRO3(99)]
[Refused]	-98	[GO TO INTRO3(99)]

**SC3.** Are you familiar with your organization's decision to participate in &PROGRAM and the nature of the renewable energy measures carried out with its assistance?

[Yes]	1	[GO TO RI1]
[No]	2	[GO TO COMMENT4]
[Don't know]	-97	[GO TO COMMENT4]
[Refused]	-98	[GO TO COMMENT4]

**RESPONDENT INFO: ROLE IN THE PROJECT**

**RI1.** I'd like to start getting a little information about you. What is your job title?  
**[RECORD JOB TITLE]** \_\_\_\_\_

**RI2.** Which of the following best describes your role in making decisions regarding the purchase and installation of renewable energy systems such as wind turbines, solar panels, biofuels, geothermal, or fuel cells in your facility? **[READ OPTIONS, SELECT ONE]**

Sole responsibility for decisions	1	
Part of a group that makes decisions	2	<a href="#">[GOT TO RI2a]</a>
Provide recommendations to decisions makers	3	<a href="#">[GO TO RI2a]</a>
Not involved in making decisions	.4	<a href="#">[GO TO RI2a]</a>
Something else [SPECIFY____]	5	<a href="#">[GO TO RI2a]</a>

**RI2a.** Who else was involved in the decisions?

RECORD NAME	_____	<a href="#">[GO TO RI3]</a>
RECORD PHONE NUMBER/EXTENSION	_____	<a href="#">[GO TO RI3]</a>
[Don't know]	-97	<a href="#">[GO TO RI3]</a>
[Refused]	-98	<a href="#">[GO TO RI3]</a>

**RI3.** Which of the following roles did you play in regard to the project or projects supported by &SPONSOR's &PROGRAM? **[READ OPTIONS, MARK ALL THAT APPLY]**

Prepared applications to the program or otherwise solicited support	1	<a href="#">[GO TO NEXT SECTION]</a>
Identified some or all of energy efficiency opportunities	2	<a href="#">[GO TO NEXT SECTION]</a>
Hired contractors or engineers to identify energy efficiency opportunities	3	<a href="#">[GO TO NEXT SECTION]</a>
Developed request for project authorization from higher management or political leaders	4	<a href="#">[GO TO NEXT SECTION]</a>
Sought and/or secured funding for the project from sources internal to your organization	5	<a href="#">[GO TO NEXT SECTION]</a>
Sought and/or secured funding for the project from <b>external</b> sources	6	<a href="#">[GO TO NEXT SECTION]</a>
Oversaw project design and equipment selection	7	<a href="#">[GO TO NEXT SECTION]</a>
Oversaw project installation and construction	8	<a href="#">[GO TO NEXT SECTION]</a>
Oversaw commissioning and early operations of the equipment	9	<a href="#">[GO TO NEXT SECTION]</a>
Something else (Specify) _____	10	<a href="#">[GO TO NEXT SECTION]</a>
[Don't know]	- 97	<a href="#">[GO TO COMMENT4]</a>
[REFUSED]	- 98	<a href="#">[GO TO COMMENT4]</a>

**INITIAL VERIFICATION INVENTORY**

**Note:** the segments vy and vn elicit the same type of information from customers in programs that are able to provide measure-level data for projects supported by the program (vy) and those for which measure-level data are not available (vn). The answers to both sequences are answered in the same initial verification grid below. The objective of this sequence is to provide verification of the overall scope of the project, characterize the scope of support provided by the SEP program and other programs, and eliminate the need for repetitive questions in the detailed measure sections. Sequence vb is addressed to all respondents.

**V1.** I'd like to ask you about the scope of the project at &SERV\_ADDR.

**SEQUENCE VY: FOR CUSTOMERS IN PROGRAMS WITH MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**[REPEAT THIS SERIES FOR EACH MEASURE IN THE TRACKING DATA]**

**VY1a.** According to &SPONSOR records, your organization installed &MEASURE as part of the project. Is this correct?

[Yes]	1	[GO TO VY2c]
[No]	2	[GO TO VY2a]
[Don't know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**VY2a.** Why was &MEASURE not installed at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY]**

Never planned to install as part of project	1	[GO TO VY1a FOR NEXT MEASURE]
Project proved to be technically infeasible	2	[GO TO VY2b]
Financial resources were not available	3	[GO TO VY2b]
Still plan to install, haven't had time to complete project	4	[GO TO VY2b]
[Other (Specify)] _____	5	[GO TO VY2b]
[Don't know]	-97	[GO TO VY2b]
[Refused]	-98	[GO TO VY2b]

**VY2b.** Do you plan to install &MEASURE within the next year?

[Yes]	1	[GO TO VY2c]
[No]	2	[GO TO VY2c]
[Don't know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**VY2c.** Which of the following best characterizes the current status of work on this measure?

Installation is complete and in use	1	[GO TO VY1a FOR NEXT MEASURE]
Installation is complete but not now in use	2	[GO TO VY1a FOR NEXT MEASURE]
Work on the project has not started	3	[GO TO VY1a FOR NEXT MEASURE]
Project concept developed but no designs or equipment specified	4	[GO TO VY1a FOR NEXT MEASURE]
Designs and equipment specified but no detailed cost estimates	5	[GO TO VY1a FOR NEXT MEASURE]
Contractor selected but installation work not begun	6	[GO TO VY1a FOR NEXT MEASURE]
Installation work underway	7	[GO TO VY1a FOR NEXT MEASURE]
Other (Specify) _____	8	[GO TO VY1a FOR NEXT MEASURE]
[Don't Know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VY SEQUENCE FOR ALL MEASURES IN TRACKING DATABASE]**

**SEQUENCE VN: FOR CUSTOMERS IN PROGRAMS WITH NO MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**VN1a.** Which of the following types of measures were installed as part of the project?

**[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

<b>Wind Turbine</b>	1	[GO TO VN1b]
<b>Photovoltaic</b>	2	[GO TO VN1b]
<b>Solar Heating</b>	3	[GO TO VN1b]
<b>Geothermal</b>	4	[GO TO VN1b]
<b>Biogas</b>	5	[GO TO VN1b]
<b>Biomass</b>	6	[GO TO VN1b]
<b>Fuel cells</b>	7	[GO TO VN1b]
<b>Other Renewables Measures</b>	8	[GO TO VN1b]

**[ASK VN1b FOR EACH MEASURE TYPE IDENTIFIED IN VN1a]**

**VN1b.** Which of the following best characterizes the current status of work on this measure?

Installation is complete and in use	1	[GO TO VN1c]
Installation is complete but not now in use	2	[GO TO VN1c]
Work on the project has not started	3	[GO TO VN1c]
Project concept developed but no designs or equipment specified	4	[GO TO VN1c]
Designs and equipment specified but no detailed cost estimates	5	[GO TO VN1c]
Contractor selected but installation work not begun	6	[GO TO VN1c]
Installation work underway	7	[GO TO VN1c]
Other (Specify) _____	8	[GO TO VN1c]
[Don't know]	-97	[GO TO VN1c]
[Refused]	-98	[GO TO VN1c]

**VN1c.** Were there any measures for which your organization received support from &PROGRAM in &TARGET\_YEARS that have not yet been installed?

[Yes]	1	[GO TO VN1c]
[No]	2	[GO TO VB1]
[Don't know]	-97	[GO TO VB1]
[Refused]	-98	[GO TO VB1]

**VN1d.** Which measures or types of measures received support from &PROGRAM but have not yet been installed? **[MARK ALL THAT APPLY IN LIST IN THE GRID.]**

<b>Wind Turbine</b>	1	[GO TO VN2a]
<b>Photovoltaic</b>	2	[GO TO VN2a]
<b>Solar Heating</b>	3	[GO TO VN2a]
<b>Geothermal</b>	4	[GO TO VN2a]
<b>Biogas</b>	5	[GO TO VN2a]
<b>Biomass</b>	6	[GO TO VN2a]
<b>Fuel cells</b>	7	[GO TO VN2a]
<b>Other Renewables Measures</b>	8	[GO TO VN2a]

**FOR EACH MEASURE TYPE MARKED IN VN1c, ASK VN2a THROUGH VN2B.**

**VN2a.** Why was &MEASURE\_TYPE not installed at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY]**

Never planned to install as part of project	1	[GO TO VN2a FOR NEXT MEASURE]
Project proved to be technically infeasible	2	[GO TO VN2b]
Financial resources were not available	3	[GO TO VN2b]
Still plan to install, haven't had time to complete project	4	[GO TO VN2b]
[Other (Specify)] _____	5	[GO TO VN2b]

[Don't know]	-97	[GO TO VN2b]
[Refused]	-98	[GO TO VN2b]

**VN2b.** Do you plan to install &MEASURE within the next year?

[Yes]	1	[GO TO VN2a FOR NEXT MEASURE]
[No]	2	[GO TO VN2a FOR NEXT MEASURE]
[Don't know]	-97	[GO TO VN2a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VN2a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VN2a – VN2b SEQUENCE FOR ALL APPLICABLE MEASURES]**

**VY AND VN SEQUENCE RESPONSE GRID FOR SEP SUPPORTED EFFORTS**

	<b>1a</b>	<b>1c (N only)</b>	<b>2a</b>	<b>2b</b>	<b>2c</b>
<b>Measure type</b>	<b>Installed?</b>	<b>Not Installed</b>	<b>Why not installed?</b>	<b>Plan to install in Yr?</b>	<b>Current Status?</b>
<b>Renewables Measures</b>					
<b>Wind Turbine</b>					
<b>PV</b>					
<b>Solar Heating</b>					
<b>Geothermal</b>					
<b>Biogas</b>					
<b>Biomass</b>					
<b>Fuel Cell</b>					
<b>Other Renewables Measures</b>					

**SEQUENCE VB: DIRECTED TO ALL CUSTOMERS.**

**VB1.** What kinds of assistance and support did you receive from &SPONSOR’s program in completing the project at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY. PROMPT IF NEEDED.]**

Financial grant or rebate for measures installed	1	[GO TO VB2]
Subsidy for design or engineering work	2	[GO TO VB2]
Reduced interest loan or loan interest subsidy	3	[GO TO VB2]
Loan guarantee	4	[GO TO VB2]
Assistance in entering into performance contracts	5	[GO TO VB3]
Energy audit or other technical assistance in identifying & characterizing opportunities	6	[GO TO VB3]
Referrals to qualified vendors	7	[GO TO VB3]
General information on energy efficiency opportunities	8	[GO TO VB3]
Other (Specify in enough detail to understand the support received to use in attribution analysis)	9	[GO TO VB3]
[Don't know]	97	[GO TO VB3]
[Refused]	98	[GO TO VB3]

**[IF VB1 INCLUDES 1, 2, 3, OR 4 ASK VB2, ELSE VB3]**

**VB2.** What was the amount of the incentive, subsidy, or loan provided by the program?  
Your best approximation will be fine.

[RECORD AMOUNT]	\$_____	[GO TO VB3]
[Don't know]	-97	[GO TO VB3]
[Refused]	-98	[GO TO VB3]

**VB3.** And, what was the total overall cost of the project supported by &PROGRAM including equipment and labor *before* any incentives or subsidies were applied? Again, your best approximation will be fine

[RECORD AMOUNT]	\$_____	[GO TO VB4]
[Don't know]	-97	[GO TO VB4]
[Refused]	-98	[GO TO VB4]

**[IF MULTIPLE MEASURES INSTALLED ASK VB4 THROUGH VB6, ELSE NEXT SECTION.]**

**VB4.** Can you recall how these costs were allocated among the different measures installed?

[Yes]	1	[GO TO VB5]
[No]	2	[GO TO NEXT SECTION]
[Don't know]	-97	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**VB5.** Can you tell me the cost of purchasing and installing &MEASURE **[STARTING FROM FIRST IN GRID OR DATABASE]?**

**VB6.** **[IF RESPONDENT CANNOT PROVIDE A COST AMOUNT:]** What percentage of the total overall costs of the project supported by &PROGRAM did &MEASURE\_TYPE account for?

	<b>VB5</b>	<b>VB6</b>
<b>Measure type</b>	<b>Cost</b>	<b>% of Total</b>
<b>Wind Turbine</b>		
<b>PV</b>		
<b>Solar Heating</b>		
<b>Geothermal</b>		
<b>Biogas</b>		
<b>Fuel Cell</b>		
<b>Other Renewables Measures</b>		

**[RECORD VERIFIED MEASURES FOR MEASURE SPECIFIC QUESTIONS BELOW. RESPONDENTS WILL ONLY BE ASKED MEASURE SPECIFIC QUESTIONS FOR MEASURE GROUP IS CONFIRMED]**

- [&PV]
- [&WIND]
- [&SOLAR]
- [&BIOMASS]
- [&BIOGAS]
- [&OTHER]

## PV SYSTEMS QUESTIONS

### [IF &PV = TRUE]

In the next section we'll be discussing the photovoltaic project that received support from &SPONSOR &PROGRAM.

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK PV1a THROUGH PV2c.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK PV3a THROUGH PV3c.]

**PV1a.** Our records indicate that your organization installed &PV\_NUM of &PV\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO PV1A FOR NEXT &PV_TECH]
[Did not install any of that technology]	2	[GO TO PV1A FOR NEXT &PV_TECH]
[Technology correct, number wrong]	3	[GO TO PV1num]
[Don't Know]	-97	[GO TO PV1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO PV1A FOR NEXT &PV_TECH]

**PV1num.** What is the correct number of &PV\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO PV1c]
[Don't Know]	-97	[GO TO PV1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO PV1A FOR NEXT &PV_TECH]

**PV1c.** Why did you install a different number of &PV\_TECH?

Have no idea why numbers differ	1	[GO TO PV1A FOR NEXT &PV_TECH]
Put some in storage	2	[GO TO PV1A FOR NEXT &PV_TECH]
Installed some at another facility	3	[GO TO PV1A FOR NEXT &PV_TECH]
Insufficient financial resources to complete full amount	4	[GO TO PV1A FOR NEXT &PV_TECH]
[Other, Specify _____]	5	[GO TO PV1A FOR NEXT &PV_TECH]
[Don't know]	-97	[GO TO PV1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO PV1A FOR NEXT &PV_TECH]

**PV2.** Our records indicate that your organization installed &PVINV\_NUM of &PVINV\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO PV2A FOR NEXT &PVINV_TECH]
[Did not install any of that technology]	2	[GO TO PV2A FOR NEXT &PVINV_TECH]
[Technology correct, number wrong]	3	[GO TO PV2num]
[Don't Know]	-97	[GO TO PV2A FOR NEXT &PVINV_TECH]
[Refused]	-98	[GO TO PV2A FOR NEXT &PVINV_TECH]

**PV2a.** What is the correct number of &PVINV\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		<a href="#">[GO TO LI1c]</a>
[Don't Know]	-97	<a href="#">[GO TO LI1A FOR NEXT &amp;PV_TECH]</a>
[Refused]	-98	<a href="#">[GO TO LI1A FOR NEXT &amp;PV_TECH]</a>

**PV3a.** What is the manufacturer and model number of your PV modules?

**PV3a1.**

RECORD MANUFACTURER		<a href="#">[GO TO PV3a2]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3a2]</a>
[Refused]	-98	<a href="#">[GO TO PV3a2]</a>

**PV3a2.**

RECORD MODEL NUMBER		<a href="#">[GO TO PV3b]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3b]</a>
[Refused]	-98	<a href="#">[GO TO PV3b]</a>

**PV3b.** How many of that type of PV module have been installed through the &PROGRAM.

ENTER NUMBER		<a href="#">[GO TO PV3c]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3c]</a>
[Refused]	-98	<a href="#">[GO TO PV3c]</a>

**PV3c.** Are there other types of PV modules installed through the &PROGRAM?

YES		<a href="#">[GO TO PV3a]</a>
NO		<a href="#">[GO TO PV3d]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3d]</a>
[Refused]	-98	<a href="#">[GO TO PV3d]</a>

**PV3d.** What is the manufacturer and model number of your PV inverter(s)?

**PV3d1.**

RECORD MANUFACTURER		<a href="#">[GO TO PV3d2]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3d2]</a>
[Refused]	-98	<a href="#">[GO TO PV3d2]</a>

**PV3d2.**

RECORD MODEL NUMBER		<a href="#">[GO TO PV3e]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3e]</a>
[Refused]	-98	<a href="#">[GO TO PV3e]</a>

**PV3e.** How many of that type of inverter have been installed through the &PROGRAM.

ENTER NUMBER		<a href="#">[GO TO PV3f]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3f]</a>
[Refused]	-98	<a href="#">[GO TO PV3f]</a>

**PV3f.** Are there other types of inverters installed through the &PROGRAM?

YES		<a href="#">[GO TO PV3d]</a>
NO		<a href="#">[GO TO PV4]</a>
[Don't Know]	-97	<a href="#">[GO TO PV4]</a>

[Refused]	-98	[GO TO PV4]
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**PV4.** How many degrees from north are your panels facing?

[ENTER NUMBER]

- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV5.** Are your panels on an automatic tracking system?

- [YES]..... 1
- [NO]..... [SKIP TO PV7] 2
- [DON'T KNOW] ..... [SKIP TO PV7] -97
- [REFUSED] ..... [SKIP TO PV7] -98

**PV6.** Is your tracking system DUAL axis?

- [YES]..... 1
- [NO]..... [SKIP TO PV7] 2
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**PV7.** Are your panels shaded at all during the year?

- [YES]..... 1
- [NO]..... [SKIP TO PV9] 2
- [DON'T KNOW] ..... [SKIP TO PV9] -97
- [REFUSED] ..... [SKIP TO PV9] -98

**PV8a.** Which months of the year are they shaded at least part of the day?

**PV8b.** For each month that they are shaded part of the day, what times of day are they shaded?

- [RECORD MONTH, TIME OF DAY AND PERCENT SHADED]
- [RECORD MONTH, TIME OF DAY AND PERCENT SHADED]
- [RECORD MONTH, TIME OF DAY AND PERCENT SHADED]

**PV9.** Have you modified the system since it was first installed? (ex: equipment changes such as replacing panels or an inverter or additions, such as adding panels?)

- [YES]..... 1
- [NO]..... **[SKIP TO PV10]** 2
- [DON'T KNOW] ..... **[SKIP TO PV10]** -97
- [REFUSED] ..... **[SKIP TO PV10]** -98

**PV9a.** Was the modification an addition or an equipment replacement?

**[CIRCLE ALL THAT APPLY]**

- [Addition]..... **[SKIP TO PV9b]** 1
- [Replacement] ..... **[SKIP TO PV9c]** 2
- [DON'T KNOW] ..... **[SKIP TO PV10]** -97
- [REFUSED] ..... **[SKIP TO PV10]** -98

**PV9b.** What have you [added]?

**[RECORD RESPONSE – note changes to capacity]**

- [DON'T KNOW] ..... **[SKIP TO PV10]** -97
- [REFUSED] ..... **[SKIP TO PV10]** -98

**PV9c.** What components of your system have required repair or replacement?

- [Inverter]..... 1
- [One or more modules]..... 2
- [Anything else] ..... 3

**PV9d.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV10.** When was your PV system installed?

**[RECORD MONTH and YEAR]**

**PV10a.** Did your system begin producing electricity on the date it was installed?

- [YES]..... **[SKIP TO PV11]** 1
- [NO]..... 2
- [DON'T KNOW] ..... **[SKIP TO PV11]** -97
- [REFUSED] ..... **[SKIP TO PV11]** -98

**PV10b** When did it begin producing electricity?

**[RECORD PRODUCTION Month and Year (if possible get day)]**

**PV11.** Has there been any major down-time (more than a few days) in the system since installation?

- [YES]..... 1
- [NO]..... **[SKIP TO PV12]** 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV11a.** When, and for how long [record as month:days (i.e. 03:7)]?  
**[IF MORE THAN ONE, RECORD MOST SUBSTANTIAL PERIOD]**

**PV12.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

**PV12a** kWh

- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV12b** RESET DATE \_\_\_\_\_

**PV13.**What did you take this reading from? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

- Read-out display on inverter?** ..... 1
- Separate utility meter for pv electricity?** ..... 2
- [Other] ..... -9996
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**PV13a.** [Describe OTHER \_\_\_\_\_]

**PV13b.** How do you track the output from the [renewable system—fill in type]?

- [inverter] .....1
- [utility meter/net meter] .....2
- [reductions in my utility bill] .....3
- [other means: please describe \_\_\_\_\_] 4

**PV14c.** On a scale of 1-10, is the [renewable –insert type ] system achieving the savings you expected?

**PV14d.** Why/why not?

## WIND SYSTEMS QUESTIONS

### [IF &WIND = TRUE]

In the next section we'll be discussing the wind project that received support from &SPONSOR &PROGRAM.

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK W1a THROUGH W2b.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK W3a THROUGH W3f.]

**W1a.** Our records indicate that your organization installed &WIND\_NUM of &WIND\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO W1A FOR NEXT &W_TECH]
[Did not install any of that technology]	2	[GO TO W1A FOR NEXT &W_TECH]
[Technology correct, number wrong]	3	[GO TO W1num]
[Don't Know]	-97	[GO TO W1A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO W1A FOR NEXT &W_TECH]

**W1num.** What is the correct number of &WIND\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO W1c]
[Don't Know]	-97	[GO TO W1A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO W1A FOR NEXT &W_TECH]

**W1c.** Why did you install a different number of &WIND\_TECH?

Have no idea why numbers differ	1	[GO TO W1A FOR NEXT &W_TECH]
Put some in storage	2	[GO TO W1A FOR NEXT &W_TECH]
Installed some at another facility	3	[GO TO W1A FOR NEXT &W_TECH]
Insufficient financial resources to complete full amount	4	[GO TO W1A FOR NEXT &W_TECH]
[Other, Specify_____]	5	[GO TO W1A FOR NEXT &W_TECH]
[Don't know]	-97	[GO TO W1A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO W1A FOR NEXT &W_TECH]

**W2.** Our records indicate that your organization installed &WINV\_NUM of &WINV\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO W2 FOR NEXT &WINV_TECH]
[Did not install any of that technology]	2	[GO TO W2 FOR NEXT &WINV_TECH]
[Technology correct, number wrong]	3	[GO TO W2a]
[Don't Know]	-97	[GO TO W2 FOR NEXT &WINV_TECH]
[Refused]	-98	[GO TO W2 FOR NEXT &WINV_TECH]

**W2a.** What is the correct number of &WINV\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO W2b FOR NEXT &WINV_TECH]
[Don't Know]	-97	[GO TO W2 FOR NEXT &WINV_TECH]
[Refused]	-98	[GO TO W2 FOR NEXT &WINV_TECH]

**W2b.** What is the hub height of each turbine?

RECORD CORRECT HEIGHT: \_\_\_\_\_  
 [DON'T KNOW] .....-9997  
 [REFUSED] .....-9998

**W3a.** What is the manufacturer and model number of your turbines?

**W3a1.**

RECORD MANUFACTURER		[GO TO W3a2]
[Don't Know]	-97	[GO TO W3a2]
[Refused]	-98	[GO TO W3a2]

**W3a2.**

RECORD MODEL NUMBER		[GO TO W3b]
[Don't Know]	-97	[GO TO W3b]
[Refused]	-98	[GO TO W3b]

**W3b.** How many of that type of turbines have been installed through the &PROGRAM.

ENTER NUMBER		[GO TO W3c]
[Don't Know]	-97	[GO TO W3c]
[Refused]	-98	[GO TO W3c]

**W3c.** Are there other types of turbines installed through the &PROGRAM?

YES		[GO TO W3a]
NO		[GO TO W3d]
[Don't Know]	-97	[GO TO W3d]
[Refused]	-98	[GO TO W3d]

**W3d.** What is the manufacturer and model number of your inverter(s)?

**W3d1.**

RECORD MANUFACTURER		[GO TO W3d2]
[Don't Know]	-97	[GO TO W3d2]
[Refused]	-98	[GO TO W3d2]

**W3d2.**

RECORD MODEL NUMBER		[GO TO W3e]
[Don't Know]	-97	[GO TO W3e]
[Refused]	-98	[GO TO W3e]

**W3e.** How many of that type of inverter have been installed through the &PROGRAM.

ENTER NUMBER		[GO TO W3f]
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[Don't Know]	-97	[GO TO W3f]
[Refused]	-98	[GO TO W3f]

**W3f.** Are there other types of inverters installed through the &PROGRAM?

YES		[GO TO W3d]
NO		[GO TO W4]
[Don't Know]	-97	[GO TO W4]
[Refused]	-98	[GO TO W4]

**W4.** Have you modified the system since it was first installed? (ex: equipment changes such as a new turbine or inverter?)

- [YES] ..... 1
- [NO] ..... [SKIP TO W5] 2
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W4a.** Was the modification an addition or equipment replacement? **[ALL THAT APPLY]**

- 1 [Addition] ..... [SKIP TO W4b]
- 2 [Replacement] ..... [SKIP TO W4c]
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W4b.** What have you [added]?

- [RECORD RESPONSE – note changes to capacity]**
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W4c.** What components of your system have required repair or replacement?

- [Inverter] ..... 1
- [One or more turbines] ..... 2
- [Anything else] ..... 3

**W4d.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W5.** When was your wind turbine installed?

**[RECORD MONTH and YEAR if possible get Day]**

**W5a.** Did the turbine begin producing power on the date it was installed?

- [YES] ..... 1
- [NO] ..... [RECORD DATE \_\_\_\_\_] 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**W6.** Has there been any major down-time (more than a few days) in the system since installation, other than times when the wind wasn't blowing strong enough to generate power?

- [YES]..... 1
- [NO]..... **[SKIP TO W7]** 2
- [DON'T KNOW] ..... **[SKIP TO W7]** -97
- [REFUSED] ..... **[SKIP TO W7]** -98

**W6a** – When, and for how long [(record as month:days (i.e. 03:7))]?  
\_\_\_\_\_

**W7.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

- W7a.** kWh \_\_\_\_\_
- [DON'T KNOW] ..... -97
  - [REFUSED] ..... -98

**W7b.** RESET DATE \_\_\_\_\_

**W8.** Did you make this reading from a . . . ? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

- Read-out display on inverter? ..... 1
- Separate utility meter for wind system? ..... 2
- Reductions in my utility bill .....3
- [Other] ..... 77
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**W9.** On a scale of 1-10, is the [renewable –insert type ] system achieving the savings you expected?

**W9a** Why/why not?

**SOLAR HOT WATER QUESTIONS**

**[IF &SHW = TRUE]**

**In the next section we'll be discussing the solar hot water project that received support from &SPONSOR &PROGRAM.**

**[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK SHW1a THROUGH SHW1c. IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK SHW3 THROUGH SHW3c.]**

**SHW1a.** Our records indicate that your organization installed &SHW\_NUM of &SHW\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Did not install any of that technology]	2	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Technology correct, number wrong]	3	[GO TO SHW1num]
[Don't Know]	-97	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Refused]	-98	[GO TO SHW1A FOR NEXT &SHW_TECH]

**SHW1num.** What is the correct number of &SHW\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO SHW1c]
[Don't Know]	-97	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Refused]	-98	[GO TO SHW1A FOR NEXT &SHW_TECH]

**SHW1c.** Why did you install a different number of &SHW\_TECH?

Have no idea why numbers differ	1	[GO TO SHW1A FOR NEXT &SHW_TECH]
Put some in storage	2	[GO TO SHW1A FOR NEXT &SHW_TECH]
Installed some at another facility	3	[GO TO SHW1A FOR NEXT &SHW_TECH]
Insufficient financial resources to complete full amount	4	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Other, Specify_____]	5	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Don't know]	-97	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Refused]	-98	[GO TO SHW1A FOR NEXT &SHW_TECH]

**SHW2a.** What is the manufacturer and model number of your solar hot water module?

**SHW2a1.**

RECORD MANUFACTURER		[GO TO SHW2a2]
[Don't Know]	-97	[GO TO SHW2a2]
[Refused]	-98	[GO TO SHW2a2]

**SHW2a2.**

RECORD MODEL NUMBER		[GO TO SHW2b]
[Don't Know]	-97	[GO TO SHW2b]
[Refused]	-98	[GO TO SHW2b]

**SHW2b.** How many of that type of solar hot water module have been installed through the &PROGRAM.

ENTER NUMBER		[GO TO SHW2c]
[Don't Know]	-97	[GO TO SHW2c]
[Refused]	-98	[GO TO SHW2c]

**SHW2c.** Are there other types of solar hot water modules installed through the &PROGRAM?

YES		[GO TO SHW2a]
NO		[GO TO SHW2d]
[Don't Know]	-97	[GO TO SHW2d]
[Refused]	-98	[GO TO SHW2d]

**SHW3a.** How many tanks are heated using the system funded through &PROGRAM?

SHW3a1. [Number of Tanks] \_\_\_\_\_

**SHW3b.** What is the capacity of each of these tanks?

SHW3b2. [Capacity#1] \_\_\_\_\_

SHW3b3. [Capacity #2] \_\_\_\_\_

SHW3b4. [Capacity#3] \_\_\_\_\_

**SHW3c.** Do you use the system to heat one or more swimming pools?

[YES] ..... [ASK SHW3c1] 1

[NO] ..... [SKIP TO SHW4] 2

[DON'T KNOW] ..... [SKIP TO SHW4] -97

[REFUSED] ..... [SKIP TO SHW4] -98

**SHW3c1.** [NUMBER OF POOLS] \_\_\_\_\_ &N\_POOL \_\_\_\_\_

**[FOR EACH &N\_POOL ASK 3D]**

**SHW3d.** [Capacity #n] \_\_\_\_\_

**SHW3d1.** Is this pool...

[Indoor] ..... 1

[Outdoor above ground] ..... 2

[Outdoor in ground] ..... 3

[DON'T KNOW] ..... -97

[REFUSED] ..... -98

SHW3e. [Capacity #2] \_\_\_\_\_

SHW3e1. Is this pool...

[Indoor] ..... 1

[Outdoor above ground] ..... 2

[Outdoor in ground] ..... 3

[DON'T KNOW] ..... -97

[REFUSED] ..... -98

SHW3f. [Capacity#3] \_\_\_\_\_



- SHW3f1. Is this pool...
  - [Indoor] ..... 1
  - [Outdoor above ground] ..... 2
  - [Outdoor in ground] ..... 3
  - [DON'T KNOW] ..... -9997
  - [REFUSED] ..... -9998

- SHW4.** How many degrees from north do your panels face?  
**[ENTER CORRECT DEGREES FROM NORTH]** \_\_\_\_\_
  - DON'T KNOW] ..... [SKIP TO SHW5] -97
  - [REFUSED] ..... [SKIP TO SHW5] -98

- SHW5.** What is your tilt angle was [ANGLE] when it was installed?  
**[ENTER CORRECT TILT ANGLE]** \_\_\_\_\_
  - [DON'T KNOW] ..... [SKIP TO SHW6] -97
  - [REFUSED] ..... [SKIP TO SHW6] -98

- SHW6.** Are your panels shaded at all during the year?
  - [YES] ..... 1
  - [NO] ..... [SKIP TO SHW7] 2
  - [DON'T KNOW] ..... [SKIP TO SHW7] -97
  - [REFUSED] ..... [SKIP TO SHW7] -98

**SHW6a.** When are they shaded [probe for time of year (e.g. May to August), time of day (e.g. noon to 3PM), percent shaded]?

**[RECORD MONTH, TIME OF DAY AND PERCENT SHADED]**  
**[RECORD MONTH, TIME OF DAY AND PERCENT SHADED]**  
**[RECORD MONTH, TIME OF DAY AND PERCENT SHADED]**

- SHW6b.** Most solar hot water systems have a pump that circulates water within the panels. What is the manufacturer and model number of your system's pump?

**SHW6b.** **[ENTER MANUFACTURER FROM DROP DOWN]** \_\_\_\_\_  
**SHW6c.** **[ENTER MODEL FROM DROP DOWN]** \_\_\_\_\_

- SHW6d.** How is your pump powered? Did you install a small solar electric panel to power the pump, does the pump run off your regular electricity, or something else?
- [PV] ..... **[SKIP TO SHW7]** 1
  - [Plug in] ..... **[SKIP TO SHW7]** 2
  - [Other] ..... 3
  - [DON'T KNOW] ..... **[SKIP TO SHW7]** -97
  - [REFUSED] ..... **[SKIP TO SHW7]** -98

**SHW6e.** **[ENTER POWER SOURCE]** \_\_\_\_\_

- SHW7.** Have you modified the system since it was first installed? (ex: equipment changes such as replacing or adding panels?)
- [YES] ..... 1
  - [NO] ..... **[SKIP TO SHW8]** 2
  - [DON'T KNOW] ..... **[SKIP TO SHW8]** -97
  - [REFUSED] ..... **[SKIP TO SHW8]** -98

**SHW7a. Was the modification an addition or equipment replacement?**  
**[CIRCLE ALL THAT APPLY]**

- [Addition] ..... 1
- [Replacement] ..... 2
- [DON'T KNOW] ..... **[SKIP TO SHW8]** -9997
- [REFUSED] ..... **[SKIP TO SHW8]** -9998

**HW7b.** What have you [added/replaced]?

- [RECORD RESPONSE – note changes to capacity]
- [DON'T KNOW] ..... **[SKIP TO SHW8]** -9997
- [REFUSED] ..... **[SKIP TO SHW8]** -9998

**SHW7c.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**SHW8.** What is the temperature of your hot water?

- [ENTER TEMPERATURE] \_\_\_\_\_
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**SHW9a.** About how much hot water do you use per month? (If they don't know that ask how much water they use per month).

- [ENTER HOT WATER USAGE – SKIP TO SHW10] \_\_\_\_\_
- [DON'T KNOW] ..... **[SKIP TO SHW9c]** -97
- [REFUSED] ..... **[SKIP TO SHW9c]** -9998

**SHW9b.** What is this estimate based on? **[RECORD RESPONSE]**

\_\_\_\_\_

[SKIP to SHW9i if not Nursing Home. A nursing home is similar to a multifamily facility, but usually has a central kitchen service]

**SHW9b.** [Nursing Home] How many residents are in the building?  
**[ENTER NUMBER OF RESIDENTS – SKIP TO SHW10]** \_\_\_\_\_

[DON'T KNOW] ..... **[SKIP TO SHW10]** -97

[REFUSED] ..... **[SKIP TO SHW10]** -98

**SHW9c.** [Non-Residential] What type of facility is this?

[Laundry] ..... 1

[Restaurant] ..... 2

[Hospital] ..... 3

[Other] \_\_\_\_\_ ..... 4

[DON'T KNOW] ..... -97

[REFUSED] ..... -98

**SHW10.** Is your system used year round?

[YES] ..... **[SKIP TO SHW12]** 1

[NO] ..... 2

[DON'T KNOW] ..... **[SKIP TO SHW12]** -97

[REFUSED] ..... **[SKIP TO SHW12]** -98

**SHW11.** In what months is it used?

[ENTER MONTHS] \_\_\_\_\_

[DON'T KNOW] ..... -9997

[REFUSED] ..... -9998

**SHW12.** What is your supplemental source for hot water heating?

[GAS] ..... 1

[OIL] ..... 2

[ELECTRIC] ..... 3

[OTHER] ..... -9996

[DON'T KNOW] ..... -9997

[REFUSED] ..... -9998

**SHW12a. [DESCRIBE OTHER]**

\_\_\_\_\_

\_\_\_\_\_

## BIOMASS QUESTIONS

### [IF &BM = TRUE]

**I am going to discuss some technical information about the system in order to confirm our information regarding your system. The paperwork from the original site survey, design study, or installation may help you answer these questions.**

[If they do not have this information handy, attempt the questions anyway, and ask them to give their best estimate. If they don't know or refuse to answer a confirmation question, mark "-9997" or "-9998" in parentheses and we will assume the paperwork is correct].

**BM1.** I am first interested in learning more about the type of biomass system you have. What type of fuel do you use?

Wood logs	1	
Wood chips	2	
Biomass pellets	3	
Corn pellets	4	
[Other, Specify_____]	5	
[Don't know]	-97	
[Refused]	-98	

**BM2.** What do you use this biomass system to do?

Space heating	1	
Water Heating	2	
[Other, Specify_____]	3	
[Don't know]	-97	
[Refused]	-98	

**BM3.** How do you describe the biomass system you use? Is it a:

Pellet stove or furnace	1	
Wood chip boiler or furnace	2	
Logwood boiler	3	
Biomass/wood furnace	4	
Wood stove/heater	5	
Other	6	
Don't know	-97	
Refused	-98	

**[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK BM4a THROUGH BM5b. IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK BM6a THROUGH BM6f.]**

**BM4a.** Our records indicate that your organization installed &BM\_NUM of &BM\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO BM4A FOR NEXT &BM_TECH]
[Did not install any of that technology]	2	[GO TO BM4A FOR NEXT &BM_TECH]
[Technology correct, number wrong]	3	[GO TO BM4num]
[Don't Know]	-97	[GO TO BM4A FOR NEXT &BM_TECH]
[Refused]	-98	[GO TO BM4A FOR NEXT

		&BM_TECH]
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**BM4num.** What is the correct number of &BM\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO BM4c]
[Don't Know]	-97	[GO TO BM4A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO BM4A FOR NEXT &W_TECH]

**BM4c.** Why did you install a different number of &BM\_TECH?

Have no idea why numbers differ	1	[GO TO BM4A FOR NEXT &W_TECH]
Put some in storage	2	[GO TO BM4A FOR NEXT &W_TECH]
Installed some at another facility	3	[GO TO BM4A FOR NEXT &W_TECH]
Insufficient financial resources to complete full amount	4	[GO TO BM4A FOR NEXT &W_TECH]
[Other, Specify_____]	5	[GO TO BM4A FOR NEXT &W_TECH]
[Don't know]	-97	[GO TO BM4A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO BM4A FOR NEXT &W_TECH]

**BM5.** What type of back-up fuel do you use for your [furnace/boiler].

	Natural Gas	1
	Electricity	2
	Oil	3
	Other, Specify_____]	4
	Refused	-97
	Don't know	-98

**BM6.** What percent of your fuel do you get from the following sources?  
 By products from another process produced on-site ..... 1  
 Purchased from vendor..... 2  
 Some other source [specify:\_\_\_\_\_] ..... 3  
 [DON'T KNOW]..... [SKIP TO BM7] -97  
 [REFUSED] ..... [SKIP TO BM7] -98

**[IF 100% of fuel produced onsite skip to BM4]**

**BM6a.** Who is the [supplier/manufacturer] of the fuel you purchase?

[Supplier 1] \_\_\_\_\_  
 [Supplier 2] \_\_\_\_\_

- BM7.** What is your annual biomass fuel usage?  
**BM7a.** [ENTER ANNUAL USAGE] \_\_\_\_\_  
**BM7b.** [ENTER UNITS (e.g. tons, btuh)] \_\_\_\_\_  
 [DON'T KNOW]..... -97  
 [REFUSED] ..... -98
- BM8.** **[SKIP TO BM11 IF FUEL IS not WOOD]** What species of wood do you burn?  
 [[SPECIES] \_\_\_\_\_  
 [Primarily (over 90%) Hardwood (oak, maple) .....  
 [Primarily (over 90%) softwood (pines; alders? ) .....  
 [mix of both .....  
 [DON'T KNOW]..... -97  
 [REFUSED] ..... -98
- BM9.** **Do you dry the [fuel] at all before using it?**  
 [YES] ..... 1  
 [NO] ..... 2  
 [DON'T KNOW]..... [SKIP TO BM10] -97  
 [REFUSED] ..... [SKIP TO BM10] -98
- BM10.** Do you know the moisture content of the fuel when burned?  
 [YES] ..... SKIP TO BM10a 1  
 [NO] ..... SKIP TO BM10b 2  
 [DON'T KNOW]..... [SKIP TO BM11] -97  
 [REFUSED] ..... [SKIP TO BM11] -98
- BM10a.** What is the moisture content of the fuel when burned?  
 MOISTURE CONTENT \_\_\_\_\_
- BM10b.** If you harvest the wood you burn, how long do you let it dry before burning?  
 [less than 6 months (consider this wood has moisture content of 50-30%)  
 [6-12 months (fully dry wood (unless kiln dried) probably has a moisture  
 content of around 20%. )  
 [DON'T KNOW]..... -97  
 [REFUSED] ..... -98
- BM11.** How much energy do you use to dry the fuel?  
**[RECORD ENERGY (kWh/month)]** \_\_\_\_\_  
 [DON'T KNOW]..... -997  
 [REFUSED] ..... -98
- BM11a.** How did you estimate this?  
**[RECORD ANSWER VERBATIM IF POSSIBLE]?** \_\_\_\_\_  
 [DON'T KNOW]..... -97  
 [REFUSED] ..... -98
- BM12.** Is there any electrical or mechanical device that assists in feeding fuel to your system?



- [YES] ..... 1
- [NO] ..... 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**BM12a** How do you feed the fuel into the biomass system? [Ex: conveyor, chute, shovels]

- [RECORD ANSWER VERBATIM IF POSSIBLE]? \_\_\_\_\_**
- [DON'T KNOW] ..... -97
  - [REFUSED] ..... -98

**BM12b.** Considering all the devices powered to operate your biomass system, How much power would you estimate is used by the feed system? **[RECORD ANSWER]** \_\_\_\_\_ kWh per month

- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**BM12c.** How did you estimate this? [If they don't have metered data to support kWh then try to get the following: 1) kW rating of fuel system, 2) Hours/day or Hours/month that system is operating]

- [RECORD ANSWER VERBATIM IF POSSIBLE]? \_\_\_\_\_**
- [DON'T KNOW] ..... -9997
  - [REFUSED] ..... -9998

**BM13.** Is there an air circulation system for this biomass system?

- [YES] ..... 1
- [NO] ..... [SKIP TO BM14] 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**BM13a.** Considering all the devices powered to circulate air, how much power would you estimate is used by the circulation system? **[RECORD ANSWER]** \_\_\_\_\_ kWh per month

- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**BM13b.** How did you estimate this? [If they don't have metered data to support kWh then try to get the following: 1) kW rating of fuel system, 2) Hours/day or Hours/month that system is operating]

- [RECORD ANSWER VERBATIM IF POSSIBLE]? \_\_\_\_\_**
- [DON'T KNOW] ..... -9997
  - [REFUSED] ..... -9998

**BM14.** Is there a water circulation system for this biomass system?

- [YES] ..... 1
- [NO] ..... [SKIP TO BM14] 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**BM14a.** Considering all the devices powered to circulate water, how much power would you estimate is used by the circulation system? **[RECORD ANSWER]** \_\_\_\_\_ kWh per month

- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**BM14b.** How did you estimate this? [If they don't have metered data to support kWh then try to get the following: 1) kW rating of fuel system, 2) Hours/day or Hours/month that system is operating]

**[RECORD ANSWER VERBATIM IF POSSIBLE]?** \_\_\_\_\_  
 [DON'T KNOW].....-9997  
 [REFUSED] .....-9998

**BIOGAS QUESTIONS**

**[IF & MEASURE = BIOGAS]**

**I am going to discuss some technical information about the system in order to confirm our information regarding your system. The paperwork from the original site survey, design study, or installation may help you answer these questions.**

**BG1.** What is the manufacturer and model number of the generator run by the biogas?

BG1a. **[ENTER MANUFACTURER FROM DROP DOWN]** \_\_\_\_\_

BG1b. **[ENTER MODEL FROM DROP DOWN]** \_\_\_\_\_

**BG2.** Do you use [Waste] for your biodigester?

[YES] ..... **[SKIP TO BG3]** 1  
 [NO] ..... 2  
 [DON'T KNOW]..... **[SKIP TO BG3]** -97  
 [REFUSED] ..... **[SKIP TO BG3]** -98

**BG2a.**Waste Type \_\_\_\_\_

**BG3.** Do you add any other substrates to the waste stream?

[YES] ..... 1  
 [NO] ..... **[SKIP TO BG4]** 2  
 [DON'T KNOW]..... **[SKIP TO BG4]** -97  
 [REFUSED] ..... **[SKIP TO BG4]** -98

**Bg3a.** Added Substrates type \_\_\_\_\_

**BG3b.** Quantity of Added Substrate \_\_\_\_\_

**BG4.** Have you made any modifications to the system since installation?

[YES] ..... 1  
 [NO] ..... **[SKIP TO BG5]** 2  
 [DON'T KNOW]..... **[SKIP TO BG5]** -97  
 [REFUSED] ..... **[SKIP TO BG5]** -98

**BG4a.** Was the modification an addition or equipment replacement? **[CIRCLE ALL THAT APPLY]**

- [Addition] ..... 1
- [Replacement] ..... 2
- [DON'T KNOW]..... **[SKIP TO BG5]** -97
- [REFUSED] ..... **[SKIP TO BG5]** -98

**BG4b.** What have you [added/replaced]?

- 
- 
- [DON'T KNOW]..... **[SKIP TO BG5]** -97
  - [REFUSED] ..... **[SKIP TO BG5]** -98

**BG4c.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW]..... -9997
- [REFUSED] ..... -9998

**BG5.** [FOR NON-AG SYSTEMS, SKIP TO BG6] Do you have any livestock providing waste for the system? Is this correct?

- [YES] ..... 1
- [NO] ..... **[SKIP TO BG6]** 2
- [DON'T KNOW]..... **[SKIP TO BG6]** -97
- [REFUSED] ..... **[SKIP TO BG6]** -98

**BG5b.** What type(s) of livestock **[ENTER FROM DROP DOWN]**

**BG5c.** FOR EACH TYPE LISTED ASK: How many **&TYPE [ENTER NUMBER]**\_\_\_

**BG6.** Does the biogas system produce the same amount of energy steadily over the course of a year, or are there seasonal differences in energy production?

- YEAR-ROUND ..... **[SKIP TO BG7]** 1
- SEASONAL..... **[SKIP TO BG6b]** 1
- OTHER ..... **[SKIP TO BG6a]** 77
- [DON'T KNOW]..... **[SKIP TO BG7]** -97
- [REFUSED] ..... **[SKIP TO BG7]** -98

**BG6a.** DESCRIBE OTHER **[SKIP TO BG7]**

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**BG6b.** Describe the seasonal use of the system [possible reasons: seasonal effects of the herd, weather, regular maintenance. If possible find out what the seasonal difference is – e.g. the system produces twice as much energy during a summer day than a winter day].

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**BG7.** Which of the following ways are you using the gas produced by the digester system - are you using it on site in a genset, burning it on site for heat, flaring it, or selling it off site? [ACCEPT MULTIPLE ANSWERS]

- Using it on site in a genset..... 1
- Burning it on site for heat ..... 2
- Flaring it on site ..... 3
- Selling it off site ..... 4
- [DON'T KNOW]..... -97
- [REFUSED] ..... -98

**BG7a.** What percentage of the gas are you...

- Using onsite in the genset? \_\_\_\_\_
- Using onsite for heating? \_\_\_\_\_
- Flaring onsite? \_\_\_\_\_
- Selling off site? \_\_\_\_\_
- [DON'T KNOW]..... -97
- [REFUSED] ..... -98

**BG8.** Has there been any unscheduled downtime in the biodigester system?

- [YES] ..... 1
- [NO] ..... **[SKIP TO BG9]** 2
- [DON'T KNOW]..... **[SKIP TO BG9]** -97
- [REFUSED] ..... **[SKIP TO BG9]** -98

**BG8a.** How long was the system down unexpectedly? \_\_\_\_\_ [record as month:days (i.e. 03:7)]

**BG9.** **[SKIP TO BG13 IF NONE USED IN THE GENSET]**

What date did you started running the genset?  
**[BEGINNING GENERATION DATE]** \_\_\_\_\_

**BG10.** Has there been any unscheduled downtime in the genset system?

- [YES] ..... 1
- [NO] ..... **[SKIP TO BG11]** 2
- [DON'T KNOW]..... **[SKIP TO BG11]** -97
- [REFUSED] ..... **[SKIP TO BG11]** -98

**BG10a.** How long was the system down unexpectedly? \_\_\_\_\_ [record as month:days (i.e. 03:7)]

**BG11.** Please tell me the total kWh production of the system since it started generating power.

[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out and date of reset]

- BG11a** kWh \_\_\_\_\_
- [DON'T KNOW]..... -9997
- [REFUSED]..... -9998

**BG11b** RESET DATE \_\_\_\_\_

- BG12.** Did you make this reading from a . . . ? [READ CHOICES, CIRCLE ALL THAT APPLY]
- Read-out display on inverter?..... 1
  - Separate utility meter for biogas genset?..... 2
  - [Other].....-9996
  - [DON'T KNOW].....-9997
  - [REFUSED] .....-9998

**OTHER EQUIPMENT BATTERY**

**[IF & OTHER = TRUE]**  
**[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK OE1a THRU OE1c.**  
**IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]**

**[REPEAT OE1a THRU OE1c. FOR EACH &OE\_TECH IN THE TRACKING DATA. ]**

**OE1a.** Our records indicate that your organization installed &OE\_NUM of &OE\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO OE1a FOR NEXT &OE_TECH]
[Did not install any of that technology]	2	[GO TO OE1a FOR NEXT &OE_TECH]
[Technology correct, number wrong]	3	[GO TO OE1b]
Refused]	-98	[GO TO OE1a FOR NEXT &OE_TECH]
[Don't Know]	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**OE1b.** What is the correct number of &OE\_TECH that you installed through the &PROGRAM?

[ENTER NUMBER]	_____	[GO TO OE1c]
[Don't know]	-97	[GO TO OE1c]
[Refused]	-98	[GO TO OE1c]

**OE1c.** Why did you install a different number of &OE\_TECH? [ACCEPT MULTIPLE ANSWERS]

Have no idea why numbers differ	1	[GO TO OE1a FOR NEXT &OE_TECH]
Put some in storage	2	[GO TO OE1a FOR NEXT &OE_TECH]
Installed at another facility	3	[GO TO OE1a FOR NEXT &OE_TECH]
Funding insufficient to complete full amount	4	[GO TO OE1a FOR NEXT &OE_TECH]
Other	77	[GO TO OE1a FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE1a FOR NEXT &OE_TECH]
Don't know	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**[ONCE CORRECTIONS RECORDED THEN ASK OE2d FOR EACH CORRECTED TECHNOLOGY; ELSE GO TO OE3]**

**[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]**

**OE2a.** Did you install any other kinds of renewable energy technologies through the program?

Yes	1	[GO TO OE2b]
No	2	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]
[Don't Know]	-97	[GO TO NEXT SECTION]

**OE2b.** Which kinds of additional measures did you install through the program?

**OE2c. [FOR EACH MEASURE TYPE MENTIONED.]** Approximately how many &OE\_TECH were purchased using the &SPONSOR &Program funding?

**OE2d.** Approximately what percentage of your facility's total square footage was served by these purchases?

**OE2e.** How many of the &OE\_TECH purchased using the &SPONSOR &PROGRAM funding were used to replace existing &OE\_TECH units?

**RESPONSE GRID FOR OE1 AND OE2**

	<b>OE_TECH</b>	<b>OE1a Tracking Verified?</b>	<b>OE1b Corrected # Install</b>	<b>OE1c Reason for Diff</b>	<b>OE2a/b Untracked Tech Inst</b>	<b>OE2c Untracked # Install</b>	<b>OE2d % Space Served</b>	<b>OE2e # replacing existing construction</b>
1	Specify:							
2	Specify:							
3	Specify:							
4	Specify:							
5	Specify:							
6	Specify:							

**OE3.** Please tell me the total energy production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out. Ask whether the reading has been reset recently. How often do they reset the cumulative? and date of reset]**

- OE3a.** Energy \_\_\_\_\_  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98
- OEb.**  
 kWh ..... 1  
 Therms ..... 2  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98
- OEc.** RESET DATE .....

- OE4.** Did you make this reading from a . . . ? **[READ CHOICES, CIRCLE ALL THAT APPLY]**
- Read-out display on inverter? ..... 1  
 Separate utility meter? ..... 2  
 Reductions in my utility bill ..... 3  
 [Other] ..... 77  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98

**DIRECT ATTRIBUTION**

**Now, I'd like to ask you a few questions about the effect that the &PROGRAM had on your organization's decision to undertake the project we have been discussing.**

**OVERALL INFLUENCE**

[FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DA0 THROUGH DA ]

**DA0.** Without the &SPONSOR &PROGRM, would you say the likelihood of [installing / performing] the &MEASURE was... [READ LIST]

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**TIMING**

**ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

AT1. I'd like to know about the effect, if any, that &PROGRAM had on the timing of your project. Without the support from the &PROGRAM, would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all in the absence of the program?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2

<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF DAT1a ≠ LATER, SKIP TO AT2a]**

**AT1b.** Approximately how many months later?  
 [Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	<b>DAT1b_ &amp;MEASURE</b>
[RECORD # OF MONTHS]	_____
[Don't know]	-97

**EFFICIENCY**

**This section applies for any measure where there is a standard efficiency option. For example, variable frequency drives do not have a "standard efficiency" option, so you should skip this section for VFDs even though installing a VFD will result in energy savings. Heat recovery, lighting controls, and steam trap replacement also fall into this category. Circle "5" not applicable for the measure in the table below and skip to DAT3.**

**ASK EFFICIENCY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**AE1.** Without the &PROGRAM would you have installed &MEASURE of the exact same energy efficiency as the equipment you installed you installed, or would you have installed lower efficiency, or higher efficiency equipment?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same</b>	1	1	1	1
<b>Lower</b>	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]
<b>Higher</b>	3	3	3	3
[Not applicable]	-88	-88	-88	-88
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AE1a.** Why do you say that? [RECORD VERBATIM]: \_\_\_\_\_

**[IF AE1 ≠ LOWER, SKIP TO AQ1.]**

**AE2.** Without the support of the program , would you have installed <measure> that was:

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Standard efficiency or according to code</b>	1	1	1	1
<b>Slightly higher than standard efficiency</b>	2	2	2	2
<b>Between standard efficiency and the efficiency that was installed</b>	3	3	3	3
<b>Slightly lower than the high efficiency that was installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**QUANTITY**

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**Finally, I'd like to know about the effect, if any, that your participation in the &PROGRAM had on the scale of the project you completed with the support of the program.**

**AQ1.** Without the support from &SPONSOR &PROGRAM would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a
More or larger	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AQ3\_0.** Why do you say that? **[RECORD VERBATIM]** \_\_\_\_\_  
**[IF AQ3 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

Calculate percent:  $\text{abs}([( \text{amount installed} ) / ( \text{amount would have installed} )] - 100\%)$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Organization installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Organization installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Organization installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Organization installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**EFFECT OF OTHER PROGRAMS**

**OP1** In completing the project[s] supported by [NAME OF SEP PA], did you make use of financial or technical support programs offered by other sponsors, such as, local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers.

[YES]	1	[ASK OP2]
[NO]	2	[GO TO BC1]
[DON'T KNOW]	-97	[GO TO BC1]
[REFUSED]	-98	[GO TO BC1]

**OP2.** Which organization[s] sponsored the [those] program[s]?

[RECORD RESPONSE] \_\_\_\_\_

**IF ONLY ORGANIZATIONS MENTIONED ARE MANUFACTURERS, DISTRIBUTORS, CONTRACTORS, OR ENGINEERS, SKIP TO SKIP TO BC1.**

**OP3.** What kinds of services did you receive from those programs in support of the project?

Information to guide project planning and equipment selection	1	[GO TO OP5]
Technical training on the design and installation of the project	2	[GO TO OP5]
Technical assistance such as feasibility assessments, financial analyses, and design support	3	[GO TO OP5]
Identification of qualified contractors	4	[GO TO OP5]
Financial incentives: grants, rebates, others that do not need to be repaid	5	[ASK OP4]
Financial incentives: reduced interest loans, loan guarantees, leases, etc.	6	[ASK OP4]
Support for negotiation and contracting with vendors	7	[GO TO OP5]
Inspections of completed work for quality control	8	[GO TO OP5]
Other (Specify) _____	9	[GO TO OP5]
Don't know	-97	[GO TO OP5]
Refused	-98	[GO TO OP5]

**OP4** What percent of the total funding for the energy efficiency project we have been discussing did you receive from the programs other than &PROGRAM? Your best estimate will be fine?

ENTER PERCENT	_____	[GO TO OP5]
[DON'T KNOW]	97	[GO TO OP4a]
[REFUSED]	98	[GO TO OP4a]

**OP4a** Would you say that the amount of the incentive[s] you received from the other programs you have mentioned was much larger, somewhat larger, much smaller, somewhat smaller, or about the same as the amount you received from &PROGRAM?

[MUCH LARGER]	<b>1</b>	<b>[GO TO OP5]</b>
[SOMEWHAT LARGER]	<b>2</b>	<b>[GO TO OP5]</b>
[MUCH SMALLER]	<b>3</b>	<b>[GO TO OP5]</b>
[SOMEWHAT SMALLER]	<b>4</b>	<b>[GO TO OP5]</b>
[ABOUT THE SAME]	<b>5</b>	<b>[GO TO OP5]</b>
[DON'T KNOW]	<b>97</b>	<b>[GO TO OP5]</b>
[REFUSED]	<b>98</b>	<b>[GO TO OP5]</b>

**READ:** We would like to understand how much the other programs you used affected your motivation and ability to carry out the energy efficiency project we have been discussing, beyond what you would most likely have done using the resources from the &SPONSOR &PROGRAM alone.

**OP5.** If you had been able to access **only** the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used, how likely is it that you would have carried out the &MEASURE? Would you say the likelihood of undertaking that measure was ... [READ LIST]

RESPONSE	OP5_MID1	OP5_MID2	OP5_MID3	OP5_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**OP6.** If you had been able to access **only** the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used , would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	OP6_MID1	OP6_MID2	OP6_MID3	OP6_MID4
Same amount	1	1	1	1
Less or smaller	2 Read OP7	2 Read OP7	2 Read OP7	2 Read OP7
More or larger	3 Read OP7	3 Read OP7	3 Read OP7	3 Read OP7
None at all	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF OP6 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**OP7.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

RESPONSE	OP7_MID1	OP7_MID2	OP7_MID3	OP7_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OP8.** Did you first become aware of the opportunities to reduce energy use in &STR\_ADDRESS through &SPONSOR &PROGRAM, through the other energy efficiency programs in which you participated, or through some other source?

Through the SEP PA	1	<a href="#">[GO TO OP9]</a>
Through other energy efficiency program [s]	2	<a href="#">[GO TO OP9]</a>
Through another source	3	<a href="#">[GO TO OP9]</a>
[DON'T KNOW]	-97	<a href="#">[GO TO OP9]</a>
[REFUSED]	-98	<a href="#">[GO TO OP9]</a>

**OP9** In your opinion, was the &SPONSOR's &PROGRAM more important in encouraging and enabling you [your organization] to carry out the energy efficiency project we have been discussing; was the other program more important; or were they both equally important?

SEP PA	1
Other program	2
Both equally important	3
[Don't know]	-97
[Refused]	-98

**OP10** Why do you say that?

[\[RECORD VERBATIM\]](#) \_\_\_\_\_

## BUILDING CHARACTERISTICS

**Now I'd like to ask you some questions about you facility.**

**BC1.** How many square feet is your facility in which this project was installed?

	Square feet <a href="#">[GO TO BC3a]</a>	
-97	Refused	-98
-98	Don't know	-97

**BC2.** Would you say that the heated or cooled floor area is ...?

Less than 1,500 sq ft	1
Between 1,500 - 5,000 sq ft	2
Between 5,000 - 10,000 sq ft	3
Between 10,000 - 25,000 sq ft	4
Between 25,000 - 50,000 sq ft	5
Between 50,000 - 75,000 sq ft	6
Between 75,000 - 100,000 sq ft	7
Over 100,000 sq ft	8
Refused	-98

Don't know	-97
------------	-----

**BC3.** Is your space heated using electricity or gas?

Electricity	1
Gas	2
Propane	3
Both electricity and gas	4
Neither	5
OPEN\Other-RECORD	6
Refused	-98
Don't know	-97

**BC4.** In what year was your facility built?

Year	<b>[GO TO BC6]</b>	<b>&amp;YRB</b>
Refused		-98
Don't know		-97

**BC5.** If don't know, would you say it was...

After 2000	1
In the 1990's	2
1980s	3
1970s	4
1960s	5
1950	6
Before 1950	7
Refused	-98
Don't know	-97

**FIRMOGRAPHICS**

**FM1. What is the main business ACTIVITY at this facility?**

Office	1
Retail (non-food)	2
College/University	3
School	4
Grocery Store	5
Restaurant	6
Health Care (other than Hospital)	7
Hospital	8
Hotel or Motel	9
Warehouse	10
Construction	11
Community Service/Church/Temple/Municipality	12
Industrial Process/ Manufacturing/ Assembly	13
Condo Assoc./Apartment Mgr.	14
Greenhouse	15
Laundry/Cleaners	16
OPEN\Other - SPECIFY	17
Refused	-98
Don't Know	-97

**FM5. How many people are currently working at the facility, including both full and part time? (IF DON'T KNOW ASK FOR BEST GUESS)**

Number of people	&NUM
Refused	-98
Don't know	-87

## L.11. ID-11B: RENEWABLE ENERGY MARKET DEVELOPMENT (PROGRAM MANAGERS)

### OMB Control No. 1910-5170

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### BACKGROUND INFORMATION (to be filled in prior to interview):

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### PART 1. INTRODUCTION

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to promote the development of non-residential renewable energy projects in [STATE] that received funding from the State Energy Program and the American

Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?]. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that you are the program manager for Non-Residential Renewables programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Non-Residential renewable programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Non-Residential renewable programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded Non-Residential renewable programs	[Ask for correct person for Non-Residential Renewables Project Development programs]
No – There were no SEP/ARRA funded Non-Residential renewable programs	[Thank you and terminate. Contact main state energy office representative to verify that there were no programs that corresponded to description in the PAGE database.]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 75 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

I would like to ask you some questions about the activities to promote Non-Residential Renewable energy projects that received SEP/ARRA funding in [PROGRAM YEAR].

1. Were you involved in the design and/or management of renewables programs that received SEP/ARRA funding in [PROGRAM YEAR]?

- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON]

Yes	[GO TO Q3]
No	[ASK Q2]

2. Who else at your organization is most knowledgeable about the overall allocation of funding to Non-Residential Renewables programs that received SEP/ARRA funding?

Name/contact info/role: \_\_\_\_\_  
 Name/contact info/role: \_\_\_\_\_  
 Name/contact info/role: \_\_\_\_\_

3. [IF OTHERS MENTIONED IN Q2] Among you and [INSERT QUESTION 2 RESPONSE], who is most familiar with the activities conducted by your organization for [PROGRAM] in [PROGRAM YEAR]?

[IF NOT RESPONDENT, THANK AND TERMINATE AND CONTACT MOST KNOWLEDGEABLE PERSON]

4. What were your responsibilities in regard to renewables programs that received SEP/ARRA funding in [PROGRAM YEAR]?

5. In what year did you first become involved with the renewables programs that received SEP ARRA funding?

6. Are you still involved with managing this program? If not, when did your involvement end?

7. How long have you been involved in administering programs funded by SEP?

8. Based on information provided by DOE, you received \$\_\_\_\_\_ in SEP/ARRA funding for activities that promoted the development of Non-Residential Renewables projects. Our understanding is that these funds may have been applied to programmatic activities supporting non-residential renewables through either direct payment to targeted renewable projects or through loans, grant or incentive based renewable programs. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]_____
	[REMAINING AMOUNT]

[IF LESS FUNDS WERE APPLIED TO NON-RESIDENTIAL RENEWABLES THAN INDICATED IN THE TRACKING DATA ASK 8a-8c]

8a. To which of the following other types of programmatic activities was the remaining SEP/ARRA funding applied?

- **Renewables projects in residential facilities**
- **Renewable Energy Manufacturing** – PAs develop or expand existing manufacturing capacity for renewable energy equipment or components. At least some portion of the output of the new or expanded capacity is intended for domestic installation.
- **Clean Energy Policy support** – Develops and obtains legislative, executive, or regulatory approval for policies to facilitate the completion of renewable energy facilities. Examples might include statewide zoning laws, feed-in tariffs, favorable back-up tariffs, renewable portfolio standards.
- **Building Code Development and Support** – Provides technical and administrative support for the development of more energy-efficient state and federal equipment standards. Provides marketing support for products that meet the higher energy efficiency standards. Provides training to vendors in marketing and installation of products that meet the higher energy efficiency standards.
- **Policy and Market Studies; Legislative Support** – Develops and obtains legislative, executive, or regulatory approval for policies to facilitate the completion of renewable energy facilities. Examples might include statewide zoning laws, feed-in tariffs, favorable back-up tariffs, renewable portfolio standards.
- **Non-retrofit Targeted Training and/or Certification (Participants are traceable)** – Training for facility managers, trades contractors, and engineering/design professionals. Topics for EE, renewables, transportation and other technical topics. i.e. roundtable discussions etc. Includes certification programs and other pre-requisite type training & education programs.
- **Non-retrofit Generalized Workshops and Demonstrations** – Marketing and outreach support to raise awareness, provide general information, encourage behavior change, etc. Not targeted at a specific site or project, but may be targeted at specific segments or types of projects. Recipients of the education are not traceable.
- **Non-retrofit Technical Assistance to Building Owners** – Provides technical assistance *other than audits* for building retrofit or equipment replacement projects: e.g. technical studies for specific improvements, building modeling, project financial analysis, support in negotiating with contractors. Open to commercial, industrial, and agricultural facility owners or specified subgroups thereof. May be combined with financial incentives.
- **Other** [DEFINE]

8b. [IF 8a = "YES" FOR ANY ACTIVITY TYPE, RECORD AMOUNT]

[IF 8a = "YES" FOR ANY ACTIVITY TYPE ask 8c]

8c. Can we contact the appropriate program manager for this activity? [RECORD NAME]

9. Please describe each type of programmatic activity that received ARRA/SEP funds:

**RESPONSE MATRIX A: Questions 8a – 8c and 9**

Activity	8a. Funds applied	8b. Funding	8c. Permission	9. Program description
Residential renewable energy projects	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
Renewable energy	[YES/NO]	[AMOUNT ]	[RECORD NAME]	



<b>manufacturing</b>				
<b>Building Code Development and Support</b>	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
<b>Policy and Market Studies; Legislative Support</b>	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
<b>Targeted Training and/or Certification (Participants are traceable)</b>	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
<b>Generalized Workshops and Demonstrations</b>	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
<b>Technical Assistance to Building Owners</b>	[YES/NO]	[AMOUNT ]	[RECORD NAME]	
<b>Other [DEFINE]</b>	[YES/NO]	[AMOUNT ]	[RECORD NAME]	

**[PLEASE READ]**

**For the remainder of this interview, I'd like to focus on just the non-residential renewables programs that received SEP/ARRA.**

10. Were the SEP/ARRA funds your organization received used to fund Non-Residential renewable programs in [YEAR] distributed across multiple programs?

[IF YES ASK Q11 – 14; ELSE GO TO Q16]

11. How many separate programs? \_\_\_\_\_

**FOR EACH PROGRAM MENTIONED ASK 12-15**

12. What are the names of these programs?

13. What percent of the total SEP/ARRA funds used to for Non-Residential renewable programs was used for each of these programs?

14. Are you or another program manager in charge of any of these programs? [IF THERE ARE OTHER PROGRAM MANAGERS, ASK Q15]

15. Can we contact the program manager regarding [PROGRAM NAME]? [IF YES, RECORD THEIR NAME AND CONTACT INFORMATION]

**Response Matrix C: FOR QUESTIONS 12-15, USE RESPONSE GRID BELOW**

12. Program Name	13. Percent	14. Additional program manager	15. Permission to contact
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]
		[YES/NO]	[RECORD CONTACT INFO]

**PART 3: PROGRAM DESIGN (LOGIC MODEL)**

**[ASK SECTIONS 3 – 6 FOR EACH OF THE PROGRAMS LISTED IN RESPONSE MATRIX A. IF NECESSARY, SCHEDULE A CALLBACK WITH THE APPROPRIATE PROGRAM MANAGER]**

**[PLEASE READ] In this next set of questions, I'd like to understand the rationale behind the program design.**

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM'S DOMAIN FOR ATTRIBUTION PURPOSES.]**

16. Has your organization developed a formal logic model for [PROGRAM NAME]?

[IF 16 = YES, then ASK 16a]

16a. Can you please share it with us?

17. What were the ultimate objectives of [PROGRAM NAME]?

---

---

---

17a. In what year did the program begin?

---

---

18. Please describe how the program is operating now in regard to its activities, the resources it uses, and the outcomes it is achieving.

18A. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO PARTICIPANTS:  
RECRUITMENT OF PARTICIPANTS:  
RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN  
GUARANTEES TO SUPPORT PROJECTS  
INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

OTHER (SPECIFY)



18B. INPUTS: What resources are being used to deliver the program? PROBE:

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME

OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF, DOLLAR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

18C. OUTSIDE FUNDING: Are organizations other than the U. S. Department of Energy and the state government contributing funding to this program? IF YES, PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF OUTSIDE FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD)

PERCENTAGE OF TOTAL OVERALL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT REPRESENTED BY OUTSIDE FUNDING.

USES OF THE FUNDING PROVIDED

18D. RESULTS/OUTPUTS: Could you summarize the results your program has achieved so far? PROBE: Are organizations other than the U. S. Department of Energy and the state government contributing funding to this program? IF YES, PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP ATTENDANCE, ETC)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

18E. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans and applications to the U. S. Department of Energy?

IF 18E=NO: What circumstances prevented you (are preventing you) from achieving those goals?

19. [IF PROGRAM EXISTED PRIOR TO 2008 ASK] Did you make any important changes to program operations or the resources available to it between 2007 and 2008? IF PROGRAM EXISTED PRIOR TO ARRA AND RECEIVED ARRA FUNDING ALSO ASK] Did you make any important changes to program operations or the resources available to it between 2008 and the period funded primarily by ARRA?

19a. Why did you make those changes?

19b. Did achieve the results you were seeking through those changes? PROBE SPECIFIC RESULTS.

19c. [FOR ARRA PERIOD PROGRAMS ASK]. Would your organization have been able to make these changes without the support provided by the ARRA round of funding?

YES/NO

PROBE REASONS FOR THIS ASSESSMENT.

**PRIOR TO INTERVIEW, IDENTIFY ITEMS IN THE GRID BELOW THAT APPLY TO THE JURISDICTION USING INFORMATION AVAILABLE AT [WWW.DSIREUSA.ORG/SUMMARYTABLES/RRPFE.CFM](http://WWW.DSIREUSA.ORG/SUMMARYTABLES/RRPFE.CFM).**

20. We understand that your [state legislature] and [regulators] have put in place statutes, rules, and regulations designed to facilitate the development of renewable energy facilities. FOR EACH OF THE LAWS OR REGULATIONS LISTED IN THE TABLE BELOW, ASK:

a. Was your organization involved in advocating or providing technical support for the development or adoption of [LAW OR REGULATION]?

1) Yes

2) No

3) DK

b. Could you briefly describe the activities your organization undertook to support the development or adoption of this [law, rule, regulation]?

c. Was your organization funded by the U. S. Department of Energy's State Energy Program or by ARRA funds received from the U. S. Department of Energy?

1) Yes

2) No

3) DK

**ANSWER GRID FOR QUESTION 20**

Law or Regulation	20a	20b	20c
Use of Public Benefits Funds to support renewable projects			
Renewable Portfolio Standard			
Net metering of renewable installations			
Interconnection rules to facilitate renewables projects			
Licensure of renewables installation contractors			
Certification of renewable energy equipment			
Access laws, such as provisions for solare easements			
Building codes that support renewable energy installations			
Mandates for utilities to off "green power" options			

21. What other organizations played important roles in advocating or providing technical support for the development and adoption of these laws and regulations?

\_\_\_\_\_

\_\_\_\_\_

22. FOR EACH LAW/REGULATION/RULE LISTED IN QUESTION 20 GRID ASK: In comparison to the work of other organizations, how would you compare the work your organization did to support [LAW, REGULATION, RULE] in terms of importance to the its ultimate development and adoption. Would you say it was:

- a. Much less important
- b. Somewhat less important
- c. Of about the same importance
- d. More important
- e. Much more important
- f. DK/Refused

23. FOR EACH RESPONSE a – e TO QUESTION 22, ASK:Why do you say that?

**ANSWER GRID FOR QUESTIONS 22 AND 23**

Law or Regulation	22	23
Use of Public Benefits Funds to support renewable projects		
Renewable Portfolio Standard		
Net metering of renewable installations		
Interconnection rules to facilitate renewables projects		
Licensure of renewables installation contractors		
Certification of renewable energy equipment		
Access laws, such as provisions for solare easements		
Building codes that support renewable energy installations		
Mandates for utilities to off “green power” options		

**PART 4. RESOURCE CONTRIBUTIONS FROM OTHER PROGRAMS**

**[ASK PART 4 IF OTHER ORGANIZATIONS SUCH AS UTILITIES OR OTHER GOVERNMENT COOPERATED IN THE DELIVERY OF THE PA THROUGH CONTRIBUTIONS OF STAFF TIME, FUNDING, OR OTHER SERVICES.]**

**LEAD-IN: Earlier we spoke about contributions that other organizations made to the non-residential renewable programmatic activity. I’d like to ask a few more questions about that.**

24. First, prior to [PROGRAM YEAR/PERIOD]., had you cooperated with this (these) organization(s) in delivering energy programs to increase energy efficiency programs?

IF YES, ASK

- a. Please describe how you worked together with the other organization(s) and what specific activities they undertook.
- b. What kinds of resources did the other organizations provide?

25. Did your organization take the initiative to arrange for cooperative activities related to the program? Did the other organizations take the initiative? Or did the cooperation arise through some other mechanism?

26. Did representatives of the two (or more) organizations meet to jointly plan how the organizations would cooperate in the development of the program?

27. Do representatives of the organization meet on a regular basis to review program accomplishments and plan future activities?

IF YES: How often does that occur?

28. Is there regular interaction among the organizations in delivering the program services?

IF YES: Could you describe that interaction for me?

29. What do you believe are the other organizations' main motivations for contributing to the delivery of the program?

30. If the opportunity to offer joint programming with your agency had not been available, do you believe the other organizations would offer programs to promote energy efficiency in non-residential facilities?

YES/NO

a. Why do you say that?

31. If the other organizations had not cooperated in delivering the program as they did, would your organization have changed the type of services it provides to promote energy efficiency in non-residential facilities?

YES/NO

IF YES, PROBE:

a. How would your organization have changed the roster of services provided?

b. In the absence of cooperation from other organizations, would the level of resources your organization dedicated to these services been less, the same, or greater?

c. Why do you say that?

## PART 5: SEP INFLUENCE AND ROLE IN THE MARKETPLACE

32. Do you believe that this program has had an impact on the long-term capabilities of facility owners and renewable energy developers to develop renewable energy projects in [STATE]?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

33. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install energy-efficient renewable projects in non-residential facilities?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

34. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
- c. How many of these FTEs will be retained after 2008 or the ARRA period, depending on which is relevant?
- d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?

35. In the course of carrying out this program, has your organization developed any new capabilities or resources that will support the delivery of energy efficiency services to non-residential facilities in the future. PROBE:

- a. Contacts and relationships with market actors
- b. Tools such as site or financial analysis software
- c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
- d. Technical education materials and curricula

## PART 6: DATA AVAILABILITY

[ONLY ASK THIS SECTION IF DATA ARE NOT AVIALABLE ALREADY]

**[ASK SECTION 4 FOR EACH OF THE PROGRAMS LISTED IN REPSONSE MATRIX A. IF NECESSARY, SCHEDULE A CALLBACK WITH THE APPROPRIATE PROGRAM MANAGER]**

**NOTE: QUESTIONS 36-38 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

36. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:
- j) Key contacts from the implementation organization (including contact information)
  - k) Program participants, that is, facility owners/renters, non-residential property managers who received support with the project, workshop attendees or training recipients, recipients of technical assistance, with contact information
  - l) Measures installed by participant, including the type and quantity of measures installed with program support, energy savings, incentive levels, other services received by participants, workshop or training description. [PROBE TO CLARIFY DATA THAT THE PM HAS ACCESS TO (EITHER IN-HOUSE OR AT A SEP FUNDED/PARTNERED ORGANIZATION) VERSUS DATA ANY EXTERNAL LEVERAGED ORGANIZATION MIGHT BE KEEPING.]
  - m) Participating trade allies (including contact information)

(IF DATA IS AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE OR DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE CAN PROVIDE SUCH DATA THEN THANK AND TERMINATE).

37. Have there been any evaluations of this program? Are data from these evaluations available?
38. (FOR EACH TYPE OF DATA AVAILABLE) Is this data in electronic format? (If yes, discuss steps needed to secure permission to access the data via secure file transfer. If no, determine how data records are maintained and how they could be accessed.)

Are you aware of other data available that would be useful for our evaluation? If so could you describe it for me? Is it possible to access this information? PROBE FOR CONTACTS. IF MAKING COPIES IS AN ISSUE, ASK WHETHER WE CAN MAKE COPIES. IF STILL RELUCTANT, ASK WHETHER THEY HAVE A SUMMARY OF RENEWABLE PROPERTIES WITH MINIMAL INFORMTION SO WE CAN SELECT A SAMPLE AND COPY ONLY THOSE RECORDS.]

**Thank you for your time and insights**

## L.12. ID-13B-R: RENEWABLES (NON-SEP PROGRAM MANAGERS) RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts that received funding from the State Energy Program and the American Recovery and Reinvestment Act to promote the installation of renewable energy projects in single family homes and other -residential facilities in [STATE]. As part of that effort we are speaking with managers and administrators of programs offered by other organizations that sought to achieve similar objectives. This interview is being conducted as part of an

evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

## **PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

These first few questions are meant simply to verify that we are speaking with the right person.

1. First, did your organization operate any activities to promote the installation of renewable energy projects in single family homes and other -residential facilities between the beginning of [PROGRAM YEAR/PERIOD] and the present time?
  - a. Yes → CONTINUE
  - b. No → VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION AND REPORT TO STATE ENERGY OFFICE CONTACT
  - c. DK/Ref → ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of those activities over the past two years?
  - a. Yes → CONTINUE
  - b. No → ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 75 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [\[ORNL CONTACT INFORMATION\]](#).

## **PART 3 – ORGANIZATION**

**NOTE: FILL IN AS MUCH OF THE INFORMATION REQUESTED IN THIS SECTION AS POSSIBLE USING THE ORGANIZATION'S WEB SITE AND OTHER PUBLIC SOURCES. ASK QUESTIONS BELOW ONLY IF NEEDED TO VERIFY OR VALIDATE INFORMATION.**

3. What is the formal name of your organization?

\_\_\_\_\_

4. Briefly, what is the overall mission of your organization?

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5. Can you briefly outline the range of activities your organization undertakes in pursuit of that mission?

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6. What specific activities did your organization take to promote installation of renewable energy projects in single family homes and other -residential facilities during the period [PROGRAM YEAR/PERIOD].?

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7. In what year did these efforts begin? \_\_\_\_\_

8. What were your responsibilities in regard to these programs?

9. I'd like to get a little more detail about the programs if I could.

a. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO FACILITY OWNERS AND DEVELOPERS  
RECRUITMENT OF FACILITY OWNERS AND DEVELOPERS  
RECRUITMENT OF TRADE ALLIES, INSTALLERS AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES TO FACILITY OWNERS AND DEVELOPERS  
DELIVERY OF INFORMATION AND TECHNICAL SUPPORT TO INSTALLERS AND OTHER TRADE ALLIES  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES

INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS  
b. What resources are being used to deliver the program? PROBE:

ORGANIZATION STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

c. What are the sources of financial support for the program? PROBE:

SOURCES OF FUNDING

LEVEL OF FUNDING FROM EACH SOURCE IN THE MOST RECENT YEAR

OVERALL FUNDING LEVELS IN PAST YEARS/TRENDS IN FUNDING LEVELS AND SOURCES

ROUGH ALLOCATION OF OPERATING FUNDS TO KEY FUNCTIONS: MARKETING, TECHNICAL SERVICES, PROJECT SUPPORT, ADMINISTRATION

SOURCES OF PROJECT FUNDING: TYPE OF ORGANIZATION, MECHANISM (APPROPRIATION OF PUBLIC FUNDS, PUBLIC BENEFITS CHARGES, LOANS, LOAN GUARANTEES)

TYPE OF PROJECT FUNDING: LOANS, GRANTS, REBATES, LOAN GUARANTEES

AMOUNT OF PROJECT FUNDING: BY SOURCE AND TYPE

d. Could you summarize the results your program has achieved? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP ATTENDANCE, ETC)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

- e. RESULTS VERSUS GOALS: Have you been able to achieve the level of results you targeted?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

**PART 4. POLICY SUPPORT ACTIVITIES**

**PRIOR TO INTERVIEW, IDENTIFY ITEMS IN THE GRID BELOW THAT APPLY TO THE JURISDICTION USING INFORMATION AVAILABLE AT [WWW.DSIREUSA.ORG/SUMMARYTABLES/RRPFE.CFM](http://WWW.DSIREUSA.ORG/SUMMARYTABLES/RRPFE.CFM).**

10. We understand that your [state legislature] and [regulators] have put in place statutes, rules, and regulations designed to facilitate the development of renewable energy facilities. FOR EACH OF THE LAWS OR REGULATIONS LISTED IN THE TABLE BELOW, ASK:

- a. Was your organization involved in advocating or providing technical support for the development or adoption of [LAW OR REGULATION]?

- 4) Yes
- 5) No
- 6) DK

- b. Could you briefly describe the activities your organization undertook to support the development or adoption of this [law, rule, regulation]?

- c. Were these organizations funded by the U. S. Department of Energy's State Energy Program or by ARRA funds received from the U. S. Department of Energy?

- 4) Yes
- 5) No
- 6) DK

**ANSWER GRID FOR QUESTION 10**

<b>Law or Regulation</b>	<b>10a</b>	<b>10b</b>	<b>10c</b>
<b>Use of Public Benefits Funds to support renewable projects</b>			
<b>Renewable Portfolio Standard</b>			
<b>Net metering of renewable installations</b>			
<b>Interconnection rules to facilitate renewables projects</b>			
<b>Licensure of renewables installation contractors</b>			
<b>Certification of renewable energy equipment</b>			
<b>Access laws, such as provisions for solare easements</b>			
<b>Building codes that support renewable energy installations</b>			
<b>Mandates for utilities to off "green power" options</b>			

11. What other organizations played important roles in advocating or providing technical support for the development and adoption of these laws and regulations?

\_\_\_\_\_

\_\_\_\_\_

12. IF THE STATE ENERGY OFFICE IS NOT MENTIONED, PROMPT: Did the [STATE ENERGY OFFICE] play a role in in advocating or providing technical support for the development and adoption of laws and regulations that facilitate renewable energy project development?

- a. Yes
- b. No
- c. Don't know

13. IF 12 = YES, FOR EACH LAW/REGULATION/RULE LISTED IN QUESTION 10 GRID ASK: In comparison to the work of other organizations, how would you compare the work

the [STATE ENERGY OFFICE] did to support [LAW, REGULATION, RULE] in terms of importance to the its ultimate development and adoption. Would you say it was:

- a. Much less important
- b. Somewhat less important
- c. Of about the same importance
- d. More important
- e. Much more important
- f. DK/Refused

14. FOR EACH RESPONSE a – e TO QUESTION 13, ASK:Why do you say that?

**ANSWER GRID FOR QUESTIONS 13 AND 14**

<b>Law or Regulation</b>	<b>13</b>	<b>14</b>
<b>Use of Public Benefits Funds to support renewable projects</b>		
<b>Renewable Portfolio Standard</b>		
<b>Net metering of renewable installations</b>		
<b>Interconnection rules to facilitate renewables projects</b>		
<b>Licensure of renewables installation contractors</b>		
<b>Certification of renewable energy equipment</b>		
<b>Access laws, such as provisions for solare easements</b>		
<b>Building codes that support renewable energy installations</b>		
<b>Mandates for utilities to off "green power" options</b>		

**PART 5. INTERACTION WITH SEP PA**

15. Are you aware of the efforts of [NAME OF STATE ENERGY OFFICE] to promote installation of renewable energy projects in single family homes and other - residential facilities?



- a. Yes → CONTINUE
- b. No → ASK IF THERE IS ANYONE ELSE WHO HAS BEEN INVOLVED IN THE PLANNING OF THE PROGRAMS WHO MIGHT BE FAMILIAR WITH THE STATE ENERGY OFFICE PROGRAMS? COMPLETE THIS SECTION OF THE INTERVIEW GUIDE WITH THAT INDIVIDUAL.

16. What is your understanding of the services and resources these programs offer?

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17. Did your organization and the [STATE ENERGY OFFICE] have any contact to plan, coordinate, or deliver programs that promote installation of renewable energy projects in single family homes and other -residential facilities?

- a. Yes → CONTINUE
- b. No → SKIP TO QUESTION XX

18. Please describe how your organization and the [STATE ENERGY OFFICE] have worked together to plan or coordinate the efforts in this area.

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19. Do representatives of the organizations meet on a regular basis to review program accomplishments and plan future activities?

IF YES: How often does that occur?

20. Is there regular interaction among the organizations in delivering the program services?

IF YES: Could you describe that interaction for me?

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21. Why did your organization decide to work together with the [STATE ENERGY OFFICE] to plan and/or deliver programs to promote installation of renewable energy projects in single family homes and other -residential facilities? PROBE:

- a. SEO's ability to deliver technical services
- b. SEO's contacts to key market actors or facility owners
- c. SEO's contacts and relationships with regulators and other government agencies
- d. SEO's access to funding for projects of interest to the respondent's organization
- e. Other (Specify) \_\_\_\_\_

22. Did your organization take into account the SEO's capabilities and resources in planning your activities to promote installation of renewable energy projects in single family homes and other -residential facilities?

- a. Yes → ASK: Please describe how you took the SEO's capabilities and resources into account.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- b. No

23. If the opportunity to cooperate with the [STATE ENERGY OFFICE] had not been available, do you believe that your organization would now be offering programs to promote installation of renewable energy projects in single family homes and other -residential facilities?

YES/NO

18a. Why do you say that?

24. If the [STATE ENERGY OFFICE] had not cooperated in delivering the program as it did, would your organization have changed the type of services it provides to promote installation of renewable energy projects in single family homes and other -residential facilities?

YES/NO

IF YES, PROBE:

24a. How would your organization have changed the roster of services provided?

25. If the [STATE ENERGY OFFICE] had not cooperated in delivering the program as it did, would your organization have increased the level of resources used to promote installation of renewable energy projects in single family homes and other - residential facilities, decreased the level, or left it about the same?

<b>Response</b>	<b>Mark One (1)</b>
INCREASED	
DECREASED	
LEFT LEVEL ABOUT THE SAME	
DK/REFUSED	

IF INCREASED OR DECREASED, PROBE:

- a. Why do you say that?
  
- b. By what percentage would you have [INCREASED/DECREASED] the amount of resources your organization allocated to promote energy efficiency retrofits in non-residential facilities? Would you say its ...

<b>Percent Category Increase/Decrease</b>	<b>Mark One (1)</b>
Zero (0) To 19%	
21% to 40%	
41% to 60%	
61% to 80%	
81% to 100%	
DK/Refused	

**PART 5: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

**IF THE RESPONDENT ORGANIZATION HAS COOPERATED WITH THE STATE ENERGY OFFICE IN THE DELIVERY OF SERVICES TO PROMOTE ENERGY EFFICIENCY RETROFITS, ASK THE QUESTIONS IN THIS SESSION.**

26. Do you believe that program that your organization delivered with the [STATE ENERGY OFFICE] has had an impact on the long-term capabilities of non-residential facility owners and developers in the state to develop renewable energy facilities?



YES/NO

- a. In what specific ways did your program contribute to that result?
  - b. Can you provide any examples of these kinds of results?
27. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the “supply side” of the market to sell and install non-residential and utility scale renewable energy projects?

YES/NO

- a. In what specific ways did your program contribute to that result?
  - b. Can you provide any examples of these kinds of results?
28. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
  - b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
  - c. How many of these FTEs will be retained after the current round of program funding?
  - d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?
29. In the course of carrying out this program, has your organization developed any new capabilities or resources that will support the delivery of energy efficiency services to non-residential facilities in the future. PROBE:
- a. Contacts and relationships with market actors
  - b. Tools such as building analysis software
  - c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula

**Thank you for your time and insights**



## L.13. ID-10B-R: RENEWABLES (VENDORS, INSTALLERS, PROJECT DEVELOPERS): RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to promote the development of Residential renewable energy projects in [STATE] that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

**PART 2. QUALIFY THE RESPONDING FIRM/IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that your firm is engaged in the engineering and/or installation of renewable technologies on single family homes and other residential facilities in [STATE]? Is that correct?

- Yes: CONTINUE
- No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Through your professional activities, have you had the opportunity to observe the development of the market for customer-sited residential renewable energy projects in [STATE] over the past four years?

Yes – Correct person	[Continue]
No – Incorrect person	[Ask to speak with someone who has the relevant experience and view of the market] If no such person, thank, terminate, and substitute another vendor]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 55 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION’S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

- 
1. What are the primary services that your firm delivers?
    - a. TYPES OF TECHNOLOGIES SOLD, SUPPORTED INSTALLED
    - b. RANGE OF SERVICES PROVIDED: ENGINEERING, DESIGN, FEASIBILITY ASSESSMENT, PERMITTING, INSTALLATION, COMMISSIONING, MAINTENANCE.
    - c. PROJECT FINANCING OPTIONS PROVIDED OR BROKERED TO CUSTOMERS: LOANS, LOAN GUARANTEES, LEASES, POWER PURCHASE AGREEMENTS, PUBLIC GOODS INCENTIVES APPLICATIONS, ETC.
  
  2. Roughly how many renewable energy systems did you install in homes and other residential facilities in [STATE] in 2011?
    - a. Number of solar installations: \_\_\_\_\_
    - b. Number of wind installations: \_\_\_\_\_
    - c. Number of Other (Specify: \_\_\_\_\_) \_\_\_\_\_

**PART 3: KNOWLEDGE OF AND EXPERIENCE WITH THE PROGRAM**

3. According to our records, can you confirm that you have been an ally of [PROGRAM NAME]?
  
4. IF 3 = YES:
  - a. When did you first hear of the program?
  - b. From what sources did you hear of the program?
  
5. To your knowledge, have you engineered or installed a residential renewable energy system that received support from [PROGRAM NAME]?
  
6. IF 5 = YES: How many such projects has your firm been involved in? Your best estimate will be fine.
  
7. IF 5 = YES: To your knowledge, what kinds of support did those projects receive from [PROGRAM NAME]?
  
8. IF 5 = YES: On a scale of 1 to 10, where 1 means "no importance" and 10 means "very important", how important were the services provided [PROGRAM NAME] in convincing and enabling your customers to undertake the supported projects
 

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_
  
9. IF 8 = 1 – 10, ASK: Why do you say that? PROBE SPECIFIC BARRIERS OR ISSUES THE

SERVICES FROM THE SEP PA HELPED TO ADDRESS, HELP FROM OTHER PROGRAMS,  
PREDISPOSITION OF THE FACILITY OWNERS.

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10. In your opinion, what percentage of these projects would facility owners and developers have completed in the absence of the support from [PROGRAM NAME]?

ENTER PERCENT: \_\_\_\_\_%

11. What observations lead you to that estimate?

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12. Generally speaking, has the annual number of residential renewable projects your firm engineers and/or installs increased, decreased, or stayed about the same since [YEAR OF PROGRAM LAUNCH]?

13. IF 12 = INCREASED OR DECREASED: By approximately what percentage would you say the number of residential renewable projects has increased/decreased?

ENTER PERCENT, 999 FOR DK/REF: \_\_\_\_\_

14. Which factors or conditions do you believe most influenced the volume of residential renewable energy systems installed in [STATE] since [YEAR OF PROGRAM LAUNCH]?  
[DO NOT READ; MARK ALL FACTORS MENTIONED]

- a. Electricity rates
- b. Federal tax laws and policies
- c. Changes in state rules and regulations related to renewables projects, such as interconnection and net metering
- d. Changes in public awareness of global warming and other environmental issues related to energy use
- e. Reduction in the costs of renewable energy equipment and installation
- f. Improved performance of renewable energy equipment
- g. [PROGRAM NAME]
- h. Programs offered by utilities and other sponsors

15. ASK IF [PROGRAM NAME] MENTIONED, ELSE SKIP TO 17: Compared to the other factors you mentioned, would you consider [PROGRAM NAME] the one with:

- a. The greatest influence on the volume of residential renewable energy project installations
- b. Among the most amount of influence

- c. Roughly equal influence as the others
- d. Somewhat less influence than the others
- e. Much less influence than the others
- f. DK/REF

16. ASK IF 15 = a – e: Why do you say that?

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17. IF [PROGRAM NAME] NOT MENTIONED IN 14, ASK: What was the main reason you did not mention [PROGRAM NAME] as a factor affecting changes in the volume of residential renewable projects installed in [STATE]?

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18. On a scale of 1 to 10 where 1 means “not at all favorable” and 10 means “very favorable”, how would you characterize the conditions for the development of residential energy projects in [STATE]?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

19. IF 18 = 1 – 10, ASK: What factors would you say continue to constitute barriers to the development of residential renewable energy projects in [STATE]?

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20. IF 18 = 1 – 10, ASK: What rules, regulations, and market conditions would you say contribute to a favorable climate for development of residential renewable energy projects in [STATE]?

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21. IF ANY ANSWERS GIVEN TO 20, ASK: Are you aware of any activities that [STATE ENERGY OFFICE] has taken to promote rules, regulations, and market conditions that are favorable for the development of residential renewable energy projects in [STATE]?  
IF YES: What specific activities are you aware of?

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22. IF ANY ANSWERS GIVEN TO 21, ASK: On a scale of 1 to 10, where 1 means “not at all important” and 10 means “very important”, how important do you believe these



activities have been to the development of regulations and market conditions that are favorable to the development of residential renewable energy projects in [STATE]?

ENTER 1 - 10, 99 FOR DK/REF: \_\_\_\_\_

23. IF 22 = 1 - 10: What factors lead you to give that rating?

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**Thank you for your time and insights**

## L.14. ID-12B-R: RENEWABLES (PROGRAM DELIVERY CONTRACTORS) RESIDENTIAL

**OMB Control No. 1910-5170**

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*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

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Program Administrator Name:	
Year:	
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2008 Market Title Sampled	
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2009-2010 ARRA Market Title Sampled	
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Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to promote the development of Residential renewable energy projects in [STATE] that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

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The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that your organization was responsible for delivering a program to promote the development of renewable energy projects in Residential facilities or as free-standing projects to sell electricity. Is that correct?

- Yes: CONTINUE
- No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Our understanding is that you served or serve as the program manager for Residential Renewables programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Residential renewable programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Residential renewable programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded Residential renewable programs	[Ask for correct person for Residential Renewables Project Development programs]
No – There were no SEP/ARRA funded Residential renewable programs	[Thank you and terminate. Contact main state energy office representative to verify that there were no programs that corresponded to description in the PAGE database.]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 70 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

I would like to ask you some questions about the activities to promote Residential Renewable energy projects that received SEP/ARRA funding in [PROGRAM YEAR].

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION’S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

1. What are the primary services that your organization delivers?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. How long has your organization been in business?

3. How long has your organization provided the specific services you delivered for the [PROGRAM]?

4. Were you involved in the management of renewables programs that received SEP/ARRA funding in [PROGRAM YEAR]?

- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON. CONTINUE THE INTERVIEW WITH THAT INDIVIDUAL.]

Yes	[GO TO Q3]
No	[ASK Q2]

5. What were your responsibilities in regard to renewables programs that received SEP/ARRA funding in [PROGRAM YEAR]?

6. In what year did you first become involved with the renewables programs that received SEP ARRA funding?

7. Are you still involved with managing this program? If not, when did your involvement end?

8. According to information provided by the State Energy Office, you received a contract valued a roughly \$\_\_\_\_\_ to operate programs that promote the development of Residential Renewables projects. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]
	[REMAINING AMOUNT]

**PART 3: PROGRAM DESIGN (LOGIC MODEL)**

9. As you understand them, what were the ultimate objectives of [PROGRAM NAME]?

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10. Did your organization commit to any quantitative goals for the program, such as number of projects developed or kW of capacity installed?

- a. Yes
- b. No
- c. DK

11. IF 10 = YES: What were those goals?

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12. In terms of the timeline of your contract:

- a. When did you initiate development of the program?
- b. When did you launch the program to the public?

13. Please describe how the program is operating now in regard to its activities, the resources it uses, and the outcomes it is achieving.

13A. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO PARTICIPANTS  
RECRUITMENT OF PARTICIPANTS  
RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES  
PROVISION OF TECHNICAL AND PROJECT DEVELOPMENT SERVICES, SUCH AS SITE ASSESSMENTS, ENGINEERING SUPPORT, FEASIBILITY STUDIES, FINANCIAL MODELING, ETC.  
ADVOCACY AND TECHNICAL SUPPORT FOR LAWS AND REGULATIONS TO SUPPORT RENEWABLES PROJECT DEVELOPMENT, SUCH AS RENEWABLE PORTFOLIO STANDARDS, INTERCONNECTION RULES, NET METERING.  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES TO SUPPORT PROJECTS  
INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

OTHER (SPECIFY)

13B. INPUTS: What resources are being used to deliver the program? PROBE:

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME



OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF, DOLLAR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

13C. OUTSIDE FUNDING: Are organizations other than the State Energy Office contributing funding to this program? IF YES, PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD, FOR EACH FUNDER IF AVAILABLE)

PERCENTAGE OF TOTAL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT.

USES OF THE FUNDING PROVIDED

13D. RESULTS/OUTPUTS: Could you summarize the results your program has achieved so far? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (TECHNICAL SERVICES, LOANS AND GRANTS, DOLLAR VOLUME OF LOANS AND GRANTS)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

KW INSTALLED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

13E. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans or quantitative goals?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

14. [IF PROGRAM EXISTED PRIOR TO 2008 ASK] Did you make any important changes to program operations or the resources available to it between 2007 and 2008? [IF PROGRAM EXISTED PRIOR TO ARRA AND RECEIVED ARRA FUNDING ALSO ASK] Did you make any important changes to program operations or the resources available to it between 2008 and the period funded primarily by ARRA?

- a. Why did you make those changes?
- b. Did achieve the results you were seeking through those changes? PROBE SPECIFIC RESULTS.
- c. [FOR ARRA PERIOD PROGRAMS ASK] Would your organization have been able to make these changes without the support provided by the ARRA round of funding?

YES/NO  
PROBE REASONS FOR THIS ASSESSMENT.

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM'S DOMAIN FOR ATTRIBUTION PURPOSES.]**

15. Has your organization or the state energy office developed a formal logic model for [PROGRAM NAME]?

- a. Can you share it with us?

#### **PART 4 – ASSESSMENT OF PROGRAM EFFECT**

This next set of questions seeks your opinion on the effect of the program on targeted homeowners and vendors.

16. IF THE PROGRAM SUPPORTED ISNTALLATIONS IN INDIVIDUAL HOMES, ASK: Now, thinking about the homeowners who received support from your program for installation of renewable energy systems -- On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important were the services provided [PROGRAM NAME] in convincing and enabling those participants to undertake the renewable energy projects

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

17. IF 16 = 1 – 10, ASK: Why do you say that? PROBE SPECIFIC BARRIERS OR ISSUES THE SERVICES FROM THE SEP PA HELPED TO ADDRESS, HELP FROM OTHER PROGRAMS, PREDISPOSITION OF THE FACILITY OWNERS.

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18. In your opinion, what percentage of these projects would facility owners and developers have completed in the absence of the support from [PROGRAM NAME]?

ENTER PERCENT: \_\_\_\_\_%

19. What observations lead you to that estimate?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. Generally speaking, has the annual number of residential renewable projects completed in [STATE] increased, decreased, or stayed about the same since [YEAR OF PROGRAM LAUNCH]?

21. IF 20 = INCREASED OR DECREASED: By approximately what percentage would you say the number of residential renewable projects has increased/decreased?

ENTER PERCENT, 999 FOR DK/REF: \_\_\_\_\_

22. Which factors or conditions do you believe most influenced the volume of residential renewable energy systems installed in [STATE] since [YEAR OF PROGRAM LAUNCH]? [DO NOT READ; MARK ALL FACTORS MENTIONED]

- a. Electricity rates
- b. Federal tax laws and policies
- c. Changes in state rules and regulations related to renewables projects, such as interconnection and net metering
- d. Changes in public awareness of global warming and other environmental issues related to energy use
- e. Reduction in the costs of renewable energy equipment and installation
- f. Improved performance of renewable energy equipment
- g. PROGRAM NAME
- h. Programs offered by utilities and other sponsors
- i. Other (Specify) \_\_\_\_\_

23. ASK IF [PROGRAM NAME] MENTIONED, ELSE SKIP TO 25: Compared to the other factors you mentioned, would you consider [PROGRAM NAME] the one with:

- a. The greatest influence on the volume of residential renewable energy project installations
- b. Among the most amount of influence
- c. Roughly equal influence as the others
- d. Somewhat less influence than the others
- e. Much less influence than the others

f. DK/REF

24. ASK IF 23 = a – e: Why do you say that?

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25. IF [PROGRAM NAME] NOT MENTIONED IN 22, ASK: What was the main reason you did not mention [PROGRAM NAME] as a factor affecting changes in the volume of residential renewable projects installed in [STATE]?

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26. On a scale of 1 to 10 where 1 means “not at all favorable” and 10 means “very favorable”, how would you characterize the conditions for the development of residential and utility-scale renewable energy projects in [STATE]?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

27. IF 26 = 1 – 10, ASK: What factors would you say continue to constitute barriers to the development of renewable energy projects in [STATE]?

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28. IF 26 = 1 – 10, ASK: What rules, regulations, and market conditions would you say contribute to a favorable climate for development of renewable energy projects in [STATE]?

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29. IF ANY ANSWERS GIVEN TO 28, ASK: Are you aware of any activities that [STATE ENERGY OFFICE] has taken to promote rules, regulations, and market conditions that are favorable for the development of renewable energy projects in [STATE]? IF YES: What specific activities are you aware of?

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30. IF ANY ANSWERS GIVEN TO 28, ASK: On a scale of 1 to 10, where 1 means “not at all important” and 10 means “very important”, how important do you believe these activities have been to the development of regulations and market conditions that are favorable to the development of renewable energy projects in [STATE]?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_



31. IF 30= 1 – 10: What factors lead you to give that rating?

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**PART 4: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

32. Do you believe that this program has had an impact on the long-term demand exercised by homeowners for residential renewable energy projects in [STATE]?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

33. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the “supply side” of the market to sell and install renewable projects in Residential facilities?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

34. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
- c. How many of these FTEs will be retained after 2008 or the ARRA period, depending on which is relevant?
- d. IF  $c > 0$ : What sources of funding do you plan to use to sustain this (these) position(s)?

**PART 5: DATA AVAILABILITY**

**[ONLY ASK THIS SECTION IF WE HAVE NOT BEEN ABLE TO ACQUIRE PROGRAM DATA FROM THE STATE ENERGY OFFICE]**

**NOTE: QUESTIONS 36-38 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

35. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:
- n) Program participants, that is, facility owners/renters, Residential property managers who received support with the project, workshop attendees or training recipients, recipients of technical assistance, with contact information
  - o) Measures installed by participant, including the type and quantity of measures installed with program support, energy savings, incentive levels, other services received by participants, workshop or training description. [PROBE TO CLARIFY DATA THAT THE PM HAS ACCESS TO (EITHER IN-HOUSE OR AT A SEP FUNDED/PARTNERED ORGANIZATION) VERSUS DATA ANY EXTERNAL LEVERAGED ORGANIZATION MIGHT BE KEEPING.]
  - p) Participating trade allies (including contact information)

(IF DATA ARE AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE OR DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE WHO CAN PROVIDE SUCH DATA THEN THANK AND TERMINATE).

36. Have there been any evaluations of this program? Are data from these evaluations available?
37. (FOR EACH TYPE OF DATA AVAILABLE) Are these data in electronic format? (If yes,



discuss steps needed to secure permission to access the data via secure file transfer. If no, determine how data records are maintained and how they could be accessed.)

Are you aware of other data available that would be useful for our evaluation? If so could you describe it for me? Is it possible to access this information? PROBE FOR CONTACTS. IF MAKING COPIES IS AN ISSUE, ASK WHETHER WE CAN MAKE COPIES. IF STILL RELUCTANT, ASK WHETHER THEY HAVE A SUMMARY OF PROJECTS WITH MINIMAL INFORMATION SO WE CAN SELECT A SAMPLE AND COPY ONLY THOSE RECORDS.]

**Thank you for your time and insights**



## L.15. CT-4B-R: RENEWABLES: RESIDENTIAL SECTOR

OMB Control No. 1910-5170

### DATABASE VARIABLES

&INTERVIEWER NAME....name of the caller  
&CONTACT .....contact name from program database  
&SPONSOR.....organization that sponsored the program activity  
&PROGRAM .....program activity name  
&DATES .....dates of program activities operation funded by SEP or of research interest  
&APPOINT .....date/time to call back  
&NAME .....person to call back  
&PHONE.....extension or phone number to call back  
&SERV\_ADDR .....address where measure(s) were installed or service(s) performed  
&HOMETYPE .....Single family home or multi-family home (fill "home" or "building")  
&CITY .....city where measure(s) were installed or service(s) performed  
&CORRECT .....corrected address  
&MEASURE\_TYPE .....photovoltaic (pv), wind turbine, solar hot water, biomass, biogas, etc.  
&QTY .....quantity of measure installed  
&MEASURE .....specific technology within measure type, e.g. CFLs  
&TARGET\_YEARS .....programs years under evaluation  
&PV .....boolean that is true if respondent installed photovoltaic measures  
&PV\_TECH.....specific photovoltaic technology,  
&PV\_NUM.....number of modules installed by pv technology  
&PVINV\_TECH.....specific pv inverter technology  
&PVINV\_NUM.....number of pv inverters installed by technogy  
&WIND .....boolean that is true if respondent installed wind turbine measures  
&W\_TECH .....specific wind turbine technology,  
&W\_NUM.....number of wind turbine measures installed by technology  
&WINV\_TECH .....specific wind turbine inverter installed by technology  
&WINV\_NUM .....number of wind turbine inverters installed by technology  
&SHW .....boolean that is true if respondent installed solar heating measures  
&SHW\_TECH.....specific solar heating technology,  
&SHW\_NUM.....number of solar hot water modules installed by technology  
&BM .....boolean that is true if respondent installed biomass measures  
&BM\_TECH .....specific biomass technology,  
&BM\_NUM .....  
&BIOGAS .....boolean that is true if respondent installed biogas measures  
&BIOGAS\_CAPTECH.....specific biogas capturing technology,  
&BIOGAS\_GENTECH .....specific biogas power generation technology,  
&BIOGAS\_NUM .....  
&OTHER.....boolean that is true if respondent installed other measures

**INTRODUCTION AND FINDING CORRECT RESPONDENT**

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from &INTERVIEWER ORGANIZATION. May I please speak with &CONTACT, or the person at this location who is most knowledgeable about your &HOMTYPE's participation in &SPONSOR's &PROGRAM, which operated during the period &DATES?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how &PROGRAM worked.

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me get _____]	4	[GO TO INTRO3:s]
[No, that is the wrong person]	5	[GO TO HI]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't Know]	97	[GO TO APPOINT]
[Refused]	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME	[GO TO EXT]
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER	[GO TO INTRO3(99)]
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER	[GO TO INTRO3(99)]

**INTRO3(99).** Thank you for your time. We need to speak with the person in your &HOMTYPE that is most familiar with your participation in the &PROGRAM.

Those are all of the questions I have for you today **[TERMINATE; ASSIGN DISPOSITION & REMOVE FROM CALL ORDER]**

**HI.** Who would be the person in your &HOMTYPE who is most knowledgeable about your participation in &SPONSOR's &PROGRAM?

	RECORD NAME AS &CONTACT	[GO TO MAY_I]
[Don't Know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO INTRO3(99)]

**MAY\_I.** May I speak with him/her?

[Yes]	1	[GO TO INTRO3:s]
[No]	2	[GO TO EXT]
[Don't know]	-97	[GO TO EXT]
[Refused]	-98	[GO TO EXT]

**INTRO3:s.** Hello, this is <INTERVIEWER NAME> calling on behalf of the Department of Energy from **INTERVIEWER ORGANIZATION**. This is not a sales call. This is a fact-finding survey only. According to our records, your &HOMTYPE participated in &SPONSOR's &PROGRAM.

I was told that you are the person most knowledgeable about this program. Is this correct?

[Yes]	1	[GO TO PURPOSE]
[No]	2	[GO TO HI]
[No one knows about the program]	3	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[GO TO EXT]

**EXT.** Is there a different phone number you recommend we use when we call back?

[Yes]	1	RECORD EXTENSION OR PHONE NUMBER AS &PHONE; [GO TO APPOINT]
[No]	2	[GO TO APPOINT]
[Don't know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO APPOINT]

**PURPOSE.** The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. We are calling you today to learn about your response to the &SPONSOR's &PROGRAM. The information we gather will be used by the Department of Energy to understand how the program has worked. The survey should take no more than 50 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your &HOMTYPE in any way.

**SC1.** First, I'd like to ask you a few questions about your &HOMTYPE. Our records show your &HOMTYPE is at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO COMMENT3]
[No]	2	[GO TO CORRECT]
[Don't know]	-97	[GO TO COMMENT1]
[Refused]	-98	[GO TO COMMENT1]

**COMMENT1.** We were attempting to reach the customer at &SERV\_ADDR and since you cannot confirm this address, those are all the questions that we have for you today, on behalf of the Department of Energy, thank you for your time.  
[TERMINATE]

**CORRECT** May I have your address?

[Yes]	1	RECORD IN &CORRECT  [GO TO COMPARE]
[No]	2	[COMMENT1]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[ GO TO COMMENT1]

**COMPARE.** [DO NOT READ] Are these addresses similar or totally different?  
Computer Address - &SERV\_ADDR  
Corrected Address - &CORRECT

[Similar]	1	SET &SERV_ADDR = &CORRECT  [GO TO SC2]
[Totally different]	2	[GO TO COMMENT2]

**COMMENT2.** We were attempting to reach the customer at &SERV\_ADDR in &CITY and since that does not match your address, then we must have misdialed the telephone number. Those are all the questions that we have for you today, on behalf of the Department of Energy. Thank you for your time and cooperation.  
[TERMINATE]

**SC2.** Our records show that you received support from &PROGRAM to carry out energy efficiency improvements at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO SC3]
[No]	2	[GO TO COMMENT4]
[Don't know]	97	[GO TO COMMENT4]
[Refused]	98	[GO TO COMMENT4]

**COMMENT4.** Can you refer me to someone who would be likely to be familiar with such a project?

[Yes]	1	[GO TO HI]
[No]	2	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO INTRO3(99)]
[Refused]	-98	[GO TO INTRO3(99)]

**SC3.** Are you familiar with the decision to participate in &PROGRAM and the type of the energy efficiency measures carried out with its assistance?

[Yes]	1	[GO TO V1]
[No]	2	[GO TO COMMENT4]
[Don't know]	-97	[GO TO COMMENT4]
[Refused]	-98	[GO TO COMMENT4]

**INITIAL VERIFICATION INVENTORY**

**NOTE: THE SEGMENTS VY AND VN ELICIT THE SAME TYPE OF INFORMATION FROM CUSTOMERS IN PROGRAMS THAT ARE ABLE TO PROVIDE MEASURE-LEVEL DATA FOR PROJECTS SUPPORTED BY THE PROGRAM (VY) AND THOSE FOR WHICH MEASURE-LEVEL DATA ARE NOT AVAILABLE (VN). THE ANSWERS TO BOTH SEQUENCES ARE ANSWERED IN THE SAME INITIAL VERIFICATION GRID BELOW. THE OBJECTIVE OF THIS SEQUENCE IS TO PROVIDE VERIFICATION OF THE OVERALL SCOPE OF THE PROJECT, CHARACTERIZE THE SCOPE OF SUPPORT PROVIDED BY THE SEP PROGRAM AND OTHER PROGRAMS, AND ELIMINATE THE NEED FOR REPETITIVE QUESTIONS IN THE DETAILED MEASURE SECTIONS. SEQUENCE VB IS ADDRESSED TO ALL RESPONDENTS.**

**V1.** I'd like to ask you about the scope of the project at &SERV\_ADDR.

**V1b.** Was this project done to an existing &HOMETYPE or was it part of a new construction project?

[Existing/retrofit]	1	[GO TO VY1a]
[New construction]	2	[THANK AND TERMINATE]
[Don't know]	-97	[GO TO VY1a]
[Refused]	-98	[GO TO VY1a]

**SEQUENCE VY: FOR CUSTOMERS IN PROGRAMS WITH MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**[REPEAT THIS SERIES FOR EACH MEASURE IN THE TRACKING DATA]**

**VY1a.** According to &SPONSOR records, you installed &QTY &MEASURE as part of the project at &SERV\_ADDR. Is this correct?

[Yes, installed that number]	1	[GO TO VY1a FOR NEXT MEASURE]
[Did not install any of that technology]	2	[GO TO VY1a FOR NEXT MEASURE]
[Technology correct, number wrong]	3	[GO TO VY1B]
[Don't Know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**VY1b.** How many &MEASURE did you install?

RECORD NUMBER	_____	[GO TO VY1C]
Don't know	-97	[GO TO VY1C]
Refused	-98	[GO TO VY1C]

**VY1c.** Why did you install a different number of &MEASURE?

Have no idea why numbers differ	1	[GO TO VY1D]
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Put some in storage	2	[GO TO VY1D]
Installed some at another location in the U.S.	3	[GO TO VY1D]
Insufficient financial resources to complete full amount	4	[GO TO VY1D]
[Other, Specify _____]	5	[GO TO VY1D]
[Don't know]	-97	[GO TO VY1D]
[Refused]	-98	[GO TO VY1D]

**VY1d.** Do you plan to install the remaining &MEASURE within the next year?

[Yes]	1	[GO TO VY1a FOR NEXT MEASURE]
[No]	2	[GO TO VY1a FOR NEXT MEASURE]
[Don't know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VY SEQUENCE FOR ALL MEASURES IN TRACKING DATABASE]**

**SEQUENCE VN: FOR CUSTOMERS IN PROGRAMS WITH NO MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**VN1a.** Which of the following types of equipment or services were received support from &PROGRAM? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

Wind Turbine	RECORD QTY____	[GO TO VN1c]
PV Solar Panels	RECORD QTY____	[GO TO VN1c]
Solar Hot Water Panels	RECORD QTY____	[GO TO VN1c]
Solar Hot Water Tubes	RECORD QTY____	[GO TO VN1c]
Geothermal Heat Pump	RECORD QTY____	[GO TO VN1c]
Fuel Cell	RECORD QTY____	[GO TO VN1c]
Other Efficiency Measures [SPECIFY _____]	RECORD QTY____	[GO TO VN1c]

**VN1c.** Is there any equipment or services for which you received support from &PROGRAM in &TARGET\_YEARS that has not yet been installed

[Yes]	1	[GO TO VN1d]
[No]	2	[GO TO VB1]
[Don't know]	-97	[GO TO VB1]
[Refused]	-98	[GO TO VB1]

**VN1d.** Which equipment or services received support from &PROGRAM but have not yet been installed or conducted? **[MARK ALL THAT APPLY IN LIST IN THE GRID.]**

Wind Turbine	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
PV Solar Panels	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Solar Hot Water Panels	RECORD QTY NOT INSTALLED____	[GO TO VN2a]

Solar Hot Water Tubes	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Geothermal Heat Pump	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Fuel Cell	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Other Efficiency Measures [MULTIPLE "OTHER" POSSIBLE]	RECORD QTY NOT INSTALLED____	[GO TO VN2a]

**FOR EACH MEASURE TYPE MARKED IN VN1c, ASK VN2a THROUGH VN2c.**

**VN2a.** Why was &MEASURE\_TYPE not installed at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY]**

Put some in storage	1	[GO TO VN2b]
Installed some at another location in the U.S.	2	[GO TO VN2b]
Insufficient financial resources to complete full amount	3	[GO TO VN2b]
[Other, Specify_____]	4	[GO TO VN2b]
[Don't know]	-97	[GO TO VN2b]
[Refused]	-98	[GO TO VN2b]

**VN2b.** Do you plan to install the remaining &MEASURE within the next year?

[Yes]	1	[GO TO VN2a FOR NEXT MEASURE]
[No]	2	[GO TO VN2a FOR NEXT MEASURE]
[Don't know]	-97	[GO TO VN2a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VN2a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VN2a – VN2c SEQUENCE FOR ALL APPLICABLE MEASURES]**

**VY AND VN SEQUENCE RESPONSE GRID FOR SEP SUPPORTED EFFORTS**

	<b>1a</b>	<b>1c (N only)</b>	<b>2a</b>	<b>2b</b>
<b>Measure type</b>	<b>Installed?</b>	<b>Not Installed</b>	<b>Why not installed?</b>	<b>Plan to install in Yr?</b>
<b><i>Efficiency Measures</i></b>				
Wind Turbine				
PV Solar Panels				

Solar Hot Water Panels				
Solar Hot Water Tubes				
Geothermal Heat Pump				
Fuel Cell				
<b>Other Efficiency Measures</b> [SPECIFY _____]				

**SEQUENCE VB: DIRECTED TO ALL CUSTOMERS.**

**VB1.** What kinds of assistance and support did you receive from &SPONSOR’s &PROGRAM in completing the project at &HOMTYPE? **[DO NOT READ, MARK ALL THAT APPLY. PROMPT IF NEEDED.]**

Financial grant or rebate for measures installed	1	[GO TO VB2]
Subsidy for design or engineering work	2	[GO TO VB2]
Reduced interest loan or loan interest subsidy	3	[GO TO VB2]
Loan guarantee	4	[GO TO VB2]
Assistance in entering into performance contracts	5	[GO TO VB3]
Energy audit or other technical assistance in identifying & characterizing opportunities	6	[GO TO VB3]
Referrals to qualified vendors	7	[GO TO VB3]
General information on energy efficiency opportunities	8	[GO TO VB3]
Other (Specify in enough detail to understand the support received to use in attribution analysis) _____	9	[GO TO VB3]
[Don't know]	97	[GO TO VB3]
[Refused]	98	[GO TO VB3]

**[IF VB1 INCLUDES 1, 2, 3, OR 4 ASK VB2, ELSE VB3]**

**VB2.** What was the amount of the incentive, subsidy, or loan provided by the &SPONSOR’s &PROGRAM? Your best approximation will be fine.

[RECORD AMOUNT]	\$_____	[GO TO VB3]
[Don't know]	-97	[GO TO VB3]
[Refused]	-98	[GO TO VB3]

**VB3.** And, what was the total overall cost of the project supported by &PROGRAM including equipment and labor *before* any incentives or subsidies were applied? Again, your best approximation will be fine

[RECORD AMOUNT]	\$_____	[GO TO VB4]
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[Don't know]	-97	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**[IF MULTIPLE MEASURES INSTALLED ASK VB4 THROUGH VB6, ELSE NEXT SECTION.]**

**VB4.** Can you recall how these costs were allocated among the different equipment or services installed or conducted?

[Yes]	1	[GO TO VB5]
[No]	2	[GO TO NEXT SECTION]
[Don't know]	-97	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**VB5.** Can you tell me the cost of purchasing and installing &MEASURE **[STARTING FROM FIRST IN GRID OR DATABASE]?**

**VB6.** **[IF RESPONDENT CANNOT PROVIDE A COST AMOUNT:]** What percentage of the total overall costs of the project supported by &PROGRAM did &MEASURE\_TYPE account for?

	<b>VB5</b>	<b>VB6</b>
<b>Measure type</b>	<b>Cost</b>	<b>% of Total</b>
Wind Turbine		
PV Solar Panels		
Solar Hot Water Panels		
Solar Hot Water Tubes		
Geothermal Heat Pump		
Fuel Cell		
<b>Other Efficiency Measures</b>		

**[RECORD VERIFIED MEASURES FOR MEASURE SPECIFIC QUESTIONS BELOW. RESPONDENTS WILL ONLY BE ASKED MEASURE SPECIFIC QUESTIONS FOR MEASURE GROUPS CONFIRMED]**

**[&WIND]  
[&PV]  
[&SHW]  
[&BIOGAS]  
[&OTHER]**

## PV SYSTEMS QUESTIONS

### [IF &PV = TRUE]

In the next section we'll be discussing the photovoltaic project that received support from &SPONSOR &PROGRAM.

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK PV1a THROUGH PV2c.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK PV3a THROUGH PV3c.]

**PV1a.** Our records indicate that you installed &PV\_NUM of &PV\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO PV1A FOR NEXT &PV_TECH]
[Did not install any of that technology]	2	[GO TO PV1A FOR NEXT &PV_TECH]
[Technology correct, number wrong]	3	[GO TO PV1num]
[Don't Know]	-97	[GO TO PV1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO PV1A FOR NEXT &PV_TECH]

**PV1num.** What is the correct number of &PV\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO PV1c]
[Don't Know]	-97	[GO TO PV1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO PV1A FOR NEXT &PV_TECH]

**PV1c.** Why did you install a different number of &PV\_TECH?

Have no idea why numbers differ	1	[GO TO PV1A FOR NEXT &PV_TECH]
Put some in storage	2	[GO TO PV1A FOR NEXT &PV_TECH]
Installed somewhere else	3	[GO TO PV1A FOR NEXT &PV_TECH]
Insufficient financial resources to complete full amount	4	[GO TO PV1A FOR NEXT &PV_TECH]
[Other, Specify _____]	5	[GO TO PV1A FOR NEXT &PV_TECH]
[Don't know]	-97	[GO TO PV1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO PV1A FOR NEXT &PV_TECH]

**PV2.** Our records indicate that you installed &PVINV\_NUM of &PVINV\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO PV2A FOR NEXT &PVINV_TECH]
[Did not install any of that technology]	2	[GO TO PV2A FOR NEXT &PVINV_TECH]
[Technology correct, number wrong]	3	[GO TO PV2num]
[Don't Know]	-97	[GO TO PV2A FOR NEXT &PVINV_TECH]
[Refused]	-98	[GO TO PV2A FOR NEXT &PVINV_TECH]

**PV2a.** What is the correct number of &PVINV\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		<a href="#">[GO TO LI1c]</a>
[Don't Know]	-97	<a href="#">[GO TO LI1A FOR NEXT &amp;PV_TECH]</a>
[Refused]	-98	<a href="#">[GO TO LI1A FOR NEXT &amp;PV_TECH]</a>

**PV3a.** What is the manufacturer and model number of your PV modules?

**PV3a1.**

RECORD MANUFACTURER		<a href="#">[GO TO PV3a2]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3a2]</a>
[Refused]	-98	<a href="#">[GO TO PV3a2]</a>

**PV3a2.**

RECORD MODEL NUMBER		<a href="#">[GO TO PV3b]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3b]</a>
[Refused]	-98	<a href="#">[GO TO PV3b]</a>

**PV3b.** How many of that type of PV module have been installed through the &PROGRAM.

ENTER NUMBER		<a href="#">[GO TO PV3c]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3c]</a>
[Refused]	-98	<a href="#">[GO TO PV3c]</a>

**PV3c.** Are there other types of PV modules installed through the &PROGRAM?

YES		<a href="#">[GO TO PV3a]</a>
NO		<a href="#">[GO TO PV3d]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3d]</a>
[Refused]	-98	<a href="#">[GO TO PV3d]</a>

**PV3d.** What is the manufacturer and model number of your PV inverter(s)?

**PV3d1.**

RECORD MANUFACTURER		<a href="#">[GO TO PV3d2]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3d2]</a>
[Refused]	-98	<a href="#">[GO TO PV3d2]</a>

**PV3d2.**

RECORD MODEL NUMBER		<a href="#">[GO TO PV3e]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3e]</a>
[Refused]	-98	<a href="#">[GO TO PV3e]</a>

**PV3e.** How many of that type of inverter have been installed through the &PROGRAM.

ENTER NUMBER		<a href="#">[GO TO PV3f]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3f]</a>
[Refused]	-98	<a href="#">[GO TO PV3f]</a>

**PV3f.** Are there other types of inverters installed through the &PROGRAM?

YES		<a href="#">[GO TO PV3d]</a>
NO		<a href="#">[GO TO PV4]</a>
[Don't Know]	-97	<a href="#">[GO TO PV4]</a>

[Refused]	-98	[GO TO PV4]
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**PV4.** How many degrees from north are your panels facing?

[ENTER NUMBER]

- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV5.** Are your panels on an automatic tracking system?

- [YES]..... 1
- [NO]..... [SKIP TO PV7] 2
- [DON'T KNOW] ..... [SKIP TO PV7] -97
- [REFUSED] ..... [SKIP TO PV7] -98

**PV6.** Is your tracking system DUAL axis?

- [YES]..... 1
- [NO]..... [SKIP TO PV7] 2
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**PV7.** Are your panels shaded at all during the year?

- [YES]..... 1
- [NO]..... [SKIP TO PV9] 2
- [DON'T KNOW] ..... [SKIP TO PV9] -97
- [REFUSED] ..... [SKIP TO PV9] -98

**PV8a.** Which months of the year are they shaded at least part of the day?

**PV8b.** For each month that they are shaded part of the day, what times of day are they shaded?

- [RECORD MONTH, TIME OF DAY AND PERCENT SHADED]
- [RECORD MONTH, TIME OF DAY AND PERCENT SHADED]
- [RECORD MONTH, TIME OF DAY AND PERCENT SHADED]

**PV9.** Have you modified the system since it was first installed? (ex: equipment changes such as replacing panels or an inverter or additions, such as adding panels?)

- [YES]..... 1
- [NO]..... **[SKIP TO PV10]** 2
- [DON'T KNOW] ..... **[SKIP TO PV10]** -97
- [REFUSED] ..... **[SKIP TO PV10]** -98

**PV9a.** Was the modification an addition or an equipment replacement?

**[CIRCLE ALL THAT APPLY]**

- [Addition]..... **[SKIP TO PV9b]** 1
- [Replacement] ..... **[SKIP TO PV9c]** 2
- [DON'T KNOW] ..... **[SKIP TO PV10]** -97
- [REFUSED] ..... **[SKIP TO PV10]** -98

**PV9b.** What have you [added]?

**[RECORD RESPONSE – note changes to capacity]**

- [DON'T KNOW] ..... **[SKIP TO PV10]** -97
- [REFUSED] ..... **[SKIP TO PV10]** -98

**PV9c.** What components of your system have required repair or replacement?

- [Inverter]..... 1
- [One or more modules]..... 2
- [Anything else] ..... 3

**PV9d.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV10.** When was your PV system installed?

**[RECORD MONTH and YEAR]**

**PV10a.** Did your system begin producing electricity on the date it was installed?

- [YES]..... **[SKIP TO PV11]** 1
- [NO]..... 2
- [DON'T KNOW] ..... **[SKIP TO PV11]** -97
- [REFUSED] ..... **[SKIP TO PV11]** -98

**PV10b** When did it begin producing electricity?

**[RECORD PRODUCTION Month and Year (if possible get day)]**

**PV11.** Has there been any major down-time (more than a few days) in the system since installation?

- [YES]..... 1
- [NO]..... **[SKIP TO PV12]** 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV11a.** When, and for how long [record as month:days (i.e. 03:7)]?  
**[IF MORE THAN ONE, RECORD MOST SUBSTANTIAL PERIOD]**

**PV12.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

**PV12a** kWh

- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**PV12b** RESET DATE \_\_\_\_\_

**PV13.**What did you take this reading from? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

- Read-out display on inverter?** ..... 1
- Separate utility meter for pv electricity?** ..... 2
- [Other] ..... -9996
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**PV13a.** [Describe OTHER \_\_\_\_\_]

**PV13b.** How do you track the output from the [renewable system—fill in type]?

- [inverter] .....1
- [utility meter/net meter] .....2
- [reductions in my utility bill] .....3
- [other means: please describe \_\_\_\_\_] 4

**PV14c.** On a scale of 1-10, is the [renewable –insert type ] system achieving the savings you expected?

**PV14d.** Why/why not?

## WIND SYSTEMS QUESTIONS

### [IF &WIND = TRUE]

In the next section we'll be discussing the wind project that received support from &SPONSOR &PROGRAM.

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK W1a THROUGH W2b.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK W3a THROUGH W3f.]

**W1a.** Our records indicate that you installed &WIND\_NUM of &WIND\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO W1A FOR NEXT &W_TECH]
[Did not install any of that technology]	2	[GO TO W1A FOR NEXT &W_TECH]
[Technology correct, number wrong]	3	[GO TO W1num]
[Don't Know]	-97	[GO TO W1A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO W1A FOR NEXT &W_TECH]

**W1num.** What is the correct number of &WIND\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO W1c]
[Don't Know]	-97	[GO TO W1A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO W1A FOR NEXT &W_TECH]

**W1c.** Why did you install a different number of &WIND\_TECH?

Have no idea why numbers differ	1	[GO TO W1A FOR NEXT &W_TECH]
Put some in storage	2	[GO TO W1A FOR NEXT &W_TECH]
Installed somewhere else	3	[GO TO W1A FOR NEXT &W_TECH]
Insufficient financial resources to complete full amount	4	[GO TO W1A FOR NEXT &W_TECH]
[Other, Specify _____]	5	[GO TO W1A FOR NEXT &W_TECH]
[Don't know]	-97	[GO TO W1A FOR NEXT &W_TECH]
[Refused]	-98	[GO TO W1A FOR NEXT &W_TECH]

**W2.** Our records indicate that you installed &WINV\_NUM of &WINV\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO W2 FOR NEXT &WINV_TECH]
[Did not install any of that technology]	2	[GO TO W2 FOR NEXT &WINV_TECH]
[Technology correct, number wrong]	3	[GO TO W2a]
[Don't Know]	-97	[GO TO W2 FOR NEXT &WINV_TECH]
[Refused]	-98	[GO TO W2 FOR NEXT &WINV_TECH]

**W2a.** What is the correct number of &WINV\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO W2b FOR NEXT &WINV_TECH]
[Don't Know]	-97	[GO TO W2 FOR NEXT &WINV_TECH]
[Refused]	-98	[GO TO W2 FOR NEXT &WINV_TECH]

**W2b.** What is the hub height of each turbine?

RECORD CORRECT HEIGHT: \_\_\_\_\_  
 [DON'T KNOW] .....-9997  
 [REFUSED] .....-9998

**W3a.** What is the manufacturer and model number of your turbines?

**W3a1.**

RECORD MANUFACTURER		[GO TO W3a2]
[Don't Know]	-97	[GO TO W3a2]
[Refused]	-98	[GO TO W3a2]

**W3a2.**

RECORD MODEL NUMBER		[GO TO W3b]
[Don't Know]	-97	[GO TO W3b]
[Refused]	-98	[GO TO W3b]

**W3b.** How many of that type of turbines have been installed through the &PROGRAM.

ENTER NUMBER		[GO TO W3c]
[Don't Know]	-97	[GO TO W3c]
[Refused]	-98	[GO TO W3c]

**W3c.** Are there other types of turbines installed through the &PROGRAM?

YES		[GO TO W3a]
NO		[GO TO W3d]
[Don't Know]	-97	[GO TO W3d]
[Refused]	-98	[GO TO W3d]

**W3d.** What is the manufacturer and model number of your inverter(s)?

**W3d1.**

RECORD MANUFACTURER		[GO TO W3d2]
[Don't Know]	-97	[GO TO W3d2]
[Refused]	-98	[GO TO W3d2]

**W3d2.**

RECORD MODEL NUMBER		[GO TO W3e]
[Don't Know]	-97	[GO TO W3e]
[Refused]	-98	[GO TO W3e]

**W3e.** How many of that type of inverter have been installed through the &PROGRAM.

ENTER NUMBER		[GO TO W3f]
[Don't Know]	-97	[GO TO W3f]
[Refused]	-98	[GO TO W3f]

**W3f.** Are there other types of inverters installed through the &PROGRAM?

YES		[GO TO W3d]
NO		[GO TO W4]
[Don't Know]	-97	[GO TO W4]
[Refused]	-98	[GO TO W4]

**W4.** Have you modified the system since it was first installed? (ex: equipment changes such as a new turbine or inverter?)

- [YES]..... 1
- [NO]..... [SKIP TO W5] 2
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W4a.** Was the modification an addition or equipment replacement? **[ALL THAT APPLY]**

- 1 [Addition].....[SKIP TO W4b]
- 2 [Replacement] .....[SKIP TO W4c]
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W4b.** What have you [added]?

**[RECORD RESPONSE – note changes to capacity]**

- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W4c.** What components of your system have required repair or replacement?

- [Inverter]..... 1
- [One or more turbines] ..... 2
- [Anything else] ..... 3

**W4d.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW] ..... [SKIP TO W5] -97
- [REFUSED] ..... [SKIP TO W5] -98

**W5.** When was your wind turbine installed?

**[RECORD MONTH and YEAR if possible get Day]**

**W5a.** Did the turbine begin producing power on the date it was installed?

- [YES] ..... 1
- [NO]..... **[RECORD DATE \_\_\_\_\_]** 2
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**W6.** Has there been any major down-time (more than a few days) in the system since installation, other than times when the wind wasn't blowing strong enough to generate power?

- [YES] ..... 1
- [NO]..... **[SKIP TO W7]** 2
- [DON'T KNOW] ..... **[SKIP TO W7]** -97
- [REFUSED] ..... **[SKIP TO W7]** -98

**W6a** – When, and for how long [(record as month:days (i.e. 03:7)]?

\_\_\_\_\_

**W7.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

**W7a.** kWh \_\_\_\_\_

- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**W7b.** RESET DATE \_\_\_\_\_

**W8.** Did you make this reading from a . . . ? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

- Read-out display on inverter? ..... 1
- Separate utility meter for wind system? ..... 2
- Reductions in my utility bill .....3
- [Other] ..... 77
- [DON'T KNOW] ..... -97
- [REFUSED] ..... -98

**W9.** On a scale of 1-10, is the [renewable –insert type ] system achieving the savings you expected?

**W9a** Why/why not?

## SOLAR HOT WATER QUESTIONS

[IF &SHW = TRUE]

In the next section we'll be discussing the solar hot water project that received support from &SPONSOR &PROGRAM.

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK SHW1a THROUGH SHW1c.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK SHW3 THROUGH SHW3c.]

**SHW1a.** Our records indicate that you installed &SHW\_NUM of &SHW\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Did not install any of that technology]	2	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Technology correct, number wrong]	3	[GO TO SHW1num]
[Don't Know]	-97	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Refused]	-98	[GO TO SHW1A FOR NEXT &SHW_TECH]

**SHW1num.** What is the correct number of &SHW\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO SHW1c]
[Don't Know]	-97	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Refused]	-98	[GO TO SHW1A FOR NEXT &SHW_TECH]

**SHW1c.** Why did you install a different number of &SHW\_TECH?

Have no idea why numbers differ	1	[GO TO SHW1A FOR NEXT &SHW_TECH]
Put some in storage	2	[GO TO SHW1A FOR NEXT &SHW_TECH]
Installed somewhere else	3	[GO TO SHW1A FOR NEXT &SHW_TECH]
Insufficient financial resources to complete full amount	4	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Other, Specify_____]	5	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Don't know]	-97	[GO TO SHW1A FOR NEXT &SHW_TECH]
[Refused]	-98	[GO TO SHW1A FOR NEXT &SHW_TECH]

**SHW2a.** What is the manufacturer and model number of your solar hot water module?

**SHW2a1.**

RECORD MANUFACTURER		[GO TO SHW2a2]
[Don't Know]	-97	[GO TO SHW2a2]
[Refused]	-98	[GO TO SHW2a2]



**SHW2a2.**

RECORD MODEL NUMBER		[GO TO SHW2b]
[Don't Know]	-97	[GO TO SHW2b]
[Refused]	-98	[GO TO SHW2b]

**SHW2b.** How many of that type of solar hot water module have been installed through the &PROGRAM.

ENTER NUMBER		[GO TO SHW2c]
[Don't Know]	-97	[GO TO SHW2c]
[Refused]	-98	[GO TO SHW2c]

**SHW2c.** Are there other types of solar hot water modules installed through the &PROGRAM?

YES		[GO TO SHW2a]
NO		[GO TO SHW2d]
[Don't Know]	-97	[GO TO SHW2d]
[Refused]	-98	[GO TO SHW2d]

**SHW3a.** How many tanks are heated using the system funded through &PROGRAM?

SHW3a1. [Number of Tanks] \_\_\_\_\_

**SHW3b.** What is the capacity of each of these tanks?

SHW3b2. [Capacity #1] \_\_\_\_\_

SHW3b3. [Capacity #2] \_\_\_\_\_

SHW3b4. [Capacity #3] \_\_\_\_\_

**SHW3c.** Do you use the system to heat one or more swimming pools?

[YES] ..... [ASK SHW3c1] 1

[NO] ..... [SKIP TO SHW4] 2

[DON'T KNOW] ..... [SKIP TO SHW4] -97

[REFUSED] ..... [SKIP TO SHW4] -98

**SHW3c1. [NUMBER OF POOLS] &N\_POOL** \_\_\_\_\_

**[FOR EACH &N\_POOL ASK 3D]**

**SHW3d. [Capacity #n]** \_\_\_\_\_

**SHW3d1.** Is this pool...

[Indoor] ..... 1

[Outdoor above ground] ..... 2

[Outdoor in ground] ..... 3

[DON'T KNOW] ..... -97

[REFUSED] ..... -98

SHW3e. [Capacity #2] \_\_\_\_\_

SHW3e1. Is this pool...

[Indoor] ..... 1

[Outdoor above ground] ..... 2

[Outdoor in ground] ..... 3

[DON'T KNOW] ..... -97

[REFUSED] ..... -98

SHW3f. [Capacity #3] \_\_\_\_\_



SHW3f1. Is this pool...  
[Indoor] ..... 1  
[Outdoor above ground] ..... 2  
[Outdoor in ground] ..... 3  
[DON'T KNOW] ..... -9997  
[REFUSED] ..... -9998

**SHW4.** How many degrees from north do your panels face?  
**[ENTER CORRECT DEGREES FROM NORTH]** \_\_\_\_\_  
DON'T KNOW] ..... [SKIP TO SHW5] -97  
[REFUSED] ..... [SKIP TO SHW5] -98

**SHW5.** What is your tilt angle was [ANGLE] when it was installed?  
[ENTER CORRECT TILT ANGLE] \_\_\_\_\_  
[DON'T KNOW] ..... [SKIP TO SHW6] -97  
[REFUSED] ..... [SKIP TO SHW6] -98

**SHW6.** Are your panels shaded at all during the year?  
[YES] ..... 1  
[NO] ..... [SKIP TO SHW7] 2  
[DON'T KNOW] ..... [SKIP TO SHW7] -97  
[REFUSED] ..... [SKIP TO SHW7] -98

**SHW6a.** When are they shaded [probe for time of year (e.g. May to August), time of day (e.g. noon to 3PM), percent shaded]?

**[RECORD MONTH, TIME OF DAY AND PERCENT SHADED]**  
**[RECORD MONTH, TIME OF DAY AND PERCENT SHADED]**  
**[RECORD MONTH, TIME OF DAY AND PERCENT SHADED]**

**SHW6b.** Most solar hot water systems have a pump that circulates water within the panels. What is the manufacturer and model number of your system's pump?

**SHW6b.** **[ENTER MANUFACTURER FROM DROP DOWN]** \_\_\_\_\_  
**SHW6c.** **[ENTER MODEL FROM DROP DOWN]** \_\_\_\_\_

- SHW6d.** How is your pump powered? Did you install a small solar electric panel to power the pump, does the pump run off your regular electricity, or something else?
- [PV] ..... **[SKIP TO SHW7]** 1
  - [Plug in] ..... **[SKIP TO SHW7]** 2
  - [Other] ..... 3
  - [DON'T KNOW] ..... **[SKIP TO SHW7]** -97
  - [REFUSED] ..... **[SKIP TO SHW7]** -98

**SHW6e.** **[ENTER POWER SOURCE]** \_\_\_\_\_

- SHW7.** Have you modified the system since it was first installed? (ex: equipment changes such as replacing or adding panels?)
- [YES] ..... 1
  - [NO] ..... **[SKIP TO SHW8]** 2
  - [DON'T KNOW] ..... **[SKIP TO SHW8]** -97
  - [REFUSED] ..... **[SKIP TO SHW8]** -98

**SHW7a. Was the modification an addition or equipment replacement?**  
**[CIRCLE ALL THAT APPLY]**

- [Addition] ..... 1
- [Replacement] ..... 2
- [DON'T KNOW] ..... **[SKIP TO SHW8]** -9997
- [REFUSED] ..... **[SKIP TO SHW8]** -9998

**HW7b.** What have you [added/replaced]?

- [RECORD RESPONSE – note changes to capacity]
- [DON'T KNOW] ..... **[SKIP TO SHW8]** -9997
- [REFUSED] ..... **[SKIP TO SHW8]** -9998

**SHW7c.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**SHW8.** What is the temperature of your hot water?

- [ENTER TEMPERATURE] \_\_\_\_\_
- [DON'T KNOW] ..... -9997
- [REFUSED] ..... -9998

**SHW9a.** About how much hot water do you use per month? (If they don't know that ask how much water they use per month).

- [ENTER HOT WATER USAGE – SKIP TO SHW10] \_\_\_\_\_
- [DON'T KNOW] ..... **[SKIP TO SHW9c]** -97
- [REFUSED] ..... **[SKIP TO SHW9c]** -9998

**SHW9b.** What is this estimate based on? **[RECORD RESPONSE]**

\_\_\_\_\_

[SKIP to SHW9i if not Nursing Home. A nursing home is similar to a multifamily facility, but usually has a central kitchen service]

- SHW9b.** [Nursing Home] How many residents are in the building?  
**[ENTER NUMBER OF RESIDENTS – SKIP TO SHW10]** \_\_\_\_\_  
 [DON'T KNOW] ..... **[SKIP TO SHW10]** -97  
 [REFUSED] ..... **[SKIP TO SHW10]** -98
- SHW9c.** [Non-Residential] What type of facility is this?  
 [Laundry] ..... 1  
 [Restaurant] ..... 2  
 [Hospital] ..... 3  
 [Other] \_\_\_\_\_ ..... 4  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98
- SHW10.** Is your system used year round?  
 [YES] ..... **[SKIP TO SHW12]** 1  
 [NO] ..... 2  
 [DON'T KNOW] ..... **[SKIP TO SHW12]** -97  
 [REFUSED] ..... **[SKIP TO SHW12]** -98
- SHW11.** In what months is it used?  
 [ENTER MONTHS] \_\_\_\_\_  
 [DON'T KNOW] ..... -9997  
 [REFUSED] ..... -9998
- SHW12.** What is your supplemental source for hot water heating?  
 [GAS] ..... 1  
 [OIL] ..... 2  
 [ELECTRIC] ..... 3  
 [OTHER] ..... -9996  
 [DON'T KNOW] ..... -9997  
 [REFUSED] ..... -9998
- SHW12a. [DESCRIBE OTHER]**  
 \_\_\_\_\_  
 \_\_\_\_\_

**BIOGAS QUESTIONS**

**[IF & MEASURE = BIOGAS]**

**I am going to discuss some technical information about the system in order to confirm our information regarding your system. The paperwork from the original site survey, design study, or installation may help you answer these questions.**

**BG1.** Our records indicate that you installed &BG\_NUM of &BG\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	<a href="#">[GO TO BG1A FOR NEXT &amp;PV_TECH]</a>
[Did not install any of that technology]	2	<a href="#">[GO TO BG1A FOR NEXT &amp;PV_TECH]</a>
[Technology correct, number wrong]	3	<a href="#">[GO TO BG1num]</a>
[Don't Know]	-97	<a href="#">[GO TO BG1A FOR NEXT &amp;PV_TECH]</a>

[Refused]	-98	[GO TO BG1A FOR NEXT &PV_TECH]
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**BG1num.** What is the correct number of &PBG\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO BG1c]
[Don't Know]	-97	[GO TO BG1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO BG1A FOR NEXT &PV_TECH]

**BG1c.** Why did you install a different number of &PV\_TECH?

Have no idea why numbers differ	1	[GO TO BG1A FOR NEXT &PV_TECH]
Put some in storage	2	[GO TO BG1A FOR NEXT &PV_TECH]
Installed somewhere else	3	[GO TO BG1A FOR NEXT &PV_TECH]
Insufficient financial resources to complete full amount	4	[GO TO BG1A FOR NEXT &PV_TECH]
[Other, Specify_____]	5	[GO TO BG1A FOR NEXT &PV_TECH]
[Don't know]	-97	[GO TO BG1A FOR NEXT &PV_TECH]
[Refused]	-98	[GO TO BG1A FOR NEXT &PV_TECH]

**BG2.** Do you use [Waste] for your biodigester?

- [YES] ..... [SKIP TO BG3] 1
- [NO] ..... 2
- [DON'T KNOW] ..... [SKIP TO BG3] -97
- [REFUSED] ..... [SKIP TO BG3] -98

**BG2a.**Waste Type \_\_\_\_\_

**BG3.** Do you add any other substrates to the waste stream?

- [YES] ..... 1
- [NO] ..... [SKIP TO BG4] 2
- [DON'T KNOW] ..... [SKIP TO BG4] -97
- [REFUSED] ..... [SKIP TO BG4] -98

**Bg3a.** Added Substrates type \_\_\_\_\_

**BG3b.** Quantity of Added Substrate \_\_\_\_\_

**BG4.** Have you made any modifications to the system since installation?

- [YES] ..... 1
- [NO] ..... [SKIP TO BG5] 2
- [DON'T KNOW] ..... [SKIP TO BG5] -97
- [REFUSED] ..... [SKIP TO BG5] -98

**BG4a.** Was the modification an addition or equipment replacement? **[CIRCLE ALL THAT APPLY]**

- [Addition] ..... 1
- [Replacement] ..... 2
- [DON'T KNOW]..... **[SKIP TO BG5]** -97
- [REFUSED] ..... **[SKIP TO BG5]** -98

**BG4b.** What have you [added/replaced]?

- 
- 
- [DON'T KNOW]..... **[SKIP TO BG5]** -97
  - [REFUSED] ..... **[SKIP TO BG5]** -98

**BG4c.** When did you make this change?

- [RECORD DATE] \_\_\_\_\_
- [DON'T KNOW]..... -9997
- [REFUSED] ..... -9998

**BG5.** [FOR NON-AG SYSTEMS, SKIP TO BG6] Do you have any livestock providing waste for the system? Is this correct?

- [YES] ..... 1
- [NO] ..... **[SKIP TO BG6]** 2
- [DON'T KNOW]..... **[SKIP TO BG6]** -97
- [REFUSED] ..... **[SKIP TO BG6]** -98

**BG5b.** What type(s) of livestock **[ENTER FROM DROP DOWN]**

**BG5c.** FOR EACH TYPE LISTED ASK: How many **&TYPE [ENTER NUMBER]**\_\_

**BG6.** Does the biogas system produce the same amount of energy steadily over the course of a year, or are there seasonal differences in energy production?

- YEAR-ROUND ..... **[SKIP TO BG7]** 1
- SEASONAL..... **[SKIP TO BG6b]** 1
- OTHER ..... **[SKIP TO BG6a]** 77
- [DON'T KNOW]..... **[SKIP TO BG7]** -97
- [REFUSED] ..... **[SKIP TO BG7]** -98

**BG6a.** DESCRIBE OTHER **[SKIP TO BG7]**

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**BG6b.** Describe the seasonal use of the system [possible reasons: seasonal effects of the herd, weather, regular maintenance. If possible find out what the seasonal difference is – e.g. the system produces twice as much energy during a summer day than a winter day].

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**BG7.** Which of the following ways are you using the gas produced by the digester system - are you using it on site in a genset, burning it on site for heat, flaring it, or selling it off site? [ACCEPT MULTIPLE ANSWERS]

- Using it on site in a genset..... 1
- Burning it on site for heat ..... 2
- Flaring it on site ..... 3
- Selling it off site ..... 4
- [DON'T KNOW]..... -97
- [REFUSED] ..... -98

**BG7a.** What percentage of the gas are you...

- Using onsite in the genset? \_\_\_\_\_
- Using onsite for heating? \_\_\_\_\_
- Flaring onsite? \_\_\_\_\_
- Selling off site? \_\_\_\_\_
- [DON'T KNOW]..... -97
- [REFUSED] ..... -98

**BG8.** Has there been any unscheduled downtime in the biodigester system?

- [YES] ..... 1
- [NO] ..... **[SKIP TO BG9]** 2
- [DON'T KNOW]..... **[SKIP TO BG9]** -97
- [REFUSED] ..... **[SKIP TO BG9]** -98

**BG8a.** How long was the system down unexpectedly? \_\_\_\_\_ [record as month:days (i.e. 03:7)]

**BG9.** **[SKIP TO BG13 IF NONE USED IN THE GENSET]**

What date did you started running the genset?  
**[BEGINNING GENERATION DATE]** \_\_\_\_\_

**BG10.** Has there been any unscheduled downtime in the genset system?

- [YES] ..... 1
- [NO] ..... **[SKIP TO BG11]** 2
- [DON'T KNOW]..... **[SKIP TO BG11]** -97
- [REFUSED] ..... **[SKIP TO BG11]** -98

**BG10a.** How long was the system down unexpectedly? \_\_\_\_\_ [record as month:days (i.e. 03:7)]

**BG11.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

- BG11a** kWh \_\_\_\_\_
- [DON'T KNOW]..... -9997
- [REFUSED]..... -9998

**BG11b** RESET DATE \_\_\_\_\_

**BG12.** Did you make this reading from a . . . ? [READ CHOICES, CIRCLE ALL THAT APPLY]

- Read-out display on inverter?..... 1
- Separate utility meter for biogas genset?..... 2
- [Other].....-9996
- [DON'T KNOW].....-9997
- [REFUSED] .....-9998

**PV13b.** How do you track the output from the [renewable system—fill in type]?

- [inverter] .....1
- [utility meter/net meter] .....2
- [reductions in my utility bill] .....3
- [other means: please describe \_\_\_\_\_] 4

**PV14c.** On a scale of 1-10, is the [renewable -insert type ] system achieving the savings you expected?

**PV14d.** Why/why not?

**OTHER EQUIPMENT BATTERY**

**[IF & OTHER = TRUE]**

**[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK OE1a THRU OE1c.**

**IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]**

**[REPEAT OE1a THRU OE1c. FOR EACH &OE\_TECH IN THE TRACKING DATA. ]**

**OE1a.** Our records indicate that you installed &OE\_NUM of &OE\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO OE1a FOR NEXT &OE_TECH]
[Did not install any of that technology]	2	[GO TO OE1a FOR NEXT &OE_TECH]
[Technology correct, number wrong]	3	[GO TO OE1b]
Refused]	-98	[GO TO OE1a FOR NEXT &OE_TECH]
[Don't Know]	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**OE1b.** What is the correct number of &OE\_TECH that you installed through the &PROGRAM?

[ENTER NUMBER]	_____	[GO TO OE1c]
[Don't know]	-97	[GO TO OE1c]
[Refused]	-98	[GO TO OE1c]

**OE1c.** Why did you install a different number of &OE\_TECH? [ACCEPT MULTIPLE ANSWERS]

Have no idea why numbers differ	1	[GO TO OE1a FOR NEXT &OE_TECH]
Put some in storage	2	[GO TO OE1a FOR NEXT &OE_TECH]
Installed at another location in the U.S.	3	[GO TO OE1a FOR NEXT &OE_TECH]
Funding insufficient to complete full amount	4	[GO TO OE1a FOR NEXT &OE_TECH]
Other	77	[GO TO OE1a FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE1a FOR NEXT &OE_TECH]
Don't know	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]**

**OE2a.** Did you install any other kinds of renewable energy technologies through the program?

Yes	1	[GO TO OE2b]
No	2	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]
[Don't Know]	-97	[GO TO NEXT SECTION]

**OE2b.** Which kinds of additional measures did you install through the program?

**OE2c. [FOR EACH MEASURE TYPE MENTIONED.]** Approximately how many &OE\_TECH were purchased using the &SPONSOR &PROGRAM funding?

**OE3.** Please tell me the total energy production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out. Ask whether the reading has been reset recently. How often do they reset the cumulative? and date of reset]**

**OE3a.** Energy \_\_\_\_\_  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98

**OEb.**  
 kWh ..... 1  
 Therms ..... 2  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98

**OEc.** RESET DATE .....

**OE4.** Did you make this reading from a . . . ? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on inverter? ..... 1  
 Separate utility meter? ..... 2  
 Reductions in my utility bill ..... 3  
 [Other] ..... 77  
 [DON'T KNOW] ..... -97  
 [REFUSED] ..... -98

**DIRECT ATTRIBUTION**

**Now, I'd like to ask you a few questions about the effect that the &PROGRAM had on your decision to undertake the project we have been discussing.**

**OVERALL INFLUENCE**

[FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DA0 THROUGH DA ]

**DA0.** Without the &SPONSOR &PROGRM, would you say the likelihood of [installing / performing] the &MEASURE was... [READ LIST]

RESPONSE	&MEASURETYPE	&MEASURETYPE	&MEASURETYPE	&MEASURETYPE
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

### TIMING

**ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DA0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**AT1. I'd like to know about the effect, if any, that &PROGRAM had on the timing of your project. Without the support from the &PROGRAM, would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all in the absence of the program?**

RESPONSE	&MEASURETYPE	&MEASURETYPE	&MEASURETYPE	&MEASURETYPE
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2
<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF AT1a ≠ LATER, SKIP TO NEXT MEASURE]**

**AT1b.** Approximately how many months later?  
 [Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	<b>DAT1b_ &amp;MEASURE</b>
[RECORD # OF MONTHS]	_____
[Don't know]	-97

**EFFICIENCY**

**This section applies for any measure where there is a standard efficiency option. Circle "5" not applicable for the measure in the table below and skip to OP1.**

**ASK EFFICIENCY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**AE1.** Without the &PROGRAM would you have installed &MEASURE of the exact same energy efficiency as the equipment you installed, or would you have installed lower efficiency, or higher efficiency equipment?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same</b>	1	1	1	1
<b>Lower</b>	2 [ASK AE1a]	2 [ASK AE1a]	2 [ASK AE1a]	2 [ASK AE1a]
<b>Higher</b>	3	3	3	3
[Not applicable]	-88	-88	-88	-88
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AE1a.** Why do you say that? [RECORD VERBATIM]: \_\_\_\_\_

**[IF AE1 ≠ LOWER, SKIP TO AQ1.]**

**AE2.** Without the support of the program , would you have installed <measure> that was:

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Standard efficiency or according to code</b>	1	1	1	1
<b>Slightly higher than standard efficiency</b>	2	2	2	2
<b>Between standard efficiency and the efficiency that was installed</b>	3	3	3	3
<b>Slightly lower than the high efficiency that was installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**QUANTITY**

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**Finally, I'd like to know about the effect, if any, that your participation in the &PROGRAM had on the scale of the project you completed with the support of the program.**

**AQ1.** Without the support from &SPONSOR &PROGRAM would you have installed more <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a
More or larger	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AQ3\_0. Why do you say that? [RECORD VERBATIM]\_\_\_\_\_**  
**[IF AQ3 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

Calculate percent:  $\text{abs}([( \text{amount installed} ) / ( \text{amount would have installed} )] - 100\%)$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Household installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Household installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Household installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Household installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

## EFFECT OF OTHER PROGRAMS

**OP1** In completing the project[s] supported by [NAME OF SEP PA], did you make use of financial or technical support programs offered by other sponsors, such as local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers.

[YES]	1	[ASK OP2]
[NO]	2	[GO TO D0]
[DON'T KNOW]	-97	[GO TO D0]
[REFUSED]	-98	[GO TO D0]

**OP2.** Which organization[s] sponsored the [those] program[s]?

**[RECORD RESPONSE]** \_\_\_\_\_

**IF ONLY ORGANIZATIONS MENTIONED ARE MANUFACTURERS, DISTRIBUTORS, CONTRACTORS, OR ENGINEERS, SKIP TO SKIP TO D0.**

**OP3.** What kinds of services did you receive from those programs in support of the project?

Information to guide project planning and equipment selection	1	[GO TO OP5]
Technical assistance such as energy audits, financial analyses, and design support	2	[GO TO OP5]
Identification of qualified contractors	3	[GO TO OP5]
Financial incentives such as rebates, reduced-interest loans, or loan guarantees	4	[ASK OP4]
Tax credits	5	[ASK OP4]
Other (Specify) _____	8	[GO TO OP5]
Don't know	-97	[GO TO OP5]
Refused	-98	[GO TO OP5]

**OP4** What was the amount of the incentive[s] that you received from the other program[s] you have mentioned?

ENTER AMOUNT	_____	[GO TO OP5]
[DON'T KNOW]	-97	[GO TO OP4a]
[REFUSED]	-98	[GO TO OP4a]

**IF RESPONDENT RECEIVED FINANCIAL INCENTIVES FROM &PROGRAM, ASK OP4a. ELSE SKIP TO OP5.**

**OP4a** Would you say that the amount of the incentive[s] you received from the other programs you have mentioned was larger, smaller, or about the same as the amount you received from &PROGRAM?

[LARGER]	1	[GO TO OP5]
[SMALLER]	2	[GO TO OP5]
[ABOUT THE SAME]	3	[GO TO OP5]
[DON'T KNOW]	-97	[GO TO OP5]
[REFUSED]	-98	[GO TO OP5]

**READ:** We would like to understand how much the other programs you used affected your motivation and ability to carry out the energy efficiency project we have been discussing, beyond what you would most likely have done using the resources from the &SPONSOR &PROGRAM alone.

**OP5.** If you had been able to access **only** the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used, how likely is it that you would have carried out the &MEASURE? Would you say the likelihood of undertaking that measure was ... [READ LIST]

RESPONSE	OP5_MID1	OP5_MID2	OP5_MID3	OP5_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**OP6.** If you had been able to access **only** the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used, would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	OP6_MID1	OP6_MID2	OP6_MID3	OP6_MID4
----------	----------	----------	----------	----------

Same amount	1	1	1	1
Less or smaller	2 Read OP7	2 Read OP7	2 Read OP7	2 Read OP7
More or larger	3 Read OP7	3 Read OP7	3 Read OP7	3 Read OP7
None at all	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF OP6 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**OP7.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

RESPONSE	OP7_MID1	OP7_MID2	OP7_MID3	OP7_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OP8.** Did you first become aware of the opportunities for renewable energy use in &STR\_ADDRESS through &SPONSOR &PROGRAM, through the other energy efficiency programs in which you participated, or through some other source?

Through the SEP PA	1	<b>[GO TO OP9]</b>
Through other energy efficiency program [s]	2	<b>[GO TO OP9]</b>
Through another source	3	<b>[GO TO OP9]</b>
[DON'T KNOW]	-97	<b>[GO TO OP9]</b>
[REFUSED]	-98	<b>[GO TO OP9]</b>

**OP9** In your opinion, was the &SPONSOR's &PROGRAM more important in encouraging and enabling you [you] to carry out the energy efficiency project we have been discussing; was the other program more important; or were they both equally important?

SEP PA	1
Other program	2
Both equally important	3



[Don't know]	-97
[Refused]	-98

**OP10** Why do you say that?

**[RECORD  
VERBATIM]** \_\_\_\_\_

**SKIP TO D0.**

## HOUSING AND DEMOGRAPHICS

**D0** We are almost finished. I just have a few additional questions about your &HOMTYPE to make sure we are getting a representative sample of participants.

**[IF &HOMETYPE = "home" GO TO D1]**

**D0a** About how many apartment units are located in the building at the property?

ENTER NUMBER OF UNITS	# _____	[GO TO D0b]
[Don't know]	-97	[GO TO D0b]
[Refused]	-98	[GO TO D0b]

**D0b** What is the average apartment size in square feet?

ENTER SQUARE FOOTAGE	_____ sq. ft.	[GO TO D0c]
[Don't know]	-97	[GO TO D0c]
[Refused]	-98	[GO TO D0c]

**D0c** On average, how many full or half bathrooms do you have in each unit of your building? (PROBE: A full bathroom is one that has a sink with running water, and a toilet, and either a bathtub or shower. A half bathroom has either a toilet or a bathtub or a shower?)

ENTER NUMBER OF BATHROOMS	# _____	[GO TO D0d]
[Don't know]	-97	[GO TO D0d]
[Refused]	-98	[GO TO D0d]

**D0d** On average, how many bedrooms do you have in each unit of your building? (If a one-room efficiency, or studio apartment, bedrooms=0)

ENTER NUMBER OF BEDROOMS	# _____	[GO TO D0e]
[Don't know]	-97	[GO TO D0e]
[Refused]	-98	[GO TO D0e]

**D0e** On average, other than bedrooms and bathrooms, how many other rooms are there in each unit of your building? Do not count laundry rooms, foyers, unfinished storage spaces, porches, or garages.

ENTER NUMBER OF OTHER ROOMS	# _____	[GO TO D0f]
[Don't know]	-97	[GO TO END]
[Refused]	-98	[GO TO END]

**D0f** About when was this building first built?

Before 1970's	1	[GO TO D0g]
1970's	2	[GO TO D0g]
1980's	3	[GO TO D0g]
1990-94	4	[GO TO D0g]
1995-99	5	[GO TO D0g]
2000's	6	[GO TO D0g]
[Don't know]	-97	[GO TO D0g]
[Refused]	-98	[GO TO D0g]

**D0g** (IF NOT CONTAINED IN SAMPLE DATA) In what city is this building located?

ENTER CITY	_____	[GO TO ONSITE]
[Don't know]	-97	[GO TO ONSITE]
[Refused]	-98	[GO TO ONSITE]

**D1** In what type of building do you live? (READ LIST IF NEEDED)  
(PROBE FOR 'Condo': "How many units are in your building?")

A one-family home detached from any other house	1	[GO TO D2]
A one-family home attached to one or more houses	2	[GO TO D2]
A building with 2 apartments	3	[GO TO D2]
A building with 3 or 4 apartments	4	[GO TO D2]
A building with 5 or more apartments	5	[GO TO D2]
A mobile home	6	[GO TO D2]
Boat, RV, Van, etc.	7	[GO TO D2]
Other ( <i>SPECIFY</i> )	8	[GO TO D2]
[Don't know]	-97	[GO TO D2]
[Refused]	-98	[GO TO D2]

**D2** Including yourself, how many people currently live in your home year-round?

ENTER NUMBER OF PEOPLE	_____	[GO TO D3]
[Don't know]	-97	[GO TO D3]
[Refused]	-98	[GO TO D3]

**D3** How many full or half bathrooms do you have in your home? (PROBE: A full bathroom is one that has a sink with running water, and a toilet, and either a bathtub or shower. A half bathroom has either a toilet or a bathtub or a shower?)

ENTER NUMBER OF BATHROOMS	# _____	[GO TO D4]
[Don't know]	-97	[GO TO D4]
[Refused]	-98	[GO TO D4]

**D4** How many bedrooms do you have in your home? (If a one-room efficiency, or studio apartment, bedrooms=0)

ENTER NUMBER OF BEDROOMS	# _____	[GO TO D5]
[Don't know]	-97	[GO TO D5]
[Refused]	-98	[GO TO D5]

**D5** Other than bedrooms and bathrooms, how many other rooms are there in your home? Do not count laundry rooms, foyers, unfinished storage spaces, porches, or garages.

ENTER NUMBER OF OTHER ROOMS	# _____	[GO TO D6]
[Don't know]	-97	[GO TO D6]
[Refused]	-98	[GO TO D6]

**D6** How large is your home/building in square feet?

ENTER SQUARE FOOTAGE	_____ sq. ft.	[GO TO D7]
[Don't know]	-97	[GO TO D7]
[Refused]	-98	[GO TO D7]

**D7** How many *floors* of living space are there in your home, NOT COUNTING unheated basements? Please answer only about *your home*, not the building as a whole]

1 floor	1	[GO TO D8]
2 floors	2	[GO TO D8]
3 floors	3	[GO TO D8]
More than 3 floors	4	[GO TO D8]
[Don't know]	-97	[GO TO D8]
[Refused]	-98	[GO TO D8]

**D8** About when was this building first built?

Before 1970's	1	[GO TO D9]
1970's	2	[GO TO D9]
1980's	3	[GO TO D9]
1990-94	4	[GO TO D9]
1995-99	5	[GO TO D9]
2000's	6	[GO TO D9]
[Don't know]	-97	[GO TO D9]
[Refused]	-98	[GO TO D9]

**D9** (IF NOT CONTAINED IN SAMPLE DATA) In what city is your home located?

ENTER CITY	_____	[GO TO ONSITE]
[Don't know]	-97	[GO TO ONSITE]
[Refused]	-98	[GO TO ONSITE]

<b>END.</b>	Those are all the questions I have for today. Thank you for your time and help in this important study.
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## L.16. CT-1B: RENEWABLES: RECIPIENTS OF TA, WORKSHOPS, TRAINING

OMB Control No. 1910-5170

*Note that this survey instrument will be used when the program database includes participant information but does not include information on the specific projects completed. This includes sample points that fall under the following sub-categories: "Generalized Workshop or Demonstration," "Targeted Training or Certification," or "Technical Assistance" under the Renewable Energy Market BPAC category.*

### DATABASE VARIABLES

&INTERVIEWER NAME....name of the caller  
 &CONTACT .....contact name from program database  
 &SPONSOR.....organization that sponsored the program  
 &DATES .....dates of workshop, demonstration, training funded by SEP or of research interest  
 &APPOINT .....date/time to call back  
 &NAME .....person to call back  
 &PHONE.....extension or phone number to call back  
 &WORKSHOP/DEMONSTRATION/TRAINING.....Name of workshop, demonstration, or training  
 & TECHNICAL ASSISTANCE.....Name of technical assistance

NOTE THAT OTHER VARIABLES ARE SHOWN IN THE DOCUMENT AS THEY ARE CREATED

### INTRODUCTION AND FINDING CORRECT RESPONDENT

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from **INTERVIEWER ORGANIZATION**.  
 May I please speak with &CONTACT, [IF CONTACT NAME AVAILABLE]?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how you used the information provided through the [&WORKSHOP/TRAINING/DEMONSTRATION; &TECHNICAL ASSISTANCE].

<b>[No, that person is not available right now]</b>	1	[GO TO APPOINT]
<b>[Unable to refer someone who can help]</b>	2	[GO TO APPOINT]
<b>[Yes, that would be me]</b>	3	[GO TO PURPOSE]
<b>[Yes, let me transfer you to_____]</b>	4	[GO TO INTRO3:s]
<b>[No, that is the wrong person]</b>	5	[GO TO INITIAL]

<b>[No, other reason (specify)]</b>	6	[GO TO APPOINT]
<b>[Don't Know]</b>	97	[GO TO APPOINT]
<b>[Refused]</b>	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO.** On &DATE, you [attended a &WORKSHOP/TRAINING/DEMONSTRATION]/[received &TECHNICAL ASSISTANCE] offered by &SPONSOR. In an effort to determine what actions you may have taken as a result of participating, we ask that you complete this brief survey. Your input will help &SPONSOR understand the effects of their past efforts. The survey should take no more than 60 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

**SCREENER**

**S1.** Do you recall [attending the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[receiving &TECHNICAL ASSISTANCE] on &DATE?

[Yes]	1	[GO TO AC1]
[No]	2	[THANK AND TERMINATE]
[Don't know]	98	[THANK AND TERMINATE]
[Refused]	99	[THANK AND TERMINATE]

**RESPONDENT INFO: ROLE IN THE PROJECT**

**AC1.** Which of the following best describes where you intended to apply the information you received? **[READ CATEGORIES]**

**NOTE: IF THE ANSWER IS "SOMEWHERE ELSE", SPECIFY THEN PROBE FOR WHICH OF THE FIVE CLASSIFICATIONS BEST DESCRIBES THEM.**

At my home	1	[GO TO NEXT Q]
At the facility(ies) my business occupies	2	[GO TO NEXT Q]
At the facility(ies) my business manages (e.g. Property managers)	3	[GO TO NEXT Q]
In facilities occupied or managed by customers to whom I provide services (e.g. Architects, engineering firms, contractors, code inspectors)	4	[TERMINATE]
In the classroom where I teach	5	[TERMINATE]
Somewhere else: Specify_____	6	[GO TO NEXT Q]

**RESPONDENT TYPE DEFINED FOR DISPOSITION**

**[CLASSIFY AC1=1 AS REU (RESIDENTIAL END-USE CUSTOMER)]**

**[CLASSIFY AC1=2, 3 AS CEU (COMMERCIAL END-USE CUSTOMER)]**

**[CLASSIFY AC1= 4 AS MA (MARKET ACTOR)]**

**[CLASSIFY AC1=5 AS TEA (TEACHER)]**

## INITIAL INVENTORY

**VN1.** Since &DATE, have you installed any equipment to your [INSERT FACILITY/HOME] in any of the following areas? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

a. Solar Photovoltaic	1	[GO TO NEXT Q]
b. Wind Turbine	2	[GO TO NEXT Q]
c. Solar Thermal	3	[GO TO NEXT Q]
d. Biomass	4	[GO TO NEXT Q]
e. Biogas	5	[GO TO NEXT Q]
f. Any other changes?	7	[GO TO NEXT Q]

**[RECORD VERIFIED MEASURES FOR MEASURE SPECIFIC QUESTIONS BELOW. RESPONDENTS WILL ONLY BE ASKED MEASURE SPECIFIC QUESTIONS IF MEASURE GROUP IS CONFIRMED]**

[&PV]

[&WIND]

[&SOLAR]

[&BIOMASS]

[&BIOGAS]

[&OTHER]

## EFFECT OF OTHER PROGRAMS

**[ASK OP1 FOR EACH MEASURE TYPE IDENTIFIED IN VN1]**

**OP1** In completing the project[s] that you just discussed, did you make use of financial support such as incentives or loans offered by sponsors, such as, local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers.

[YES]	1	[ASK OP2]
[NO]	2	[GO TO OP4]
[DON'T KNOW]	-97	[GO TO OP4]
[REFUSED]	-98	[GO TO OP4]

**OP2.** Which organization[s] sponsored the [those] program[s]?

State/ State Energy Office	1	[GOTO OP3]
Other, Specify	2 [RECORD RESPONSE]	[GOTO OP3]
[DON'T KNOW]	-97	[GOTO OP3]
[REFUSED]	-98	[GOTO OP3]

**OP3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] inform you about the assistance and support that you received?

[Yes]	1	[GO TO OP4]
[No]	2	[GO TO OP4]
[Don't know]	98	[GO TO OP4]
[Refused]	99	[GO TO OP4]

**OP4.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] provide you with any options for assistance and support?

[Yes]	1	[GO TO NEXTSECTION]
[No]	2	[GO TO NEXTSECTION]
[Don't know]	98	[GO TO NEXTSECTION]
[Refused]	99	[GO TO NEXTSECTION]

*Note that most end-use specific sections questions are sourced from the renewables survey effort. We excluded measure verification questions. We also included additional questions within the photovoltaic, wind and solar thermal modules.*

## PV SYSTEMS QUESTIONS

### [IF &PV = YES]

**In the next section we'll be discussing the photovoltaic project that you installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the [&TECHNICAL ASSISTANCE]**

**PV1.** How many photovoltaic systems were installed after the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE]?

[INSERT # OF SYSTEMS]	1	[GO TO PV2]
[Did not install any of that technology]	2	[GO TO &NEXT TECH]
[Don't Know]	-97	[GO TO PV2]
[Refused]	-98	[GO TO &NEXT TECH]

**PV2.** When was the system installed?

[INSERT MM/YYYY FOR EACH SYSTEM]	1	[GO TO PV3]
[Did not install any of that technology]	2	[GO TO PV3]
[Don't Know]	-97	[GO TO PV3]
[Refused]	-98	[GO TO PV3]

**PV3.** What is the manufacturer and model number of your photovoltaic modules?

**PV3a.**

RECORD MANUFACTURER		<a href="#">[GO TO PV3b]</a>
[Don't Know]	-97	<a href="#">[GO TO PV3b]</a>
[Refused]	-98	<a href="#">[GO TO PV3b]</a>

**PV3b.**

RECORD MODEL NUMBER		<a href="#">[GO TO PV4]</a>
[Don't Know]	-97	<a href="#">[GO TO PV4]</a>
[Refused]	-98	<a href="#">[GO TO PV4]</a>

**PV4.** How many of that type of photovoltaic module have been installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the &TECHNICAL ASSISTANCE]?

ENTER NUMBER		<a href="#">[GO TO PV5]</a>
[Don't Know]	-97	<a href="#">[GO TO PV5]</a>
[Refused]	-98	<a href="#">[GO TO PV5]</a>

**PV5.** Are there other types of photovoltaic modules installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the &TECHNICAL ASSISTANCE]?

YES	1	<a href="#">[GO TO PV3]</a>
NO	2	<a href="#">[GO TO PV6]</a>
[Don't Know]	-97	<a href="#">[GO TO PV6]</a>
[Refused]	-98	<a href="#">[GO TO PV6]</a>

**PV6.** What is the manufacturer and model number of your photovoltaic inverter(s)?

**PV6a.**

RECORD MANUFACTURER		<a href="#">[GO TO PV6b]</a>
[Don't Know]	-97	<a href="#">[GO TO PV6b]</a>
[Refused]	-98	<a href="#">[GO TO PV6b]</a>

**PV6b.**

RECORD MODEL NUMBER		<a href="#">[GO TO PV7]</a>
[Don't Know]	-97	<a href="#">[GO TO PV7]</a>
[Refused]	-98	<a href="#">[GO TO PV7]</a>

**PV7.** How many of that type of inverter have been installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the &TECHNICAL ASSISTANCE]?

ENTER NUMBER		<a href="#">[GO TO PV8]</a>
[Don't Know]	-97	<a href="#">[GO TO PV8]</a>
[Refused]	-98	<a href="#">[GO TO PV8]</a>

**PV8.** Are there other types of inverters installed you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the &TECHNICAL ASSISTANCE]?

YES	1	<a href="#">[GO TO PV6a]</a>
NO	2	<a href="#">[GO TO PV9]</a>
[Don't Know]	-97	<a href="#">[GO TO PV9]</a>
[Refused]	-98	<a href="#">[GO TO PV9]</a>

**PV9.** How many degrees from north are your panels facing?

[OPEN END]		[GO TO PV10]
[Don't Know]	-97	[GO TO PV10]
[Refused]	-98	[GO TO PV10]

**PV10.** Are your panels on an automatic tracking system?

YES	1	[GO TO PV11]
NO	2	[GO TO PV12]
[Don't Know]	-97	[GO TO PV12]
[Refused]	-98	[GO TO PV12]

**PV11.** Is your tracking system DUAL axis?

YES	1	[GO TO PV12]
NO	2	[GO TO PV12]
[Don't Know]	-97	[GO TO PV12]
[Refused]	-98	[GO TO PV12]

**PV12.** Are your panels shaded at all during the year?

YES	1	[GO TO PV13]
NO	2	[GO TO PV13]
[Don't Know]	-97	[GO TO PV13]
[Refused]	-98	[GO TO PV13]

**PV12a.** Which months of the year are they shaded at least part of the day?

ENTER MONTHS	[OPEN END]	[GO TO PV12b]
NO	2	[GO TO PV12b]
[Don't Know]	-97	[GO TO PV12b]
[Refused]	-98	[GO TO PV12b]

**PV12b.** For each month that they are shaded part of the day, what times of day are they shaded?

	MONTH	TIME OF DAY	% SHADED [0 TO 100%]
ENTER MONTH			
ENTER MONTH			
ENTER MONTH			
[Don't Know]	-97		
[Refused]	-98		

**PV13.** How many of your installed photovoltaic panels... (SELECT ALL THAT APPLY)

Are fixed in place (tilt angle cannot be adjusted)	INSERT # OF SYSTEMS	[GO TO PV14]
Have adjustable tilt angle (can be changed 204 times a year for better performance)	INSERT # OF SYSTEMS	[GO TO PV16]
Have tracking systems (automatically adjust to follow the sun)	INSERT # OF SYSTEMS	[GO TO PV16]
Other: Specify		[GO TO PV16]

Don't Know		<a href="#">[GO TO PV16]</a>
Refuse		<a href="#">[GO TO PV16]</a>

**PV14.** For systems that are fixed in place, what is their average tilt angle from horizontal?

OPEN END	1	<a href="#">[GO TO PV16]</a>
No	2	<a href="#">[GO TO PV16]</a>
Don't Know: SPECIFY – Probe for Roof angle	98/[SPECIFY]	<a href="#">[GO TO PV16]</a>
Refused	99	<a href="#">[GO TO PV16]</a>

**PV16.** What is the average size of the individual photovoltaic panels you installed?

INSERT SIZE	[OPEN END]	<a href="#">[GO TO PV17]</a>
Don't Know	98	<a href="#">[GO TO PV17]</a>
Refused	99	<a href="#">[GO TO PV17]</a>

**PV17.** What is the average DC wattage rating of the photovoltaic panels you installed?

INSERT DC WATTAGE	[OPEN END]	<a href="#">[GO TO PV18]</a>
Don't Know	98	<a href="#">[GO TO PV18]</a>
Refused	99	<a href="#">[GO TO PV18]</a>

**PV18.** What is the average overall efficiency, in terms of percent, of the photovoltaic panels you installed?

INSERT OVERALL EFFICIENCY	[OPEN END]	<a href="#">[GO TO PV19]</a>
Don't Know	98	<a href="#">[GO TO PV19]</a>
Refused	99	<a href="#">[GO TO PV19]</a>

**PV19.** How many panels were installed, on average, in each project?

INSERT # OF PANELS	[OPEN END]	<a href="#">[GO TO PV19]</a>
Don't Know	98	<a href="#">[GO TO PV19]</a>
Refused	99	<a href="#">[GO TO PV19]</a>

**PV20.** When was your system installed?

ENTER MM/YYYY	[OPEN END]	<a href="#">[GO TO PV21]</a>
[Don't Know]	-97	<a href="#">[GO TO PV21]</a>
[Refused]	-98	<a href="#">[GO TO PV21]</a>

**PV21.** Did your system begin producing electricity on the date it was installed?

YES	1	<a href="#">[GO TO PV22]</a>
NO	2	<a href="#">[GO TO PV22]</a>
[Don't Know]	-97	<a href="#">[GO TO PV22]</a>
[Refused]	-98	<a href="#">[GO TO PV22]</a>

**PV22.** When did it begin producing electricity?

RECORD PRODUCTION MONTH AND YEAR DD/MM/YYYY	[OPEN END]	<a href="#">[GO TO PV23]</a>
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[Don't Know]	-97	[GO TO PV23]
[Refused]	-98	[GO TO PV23]

**PV23.** Has there been any major down-time (more than a few days) in the system since installation?

YES	1	[GO TO PV23a]
NO	2	[GO TO PV24]
[Don't Know]	-97	[GO TO PV24]
[Refused]	-98	[GO TO PV24]

**PV23a.** When, and for how long [record as month:days (i.e. 03:7)]?

	DD/MM/YYYY	DAYS	[GO TO PV24]
Incident 1	___/___/____	___	[GO TO PV24]
Incident 2	___/___/____	___	[GO TO PV24]
Incident 3	___/___/____	___	[GO TO PV24]
[Don't Know]	-97		[GO TO PV24]
[Refused]	-98		[GO TO PV24]

**PV24.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

RECORD kWh	[OPEN END]	[GO TO PV24a]
[Don't Know]	-97	[GO TO PV24a]
[Refused]	-98	[GO TO PV24a]

**PV24a** On what date was your system reset?

RECORD reset date	[OPEN END]	[GO TO PV25]
[Don't Know]	-97	[GO TO PV25]
[Refused]	-98	[GO TO PV25]

**PV25.**What did you take this reading from? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on inverter?	1	[GO TO PV25a]
Separate utility meter for pv electricity?	2	[GO TO PV25a]
Other: Specify	[OPEN END]	[GO TO PV25a]
[Don't Know]	-97	[GO TO PV25a]
[Refused]	-98	[GO TO PV25a]

**PV25a.** How do you track the output from the system?

Inverter	1	[GO TO PV26]
Utility meter / net meter	2	[GO TO PV26]

Reductions in my utility bill	3	[GO TO PV26]
Other means: Specify	[OPEN END]	[GO TO PV26]
[Don't Know]	-97	[GO TO PV26]
[Refused]	-98	[GO TO PV26]

**PV26.** Is the system achieving the savings you expected?

Yes	1	[GO TO PV27]
No	2	[GO TO PV26a]
[Don't Know]	-97	[GO TO PV27]
[Refused]	-98	[GO TO PV27]

**PV26a.** In your opinion, why isn't the system achieving the savings you expected?

ENTER REASON	[OPEN END]	[GO TO PV27]
[Don't Know]	-97	[GO TO PV27]
[Refused]	-98	[GO TO PV27]

**PV27.** What is zip code where most of your installations were made?

INSERT ZIP CODE	[9 TO 14 DIGITS]	[GO TO ATR1a]
Don't Know	98	[GO TO PV27a]
Refused	99	[GO TO PV27a]

**PV27a.** What is the nearest town or city where most of your installations were made?

INSERT TOWN NAME OR CITY	[OPEN END]	[GO TO ATR1a]
Don't Know	98	[GO TO ATR1a]
Refused	99	[GO TO ATR1a]

## PHOTOVOLTAIC/ATTRIBUTION

**ATR1a.** For your photovoltaic projects, what percentage of the total costs of the project were supported by the financial support that you received?

	ATR1	
Measure type	% of Total	
<b>a. Solar photovoltaic</b>		[GO TO W1]
<b>[Don't know]</b>	<b>98</b>	[GO TO W1]
<b>[Refuse]</b>	<b>99</b>	[GO TO W1]

## WIND SYSTEMS QUESTIONS

### [IF &WIND = TRUE]

In the next section we'll be discussing the wind project that was installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the &TECHNICAL ASSISTANCE]

**W1.** How many wind systems were installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the &TECHNICAL ASSISTANCE]?

[INSERT # OF WIND SYSTEMS]	1	[GO TO W2]
[Did not install any of that technology]	2	[GO TO &NEXT TECH]
[Don't Know]	-97	[GO TO W2]
[Refused]	-98	[GO TO &NEXT TECH]

**W2.** When were the system(s) installed?

[INSERT mm/yyyy for each system]	1	[GO TO W3]
[Did not install any of that technology]	2	[GO TO W3]
[Don't Know]	-97	[GO TO W3]
[Refused]	-98	[GO TO W3]

**W3.** What is the hub height of each turbine?

[INSERT HUB HEIGHT FOR EACH TURBINE]	[OPEN END]	[GO TO W4]
[Don't Know]	-97	[GO TO W4]
[Refused]	-98	[GO TO W4]

**W4.** What is the manufacturer and model number of your turbines?

**W4a.**

RECORD MANUFACTURER		[GO TO W4b]
[Don't Know]	-97	[GO TO W4b]
[Refused]	-98	[GO TO W4b]

**W4b.**

RECORD MODEL NUMBER		[GO TO W5]
[Don't Know]	-97	[GO TO W5]
[Refused]	-98	[GO TO W5]

**W5.** How many of that type of turbines have been installed after you participated in [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE]..

ENTER NUMBER		[GO TO W6]
[Don't Know]	-97	[GO TO W6]
[Refused]	-98	[GO TO W6]

**W6.** Are there other types of turbines installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the [&TECHNICAL ASSISTANCE]]?

YES		[GO TO W4a]
NO		[GO TO W7]
[Don't Know]	-97	[GO TO W7]
[Refused]	-98	[GO TO W7]

**W7.** What is the manufacturer and model number of your inverter(s)?

**W7a.**

RECORD MANUFACTURER		[GO TO W7b]
[Don't Know]	-97	[GO TO W7b]
[Refused]	-98	[GO TO W7b]

**W7b.**

RECORD MODEL NUMBER		[GO TO W8]
[Don't Know]	-97	[GO TO W8]
[Refused]	-98	[GO TO W8]

**W8.** How many of that type of inverter have been installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the [&TECHNICAL ASSISTANCE]]?

ENTER NUMBER		[GO TO W9]
[Don't Know]	-97	[GO TO W9]
[Refused]	-98	[GO TO W9]

**W9.** Are there other types of inverters installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the [&TECHNICAL ASSISTANCE]]?

YES		[GO TO W7]
NO		[GO TO W10]
[Don't Know]	-97	[GO TO W10]
[Refused]	-98	[GO TO W10]

**WE10.** What applications were these wind systems used for?

Pump water	1	[GO TO WE11]
Charge batteries	2	[GO TO WE11]
Generate electricity for a home or business to use directly	3	[GO TO WE11]
Other: Specify	00	
Don't Know	98	[GO TO WE11]
Refused	99	[GO TO WE11]

**WE11.** What is the size rating in watts, on average, of the wind systems you installed?

INSERT SIZE RATING IN WATTS	[RANGE FROM 20 TO 500 W, 400 W TO 20 KW / 20,000 FOR OTHER SYSTEM TYPES]	[GO TO WE12]
Don't Know	98	[GO TO WE12]
Refused	99	[GO TO WE12]

**W12.** When was your wind turbine installed?

RECORD MM/YYYY	[OPEN END]	[GO TO WE13]
Don't Know	98	[GO TO WE13]
Refused	99	[GO TO WE13]

**W13.** Did the turbine begin producing power on the date it was installed?

YES	1	[GO TO W14]
NO: RECORD DATE	[OPEN END]	[GO TO W14]
[Don't Know]	-97	[GO TO W14]
[Refused]	-98	[GO TO W14]

**W14.** Has there been any major down-time (more than a few days) in the system since installation, other than times when the wind wasn't blowing strong enough to generate power?

YES	1	[GO TO W14a]
NO	2	[GO TO W15]
[Don't Know]	-97	[GO TO W15]
[Refused]	-98	[GO TO W15]

**W14a** – When, and for how long [(record as month:days (i.e. 03:7))]?

	DD/MM/YYYY	DAYS	[GO TO W15]
Incident 1	__/__/____	__	[GO TO W15]
Incident 2	__/__/____	__	[GO TO W15]
Incident 3	__/__/____	__	[GO TO W15]
[Don't Know]	-97		[GO TO W15]
[Refused]	-98		[GO TO W15]

**W15.** Please tell me the total kWh production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out from the inverter. Ask whether the reading has been reset recently. How often do they reset the cumulative kWh on the inverter? and date of reset]**

RECORD kWh	[OPEN END]	[GO TO W15a]
[Don't Know]	-97	[GO TO W15a]
[Refused]	-98	[GO TO W15a]

**W15a** On what date was your system reset?

RECORD reset date	[OPEN END]	[GO TO W16]
[Don't Know]	-97	[GO TO W16]
[Refused]	-98	[GO TO W16]

**W16.** Did you take this reading from a .. **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on inverter?	1	[GO TO W17]
Separate utility meter for pv electricity?	2	[GO TO W17]
Reductions in the utility bill?	3	[GO TO W17]
Other: Specify	[OPEN END]	[GO TO W17]
[Don't Know]	-97	[GO TO W17]
[Refused]	-98	[GO TO W17]

**W17.** Is the [renewable -insert type ] system achieving the savings you expected?

Yes	1	[GO TO W18]
No	2	[GO TO W18]
[Don't Know]	-97	[GO TO W18]
[Refused]	-98	[GO TO W18]

**W18.** In your opinion, why isn't the system achieving the savings you expected?

ENTER REASON	[OPEN END]	[GO TO W19]
[Don't Know]	-97	[GO TO W19]
[Refused]	-98	[GO TO W19]

**W19.** What is zip code where most of your installations were made?

INSERT ZIP CODE	[9 TO 14 DIGITS]	[GO TO ATR1b]
Don't Know	98	[GO TO W19a]
Refused	99	[GO TO W19a]

**W19a.** What is the nearest town or city where most of your installations were made?

INSERT TOWN NAME OR CITY	[OPEN END]	[GO TO ATR1b]
Don't Know	98	[GO TO ATR1b]
Refused	99	[GO TO ATR1b]

**WIND/ATTRIBUTION**

**ATR1b.** For your wind projects, what percentage of the total costs of the project were supported by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>a. Wind</b>		[GO TO SHW1a]
<b>[Don't know]</b>	<b>98</b>	[GO TO SHW1a]
<b>[Refuse]</b>	<b>99</b>	[GO TO SHW1a]

## SOLAR HOT WATER QUESTIONS

### [IF &SHW = TRUE]

In the next section we'll be discussing the solar hot water project that was installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the [&TECHNICAL ASSISTANCE]].

**SHW1a.** How many solar hot water systems were installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the [&TECHNICAL ASSISTANCE]]?

[ENTER NUMBER INSTALLED]	1	[GO TO SHW1b]
[Did not install any of that technology]	2	[GO TO &NEXT TECH]
[Don't Know]	-97	[GO TO SHW1b]
[Refused]	-98	[GO TO &NEXT TECH]

**SHW1b.** When were [INSERT NUMBER OF SYSTEMS] solar hot water heater systems installed?

[ENTER DATE OF INSTALLATION IN &MM/YYYY]	1	[GO TO ST2]
[Did not install any of that technology]	2	[GO TO ST2]
[Don't Know]	-97	[GO TO ST2]
[Refused]	-98	[GO TO ST2]

**ST2.** What are the solar thermal systems you installed used for?

Domestic hot water heating	1	[GO TO ST3]
Interior space heating	2	[GO TO ST3]
Hot water AND space heating	3	[GO TO ST3]
Pool heating	4	[GO TO ST3]
Other: specify _____	5	[GO TO ST3]
Don't Know	98	[GO TO ST3]
Refused	99	[GO TO ST3]

**ST3.** What is the average size of the collectors of the solar thermal systems you have installed?

INSERT SIZE	[OPEN END]	[GO TO ST4]
Don't Know	98	[GO TO ST4]
Refused	99	[GO TO ST4]

**ST4.** What type of collectors do the solar thermal systems you installed have?

Flat-plate collector (dark absorber plate covered by glass)	1	[GO TO ST5]
Integral collector-storage system, also called an ICS or batch system (tanks or tubes in a glass box)	2	[GO TO ST5]
Evacuated-tube collector	3	[GO TO ST5]

(parallel rows of glass tubes)		
Don't Know	98	<a href="#">[GO TO ST5]</a>
Refused	99	<a href="#">[GO TO ST5]</a>

**ST5.** What size is the average storage tank for the solar thermal systems you installed?

INSERT SIZE	[OPEN END]	<a href="#">[GO TO ST7]</a>
Don't Know	98	<a href="#">[GO TO ST7]</a>
Refused	99	<a href="#">[GO TO ST7]</a>

**ST7.** What is the Solar Energy Factor (SEF), on average, of the systems you installed?

INSERT SEF	[OPEN END]	<a href="#">[GO TO ST8]</a>
Don't Know	98	<a href="#">[GO TO ST8]</a>
Refused	99	<a href="#">[GO TO ST8]</a>

**ST8.** What is the Solar Fraction (SF), on average, of the systems you installed?

INSERT SF	[RANGE FROM 0 TO 1]	<a href="#">[GO TO SHW2a]</a>
Don't Know	98	<a href="#">[GO TO SHW2a]</a>
Refused	99	<a href="#">[GO TO SHW2a]</a>

**SHW2a.** What is the manufacturer and model number of your solar hot water module?

**SHW2a1.**

RECORD MANUFACTURER		<a href="#">[GO TO SHW2a2]</a>
[Don't Know]	-97	<a href="#">[GO TO SHW2a2]</a>
[Refused]	-98	<a href="#">[GO TO SHW2a2]</a>

**SHW2a2.**

RECORD MODEL NUMBER		<a href="#">[GO TO SHW2b]</a>
[Don't Know]	-97	<a href="#">[GO TO SHW2b]</a>
[Refused]	-98	<a href="#">[GO TO SHW2b]</a>

**SHW2b.** How many of that type of solar hot water module have been installed?

ENTER NUMBER		<a href="#">[GO TO SHW2c]</a>
[Don't Know]	-97	<a href="#">[GO TO SHW2c]</a>
[Refused]	-98	<a href="#">[GO TO SHW2c]</a>

**SHW2c.** Are there other types of solar hot water modules installed?

YES		<a href="#">[GO TO SHW2a]</a>
NO		<a href="#">[GO TO SHW3a]</a>
[Don't Know]	-97	<a href="#">[GO TO SHW3a]</a>
[Refused]	-98	<a href="#">[GO TO SHW3a]</a>

**SHW3a.** How many tanks are heated using the system?

INSERT NUMBER OF TANKS	[OPEN END]	<a href="#">[GO TO SHW3b]</a>
[Don't Know]	-97	<a href="#">[GO TO SHW3b]</a>
[Refused]	-98	<a href="#">[GO TO SHW3b]</a>

**SHW3b.** What is the capacity of each of these tanks?

INSERT CAPACITY FOR EACH TANK	[OPEN	<a href="#">[GO TO SHW3c]</a>
-------------------------------	-------	-------------------------------

	END]	
[Don't Know]	-97	[GO TO SHW3c]
[Refused]	-98	[GO TO SHW3c]

**SHW3c.** Do you use the system to heat one or more swimming pools?

Yes	1	[GO TO SHW3c1]
No	2	[GO TO SHW4]
[Don't Know]	-97	[GO TO SHW4]
[Refused]	-98	[GO TO SHW4]

**SHW3c1.** How many pools are heated?

INSERT NUMBER OF POOLS	[OPEN END]	[GO TO SHW3c1]
No	2	[GO TO SHW4]
[Don't Know]	-97	[GO TO SHW4]
[Refused]	-98	[GO TO SHW4]

**HW 3c2.**

Is this pool:

	Capacity?	Indoor?	Outdoor above ground?	Outdoor in ground?
[POOL #1]				
[POOL #2]				
[POOL #3]				
[Don't know]	97	97	97	97
[Refused]	98	98	98	98

**SHW4.** How many degrees from north do your panels face?

[OPEN END]		[GO TO SHW5]
[Don't Know]	-97	[GO TO SHW5]
[Refused]	-98	[GO TO SHW5]

**SHW5.** What is your tilt angle was [ANGLE] when it was installed?

[OPEN END]		[GO TO SHW6]
[Don't Know]	-97	[GO TO SHW6]
[Refused]	-98	[GO TO SHW6]

**SHW6.** Are your panels shaded at all during the year?

YES	1	[GO TO SHW6a]
NO	2	[GO TO SHW7]
[Don't Know]	-97	[GO TO SHW7]
[Refused]	-98	[GO TO SHW7]

**SHW6a.** Which months of the year are they shaded at least part of the day?

ENTER MONTHS	[OPEN END]	[GO TO SHW6b]
NO	2	[GO TO SHW6c]
[Don't Know]	-97	[GO TO SHW6b]
[Refused]	-98	[GO TO SHW6b]

**SHW6b.** For each month that they are shaded part of the day, what times of day are they shaded?

	MONTH	TIME OF DAY	% SHADED [0 TO 100%]
ENTER MONTH			
ENTER MONTH			
ENTER MONTH			
[Don't Know]	-97		
[Refused]	-98		

**SHW6c.** Most solar hot water systems have a pump that circulates water within the panels. What is the manufacturer and model number of your system's pump?

**SHW6c.**

RECORD MANUFACTURER		[GO TO SHW6d]
[Don't Know]	-97	[GO TO SHW6e]
[Refused]	-98	[GO TO SHW6e]

**SHW6d.**

RECORD MODEL NUMBER		[GO TO SHW6e]
[Don't know]	-97	[GO TO SHW6e]
[Refused]	-98	[GO TO SHW6e]

**SHW6e.** How is your pump powered? Did you install a small solar electric panel to power the pump, does the pump run off your regular electricity, or something else?

PHOTOVOLTAIC	1	[GO TO SHW6f]
Plug In	2	[GO TO SHW6f]
Other	3	[GO TO SHW6f]
[Don't know]	-97	[GO TO SHW6f]
[Refused]	-98	[GO TO SHW6f]

**SHW6f.** What is the power source?

POWER SOURCE		[GO TO SHW8]
[Don't know]	-97	[GO TO SHW8]
[Refused]	-98	[GO TO SHW8]

**SHW8.** What is the temperature of your hot water?

[ENTER TEMPERATURE]		[GO TO SHW9a]
[Don't know]	-9997	[GO TO SHW9a]
[Refused]	-9998	[GO TO SHW9a]

**SHW9a.** About how much hot water do you use per month? (If they don't know that ask how much water they use per month).

[ENTER HOT WATER USAGE]		[GO TO SHW9b]
[Don't know] [ENTER WATER USAGE]-----	-9997	[GO TO SHW10]
[Refused]	-9998	[GO TO SHW10]

**SHW9b.** What is this estimate based on? **[RECORD RESPONSE]**

[OPEN END] _____		[GO TO SHW10]
[Don't know]	-97	[GO TO SHW10]
[Refused]	-98	[GO TO SHW10]

**SHW10.** Is your system used year round?

YES	1	[GO TO SHW12]
NO	2	[GO TO SHW11]
[Don't know]	-97	[GO TO SHW11]
[Refused]	-98	[GO TO SHW11]

**SHW11.** In what months is it used?

[ENTER MONTHS] _____		[GO TO SHW12]
[Don't know]	-97	[GO TO SHW12]
[Refused]	-98	[GO TO SHW12]

**SHW12.** What is your supplemental source for hot water heating?

GAS	1	[GO TO ST9]
OIL	2	[GO TO ST9]
ELECTRIC	3	[GO TO ST9]
OTHER	4	[GO TO SHW12a]
[Don't know]	-97	[GO TO ST9]
[Refused]	-98	[GO TO ST9]

**SHW12a. [DESCRIBE OTHER]**

[OPEN END] _____		[GO TO SHW12]
[Don't know]	-97	[GO TO SHW12]
[Refused]	-98	[GO TO SHW12]

**ST9.** What is the nearest zip code where most of your installations were made?

INSERT ZIP CODE	[9 TO 14 DIGITS]	[GO TO &NEXT TECH]
Don't Know	98	[GO TO ST9a]
Refused	99	[GO TO ST9a]

**ST9a.** What is the nearest town or city where most of your installations were made?

INSERT TOWN NAME OR CITY	[OPEN END]	[GO TO ATR1c]
Don't Know	98	[GO TO ATR1c]
Refused	99	[GO TO ATR1c]

**SOLAR THERMAL / ATTRIBUTION**

**ATR1c.** For your solar thermal projects, what percentage of the total costs of the project were supported by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>a. Solar thermal</b>		[GO TO BM1]



<b>[Don't know]</b>	<b>98</b>	<a href="#">[GO TO BM1]</a>
<b>[Refuse]</b>	<b>99</b>	<a href="#">[GO TO BM1]</a>

## BIOMASS QUESTIONS

### [IF &BM = TRUE]

In the next section we'll be discussing the **BIOMASS SYSTEM** that was installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the [&TECHNICAL ASSISTANCE]

**I am going to discuss some technical information about the system. The paperwork from the original site survey, design study, or installation may help you answer these questions.** [If they do not have this information handy, attempt the questions anyway, and ask them to give their best estimate].

**BM1.** I am first interested in learning more about the type of biomass system you have. What type of fuel do you use?

Wood logs	1	[GO TO BM2]
Wood chips	2	[GO TO BM2]
Biomass pellets	3	[GO TO BM2]
Corn pellets	4	[GO TO BM2]
[Other, Specify _____]	5	[GO TO BM2]
[Don't know]	-97	[GO TO BM2]
[Refused]	-98	[GO TO BM2]

**BM2.** What do you use this biomass system to do?

Space heating	1	[GO TO BM3]
Water Heating	2	[GO TO BM3]
[Other, Specify _____]	3	[GO TO BM3]
[Don't know]	-97	[GO TO BM3]
[Refused]	-98	[GO TO BM3]

**BM3.** How do you describe the biomass system you use? Is it a:

Pellet stove or furnace	1	[GO TO BM6]
Wood chip boiler or furnace	2	[GO TO BM6]
Logwood boiler	3	[GO TO BM6]
Biomass/wood furnace	4	[GO TO BM6]
Wood stove/heater	5	[GO TO BM6]
Other	6	[GO TO BM6]
Don't know	-97	[GO TO BM6]
Refused	-98	[GO TO BM6]

**BM6.** What percent of your fuel do you get from the following sources?

By products from another process produced on-site	___	[GO TO BM6a]
Purchased from vendor	___	[GO TO BM6a]
Some other source [Specify: _____]	___	[GO TO BM6a]
[Don't know]	-97	[GO TO BM7]
[Refused]	-98	[GO TO BM7]

**[IF 100% of fuel produced onsite skip to BM4]**

**BM6a.** Who is the [supplier/manufacturer] of the fuel you purchase?

[Supplier 1]	1	[GO TO BM7]
[Supplier 2]	2	[GO TO BM7]
[Don't know]	-97	[GO TO BM7]
[Refused]	-98	[GO TO BM7]

**BM7.** What is your annual biomass fuel usage?

	<b>BM7a. ANNUAL USAGE</b>	<b>BM7b. UNITS (e.g. tons, btuh)</b>
OPEN END		
[Don't know]	-97 [GO TO BM8]	-97 [GO TO BM8]
[Refused]	-98 [GO TO BM8]	-98 [GO TO BM8]

**BM8.** **[SKIP TO BM11 IF FUEL IS not WOOD]** What species of wood do you burn?

[SPECIES]	1	[GO TO BM9]
Primarily (over 90%) Hardwood (oak, maple)	2	[GO TO BM9]
Primarily (over 90%) softwood (pines; alders)	3	[GO TO BM9]
Mix of both	4	[GO TO BM9]
Don't know	-97	[GO TO BM9]
Refused	-98	[GO TO BM9]

**BM9.** Do you dry the [fuel] at all before using it?

YES	1	[GO TO BM10]
NO	2	[GO TO BM10]
[Don't know]	-97	[GO TO BM10]
[Refused]	-98	[GO TO BM10]

**BM10.** Do you know the moisture content of the fuel when burned?

YES	1	[GO TO BM10a]
NO	2	[GO TO BM10b]
[Don't know]	-97	[GO TO BM11]
[Refused]	-98	[GO TO BM11]

**BM10a.** What is the moisture content of the fuel when burned?

MOISTURE CONTENT	1	[GO TO BM10b]
[Don't know]	-97	[GO TO BM10b]
[Refused]	-98	[GO TO BM10b]

**BM10b.** If you harvest the wood you burn, how long do you let it dry before burning?

less than 6 months (consider this wood has moisture content of 50-30%)	1	[GO TO BM11]
6-12 months (fully dry wood (unless kiln dried) probably has a moisture content of around 20%.	2	[GO TO BM11]
[Don't know]	-97	[GO TO

		<a href="#">BM11</a>
[Refused]	-98	<a href="#">[GO TO BM11]</a>

**BM11.** How much energy do you use to dry the fuel?

RECORD ENERGY (kWh/month)	1	<a href="#">[GO TO BM11a]</a>
[Don't know]	-97	<a href="#">[GO TO BM12]</a>
[Refused]	-98	<a href="#">[GO TO BM12]</a>

**BM11a.** How did you estimate this?

RECORD ANSWER VERBATIM IF POSSIBLE	1	<a href="#">[GO TO BM12]</a>
[Don't know]	-97	<a href="#">[GO TO BM12]</a>
[Refused]	-98	<a href="#">[GO TO BM12]</a>

**BM12.** Is there any electrical or mechanical device that assists in feeding fuel to your system?

YES	1	<a href="#">[GO TO BM12a]</a>
NO	2	<a href="#">[GO TO BM13]</a>
[Don't know]	-97	<a href="#">[GO TO BM13]</a>
[Refused]	-98	<a href="#">[GO TO BM13]</a>

**BM12a** How do you feed the fuel into the biomass system? [Ex: conveyor, chute, shovels]

RECORD ANSWER VERBATIM IF POSSIBLE	1	<a href="#">[GO TO BM12b]</a>
[Don't know]	-97	<a href="#">[GO TO BM12b]</a>
[Refused]	-98	<a href="#">[GO TO BM12b]</a>

**BM12b.** Considering all the devices powered to operate your biomass system, How much power would you estimate is used by the feed system?

kWh per month	_____	<a href="#">[GO TO BM12c]</a>
[Don't know]	-9997	<a href="#">[GO TO BM12c]</a>
[Refused]	-9998	<a href="#">[GO TO BM12c]</a>

**BM12c.** How did you estimate this? [If they don't have metered data to support kWh then try to get the following: 1) kW rating of fuel system, 2) Hours/day or Hours/month that system is operating]

RECORD ANSWER VERBATIM IF POSSIBLE	_____	<a href="#">[GO TO BM13]</a>
[Don't know]	-9997	<a href="#">[GO TO BM13]</a>
[Refused]	-9998	<a href="#">[GO TO BM13]</a>

**BM13.** Is there an air circulation system for this biomass system?

YES	1	<a href="#">[GO TO BM113a]</a>
NO	2	<a href="#">[GO TO BM14]</a>
[Don't know]	-97	<a href="#">[GO TO BM14]</a>
[Refused]	-98	<a href="#">[GO TO BM14]</a>

**BM13a.** Considering all the devices powered to circulate air, how much power would you estimate is used by the circulation system?

kWh per month	_____	[GO TO BM13b]
[Don't know]	-9997	[GO TO BM14]
[Refused]	-9998	[GO TO BM14]

**BM13b.** How did you estimate this? [If they don't have metered data to support kWh then try to get the following: 1) kW rating of fuel system, 2) Hours/day or Hours/month that system is operating]

RECORD ANSWER VERBATIM IF POSSIBLE	_____	[GO TO BM14]
[Don't know]	-9997	[GO TO BM14]
[Refused]	-9998	[GO TO BM14]

**BM14.** Is there a water circulation system for this biomass system?

YES	1	[GO TO BM14a]
NO	2	[GO TO BM15]
[Don't know]	-97	[GO TO BM15]
[Refused]	-98	[GO TO BM15]

**BM14a.** Considering all the devices powered to circulate water, how much power would you estimate is used by the circulation system?

kWh per month	_____	[GO TO BM14b]
[Don't know]	-9997	[GO TO BM15]
[Refused]	-9998	[GO TO BM15]

**BM14b.** How did you estimate this? [If they don't have metered data to support kWh then try to get the following: 1) kW rating of fuel system, 2) Hours/day or Hours/month that system is operating]

RECORD ANSWER VERBATIM IF POSSIBLE	_____	[GO TO BM15]
[Don't know]	-9997	[GO TO BM15]
[Refused]	-9998	[GO TO BM15]

**BM15.** What is the nearest zip code where most of your installations were made?

INSERT ZIP CODE	[9 TO 14 DIGITS]	[GO TO ATR1d]
Don't Know	98	[GO TO ST9a]
Refused	99	[GO TO ST9a]

**BM15a.** What is the nearest town or city where most of your installations were made?

INSERT TOWN NAME OR CITY	[OPEN END]	[GO TO ATR1d]
Don't Know	98	[GO TO ATR1d]
Refused	99	[GO TO ATR1d]

## BIOMASS / ATTRIBUTION

**ATR1d.** For your biomass projects, what percentage of the total costs of the project were supported by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>a. Biomass</b>		[GO TO BG1]



<b>[Don't know]</b>	<b>98</b>	<a href="#">[GO TO BG1]</a>
<b>[Refuse]</b>	<b>99</b>	<a href="#">[GO TO BG1]</a>

## BIOGAS QUESTIONS

### [IF & MEASURE = BIOGAS]

In the next section we'll be discussing the biogas system that was installed after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] / [received the [&TECHNICAL ASSISTANCE]

I am going to discuss some technical information about the system. The paperwork from the original site survey, design study, or installation may help you answer these questions.

**BG1.** What is the manufacturer and model number of the generator run by the biogas?

BG1a.

RECORD MANUFACTURER		[GO TO BG1b]
[Don't Know]	-97	[GO TO BG1b]
[Refused]	-98	[GO TO BG1b]

BG1b.

RECORD MODEL NUMBER		[GO TO BG2]
[Don't Know]	-97	[GO TO PV4]
[Refused]	-98	[GO TO BG2]

**BG2.** Do you use [Waste] for your biodigester?

YES	1	[GO TO BG2a]
NO	2	[GO TO BG3]
[Don't know]	-97	[GO TO BG3]
[Refused]	-98	[GO TO BG3]

**BG2a.**

Waste Type		[GO TO BG3]
[Don't Know]	-97	[GO TO BG3]
[Refused]	-98	[GO TO BG3]

**BG3.** Do you add any other substrates to the waste stream?

YES	1	[GO TO BG3a]
NO	2	[SKIP TO BG4]
[Don't know]	-97	[SKIP TO BG4]
[Refused]	-98	[SKIP TO BG4]

**Bg3a.** Added Substrates type \_\_\_\_\_

Added Substrates type _____		[GO TO BG3b]
[Don't Know]	-97	[GO TO BG4]
[Refused]	-98	[GO TO BG4]

**BG3b.** Quantity of Added Substrate \_\_\_\_\_

Quantity of Added Substrate _____		[GO TO BG4]
[Don't Know]	-97	[GO TO BG4]
[Refused]	-98	[GO TO BG4]

**BG4.** Is this system used at an agricultural facility?

Yes	1	[GO TO BG5]
No	2	[GO TO BG6]
Don't Know	97	[GO TO BG6]
Refused	98	[GO TO BG6]

**BG5.** Do you have any livestock providing waste for the system? Is this correct?

Yes	1	[GO TO BG5b]
No	2	[GO TO BG6]
Don't Know	97	[GO TO BG6]
Refused	98	[GO TO BG6]

**BG5b.** What type(s) of livestock?

What type(s) of livestock_1 _____		[GO TO BG5c]
What type(s) of livestock_2 _____		[GO TO BG5c]
What type(s) of livestock_3 _____		[GO TO BG5c]
[Don't Know]	-97	[GO TO BG6]
[Refused]	-98	[GO TO BG6]

**BG5c.** FOR EACH TYPE LISTED ASK: How many?

How many &TYPE _1 _____		[GO TO BG6]
How many &TYPE _2 _____		[GO TO BG6]
How many &TYPE _3 _____		[GO TO BG6]
[Don't Know]	-97	[GO TO BG6]
[Refused]	-98	[GO TO BG6]

**BG6.** Does the biogas system produce the same amount of energy steadily over the course of a year, or are there seasonal differences in energy production?

YEAR-ROUND		[GO TO BG7]
SEASONAL		[GO TO BG6b]
OTHER		[GO TO BG6a]
[Don't Know]	-97	[GO TO BG7]
[Refused]	-98	[GO TO BG7]

**BG6a.** DESCRIBE OTHER

Other_____	1	[GO TO BG7]
Don't Know	97	[GO TO BG7]
Refused	98	[GO TO BG7]

**BG6b.** Describe the seasonal use of the system [possible reasons: seasonal effects of the herd, weather, regular maintenance. If possible find out what the seasonal difference is – e.g. the system produces twice as much energy during a summer day than a winter day].

OPEN END_____	1	[GO TO BG7]
Don't Know	97	[GO TO BG7]
Refused	98	[GO TO BG7]

**BG7.** Which of the following ways are you using the gas produced by the digester system - are you using it on site in a genset, burning it on site for heat, flaring it, or selling it off site? [ACCEPT MULTIPLE ANSWERS]

Using it on site in a genset		[GO TO BG7a]
Burning it on site for heat		[GO TO BG7a]
Flaring it on site		[GO TO BG7a]
Selling it off site		[GO TO BG7a]
[Don't Know]	-97	[GO TO BG8]
[Refused]	-98	[GO TO BG8]

**BG7a.** What percentage of the gas are you...

Using it on site in a genset	___%	[GO TO BG8]
Burning it on site for heat	___%	[GO TO BG8]
Flaring it on site	___%	[GO TO BG8]
Selling it off site	___%	[GO TO BG8]
[Don't Know]	-97	[GO TO BG8]
[Refused]	-98	[GO TO BG8]

**BG8.** Has there been any unscheduled downtime in the biodigester system?

Yes	1	[GO TO BG8a]
No	2	[GO TO BG9]
Don't Know	97	[GO TO BG9]
Refused	98	[GO TO BG9]

**BG8a.** How long was the system down unexpectedly? \_\_\_\_\_ [record as month:days (i.e. 03:7)]

	DD/MM/YYYY	DAYS	
Incident 1	___/___/___	___	[GO TO BG9]
Incident 2	___/___/___	___	[GO TO BG9]
Incident 3	___/___/___	___	[GO TO BG9]
[Don't Know]	-97		[GO TO BG9]
[Refused]	-98		[GO TO BG9]

**BG9.** [SKIP TO BG13 IF NONE USED IN THE GENSET]

What date did you started running the genset?

[BEGINNING GENERATION DATE]

BEGINNING GENERATION DATE	___/___/___	[GO TO BG10]
Don't Know	97	[GO TO BG10]
Refused	98	[GO TO BG10]

**BG10.** Has there been any unscheduled downtime in the genset system?

Yes	1	[GO TO BG10a]
No	2	[GO TO BG11]
Don't Know	97	[GO TO BG11]
Refused	98	[GO TO BG11]

**BG10a.** How long was the system down unexpectedly? \_\_\_\_\_ [record as month:days (i.e. 03:7)]

	DD/MM/YYYY	DAYS	
Incident 1	__/__/____	__	[GO TO BG11]
Incident 2	__/__/____	__	[GO TO BG11]
Incident 3	__/__/____	__	[GO TO BG11]
[Don't Know]	-97		[GO TO BG11]
[Refused]	-98		[GO TO BG11]

**BG11.** Please tell me the total kWh production of the system since it started generating power.  
[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out and date of reset]

**BG11a** kWh \_\_\_\_\_

kWh	_____	[GO TO BG11a]
Don't Know	-9997	[GO TO BG12]
Refused	-9998	[GO TO BG12]

**BG11b** RESET DATE \_\_\_\_\_

RESET DATE	_____	[GO TO BG12]
Don't Know	-9997	[GO TO BG12]
Refused	-9998	[GO TO BG12]

**BG12.** Did you make this reading from a . . . ? [READ CHOICES, CIRCLE ALL THAT APPLY]

Read-out display on inverter?	1	[GO TO BG13]
Separate utility meter for biogas genset?	2	[GO TO BG13]
[OTHER]	3	[GO TO BG13]
Don't Know	-9997	[GO TO BG13]
Refused	-9998	[GO TO BG13]

**BG13.** What is the nearest zip code where most of your installations were made?

INSERT ZIP CODE	[9 TO 14 DIGITS]	[GO TO &NEXT TECH]
Don't Know	98	[GO TO ST9a]
Refused	99	[GO TO ST9a]

**BG13a.** What is the nearest town or city where most of your installations were made?

INSERT TOWN NAME OR CITY	[OPEN END]	[GO TO &NEXT TECH]
--------------------------	------------	--------------------

Don't Know	98	<a href="#">[GO TO &amp;NEXT TECH]</a>
Refused	99	<a href="#">[GO TO &amp;NEXT TECH]</a>

### **BIOGAS / ATTRIBUTION**

**ATR1e.** For your biogas projects, what percentage of the total costs of the project were supported by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>a. Biogas</b>		<a href="#">[GO TO OE2b]</a>
<b>[Don't know]</b>	<b>98</b>	<a href="#">[GO TO OE2b]</a>
<b>[Refuse]</b>	<b>99</b>	<a href="#">[GO TO OE2b]</a>

**OTHER EQUIPMENT BATTERY**

**[IF & OTHER = TRUE]**

**You mentioned that you installed another renewable energy project after you [participated in the &WORKSHOP/DEMONSTRATION/TRAINING] /[received the &TECHNICAL ASSISTANCE]?**

**OE2b.** Which kinds of renewable energy technologies did you install through the program?

INSERT RENEWABLE TECH	[OPEN END]	[GO TO OE2d]
Don't Know	98	[GO TO OE2d]
Refused	99	[GO TO OE2d]

**OE2d.** Approximately what percentage of your facility's total square footage was served by these purchases?

INSERT PERCENTAGE	[OPEN END]	[GO TO OE2e]
Don't Know	98	[GO TO OE2e]
Refused	99	[GO TO OE2e]

**OE2e.** How many of the units installed were used to replace existing units?

**RESPONSE GRID FOR OE1 AND OE2**

	OE_TECH	OE2d % Space Served	OE2e # replacing existing units
1	Specify:		
2	Specify:		
3	Specify:		
4	Specify:		
5	Specify:		
6	Specify:		

**OE3.** Please tell me the total energy production of the system since it started generating power.

**[This is an important question. If the respondent cannot answer total kWh since inception, ask for current read-out. Ask whether the reading has been reset recently. How often do they reset the cumulative? and date of reset]**

**OE3a.** Energy

Energy	[OPEN END]	[GO TO OE3b]
Don't Know	98	[GO TO OE3c]
Refused	99	[GO TO OE3c]

**OE3b. kWh and Therms**

kWh	1	[GO TO OE3c]
Therms	2	[GO TO OE3c]
Don't Know	98	[GO TO OE3c]
Refused	99	[GO TO OE3c]

**OE3c.** When was the reset date? .....

RESET DATE	[DD/MM/YYYY]	[GO TO OE4]
Don't Know	98	[GO TO OE4]
Refused	99	[GO TO OE4]

**OE4.** Did you make this reading from a . . . ? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on inverter?	1	[GO TO OE5]
Separate utility meter?	2	[GO TO OE5]
Reductions in my utility bill	3	[GO TO OE5]
[OTHER]	77	[GO TO OE5]
Don't Know	-9997	[GO TO OE5]
Refused	-9998	[GO TO OE5]

**OE5.** What is the nearest zip code where most of your installations were made?

INSERT ZIP CODE	[9 TO 14 DIGITS]	[GO TO &NEXT TECH]
Don't Know	98	[GO TO ST9a]
Refused	99	[GO TO ST9a]

**OE5a.** What is the nearest town or city where most of your installations were made?

INSERT TOWN NAME OR CITY	[OPEN END]	[GO TO &NEXT TECH]
Don't Know	98	[GO TO &NEXT TECH]
Refused	99	[GO TO &NEXT TECH]

**OTHER RENEWABLE MEASURE /ATTRIBUTION**

**ATR1d.** For this project, what percentage of the total costs of the project were supported by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>a. Other renewable measure</b>		[GO TO OE2b]
<b>[Don't know]</b>	<b>98</b>	[GO TO OE2b]
<b>[Refuse]</b>	<b>99</b>	[GO TO OE2b]

**DIRECT ATTRIBUTION**

**Now, I'd like to ask you a few questions about the effect that the [ &WORKSHOP/DEMONSTRATION/TRAINING]/ [ &TECHNICAL ASSISTANCE] had on your organization's decision to undertake the project we have been discussing.**

**[FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DA0 THROUGH DA]**

**DA0.** Without the &SPONSOR [&WORKSHOP/DEMONSTRATION/TRAINING/TECHNICAL ASSISTANCE], would you say the likelihood of [installing / performing] the &ACTION was... [READ LIST]

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**TIMING**

**ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM).**

AT11a. I'd like to know about the effect, if any, that [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] had on the timing of your project. Without attending the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE], would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2
<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF DAT1a ≠ LATER, SKIP]**

**AT11b.** Approximately how many months later? [Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	<b>DAT1b_&amp;MEASURE</b>
[RECORD # OF MONTH]	_____
[Don't know]	-97

**QUANTITY**

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**Finally, I'd like to know about the effect, if any, that your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] had on the scale of the project you completed.**

**AQ1a.** Without the support from [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2 [READ AQ3a]	2 [READ AQ3a]	2 [READ AQ3a]	2 [READ AQ3a]
More or larger	3 [READ AQ3a]	3 [READ AQ3a]	3 [READ AQ3a]	3 [READ AQ3a]
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AQ1b. Why do you say that? [RECORD VERBATIM]\_\_\_\_\_**  
**[IF AQ1 = SAME or NOT INSTALLED ANY, SKIP TO OP9]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed?

Calculate percent:  $\text{abs}([( \text{amount installed} ) / ( \text{amount would have installed} )] - 100\%)$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Organization installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Organization installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Organization installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Organization installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OVERALL INFLUENCE CHECK IF RECEIVED FUNDING FROM ANY SOURCE**

*This battery has been shortened from the renewables survey given that this survey is for an information or technical assistance effort that does not offer incentives. Will just be used to over context to overall attribution.*

**[ASK ONLY IF OP1=1]**

**OP9.** In your opinion, was the &SPONSOR's [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], more important in encouraging and enabling [your organization] to carry out the renewable energy project we have been discussing; was the rebate more important; or were they both equally important?

SEP PA &WORKSHOP/DEMONSTRATION/TRAINING/&TRAINING	1
Rebate	2
Both equally important	3
[Don't know]	- 97
[Refused]	- 98

**OP10** Why do you say that?

**[RECORD  
VERBATIM]** \_\_\_\_\_

**ATTRIBUTION – MARKET CONTEXT**

**TRAINING OBJECTIVES**

**TO1.** The [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], was designed to achieve the following objectives: &USE COURSE SPECIFIC BELOW.

**NOTE: WE WILL PROVIDE COURSE SPECIFICS BASED UPON A REVIEW OF CURRICULA, PARTICIPANT DATABASES AND INPUTS FROM INSTRUCTOR SURVEY DATA.**

**[INSERT TWO SENTENCE OR LESS DESCRIPTIONS OF EACH SPECIFIC EFFORT]**

**[ASK IF RESPONDENT ATTENDED &WORKSHOP/DEMONSTRATION/TRAINING.**

**TO2.** Prior to taking this course, had you searched for courses with similar curricula content?

[Yes]	1	<a href="#">[GO TO TO3]</a>
[No]	2	<a href="#">[GO TO KA1]</a>
[Don't know]	98	<a href="#">[GO TO KA1]</a>
[Refused]	99	<a href="#">[GO TO KA1]</a>

**TO3.** Using a scale of 1 to 10 where 1 is no courses available and 10 is many courses available, how would you rate the availability of courses with similar curricula prior to &DATE?

None Available	1	<a href="#">[GO TO KA1]</a>
	2	<a href="#">[GO TO KA1]</a>

	3	[GO TO KA1]
	4	[GO TO KA1]
	5	[GO TO KA1]
	6	[GO TO KA1]
	7	[GO TO KA1]
	8	[GO TO KA1]
	9	[GO TO KA1]
Many Available	10	[GO TO KA1]
Don't know	98	[GO TO KA1]
Refused	99	[GO TO KA1]

**KNOWLEDGE AND AWARENESS EFFECTS**

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CHANGES TO KNOWLEDGE AND AWARENESS AS A RESULT OF PARTICIPATION IN THE &WORKSHOPS/DEMONSTRATIONS/TRAININGS OR &TECHNICAL ASSISTANCE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**KA1.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], provide you with any new information?

[Yes]	1	[GO TO KA2a]
[No]	2	[GO TO KA2a]
[Don't know]	98	[GO TO KA2a]
[Refused]	99	[GO TO KA2a]

**KA2a.** Using a scale of 1 to 10 where 1 is no knowledge and 10 is significant knowledge, how would you rate your level of knowledge regarding the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], objectives prior to your participation in &DATE?

No Knowledge	1	[GO TO KA2b]
	2	[GO TO KA2b]
	3	[GO TO KA2b]
	4	[GO TO KA2b]
	5	[GO TO KA2b]
	6	[GO TO KA2b]
	7	[GO TO KA2b]
	8	[GO TO KA2b]
	9	[GO TO KA2b]
Significant Knowledge	10	[GO TO KA2b]
Don't know	98	[GO TO KA2b]
Refused	99	[GO TO KA2b]

**[SKIP IF KA1=2]**

**KA2b.** On the same scale, how would you rate your  
 [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], objectives  
 knowledge after your participation?

No Knowledge	1	[GO TO KA3]
	2	[GO TO KA3]
	3	[GO TO KA3]
	4	[GO TO KA3]
	5	[GO TO KA3]
	6	[GO TO KA3]
	7	[GO TO KA3]
	8	[GO TO KA3]
	9	[GO TO KA3]
Significant Knowledge	10	[GO TO KA3]
Don't know	98	[GO TO KA3]
Refused	99	[GO TO KA3]

**KA3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE]  
 increase your awareness of ways to adopt renewable energy at your &INSERT HOME,  
 FACILITY, JOBS, CLASSROOM?

[Yes]	1	[GO TO KA4]
[No]	2	[GO TO KA4]
[Don't know]	98	[GO TO KA4]
[Refused]	99	[GO TO KA4]

**KA4.** Did your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING/  
 &TECHNICAL ASSISTANCE], make you more likely to adopt renewable energy  
 projects?

[Yes]	1	[GO TO FIN1]
[No]	2	[GO TO FIN1]
[Don't know]	98	[GO TO FIN1]
[Refused]	99	[GO TO FIN1]

## CAPACITY BUILDING

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CAPACITY BUILDING THAT RESULTED FROM PARTICIPATION IN THE &WORKSHOP/DEMONSTRATION/TRAINING OR &TECHNICAL ASSISTANCE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

[ASK IF AC1=2, 3, ELSE ASK BC1]

**CPC2.** Please tell me if you would agree with any of the following statements. As a result of  
 the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE]

**CPC2a.** I have acquired additional renewable energy skills that I can apply at the  
 facility or the facilities I manage.

**CPC2b.** I have received a certification or accreditation that is relevant to my  
 profession.

- CPC2c.** I have shared the information with colleagues or decision makers at my job.
- CPC2d.** The quality of the maintenance and operation of renewable energy equipment at my business has increased as a result of participating..
- CPC2e.** I have received access to financing sources to facilitate renewable energy offerings for my clients.

**CPC2f.** &INSERT TRAINING SPECIFIC CAPACITY AREA

	CAPACITY BUILDING	CPC2a EE Skills	CPC2b Certification	CPC2c Shared Info	CPC2d Maintenance	CPC2e Financing	CPC2f &INSERT TRAINING SPECIFIC CAPACITY AREA
1	Yes						
2	Somewhat agree						
3	No						
5	[Don't know]						
6	[Refused]						

**[ASK IF CPM2a-f <3]**

**CPM2.** You indicated that you agreed with &[READ IN CPM2a-f]. How specifically did the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION/&TECHNICAL ASSISTANCE allow you to &[READ IN CPM2a-f]?

## L.17. ID-13A-R: RETROFITS (NON-SEP PROGRAM MANAGERS) RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts that received funding from the State Energy Program and the American Recovery and Reinvestment Act to promote the energy efficient retrofits of single family homes and other residential buildings in [STATE]. As part of that effort we are speaking with managers and administrators of programs offered by other organizations that sought to achieve similar objectives. This interview is being conducted as part of an evaluation of the

State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

## **PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

These first few questions are meant simply to verify that we are speaking with the right person.

1. First, did your organization operate any activities to promote energy efficient retrofits of single family homes or other residential buildings between the beginning of [PROGRAM YEAR/PERIOD] and the present time?
  - a. Yes → CONTINUE
  - b. No → VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION AND REPORT TO STATE ENERGY OFFICE CONTACT
  - c. DK/Ref → ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of those activities over the past two years?
  - a. Yes → CONTINUE
  - b. No → ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 50 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [\[ORNL CONTACT INFORMATION\]](#).

## **PART 3 – ORGANIZATION**

**NOTE: FILL IN AS MUCH OF THE INFORMATION REQUESTED IN THIS SECTION AS POSSIBLE USING THE ORGANIZATION'S WEB SITE AND OTHER PUBLIC SOURCES. ASK QUESTIONS BELOW ONLY IF NEEDED TO VERIFY OR VALIDATE INFORMATION.**

3. What is the formal name of your organization?  
\_\_\_\_\_

4. Briefly, what is the overall mission of your organization?

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5. Can you briefly outline the range of activities your organization undertakes in pursuit of that mission?

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**PART 4 – ACTIVITIES RELATED TO THE SEP PA**

6. What specific activities did your organization take to promote energy efficient retrofits in single family homes and other residential buildings during the period [PROGRAM YEAR/PERIOD]?

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7. In what year did these efforts begin? \_\_\_\_\_

8. What were your responsibilities in regard to these programs?

9. I'd like to get a little more detail about the programs if I could.

a. Let's start with ACTIVITIES. PROBE:

- MARKETING AND OUTREACH TO PARTICIPANTS
- RECRUITMENT OF PARTICIPANTS
- RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS
- DELIVERY OF INFORMATION AND TECHNICAL SERVICES
- PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES
- INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

b. What resources are being used to deliver the program? PROBE:



ORGANIZATION STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

c. What are the sources of financial support for the program? PROBE:

SOURCES OF FUNDING

LEVEL OF FUNDING FROM EACH SOURCE IN THE MOST RECENT YEAR

OVERALL FUNDING LEVELS IN PAST YEARS/TRENDS IN FUNDING LEVELS AND SOURCES

ROUGH ALLOCATION OF OPERATING FUNDS TO KEY FUNCTIONS: MARKETING, TECHNICAL SERVICES, PROJECT SUPPORT, ADMINISTRATION

SOURCES OF PROJECT FUNDING: TYPE OF ORGANIZATION, MECHANISM (APPROPRIATION OF PUBLIC FUNDS, PUBLIC BENEFITS CHARGES, LOANS, LOAN GUARANTEES)

TYPE OF PROJECT FUNDING: LOANS, GRANTS, REBATES, LOAN GUARANTEES

AMOUNT OF PROJECT FUNDING: BY SOURCE AND TYPE

d. Could you summarize the results your program has achieved? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP ATTENDANCE, ETC)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

18E. RESULTS VERSUS GOALS: Have you been able to achieve the level of results you targeted?

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

**PART 5. INTERACTION WITH SEP PA**

10. Are you aware of the efforts of [NAME OF STATE ENERGY OFFICE] to promote energy efficiency improvements in non-residential facilities?

- a. Yes → CONTINUE
- b. No → ASK IF THERE IS ANYONE ELSE WHO HAS BEEN INVOLVED IN THE PLANNING OF THE PROGRAMS WHO MIGHT BE FAMILIAR WITH THE STATE ENERGY OFFICE PROGRAMS? COMPLETE THIS SECTION OF THE INTERVIEW GUIDE WITH THAT INDIVIDUAL.

11. What is your understanding of the services and resources these programs offer?

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12. Did your organization and the [STATE ENERGY OFFICE] have any contact to plan, coordinate, or deliver programs that promote energy efficient retrofits in single family homes or other residential facilities?

- a. Yes → CONTINUE
- b. No → SKIP TO QUESTION XX

13. Please describe how your organization and the [STATE ENERGY OFFICE] have worked together to plan or coordinate the efforts in this area.

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14. Do representatives of the organizations meet on a regular basis to review program accomplishments and plan future activities?

IF YES: How often does that occur?

15. Is there regular interaction among the organizations in delivering the program



services?

IF YES: Could you describe that interaction for me?

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16. Why did your organization decide to work together with the [STATE ENERGY OFFICE] to plan and/or deliver programs to promote energy efficiency retrofits in single family homes and other residential facilities? PROBE:

- a. SEO's ability to deliver technical services
- b. SEO's contacts to key market actors or facility owners
- c. SEO's contacts and relationships with regulators and other government agencies
- d. SEO's access to funding for projects of interest to the respondent's organization
- e. Other (Specify) \_\_\_\_\_

17. Did your organization take into account the SEO's capabilities and resources in planning your activities to promote residential retrofits?

- a. Yes → ASK: Please describe how you took the SEO's capabilities and resources into account.

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- b. No

18. If the opportunity to cooperate with the [STATE ENERGY OFFICE] had not been available, do you believe that your organization would now be offering programs to promote energy efficiency in single family homes and other residential facilities?

YES/NO

18a. Why do you say that?

19. If the [STATE ENERGY OFFICE] had not cooperated in delivering the program as it

did, would your organization have changed the type of services it provides to promote energy efficiency retrofits in single family homes and other residential facilities?

YES/NO

IF YES, PROBE:

19a. How would your organization have changed the roster of services provided?

20. If the [STATE ENERGY OFFICE] had not cooperated in delivering the program as it did, would your organization have increased the level of resources used to promote energy efficiency single family homes and other residential facilities since [PROGRAM YEAR/PERIOD], decreased the level, or left it about the same?

INCREASED

DECREASED

LEFT THE LEVEL ABOUT THE SAME

DK/REF

IF INCREASED OR DECREASED, PROBE:

a. Why do you say that?

b. By what percentage would you have increased/decreased the amount of resources your organization allocated to promote energy efficiency retrofits in the residential sector?

## **PART 6: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

### **IF THE RESPONDENT ORGANIZATION HAS COOPERATED WITH THE STATE ENERGY OFFICE IN THE DELIVERY OF SERVICES TO PROMOTE ENERGY EFFICIENCY RETROFITS, ASK THE QUESTIONS IN THIS SESSION.**

21. Do you believe that the program that your organization delivered with the [STATE ENERGY OFFICE] has had an impact on the long-term capabilities of homeowners and multifamily property owners in the state to carry out energy efficiency retrofit projects?

YES/NO

a. In what specific ways did your program contribute to that result?

b. Can you provide any examples of these kinds of results?

22. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install energy-efficient retrofit projects in residential facilities?

YES/NO

a. In what specific ways did your program contribute to that result?

- 
- b. Can you provide any examples of these kinds of results?
23. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.
- IF YES:
- a. How many positions did your organization add?
  - b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
  - c. How many of these FTEs will be retained after the current round of program funding?
  - d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?
24. In the course of carrying out this program, has your organization developed any new capabilities or resources that will support the delivery of energy efficiency services to non-residential facilities in the future. PROBE:
- a. Contacts and relationships with market actors
  - b. Tools such as building analysis software
  - c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula

**Thank you for your time and insights**

## L.18. ID-12A-R: RETROFIT (PROGRAM DELIVERY CONTRACTORS) RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to promote the development retrofit and equipment replacement projects to reduce energy consumption in single family homes and other residential facilities that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that your organization was responsible for delivering a program to promote the development of retrofit energy projects in residential facilities or as free-standing projects to sell electricity. Is that correct?

- Yes: CONTINUE
- No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Our understanding is that you served or serve as the program manager for Residential Retrofit programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Residential retrofit programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Residential retrofit programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded Residential retrofit programs	[Ask for correct person for Residential Retrofit Project Development programs]
No – There were no SEP/ARRA funded Residential retrofit programs	[Thank you and terminate. Contact main state energy office representative to verify that there were no programs that corresponded to description in the PAGE database.]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 50 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION’S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

1. What are the primary services that your organization delivers?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. How long has your organization been in business?

3. How long has your organization provided the specific services you delivered for the [PROGRAM]?

4. Were you involved in the management of retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?

- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON. CONTINUE THE INTERVIEW WITH THAT INDIVIDUAL.]

Yes	[GO TO Q3]
No	[ASK Q2]

5. What were your responsibilities in regard to retrofit programs that received SEP/ARRA funding in [PROGRAM YEAR]?

6. In what year did you first become involved with the retrofit programs that received SEP ARRA funding?

7. Are you still involved with managing this program? If not, when did your involvement end?

8. According to information provided by the State Energy Office, you received a contract valued a roughly \$\_\_\_\_\_ to operate programs that promote the development of Residential Retrofit projects. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]
	[REMAINING AMOUNT]

**PART 3: PROGRAM DESIGN (LOGIC MODEL)**

9. As you understand them, what were the ultimate objectives of [PROGRAM NAME]?



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10. Did your organization commit to any quantitative goals for the program, such as number of projects developed or kW of capacity installed?
- a. Yes
  - b. No
  - c. DK

11. IF 10 = YES: What were those goals?

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12. In terms of the timeline of your contract:
- a. When did you initiate development of the program?
  - b. When did you launch the program to the public?

13. Please describe how the program is operating now in regard to its activities, the resources it uses, and the outcomes it is achieving.

13A. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO PARTICIPANTS  
RECRUITMENT OF PARTICIPANTS  
RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES TO HOMEOWNERS  
DELIVERY OF INFORMATION AND TECHNICAL SUPPORT TO VENDORS AND  
INSTALLATION CONTRACTORS INVOLVED IN THE PROGRAM  
PROVISION OF TECHNICAL AND PROJECT DEVELOPMENT SERVICES, SUCH  
AS SITE ASSESSMENTS, ENGINEERING SUPPORT, FEASIBILITY STUDIES,  
FINANCIAL MODELING, ETC.  
ADVOCACY AND TECHNICAL SUPPORT FOR LAWS AND REGULATIONS TO  
SUPPORT RETROFIT PROJECT DEVELOPMENT  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN  
GUARANTEES TO SUPPORT PROJECTS  
INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

OTHER (SPECIFY)

13B. INPUTS: What resources are being used to deliver the program? PROBE:

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME



OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF, DOLLAR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

13C. OUTSIDE FUNDING: Are organizations other than the State Energy Office contributing funding to this program? IF YES, PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD, FOR EACH FUNDER IF AVAILABLE)

PERCENTAGE OF TOTAL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT.

USES OF THE FUNDING PROVIDED

13D. RESULTS/OUTPUTS: Could you summarize the results your program has achieved so far? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

NUMBER OF UNITS OF SERVICE DELIVERED (TECHNICAL SERVICES, LOANS AND GRANTS, DOLLAR VOLUME OF LOANS AND GRANTS)

NUMBER OF INSTALLATION PROJECTS SUPPORTED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

13E. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans or quantitative goals?

[IF NO ASK] What circumstances prevented you (are preventing you) from achieving those goals?

14. [IF PROGRAM EXISTED PRIOR TO 2008 ASK] Did you make any important changes to

program operations or the resources available to it between 2007 and 2008? [IF PROGRAM EXISTED PRIOR TO ARRA AND RECEIVED ARRA FUNDING ALSO ASK] Did you make any important changes to program operations or the resources available to it between 2008 and the period funded primarily by ARRA?

- a. Why did you make those changes?
- b. Did achieve the results you were seeking through those changes? PROBE SPECIFIC RESULTS.
- c. [FOR ARRA PERIOD PROGRAMS ASK]. Would your organization have been able to make these changes without the support provided by the ARRA round of funding?

YES/NO

PROBE REASONS FOR THIS ASSESSMENT.

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM'S DOMAIN FOR ATTRIBUTION PURPOSES.]**

15. Has your organization or the state energy office developed a formal logic model for [PROGRAM NAME]?
  - a. Can you share it with us?

#### **PART 4: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

16. Do you believe that this program has had an impact on the long-term capabilities of homeowners to develop retrofit energy projects in [STATE]?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

17. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install energy-efficient retrofit projects in residential facilities?

YES/NO

- a. In what specific ways did your program contribute to that result?
- b. Can you provide any examples of these kinds of results?

18. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
- c. How many of these FTEs will be retained after 2008 or the ARRA period, depending on which is relevant?
- d. IF c > 0: What sources of funding do you plan to use to sustain this (these) position(s)?

**PART 5: DATA AVAILABILITY**

**[ONLY ASK THIS SECTION IF WE HAVE NOT BEEN ABLE TO ACQUIRE PROGRAM DATA FROM THE STATE ENERGY OFFICE]**

**NOTE: QUESTIONS 36-38 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

19. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:
- q) Program participants, that is, facility owners/renters, residential property managers who received support with the project, workshop attendees or training recipients, recipients of technical assistance, with contact information
  - r) Measures installed by participant, including the type and quantity of measures installed with program support, energy savings, incentive levels, other services received by participants, workshop or training description. [PROBE TO CLARIFY DATA THAT THE PM HAS ACCESS TO (EITHER IN-HOUSE OR AT A SEP FUNDED/PARTNERED ORGANIZATION) VERSUS DATA ANY EXTERNAL LEVERAGED ORGANIZATION MIGHT BE KEEPING.]
  - s) Participating trade allies (including contact information)

(IF DATA ARE AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE OR DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE WHO CAN PROVIDE SUCH DATA THEN THANK AND TERMINATE).

20. Have there been any evaluations of this program? Are data from these evaluations available?
21. (FOR EACH TYPE OF DATA AVAILABLE) Are these data in electronic format? (If yes,



discuss steps needed to secure permission to access the data via secure file transfer. If no, determine how data records are maintained and how they could be accessed.)

Are you aware of other data available that would be useful for our evaluation? If so could you describe it for me? Is it possible to access this information? PROBE FOR CONTACTS. IF MAKING COPIES IS AN ISSUE, ASK WHETHER WE CAN MAKE COPIES. IF STILL RELUCTANT, ASK WHETHER THEY HAVE A SUMMARY OF RETROFITTED PROPERTIES WITH MINIMAL INFORMATION SO WE CAN SELECT A SAMPLE AND COPY ONLY THOSE RECORDS.]

**Thank you for your time and insights**

## L.19. ID-10A-R: RETROFITS (VENDORS, INSTALLERS, PROJECT DEVELOPERS): RESIDENTIAL

**OMB Control No. 1910-5170**

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **PART 1. INTRODUCTION**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts to promote retrofits to increase energy efficiency in single family homes and other residential facilities in [STATE] that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?]. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

**PART 2. QUALIFY THE RESPONDING FIRM/IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that your firm is engaged in the engineering, sale and/or installation of energy efficiency retrofits in single family homes and other residential facilities in [STATE]? Is that correct?

- Yes: CONTINUE
- No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Through your professional activities, have you had the opportunity to observe the development of the market for energy efficiency retrofits in single family homes and other residential facilities in [STATE] over the past four years?

Yes – Correct person	[Continue]
No – Incorrect person	[Ask to speak with someone who has the relevant experience and view of the market] If no such person, thank, terminate, and substitute another vendor]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION’S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

- 
1. What are the primary services that your firm delivers?
    - a. TYPES OF TECHNOLOGIES ENGINEERED, SOLD, SUPPORTED INSTALLED
    - b. RANGE OF SERVICES PROVIDED: ENGINEERING, DESIGN, FEASIBILITY ASSESSMENT, EQUIPMENT SALES , INSTALLATION, COMMISSIONING, MAINTENANCE.
    - c. PROJECT FINANCING OPTIONS PROVIDED OR BROKERED TO CUSTOMERS: LOANS, LOAN GUARANTEES, LEASES, PUBLIC GOODS INCENTIVES APPLICATIONS, ETC.
  2. How long has your organization been in business in [STATE]?
  3. Roughly how many projects did you work on in [STATE] in 2011 that involved retrofitting or replacement of major exterior, electrical or mechanical systems in residential facilities motivated at least in part to reduce energy use?
    - a. Number of projects: \_\_\_\_\_
    - b. What types of technologies were most often involved in these projects?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PART 3: KNOWLEDGE OF AND EXPERIENCE WITH THE PROGRAM**

4. According to our records, you have been an ally of [PROGRAM NAME]?
5. IF 4 = YES:
  - a. When did you first hear of the program?
  - b. From what sources did you hear of the program?
6. To your knowledge, have you worked on projects that received support from [PROGRAM NAME]?
7. IF 6 = YES: How many such projects has your firm been involved in? Your best estimate will be fine.
8. IF 6 = YES: What types of projects received support from [PROGRAM NAME]?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
9. IF 6 = YES:: To your knowledge, what kinds of support did those projects receive from

[PROGRAM NAME]?

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10. IF 6 = YES: On a scale of 1 to 10, where 1 means "no importance" and 10 means "very important", how important were the services provided [PROGRAM NAME] in convincing and enabling your customers to undertake the supported projects

ENTER 1 - 10, 99 FOR DK/REF: \_\_\_\_\_

11. IF 10 = 1 - 10, ASK: Why do you say that? PROBE SPECIFIC BARRIERS OR ISSUES THE SERVICES FROM THE SEP PA HELPED TO ADDRESS, HELP FROM OTHER PROGRAMS, PREDISPOSITION OF THE FACILITY OWNERS.

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12. In your opinion, what percentage of these projects would your customers have completed in the absence of the support from [PROGRAM NAME]?

ENTER PERCENT: \_\_\_\_\_ %

13. What observations lead you to that estimate?

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14. Over the past year, what number [or percentage] of your firm's retrofit and replacement projects has been motivated in part by a facility owner's interest in reducing energy usage? Has this annual number been increasing, decreasing or staying the same since [YEAR OF PROGRAM LAUNCH]?"

15. IF 14 = INCREASED OR DECREASED: By approximately what percentage would you say the number of non-residential renewable projects has increased/decreased?

ENTER PERCENT, 999 FOR DK/REF: \_\_\_\_\_

16. Which factors or conditions do you believe most influenced the volume of non-residential renewable energy systems installed in [STATE] since [YEAR OF PROGRAM LAUNCH]? [DO NOT READ. MARK ALL FACTORS MENTIONED]

- a. Electricity rates
- b. Federal tax laws and policies
- c. Customers' needs to reduce operating budgets
- d. Changes in public awareness of global warming and other environmental issues related to energy use
- e. Improved performance of energy efficiency equipment
- f. PROGRAM NAME

g. Programs offered by utilities and other sponsors

h. Other (Specify \_\_\_\_\_)

17. ASK IF [PROGRAM NAME] MENTIONED, ELSE SKIP TO 19: Compared to the other factors you mentioned, would you consider [PROGRAM NAME] the one with:

- a. The greatest influence on the volume of non-residential renewable energy project installations
- b. Among the most amount of influence
- c. Roughly equal influence as the others
- d. Somewhat less influence than the others
- e. Much less influence than the others
- f. DK/REF

18. ASK IF 17= a - e: Why do you say that?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19. IF [PROGRAM NAME] NOT MENTIONED IN 16, ASK: What was the main reason you did not mention [PROGRAM NAME] as a factor affecting changes in the volume of non-residential renewable projects installed in [STATE]?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Thank you for your time and insights**



## L.20. CT-1A-R: RETROFITS: RECIPIENT OF TA, WORKSHOPS, TRAINING FOR RESIDENTIAL SECTOR

OMB Control No. 1910-5170

*Note that this survey instrument will be used for programs where the program database includes participant information but does not include information on the specific projects completed. This includes sample points that fall under the following sub-categories: "Generalized Workshop or Demonstration," "Targeted Training or Certification," or "Technical Assistance" under two BPAC categories: (1) Building Retrofits and (2) Loans and Grants.*

### DATABASE VARIABLES

&INTERVIEWER NAME....name of the caller  
 &CONTACT .....contact name from program database  
 &SPONSOR.....organization that sponsored the effort being researched  
 &PROGRAM .....program name  
 &DATE .....dates of workshop, demonstration, training funded by SEP  
 &APPOINT .....date/time to call back  
 &NAME .....person to call back  
 &PHONE.....extension or phone number to call back

&WORKSHOP/DEMONSTRATION/TRAINING.....Name of workshop, demonstration, or training

& TECHNICAL ASSISTANCE.....Name of technical assistance

&BPAC.....Will indicate the specific-BPAC for sample

NOTE THAT OTHER VARIABLES ARE SHOWN IN THE DOCUMENT AS THEY ARE CREATED

### INTRODUCTION AND FINDING CORRECT RESPONDENT

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from **INTERVIEWER ORGANIZATION**.  
 May I please speak with &CONTACT, [IF CONTACT NAME AVAILABLE]?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how you used the information provided through the [&WORKSHOP/TRAINING/DEMONSTRATION; &TECHNICAL ASSISTANCE].

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]

[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me transfer you to _____]	4	[GO TO INTRO3:s]
[No, that is the wrong person]	5	[GO TO INITIAL]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't Know]	97	[GO TO APPOINT]
[Refused]	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO.** On &DATE, you [attended a &WORKSHOP/TRAINING/DEMONSTRATION]/[received &TECHNICAL ASSISTANCE] offered by &SPONSOR. In an effort to determine what actions you may have taken as a result of participating, we ask that you complete this brief survey. Your input will help &SPONSOR understand the effects of their past efforts. The survey should take no more than 50 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts.

Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

## SCREENER

**S1.** Do you recall [attending the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[receiving &TECHNICAL ASSISTANCE] on &DATE?

[Yes]	1	[GO TO RI1]
[No]	2	[THANK AND TERMINATE]
[Don't know]	98	[THANK AND TERMINATE]
[Refused]	99	[THANK AND TERMINATE]

## RESPONDENT INFO: ROLE IN THE PROJECT

**AC1.** Which of the following best describes where you intended to apply the information you received? **[READ CATEGORIES]**

**NOTE: IF THE ANSWER IS "SOMEWHERE ELSE", SPECIFY THEN PROBE FOR WHICH OF THE FIVE CLASSIFICATIONS BEST DESCRIBES THEM.**

At my home	1	[GO TO NEXT Q]
At the facility(ies) my business occupies	2	[GO TO ALTERNATIVE NON-RES SURVEY/TERMINATE]
At the facility(ies) my business manages (e.g. Property managers)	3	[GO TO ALTERNATIVE NON-RES SURVEY/TERMINATE]
In facilities occupied or managed by customers to whom I provide services (e.g. Architects, engineering firms, contractors, code inspectors)	4	[TERMINATE]
In the classroom where I teach	5	[TERMINATE]
Somewhere else: Specify_____	6	[GO TO NEXT Q]

## RESPONDENT TYPE DEFINED FOR DISPOSITION

**[CLASSIFY AC1=1 AS REU (RESIDENTIAL END-USE CUSTOMER)]**

**[CLASSIFY AC1=2, 3 AS CEU (COMMERCIAL END-USE CUSTOMER)]**

**[CLASSIFY AC1= 4 AS MA (MARKET ACTOR)]**

**[CLASSIFY AC1=5 AS TEA (TEACHER)]**

**[CLASSIFY AC1=6 AS DEFAULT TO TARGETED POPULATION]**

## INITIAL INVENTORY

**VN1.** Since &DATE, have you installed any equipment or made any behavioral changes to your home in any of the following areas? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

a. Dishwasher	1	[GO TO NEXT Q]
b. Clotheswasher	2	[GO TO NEXT Q]

c. Refrigerator	3	[GO TO NEXT Q]
d. Lighting	4	[GO TO NEXT Q]
e. Cooling	5	[GO TO NEXT Q]
f. Heating	6	[GO TO NEXT Q]
g. Hot water	7	[GO TO NEXT Q]
h. Duct test	8	[GO TO NEXT Q]
i. Insulation	9	[GO TO NEXT Q]
j. Showerhead	10	[GO TO NEXT Q]
k. Aerator	11	[GO TO NEXT Q]
f. Any other changes?	12	[GO TO NEXT Q]

**V1b.** Was this project done to an existing &HOMETYPE or was it part of a new construction project?

[Existing/retrofit]	1	[GO TO OP1]
[New construction]	2	[THANK AND TERMINATE]
[Don't know]	-97	[GO TO OP1]
[Refused]	-98	[GO TO OP1]

#### EFFECT OF OTHER PROGRAMS

**OP1** In completing the project[s] that you just discussed, did you make use of financial support such as incentives or loans offered by sponsors, such as, local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers.

[YES]	1	[ASK OP2]
[NO]	2	[GO TO OP4]
[DON'T KNOW]	-97	[GO TO OP4]
[REFUSED]	-98	[GO TO OP4]

**OP2.** Which organization[s] sponsored the [those] program[s]?

State/ State Energy Office	1	[GOTO OP3]
Other, Specify	2	[GOTO OP3]
	[RECORD RESPONSE]	
[DON'T KNOW]	-97	[GOTO OP3]
[REFUSED]	-98	[GOTO OP3]

**OP3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] inform you about the assistance and support that you received?

[Yes]	1	[GO TO NEXT SECTION]
[No]	2	[GO TO OP4]
[Don't know]	98	[GO TO OP4]
[Refused]	99	[GO TO OP4]

**OP4.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] provide you with any options for assistance and support?

[Yes]	1	[GO TO NEXT SECTION]
[No]	2	[GO TO NEXT SECTION]
[Don't know]	98	[GO TO NEXT SECTION]
[Refused]	99	[GO TO NEXT SECTION]

## DETERMINE APPROPRIATE END-USE BATTERIES

### DETERMINED BASED ON VN1.

**[RECORD VERIFIED MEASURES FOR MEASURE SPECIFIC QUESTIONS BELOW. RESPONDENTS WILL ONLY BE ASKED MEASURE SPECIFIC QUESTIONS FOR MEASURE GROUPS CONFIRMED]**

**[&DISHWASHER]**

**[&CLOTHESWASHER]**

**[&REFRIGERATOR]**

**[&LIGHTING]**

**[&COOLING]**

**[&HEATING]**

**[&HOTWATER]**

**[&DUCTTEST]**

**[&INSULATION]**

**[&SHOWERHEAD]**

**[&AERATOR]**

**[&OTHER]**

ASK IF MULTIPLE MEASURES

**MM1.** You indicated that you made changes across a number of areas. Which ones would you say resulted in the most energy savings?

**NOTE: DEFAULT TO HVAC, LIGHTING ACTION, INSERT BY LEVEL OF ENERGY SAVINGS**

	Rank 1	Rank2	Rank 3	DK/REF
Dishwasher				
Clotheswasher				
Refrigerator				
Lighting				
Cooling				
Heating				

Hotwater				
Duct test				
Insulation				
Showerhead				
Aerator				
Other: Specify (Probe to see if INSTALLATION or change in BEHAVIOR)				

## REASSIGN TO MAX 2

[\[&DISHWASHER\]](#)  
[\[&CLOTHESWASHER\]](#)  
[\[&REFRIGERATOR\]](#)  
[\[&LIGHTING\]](#)  
[\[&COOLING\]](#)  
[\[&HEATING\]](#)  
[\[&HOTWATER\]](#)  
[\[&DUCTTEST\]](#)  
[\[&INSULATION\]](#)  
[\[&SHOWERHEAD\]](#)  
[\[&AERATOR\]](#)  
[\[&OTHER\]](#)

*Note that all end-use specific sections use questions from the building retrofit survey effort.*

## DISHWASHER

**[IF &DISHWASHER = TRUE]**

**I'd like to discuss the energy efficient dishwasher you installed.**

**DW1** When did you install your new energy efficient dishwasher?

INSERT DATE MM/YYYY		<a href="#">[GO TO DW2b]</a>
Don't Know	-97	<a href="#">[GO TO DW3]</a>
Refused	-98	<a href="#">[GO TO DW3]</a>

**DW2a** Did your dishwasher replace an existing dishwasher?

Yes	1	<a href="#">[GO TO DW2b]</a>
No	2	<a href="#">[GO TO DW3]</a>
Don't Know	-97	<a href="#">[GO TO DW3]</a>
Refused	-98	<a href="#">[GO TO DW3]</a>

**DW2b** How old was your old dishwasher?

[Less than 1 yr]	1	<a href="#">[GO TO DW2c]</a>
[1-5 yrs]	2	<a href="#">[GO TO DW2c]</a>
[5-10 yrs]	3	<a href="#">[GO TO DW2c]</a>
[More than 10 yrs]	4	<a href="#">[GO TO DW2c]</a>
[Don't Know]	-97	<a href="#">[GO TO DW2c]</a>
[Refused]	-98	<a href="#">[GO TO DW2c]</a>

**DW2c** Was the old dishwasher working or not working?

Working	1	[GO TO DW2d]
Not working	2	[GO TO DW3]
[Don't Know]	-97	[GO TO DW3]
[Refused]	-98	[GO TO DW3]

**DW2d** Was the old dish washer in good, fair, or poor working condition?

Good	1	[GO TO DW3]
Fair	2	[GO TO DW3]
Poor	3	[GO TO DW3]
[Don't Know]	-97	[GO TO DW3]
[Refused]	-98	[GO TO DW3]

**DW3** How many dishwasher loads do you do on average each week with your new dishwasher?

RECORD NUMBER OF LOADS	# _____	[GO TO DW4]
Don't Know	-97	[GO TO DW4]
Refused	-98	[GO TO DW4]

**[IF DW2a <> YES, GO TO CW1]**

**DW4** Would you say that this is more, the same, or less loads per week than you did with your old dishwasher?

[More]	1	[GO TO DW5]
[The same]	2	[GO TO ATR1a]
[Less]	3	[GO TO DW5]
Don't Know	-97	[GO TO ATR1a]
Refused	-98	[GO TO ATR1a]

**DW5** How many [more/less] loads do you now?

RECORD NUMBER OF LOADS	# _____	[GO TO DW5]
[Don't know]	-97	[GO TO DW5]
[Refused]	-98	[GO TO DW5]

**DW5.** When did you make this change?

MONTH	_____	[GO TO ATR1a]
YEAR	_____	[GO TO ATR1a]
[Don't know]	98	[GO TO ATR1a]
[Refused]	99	[GO TO ATR1a]

## DISHWASHER / ATTRIBUTION

**[ASK IF OP1=1]**

**ATR1a.** For the dishwasher you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
Measure type	% of Total	
Dishwasher		[GO TO CW1]
[Don't know]		
[Refused]		

### CLOTHES WASHER BATTERY

[IF & CLOTHESWASHER = TRUE]

I'd like to discuss the energy efficient clothes washer you installed.

**CW1** When did you install your new energy efficient clothes washer?

INSERT DATE MM/YYYY		[GO TO CW2a]
Don't Know	-97	[GO TO CW2a]
Refused	-98	[GO TO CW2a]

**CW2a** Did your clothes washer replace an existing clothes washer?

Yes	1	[GO TO CW2b]
No	2	[GO TO CW3]
Don't Know	-97	[GO TO CW3]
Refused	-98	[GO TO CW3]

**CW2b** How old was your old clothes washer?

[Less than 1 yr]	1	[GO TO CW2c]
[1-5 yrs]	2	[GO TO CW2c]
[5-10 yrs]	3	[GO TO CW2c]
[More than 10 yrs]	4	[GO TO CW2c]
[Don't Know]	-97	[GO TO CW2c]
[Refused]	-98	[GO TO CW2c]

**CW2c** Was the old clothes washer working or not working?

Working	1	[GO TO CW2d]
Not working	2	[GO TO CW3]
[Don't Know]	-97	[GO TO CW3]
[Refused]	-98	[GO TO CW3]

**CW2d** Was the old clothes washer in good, fair, or poor working condition?

Good	1	[GO TO CW3]
Fair	2	[GO TO CW3]
Poor	3	[GO TO CW3]
[Don't Know]	-97	[GO TO CW3]
[Refused]	-98	[GO TO CW3]

**CW3** How many loads of wash do you do on average each week with your new clothes washer?

RECORD NUMBER OF LOADS	#	[GO TO CW4a]
[Don't know]	-97	[GO TO CW4a]
[Refused]	-98	[GO TO CW4a]

**[IF CW2a <> YES, GO TO CW5]**

**CW4a** Would you say that this is more, the same, or less loads per week than you did with your old clothes washer?

[More]	1	[GO TO CW4b]
[The same]	2	[GO TO CW5]
[Less]	3	[GO TO CW4b]
[Don't Know]	-97	[GO TO CW5]
[Refused]	-98	[GO TO CW5]

**CW4b** How many [more/less] loads do you now?

RECORD NUMBER OF LOADS	#	[GO TO CW9]
[Don't know]	-97	[GO TO CW9]
[Refused]	-98	[GO TO CW9]

**CW9.** When did you make this change?

MONTH	_____	[GO TO ATR1b]
YEAR	_____	[GO TO ATR1b]
[Don't know]	98	[GO TO ATR1b]
[Refused]	99	[GO TO ATR1b]

**CLOTHES WASHER / ATTRIBUTION**

**[ASK IF OP1=1]**

**ATR1b.** For the clothes washer you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
Measure type	% of Total	
Clothes washer		[GO TO CW5]
[Don't know]		[GO TO CW5]
[Refused]		[GO TO CW5]

**CLOTHES WASHER - OTHER**

**IF CLOTHESWASHER**

**CW5** Do you have a clothes dryer?

[Yes]	1	[GO TO CW9]
[No]	2	[GO TO R0]
[Don't Know]	-97	[GO TO R0]
[Refused]	-98	[GO TO R0]

**CW8** What type of fuel does your clothes dryer use? (If unsure read 1, 2)

Electricity	1	[GO TO R0]
Natural Gas	2	[GO TO R0]
Other (SPECIFY)	4	[GO TO R0]
[Don't Know]	-97	[GO TO R0]
[Refused]	-98	[GO TO R0]

## REFRIGERATOR BATTERY

**I'd like to discuss the energy efficient refrigerator you installed.**

**R0** When did you install your new energy efficient refrigerator?

INSERT DATE MM/YYYY		<a href="#">[GO TO R1]</a>
Don't Know	-97	<a href="#">[GO TO R1]</a>
Refused	-98	<a href="#">[GO TO R1]</a>

**R1** Where is the Freezer located (mounted) on the refrigerator?

Freezer is on the bottom of the refrigerator	1	<a href="#">[GO TO R2a]</a>
Freezer is on the top of the refrigerator	2	<a href="#">[GO TO R2a]</a>
Freezer is on the side of the refrigerator	3	<a href="#">[GO TO R2a]</a>
Refrigerator does not have an attached freezer	4	<a href="#">[GO TO R2a]</a>
[Don't Know]	-97	<a href="#">[GO TO R2a]</a>
[Refused]	-98	<a href="#">[GO TO R2a]</a>

**R2a** Does your new refrigerator have a through the door ice machine?

[Yes]	1	<a href="#">[GO TO R2b]</a>
[No]	2	<a href="#">[GO TO R2b]</a>
[Don't Know]	-97	<a href="#">[GO TO R2b]</a>
[Refused]	-98	<a href="#">[GO TO R2b]</a>

**R2b** Does your new refrigerator have automatic defrost, partial automatic defrost, or manual defrost?

Automatic Defrost	1	<a href="#">[GO TO R3]</a>
Partial Automatic Defrost	2	<a href="#">[GO TO R3]</a>
Manual Defrost	3	<a href="#">[GO TO R3]</a>
[Don't Know]	-97	<a href="#">[GO TO R3]</a>
[Refused]	-98	<a href="#">[GO TO R3]</a>

**R3** Is this refrigerator plugged in and running ... (Read list)

All the time	1	<a href="#">[GO TO R3b]</a>
For special occasions only	2	<a href="#">[GO TO R3b]</a>
During certain months of the year only, or	3	<a href="#">[GO TO R3b]</a>
Never plugged in or running	4	<a href="#">[GO TO R3b]</a>
[Don't Know]	-97	<a href="#">[GO TO R3b]</a>
[Refused]	-98	<a href="#">[GO TO R3b]</a>

**R3b** Is this refrigerator compact, standard size, or oversized?

[Compact]	1	<a href="#">[GO TO R4]</a>
[Standard]	2	<a href="#">[GO TO R4]</a>
[Oversized]	3	<a href="#">[GO TO R4]</a>
[Don't Know]	-97	<a href="#">[GO TO R4]</a>
[Refused]	-98	<a href="#">[GO TO R4]</a>

**R4** Did the new refrigerator replace an existing refrigerator?

Yes	1	<a href="#">[GO TO R5]</a>
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No	2	[GO TO ATR1c]
Don't know	-8	[GO TO ATR1c]
Refused	-9	[GO TO ATR1c]

**R5** Where was the Freezer located (mounted) on the old refrigerator?

Freezer was on the bottom of the refrigerator	1	[GO TO R6a]
Freezer was on the top of the refrigerator	2	[GO TO R6a]
Freezer was on the side of the refrigerator	3	[GO TO R6a]
Refrigerator did not have an attached freezer	4	[GO TO R6a]
[Don't Know]	-97	[GO TO R6a]
[Refused]	-98	[GO TO R6a]

**R6a** Did your old refrigerator have a through the door ice machine?

[Yes]	1	[GO TO R6b]
[No]	2	[GO TO R6b]
[Don't Know]	-97	[GO TO R6b]
[Refused]	-98	[GO TO R6b]

**R6b** Did the old refrigerator have automatic defrost, partial automatic defrost, or manual defrost?

Automatic Defrost	1	[GO TO R7]
Partial Automatic Defrost	2	[GO TO R7]
Manual Defrost	3	[GO TO R7]
[Don't Know]	-97	[GO TO R7]
[Refused]	-98	[GO TO R7]

**R6c** How old was your old refrigerator?

[Less than 1 yr]	1	[GO TO R7]
[1-5 yrs]	2	[GO TO R7]
[5-10 yrs]	3	[GO TO R7]
[More than 10 yrs]	4	[GO TO R7]
[Don't Know]	-97	[GO TO R7]
[Refused]	-98	[GO TO R7]

**R7** How did you dispose of your old refrigerator?  
(CLARIFY IF NEEDED TO FIT LIST BELOW. FOR EXAMPLE: Did you give it away or sell it?)

Still have it	1	[GO TO R8]
Took it to a recycler or scrap dealer	1	[GO TO R9]
Took it to the landfill or threw it away	2	[GO TO R9]
Sold it to a friend, acquaintance or relative	3	[GO TO R9]
Sold it on Craigslist/other Internet site (e.g., eBay)	4	[GO TO R9]
Sold it to a used refrigerator / freezer dealer	5	[GO TO R9]
Sold it via garage sale, estate sale, or newspaper ad	6	[GO TO R9]
Sold it when you moved to new occupant	7	[GO TO R9]
Hired someone to pick it up (for junking or dumping)	8	[GO TO R9]
Utility program hauled it away	9	[GO TO R9]
Traded it for a replacement unit	10	[GO TO R9]
Dealer I bought a new one from took it away	11	[GO TO R9]

Gave it away	12	[GO TO R9]
Left it behind when moved (for new occupant)	13	[GO TO R9]
Other ( <i>SPECIFY</i> )	14	[GO TO R9]
[Don't know]	-97	[GO TO R9]
[Refused]	-98	[GO TO R9]

**R8** Was the old refrigerator plugged in and running ... (Read list)

All the time	1	[GO TO R9]
For special occasions only	2	[GO TO R9]
During certain months of the year only, or	3	[GO TO R9]
Never plugged in or running	4	[GO TO R9]
[Don't Know]	-97	[GO TO R9]
[Refused]	-98	[GO TO R9]

**R9.** When did you make this change?

MONTH	_____	[GO TO ATR1c]
YEAR	_____	[GO TO ATR1c]
[Don't know]	98	[GO TO ATR1c]
[Refused]	99	[GO TO ATR1c]

## REFRIGERATOR / ATTRIBUTION

[ASK IF OP1=1]

**ATR1c.** For the refrigerator you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
Measure type	% of Total	
Refrigerator		[GO TO HW1]
[Don't know]		[GO TO HW1]
[Refused]		[GO TO HW1]

## HOT WATER HEATER BATTERY

**IF & HOTWATER = TRUE**

**I'd like to discuss the new hot water heater you installed.**

**HW1** When did you install your new hot water heater?

INSERT DATE MM/YYYY	_____	[GO TO HW2]
Don't Know	-97	[GO TO HW2]
Refused	-98	[GO TO HW2]

**HW2** What type of fuel does your [IF & HOTWATER = TRUE: "new"] water heater use? (If Don't Know, prompt and read answers)

[Electricity]	1	[GO TO HW3]
[Natural Gas]	2	[GO TO HW3]

[Propane]	3	[GO TO HW3]
[Solar (sun)]	4	[GO TO HW3]
[Other (SPECIFY)]	5	[GO TO HW3]
[Don't Know]	-97	[GO TO HW3]
[Refused]	-98	[GO TO HW3]

**[IF & HOTWATER = TRUE, ELSE SKIP TO HW7]**

**HW3** What type of fuel did your previous water heater use?

[Electricity]	1	[GO TO HW4]
[Natural Gas]	2	[GO TO HW4]
[Propane]	3	[GO TO HW4]
[Solar (sun)]	4	[GO TO HW4]
Other (SPECIFY)	5	[GO TO HW4]
[Don't Know]	-97	[GO TO HW4]
[Refused]	-98	[GO TO HW4]

**HW4** Is your water heater a traditional storage tank water heater or is it a tankless or on-demand type water heater? [If unsure ask] Does your water heater store water?

[Traditional storage tank]	1	[GO TO HW7]
[Tankless/on-demand]	2	[GO TO HW7]
Other (SPECIFY)	3	[GO TO HW7]
Don't Know	-97	[GO TO HW7]
Refused	-98	[GO TO HW7]

**HW7** What temperature is your hot water heater set for?

RECORD TEMPERATURE	#	[GO TO HW9]
[Don't know]	-97	[GO TO HW8]
[Refused]	-98	[GO TO HW8]

**HW8** Is your water heater set at a... (Read All)

Low temperature: 100-120 degrees F?	1	[GO TO HW9]
Medium temperature: 125-140 F?	2	[GO TO HW9]
High temperature: 145-160 F?	3	[GO TO HW9]
[Don't know]	-97	[GO TO HW9]
[Refused]	-98	[GO TO HW9]

**[IF & CLOTHESWASHER = FALSE AND & HOTWATER = TRUE, ELSE SKIP TO DUCT TESTING]**

**HW9** Do you have a clothes washer?

[Yes]	1	[GO TO HW10]
[No]	2	[GO TO HW11]
[Don't Know]	-97	[GO TO HW11]
[Refused]	-98	[GO TO HW11]

**HW10** Do you always, sometimes, or never wash your clothes in warm or hot water?

[Always]	1	[GO TO HW11]
[Sometimes]	2	[GO TO HW11]
[Never]	3	[GO TO HW11]
[Don't Know]	-8	[GO TO HW11]
[Refused]	-9	[GO TO HW11]

[IF &DISHWASHER = TRUE, GO TO DT1]

**HW11** Do you have a dishwasher?

[Yes]	1	[GO TO HW12]
[No]	2	[GO TO HW12]
[Don't Know]	-97	[GO TO HW12]
[Refused]	-98	[GO TO HW12]

**HW12.** When did you install the new hot water heater?

MONTH	_____	[GO TO ATR1d]
YEAR	_____	[GO TO ATR1d]
[Don't know]	98	[GO TO ATR1d]
[Refused]	99	[GO TO ATR1d]

### HOT WATER HEATER /ATTRIBUTION

[ASK IF OP1=1]

**ATR1d.** For the hot water heater you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
Measure type	% of Total	
Hot water heater		[GO TO DT0]
[Don't know]		[GO TO DT0]
[Refused]		[GO TO DT0]

### DUCT TESTING BATTERY

[IF &DUCTTEST = TRUE]

**DT0** When did you install your new energy efficient HVAC?

INSERT DATE MM/YYYY	_____	[GO TO DT1]
Don't Know	-97	[GO TO DT1]
Refused	-98	[GO TO DT1]

**DT1** I'd like to ask you some questions about your heating and air conditioning systems. What type of heating system do you use to heat your home?

Furnace	1	[GO TO DT2]
Heat Pump	2	[GO TO DT2]
Something else	3	[GO TO DT2]
[Don't Know]	-97	[GO TO DT2]
[Refused]	-98	[GO TO DT2]

**DT2** Was this heating equipment installed new along with the duct testing or was it existing equipment?

New	1	[GO TO DT4]
Existing	2	[GO TO DT4]
[Don't Know]	-97	[GO TO DT4]

[Refused]	-98	[GO TO DT4]
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**DT4** Do you have a central air conditioning system in your home?

Yes	1	[GO TO DT5]
No	2	[GO TO DT6]
[Don't Know]	-97	[GO TO DT6]
[Refused]	-98	[GO TO DT6]

**DT5** Was this cooling equipment installed new along with the duct testing or was it existing equipment?

New	1	[GO TO DT6]
Existing	2	[GO TO DT6]
[Don't Know]	-97	[GO TO DT6]
[Refused]	-98	[GO TO DT6]

**DT6.** When did you make this change?

MONTH	_____	[GO TO ATR1e]
YEAR	_____	[GO TO ATR1e]
[Don't know]	98	[GO TO ATR1e]
[Refused]	99	[GO TO ATR1e]

## DUCT TESTING / ATTRIBUTION

**[ASK IF OP1=1]**

**ATR1e.** For the duct testing you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>Duct testing</b>		[GO TO LI1]
<b>[Don't know]</b>		[GO TO LI1]
<b>[Refused]</b>		[GO TO LI1]

## LIGHTING

**[IF & LIGHTING = TRUE]**

**Now we would like to discuss the lighting equipment that you installed.**

**LI1** When did you install the lighting equipment?

INSERT DATE MM/YYYY	_____	[GO TO LI2a]
Don't Know	-97	[GO TO LI2a]
Refused	-98	[GO TO LI2a]

**LI2a.** Which of the following types of lighting equipment, if any, did you install? **[IF DON'T KNOW, ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES.]**

**LI2num.** Approximately how many lighting fixtures did you install?

## RESPONSE GRID FOR LI2 SERIES OF QUESTIONS

	<b>&amp;LI_TECH</b>	<b>LI2a Tech Inst</b>	<b>LI2num # Install</b>
	<b>Lamps &amp; Fixtures</b>		
1	&WATT Compact Fluorescent Bulbs		
2	&WATT Compact Fluorescent, Hardwire		
3	&WATT LED bulbs		
4	&WATT LED Overhead Fixtures		
5	Other Fixtures (Specify _____)		

**LI2d** I am going to read a list of rooms in your home. Please tell me the number of [\[READ IN TECHNOLOGY INDICATED IN LI2\]](#) installed in these rooms.

Living/family room	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Dining room	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Den/Office	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Kitchen	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Bedrooms	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Bathrooms	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Closets	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Hallways	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Attic	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Basement	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Garage	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Yard/Outside	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>
Other (specify)	#__	<a href="#">[GO TO LI2A FOR NEXT &amp;LI_TECH]</a>

### **[ASK FOR EACH LIGHTING EQUIPMENT VERIFIED]**

**LI3** What was the wattage of the lighting that this [\[READ IN TECHNOLOGY INDICATED IN LI2\]](#) replaced?

ENTER WATTAGE	__	<a href="#">[GO TO LI3 FOR NEXT &amp;LI_TECH]</a>
[Don't Know]	-97	<a href="#">[GO TO LI3 FOR NEXT &amp;LI_TECH]</a>
[Refused]	-98	<a href="#">[GO TO LI3 FOR NEXT &amp;LI_TECH]</a>

**LI14.** When did you make the lighting changes?

MONTH	_____	<a href="#">[GO TO ATR1f]</a>
YEAR	_____	<a href="#">[GO TO ATR1f]</a>
[Don't know]	98	<a href="#">[GO TO ATR1f]</a>
[Refused]	99	<a href="#">[GO TO ATR1f]</a>

**LIGHTING /ATTRIBUTION**

**[ASK IF OP1=1]**

**ATR1f.** For the lighting equipment you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	<b>ATR1</b>	
<b>Measure type</b>	<b>% of Total</b>	
<b>Lighting equipment</b>		[GOT TO CL-N0]
<b>[Don't know]</b>		[GOT TO CL-N0]
<b>[Refused]</b>		[GOT TO CL-N0]

**COOLING EQUIPMENT BATTERY**

**[IF & COOLING = TRUE]**

**Now we would like to discuss the cooling equipment that you installed.**

**CL-N0.** When did you install the cooling equipment?

INSERT DATE MM/YYYY		[GO TO CL-N1]
Don't Know	-97	[GO TO CL-N1]
Refused	-98	[GO TO CL-N1]

**CL-N1.** What types of cooling equipment did you install? **[ALLOW MULTIPLE ANSWERS]**

Evaporative coolers (swamp coolers)	1	[GO TO CL-N2]
Central air conditioner	2	[GO TO CL-N2]
Heat pump		[GO TO CL-N2]
Window/Wall Units	3	[GO TO CL-N2]
[Other (Specify _____)]	77	[GO TO CL-N2]
[Don't Know]	-97	[ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO KNOWS. THEN NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**CL-N2.** How many units did you install?

RECORD NUMBER		[GO TO CL-N4]
Don't know	97	[GO TO CL-N4]
Refused	98	[GO TO CL-N4]

**CL-N4.** What was the efficiency rating of the units that you installed? **[RECORD FOR ALL UNITS INSTALLED.]**

RECORD EFFICIENCY NUMBER		[GO TO NEXT CL-N1]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT CL-N1]
Don't know	-97	[GO TO NEXT CL-N1]
Refused	-98	[GO TO NEXT CL-N1]

**RESPONSE GRID FOR CL-N1 TO CL-N4**

	ITEM	CL-N1	CL-N2	CL-N4 Number	CL-N4 Units
<b>1</b>	Evaporative coolers (swamp coolers)				
<b>2</b>	Central air conditioner				
<b>3</b>	Heat pump				
<b>4</b>	Window/Wall Units				
<b>77</b>	Other (Specify)				

**[ASK CL8a THROUGH CL8f FOR EACH MEASURE IDENTIFIED IN CL1 AND CL-N1]**

**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new cooling equipment.**

**CL8a.** What types of cooling equipment, if any, were replaced when installing the new unit? **[SELECT ALL THAT APPLY]**

SELECT EQUIPMENT TYPE		[RECORD AS &C_TECH_REM] [GO TO CL8b]
None	77	[GO TO CL9]
[Don't Know]	-97	[GO TO CL8a FOR NEXT &C_TECH]
[Refused]...	-98	[GO TO CL8a FOR NEXT &C_TECH]

**CL8b.** How many units were removed?

RECORD NUMBER	_____	[GO TO CL8d]
Don't know	-97	[GO TO CL8d]
Refused	-98	[GO TO CL8d]

**CL8d.** Generally, how would you describe the condition of the unit that was removed and replaced? Was it...

Inoperable (broken)	1	<a href="#">[GO TO CL8e]</a>
Poor condition	2	<a href="#">[GO TO CL8e]</a>
Fair condition	3	<a href="#">[GO TO CL8e]</a>
Good condition	4	<a href="#">[GO TO CL8e]</a>
[Don't know]	-97	<a href="#">[GO TO CL8e]</a>
[Refused]	-98	<a href="#">[GO TO CL8e]</a>

**CL8e.** What was the efficiency rating of the removed unit?

RECORD EFFICIENCY NUMBER		<a href="#">[GO TO NEXT CL8a]</a>
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		<a href="#">[GO TO NEXT CL8a]</a>
[Don't know]	-97	<a href="#">[GO TO CL8f]</a>
[Refused]	-98	<a href="#">[GO TO CL8f]</a>

**CL8f.** On average, how old was the unit that was removed and replaced? Would you say...

Less than 5 years old	1	<a href="#">[GO TO NEXT CL8a]</a>
Between 5 and 10 years old	2	<a href="#">[GO TO NEXT CL8a]</a>
10 to 20 years old	3	<a href="#">[GO TO NEXT CL8a]</a>
more than 20 years old	4	<a href="#">[GO TO NEXT CL8a]</a>
[Don't know]	-97	<a href="#">[GO TO NEXT CL8a]</a>
[Refused]	-98	<a href="#">[GO TO NEXT CL8a]</a>

**CL9.** Did you install a programmable thermostat at your home?

[Yes]	1	<a href="#">[GOTO CL10]</a>
[No]	2	<a href="#">[GOTO CL10]</a>
[No, already had one]	3	<a href="#">[GOTO CL10]</a>
[Don't know]	-97	<a href="#">[GOTO CL10]</a>
[Refused]	98	<a href="#">[GOTO CL10]</a>

## RESPONSE GRID FOR COOLING-REMOVED

		CL8a	CL8b	CL8d	CL8e Number	CL8e Units	CL8f	CL9
<b>0</b>	<b>No A/C Removed</b>		skip	skip	skip	skip	skip	skip
<b>1</b>	<b>Evaporative coolers</b> (swamp coolers)							
<b>2</b>	<b>Central air conditioner</b>							
<b>3</b>	<b>Heat pump</b>							
<b>4</b>	<b>Window/Wall Units</b>							
<b>77</b>	Other (Specify)							

**CL10.** When did you make these changes?

MONTH	_____	[GO TO ATR1g]
YEAR	_____	[GO TO ATR1g]
[Don't know]	98	[GO TO ATR1g]
[Refused]	99	[GO TO ATR1g]

## COOLING EQUIPMENT /ATTRIBUTION

**[ASK IF OP1=1]**

**ATR1g.** For the cooling equipment you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
Measure type	% of Total	
<b>Cooling equipment</b>		[GO TO HT-N0]
<b>[Don't know]</b>		[GO TO HT-N0]
<b>[Refused]</b>		[GO TO HT-N0]

## HEATING EQUIPMENT BATTERY

**[IF & HEATING = TRUE]**

**Now we would like to discuss the heating equipment that you installed.**

**HT-N0.** When did you install the heating equipment?

INSERT DATE MM/YYYY		[GO TO HT-N1]
Don't Know	-97	[GO TO HT-N1]
Refused	-98	[GO TO HT-N1]

**HT-N1.** What types of heating equipment did you install? **[ALLOW MULTIPLE ANSWERS]**

Natural Gas Boiler	1	[GO TO HT-N4]
Wood Pellet Boiler	2	[GO TO HT-N4]
Furnace	3	[GO TO HT-N4]

Heat pump	4	[GO TO HT-N4]
Other (Specify)	77	[GO TO HT-N4]
[Don't Know]	- 97	ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES KNOW. [THEN GO TO NEXT SECTION]
[Refused]	- 98	[GO TO NEXT SECTION]

**HT-N4.** What was the efficiency rating of the units that you installed? [RECORD FOR ALL UNITS INSTALLED THROUGH &PROGRAM.]

RECORD EFFICIENCY NUMBER		[GO TO HT-N7]
RECORD EFFICIENCY UNIT (AFUE, Thermal efficiency, specify other)		[GO TO HT-N7]
Don't know	- 97	[GO TO HT-N7]
Refused	- 98	[GO TO HT-N7]

**HT-N7**What fuel does the unit use?

Natural Gas	1	[GO TO HT1 FOR NEXT &H_TECH]
Electric	2	[GO TO HT1 FOR NEXT &H_TECH]
Propane	3	[GO TO HT1 FOR NEXT &H_TECH]
Wood	4	[GO TO HT1 FOR NEXT &H_TECH]
Solar	5	[GO TO HT1 FOR NEXT &H_TECH]
Other	6	[GO TO HT1 FOR NEXT &H_TECH]

**RESPONSE GRID FOR HEATING**

	ITEM	HT-N1	HT-N4 Number	HT-N4 Units
<b>1</b>	Natural Gas Boiler			
<b>2</b>	Wood Pellet Boiler			
<b>3</b>	Furnace			
<b>74</b>	Heat pump			
<b>77</b>	Other (Specify)			

**[ASK HT8a THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT1 AND HT-N1]**

Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new heating equipment.

**HT8a.** What types of heating equipment, if any, were replaced when installing the new unit?  
**[SELECT ALL THAT APPLY]**

Natural Gas Boiler	1	[GO TO RECORD AS &H_TECH_REM]
Wood Pellet Boiler	2	[GO TO RECORD AS &H_TECH_REM]
Furnace	3	[GO TO RECORD AS &H_TECH_REM]
Heat pump	4	[GO TO RECORD AS &H_TECH_REM]
None	5	[GO TO HT9]
[Don't Know]	-97	[GO TO HT8a FOR NEXT &H_TECH]
[Refused]...	-98	[GO TO HT8a FOR NEXT &H_TECH]

**[ASK HT8b THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT8a]**

**HT8d.** Generally, how would you describe the condition of unit that was removed and replaced? Was it...

Inoperable (broken)	1	[GO TO HT8e]
Poor condition	2	[GO TO HT8e]
Fair condition	3	[GO TO HT8e]
Good condition	4	[GO TO HT8e]
[Don't know]	-97	[GO TO HT8e]
[Refused]	-98	[GO TO HT8e]

**HT8e.** What was the efficiency rating of the removed unit?

RECORD EFFICIENCY NUMBER		[GO TO NEXT HT8a]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT HT8a]
[Don't know]	-97	[GO TO HT8f]
[Refused]	-98	[GO TO HT8f]

**HT8f.** On average, how old was the unit that was removed and replaced? Would you say...

Less than 5 years old	1	[GO TO NEXT HT8a]
Between 5 and 10 years old	2	[GO TO NEXT HT8a]
10 to 20 years old	3	[GO TO NEXT HT8a]
more than 20 years old	4	[GO TO NEXT HT8a]
[Don't know]	-97	[GO TO NEXT HT8a]
[Refused]	-98	[GO TO NEXT HT8a]

**HT9** Did you install a programmable thermostat at your home?

[Yes]	1	[GO TO HT10]
[No]	2	[GO TO HT10]
[Don't know]	97	[GO TO HT10]
[Refused]	98	[GO TO HT10]

#### RESPONSE GRID FOR HEATING REMOVED

		HT8a	HT8d	HT8e Number	HT8e Units	HT8f	HT9
<b>0</b>	<b>No heating Removed</b>		<b>skip</b>	<b>skip</b>	<b>skip</b>	<b>skip</b>	<b>skip</b>
<b>1</b>	Natural Gas Boiler						
<b>2</b>	Wood Pellet Boiler						
<b>3</b>	Furnace						
<b>4</b>	Heat pump						
<b>77</b>	Other (Specify)						

**HT10.** When did you make these changes?

MONTH	_____	[GO TO ATR1h]
YEAR	_____	[GO TO ATR1h]
[Don't know]	98	[GO TO ATR1h]
[Refused]	99	[GO TO ATR1h]

#### HEATING EQUIPMENT /ATTRIBUTION

**[ASK IF OP1=1]**

**ATR1h.** For the heating equipment you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
<b>Measure type</b>	<b>% of Total</b>	
<b>Heating Equipment</b>		[GO TO RR1R]

[Don't know]		[GO TO RR1R]
[Refused]		[GO TO RR1R]

## INSULATION

### [ASK IF &INSULATION = TRUE]

Now we would like to discuss the insulation that you installed.

**RR1R** When did you install the insulation?

INSERT DATE MM/YYYY		[GO TO RR4R]
Don't Know	-97	[GO TO RR4R]
Refused	-98	[GO TO RR4R]

**RR4R** Did you add insulation in the walls, the attic or ceiling or both?

Wall Only	1	[GO TO RR4R1a]
Attic or Ceiling Only	2	[GO TO RR4R2a]
Both	3	[GO TO RR4R1a]
[Don't know]	-97	[GO TO I3_9]
[Refused]	-98	[GO TO I3_9]

**RR4R1A** Did you have some insulation in the walls before adding this insulation?

Yes	1	[GO TO RR4R1b]
No	2	[GO TO RR4R1c]
[Don't know]	-97	[GO TO RR4R1c]
[Refused]	-98	[GO TO RR4R1c]

**RR4R1B** What was the R value or number of inches of the wall insulation previously?

ENTER R VALUE	__	[GO TO RR4R1c]
ENTER INCHES	__	[GO TO RR4R1c]
[Don't know]	-97	[GO TO RR4R1c]
[Refused]	-98	[GO TO RR4R1c]

**RR4R1C** What is the current R value or number of inches of the wall insulation?

ENTER R VALUE	__	[GO TO RR4R1d]
ENTER INCHES	__	[GO TO RR4R1d]
[Don't know]	-97	[GO TO RR4R1d]
[Refused]	-98	[GO TO RR4R1d]

**RR4R1D** And how many square feet of walls did you insulate?

SQUARE FOOTAGE OF WALLS INSULATED	__	[GO TO RR4R2a]
[Don't know]	-97	[GO TO RR4R1e]
[Refused]	-98	[GO TO RR4R1e]

**RR4R1E** How many rooms were insulated?

SQUARE FOOTAGE OF WALLS INSULATED	__	[GO TO RR4R2a]
[Don't know]	-97	[GO TO RR4R2a]
[Refused]	-98	[GO TO RR4R2a]

**RR4R2A** [ASK IF RR4R = 2 OR 3] Did you have insulation in the attic or ceilings before adding this insulation?

Yes	1	[GO TO RR4R2aa]
No	2	[GO TO RR4R2c]
[Don't know]	-97	[GO TO RR4R2c]
[Refused]	-98	[GO TO RR4R2c]

**RR4R2AA** Did you replace or add to the existing insulation?

Replace	1	[GO TO RR4R2b]
Add to	2	[GO TO RR4R2b]
[Don't know]	-97	[GO TO RR4R2b]
[Refused]	-98	[GO TO RR4R2b]

**RR4R2B** How many square feet of the attic or ceiling were previously insulated?

ENTER SQUARE FOOTAGE	___	[GO TO RR4R2b1]
[Don't know]	-97	[GO TO RR4R2b1]
[Refused]	-98	[GO TO RR4R2b1]

**RR4R2B1** With how many inches of insulation was the attic previously insulated?

ENTER INCHES	___	[GO TO RR4R2c]
[Don't know]	-97	[GO TO RR4R2c]
[Refused]	-98	[GO TO RR4R2c]

**RR4R2C** How many square feet of the attic or ceiling is now insulated?

ENTER SQUARE FOOTAGE	___	[GO TO RR4R3]
[Don't know]	-97	[GO TO RR4R3]
[Refused]	-98	[GO TO RR4R3]

**RR4R2C1** With how many inches of insulation is now in the attic?

ENTER INCHES	___	[GO TO ATR1i]
[Don't know]	-97	[GO TO ATR1i]
[Refused]	-98	[GO TO ATR1i]

**RR4R3.** When did you make these changes?

MONTH	_____	[GO TO ATR1i]
YEAR	_____	[GO TO ATR1i]
[Don't know]	98	[GO TO ATR1i]
[Refused]	99	[GO TO ATR1i]

### INSULATION / ATTRIBUTION

[ASK IF OP1=1]

**ATR1i.** For the insulation you installed, what percentage of the total costs of the project were supported by the financial support that you received?

ATR1		
Measure type	% of Total	
Insulation		[GO TO I1_X]

[Don't know]		[GO TO I1_X]
[Refused]		[GO TO I1_X]

**SHOWERHEAD AND FAUCET AERATORS**

[IF &SHOWERHEAD = TRUE]

**Now we would like to discuss the showerheads and faucet aerators that you installed.**

**I1\_X** When did you install the showerheads?

INSERT DATE MM/YYYY		[GO TO I3_X]
Don't Know	-97	[GO TO I3_X]
Refused	-98	[GO TO I3_X]

**I3\_X** How many showerheads did you install?

ENTER NUMBER OF SHOWERHEADS	___	[GO TO I3_9]
[Don't know]	-97	[GO TO I3_9]
[Refused]	-98	[GO TO I3_9]

**I3\_9** Where was the showerhead installed? (REPEAT I3\_9 to I3\_12 FOR ALL SHOWERHEADS IN I3\_X)

Main shower (only one shower)	1	[GO TO I3_11]
Master bathroom shower	2	[GO TO I3_11]
Guest shower	3	[GO TO I3_11]
Outdoor shower	4	[GO TO I3_11]
Other (SPECIFY)	5	[GO TO I3_11]
[Don't know]	-97	[GO TO I3_11]
[Refused]	-98	[GO TO I3_11]

**I3\_11** How many times does the shower get used per day?

1	1	[GO TO I3_12]
2	2	[GO TO I3_12]
3	3	[GO TO I3_12]
More than 3	4	[GO TO I3_12]
[Don't know]	-97	[GO TO I3_12]
[Refused]	-98	[GO TO I3_12]

**I3\_12** What would you say is the typical shower length in minutes?

1-5 minutes	1	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]
5-10 minutes	2	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]
10-15 minutes	3	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]
15-20 minutes	4	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]

More than 20 minutes	5	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]
[Don't know]	-97	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]
[Refused]	-98	[GO TO NEXT SHOWERHEAD OR I3_13 IF NO MORE SHOWERHEADS]

**I3\_X** When did you install the faucet aerators?

INSERT DATE MM/YYYY		[GO TO I3_I3]
Don't Know	-97	[GO TO I3_I3]
Refused	-98	[GO TO I3_I3]

**I3\_13** How many faucet aerators were installed?

ENTER NUMBER OF AERATORS		[GO TO I3_13_X]
[Don't know]	-97	[GO TO I3_13_X]
[Refused]	-98	[GO TO I3_13_X]

**I3\_13\_X** Where was the faucet aerator installed (Probe if needed. i.e. kitchen, bathroom)? (REPEAT FOR EACH AERATOR IN I3\_13)

Kitchen	1	[GO TO NEXT AERATOR OR ATR1j]
Bathroom	2	[GO TO NEXT AERATOR OR ATR1j]
Laundry	3	[GO TO NEXT AERATOR OR ATR1j]
Other (SPECIFY)	4	[GO TO NEXT AERATOR OR ATR1j]
[Don't know]	-97	[GO TO NEXT AERATOR OR ATR1j]
[Refused]	-98	[GO TO NEXT AERATOR OR ATR1j]

### SHOWERHEADS/FAUCET /ATTRIBUTION

[ASK IF OP1=1]

**ATR1j.** For the [showerhead IF &SHOWERHEAD=TRUE and faucet aerator IF &AERATOR=TRUE] you installed, what percentage of the total costs of the project were supported by the financial support that you received?

	ATR1	
Measure type	% of Total	
Showerhead		[GO TO OE2a]
Faucet Aerator		[GO TO OE2a]
[Don't know]		[GO TO OE2a]
[Refused]		[GO TO OE2a]

### OTHER EQUIPMENT BATTERY

[IF & OTHER = TRUE]

**OE2.** Did you [install any other kinds of energy efficiency measures IF INSTALLATION/ make changes to your energy savings practices [IF BEHAVIOR CHANGE]?

Yes	1	[GO TO OE2b]
No	2	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]
[Don't Know]	-97	[GO TO NEXT SECTION]

**OE2a.** I first want to ask about behavior changes, what kinds of changes did you make to your energy savings practices IF BEHAVIOR CHANGE]? **[OPEN END]**  
**[PROBE FOR DESCRIPTION PRE AND POST – including equipment effected, AND FREQUENCY OF ACTION]**

**OE2b.** Which kinds of [additional measures did you install [IF INSTALLATION]?

[ASK IF NEW MEASURE INSTALLED OTHER=&INSTALLATION]

**OE2c. [FOR EACH MEASURE]** How many of the measures were used to replace existing units?

**OE2d. [FOR EACH MEASURE TYPE MENTIONED.]** When [was this measure installed IF INSTALLATION/ when did you change this practice IF BEHAVIOR CHANGE]?

**RESPONSE GRID FOR OE1 AND OE2 SERIES**

	<b>OE_TECH</b>	<b>OE2a/b Tech Inst/ Practice changed</b>	<b>OE2c # replacing existing construction</b>	<b>OE2d. When installed/ changed</b>
1	Specify:			
2	Specify:			
3	Specify:			
4	Specify:			
5	Specify:			
6	Specify:			

**[FOR EACH MEASURE TYPE REPORTED IN OE1 AND OE2 where OE2c> 0, ASK OE3]**

**OE3.** What types of equipment were replaced when installing the new measure?

SPECIFY	_____	[GO TO OE3a]
Don't know	-97	[GO TO OE3 FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE3 FOR NEXT &OE_TECH]

**[FOR EACH EQUIPMENT TYPE REPLACED, ASK OE3a]**

**OE3a.** Did you remove the same amount of units as you installed through the project?

Yes	1	[GO TO OE3d]
No	2	[GO TO OE3b]
Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3b.** Did you remove more or less units than you installed through the project?

More	1	[GO TO OE3c]
Fewer	2	[GO TO OE3c]
[Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3c.** How much more/less new units did you install?

[ENTER NUMBER]	_____	[GO TO OE3d]
Don't know	-97	[GO TO OE3d]
Refused	-98	[GO TO OE3d]

**OE3d.** What was the condition of the removed equipment?

Inoperable (broken)	1	[GO TO OE3e]
Poor condition	2	[GO TO OE3e]
Fair condition	3	[GO TO OE3e]
Good condition	4	[GO TO OE3e]
Refused	-98	[GO TO OE3e]
Don't know	-97	[GO TO OE3e]

**OE3e.** How old was the removed equipment?

Less than 5 years old	1	[GO TO OE3 FOR NEXT &OE_TECH]
Between 5 and 10 years old	2	[GO TO OE3 FOR NEXT &OE_TECH]
10 to 20 years old	3	[GO TO OE3 FOR NEXT &OE_TECH]
More than 20 years old	4	[GO TO OE3 FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE3 FOR NEXT &OE_TECH]
Don't know	-97	[GO TO OE3 FOR NEXT &OE_TECH]

**RESPONSE GRID OE3**

	<b>OE3</b>	<b>OE3a Remove same amount</b>	<b>OE3b Remove more or less</b>	<b>OE3c Amount removed</b>	<b>OE3d Condition removed equip</b>	<b>OE3d Age removed equip</b>
1	Specify:					

2	Specify:					
3	Specify:					
4	Specify:					
5	Specify:					
6	Specify:					

**OE3f.** When did you make these changes?

MONTH	_____	<a href="#">[GO TO ATR1k]</a>
YEAR	_____	<a href="#">[GO TO ATR1k]</a>
[Don't know]	98	<a href="#">[GO TO ATR1k]</a>
[Refused]	99	<a href="#">[GO TO ATR1k]</a>

### OTHER MEASURES/PRACTICES/ATTRIBUTION

**[ASK IF OP1=1 & OTHER MEASURES = &INSTALLATION]**

**ATR1k.** For the measures you installed, what percentage of the total costs of the project were covered by the financial support that you received?

	ATR1	
Measure type	% of Total	
Other		<a href="#">[GO TO DA0]</a>
[Don't know]		<a href="#">[GO TO DA0]</a>
[Refused]		<a href="#">[GO TO DA0]</a>

### DIRECT ATTRIBUTION

Now, I'd like to ask you a few questions about the effect that the **[&WORKSHOP/DEMONSTRATION/TRAINING]/ [&TECHNICAL ASSISTANCE]** had on your organization's decision to undertake the project we have been discussing. **[FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DAT0 SERIES]**

**DAT0.** Without the &SPONSOR **[&WORKSHOP/DEMONSTRATION/TRAINING/&TECHNICAL ASSISTANCE]**, would you say the likelihood of **[installing / performing]** the **&ACTION** was... **[READ LIST]**

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

## TIMING

### ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM).

AT11a. I'd like to know about the effect, if any, that [ &WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE ] had on the timing of your project. Without attending the [ &WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE ], would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2
<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

### [IF DAT1a ≠ LATER, SKIP]

AT11b. Approximately how many months later?  
[Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	DAT1b_ &MEASURE
[RECORD # OF MONTH]	_____
[Don't know]	-97

## EFFICIENCY

**This section applies for any measure where there is a standard efficiency option. For example, variable frequency drives do not have a "standard efficiency" option, so you should skip this section for VFDs even though installing a VFD will result in energy savings. Heat recovery, lighting controls, and steam trap replacement also fall into this category. Circle "5" not applicable for the measure in the table below and skip to DAT3.**

### ASK EFFICIENCY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM).

AE1a. Without the [ &WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE ] would you have installed &MEASURE of the exact same energy efficiency as the equipment you installed you installed, or would you have installed lower efficiency, or higher efficiency equipment?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Same</b>	1	1	1	1
<b>Lower</b>	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]	2 [ASK AE2b]
<b>Higher</b>	3	3	3	3
[Not applicable]	-88	-88	-88	-88
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AE1b.** Why do you say that? [RECORD VERBATIM]: \_\_\_\_\_

[IF AE1a ≠ LOWER, SKIP TO AQ1.]

**AE2.** Without the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE], would you have installed <measure> that was:

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
<b>Standard efficiency or according to code</b>	1	1	1	1
<b>Slightly higher than standard efficiency</b>	2	2	2	2
<b>Between standard efficiency and the efficiency that was installed</b>	3	3	3	3
<b>Slightly lower than the high efficiency that was installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

## QUANTITY

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

**Finally, I'd like to know about the effect, if any, that your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] had on the scale of the project you completed.**

**AQ1a.** Without the support from [&WORKSHOP/DEMONSTRATION/TRAINING or &TECHNICALASSISTANCE] would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2	2	2	2

	[READ AQ3a]	[READ AQ3a]	[READ AQ3a]	[READ AQ3a]
More or larger	3 [READ AQ3a]	3 [READ AQ3a]	3 [READ AQ3a]	3 [READ AQ3a]
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AQ1b. Why do you say that? [RECORD VERBATIM]** \_\_\_\_\_  
**[IF AQ1 = SAME or NOT INSTALLED ANY, SKIP TO OP5]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of &MEASURE installed?

Calculate percent:  $\text{abs}([\text{amount installed}] / [\text{amount would have installed}]) - 100\%$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Organization installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Organization installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Organization installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Organization installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OVERALL INFLUENCE CHECK IF RECEIVED FUNDING FROM ANY SOURCE**

*This battery has been shortened from the retrofit survey given that this survey is for an information or technical assistance effort that does not offer incentives. Will just be used to over context to overall attribution.*

**[ASK ONLY IF OP1=1]**

**OP9.** In your opinion, was the &SPONSOR's [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], more important in encouraging and enabling [your organization] to carry out the energy efficiency project we have been discussing; was the rebate more important; or were they both equally important?

SEP PA &WORKSHOP/DEMONSTRATION/TRAINING/&TRAINING	1
Rebate	2
Both equally important	3
[Don't know]	- 97
[Refused]	- 98

**OP10** Why do you say that?

**[RECORD  
VERBATIM]**

**ATTRIBUTION – MARKET CONTEXT**

**TRAINING OBJECTIVES**

**TO1.** The [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], was designed to achieve the following objectives: &USE COURSE SPECIFIC BELOW.

**NOTE: WE WILL PROVIDE COURSE SPECIFICS BASED UPON A REVIEW OF CURRICULA, PARTICIPANT DATABASES AND INPUTS FROM INSTRUCTOR SURVEY DATA.**

**[INSERT TWO SENTENCE OR LESS DESCRIPTIONS OF EACH SPECIFIC EFFORT]**

**TO2.** Prior to taking this course, had you searched for courses with similar curricula content?

[Yes]	1	<a href="#">[GO TO TO3]</a>
[No]	2	<a href="#">[GO TO KA1]</a>
[Don't know]	98	<a href="#">[GO TO KA1]</a>
[Refused]	99	<a href="#">[GO TO KA1]</a>

**TO3.** Using a scale of 1 to 10 where 1 is no courses available and 10 is many courses available, how would you rate the availability of courses with similar curricula prior to &DATE?

None Available	1	<a href="#">[GO TO KA1]</a>
	2	<a href="#">[GO TO KA1]</a>
	3	<a href="#">[GO TO KA1]</a>
	4	<a href="#">[GO TO KA1]</a>
	5	<a href="#">[GO TO KA1]</a>
	6	<a href="#">[GO TO KA1]</a>
	7	<a href="#">[GO TO KA1]</a>
	8	<a href="#">[GO TO KA1]</a>
	9	<a href="#">[GO TO KA1]</a>
Many Available	10	<a href="#">[GO TO KA1]</a>

Don't know	98	<a href="#">[GO TO KA1]</a>
Refused	99	<a href="#">[GO TO KA1]</a>

## KNOWLEDGE AND AWARENESS EFFECTS

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CHANGES TO KNOWLEDGE AND AWARENESS AS A RESULT OF PARTICIPATION IN THE COURSE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**KA1.** Did the [[&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE](#)], provide you with any new information?

<a href="#">[Yes]</a>	1	<a href="#">[GO TO KA2a]</a>
<a href="#">[No]</a>	2	<a href="#">[GO TO KA2a]</a>
<a href="#">[Don't know]</a>	98	<a href="#">[GO TO KA2a]</a>
<a href="#">[Refused]</a>	99	<a href="#">[GO TO KA2a]</a>

**KA2a.** Using a scale of 1 to 10 where 1 is no knowledge and 10 is significant knowledge, how would you rate your level of knowledge regarding the [[&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE](#)], objectives prior to your participation in [&DATE](#)?

No Knowledge	1	<a href="#">[GO TO KA2b]</a>
	2	<a href="#">[GO TO KA2b]</a>
	3	<a href="#">[GO TO KA2b]</a>
	4	<a href="#">[GO TO KA2b]</a>
	5	<a href="#">[GO TO KA2b]</a>
	6	<a href="#">[GO TO KA2b]</a>
	7	<a href="#">[GO TO KA2b]</a>
	8	<a href="#">[GO TO KA2b]</a>
	9	<a href="#">[GO TO KA2b]</a>
Significant Knowledge	10	<a href="#">[GO TO KA2b]</a>
Don't know	98	<a href="#">[GO TO KA2b]</a>
Refused	99	<a href="#">[GO TO KA2b]</a>

**[SKIP IF KA1=2]**

**KA2b.** On the same scale, how would you rate your [[&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE](#)], objectives knowledge after your participation?

No Knowledge	1	<a href="#">[GO TO KA3]</a>
	2	<a href="#">[GO TO KA3]</a>
	3	<a href="#">[GO TO KA3]</a>
	4	<a href="#">[GO TO KA3]</a>
	5	<a href="#">[GO TO KA3]</a>
	6	<a href="#">[GO TO KA3]</a>

	7	[GO TO KA3]
	8	[GO TO KA3]
	9	[GO TO KA3]
Significant Knowledge	10	[GO TO KA3]
Don't know	98	[GO TO KA3]
Refused	99	[GO TO KA3]

**KA3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] increase your awareness of ways to improve the energy efficiency at your &INSERT HOME, FACILITY, JOBS, CLASSROOM?

[Yes]	1	[GO TO KA4]
[No]	2	[GO TO KA4]
[Don't know]	98	[GO TO KA4]
[Refused]	99	[GO TO KA4]

**KA4.** Did your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], make you more likely to take energy saving actions?

[Yes]	1	[GO TO FIN1]
[No]	2	[GO TO FIN1]
[Don't know]	98	[GO TO FIN1]
[Refused]	99	[GO TO FIN1]

## HOUSING AND DEMOGRAPHICS

*Note that all the following questions are sourced from the Residential Building Retrofit Survey.*

We are almost finished. I just have a few additional questions about your home to make sure we are getting a representative sample of participants.

**D0.** Is you're a home one of the following? [READ ALL]

Single Family Home	1	[GO TO D1]
Multifamily Unit	2	[GO TO D0a]
Condo/Town home	3	[GO TO D1]
Mobile Home	4	[GO TO D1]
Other: Specify	5	[GO TO D1]
[Don't know]	-97	[GO TO D1]
[Refused]	-98	[GO TO D1]

**D0a** About how many apartment units are located in the building at the property?

ENTER NUMBER OF UNITS	#	_____	[GO TO D0b]
[Don't know]		-97	[GO TO D0b]
[Refused]		-98	[GO TO D0b]

**D0b** What is the average apartment size in square feet?

ENTER SQUARE FOOTAGE	_____ sq. ft.	[GO TO D0c]
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[Don't know]	-97	[GO TO D0c]
[Refused]	-98	[GO TO D0c]

**D0c** On average, how many full or half bathrooms do you have in each unit of your building? (PROBE: A full bathroom is one that has a sink with running water, and a toilet, and either a bathtub or shower. A half bathroom has either a toilet or a bathtub or a shower?)

ENTER NUMBER OF BATHROOMS	# _____	[GO TO D0d]
[Don't know]	-97	[GO TO D0d]
[Refused]	-98	[GO TO D0d]

**D0d** On average, how many bedrooms do you have in each unit of your building? (If a one-room efficiency, or studio apartment, bedrooms=0)

ENTER NUMBER OF BEDROOMS	# _____	[GO TO D0e]
[Don't know]	-97	[GO TO D0e]
[Refused]	-98	[GO TO D0e]

**D0e** On average, other than bedrooms and bathrooms, how many other rooms are there in each unit of your building? Do not count laundry rooms, foyers, unfinished storage spaces, porches, or garages.

ENTER NUMBER OF OTHER ROOMS	# _____	[GO TO D0f]
[Don't know]	-97	[GO TO END]
[Refused]	-98	[GO TO END]

**D0f** About when was this building first built?

Before 1970's	1	[GO TO D0g]
1970's	2	[GO TO D0g]
1980's	3	[GO TO D0g]
1990-94	4	[GO TO D0g]
1995-99	5	[GO TO D0g]
2000's	6	[GO TO D0g]
[Don't know]	-97	[GO TO D0g]
[Refused]	-98	[GO TO D0g]

**D0g** (IF NOT CONTAINED IN SAMPLE DATA) In what city is this building located?

ENTER CITY	_____	[GO TO ONSITE]
[Don't know]	-97	[GO TO ONSITE]
[Refused]	-98	[GO TO ONSITE]

**D1** In what type of building do you live? (READ LIST IF NEEDED)  
(PROBE FOR 'Condo': "How many units are in your building?")

A one-family home detached from any other house	1	[GO TO D2]
A one-family home attached to one or more houses	2	[GO TO D2]
A building with 2 apartments	3	[GO TO D2]
A building with 3 or 4 apartments	4	[GO TO D2]
A building with 5 or more apartments	5	[GO TO D2]
A mobile home	6	[GO TO D2]
Boat, RV, Van, etc.	7	[GO TO D2]
Other (SPECIFY)	8	[GO TO D2]

[Don't know]	-97	[GO TO D2]
[Refused]	-98	[GO TO D2]

**D2** Including yourself, how many people currently live in your home year-round?

ENTER NUMBER OF PEOPLE	_____	[GO TO D3]
[Don't know]	-97	[GO TO D3]
[Refused]	-98	[GO TO D3]

**D3** How many full or half bathrooms do you have in your home? (PROBE: A full bathroom is one that has a sink with running water, and a toilet, and either a bathtub or shower. A half bathroom has either a toilet or a bathtub or a shower?)

ENTER NUMBER OF BATHROOMS	# _____	[GO TO D4]
[Don't know]	-97	[GO TO D4]
[Refused]	-98	[GO TO D4]

**D4** How many bedrooms do you have in your home? (If a one-room efficiency, or studio apartment, bedrooms=0)

ENTER NUMBER OF BEDROOMS	# _____	[GO TO D5]
[Don't know]	-97	[GO TO D5]
[Refused]	-98	[GO TO D5]

**D5** Other than bedrooms and bathrooms, how many other rooms are there in your home? Do not count laundry rooms, foyers, unfinished storage spaces, porches, or garages.

ENTER NUMBER OF OTHER ROOMS	# _____	[GO TO D6]
[Don't know]	-97	[GO TO D6]
[Refused]	-98	[GO TO D6]

**D6** How large is your home/building in square feet?

ENTER SQUARE FOOTAGE	_____ sq. ft.	[GO TO D7]
[Don't know]	-97	[GO TO D7]
[Refused]	-98	[GO TO D7]

**D7** How many *floors* of living space are there in your home, NOT COUNTING unheated basements? Please answer only about *your home*, not the building as a whole]

1 floor	1	[GO TO D8]
2 floors	2	[GO TO D8]
3 floors	3	[GO TO D8]
More than 3 floors	4	[GO TO D8]
[Don't know]	-97	[GO TO D8]
[Refused]	-98	[GO TO D8]

**D8** About when was this building first built?

Before 1970's	1	[GO TO D9]
1970's	2	[GO TO D9]
1980's	3	[GO TO D9]
1990-94	4	[GO TO D9]
1995-99	5	[GO TO D9]
2000's	6	[GO TO D9]
[Don't know]	-97	[GO TO D9]

[Refused]	-98	[GO TO D9]
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**D9** In what city is your home located?

ENTER CITY	_____	[GO TO ONSITE]
[Don't know]	-97	[GO TO ONSITE]
[Refused]	-98	[GO TO ONSITE]

<b>END.</b>	Those are all the questions I have for today. Thank you for your time and help in this important study.
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## L.21. CT-4A-R: RETROFITS: RESIDENTIAL SECTOR

OMB Control No. 1910-5170

### DATABASE VARIABLES

&INTERVIEWER\_NAME.....name of the caller  
&CONTACT .....contact name from program database  
&SPONSOR.....organization that sponsored the program activity  
&PROGRAM .....program activity name  
&DATES .....dates of program activities operation funded by SEP or of research interest  
&APPOINT .....date/time to call back  
&NAME .....person to call back  
&PHONE.....extension or phone number to call back  
&SERV\_ADDR .....address where measure(s) were installed or service(s) performed  
&HOMETYPE .....Single family home or multi-family home (fill "home" or "building")  
&CITY .....city where measure(s) were installed or service(s) performed  
&CORRECT .....corrected address  
&MEASURE\_TYPE .....dishwasher, clothes washer, refrigerator, lighting, cooling, heating, duct testing, weatherization or other  
&QTY .....quantity of measure installed  
&MEASURE .....specific technology within measure type, e.g. CFLs  
&TARGET\_YEARS .....programs years under evaluation  
&DISHWASHER.....boolean that is true if respondent installed dishwasher  
&CLOTHESWASHER .....boolean that is true if respondent installed clothes washer  
&REFRIGERATOR.....boolean that is true if respondent installed refrigerator  
&LIGHTING .....boolean that is true if respondent installed lighting measures  
&COOLING .....boolean that is true if respondent installed cooling measures  
&HEATING.....boolean that is true if respondent installed heating measures  
&HOTWATER .....boolean that is true if respondent installed hot water heating measures  
\$DUCTTEST.....boolean that is true if respondent conducted duct testing  
&OTHER.....boolean that is true if respondent installed other measures  
&INSULATION.....boolean that is true if respondent installed insulation measures  
&SHOWERHEAD .....boolean that is true if respondent installed showerhead measures  
&AERATOR .....boolean that is true if respondent installed aerator measures  
&WEATHERIZATION .....description of weatherization measures installed  
&WATT .....wattage of lighting technology installed  
&LI\_TECH.....specific lighting technology, e.g. CFLs  
&LI\_NUM.....number of &LI\_TECH installed  
&C\_TECH .....specific cooling technology, e.g. Central AC  
&CTECH\_NUM.....number of &C\_TECH installed  
&CTECH\_EFF .....efficiency rating of &C\_TECH  
&CTECH\_EFF\_UNIT.....unit of &CTECH\_EFF  
&C\_TECH\_REM.....cooling technology removed during installation of &CTECH  
&H\_TECH .....specific heating technology, e.g. Furnace  
&HTECH\_NUM.....number of &H\_TECH installed  
&HTECH\_EFF .....efficiency rating of &H\_TECH  
&HTECH\_EFF\_UNIT .....unit of &HTECH\_EFF  
&H\_TECH\_REM .....heating technology removed during installation of &HTECH

## INTRODUCTION AND FINDING CORRECT RESPONDENT

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from [INTERVIEWER ORGANIZATION](#). May I please speak with &CONTACT, or the person at this location who is most knowledgeable about your &HOMTYPE's participation in &SPONSOR's &PROGRAM, which operated during the period &DATES?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how &PROGRAM worked.

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me get _____]	4	[GO TO INTRO3:s]
[No, that is the wrong person]	5	[GO TO HI]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't Know]	97	[GO TO APPOINT]
[Refused]	98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME	[GO TO EXT]
[Don't Know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER	[GO TO INTRO3(99)]
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER	[GO TO INTRO3(99)]

**INTRO3(99).** Thank you for your time. We need to speak with the person in your &HOMTYPE that is most familiar with your participation in the &PROGRAM. Those are all of the questions I have for you today **[TERMINATE; ASSIGN DISPOSITION & REMOVE FROM CALL ORDER]**

**HI.** Who would be the person in your &HOMTYPE who is most knowledgeable about your participation in &SPONSOR's &PROGRAM?

	RECORD NAME AS &CONTACT	[GO TO MAY_I]
[Don't Know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO INTRO3(99)]

**MAY\_I.** May I speak with him/her?

[Yes]	1	[GO TO INTRO3:s]
[No]	2	[GO TO EXT]
[Don't know]	-97	[GO TO EXT]
[Refused]	-98	[GO TO EXT]

**INTRO3:s.** Hello, this is <INTERVIEWER NAME> calling on behalf of the Department of Energy from **INTERVIEWER ORGANIZATION**. This is not a sales call. This is a fact-finding survey only. According to our records, your &HOMTYPE participated in &SPONSOR's &PROGRAM.

I was told that you are the person most knowledgeable about this program. Is this correct?

[Yes]	1	[GO TO PURPOSE]
[No]	2	[GO TO HI]
[No one knows about the program]	3	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[GO TO EXT]

**EXT.** Is there a different phone number you recommend we use when we call back?

[Yes]	1	RECORD EXTENSION OR PHONE NUMBER AS &PHONE; [GO TO APPOINT]
[No]	2	[GO TO APPOINT]
[Don't know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO APPOINT]

**PURPOSE.** The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. We are calling you today to learn about your response to the &SPONSOR's &PROGRAM. The information we gather will be used by the Department of Energy to understand how the program has worked. The survey should take no more than 60 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your &HOMTYPE in any way.

**SC1.** First, I'd like to ask you a few questions about your &HOMTYPE. Our records show your &HOMTYPE is at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO COMMENT3]
[No]	2	[GO TO CORRECT]
[Don't know]	-97	[GO TO COMMENT1]
[Refused]	-98	[GO TO COMMENT1]

**CORRECT** May I have your address?

[Yes]	1	RECORD IN &CORRECT  [GO TO COMPARE]
[No]	2	[COMMENT1]
[Don't know]	-97	[GO TO HI]
[Refused]	-98	[ GO TO COMMENT1]

**COMPARE.** **[DO NOT READ] Are these addresses similar or totally different?**  
**Computer Address - &SERV\_ADDR**  
**Corrected Address - &CORRECT**

[Similar]	1	SET &SERV_ADDR = &CORRECT
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		[GO TO SC2]
[Totally different]	2	[GO TO COMMENT2]

**COMMENT2.** We were attempting to reach the customer at &SERV\_ADDR in &CITY and since that does not match your address, then we must have misdialled the telephone number. Those are all the questions that we have for you today, on behalf of the Department of Energy. Thank you for your time and cooperation.  
[\[TERMINATE\]](#)

**SC2.** Our records show that you received support from &PROGRAM to carry out energy efficiency improvements at &SERV\_ADDR in &CITY. Is that correct?

[Yes]	1	[GO TO SC3]
[No]	2	[GO TO COMMENT4]
[Don't know]	97	[GO TO COMMENT4]
[Refused]	98	[GO TO COMMENT4]

**COMMENT4.** Can you refer me to someone who would be likely to be familiar with such a project?

[Yes]	1	[GO TO HI]
[No]	2	[GO TO INTRO3(99)]
[Don't know]	-97	[GO TO INTRO3(99)]
[Refused]	-98	[GO TO INTRO3(99)]

**SC3.** Are you familiar with the decision to participate in &PROGRAM and the type of the energy efficiency measures carried out with its assistance?

[Yes]	1	[GO TO V1]
[No]	2	[GO TO COMMENT4]
[Don't know]	-97	[GO TO COMMENT4]
[Refused]	-98	[GO TO COMMENT4]

**HEATING, COOLING, AND WATER HEATING INVENTORY**

Before discussing your experience with &SPONSOR’s &PROGRAM, I’d like to get some basic information about the energy systems in your home.

**HC1. First, do you have a central air conditioning system in your home?**

**Do not include room air conditioners or fans.**

1. <input type="checkbox"/> Yes	
2. <input type="checkbox"/> No	<b>SKIP TO HC5</b>
97. <input type="checkbox"/> Don’t know	<b>SKIP TO HC5</b>
98. <input type="checkbox"/> Refused to answer	<b>SKIP TO HC5</b>

**HC2. How old is your central air conditioning system?**

**[Prompt by reading response options if necessary]**

1. <input type="checkbox"/> Less than one year old
2. <input type="checkbox"/> 1 year to 4 years old
3. <input type="checkbox"/> More than 4 years to 10 years old
4. <input type="checkbox"/> More than 10 years to 15 years old
5. <input type="checkbox"/> More than 15 years to 20 years old
6. <input type="checkbox"/> More than 20 years old
97. <input type="checkbox"/> Don’t know
98. <input type="checkbox"/> Refused to answer

**IF D1 ≠ 1 (SINGLE FAMILY DETACHED) ASK HC3, ELSE SKIP TO HC4.**

**HC3. Does the central air conditioning system serve your home or more than one home or apartment?**

1. <input type="checkbox"/> Serves home or apartment only
2. <input type="checkbox"/> Serves more than one home or apartment
97. <input type="checkbox"/> Don’t know
98. <input type="checkbox"/> Refused to answer

**HC4. How frequently do you use your central air conditioning system? Would you say it is ...**  
**"All Summer"; "Quite a bit"; "Only a few times a year when needed"; or "Not at all"?**

1. <input type="checkbox"/> All Summer
2. <input type="checkbox"/> Quite a bit
3. <input type="checkbox"/> Only a few times when needed
4. <input type="checkbox"/> Not at all
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**HC5. How many room air conditioners, if any, do you use in your home? PROMPT IF NEEDED: These are units installed in windows or through the wall.**

1. <input type="checkbox"/> None	<b>SKIP TO D1</b>
2. <input type="checkbox"/> One	
3. <input type="checkbox"/> Two	
4. <input type="checkbox"/> Three or more	
97. <input type="checkbox"/> Don't know	<b>SKIP TO D1</b>
98. <input type="checkbox"/> Refused to answer	<b>SKIP TO D1</b>

**HC6. On average, how old are the room air conditioners in your home?**  
**[Prompt by reading response options if necessary]**

1. <input type="checkbox"/> Less than one year old
2. <input type="checkbox"/> 1 year to 4 years old
3. <input type="checkbox"/> More than 4 years to 10 years old
4. <input type="checkbox"/> More than 10 years to 15 years old
5. <input type="checkbox"/> More than 15 years to 20 years old
6. <input type="checkbox"/> More than 20 years old
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**HC7. How frequently do you use your room air conditioners? Would you say it is ...**  
**"All Summer"; "Quite a bit"; "Only a few times a year when needed"; or "Not at all"?**

1. <input type="checkbox"/> All Summer
2. <input type="checkbox"/> Quite a bit
3. <input type="checkbox"/> Only a few times when needed
4. <input type="checkbox"/> Not at all
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**SH1. What fuel or fuels do you use to heat your home? [RECORD ALL THAT APPLY.]**  
**[IF MORE THAN ONE FUEL RECORDED, ASK SH1a. ELSE SKIPNEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

**SH 1a. Which fuel supplies most of the heat for your home?**  
**[IF NEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

	<b>SH1</b>	<b>SH1a</b>
1. Natural gas	<input type="checkbox"/>	<b>GO TO SH2</b>
2. Bottled gas or propane	<input type="checkbox"/>	<b>SKIP TO SH3</b>
3. Electric	<input type="checkbox"/>	<b>SKIP TO SH4</b>
4. Oil	<input type="checkbox"/>	<b>SKIP TO SH5</b>
5. Kerosene	<input type="checkbox"/>	<b>SKIP TO SH6</b>
6. Wood	<input type="checkbox"/>	<b>SKIP TO SH6</b>
7. Solar	<input type="checkbox"/>	<b>SKIP TO SH6</b>
8. Geothermal	<input type="checkbox"/>	<b>SKIP TO SH6</b>
9. Other (Please describe: _____)	<input type="checkbox"/>	<b>SKIP TO SH6</b>
10. No heating system	<input type="checkbox"/>	<b>SKIP TO WH1</b>
97. Don't know	<input type="checkbox"/>	<b>SKIP TO SH6</b>
98. Refused to answer	<input type="checkbox"/>	<b>SKIP TO SH6</b>

**SH2. [If use mostly natural gas] What type of system provides most of the space heating for your home?**

**[IF NEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

1. <input type="checkbox"/> Central forced air furnace	<b>SKIP TO SH6</b>
2. <input type="checkbox"/> Steam boiler (upright radiators or baseboards)	<b>SKIP TO SH6</b>
3. <input type="checkbox"/> Hot water boiler (upright radiators or baseboards)	<b>SKIP TO SH6</b>
4. <input type="checkbox"/> Direct Vent Space heaters	<b>SKIP TO SH6</b>
5. <input type="checkbox"/> Un-vented Space heaters	<b>SKIP TO SH6</b>
6. <input type="checkbox"/> Fireplace Inserts	<b>SKIP TO SH6</b>
7. <input type="checkbox"/> Stoves	<b>SKIP TO SH6</b>
8. <input type="checkbox"/> Other (Please describe: _____)	<b>SKIP TO SH6</b>
97. <input type="checkbox"/> Don't know	<b>SKIP TO SH6</b>
98. <input type="checkbox"/> Refused to answer	<b>SKIP TO SH6</b>

**SH3. [If use mostly bottled gas or propane] What type of system provides most of the space heating for your home?**

**[IF NEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

1. <input type="checkbox"/> Central forced air furnace	<b>SKIP TO SH6</b>
2. <input type="checkbox"/> Steam boiler (upright radiators or baseboards)	<b>SKIP TO SH6</b>
3. <input type="checkbox"/> Hot water boiler (upright radiators or baseboards)	<b>SKIP TO SH6</b>
4. <input type="checkbox"/> Direct Vent Space heaters	<b>SKIP TO SH6</b>
5. <input type="checkbox"/> Un-vented Space heaters	<b>SKIP TO SH6</b>
6. <input type="checkbox"/> Portable heaters	<b>SKIP TO SH6</b>
7. <input type="checkbox"/> Fireplace Inserts	<b>SKIP TO SH6</b>
8. <input type="checkbox"/> Stoves	<b>SKIP TO SH6</b>
9. <input type="checkbox"/> Other (Please describe: _____)	<b>SKIP TO SH6</b>
97. <input type="checkbox"/> Don't know	<b>SKIP TO SH6</b>
98. <input type="checkbox"/> Refused to answer	<b>SKIP TO SH6</b>

**SH4. [If use mostly electric heating] What type of system provides most of the space heating for your home?**

**[IF NEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

1. <input type="checkbox"/> Baseboard, wall heaters without fans, or ceiling cables	<b>SKIP TO SH6</b>
2. <input type="checkbox"/> Wall heaters with fans	<b>SKIP TO SH6</b>
3. <input type="checkbox"/> Air source heat pump	<b>SKIP TO SH6</b>
4. <input type="checkbox"/> Ground source heat pump	<b>SKIP TO SH6</b>
5. <input type="checkbox"/> Other (Please describe: _____)	<b>SKIP TO SH6</b>
97. <input type="checkbox"/> Don't know	<b>SKIP TO SH6</b>
98. <input type="checkbox"/> Refused to answer	<b>SKIP TO SH6</b>

**SH5. [If use mostly oil] What type of system provides most of the space heating for your home?**

**[IF NEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

1. <input type="checkbox"/> Central forced air furnace
2. <input type="checkbox"/> Steam boiler (upright radiators or baseboards)
3. <input type="checkbox"/> Hot water boiler (upright radiators or baseboards)
4. <input type="checkbox"/> Other (Please describe: _____)
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**SH6. Does the heating system only serve your home or more than one home or apartment?**

1. <input type="checkbox"/> Serves home or apartment only
2. <input type="checkbox"/> Serves more than one home or
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**SH7. How old is your primary heating system?**

**[Prompt by reading response options if necessary]**

1. <input type="checkbox"/> Less than one year old	
2. <input type="checkbox"/> 1 year to 4 years old	
3. <input type="checkbox"/> More than 4 years to 10 years old	
4. <input type="checkbox"/> More than 10 years to 15 years old	
5. <input type="checkbox"/> More than 15 years to 20 years old	
6. <input type="checkbox"/> More than 20 years old	
97. <input type="checkbox"/> Don't know	
98. <input type="checkbox"/> Refused to answer	

**IF MULTIPLE ANSWERS PROVIDED FOR SH1, ASK SH8. ELSE SKIP TO WH1.**

**SH8. Approximately how often do you use the other heating system(s) in your home during the heating season?**

**[READ LIST. RECORD ONLY ONE RESPONSE]**

1. <input type="checkbox"/> Every day
2. <input type="checkbox"/> 3-5 days per week
3. <input type="checkbox"/> 1-2 days per week
4. <input type="checkbox"/> Only a few days a year
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**SH9. How many rooms are heated by these other heating systems?**

Enter # of Rooms
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

**WH1. What fuel or fuels do you use for hot water in your home? [RECORD ALL THAT APPLY.]**

**[IF MORE THAN ONE FUEL RECORDED, ASK SH1a. ELSE SKIPNEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

**WH 1a. Which fuel supplies most of the hot water for your home?**

**[IF NEEDED: READ LIST. RECORD ONLY ONE RESPONSE]**

	<b>SH1</b>	<b>SH1a</b>
1. Natural gas	<input type="checkbox"/>	<input type="checkbox"/>
2. Bottled gas or propane	<input type="checkbox"/>	<input type="checkbox"/>
3. Electric	<input type="checkbox"/>	<input type="checkbox"/>
4. Oil	<input type="checkbox"/>	<input type="checkbox"/>
5. Kerosene	<input type="checkbox"/>	<input type="checkbox"/>
6. Wood	<input type="checkbox"/>	<input type="checkbox"/>
7. Solar	<input type="checkbox"/>	<input type="checkbox"/>
8. Geothermal	<input type="checkbox"/>	<input type="checkbox"/>
9. Other (Please describe: _____)	<input type="checkbox"/>	<input type="checkbox"/>
10. No heating system	<input type="checkbox"/>	<input type="checkbox"/>
97. Don't know	<input type="checkbox"/>	<input type="checkbox"/>
98. Refused to answer	<input type="checkbox"/>	<input type="checkbox"/>

**WH3. What type of system is your main water heater? Would you say it is a...**

**[READ LIST. RECORD ONLY ONE RESPONSE]**

1. <input type="checkbox"/> Traditional water heater tank
2. <input type="checkbox"/> Whole house tankless system or instantaneous water heater
3. <input type="checkbox"/> Heat pump water heater
4. <input type="checkbox"/> High efficiency gas storage water heater
5. <input type="checkbox"/> Indirect tank attached to a boiler
6. <input type="checkbox"/> Other (Please describe: _____)
97. <input type="checkbox"/> Don't know
98. <input type="checkbox"/> Refused to answer

## INITIAL VERIFICATION INVENTORY

**NOTE: THE SEGMENTS VY AND VN ELICIT THE SAME TYPE OF INFORMATION FROM CUSTOMERS IN PROGRAMS THAT ARE ABLE TO PROVIDE MEASURE-LEVEL DATA FOR PROJECTS SUPPORTED BY THE PROGRAM (VY) AND THOSE FOR WHICH MEASURE-LEVEL DATA ARE NOT AVAILABLE (VN). THE ANSWERS TO BOTH SEQUENCES ARE ANSWERED IN THE SAME INITIAL VERIFICATION GRID BELOW. THE OBJECTIVE OF THIS SEQUENCE IS TO PROVIDE VERIFICATION OF THE OVERALL SCOPE OF THE PROJECT, CHARACTERIZE THE SCOPE OF SUPPORT PROVIDED BY THE SEP PROGRAM AND OTHER PROGRAMS, AND ELIMINATE THE NEED FOR REPETITIVE QUESTIONS IN THE DETAILED MEASURE SECTIONS. SEQUENCE VB IS ADDRESSED TO ALL RESPONDENTS.**

**V1.** I'd like to ask you about the scope of the project at &SERV\_ADDR.

**V1b.** Was this project done to an existing &HOMETYPE or was it part of a new construction project?

[Existing/retrofit]	1	[GO TO VY1a]
[New construction]	2	[THANK AND TERMINATE]
[Don't know]	-97	[GO TO VY1a]
[Refused]	-98	[GO TO VY1a]

### **SEQUENCE VY: FOR CUSTOMERS IN PROGRAMS WITH MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**[REPEAT THIS SERIES FOR EACH MEASURE IN THE TRACKING DATA]**

**VY1a.** According to &SPONSOR records, you installed &QTY &MEASURE as part of the project at &SERV\_ADDR. Is this correct?

[Yes, installed that number]	1	[GO TO VY1a FOR NEXT MEASURE]
[Did not install any of that technology]	2	[GO TO VY1a FOR NEXT MEASURE]
[Technology correct, number wrong]	3	[GO TO VY1B]
[Don't Know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**VY1b.** How many &MEASURE did you install?

RECORD NUMBER	_____	[GO TO VY1C]
Don't know	-97	[GO TO VY1C]
Refused	-98	[GO TO VY1C]

**VY1c.** Why did you install a different number of &MEASURE?

Have no idea why numbers differ	1	[GO TO VY1D]
Put some in storage	2	[GO TO VY1D]

Installed some at another location in the U.S.	3	[GO TO VY1D]
Insufficient financial resources to complete full amount	4	[GO TO VY1D]
[Other, Specify_____]	5	[GO TO VY1D]
[Don't know]	-97	[GO TO VY1D]
[Refused]	-98	[GO TO VY1D]

**VY1d.** Do you plan to install the remaining &MEASURE within the next year?

[Yes]	1	[GO TO VY1a FOR NEXT MEASURE]
[No]	2	[GO TO VY1a FOR NEXT MEASURE]
[Don't know]	-97	[GO TO VY1a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VY1a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VY SEQUENCE FOR ALL MEASURES IN TRACKING SYSTEM]**

**SEQUENCE VN: FOR CUSTOMERS IN PROGRAMS WITH NO MEASURE-LEVEL DETAIL IN THE TRACKING DATABASE.**

**VN1a.** Which of the following types of equipment or services received support from &PROGRAM? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

Dishwasher	RECORD QTY____	[GO TO VN1c]
Clothes Washer	RECORD QTY____	[GO TO VN1c]
Refrigerator	RECORD QTY____	[GO TO VN1c]
Lighting	RECORD QTY____	[GO TO VN1c]
Cooling	RECORD QTY____	[GO TO VN1c]
Space Heating	RECORD QTY____	[GO TO VN1c]
Water Heating	RECORD QTY____	[GO TO VN1c]
Duct Testing & Sealing	RECORD QTY____	[GO TO VN1c]
Air Sealing with Blower Door Test	RECORD QTY____	[GO TO VN1c]
Insulation	RECORD QTY____	[GO TO VN1c]
Shower head replacement	RECORD QTY____	[GO TO VN1c]
Faucet aerators	RECORD QTY____	[GO TO VN1c]
Other Efficiency Measures [SPECIFY _____]	RECORD QTY____	[GO TO VN1c]

**VN1c.** Is there any equipment or services for which you received support from &PROGRAM in &TARGET\_YEARS that has not yet been installed

[Yes]	1	[GO TO VN1d]
[No]	2	[GO TO VB1]
[Don't know]	-97	[GO TO VB1]
[Refused]	-98	[GO TO VB1]

**VN1d.** Which equipment or services received support from &PROGRAM but have not yet been installed or conducted? **[MARK ALL THAT APPLY IN LIST IN THE GRID.]**

Dishwasher	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Clothes Washer	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Refrigerator	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Lighting	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Cooling	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Heating	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Water Heating	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Duct Testing & Sealing	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Air Sealing w/ Blower Door Test	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Insulation	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Shower head replacement	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Faucet Aerators	RECORD QTY NOT INSTALLED____	[GO TO VN2a]
Other Efficiency Measures [MULTIPLE "OTHER" POSSIBLE]	RECORD QTY NOT INSTALLED____	[GO TO VN2a]

**FOR EACH MEASURE TYPE MARKED IN VN1c, ASK VN2a THROUGH VN2c.**

**VN2a.** Why was &MEASURE\_TYPE not installed at &SERV\_ADDR? **[DO NOT READ, MARK ALL THAT APPLY]**

Put some in storage	1	[GO TO VN2b]
Installed some at another location in the U.S.	2	[GO TO VN2b]
Insufficient financial resources to complete full amount	3	[GO TO VN2b]
[Other, Specify _____]	4	[GO TO VN2b]
[Don't know]	-97	[GO TO VN2b]
[Refused]	-98	[GO TO VN2b]

**VN2b.** Do you plan to install the remaining &MEASURE within the next year?

[Yes]	1	[GO TO VN2a FOR NEXT MEASURE]
[No]	2	[GO TO VN2a FOR NEXT MEASURE]
[Don't know]	-97	[GO TO VN2a FOR NEXT MEASURE]
[Refused]	-98	[GO TO VN2a FOR NEXT MEASURE]

**[GO TO VB1 AFTER COMPLETING VN2a – VN2c SEQUENCE FOR ALL APPLICABLE MEASURES]**

**VY AND VN SEQUENCE RESPONSE GRID FOR SEP SUPPORTED EFFORTS**

	<b>1a</b>	<b>1c (N only)</b>	<b>2a</b>	<b>2b</b>
<b>Measure type</b>	<b>Installed?</b>	<b>Not Installed</b>	<b>Why not installed?</b>	<b>Plan to install in Yr?</b>
<b><i>Efficiency Measures</i></b>				
Dishwasher				
Clothes Washer				
Refrigerator				
Lighting				
Cooling				
Heating				
Water Heating				
Duct Testing & Sealing				
Air Sealing w/ Blower Door				
Insulation				

Shower head replacement				
Faucet Aerator				
<b>Other Efficiency Measures</b> [SPECIFY _____]				

**SEQUENCE VB: DIRECTED TO ALL CUSTOMERS.**

**VB1.** What kinds of assistance and support did you receive from &SPONSOR's &PROGRAM in completing the project at &HOMTYPE? **[DO NOT READ, MARK ALL THAT APPLY. PROMPT IF NEEDED.]**

Financial grant or rebate for measures installed	1	[GO TO VB2]
Subsidy for design or engineering work	2	[GO TO VB2]
Reduced interest loan or loan interest subsidy	3	[GO TO VB2]
Loan guarantee	4	[GO TO VB2]
Assistance in entering into performance contracts	5	[GO TO VB3]
Energy audit or other technical assistance in identifying & characterizing opportunities	6	[GO TO VB3]
Referrals to qualified vendors	7	[GO TO VB3]
General information on energy efficiency opportunities	8	[GO TO VB3]
Other (Specify in enough detail to understand the support received to use in attribution analysis) _____	9	[GO TO VB3]
[Don't know]	97	[GO TO VB3]
[Refused]	98	[GO TO VB3]

**[IF VB1 INCLUDES 1, 2, 3, OR 4 ASK VB2, ELSE VB3]**

**VB2.** What was the amount of the incentive, subsidy, or loan provided by the &SPONSOR's &PROGRAM? Your best approximation will be fine.

[RECORD AMOUNT]	\$_____	[GO TO VB3]
[Don't know]	-97	[GO TO VB3]
[Refused]	-98	[GO TO VB3]

**VB3.** And, what was the total overall cost of the energy efficiency project supported by &PROGRAM including equipment and labor *before* any incentives or subsidies were applied? Again, your best approximation will be fine

[RECORD AMOUNT]	\$_____	[GO TO VB4]
[Don't know]	-97	[GO TONEXT SECTION]

[Refused]	-98	[GO TO NEXT SECTION]
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**[IF MULTIPLE MEASURES INSTALLED ASK VB4 THROUGH VB6, ELSE NEXT SECTION.]**

**VB4.** Can you recall how these costs were allocated among the different equipment or services installed or conducted?

[Yes]	1	[GO TO VB5]
[No]	2	[GO TO NEXT SECTION]
[Don't know]	-97	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]

**VB5.** Can you tell me the cost of purchasing and installing &MEASURE **[STARTING FROM FIRST IN GRID OR DATABASE]?**

**VB6.** **[IF RESPONDENT CANNOT PROVIDE A COST AMOUNT:]** What percentage of the total overall costs of the project supported by &PROGRAM did &MEASURE\_TYPE account for?

	<b>VB5</b>	<b>VB6</b>
<b>Measure type</b>	<b>Cost</b>	<b>% of Total</b>
Dishwasher		
Clothes Washer		
Refrigerator		
Lighting		
Cooling		
Heating		
Hot Water Heating		
Duct Testing & Sealing		
Air Sealing w/ Blower Door		
Insulation		
Shower head replacement		
Faucet Aerator		
<b>Other Efficiency Measures</b>		

[RECORD VERIFIED MEASURES FOR MEASURE SPECIFIC QUESTIONS BELOW.  
RESPONDENTS WILL ONLY BE ASKED MEASURE SPECIFIC QUESTIONS FOR  
MEASURE GROUPS CONFIRMED]

[&DISHWASHER]  
[&CLOTHESWASHER]  
[&REFRIGERATOR]  
[&LIGHTING]  
[&COOLING]  
[&HEATING]  
[&HOTWATER]  
[&DUCTTEST]  
[&INSULATION]  
[&SHOWERHEAD]  
[&AERATOR]  
[&OTHER]

## DISHWASHER

[IF &DISHWASHER = TRUE]

**DW1** Now I'd like to ask some questions about your new energy efficient dishwasher you received support for through the &SPONSOR &PROGRAM.

**DW2a** Did your dishwasher replace an existing dishwasher?

Yes	1	[GO TO DW2b]
No	2	[GO TO DW3]
Don't Know	-97	[GO TO DW3]
Refused	-98	[GO TO DW3]

**DW2b IF yes to DW2A** How old was your old dishwasher?

[Less than 1 yr]	1	[GO TO DW2c]
[1-5 yrs]	2	[GO TO DW2c]
[5-10 yrs]	3	[GO TO DW2c]
[More than 10 yrs]	4	[GO TO DW2c]
[Don't Know]	-97	[GO TO DW2c]
[Refused]	-98	[GO TO DW2c]

**DW2c** Was the old dishwasher working or not working?

Working	1	[GO TO DW2d]
Not working	2	[GO TO DW3]
[Don't Know]	-97	[GO TO DW3]
[Refused]	-98	[GO TO DW3]

**DW2d** Was the old dish washer in good, fair, or poor working condition?

Good	1	[GO TO DW3]
Fair	2	[GO TO DW3]
Poor	3	[GO TO DW3]
[Don't Know]	-97	[GO TO DW3]
[Refused]	-98	[GO TO DW3]

## CLOTHES WASHER BATTERY

[IF &CLOTHESWASHER = TRUE]

**CW1** Now I'd like to ask some questions about your new energy efficient clothes washer you received support for through the &SPONSOR &PROGRAM.

**CW2a** Did your clothes washer replace an existing clothes washer?

Yes	1	[GO TO CW2b]
No	2	[GO TO CW3]
Don't Know	-97	[GO TO CW3]
Refused	-98	[GO TO CW3]

**CW2b IF CW2a is yes...** How old was your old clothes washer?

[Less than 1 yr]	1	[GO TO CW2c]
[1-5 yrs]	2	[GO TO CW2c]
[5-10 yrs]	3	[GO TO CW2c]
[More than 10 yrs]	4	[GO TO CW2c]
[Don't Know]	-97	[GO TO CW2c]
[Refused]	-98	[GO TO CW2c]

**CW2c** Was the old clothes washer working or not working?

Working	1	[GO TO CW2d]
Not working	2	[GO TO CW3]
[Don't Know]	-97	[GO TO CW3]
[Refused]	-98	[GO TO CW3]

**CW5** Do you have a clothes dryer?

[Yes]	1	[GO TO CW8]
[No]	2	[GO TO R1]
[Don't Know]	-97	[GO TO R1]
[Refused]	-98	[GO TO R1]

**CW8** What type of fuel does your clothes dryer use? (If unsure read 1, 2)

Electricity	1	[GO TO R1]
Natural Gas	2	[GO TO R1]
Other (SPECIFY)	4	[GO TO R1]
[Don't Know]	-97	[GO TO R1]
[Refused]	-98	[GO TO R1]

## REFRIGERATOR BATTERY

**R1** I'd like to ask some questions about the energy efficient refrigerator you received support for through the &SPONSOR &PROGRAM. Where is the Freezer located (mounted) on the refrigerator?

Freezer is on the bottom of the refrigerator	1	[GO TO R2a]
Freezer is on the top of the refrigerator	2	[GO TO R2a]
Freezer is on the side of the refrigerator	3	[GO TO R2a]
Refrigerator does not have an attached freezer	4	[GO TO R2a]
[Don't Know]	-97	[GO TO R2a]
[Refused]	-98	[GO TO R2a]

**R2a** Does your new refrigerator have a through the door ice machine?

[Yes]	1	[GO TO R2b]
[No]	2	[GO TO R2b]
[Don't Know]	-97	[GO TO R2b]
[Refused]	-98	[GO TO R2b]

**R2b** Does your new refrigerator have automatic defrost, partial automatic defrost, or manual defrost?

Automatic Defrost	1	[GO TO R3]
Partial Automatic Defrost	2	[GO TO R3]
Manual Defrost	3	[GO TO R3]
[Don't Know]	-97	[GO TO R3]
[Refused]	-98	[GO TO R3]

**R3** Is this refrigerator plugged in and running ... (Read list)

All the time	1	[GO TO R3b]
For special occasions only	2	[GO TO R3b]
During certain months of the year only, or	3	[GO TO R3b]
Never plugged in or running	4	[GO TO R3b]
[Don't Know]	-97	[GO TO R3b]
[Refused]	-98	[GO TO R3b]

**R3b** Is this refrigerator compact, standard size, or oversized?

[Compact]	1	[GO TO R4]
[Standard]	2	[GO TO R4]
[Oversized]	3	[GO TO R4]
[Don't Know]	-97	[GO TO R4]
[Refused]	-98	[GO TO R4]

**R4** Did the new refrigerator replace an existing refrigerator?

Yes	1	[GO TO R5]
No	2	[GO TO HW1]
Don't know	-8	[GO TO HW1]
Refused	-9	[GO TO HW1]

**R5** Where was the Freezer located (mounted) on the old refrigerator?

Freezer was on the bottom of the refrigerator	1	[GO TO R6a]
Freezer was on the top of the refrigerator	2	[GO TO R6a]
Freezer was on the side of the refrigerator	3	[GO TO R6a]
Refrigerator did not have an attached freezer	4	[GO TO R6a]
[Don't Know]	-97	[GO TO R6a]
[Refused]	-98	[GO TO R6a]

**R6a** Did your old refrigerator have a through the door ice machine?

[Yes]	1	[GO TO R6b]
[No]	2	[GO TO R6b]
[Don't Know]	-97	[GO TO R6b]
[Refused]	-98	[GO TO R6b]

**R6b** Did the old refrigerator have automatic defrost, partial automatic defrost, or manual defrost?

Automatic Defrost	1	[GO TO R7]
Partial Automatic Defrost	2	[GO TO R7]
Manual Defrost	3	[GO TO R7]
[Don't Know]	-97	[GO TO R7]
[Refused]	-98	[GO TO R7]

**R6c** How old was your old refrigerator?

[Less than 1 yr]	1	[GO TO CW2c]
[1-5 yrs]	2	[GO TO CW2c]
[5-10 yrs]	3	[GO TO CW2c]
[More than 10 yrs]	4	[GO TO CW2c]
[Don't Know]	-97	[GO TO CW2c]
[Refused]	-98	[GO TO CW2c]

**R7** Has the refrigerator you replaced been removed from your home or do you still have it?

Removed from the home	1	[GO TO R8]
Still have it	2	[GO TO R9]
[Don't know]	-97	[GO TO HW1]
[Refused]	-98	[GO TO HW1]

**R8.** How did you dispose of your old refrigerator?  
(CLARIFY IF NEEDED TO FIT LIST BELOW. FOR EXAMPLE: Did you give it away or sell it?)

Took it to a recycler or scrap dealer	1	[GO TO HW1]
Took it to the landfill or threw it away	2	[GO TO HW1]
Sold it or gave it to another private party	3	[GO TO HW1]

Sold it to a used refrigerator / freezer dealer	4	[GO TO HW1]
Hired someone to pick it up (for junking or dumping)	5	[GO TO HW1]
Utility program hauled it away	6	[GO TO HW1]
Dealer I bought a new one from took it away	7	[GO TO HW1]
Left it behind when moved (for new occupant)	8	[GO TO HW1]
Other (SPECIFY)	9	[GO TO HW1]
[Don't know]	-97	[GO TO HW1]
[Refused]	-98	[GO TO HW1]

**R9** Was the old refrigerator plugged in and running ... (Read list)

All the time	1	[GO TO HW1]
For special occasions only	2	[GO TO HW1]
During certain months of the year only, or	3	[GO TO HW1]
Never plugged in or running	4	[GO TO HW1]
[Don't Know]	-97	[GO TO HW1]
[Refused]	-98	[GO TO HW1]

**HOT WATER HEATER BATTERY**

[IF &CLOTHESWASHER = TRUE OR &DISHWASHER = TRUE OR &HOTWATER = TRUE or &SHOWERHEAD = TRUE OR &AERATOR=TRUE]

**HW1** Now I'd like to ask some questions about the new hot water heater you received support for through the &SPONSOR &PROGRAM.

**HW3** What type of fuel did your previous water heater use?

[Electricity]	1	[GO TO HW4]
[Natural Gas]	2	[GO TO HW4]
[Propane]	3	[GO TO HW4]
[Solar (sun)]	4	[GO TO HW4]
Other (SPECIFY)	5	[GO TO HW4]
[Don't Know]	-97	[GO TO HW4]
[Refused]	-98	[GO TO HW4]

**HW4** Is your water heater a traditional storage tank water heater or is it a tankless or on-demand type water heater? [If unsure ask] Does your water heater store water?

[Traditional storage tank]	1	[GO TO HW7]
[Tankless/on-demand]	2	[GO TO HW7]
Other (SPECIFY)	3	[GO TO HW7]
Don't Know	-97	[GO TO HW7]
Refused	-98	[GO TO HW7]

**HW7** What temperature is your hot water heater set for?

RECORD TEMPERATURE #	#	[GO TO HW9]
[Don't know]	-97	[GO TO HW8]
[Refused]	-98	[GO TO HW8]

**HW8** Is your water heater set at a... (Read All)

Low temperature: 100-120 degrees F?	1	[GO TO HW9]
Medium temperature: 125-140 F?	2	[GO TO HW9]

High temperature: 145-160 F?	3	[GO TO HW9]
[Don't know]	-97	[GO TO HW9]
[Refused]	-98	[GO TO HW9]

[IF &CLOTHESWASHER = FALSE AND &HOTWATER = TRUE, ELSE SKIP TO DUCT TESTING]

**HW9** Do you have a clothes washer?

[Yes]	1	[GO TO HW10]
[No]	2	[GO TO HW11]
[Don't Know]	-97	[GO TO HW11]
[Refused]	-98	[GO TO HW11]

**HW10** Do you always, sometimes, or never wash your clothes in warm or hot water?

[Always]	1	[GO TO HW11]
[Sometimes]	2	[GO TO HW11]
[Never]	3	[GO TO HW11]
[Don't Know]	-8	[GO TO HW11]
[Refused]	-9	[GO TO HW11]

[IF &DISHWASHER = TRUE, GO TO DT1]

**HW11** Do you have a dishwasher?

[Yes]	1	[GO TO DT1]
[No]	2	[GO TO DT1]
[Don't Know]	-97	[GO TO DT1]
[Refused]	-98	[GO TO DT1]

## DUCT TESTING BATTERY

### [IF & DUCTTEST = TRUE]

**DT1** I'd like to ask you some questions about the duct testing and sealing that was done in your home.

Do you recall the technicians who worked on your home taking measurements of pressures and air flows in your duct systems?

Yes	1	[GO TO DT2]
No	2	[GO TO DT2]
[Don't Know]	-97	[GO TO DT2]
[Refused]	-98	[GO TO DT2]

**DT2** Do you recall the technicians who worked on your home repairing leaks or loose insulation on your ductwork?

Yes	1	[GO TO DT3]
No	2	[GO TO DT3]
[Don't Know]	-97	[GO TO DT3]
[Refused]	-98	[GO TO DT3]

**DT3** Was the duct system in your house installed or replaced during the time you have been living in your home?

Yes	1	[GO TO DT4]
No	2	[GO TO LI1a]
[Don't Know]	-97	[GO TO LI1a]
[Refused]	-98	[GO TO LI1a]

**DT4** How long ago was the duct system installed or replaced? Would you say it was ...

Less than 5 years ago	1	[GO TO NEXT CL8a]
Between 5 and 10 years ago	2	[GO TO NEXT CL8a]
10 to 20 years ago	3	[GO TO NEXT CL8a]
more than 20 years ago	4	[GO TO NEXT CL8a]
[Don't know]	-97	[GO TO NEXT CL8a]
[Refused]	-98	[GO TO NEXT CL8a]

## LIGHTING

### [IF &LIGHTING = TRUE]

In the next section we'll be discussing the lighting equipment that received support from &SPONSOR &PROGRAM.

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK LI1a THROUGH LI1c.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK LI2a THROUGH LI2c.]

[REPEAT LI1a - LI1c. FOR EACH &LI\_TECH IN THE TRACKING DATA. ]

**LI1a.** Our records indicate that you installed &LI\_NUM of &WATT &LI\_TECH through the &PROGRAM. Is this correct?

[Yes, installed that number]	1	[GO TO LI1d]
[Did not install any of that technology]	2	[GO TO LI1A FOR NEXT &LI_TECH]
[Technology correct, number wrong]	3	[GO TO LI1num]
[Don't Know]	-97	[GO TO LI1A FOR NEXT &LI_TECH]
[Refused]	-98	[GO TO LI1A FOR NEXT &LI_TECH]

**LI1num.** What is the correct number of &LI\_TECH that you installed through the &PROGRAM?

ENTER NUMBER		[GO TO LI1c]
[Don't Know]	-97	[GO TO LI1A FOR NEXT &LI_TECH]
[Refused]	-98	[GO TO LI1A FOR NEXT &LI_TECH]

**LI1c.** Why did you install a different number of &LI\_TECH?

Have no idea why numbers differ	1	[GO TO LI1d]
Put some in storage	2	[GO TO LI1d]
Installed some at another location in the U.S.	3	[GO TO LI1d]
Insufficient financial resources to complete full amount	4	[GO TO LI1d]
[Other, Specify _____]	5	[GO TO LI1d]
[Don't know]	-97	[GO TO LI1d]
[Refused]	-98	[GO TO LI1d]

**LI1d** I am going to read a list of rooms in your home. Please tell me the number of &LI\_TECH installed in these rooms.

Living/family room	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Dining room	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Den/Office	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Kitchen	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Bedrooms	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Bathrooms	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Closets	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Hallways	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Attic	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Basement	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Garage	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Yard/Outside	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Other (specify)	#__	[GO TO LI1A FOR NEXT &LI_TECH]

**[ONCE ALL &LI\_TECHS FROM TRACKING DATA EXHAUSTED, SKIP TO LI3]**

**[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK LI2a THROUGH LI2num]**

**LI2a.** Which of the following types of lighting equipment, if any, did you install with the support provided by the &PROGRAM? **[IF DON'T KNOW, ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES.]**

**LI2num.** Approximately how many lighting fixtures did you purchase using the funds or technical support from the &SPONSOR &PROGRAM?

**RESPONSE GRID FOR LI1 AND LI2 SERIES OF QUESTIONS**

	<b>&amp;LI_TECH</b>	<b>LI1a Tracking Verified?</b>	<b>LI1num Corrected # Install</b>	<b>LI1c Reason for Diff</b>	<b>LI2a Untracked Tech Inst</b>	<b>LI2num Untracked # Install</b>
	<b><i>Lamps &amp; Fixtures</i></b>					
1	&WATT Compact Fluorescent Bulbs					
2	&WATT Compact Fluorescent, Hardwire					
3	&WATT LED bulbs					
4	&WATT LED Overhead Fixtures					
5	Other Fixtures (Specify_____)					

**LI2d** I am going to read a list of rooms in your home. Please tell me the number of &LI\_TECH installed in these rooms.

Living/family room	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Dining room	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Den/Office	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Kitchen	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Bedrooms	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Bathrooms	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Closets	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Hallways	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Attic	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Basement	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Garage	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Yard/Outside	#__	[GO TO LI1A FOR NEXT &LI_TECH]
Other (specify)	#__	[GO TO LI1A FOR NEXT &LI_TECH]

**[ASK FOR EACH LIGHTING EQUIPMENT VERIFIED]**

**LI3** What was the wattage of the lighting that this &LI\_TECH replaced?

ENTER WATTAGE	__	[GO TO LI3 FOR NEXT &LI_TECH]
[Don't Know]	-97	[GO TO LI3 FOR NEXT &LI_TECH]
[Refused]	-98	[GO TO LI3 FOR NEXT &LI_TECH]

**COOLING EQUIPMENT BATTERY**

**[IF &COOLING = TRUE]**

Now we would like to discuss the cooling equipment that received funding from &SPONSOR &PROGRAM

**[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK CL1 THROUGH CL6a. IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, SKIP TO CL-N1]**

**[REPEAT CL1 THROUGH CL6a FOR EACH &C\_TECH IN THE TRACKING DATA. ]**

**CL1.** Our records indicate that you installed &CTECH\_NUM &C\_TECH through the &PROGRAM. Is that correct?

[Yes, installed that number]	1	[GO TO CL3]
[Did not install any of that technology]	2	[GO TO CL1 FOR NEXT &C_TECH]
[Technology correct, number wrong]	3	[GO TO CL2a]
[Don't Know]	-97	[GO TO CL1 FOR NEXT &C_TECH]
[Refused]	-98	[GO TO CL1 FOR NEXT

		&C_TECH]
--	--	----------

**CL2a.** How many &C\_TECH did you install?

RECORD NUMBER	_____	[GO TO CL2b]
Don't know	-97	[GO TO CL2b]
Refused	-98	[GO TO CL2b]

**CL5.** Our records indicate the &CTECH have an efficiency rating of &CTECH\_EFF &CTECH\_EFF\_UNITS Is that correct?

Yes	1	[GO TO CL1 FOR NEXT &C_TECH]
No	2	[GO TO CL6a]
Don't know	-97	[GO TO CL1 FOR NEXT &C_TECH]
Refused	-98	[GO TO CL1 FOR NEXT &C_TECH]

**CL6a.** What is the correct efficiency rating?

RECORD EFFICIENCY NUMBER		[GO TO CL1 FOR NEXT &C_TECH]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON, or specify other)		[GO TO CL1 FOR NEXT &C_TECH]
Don't know	-97	[GO TO CL1 FOR NEXT &C_TECH]
Refused	-98	[GO TO CL1 FOR NEXT &C_TECH]

**RESPONSE GRID FOR CL1 TO CL6a**

	ITEM	CL1	CL2a	CL5	CL6a
<b>1</b>	Evaporative coolers (swamp coolers)				
<b>2</b>	Central air conditioner				
<b>3</b>	Heat pump				
<b>4</b>	Window/Wall Units				
<b>77</b>	Other (Specify)				
<b>97</b>	Don't Know				
<b>98</b>	Refused				

**[AFTER ALL MEASURES IN TRACKING DATA EXHAUSTED, SKIP TO CL-N1]**

**USE THE CL-N1 TO CL-N4 SEQUENCE IF THE PROGRAM TRACKING DATABASE DOES NOT CONTAIN MEASURE-LEVEL DATA**

**CL-N1.** What types of cooling equipment did you install with the assistance of &PROGRAM at &SERV\_ADD? **[ALLOW MULTIPLE ANSWERS]**

Evaporative coolers (swamp coolers)	1	[GO TO CL-N2]
Central air conditioner	2	[GO TO CL-N2]
Heat pump		[GO TO CL-N2]
Window/Wall Units	3	[GO TO CL-N2]
[Other (Specify_____)]	77	[GO TO CL-N2]
[Don't Know]	- 97	[ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO KNOWS. THEN NEXT SECTION]
[Refused]	- 98	[GO TO NEXT SECTION]

**CL-N2.** How many units of &C\_TECH did you install?

RECORD NUMBER		[GO TO CL-N4]
Don't know	97	[GO TO CL-N4]
Refused	98	[GO TO CL-N4]

**CL-N4.** What was the efficiency rating of the &CTECH\_EFF units that you installed through &PROGRAM? **[RECORD FOR ALL UNITS INSTALLED THROUGH &PROGRAM.]**

RECORD EFFICIENCY NUMBER		[GO TO NEXT CL-N1]
RECORD EFFICIENCY UNIT (EER, SEER, KW/TON)		[GO TO NEXT CL-N1]
Don't know	-97	[GO TO NEXT CL-N1]
Refused	-98	[GO TO NEXT CL-N1]

**RESPONSE GRID FOR CL-N1 TO CL-N4**

	ITEM	CL-N1	CL-N2	CL-N4 Number	CL-N4 Units
1	Evaporative coolers (swamp coolers)				
2	Central air conditioner				
3	Heat pump				
4	Window/Wall Units				
77	Other (Specify)				

**ASK CL8a THROUGH CL8f FOR EACH MEASURE IDENTIFIED IN CL1 AND CL-N1]**  
**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new cooling equipment though the program.**

**CL8a.** What types of cooling equipment, if any, were replaced when installing the new &C\_TECH? **[SELECT ALL THAT APPLY]**

SELECT EQUIPMENT TYPE		[RECORD AS &C_TECH_REM] [GO TO CL8b]
None	77	[GO TO CL9]
[Don't Know]	-97	[GO TO CL8a FOR NEXT &C_TECH]
[Refused]...	-98	[GO TO CL8a FOR NEXT &C_TECH]

**CL8b.** How many units were removed?

RECORD NUMBER	_____	[GO TO CL8d]
Don't know	-97	[GO TO CL8d]
Refused	-98	[GO TO CL8d]

**CL8d.** Generally, how would you describe the condition of &C\_TECH\_REM that was removed and replaced? Was it...

Inoperable (broken)	1	[GO TO CL8f]
Poor condition	2	[GO TO CL8f]
Fair condition	3	[GO TO CL8f]
Good condition	4	[GO TO CL8f]
[Don't know]	-97	[GO TO CL8f]
[Refused]	-98	[GO TO CL8f]

**CL8f.** On average, how old was the &C\_TECH\_REM that was removed and replaced? Would you say...

Less than 5 years old	1	[GO TO NEXT CL8a]
Between 5 and 10 years old	2	[GO TO NEXT CL8a]
10 to 20 years old	3	[GO TO NEXT CL8a]

more than 20 years old	4	[GO TO NEXT CL8a]
[Don't know]	-97	[GO TO NEXT CL8a]
[Refused]	-98	[GO TO NEXT CL8a]

### RESPONSE GRID FOR CL8 SERIES

		CL8a	CL8b	CL8d	CL8f
<b>0</b>	<b>No A/C Removed</b>		<b>skip</b>	<b>skip</b>	<b>skip</b>
<b>1</b>	<b>Evaporative coolers</b> (swamp coolers)				
<b>2</b>	<b>Central air conditioner</b>				
<b>3</b>	<b>Heat pump</b>				
<b>4</b>	<b>Window/Wall Units</b>				
<b>77</b>	Other (Specify)				

### HEATING EQUIPMENT BATTERY

#### [IF &HEATING = TRUE]

Now we would like to discuss the heating equipment that received funding from &SPONSOR &PROGRAM

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK HT1 THROUGH HT6a.  
IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, SKIP TO HT-N1]

[REPEAT HT1 THROUGH HT6a FOR EACH &H\_TECH IN THE TRACKING DATA. ]

**HT1.** Our records indicate that you installed &HTECH\_NUM &H\_TECH through the &PROGRAM. Is that correct?

[Yes, installed that number]	1	[GO TO HT5]
[Did not install any of that technology]	2	[GO TO HT1 FOR NEXT &H_TECH]
[Technology correct, number wrong]	3	[GO TO HT2a]
[Don't Know]	-97	[GO TO HT1 FOR NEXT &H_TECH]
[Refused]	-98	[GO TO HT1 FOR NEXT &H_TECH]

**HT2a.** How many &H\_TECH did you install?

RECORD NUMBER	_____	[GO TO HT25]
Don't know	-97	[GO TO HT5]
Refused	-98	[GO TO HT5]

**HT5.** Our records indicate the &HTECH have an efficiency rating of &HTECH\_EFF &HTECH\_EFF\_UNITS. Is that correct?

Yes	1	[GO TO HT7]
No	2	[GO TO HT6a]
[Don't know]	-97	[GO TO HT7]
[Refused]	-98	[GO TO HT7]

**HT6a.** What is the correct efficiency rating?

RECORD EFFICIENCY NUMBER		[GO TO HT7]
RECORD EFFICIENCY UNIT (AFUE, thermal efficiency, or specify other)		[GO TO HT7]
Don't know	-97	[GO TO HT7]
Refused	-98	[GO TO HT7]

**HT7** What fuel does &HTECH use?

Natural Gas	1	[GO TO HT1 FOR NEXT &H_TECH]
Electric	2	[GO TO HT1 FOR NEXT &H_TECH]
Propane	3	[GO TO HT1 FOR NEXT &H_TECH]
Wood	4	[GO TO HT1 FOR NEXT &H_TECH]
Solar	5	[GO TO HT1 FOR NEXT &H_TECH]
Other	6	[GO TO HT1 FOR NEXT &H_TECH]

**RESPONSE GRID FOR HT1 TO HT6a**

	ITEM	HT1	HT2a	HT2b	HT5	HT6a	HT7
<b>1</b>	Natural Gas Boiler						
<b>2</b>	Wood Pellet Boiler						
<b>3</b>	Furnace						
<b>4</b>	Heat pump						
<b>77</b>	Other (Specify)						
<b>97</b>	Don't Know						
<b>98</b>	Refused						

**USE THE HT-N1 TO HT-N4 SEQUENCE IF THE PROGRAM TRACKING DATABASE DOES NOT CONTAIN MEASURE-LEVEL DATA**

**HT-N1.** What types of heating equipment did you install with the assistance of &PROG at &SERV\_ADD? **[ALLOW MULTIPLE ANSWERS]**

Natural Gas Boiler	1	[GO TO HT-N4]
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Wood Pellet Boiler	2	[GO TO HT-N4]
Furnace	3	[GO TO HT-N4]
Heat pump	4	[GO TO HT-N4]
Other (Specify)	77	[GO TO HT-N4]
[Don't Know]	- 97	ATTEMPT TO GET CONTACT INFORMATION OF PERSON WHO DOES KNOW. [THEN GO TO NEXT SECTION]
[Refused]	- 98	[GO TO NEXT SECTION]

**HT-N4.** What was the efficiency rating of the &HTECH\_EFF units that you installed?  
[RECORD FOR ALL UNITS INSTALLED THROUGH &PROGRAM.]

RECORD EFFICIENCY NUMBER		[GO TO HT-N7]
RECORD EFFICIENCY UNIT (AFUE, Thermal efficiency, specify other)		[GO TO HT-N7]
Don't know	- 97	[GO TO HT-N7]
Refused	- 98	[GO TO HT-N7]

**HT-N7** What fuel does &HTECH use?

Natural Gas	1	[GO TO HT1 FOR NEXT &H_TECH]
Electric	2	[GO TO HT1 FOR NEXT &H_TECH]
Propane	3	[GO TO HT1 FOR NEXT &H_TECH]
Wood	4	[GO TO HT1 FOR NEXT &H_TECH]
Solar	5	[GO TO HT1 FOR NEXT &H_TECH]
Other	6	[GO TO HT1 FOR NEXT &H_TECH]

**RESPONSE GRID FOR HT-N1 TO HT-N4**

	ITEM	HT-N1	HT-N4 Number	HT-N4 Units
<b>1</b>	Natural Gas Boiler			
<b>2</b>	Wood Pellet Boiler			
<b>3</b>	Furnace			
<b>74</b>	Heat pump			
<b>77</b>	Other (Specify)			

**ASK HT8a THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT1 AND HT-N1]**

Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new heating equipment with the assistance of &PROG.

**HT8a.** What types of heating equipment, if any, were replaced when installing the new &H\_TECH? **[SELECT ALL THAT APPLY]**

Natural Gas Boiler	1	[GO TO RECORD AS &H_TECH_REM]
Wood Pellet Boiler	2	[GO TO RECORD AS &H_TECH_REM]
Furnace	3	[GO TO RECORD AS &H_TECH_REM]
Heat pump	4	[GO TO RECORD AS &H_TECH_REM]
None	5	[GO TO HT9]
[Don't Know]	-97	[GO TO HT8a FOR NEXT &H_TECH]
[Refused]...	-98	[GO TO HT8a FOR NEXT &H_TECH]

**[ASK HT8b THROUGH HT8f FOR EACH MEASURE IDENTIFIED IN HT8a]**

**HT8d.** Generally, how would you describe the condition of &H\_TECH\_REM that was removed and replaced? Was it...

Inoperable (broken)	1	[GO TO HT8f]
Poor condition	2	[GO TO HT8f]
Fair condition	3	[GO TO HT8f]
Good condition	4	[GO TO HT8f]
[Don't know]	-97	[GO TO HT8f]
[Refused]	-98	[GO TO HT8f]

**HT8f.** On average, how old was the &H\_TECH\_REM that was removed and replaced? Would you say...

Less than 5 years old	1	[GO TO NEXT HT8a]
Between 5 and 10 years old	2	[GO TO NEXT HT8a]
10 to 20 years old	3	[GO TO NEXT HT8a]
more than 20 years old	4	[GO TO NEXT HT8a]
[Don't know]	-97	[GO TO NEXT HT8a]
[Refused]	-98	[GO TO NEXT HT8a]

## RESPONSE GRID FOR HT8

		HT8a	HT8d	HT8f
<b>0</b>	<b>No heating Removed</b>		<b>skip</b>	<b>skip</b>
<b>1</b>	Natural Gas Boiler			
<b>2</b>	Wood Pellet Boiler			
<b>3</b>	Furnace			
<b>4</b>	Heat pump			
<b>77</b>	Other (Specify)			

## INSULATION

### [ASK IF &INSULATION = TRUE]

**RR4R** Did you add insulation in the walls, the attic or ceiling or both with the assistance of &PROG?

Wall Only	1	[GO TO RR4R1a]
Attic or Ceiling Only	2	[GO TO RR4R2a]
Both	3	[GO TO RR4R1a]
[Don't know]	-97	[GO TO I3_9]
[Refused]	-98	[GO TO I3_9]

**RR4R1A** Did you have some insulation in the walls before adding this insulation?

Yes	1	[GO TO RR4R1b]
No	2	[GO TO RR4R1c]
[Don't know]	-97	[GO TO RR4R1c]
[Refused]	-98	[GO TO RR4R1c]

**RR4R1B** What was the R value or number of inches of the wall insulation previously?

ENTER R VALUE	___	[GO TO RR4R1c]
ENTER INCHES	___	[GO TO RR4R1c]
[Don't know]	-97	[GO TO RR4R1c]
[Refused]	-98	[GO TO RR4R1c]

**RR4R1C** What is the current R value or number of inches of the wall insulation after adding insulation?

ENTER R VALUE	___	[GO TO RR4R1d]
ENTER INCHES	___	[GO TO RR4R1d]
[Don't know]	-97	[GO TO RR4R1d]
[Refused]	-98	[GO TO RR4R1d]

**RR4R1E** How many rooms were insulated?

SQUARE FOOTAGE OF WALLS INSULATED	___	[GO TO RR4R2a]
[Don't know]	-97	[GO TO RR4R2a]
[Refused]	-98	[GO TO RR4R2a]

**RR4R2A** [ASK IF RR4R = 2 OR 3] Did you have insulation in the attic or ceilings before adding this insulation?

Yes	1	[GO TO RR4R2aa]
No	2	[GO TO RR4R2c]
[Don't know]	-97	[GO TO RR4R2c]
[Refused]	-98	[GO TO RR4R2c]

**RR4R2AA** Did you replace or add to the existing insulation?

Replace	1	[GO TO RR4R2b]
Add to	2	[GO TO RR4R2b]
[Don't know]	-97	[GO TO RR4R2b]
[Refused]	-98	[GO TO RR4R2b]

**RR4R2B** About what percentage of your attic or ceiling was insulated through this project?

ENTER PERCENT	__	[GO TO RR4R2b1]
[Don't know]	-97	[GO TO RR4R2b1]
[Refused]	-98	[GO TO RR4R2b1]

**RR4R2B1** With how many inches of insulation was the attic previously insulated?

ENTER INCHES	__	[GO TO RR4R2c]
[Don't know]	-97	[GO TO RR4R2c]
[Refused]	-98	[GO TO RR4R2c]

**RR4R2C1** With how many inches of insulation is now in the attic?

ENTER INCHES	__	[GO TO I3_X]
[Don't know]	-97	[GO TO I3_X]
[Refused]	-98	[GO TO I3_X]

## SHOWERHEAD AND FAUCET AERATORS

[IF &SHOWERHEAD = TRUE]

**I3\_X** (IF NOT ALREADY CONFIRMED) How many showerheads were installed with the assistance of &PROG?

ENTER NUMBER OF SHOWERHEADS	__	[GO TO I3_9]
[Don't know]	-97	[GO TO I3_9]
[Refused]	-98	[GO TO I3_9]

**I3\_9** Where was the &NTH showerhead installed? (REPEAT I3\_9 to I3\_12 FOR ALL SHOWERHEADS IN I3\_X)

Main shower (only one shower)	1	[GO TO I3_11]
Master bathroom shower	2	[GO TO I3_11]
Guest shower	3	[GO TO I3_11]
Outdoor shower	4	[GO TO I3_11]
Other (SPECIFY)	5	[GO TO I3_11]
[Don't know]	-97	[GO TO I3_11]
[Refused]	-98	[GO TO I3_11]

**I3\_13** (IF NOT ALREADY CONFIRMED) How many faucet aerators were installed with the assistance of &PROG?

ENTER NUMBER OF AERATORS	___	[GO TO I3_13_X]
[Don't know]	-97	[GO TO I3_13_X]
[Refused]	-98	[GO TO I3_13_X]

## OTHER EQUIPMENT BATTERY

[IF & OTHER = TRUE]

[IF MEASURE-LEVEL RECORDS ARE AVAILABLE ASK OE1a THRU OE1c.

IF MEASURE-LEVEL RECORDS ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]

[REPEAT OE1a THRU OE1c. FOR EACH &OE\_TECH IN THE TRACKING DATA. ]

**OE1a.** Our records indicate that you installed &OE\_NUM of &OE\_TECH through the &PROGRAM, is this correct?

[Yes, installed that number]	1	[GO TO OE1a FOR NEXT &OE_TECH]
[Did not install any of that technology]	2	[GO TO OE1a FOR NEXT &OE_TECH]
[Technology correct, number wrong]	3	[GO TO OE1b]
Refused]	-98	[GO TO OE1a FOR NEXT &OE_TECH]
[Don't Know]	-97	[GO TO OE1a FOR NEXT &OE_TECH]

**OE1b.** What is the correct number of &OE\_TECH that you installed through the &PROGRAM?

[ENTER NUMBER]	_____	[GO TO OE1c]
[Don't know]	-97	[GO TO OE1c]
[Refused]	-98	[GO TO OE1c]

**OE1c.** Why did you install a different number of &OE\_TECH? [ACCEPT MULTIPLE ANSWERS]

Have no idea why numbers differ	1	[GO TO OE1a FOR NEXT &OE_TECH]
Put some in storage	2	[GO TO OE1a FOR NEXT &OE_TECH]
Installed at another location in the U.S.	3	[GO TO OE1a FOR NEXT &OE_TECH]
Funding insufficient to complete full amount	4	[GO TO OE1a FOR NEXT &OE_TECH]
Other	77	[GO TO OE1a FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE1a FOR NEXT &OE_TECH]
Don't know	-97	[GO TO OE1a FOR NEXT &OE_TECH]

[IF MEASURE-LEVEL DATA ARE NOT AVAILABLE, ASK OE2a THRU OE2c.]

**OE2a.** Did you install any other kinds of energy efficiency measures through the program?

Yes	1	[GO TO OE2b]
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No	2	[GO TO NEXT SECTION]
[Refused]	-98	[GO TO NEXT SECTION]
[Don't Know]	-97	[GO TO NEXT SECTION]

**OE2b.** Which kinds of additional measures did you install through the program?

**OE2c. [FOR EACH MEASURE TYPE MENTIONED.]** Approximately how many &OE\_TECH were purchased using the &SPONSOR &PROGRAM funding?

**OE2e. [FOR EACH MEASURE TYPE MENTIONED.]** How many of the &OE\_TECH purchased using the &SPONSOR &PROGRAM funding were used to replace existing &OE\_TECH units?

**RESPONSE GRID FOR OE1 AND OE2 SERIES**

	OE_TECH	OE1a Tracking Verified?	OE1b Corrected # Install	OE1c Reason for Diff	OE2a/b Untracked Tech Inst	OE2c Untracked # Install	OE2e # replacing existing construction
1	Specify:						
2	Specify:						
3	Specify:						
4	Specify:						
5	Specify:						
6	Specify:						

**[FOR EACH MEASURE TYPE REPORTED IN OE1 AND OE2 where OE2e > 0, ASK OE3]**

**OE3.** What types of equipment were replaced when installing &OE\_TECH

SPECIFY	_____	[GO TO OE3a]
Don't know	-97	[GO TO OE3 FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE3 FOR NEXT &OE_TECH]

**[FOR EACH EQUIPMENT TYPE REPLACED, ASK OE3a]**

**OE3a.** Did you remove the same amount of &OE\_TECH as you installed through the project?

Yes	1	[GO TO OE3d]
No	2	[GO TO OE3b]
Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3b.** Did you remove more or less &OE\_TECH than you installed through the project?

More	1	[GO TO OE3c]
Fewer	2	[GO TO OE3c]
[Refused]	-98	[GO TO OE3d]
[Don't Know]	-97	[GO TO OE3d]

**OE3c.** How much more/less &OE\_TECH did you install?

[ENTER NUMBER]	_____	[GO TO OE3d]
Don't know	-97	[GO TO OE3d]
Refused	-98	[GO TO OE3d]

**OE3d.** What was the condition of the removed equipment?

Inoperable (broken)	1	[GO TO OE3e]
Poor condition	2	[GO TO OE3e]
Fair condition	3	[GO TO OE3e]
Good condition	4	[GO TO OE3e]
Refused	-98	[GO TO OE3e]
Don't know	-97	[GO TO OE3e]

**OE3e.** How old was the removed equipment?

Less than 5 years old	1	[GO TO OE3 FOR NEXT &OE_TECH]
Between 5 and 10 years old	2	[GO TO OE3 FOR NEXT &OE_TECH]
10 to 20 years old	3	[GO TO OE3 FOR NEXT &OE_TECH]
More than 20 years old	4	[GO TO OE3 FOR NEXT &OE_TECH]
Refused	-98	[GO TO OE3 FOR NEXT &OE_TECH]
Don't know	-97	[GO TO OE3 FOR NEXT &OE_TECH]

**RESPONSE GRID OE3**

	OE3	OE3a Remove same amount	OE3b Remove more or less	OE3c Amount removed	OE3d Condition removed equip	OE3d Age removed equip
1	Specify:					
2	Specify:					
3	Specify:					
4	Specify:					
5	Specify:					
6	Specify:					

## DIRECT ATTRIBUTION

Now, I'd like to ask you a few questions about the effect that the &PROGRAM had on your decision to undertake the project we have been discussing.

## OVERALL INFLUENCE

[FOR EACH MEASURE GROUP COVERED ABOVE REPEAT DA0 THROUGH DA ]

**DA0.** Without the &SPONSOR &PROGRM, would you say the likelihood of [installing / performing] the &MEASURE was... [READ LIST]

RESPONSE	&MEASURETYPE	&MEASURETYPE	&MEASURETYPE	&MEASURETYPE
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

## TIMING

**ASK TIMING QUESTIONS ONLY FOR MEASURES WHERE DA0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM.**

AT1. I'd like to know about the effect, if any, that &PROGRAM had on the timing of your project. Without the support from the &PROGRAM, would you have implemented &MEASURE at the same time as you actually did through the project, earlier than you did, later than you did ... or would you not have installed the measure at all in the absence of the program?

RESPONSE	&MEASURETYP	&MEASURETYP	&MEASURETYP	&MEASURETYP
<b>Same time</b>	1	1	1	1
<b>Earlier</b>	2	2	2	2
<b>Later</b>	3	3	3	3
<b>Would never have installed</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF AT1a ≠ LATER, SKIP TO NEXT MEASURE]**

**AT1b.** Approximately how many months later?  
 [Try to get a number. Try bracketing if necessary by beginning with more or less than four years later.]

	<b>DAT1b_ &amp; MEASURE</b>
[RECORD # OF MONTHS]	_____
[Don't know]	-97

## QUANTITY

**ASK QUANTITY QUESTIONS ONLY FOR MEASURES WHERE DAT0 = 1 OR 2 (VERY LIKELY OR SOMEWHAT LIKELY TO HAVE IMPLEMENTED IN THE ABSENCE OF THE PROGRAM. THIS SEQUENCE APPLIES ONLY FOR LIGHTING AND INSULATION.**

**Finally, I'd like to know about the effect, if any, that your participation in the &PROGRAM had on the scale of the project you completed with the support of the program.**

**AQ1.** Without the support from &SPONSOR &PROGRAM would you have installed more <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
Same amount	1	1	1	1
Less or smaller	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a	2 Read AQ3a
More or larger	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a	3 Read AQ3a
Would not have installed any	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**AQ3\_O.** Why do you say that? **[RECORD VERBATIM]** \_\_\_\_\_  
**[IF AQ3 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**AQ3a.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

Calculate percent:  $\text{abs}([\text{amount installed}] / [\text{amount would have installed}]) - 100\%$

The response can be greater or less than 100 percent. Two examples:

- Example 1. Household installed 8, but would have installed 2 without the program. Change is 300 percent.
- Example 2. Household installed 4, would have installed 3 without the program. Change is 33 percent.

Record a positive % even if they decreased the amount that they installed.

- Example 3. Household installed 8 but would have installed 10 w/out the program. Change is 20 percent.
- Example 4. Household installed 4 but would have installed 6 without the program. Change is 33 percent.

RESPONSE	DAT0_MID1	DAT0_MID2	DAT0_MID3	DAT0_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**EFFECT OF OTHER PROGRAMS**

**OP1** In completing the project[s] supported by [NAME OF SEP PA], did you make use of financial or technical support programs offered by other sponsors, such as local utilities, industry associations, or government agencies? For this question we are not interested in commercial offers such as rebate and incentive packages from manufacturers, vendors, or retailers.

[YES]	1	[ASK OP2]
[NO]	2	[GO TO D0]
[DON'T KNOW]	-97	[GO TO D0]
[REFUSED]	-98	[GO TO D0]

**OP2.** Which organization[s] sponsored the [those] program[s]?

**[RECORD RESPONSE]** \_\_\_\_\_  
**IF ONLY ORGANIZATIONS MENTIONED ARE MANUFACTURERS, DISTRIBUTORS, CONTRACTORS, OR ENGINEERS, SKIP TO SKIP TO D0.**

**OP3.** What kinds of services did you receive from those programs in support of the project?

Information to guide project planning and equipment selection	1	[GO TO OP5]
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Technical assistance such as energy audits, financial analyses, and design support	2	[GO TO OP5]
Identification of qualified contractors	3	[GO TO OP5]
Financial incentives such as rebates, reduced-interest loans, or loan guarantees	4	[ASK OP4]
Tax credits	5	[ASK OP4]
Other (Specify) _____	8	[GO TO OP5]
Don't know	-97	[GO TO OP5]
Refused	-98	[GO TO OP5]

**OP4** What was the amount of the incentive[s] that you received from the other program[s] you have mentioned?

ENTER AMOUNT	_____	[GO TO OP5]
[DON'T KNOW]	-97	[GO TO OP4a]
[REFUSED]	-98	[GO TO OP4a]

**IF RESPONDENT RECEIVED FINANCIAL INCENTIVES FROM &PROGRAM, ASK OP4a. ELSE SKIP TO OP5.**

**OP4a** Would you say that the amount of the incentive[s] you received from the other programs you have mentioned was larger, smaller, or about the same as the amount you received from &PROGRAM?

[LARGER]	1	[GO TO OP5]
[SMALLER]	2	[GO TO OP5]
[ABOUT THE SAME]	3	[GO TO OP5]
[DON'T KNOW]	-97	[GO TO OP5]
[REFUSED]	-98	[GO TO OP5]

**READ:** We would like to understand how much the other programs you used affected your motivation and ability to carry out the energy efficiency project we have been discussing, beyond what you would most likely have done using the resources from the &SPONSOR &PROGRAM alone.

**OP5.** If you had been able to access *only* the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used, how likely is it that you would have

carried out the &MEASURE? Would you say the likelihood of undertaking that measure was ... [READ LIST]

RESPONSE	OP5_MID1	OP5_MID2	OP5_MID3	OP5_MID4
<b>Very likely</b>	1	1	1	1
<b>Somewhat likely</b>	2	2	2	2
<b>Not very likely</b>	3	3	3	3
<b>Or very unlikely</b>	4	4	4	4
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**OP6.** If you had been able to access **only** the resources of the &SPONSOR &PROGRAM, but not those of the other programs you used , would you have installed more or/a larger sized <measure>, less, about the same amount, or would you not have installed any quantity of the measure at all?

RESPONSE	OP6_MID1	OP6_MID2	OP6_MID3	OP6_MID4
Same amount	1	1	1	1
Less or smaller	2 Read OP7	2 Read OP7	2 Read OP7	2 Read OP7
More or larger	3 Read OP7	3 Read OP7	3 Read OP7	3 Read OP7
None at all	4	4	4	4
[Not Applicable]	5	5	5	5
[Don't know]	-97	-97	-97	-97
[Refused]	-98	-98	-98	-98

**[IF OP6 = SAME or NOT INSTALLED ANY, SKIP TO OP1.]**

**OP7.** By what percentage do you think you increased or decreased the amount of <&MEASURE installed because of the &SPONSOR &PROGRAM?

RESPONSE	OP7_MID1	OP7_MID2	OP7_MID3	OP7_MID4
[RECORD %]	_____ %	_____ %	_____ %	_____ %
Don't know	-97	-97	-97	-97
Refused	-98	-98	-98	-98

**OP8.** Did you first become aware of the opportunities to reduce energy use in &STR\_ADDRESS through &SPONSOR &PROGRAM, through the other energy efficiency programs in which you participated, or through some other source?

Through the SEP PA	1	[GO TO OP9]
Through other energy efficiency program [s]	2	[GO TO OP9]
Through another source	3	[GO TO OP9]
[DON'T KNOW]	-97	[GO TO OP9]
[REFUSED]	-98	[GO TO OP9]

**OP9** In your opinion, was the &SPONSOR's &PROGRAM more important in encouraging and enabling you [your organization] to carry out the energy efficiency project we have been discussing; was the other program more important; or were they both equally important?

SEP PA	1
Other program	2
Both equally important	3
[Don't know]	-97
[Refused]	-98

**OP10** Why do you say that?

[RECORD  
VERBATIM]

**SKIP TO D0.**

## HOUSING AND DEMOGRAPHICS

**D0** We are almost finished. I just have a few additional questions about your &HOMTYPE to make sure we are getting a representative sample of participants.

**[IF &HOMETYPE = "home" GO TO D1]**

**D0a** About how many apartment units are located in the building at the property?

ENTER NUMBER OF UNITS	# ____	[GO TO D0b]
[Don't know]	-97	[GO TO D0b]
[Refused]	-98	[GO TO D0b]

**D0b** What is the average apartment size in square feet?

ENTER SQUARE FOOTAGE	_____ sq. ft.	[GO TO D0c]
[Don't know]	-97	[GO TO D0c]
[Refused]	-98	[GO TO D0c]

**D0c** On average, how many bedrooms do you have in each unit of your building? (If a one-room efficiency, or studio apartment, bedrooms=0)

ENTER NUMBER OF BEDROOMS	# _____	[GO TO D0d]
[Don't know]	-97	[GO TO D0d]
[Refused]	-98	[GO TO D0d]

**D0d** About when was this building first built?

Before 1970's	1	[GO TO HC1]
1970's	2	[GO TO HC1]
1980's	3	[GO TO HC1]
1990-94	4	[GO TO HC1]
1995-99	5	[GO TO HC1]
2000's	6	[GO TO HC1]
[Don't know]	-97	[GO TO HC1]
[Refused]	-98	[GO TO HC1]

**D1** In what type of building do you live? (READ LIST IF NEEDED)  
(PROBE FOR 'Condo': "How many units are in your building?")

A one-family home detached from any other house	1	[GO TO D2]
A one-family home attached to one or more houses	2	[GO TO D2]
A building with 2 apartments	3	[GO TO D2]
A building with 3 or 4 apartments	4	[GO TO D2]
A building with 5 or more apartments	5	[GO TO D2]
A mobile home	6	[GO TO D2]
Boat, RV, Van, etc.	7	[GO TO D2]
Other ( <i>SPECIFY</i> )	8	[GO TO D2]
[Don't know]	-97	[GO TO D2]
[Refused]	-98	[GO TO D2]

**D2** Including yourself, how many people currently live in your home year-round?

ENTER NUMBER OF PEOPLE	_____	[GO TO D3]
[Don't know]	-97	[GO TO D3]
[Refused]	-98	[GO TO D3]

**D3** How many rooms are there in your home? Do not count laundry rooms, foyers, unfinished storage spaces, porches, or garages.

ENTER NUMBER OF OTHER ROOMS	# _____	[GO TO D4]
[Don't know]	-97	[GO TO D4]
[Refused]	-98	[GO TO D4]

**D4** How large is your home/building in square feet?

ENTER SQUARE FOOTAGE	_____ sq. ft.	[GO TO D5]
[Don't know]	-97	[GO TO D5]
[Refused]	-98	[GO TO D5]

**D5** How many *floors* of living space are there in your home, NOT COUNTING unheated basements? Please answer only about *your home*, not the building as a whole]

1 floor	1	[GO TO D6]
2 floors	2	[GO TO D6]
3 floors	3	[GO TO D6]
More than 3 floors	4	[GO TO D6]
[Don't know]	-97	[GO TO D6]
[Refused]	-98	[GO TO D6]

**D6** About when was this building first built?

Before 1970's	1	[GO TO HC1]
1970's	2	[GO TO HC1]
1980's	3	[GO TO HC1]
1990-94	4	[GO TO HC1]
1995-99	5	[GO TO HC1]
2000's	6	[GO TO HC1]
[Don't know]	-97	[GO TO HC1]
[Refused]	-98	[GO TO HC1]

**ON\_SITE RECRUITING  
TO SCHEDULE ONSITE VERIFICATION**

As we've discussed, the &Program is an important component of the SEP's ongoing efforts to save energy and reduce emissions affecting climate change. In order to improve this program's performance, DOE would like to make an accurate measurement of the energy savings associated with energy efficiency equipment installed by collecting and analyzing information from selected locations.

Your input to this research is extremely important. Thank you for your time.

**COMMENT.** Our verification technician will need to meet with someone over the age of 18 familiar with the equipment installed.

**OS\_NAME1.** May I please have the name of the person who our technician can call to set up an appointment time?

<b>&amp;OS_NAME1</b>	NAME OF PRIMARY CONTACT	OS_PHONE1
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

**OS\_PHONE1.** May I also have the best phone number for the technician to reach this person?

<b>&amp;OS_PHONE1</b>	PHONE FOR PRIMARY CONTACT	OTHER
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

**OTHER.** Is there another person that the technician might speak with, if this primary person is not available?

<b>&amp;OTHER</b>	Get name	OS_NAME2
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

**OS\_PHONE2. May I also have the best phone number for the technician to reach them?**

<b>&amp;OS_PHONE2</b>	Get phone number	VERIFY
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T

**VERIFY. For verification purposes only, may I please have your name?**

	Get name	OS_REC
<b>-98</b>	Refused	T&T
<b>-97</b>	Don't know	T&T



## L.22. ID-7: TECH ASSISTANCE (MARKET ACTOR)

**OMB Control No. 1910-5170**

*Note that this survey instrument will be used for programs where the participants are market actors. This includes sample points that fall under the following sub-categories: "Generalized Workshop or Demonstration," "Targeted Training or Certification," or "Technical Assistance" under three BPAC categories: (1) Building Retrofits, (2) Loans, Grants, and Incentives, and (3) Renewable Energy Market Development.*

### **DATABASE VARIABLES**

&INTERVIEWER NAME....name of the caller  
 &CONTACT .....contact name from program records  
 &SPONSOR.....organization that sponsored the effort being researched  
 &PROGRAM .....program name  
 &DATE .....dates of workshop, demonstration, training funded by SEP  
 &APPOINT .....date/time to call back  
 &NAME .....person to call back  
 &PHONE.....extension or phone number to call back  
 &STATE.....state in which program is offered

&WORKSHOP/DEMONSTRATION/TRAINING.....Name of workshop, demonstration, or training

& TECHNICAL ASSISTANCE.....Name of technical assistance

&BPAC.....Will indicate the specific-BPAC for sample

NOTE THAT OTHER VARIABLES ARE SHOWN IN THE DOCUMENT AS THEY ARE CREATED

### **INTRODUCTION AND FINDING CORRECT RESPONDENT**

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from **INTERVIEWER ORGANIZATION**.  
 May I please speak with &CONTACT, [IF CONTACT NAME AVAILABLE]?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how you used the information provided through the [&WORKSHOP/TRAINING/DEMONSTRATION; &TECHNICAL ASSISTANCE].

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me transfer you to _____]	4	[GO TO INTRO]

[No, that is the wrong person]	5	[GO TO INITIAL]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

		RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK  CALL BACK AT AGREED TIME
[Don't know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO.** On &DATE, you [attended a &WORKSHOP/TRAINING/DEMONSTRATION]/[received &TECHNICAL ASSISTANCE] offered by &SPONSOR. In an effort to determine what actions you may have taken as a result of participating, we ask that you complete this brief survey. Your input will help [&SPONSOR] understand the effects of their past efforts. The survey should take no more than 45 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

**SCREENER**

**S1.** Do you recall [attending the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[receiving &TECHNICAL ASSISTANCE] on [&DATE]?

[Yes]	1	[GO TO A1]
[No]	2	[THANK AND TERMINATE]
[Don't know]	-97	[THANK AND TERMINATE]
[Refused]	-98	[THANK AND TERMINATE]

**RESPONDENT INFO: ROLE IN THE PROJECT**

First, I'd like to get some information about your firm, your job and experience regarding energy efficiency and renewable energy in [&STATE].

**RI0.** Which of the following services does your firm offer in [&STATE]?

a. Architectural services	1	[GO TO RI1]
b. Electrical Engineering	2	[GO TO RI1]
c. Mechanical Engineering	3	[GO TO RI1]
d. Code compliance assessment for other designers and builders	4	[GO TO RI1]
e. Commercial construction management	5	[GO TO RI1]
f. Commercial construction	6	[GO TO RI1]
g. Residential construction	7	[GO TO RI1]
h. Other: Specify	8	[GO TO RI1]

**RI1.** What is your job title?

[RECORD JOB TITLE]	1	[GO TO RI2]
[Don't know]	-97	[GO TO RI2]
[Refused]	-98	[GO TO RI2]

**RI2.** What are your specific job responsibilities? [OPEN END]

[OPEN END: (Specify)]	1	[GO TO AC1]
[Don't know]	-97	[GO TO AC1]
[Refused]	-98	[GO TO AC1]

**AC1.** Which of the following best describes where you intended to apply the information you received? **[READ CATEGORIES]**

**NOTE: IF THE ANSWER IS "SOMEWHERE ELSE", SPECIFY THEN PROBE FOR WHICH OF THE FIVE CLASSIFICATIONS BEST DESCRIBES THEM.**

At my home	1	[GO TO ALTERNATIVE RES
------------	---	------------------------

		<a href="#">SURVEY/TERMINATE]</a>
At the facility(ies) my business occupies	2	<a href="#">[GO TO ALTERNATIVE NON-RES SURVEY/TERMINATE]</a>
At the facility(ies) my business manages (e.g. Property managers)	3	<a href="#">[GO TO ALTERNATIVE NON-RES SURVEY/TERMINATE]</a>
In facilities occupied or managed by customers to whom I provide services (e.g. Architects, engineering firms, contractors, code inspectors)	4	<a href="#">[GO TO MVN1]</a>
In the classroom where I teach	5	<a href="#">[GO TO ALTERNATIVE TEACHER SURVEY/TERMINATE]</a>
Somewhere else: Specify_____	6	<a href="#">[GO TO MVN1]</a>

**RESPONDENT TYPE DEFINED FOR DISPOSITION**

[\[CLASSIFY AC1=1 AS REU \(RESIDENTIAL END-USE CUSTOMER\)\]](#)

[\[CLASSIFY AC1=2, 3 AS CEU \(COMMERCIAL END-USE CUSTOMER\)\]](#)

[\[CLASSIFY AC1=4 AS MA \(MARKET ACTOR\)\]](#)

[\[CLASSIFY AC1=5 AS TEA \(TEACHER\)\]](#)

[\[CLASSIFY AC1=6 AS DEFAULT ASSUMED RESPONDENTS BASED ON PROGRAM TARGET\]](#)

## INITIAL INVENTORY

**MVN1.** Since [&DATE], have you installed any equipment or made any behavioral changes to facilities occupied or managed by customers to whom you provide services for in any of the following areas? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

a. Lighting	1	[GO TO MOP3]
b. Cooling	2	[GO TO MOP3]
c. Heating	3	[GO TO MOP3]
d. Commercial Refrigeration	4	[GO TO MOP3]
e. Motors/Drives	5	[GO TO MOP3]
f. Appliances, such as dishwashers, clothes washers, refrigerators	6	[GO TO MOP3]
g. Hot Water	7	[GO TO MOP3]
h. Duct Testing	8	[GO TO MOP3]
i. Insulation	9	[GO TO MOP3]
j. Showerheads/Aerators	10	[GO TO MOP3]
k. PV	11	[GO TO MOP3]
l. Wind	12	[GO TO MOP3]
m. Solar thermal	13	[GO TO MOP3]
n. Biomass	14	[GO TO MOP3]
o. Biogas	15	[GO TO MOP3]
f. Any other changes?	16	[GO TO MOP3]

## EFFECT OF OTHER PROGRAMS

**MOP3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING][&TECHNICAL ASSISTANCE] inform you about any financial support available to [buildings/customers] such as incentives or loans offered by sponsors, such as, local utilities, industry associations, or government agencies?

[Yes]	1	[GO TO MES2]
[No]	2	[GO TO MES2]
[Don't know]	-97	[GO TO MES2]
[Refused]	-98	[GO TO MES2]

## ENERGY SAVINGS AND ATTRIBUTION

**NOTE: IN THIS SECTION, WE ASK QUESTIONS TO IDENTIFY ANY ENERGY SAVINGS ACTIONS TAKEN AS A RESULT OF PARTICIPATION IN THE [ &WORKSHOP/DEMONSTRATION/TRAINING OR &TECHNICAL ASSISTANCE]. WE WILL PROVIDE A CUSTOMIZED LIST OF ENERGY SAVINGS ACTIONS BASED UPON A REVIEW OF COURSE CURRICULA, PROGRAM DATABASES AND INFORMATION GLEANED FROM THE PROGRAM MANAGER INTERVIEWS. WE WILL ASK IN-DEPTH QUESTIONS FOR UP TO TWO MEASURE CATEGORIES, BASED UPON POTENTIAL ENERGY SAVINGS IMPACTS.**

**MES2.** You indicated that you made changes across a number of areas [READ IN MVN1]. Which ones would you say resulted in the most energy savings?  
[DEFAULT TO HVAC, LIGHTING ACTION, INSERT BY LEVEL OF ENERGY SAVINGS]

**NOTE: THERE WILL BE QUESTIONS ASKING ABOUT SPECIFIC EFFICIENCY LEVELS, QUANTITY/FREQUENCY OF ACTION, PRIOR PRACTICE OR EQUIPMENT, AND TIMING OF ACTION. THESE WILL BE ASKED FOR THE TWO ACTIONS INDICATED AS HIGHEST ENERGY SAVINGS.**

## LIGHTING BATTERY

**NOTE: ASK RESPONDENT TO SPECIFY BOTH THE NEW, HIGHER EFFICIENCY LIGHTING TYPE AS WELL AS THE STANDARD EFFICIENCY ANALOGUE, E.G., "HIGH EFFICIENCY T8S INSTEAD OF STANDARD EFFICIENCY T8S" OR "T5S INSTEAD OF METAL HALIDES".**

**L1.** You stated that you [INSTALLED EFFICIENT LIGHTING]. What type of high efficiency lighting do you now install or install more of based on what you learned in the [ &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[received &TECHNICAL ASSISTANCE]??

CFLs	1	[GO TO L2]
T8s with magnetic ballasts	2	[GO TO L2]
T8s with electronic ballasts	3	[GO TO L2]
T5s	4	[GO TO L2]
Other, specify	5	[GO TO L2]
[Don't know]	-97	[GO TO L2]
[Refused]	-98	[GO TO L2]

**L2.** What type of lighting would you have installed in the past, or would you still be installing if you hadn't [attended the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[received &TECHNICAL ASSISTANCE]?

Nothing—fixtures were added to area where no prior	1	[GO TO L3]
Incandescent bulbs	2	[GO TO L3]

CFLs	3	<a href="#">[GO TO L3]</a>
T-12s	4	<a href="#">[GO TO L3]</a>
T8s with magnetic ballasts	5	<a href="#">[GO TO L3]</a>
T8s with electronic ballasts	6	<a href="#">[GO TO L3]</a>
T5s	7	<a href="#">[GO TO L3]</a>
Other (SPECIFY)	00	<a href="#">[GO TO L3]</a>
[Don't know]	-97	<a href="#">[GO TO L3]</a>
[Refused]	-98	<a href="#">[GO TO L3]</a>

- L3.** Prior to taking [attending the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] /[receiving &TECHNICAL ASSISTANCE]?, on what percentage of projects did you install [READ IN PRIOR LIGHTING TYPE - L2]?

[PERCENTAGE - PRIOR INSTALL]	___	<a href="#">[GO TO L4]</a>
[Don't know]	-997	<a href="#">[GO TO L4]</a>
[Refused]	-998	<a href="#">[GO TO L4]</a>

- L4.** How many fixtures do you install on an average project?

[#FIXTURES INSTALLED]	___	<a href="#">[GO TO L5]</a>
[Don't know]	-997	<a href="#">[GO TO L5]</a>
[Refused]	-998	<a href="#">[GO TO L5]</a>

- L5.** What type of fixtures do you install on an average project?

[TYPE FIXTURES INSTALLED]	___	<a href="#">[GO TO L6]</a>
[Don't know]	-997	<a href="#">[GO TO L6]</a>
[Refused]	-998	<a href="#">[GO TO L6]</a>

- L6.** What is the average wattage of the installed fixtures?

[AVERGAGE WATTAGE]	___	<a href="#">[GO TO L7]</a>
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[Don't know]	-997	<a href="#">[GO TO L7]</a>
[Refused]	-998	<a href="#">[GO TO L7]</a>

- L7.** How many projects did your firm work on during [&PROGRAM YEAR]? Your best estimate is fine.

[ENTER NUMBER OF PROJECTS]	_____	<a href="#">[GO TO L8]</a>
[Don't know]	-997	<a href="#">[GO TO L8]</a>
[Refused]	-998	<a href="#">[GO TO L8]</a>

- L8.** Roughly what percentage of your projects were accounted for by the following kinds of facilities:

a. Private Office	1	<a href="#">[GO TO L10]</a>
b. Retail	2	<a href="#">[GO TO L10]</a>
c. Schools	3	<a href="#">[GO TO L10]</a>
d. Other institutional	4	<a href="#">[GO TO L10]</a>
e. Residential Multifamily	5	<a href="#">[GO TO L9]</a>
f. Residential Single Family	6	<a href="#">[GO TO L9]</a>
g. Other: Specify	7	<a href="#">[GO TO L10]</a>
[Don't know]	-97	<a href="#">[GO TO L10]</a>
[Refused]	-98	<a href="#">[GO TO L10]</a>

- L9.** Is your firm involved in construction of single family homes or multifamily buildings?

[Yes]	1	<a href="#">[GO TO L10]</a>
[No]	2	<a href="#">[GO TO L10]</a>
[Don't know]	-97	<a href="#">[GO TO L10]</a>
[Refused]	-98	<a href="#">[GO TO L10]</a>

- L10.** What is the typical size, in square feet, of the buildings on which you do work?

**NOTE: GET A RANGE IF MULTIPLE BUILDINGS OF VARYING SIZES.**

[TYPICAL SIZE IN SQUARE FEET]	_____	<a href="#">[GO TO L11]</a>
[TYPICAL SIZE IN SQUARE FEET]	_____	<a href="#">[GO TO L11]</a>
[TYPICAL SIZE IN SQUARE FEET]	_____	<a href="#">[GO TO L11]</a>
[Don't know]	-999997	<a href="#">[GO TO L11]</a>
[Refused]	-999998	<a href="#">[GO TO L11]</a>

**L11.** What is the average age in years of the typical building stock that you work on?  
**NOTE: IF THERE ARE A LOT, HAVE THE RESPONDENT IDENTIFY THE TWO OR THREE MOST COMMON TYPES, AND THE SHARE OF TOTAL BUILDINGS THESE REPRESENT.**

[OPEN END AVERAGE AGE IN YEARS]		[GO TO L12]
[Don't know]	-97	[GO TO L12]
[Refused]	-98	[GO TO L12]

**L12.** On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that your firm would have undertaken these changes if [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE] activities had not occurred?

[ENTER 1 - 10]	___	[GO TO L13]
[Don't know]	-97	[GO TO L13]
[Refused]	-98	[GO TO L13]

**L13.** Are there factors other than the [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE] you received from [&PROGRAM SPONSOR] that have contributed to these changes? IF YES: Could you identify those factors.

[Yes: Specify]	1	[GO TO NEXT MVN1, ELSE TO1]
[No]	2	[GO TO NEXT MVN1, ELSE TO1]
[Don't know]	-97	[GO TO NEXT MVN1, ELSE TO1]
[Refused]	-98	[GO TO NEXT MVN1, ELSE TO1]

#### OTHER CHANGES - ACTIONS

**OA1.** Please describes the change(s) you made based on what you learned in the [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE]?

[OPEN END]

[OPEN END: (Specify)]	1	[GO TO OA2]
[Don't know]	-97	[GO TO OA2]
[Refused]	-98	[GO TO OA2]

**OA2.** When did you make these changes?

[MONTH]	_____	[GO TO OA3]
[YEAR]	_____	[GO TO OA3]
[Don't know]	-97	[GO TO OA3]
[Refused]	-98	[GO TO OA3]

**OA3.** What type of actions would you have taken in the past, or would you still be taking if you had not taken the course? [ASK TO SPECIFY BOTH THE NEW, HIGHER EFFICIENCY ACTION AS WELL AS THE STANDARD EFFICIENCY ANALOGUE]

[OPEN END: (Specify)]	1	[GO TO OA4]
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[Don't know]	-97	[GO TO OA4]
[Refused]	-98	[GO TO OA4]

**OA4.** How many [READ IN OA1 RESPONSE] do you take on an average project?

[# OF ACTIONS]	_____	[GO TO OA5]
[Don't know]	-97	[GO TO OA5]
[Refused]	-98	[GO TO OA5]

**OA5.** How many projects did your firm work on in [&PROGRAM YEAR]? Your best estimate is fine.

[NUMBER OF PROJECTS]	1	[GO TO OA6]
[Don't know]	-97	[GO TO OA6]
[Refused]	-98	[GO TO OA6]

**OA6.** Roughly what percentage of your projects were accounted for by the following kinds of facilities:

a. Private Office	1	[GO TO OA8]
b. Retail	2	[GO TO OA8]
c. Schools	3	[GO TO OA8]
d. Other institutional	4	[GO TO OA8]
e. Residential Multifamily	5	[GO TO OA7]
f. Residential Single Family	6	[GO TO OA7]
g. Other: Specify	7	[GO TO OA8]
[Don't know]	-97	[GO TO OA8]
[Refused]	-98	[GO TO OA8]

**OA7.** Is your firm involved in construction of single family homes or multifamily buildings?

[Yes]	1	[GO TO OA8]
[No]	2	[GO TO OA8]
[Don't know]	-97	[GO TO OA8]
[Refused]	-98	[GO TO OA8]

**OA8.** What is the typical size, in square feet, of the buildings on which you do work?  
**NOTE: GET A RANGE IF MULTIPLE BUILDINGS OF VARYING SIZES.**

[TYPICAL SIZE IN SQUARE FEET]	_____	[GO TO OA9]
[TYPICAL SIZE IN SQUARE FEET]	_____	[GO TO OA9]

[TYPICAL SIZE IN SQUARE FEET]		[GO TO OA9]
[Don't know]	-999997	[GO TO OA9]
[Refused]	-999998	[GO TO OA9]

**OA9.** What is the average age, in years, of the typical building stock that you work on?  
**NOTE: IF THERE ARE A LOT, HAVE THE RESPONDENT IDENTIFY THE TWO OR THREE MOST COMMON TYPES, AND THE SHARE OF TOTAL BUILDINGS THESE REPRESENT.**

[OPEN END AGE IN YEARS]		[GO TO OA10]
[Don't know]	-97	[GO TO OA10]
[Refused]	-98	[GO TO OA10]

**OA10.** On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that your firm would have undertaken these changes if [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE] activities had not occurred?

[ENTER 1 - 10]	1	[GO TO OA11]
[Don't know]	-97	[GO TO OA11]
[Refused]	-98	[GO TO OA11]

**OA11.** Are there factors other than the [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE] you received from [&PROGRAM SPONSOR] that have contributed to these changes? IF YES: Could you identify those factors.

[Yes - Specify]	1	[GO TO NEXT MVN1, ELSE TO1]
[No]	2	[GO TO NEXT MVN1, ELSE TO1]
[Don't know]	-97	[GO TO NEXT MVN1, ELSE TO1]
[Refused]	-98	[GO TO NEXT MVN1, ELSE TO1]

#### OTHER CHANGES – BEHAVIORS

**OB0.** Please describes the change(s) to your practices that you made based on what you learned in the [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE]?

[OPEN END]

[OPEN END: (Specify)]	1	[GO TO OB1]
[Don't know]	-97	[GO TO OB1]
[Refused]	-98	[GO TO OB1]

**OB1.** You stated that you [*INSERT CHANGE TO PRACTICES*]. What actions do you take now that you did not take in the past based on what you learned in the [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE]?

Test...	1	[GO TO OB2]
Use diagnostic tools...	2	[GO TO OB2]
Check air sealing...	3	[GO TO OB2]
...	4	[GO TO OB2]
Other (SPECIFY)	5	[GO TO OB2]
[Don't know]	98	[GO TO OB2]
[Refused]	99	[GO TO OB2]

**OB2.** When did you make these changes?

[MONTH]	_____	[GO TO OB3]
[YEAR]	_____	[GO TO OB3]
[Don't know]	-97	[GO TO OB3]
[Refused]	-98	[GO TO OB3]

**OB3.** What type of practices would you have taken in the past, or would you still be taking if you had not taken the course? [ASK TO SPECIFY BOTH THE NEW, HIGHER EFFICIENCY ACTION AS WELL AS THE STANDARD EFFICIENCY ANALOGUE]

[OPEN END: (Specify)]	1	[GO TO OB4]
[Don't know]	-97	[GO TO OB4]
[Refused]	-98	[GO TO OB4]

**OB4.** How frequently do you [READ IN OB0 RESPONSE] on an average project?

[ALL OF MY PROJECTS]	1	[GO TO OB5]
[SOME OF MY PROJECTS]	2	[GO TO OB5]
[NONE OF MY PROJECTS]	3	[GO TO OB5]
[Don't know]	-97	[GO TO OB5]
[Refused]	-98	[GO TO OB5]

**OB5.** How many projects did your firm work on in during [&PROGRAM YEAR]? Your best estimate is fine.

[NUMBER OF PROJECTS]	1	[GO TO OB6]
[Don't know]	-97	[GO TO OB6]
[Refused]	-98	[GO TO OB6]

**OB6.** Roughly what percentage of your projects were accounted for by the following kinds of facilities:

a. Private Office	1	[GO TO OB8]
b. Retail	2	[GO TO OB8]
c. Schools	3	[GO TO OB8]
d. Other institutional	4	[GO TO OB8]
e. Residential Multifamily	5	[GO TO OB7]
f. Residential Single Family	6	[GO TO OB7]
g. Other: Specify	7	[GO TO OB8]
[Don't know]	-97	[GO TO OB8]
[Refused]	-98	[GO TO OB8]

**OB7.** Is your firm involved in construction of single family homes or multifamily buildings?

[Yes]	1	[GO TO OB8]
[No]	2	[GO TO OB8]
[Don't know]	-97	[GO TO OB8]
[Refused]	-98	[GO TO OB8]

**OB8.** What is the typical size, in square feet, of the buildings on which you do work?  
**NOTE: GET A RANGE IF MULTIPLE BUILDINGS OF VARYING SIZES.**

[TYPICAL SIZE IN SQUARE FEET]	_____	[GO TO OB9]
[TYPICAL SIZE IN SQUARE FEET]	_____	[GO TO OB9]
[TYPICAL SIZE IN SQUARE FEET]	_____	[GO TO OB9]
[Don't know]	-999997	[GO TO OB9]
[Refused]	-999998	[GO TO OB9]

**OB9.** What is the average age, in years, of the typical building stock that you work on?  
**NOTE: IF THERE ARE A LOT, HAVE THE RESPONDENT IDENTIFY THE TWO OR THREE MOST COMMON TYPES, AND THE SHARE OF TOTAL BUILDINGS THESE REPRESENT.**

[OPEN END AGE IN YEARS]		[GO TO OB10]
[Don't know]	-97	[GO TO OB10]
[Refused]	-98	[GO TO OB10]

**OB10.** On a scale of 1 to 10, where 1 means "very unlikely" and 10 means "very likely", how likely is it that your firm would have undertaken these changes to

practices if [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE] activities had not occurred?

[ENTER 1 – 10]	1	[GO TO OB11]
[Don't know]	-97	[GO TO OB11]
[Refused]	-98	[GO TO OB11]

**OB11.** Are there factors other than the [&WORKSHOPS/DEMONSTRATIONS/TRAINING / &TECHNICAL ASSISTANCE] you received from [PROGRAM SPONSOR] that have contributed to these changes? IF YES: Could you identify those factors.

[Yes - Specify]	1	[GO TO TO1]
[No]	2	[GO TO TO1]
[Don't know]	-97	[GO TO TO1]
[Refused]	-98	[GO TO TO1]

## ATTRIBUTION – MARKET CONTEXT

### TRAINING OBJECTIVES

**TO1.** The [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], was designed to achieve the following objectives: &USE COURSE SPECIFIC BELOW.

**NOTE: WE WILL PROVIDE COURSE SPECIFICS BASED UPON A REVIEW OF CURRICULA, PARTICIPANT DATABASES AND INPUTS FROM INSTRUCTOR SURVEY DATA.**

[INSERT TWO SENTENCE OR LESS DESCRIPTIONS OF EACH SPECIFIC EFFORT]

**TO2.** Prior to taking [the &WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION] / [receiving &TECHNICAL ASSISTANCE], had you searched for courses with similar curricula content?

[Yes]	1	[GO TO TO3]
[No]	2	[GO TO KA1]
[Don't know]	-97	[GO TO KA1]
[Refused]	-98	[GO TO KA1]

**TO3.** Using a scale of 1 to 10, where 1 is no courses available and 10 is many courses available, how would you rate the availability of courses with similar curricula prior to [&DATE]?

None Available	1	[GO TO KA1]
	2	[GO TO KA1]
	3	[GO TO KA1]
	4	[GO TO KA1]
	5	[GO TO KA1]
	6	[GO TO KA1]
	7	[GO TO KA1]

	8	[GO TO KA1]
	9	[GO TO KA1]
Many Available	10	[GO TO KA1]
[Don't know]	-97	[GO TO KA1]
[Refused]	-98	[GO TO KA1]

## KNOWLEDGE AND AWARENESS EFFECTS

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CHANGES TO KNOWLEDGE AND AWARENESS AS A RESULT OF PARTICIPATION IN THE COURSE/TRAINING. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**KA1.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] provide you with any new information?

[Yes]	1	[GO TO KA2a]
[No]	2	[GO TO KA2a]
[Don't know]	-97	[GO TO KA2a]
[Refused]	-98	[GO TO KA2a]

**KA2a.** Using a scale of 1 to 10, where 1 is no knowledge and 10 is significant knowledge, how would you rate your level of knowledge regarding the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE], objectives prior to your participation in [&DATE]?

No Knowledge	1	[GO TO KA2b]
	2	[GO TO KA2b]
	3	[GO TO KA2b]
	4	[GO TO KA2b]
	5	[GO TO KA2b]
	6	[GO TO KA2b]
	7	[GO TO KA2b]
	8	[GO TO KA2b]
	9	[GO TO KA2b]
Significant Knowledge	10	[GO TO KA2b]
[Don't know]	-97	[GO TO KA2b]
[Refused]	-98	[GO TO KA2b]

**[SKIP IF MA1=2]**

**KA2b.** On the same scale, how would you rate your [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] objectives knowledge after your participation?

No Knowledge	1	[GO TO KA3]
	2	[GO TO KA3]

	3	[GO TO KA3]
	4	[GO TO KA3]
	5	[GO TO KA3]
	6	[GO TO KA3]
	7	[GO TO KA3]
	8	[GO TO KA3]
	9	[GO TO KA3]
Significant Knowledge	10	[GO TO KA3]
[Don't know]	-97	[GO TO KA3]
[Refused]	-98	[GO TO MA3]

**KA3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] increase your awareness of ways to improve the [energy efficiency/renewable energy]?

[Yes]	1	[GO TO KA4]
[No]	2	[GO TO KA4]
[Don't know]	-97	[GO TO KA4]
[Refused]	-98	[GO TO KA4]

**KA4.** Did your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] make you more likely to [INSTALL ENERGY EFFICIENT EQUIPMENT / OFFER TRAINING OR ASSISTANCE FOR] specific energy saving measures?

[Yes: Specify]	1	[GO TO KA5]
[No]	2	[GO TO KA5]
[Don't know]	-97	[GO TO KA5]
[Refused]	-98	[GO TO KA5]

**KA5.** In your own words, can you describe what you learned from the [&WORKSHOP/DEMONSTRATION/TRAINING/ &TECHNICAL ASSISTANCE] you received?

[OPEN END]	1	[GO TO CPM1]
[Don't know]	-97	[GO TO CPM1]
[Refused]	-98	[GO TO CPM1]

## MARKET ACTOR CAPACITY BUILDING

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CAPACITY BUILDING THAT RESULTED FROM PARTICIPATION IN THE COURSE/TRAINING. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**CPM1.** Please tell me if you agree with any of the following statements. As a result of the [&WORKSHOP/DEMONSTRATION/TRAINING]/ [&TECHNICAL ASSISTANCE]:

**CPM1a.** I have acquired additional [energy efficiency/renewable energy] skills that I can apply to my work.

**CPM1b.** I have received a certification or accreditation that is relevant to my work.

**CPM1c.** I have improved the quality of the work that I offer to customers.

- CPM1d.** I am now able to market myself as energy efficient (such as an energy efficient contractor).
- CPM1e.** I am now able to offer more [energy efficient/renewable energy services/equipment] to my clients.
- CPM1f.** I am now performing more jobs per year & FOLLOW UP WITH REQUEST FOR DESCRIPTION OF INCREASE.
- CPM1g.** I now perform jobs in new market segments (e.g. commercial, residential).
- CPM1h.** I have received access to financing sources to facilitate [energy efficient/renewable energy] offerings for my clients.
- CPM1i.** & INSERT TRAINING SPECIFIC CAPACITY AREA.

	CAPACITY BUILDING	CP M1 a EE Skills	CPM1 b Certification	CP M1 c Quality	CP M1 d Market EE	CPM1 e EE Services	CP M1 f More Jobs	CP M1 g New Market	CP M1 h Financing	CPM1 i & INSERT TRAINING SPECIFIC CAPACITY AREA
1	Yes									
2	Somewhat agree									
3	No									
5	[Don't know]									
6	[Refused]									

ASK IF CPM1a-i < 3

**CPM2.** You indicated that you agreed with & [READ IN CPM1a-j]. How specifically did the [&WORKSHOP/DEMONSTRATION/TRAINING]/ [&TECHNICAL ASSISTANCE] allow you to do so?

[OPEN END]	1	[GO TO MJ1]
[Don't know]	-97	[GO TO MJ1]
[Refused]	-98	[GO TO MJ1]

## JOBS QUESTIONS

**NOTE: IN THIS SECTION, WE ASK QUESTIONS TO IDENTIFY ANY DIRECT OR INDIRECT JOB IMPACTS AS A RESULT OF PARTICIPATION IN THE [&WORKSHOP/DEMONSTRATION/TRAINING]/ [&TECHNICAL ASSISTANCE].**

**MJ1.** Did you hire any additional staff as a result of what you learned in [&WORKSHOP/DEMONSTRATION/TRAINING]/ [&TECHNICAL ASSISTANCE]?

[Yes]	1	[GO TO MJ1a]
[No]	2	[GO TO MJ2]
[Don't know]	-97	[GO TO MJ2]
[Refused]	-98	[GO TO MJ2]

**MJ1a.** How many additional staff did you hire?

[TOTAL NUMBER OF FULL TIME EMPLOYEES]	—	<a href="#">[GO TO MJ1b]</a>
[Don't know]	-97	<a href="#">[GO TO MJ2]</a>
[Refused]	-98	<a href="#">[GO TO MJ2]</a>

**MJ1b.** Please describe the type of staff that you hired?

[TYPE OF STAFF HIRED (E.G. CONTRACTORS, ADMIN)]	—	<a href="#">[GO TO MJ2]</a>
[Don't know]	-97	<a href="#">[GO TO MJ2]</a>
[Refused]	-98	<a href="#">[GO TO MJ2]</a>

**MJ2.** Did you retain any staff who would otherwise have lost their jobs as a result of what you learned in [&WORKSHOP/DEMONSTRATION/TRAINING]/[&TECHNICAL ASSISTANCE]?

[Yes]	1	<a href="#">[GO TO MJ2a]</a>
No	2	<a href="#">[GO TO MAF9]</a>
[Don't know]	-97	<a href="#">[GO TO MAF9]</a>
[Refused]	-98	<a href="#">[GO TO MAF9]</a>

**MJ2a.** How many staff did you retain?

[TOTAL NUMBER OF FULL TIME EMPLOYEES]	—	<a href="#">[GO TO MJ2b]</a>
[Don't know]	-97	<a href="#">[GO TO MAF9]</a>
[Refused]	-98	<a href="#">[GO TO MAF9]</a>

**MJ2b.** Please describe the type of staff that you retained?

[TYPE OF STAFF HIRED (E.G. CONTRACTORS, ADMIN)]	—	<a href="#">[GO TO MAF9]</a>
[Don't know]	-97	<a href="#">[GO TO MAF9]</a>
[Refused]	-98	<a href="#">[GO TO MAF9]</a>

**NOTE: THANK AND TERMINATE.**

## L.23. ID-8: TECH ASSISTANCE (TEACHER/TRAINERS)

OMB Control No. 1910-5170

Note that this survey instrument will be used for programs where the participants are teachers. This includes sample points that fall under the following sub-categories: "Generalized Workshop or Demonstration," "Targeted Training or Certification," under three BPAC categories: (1) Building Retrofits, (2) Loans, Grants, and Incentives, and (3) Renewable Energy Market Development.

### DATABASE VARIABLES

&INTERVIEWER NAME....name of the caller  
 &CONTACT .....contact name from program records  
 &SPONSOR.....organization that sponsored the effort being researched  
 &PROGRAM .....program name  
 &DATE .....dates of workshop, demonstration, training funded by SEP  
 &APPOINT .....date/time to call back  
 &NAME .....person to call back  
 &PHONE.....extension or phone number to call back  
 &STATE .....state where program is offered

&WORKSHOP/DEMONSTRATION/TRAINING.....Name of workshop, demonstration, or training

& TECHNICAL ASSISTANCE.....Name of technical assistance

&BPAC.....Will indicate the specific-BPAC for sample

NOTE THAT OTHER VARIABLES ARE SHOWN IN THE DOCUMENT AS THEY ARE CREATED

### INTRODUCTION AND FINDING CORRECT RESPONDENT

**INITIAL.** Hello, this is &INTERVIEWER NAME calling on behalf of the United States Department of Energy from &INTERVIEWER ORGANIZATION.  
 May I please speak with &CONTACT, [IF CONTACT NAME AVAILABLE]?

**[IF NEEDED]** This is not a sales call.

**[IF NEEDED]** This is a fact-finding survey only, authorized by the U. S. Department of Energy which wants to understand how you used the information provided through the [&WORKSHOP/TRAINING/DEMONSTRATION].

[No, that person is not available right now]	1	[GO TO APPOINT]
[Unable to refer someone who can help]	2	[GO TO APPOINT]
[Yes, that would be me]	3	[GO TO PURPOSE]
[Yes, let me transfer you to _____]	4	[GO TO INTRO]

[No, that is the wrong person]	5	[GO TO INITIAL]
[No, other reason (specify)]	6	[GO TO APPOINT]
[Don't know]	-97	[GO TO APPOINT]
[Refused]	-98	[GO TO APPOINT]

**APPOINT.** When would be a good day and time for us to call back?

RECORD, CONTACT NAME, DAY OF THE WEEK, TIME OF DAY AND DATE TO CALL BACK		CALL BACK AT AGREED TIME
[Don't know]	-97	THANK & TERMINATE; ASSIGN REFUSED AND REMOVE FROM CALL ORDER
[Refused]	-98	END CALL; KEEP CONTACT IN REGULAR CALL ORDER

**INTRO.**

On &DATE, you attended a [&WORKSHOP/TRAINING/DEMONSTRATION] offered by &SPONSOR. In an effort to determine what actions you may have taken as a result of participating, we ask that you complete this brief survey. Your input will help [&SPONSOR] understand the effects of their past efforts. The survey should take no more than 45 minutes for you to complete. The responses you provide will be combined with those of many other individuals and will not be linked to you or your organization in any way.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

**SCREENER**

**S1.** Do you recall attending the [&WORKSHOP/DEMONSTRATION/TRAINING/CERTIFICATION on [&DATE]?

[Yes]	1	[GO TO RI1]
[No]	2	[THANK AND TERMINATE]
[Don't know]	-97	[THANK AND TERMINATE]

[Refused]	-98	[THANK AND TERMINATE]
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**RESPONDENT INFO: ROLE IN THE PROJECT**

First, I'd like to get some information about your firm, your job and experience regarding energy efficiency and renewable energy in [&STATE].

**RI1.** What is your job title?

[RECORD JOB TITLE]	1	[GO TO RI2]
[Don't know]	-97	[GO TO RI2]
[Refused]	-98	[GO TO RI2]

**RI2.** What are your specific job responsibilities? [OPEN END]

[OPEN END]	1	[GO TO AC1]
[Don't know]	-97	[GO TO AC1]
[Refused]	-98	[GO TO AC1]

**AC1.** Which of the following best describes where you intended to apply the information you received? **[READ CATEGORIES]**

**NOTE: IF THE ANSWER IS "SOMEWHERE ELSE", SPECIFY THEN PROBE FOR WHICH OF THE FIVE CLASSIFICATIONS BEST DESCRIBES THEM.**

At the facility(ies) my business occupies	2	[GO TO ALTERNATIVE NON-RES SURVEY/TERMINATE]
At the facility(ies) my business manages (e.g. Property managers)	3	[GO TO ALTERNATIVE NON-RES SURVEY/TERMINATE]
In facilities occupied or managed by customers to whom I provide services (e.g. Architects, engineering firms, contractors, code inspectors)	4	[GO TO ALTERNATIVE MARKET ACTOR SURVEY / TERMINATE]
In the classroom where I teach	5	[GO TO VN2]
Somewhere else: Specify_____	6	[GO TO VN2]

**RESPONDENT TYPE DEFINED FOR DISPOSITION**

[CLASSIFY AC1=1 AS REU (RESIDENTIAL END-USE CUSTOMER)]

[CLASSIFY AC1=2, 3 AS CEU (COMMERCIAL END-USE CUSTOMER)]

[CLASSIFY AC1=4 AS MA (MARKET ACTOR)]

[CLASSIFY AC1=5 AS TEA (TEACHER)]

[CLASSIFY AC1=6 AS DEFAULT ASSUMED RESPONDENTS BASED ON PROGRAM TARGET]

## INITIAL INVENTORY

**VN2.** Since [ &DATE], have you taught any courses or offered training regarding the following equipment types? **[READ LIST IN THE GRID. MARK ALL THAT APPLY]**

a. Lighting	1	[GO TO OP3]
b. Cooling	2	[GO TO OP3]
c. Heating	3	[GO TO OP3]
d. Commercial Refrigeration	4	[GO TO OP3]
e. Motors/Drives	5	[GO TO OP3]
f. Appliances, such as dishwashers, clothes washers, refrigerators	6	[GO TO OP3]
g. Hot Water	7	[GO TO OP3]
h. Duct Testing	8	[GO TO OP3]
i. Insulation	9	[GO TO OP3]
j. Showerheads/Aerators	10	[GO TO OP3]
k. PV	11	[GO TO OP3]
l. Wind	12	[GO TO OP3]
m. Solar thermal	13	[GO TO OP3]
n. Biomass	14	[GO TO OP3]
o. Biogas	15	[GO TO OP3]
f. Any other courses?	16	[GO TO OP3]

## EFFECT OF OTHER PROGRAMS

**OP3.** Did the [ &WORKSHOP/DEMONSTRATION/TRAINING] inform you about any financial support available to buildings/customers such as incentives or loans offered by sponsors, such as, local utilities, industry associations, or government agencies?

[Yes]	1	[GO TO TO1]
[No]	2	[GO TO TO1]
[Don't know]	-97	[GO TO TO1]
[Refused]	-98	[GO TO TO1]

## ATTRIBUTION – MARKET CONTEXT

### TRAINING OBJECTIVES

**TO1.** The [ &WORKSHOP/DEMONSTRATION/TRAINING], was designed to achieve the following objectives: &USE COURSE SPECIFIC BELOW.

**NOTE: WE WILL PROVIDE COURSE SPECIFICS BASED UPON A REVIEW OF CURRICULA, PARTICIPANT DATABASES AND INPUTS FROM PROGRAM MANAGER INTERVIEWS.**

**[INSERT TWO SENTENCE OR LESS DESCRIPTIONS OF EACH SPECIFIC EFFORT]**

**TO2.** Prior to taking this course, had you searched for courses with similar curricula content?

[Yes]	1	[GO TO TO3]
[No]	2	[GO TO KA1]
[Don't know]	-97	[GO TO KA1]
[Refused]	-98	[GO TO KA1]

**TO3.** Using a scale of 1 to 10, where 1 is no courses available and 10 is many courses available, how would you rate the availability of courses with similar curricula prior to [ &DATE]?

None Available	1	[GO TO KA1]
	2	[GO TO KA1]
	3	[GO TO KA1]
	4	[GO TO KA1]
	5	[GO TO KA1]
	6	[GO TO KA1]
	7	[GO TO KA1]
	8	[GO TO KA1]
	9	[GO TO KA1]
Many Available	10	[GO TO KA1]
[Don't know]	-97	[GO TO KA1]
[Refused]	-98	[GO TO KA1]

## KNOWLEDGE AND AWARENESS EFFECTS

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CHANGES TO KNOWLEDGE AND AWARENESS AS A RESULT OF PARTICIPATION IN THE COURSE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**KA1.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING] provide you with any new information?

[Yes]	1	[GO TO KA2a]
[No]	2	[GO TO KA2a]
[Don't know]	-97	[GO TO KA2a]
[Refused]	-98	[GO TO KA2a]

**KA2a.** Using a scale of 1 to 10, where 1 is no knowledge and 10 is significant knowledge, how would you rate your level of knowledge regarding the [&WORKSHOP/DEMONSTRATION/TRAINING] objectives prior to your participation in [&DATE]?

No Knowledge	1	[GO TO KA2b]
	2	[GO TO KA2b]
	3	[GO TO KA2b]
	4	[GO TO KA2b]
	5	[GO TO KA2b]
	6	[GO TO KA2b]
	7	[GO TO KA2b]
	8	[GO TO KA2b]
	9	[GO TO KA2b]
Significant Knowledge	10	[GO TO KA2b]
[Don't know]	-97	[GO TO KA2b]
[Refused]	-98	[GO TO KA2b]

**[SKIP IF KA1=2]**

**KA2b.** On the same scale, how would you rate your [&WORKSHOP/DEMONSTRATION/TRAINING] objectives knowledge after your participation?

No Knowledge	1	[GO TO KA3]
--------------	---	-------------

	2	[GO TO KA3]
	3	[GO TO KA3]
	4	[GO TO KA3]
	5	[GO TO KA3]
	6	[GO TO KA3]
	7	[GO TO KA3]
	8	[GO TO KA3]
	9	[GO TO KA3]
Significant Knowledge	10	[GO TO KA3]
[Don't know]	-97	[GO TO KA3]
[Refused]	-98	[GO TO KA3]

**KA3.** Did the [&WORKSHOP/DEMONSTRATION/TRAINING] increase your awareness of ways to improve the [energy efficiency/renewable energy]?

[Yes]	1	[GO TO KA4]
[No]	2	[GO TO KA4]
[Don't know]	-97	[GO TO KA4]
[Refused]	-98	[GO TO KA4]

**KA4.** Did your participation in the [&WORKSHOP/DEMONSTRATION/TRAINING], make you more likely to teach courses regarding specific energy saving measures?

[Yes: Specify]	1	[GO TO CPT4]
[No]	2	[GO TO CPT4]
[Don't know]	-97	[GO TO CPT4]
[Refused]	-98	[GO TO CPT4]

### TEACHER CAPACITY BUILDING

**NOTE: IN THIS SECTION, WE IDENTIFY ANY CAPACITY BUILDING THAT RESULTED FROM PARTICIPATION IN THE COURSE. NOTABLY, THIS SECTION WILL GATHER INFORMATION TO UNDERSTAND OTHER EFFECTS OF THE SEP TRAINING EFFORTS.**

**CPT4.** Please tell me if you would agree with any of the following statements. As a result of the [&WORKSHOP/TRAINING/DEMONSTRATION]:

**CPT4a.** I have acquired additional [energy efficiency/renewable energy] skills that I share in the courses that I teach.

**CPT4b.** I am now able to offer more [energy efficiency/renewable energy] courses than before.

**CPT4c.** I am now teaching new types of courses.

**CPT4d.** I can now teach new information on [energy efficiency/renewable energy] in the courses that I teach.

**CPT4e.** &INSERT TRAINING SPECIFIC CAPACITY AREA

	CPT4 a EE Skills	CPT4b EE Courses	CPT4c New Course Types	CPT4d New EE Info	CPT4e &INSERT TRAINING SPECIFIC CAPACITY AREA
<b>1</b> Yes					
<b>2</b> Somewhat agree					
<b>3</b> No					

5	[Don't know]				
6	[Refused]				

ASK IF CPT4a-e <3

**CPT5.** You indicated that you agreed with &[READ IN CPT4a-e]. How specifically did the [&WORKSHOP/TRAINING/DEMONSTRATION] allow you to so?

[OPEN END]	1	[GO TO J1]
[Don't know]	-97	[GO TO J1]
[Refused]	-98	[GO TO J1]

## JOB QUESTIONS

**J1.** Were you hired to teach [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR]?

[Yes]	1	[GO TO J2]
[No]	2	[GO TO J2]
[Don't know]	-97	[GO TO J2]
[Refused]	-98	[GO TO J2]

**J2.** To the best of your knowledge, were any other instructors hired to teach information and training activities for the [&WORKSHOPS/TRAINING/DEMONSTRATIONS] SEP in [&PROGRAM YEAR]?

[INSERT NUMBER OF INSTRUCTORS]	_____	[GO TO EE1]
[No]	2	[GO TO EE1]
[Don't know]	-97	[GO TO EE1]
[Refused]	-98	[GO TO EE1]

## TEACHER CHARACTERISTICS

**EE1.** What energy saving action(s) was/were a principal major focus of [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR]?

[OPEN END]	1	[GO TO EE2]
[Don't know]	-97	[GO TO EE2]
[Refused]	-98	[GO TO EE2]

**EE2.** Did your [offering] teach specific energy savings actions? Please describe these actions.  
**NOTE: SPECIFIC LISTS WILL BE DEVELOPED BASED UPON EARLIER INTERVIEWS AND PROGRAM MATERIAL REVIEW.**

**T1.** Approximately how many courses do you teach per year?

[# OF COURSES]	_____	[GO TO T2]
[Don't know]	-97	[GO TO T2]
[Refused]	-98	[GO TO T2]

**T2.** On average, how many students attend each course?

[AVERAGE # OF STUDENTS]	_____	[GO TO T3]
[Don't know]	-97	[GO TO T3]
[Refused]	-98	[GO TO T3]

**T3.** Of these courses, how many of the courses that you teach incorporate curricula from the [&WORKSHOP/TRAINING/DEMONSTRATION] that you attended?

[# OF COURSES]	_____	[GO TO T4]
[Don't know]	-97	[GO TO T4]
[Refused]	-98	[GO TO T4]

**T4.** In general, which of the following best describes your students?

**[MARK ALL THAT APPLY IN LIST IN THE GRID, UP TO 3]**

K-12 students	1	[GO TO T6]
Community College students	2	[GO TO T6]
University students	3	[GO TO T6]
HERs raters or other code compliance market actors	4	[GO TO T6]
Trade allies, e.g. HVAC contractors, retrofitters, etc	5	[GO TO T6]
Teachers	6	[GO TO T6]
Residential customers	7	[GO TO T6]
Commercial or industrial customers	8	[GO TO T6]
Agricultural customers	9	[GO TO T6]
Other (Specify)	00	[GO TO T6]
[Don't know]	-97	[GO TO T6]
[Refused]	-98	[GO TO T6]

**T6.** Which of the following sentences describes your average student's knowledge about [energy efficiency/renewable energy] before they participated in your class?

They had NO knowledge	1	[GO TO T7]
They had VERY LITTLE knowledge	2	[GO TO T7]
They had SOME knowledge	3	[GO TO T7]
They had A LOT of knowledge	4	[GO TO T7]
[Don't know]	-97	[GO TO T7]
[Refused]	-98	[GO TO T7]

**T7.** Think of your classes that presented at least some information that you had learned in the [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR]. On a scale of 1 to 10 where 1 is "not at all useful" and 10 is "very useful", how useful was the [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR] in terms of building your curriculum?

[ENTER 1-10]	_____	[GO TO T8]
[Don't know]	-97	[GO TO T8]
[Refused]	-98	[GO TO T8]

**T8.** Did you receive any feedback from your students about the information from [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR] that you had included in your class?

[Yes: Specify]	1	[GO TO T9]
[No]	2	[GO TO T9]
[Don't know]	-97	[GO TO T9]
[Refused]	-98	[GO TO T9]

- T9.** If the decision were up to you, would you include information that you had learned in the [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR] in your classes again? Why do you say that?

[Yes: Specify]	1	[GO TO T10]
[No]	2	[GO TO T10]
[Don't know]	-97	[GO TO T10]
[Refused]	-98	[GO TO T10]

- T10.** In your own words, please describe what you teach?

[OPEN END]	1	[GO TO T11]
[Don't know]	-97	[GO TO T11]
[Refused]	-98	[GO TO T11]

- T11.** In your own words, please describe any other impacts that you received from the [&WORKSHOP/TRAINING/DEMONSTRATION], such as energy savings kits, curriculum, etc.?

[OPEN END]	1	[GO TO T12a]
[Don't know]	-97	[GO TO T12a]
[Refused]	-98	[GO TO T12a]

- T12a.** Were there any surveys or assessments that you conducted with your students that incorporated the [&WORKSHOP/TRAINING/DEMONSTRATION] curriculum?

Yes	1	[GO TO T12b]
No	2	[GO TO T13]
[Don't know]	-97	[GO TO T13]
[Refused]	-98	[GO TO T13]

- T12b.** You mentioned that you conducted surveys or assessments with your students. Can you describe what these measured?

[OPEN END]	1	[GO TO T13]
[Don't know]	-97	[GO TO T13]
[Refused]	-98	[GO TO T13]

- T13.** What feedback have you received, if any, from your students regarding the information that you learned in the [&WORKSHOP/TRAINING/DEMONSTRATION] in [&PROGRAM YEAR]?

[OPEN END]	1	[THANK AND TERMINATE]
[Don't know]	-97	[THANK AND TERMINATE]
[Refused]	-98	[THANK AND TERMINATE]

**NOTE: THANK AND TERMINATE.**



## L.24. ID-14: TRAINING AND TECHNICAL ASSISTANCE (PROGRAM DELIVERY CONTRACTORS)

OMB Control No. 1910-5170

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### BACKGROUND INFORMATION (to be filled in prior to interview):

Program Administrator Name:	
Year:	
BPAC Area:	
2008 Budget:	
2008 Market Title Sampled:	
2009-2010 ARRA Budget:	
2009-2010 ARRA Market Title Sampled:	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database):	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### PART 1. INTRODUCTION

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to talk with organizations involved with [TECHNICAL ASSISTANCE / TRAINING] programs that received funding from the State Energy Program and the American Recovery and Reinvestment Act. This interview is being conducted as part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

### PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)

Our understanding is that your organization was responsible for delivering [TECHNICAL ASSISTANCE/ TRAINING] program. Is that correct?

Yes: CONTINUE

No: PROBE FOR REASON FOR MISUNDERSTANDING. THANK, TERMINATE, AND CONSULT WITH STATE ENERGY OFFICE CONTACT

Our understanding is that you served or serve as the program manager for [TECHNICAL ASSISTANCE/ TRAINING] programs that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded [TECHNICAL ASSISTANCE/ TRAINING] programs	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded [TECHNICAL ASSISTANCE/ TRAINING] programs	[Correct year and Continue]
No – Incorrect person for SEP/ARRA funded [TECHNICAL ASSISTANCE/ TRAINING] programs	[Ask for correct person for [TECHNICAL ASSISTANCE/ TRAINING] programs]
No – There were no SEP/ARRA funded [TECHNICAL ASSISTANCE/ TRAINING] programs	[Thank you and terminate. Contact main state energy office representative to verify that there were no programs that corresponded to description in the PAGE database.]

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 40 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

I would like to ask you some questions about the [TECHNICAL ASSISTANCE/ TRAINING] programs activities to promote [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects that received SEP/ARRA funding in [PROGRAM YEAR].

**PRIOR TO THE INTERVIEW, REVIEW THE DELIVERY ORGANIZATION'S CONTRACT AND WEB SITE TO GATHER INFORMATION TO ADDRESS THE FOLLOWING QUESTIONS. POSE THEM TO THE RESPONDENT ONLY IF NEEDED FOR VERIFICATION OR TO FILL IN MISSING INFORMATION.**

1. What are the primary services that your organization delivers?

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2. Were you involved in the management of [TECHNICAL ASSISTANCE/ TRAINING] programs that received SEP/ARRA funding in [PROGRAM YEAR]?



- 1 Yes
- 2 No [IF NOT, COLLECT CONTACT NAME AND TELEPHONE NUMBER. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON. CONTINUE THE INTERVIEW WITH THAT INDIVIDUAL.]

- 3. What were your responsibilities in regard to [TECHNICAL ASSISTANCE/ TRAINING] programs that received SEP/ARRA funding in [PROGRAM YEAR]?
- 4. In what year did you first become involved with the [TECHNICAL ASSISTANCE/ TRAINING] programs programs that received SEP ARRA funding?
- 5. Are you still involved with managing this program? If not, when did your involvement end?
- 6. According to information provided by the State Energy Office, you received a contract valued a roughly \$\_\_\_\_\_ to operate programs that promote the development of [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]_____
	[REMAINING AMOUNT]

- 7. Did you spend the total amount budgeted? If not, why wasn't the budget spent?

**PART 3: PROGRAM DESIGN (LOGIC MODEL)**

- 8. As you understand them, what were the ultimate objectives of [TECHNICAL ASSISTANCE/ TRAINING] program(s)?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 9. Did your organization commit to any quantitative goals for the [TECHNICAL ASSISTANCE/ TRAINING] program(s), such as number of projects developed, students taught, number of classes or projects, kWh or kW of capacity installed?

- a. Yes
- b. No
- c. DK

- 10. IF 10 = YES: What were those goals?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 11. In terms of the timeline of your contract:

- a. When did you initiate development of the [TECHNICAL ASSISTANCE/ TRAINING] program(s)?

- b. When did you launch the [TECHNICAL ASSISTANCE/ TRAINING] program(s) to the

public?

12. Please describe how the [TECHNICAL ASSISTANCE/ TRAINING] program(s) operated in [PROGRAM YEAR] in regard to its activities, the resources it uses, and the outcomes it is achieving.

a. Let's start with ACTIVITIES. PROBE:

MARKETING AND OUTREACH TO PARTICIPANTS  
RECRUITMENT OF PARTICIPANTS  
RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS  
DELIVERY OF INFORMATION AND TECHNICAL SERVICES TO [TARGET AUDIENCE, E.G. OWNERS, HOUSEHOLDS, MARKET ACTORS]  
DELIVERY OF INFORMATION AND TECHNICAL TRAINING TO VENDORS AND INSTALLERS, IF APPLICABLE  
PROVISION OF TECHNICAL AND PROJECT DEVELOPMENT SERVICES, SUCH AS SITE ASSESSMENTS, ENGINEERING SUPPORT, FEASIBILITY STUDIES, FINANCIAL MODELING, ETC.  
[ASK IF RENEWABLES] ADVOCACY AND TECHNICAL SUPPORT FOR LAWS AND REGULATIONS TO SUPPORT RENEWABLES PROJECT DEVELOPMENT, SUCH AS RENEWABLE PORTFOLIO STANDARDS, INTERCONNECTION RULES, NET METERING.  
PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES TO SUPPORT PROJECTS  
INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS  
  
OTHER (SPECIFY)

b. INPUTS: What resources are being used to deliver the [TECHNICAL ASSISTANCE/ TRAINING] program(s)? PROBE:

STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME

OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME

STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME

CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF, DOLLAR SIZE OF CONTRACT

TECHNICAL SERVICES

FINANCIAL SERVICES

MARKETING SERVICES

ADMINISTRATIVE SERVICES

c. OUTSIDE FUNDING: Are organizations other than the State Energy Office contributing funding to this [TECHNICAL ASSISTANCE/ TRAINING] program(s)? IF YES, PROBE:

NAME OF THE ORGANIZATION(S)

AMOUNT OF FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD, FOR EACH FUNDER IF AVAILABLE)

PERCENTAGE OF TOTAL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT.

USES OF THE FUNDING PROVIDED

- d. RESULTS/OUTPUTS: Could you summarize the results your [TECHNICAL ASSISTANCE/ TRAINING] program(s) has achieved so far? PROBE:

NUMBER OF PARTICIPANTS ENROLLED

DESCRIPTION OF PARTICIPANTS (E.G. BACKGROUND)

NUMBER OF UNITS OF SERVICE DELIVERED (TECHNICAL SERVICES, LOANS AND GRANTS, DOLLAR VOLUME OF LOANS AND GRANTS)

NUMBER OF TEACHERS TRAINED

NUMBER OF TEACHERS OFFERING TRAINING

NUMBER OF TECHNICAL ASSISTANCE PROVIDERS

NUMBER OF TA PROVIDERS OFFERING TA

NUMBER OF INSTALLATION PROJECTS SUPPORTED

KW INSTALLED

ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

ANYTHING ELSE?

- e. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you intended? (Refer to program plans or quantitative goals)

IF NO: What circumstances prevented you (are preventing you) from achieving those goals?

13. [IF PROGRAM EXISTED PRIOR TO 2008 ASK] Did you make any important changes to [TECHNICAL ASSISTANCE/ TRAINING] program(s) operations or the resources available to it between 2007 and 2008? IF PROGRAM EXISTED PRIOR TO ARRA AND RECEIVED ARRA FUNDING ALSO ASK] Did you make any important changes to program operations or the resources available to it between 2008 and the period funded primarily by ARRA?

- a. Why did you make those changes?

- b. Did you achieve the results you were seeking through those changes? PROBE SPECIFIC RESULTS.

- c. FOR ARRA PERIOD PROGRAMS ASK. Would your organization have been able to make

these changes without the support provided by the ARRA round of funding?

YES/NO

PROBE REASONS FOR THIS ASSESSMENT.

**[THESE QUESTIONS ARE DESIGNED TO FLESH OUT PROGRAM DETAILS TO DEVELOP THE PROGRAM LOGIC MODEL. THE LOGIC MODEL ARTICULATES WHAT THE PROGRAM IS TRYING TO ACHIEVE (AND DID ACHIEVE), THROUGH WHAT INTERVENTIONS, AND WITH RESPECT TO WHICH MARKET ACTORS. THIS INFORMATION WILL BE USED TO DEVELOP A MAP OF THE PROGRAM'S DOMAIN FOR ATTRIBUTION PURPOSES.]**

14. Has your organization or the state energy office developed a formal logic model for [PROGRAM NAME]?
- a. Can you share it with us?

**PART 4 – ASSESSMENT OF PROGRAM EFFECT**

This next set of questions seeks your opinion on the effect of the program on targeted facilities, homeowners and vendors.

15. What types of changes are being made / have occurred as a result of this intervention?
- a. ENERGY SAVINGS (e.g. kWh, kW)
  - b. NUMBER OF BUILDINGS/HOUSEHOLDS WITH INSTALLATION/CHANGE IN PRACTICES
  - c. SKILL SETS (e.g. operations and maintenance, new markets, new EE measures, etc).
  - d. JOBS
  - e. PROFESSIONAL CERTIFICATION
  - f. OTHER: SPECIFY
16. IF THE PROGRAM SUPPORTED INSTALLATIONS IN INDIVIDUAL FACILITIES, ASK: Now, thinking about the [FACILITY OWNERS/HOUSEHOLDS/MARKET ACTORS] who received support from your program for installation of [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects -- On a scale of 1 to 10, where 1 means "not at all important" and 10 means "very important", how important were the services provided [TECHNICAL ASSISTANCE/ TRAINING] program(s) in convincing and enabling those participants to undertake the [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

17. IF 16 = 1 – 10, ASK: Why do you say that? PROBE SPECIFIC BARRIERS OR ISSUES THE SERVICES FROM THE SEP PA HELPED TO ADDRESS, HELP FROM OTHER PROGRAMS, PREDISPOSITION OF THE [FACILITY OWNERS/HOUSEHOLDS/MARKET ACTORS].

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

18. In your opinion, how many of these projects would [FACILITY OWNERS/ HOUSEHOLDS/MARKET ACTORS] have been completed in the absence of the support from the [TECHNICAL

[ASSISTANCE/ TRAINING] program(s)?

ENTER HOW MANY (probe for percentage or qualitative statement):

\_\_\_\_\_

19. What observations lead you to that estimate?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. Generally speaking, has the annual number of [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects completed in [STATE] increased, decreased, or stayed about the same since [YEAR OF PROGRAM LAUNCH]?

21. IF 20 = INCREASED OR DECREASED: By approximately what percentage would you say the number of [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects has increased/decreased?

ENTER PERCENT, 999 FOR DK/REF: \_\_\_\_\_

#### **PART 4: SEP INFLUENCE AND ROLE IN THE MARKETPLACE**

22. Would your organization have provided [TECHNICAL ASSISTANCE/ TRAINING] in the absence of SEP funding?

a. How many [courses/classes/trainings/assistance] would have been offered in absence of the program? ENTER PERCENTAGE AMOUNT: \_\_\_\_\_%

23. Are there any other organizations/entities who provide similar provided [TECHNICAL ASSISTANCE/ TRAINING] offerings? (If yes, ask for name of entities and probe to determine similarity of offerings)

24. In your opinion, what did the [TECHNICAL ASSISTANCE/ TRAINING] program(s) accomplish?

25. Do you believe that this [TECHNICAL ASSISTANCE/ TRAINING] program(s) has had an impact on the long-term demand exercised by [FACILITY OWNERS/ HOUSEHOLDS] [RESIDENTIAL/RENEWABLE/NON-RESIDENTIAL RETROFIT] projects in [STATE]?

YES/NO

a. In what specific ways did your [TECHNICAL ASSISTANCE/ TRAINING] program contribute to that result?

b. Can you provide any examples of these kinds of results?

26. Do you believe that this program has had an impact on the long-term capabilities of equipment vendors, designers, contractors, and other firms on the "supply side" of the market to sell and install [RESIDENTIAL RETROFIT /RENEWABLE ENERGY /NON-RESIDENTIAL RETROFIT] projects in [FACILITIES / HOMES]?

YES/NO

a. In what specific ways did your [TECHNICAL ASSISTANCE/ TRAINING] program contribute to that result?

- 
- b. Can you provide any examples of these kinds of results?
27. Did your organization add any positions to carry out or administer the program(s) we have been discussing? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?
- c. How many of these FTEs were retained after 2008 or the ARRA period, depending on which is relevant?
- d. IF  $c > 0$ : What sources of funding do you plan to use to sustain this (these) position(s)?

#### **PART 5: DATA AVAILABILITY**

**[ONLY ASK THIS SECTION IF WE HAVE NOT BEEN ABLE TO ACQUIRE PROGRAM DATA FROM THE STATE ENERGY OFFICE]**

**NOTE: QUESTIONS 23-25 ON DATA AVAILABILITY WILL BE REVIEWED WITH PROGRAM SPONSORS PRIOR TO FINAL SELECTION OF THE PROGRAM INTO THE SAMPLE. WE WILL ALSO ASK TO RECEIVE A COPY OF THE DATABASES OR FILE FORMATS SO THAT WE CAN MAKE A JUDGMENT REGARDING THE ADEQUACY OF THE DATABASE TO SUPPORT EVALUATION ANALYSIS. THESE QUESTIONS WILL BE FOR VALIDATION OF OUR REVIEW.**

28. Please describe the types of data that you tracked in [PROGRAM YEAR] on program participants. Do you have lists of:
- Program participants, that is, workshop attendees or training recipients, recipients of technical assistance, with contact information
  - Services received by participants, workshop or training description
  - Curriculum
  - Participating trade allies (including contact information)
  - Training Materials
  - Contacts at partnering organizations (including contact information)
  - Program reports (e.g. status reports, quarterly, reports, etc)
  - Measures installed by participant, including the type and quantity of measures installed with program support, energy savings, incentive levels, other services received by participants, workshop or training description. [PROBE TO CLARIFY DATA THAT THE PM HAS ACCESS TO (EITHER IN-HOUSE OR AT A SEP FUNDED/PARTNERED ORGANIZATION) VERSUS DATA ANY EXTERNAL LEVERAGED ORGANIZATION MIGHT BE KEEPING.]

(IF DATA ARE AVAILABLE BUT RESPONDENT IS NOT KNOWLEDGEABLE OR DOES NOT HAVE ACCESS TO IT, RECORD NAME OF CONTACT WHO CAN ANSWER FOLLOW-UP QUESTIONS ABOUT DATA AVAILABILITY. PROBE FOR WHETHER ANYONE MAINTAINS SUCH DATA – POTENTIALLY EXTERNAL TO THE PA). IF THERE IS NO ONE WHO CAN PROVIDE SUCH A DATA THEN THANK AND TERMINATE).

29. Have there been any evaluations of this program? Are data from these evaluations available?
30. (FOR EACH TYPE OF DATA AVAILABLE) Are these data in electronic format? (If yes, discuss



steps needed to secure permission to access the data via secure file transfer. If no, determine how data records are maintained and how they could be accessed.)

Are you aware of other data available that would be useful for our evaluation? If so could you describe it for me? Is it possible to access this information? PROBE FOR CONTACTS. IF MAKING COPIES IS AN ISSUE, ASK WHETHER WE CAN MAKE COPIES. IF STILL RELUCTANT, ASK WHETHER THEY HAVE A SUMMARY OF PROJECTS WITH MINIMAL INFORMATION SO WE CAN SELECT A SAMPLE AND COPY ONLY THOSE RECORDS.]

**Thank you for your time and insights**



## L.25. OS-2 NON-RESIDENTIAL

### Contact Information:

Building Name: _____	Utility: _____	
Business Name: _____		
Primary Contact Name: _____	Primary Contact Title: _____	
Primary Phone: _____	Secondary Phone: _____	Email: _____
Alternative Contact Name: _____	Secondary Contact Title: _____	
Alternative Contact Phone: _____		
Building Address: _____		
City: _____	Zip: _____	

### Survey Tracking Information

Surveyor Name: _____	Travel Mileage: _____	
Start Time: _____	Finish Time: _____	Total Time (mins): (Onsite, QC, Travel) _____

If the respondent is different than the contacts identified above, please identify name, title and contact information

Respondent Name: _____	Respondent Title: _____
Respondent Phone: _____	Respondent Email: _____

Circle any incidents as applicable:

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1 None to report</li> <li>2 Complaint about rates</li> <li>3 Complaint about energy costs</li> <li>4 Complaint about outages or power quality</li> <li>5 Complaint about technology reliability</li> <li>6 Complaint about utility customer service</li> </ul> | <ul style="list-style-type: none"> <li>7 Contact person unavailable or unaware of survey appointment</li> <li>8 Customer expressed dissatisfaction with survey</li> <li>9 Property damage occurred during on-site survey</li> <li>10 Personal injury occurred during on-site survey</li> <li>11 Other (list) _____</li> </ul> |
|---|---|

Month/Year of Participation	Month/Year of Work Completion
Number of Employees	Change in number of employees over the past 12 months?
Any significant changes to facility energy consumption over the past 12 months?	Y / N (if yes, please document the changes below)

Site & Survey Notes (Please note any changes to the household's energy usage or occupancy over the past 12 months):

---

### Background Information

#### Dwelling Information

Facility type	
Year Built	



Square footage of facility	
----------------------------	--

**Utility Information**

	Electric	Natural Gas
Utility		
Account Number		
Meter Number		

**Installed Measures**

	Measure Description	Quantity	Energy Savings	Units of Savings	Total Customer Cost
EE Measure 1					
EE Measure 2					
EE Measure 3					
EE Measure 4					
EE Measure 5					
EE Measure 6					
EE Measure 7					
EE Measure 8					

---

### Interview & Introduction

Hello, my name is [NAME] and I work with DNV GL. I am working on behalf of [Sponsor] to conduct an independent assessment of energy-efficiency technologies installed under the &Program. I am here to meet with [FirstName1 LastName2] to discuss energy-using technologies in this facility. **(Show letter, identification and business card.)** During my visit I'd like to ask a few questions about your facility's general characteristics and then would like walk through to note the number and type of lighting fixtures and visually inspect other relevant equipment including heating, cooling, water heating, refrigeration and motors equipment. The survey should take no more than 300 minutes to complete. Do you have any questions regarding my visit?

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### Building Plan Review

**BP1.** Identify the major functional spaces, or building areas, with distinct schedules or HVAC systems and determine the percentage of space distribution by building area where the project was installed. The total percentage of the floor area represented by these areas should represent the majority of the building (i.e., close to 100%). Use the Building Area Sketch Sheets to assist as necessary.

Area ID	Area Code	Area Description	% of Overall Building Area	% of Area Conditioned by			
				Heating	Cooling	Uncond.	Refrigerated
A1							
A2							
A3							
A4							
A5							
A6							
A7							
A8							
A9							
A10							

AA Code	Activity Area Type Description	AA Code	HVAC Type Description	HVAC Code	HVAC Type Description
1	Auditorium/Gym	22	Guest Room (Hotel/Motel)	42	Religious Worship
2	Auto Repair Workshop	23	Kitchen/Break Room & Food Prep	43	Residential
3	Bank/Financial	24	Laboratory	44	Restrooms
4	Bar Cocktail Lounge	25	Laundry	45	Retail Sales / Showroom
5	Barber/Beauty Shop	26	Library	46	Smoking Lounge
6	Casino/Gaming	27	Loading Dock	47	Storage (Conditioned)
7	Classroom/Lecture	28	Lobby (Hotel)	48	Storage (Unconditioned)
8	Clean Room	29	Lobby (Main Entry and Assembly)	49	Storage (Refrigerated/Freezer), Walk-In
9	Computer Room/Data Processing	30	Lobby (Office Reception/Waiting)	50	Storage (Refrigerated/Freezer), Building
10	Com/Ind Work (General High Bay)	31	Locker and Dressing Room	51	Surgery Rooms
11	Com/Ind Work (General Low Bay)	32	Mall Arcade and Atrium	52	Theater (Motion Picture)
12	Com/Ind Work (Precision)	33	Mechanical/Electrical Room	53	Theater (Performance)
13	Conference Room	34	Medical Offices and Exam Rooms	54	Unknown
14	Convention and Meeting Center	35	Office (Executive/Private)	55	Vacant (Conditioned)
15	Copy Room	36	Office (General)	56	Vacant (Unconditioned)
16	Corridor/Hallways	37	Office (Open Plan)	57	Vocational Areas
17	Courtrooms	38	Patient Rooms	98	Non Rebated Area
18	Dining Area	39	Patio Area	99	Other Unlisted Activity Types
19	Dry Cleaning	40	Pool/Spa Area		
20	Exercise Centers/Gymnasium	41	Police/Fire Station	100	Outside / Outdoor Area
21	Exhibit Display Area / Museum				

Description/Notes:

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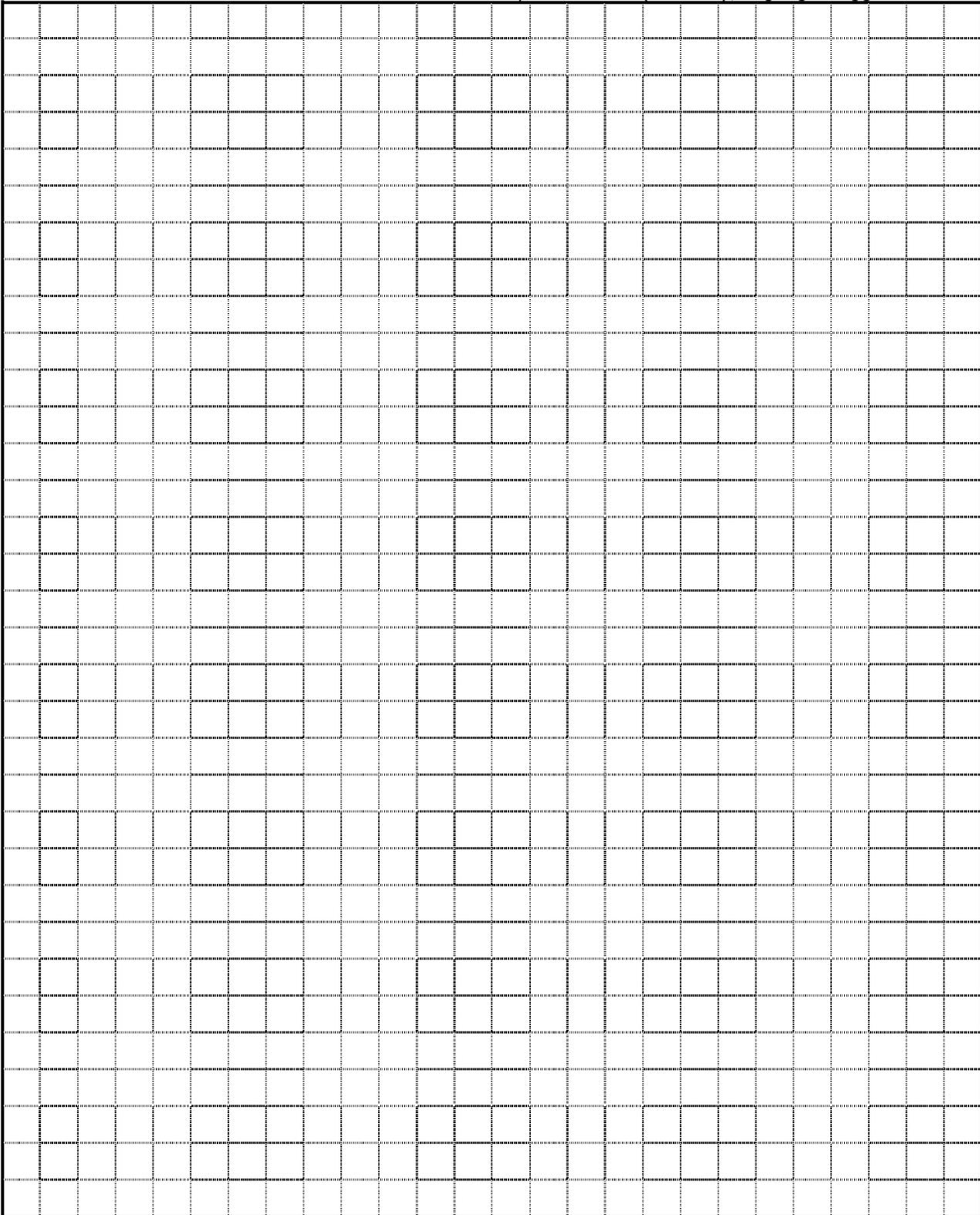
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**Building Area Sketch Sheet**

[Use additional sheets as necessary]  
Identify orientation (N and E); Highlight logger locations



**Building Operating Schedules**

**BP2.** Define the building operating schedules for the building. Enter the operating hours for each schedule and then note the applicable building areas. (Enter 2400 for 24-hour operation, enter 0 for never open)

SCHD ID	Business Operating Hours								Area IDs on this schedule				
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Holidays	A1	A2	A3	A4	A5
BH1	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A1	A2	A3	A4	A5
BH2	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A6	A7	A8	A9	A10
BH3	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A1	A2	A3	A4	A5
BH4	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A6	A7	A8	A9	A10
BH5	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A1	A2	A3	A4	A5
BH6	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A6	A7	A8	A9	A10
BH7	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A1	A2	A3	A4	A5
BH8	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A6	A7	A8	A9	A10
BH9	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	A1	A2	A3	A4	A5
									A6	A7	A8	A9	A10

**[IF BP1Cooling>0, else skip to BP4]**

**HVAC Operating Schedules**

**BP3:** Define the HVAC Occupied and Unoccupied schedules for the building. Enter the occupied hours for each schedule and then note the applicable building areas. (Enter 2400 for 24-hour operation, enter 0 for never open)

**A.**

HVAC ID	HVAC Operating Hours								Area IDs on this schedule				
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Holidays	A1	A2	A3	A4	A5

H1	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H2	O: C:	AA1 AA2 AA3 BH4 AA5 AA6 AA7 AA8 AA9 AA10							
H3	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H4	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H5	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H6	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H7	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H8	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
H9	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							

H10	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
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**[If BP1 Cooling or Heating >0, else skip to BP5]**

**Room Thermostat Setpoints**

**BP4.** Enter the values for heating and cooling thermostat setpoints during normal (occupied) and setback (unoccupied) periods for each HVAC operation schedule

	Period	Heating SetPoint	Cooling SetPoint		Period	Heating SetPoint	Cooling SetPoint
H1	Occupied			H6	Occupied		
	Unoccupied				Unoccupied		
H2	Occupied			H7	Occupied		
	Unoccupied				Unoccupied		
H3	Occupied			H8	Occupied		
	Unoccupied				Unoccupied		
H4	Occupied			H9	Occupied		
	Unoccupied				Unoccupied		
H5	Occupied			H10	Occupied		
	Unoccupied				Unoccupied		

### Interior Lighting Operating Hours

**BP5:** Define the interior lighting operating schedules for the building. Enter the interior lighting operating hours and then note the applicable building occupancy schedule. (Enter 2400 for 24-hour for lighting operation hours, enter 0 for never on).

SCH D ID	Interior Lighting Operating Hours								Area IDs		
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Holiday s	on this schedule		
IL1	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL2	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL3	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL4	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL5	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL6	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL7	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10		
IL8	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9		

									AA10
IL9	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							
IL10	O: C:	AA1 AA2 AA3 AA4 AA5 AA6 AA7 AA8 AA9 AA10							

**Exterior Lighting Operating Hours**

**BP6:** Define the exterior lighting operating schedules for the building if on timer or manual switches. Enter the exterior lighting operating hours and then note the applicable building occupancy schedule. (Enter 2400 for 24-hour for lighting operation hours, enter 0 for never on).

SCH D ID	Exterior Lighting Operating Hours								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Holidays	
EL1	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:
EL2	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:
EL3	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:
EL4	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:
EL5	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:	O: C:

**BP7:** How is the exterior lighting controlled? (check all that apply)

Manual Switches\* \_\_\_\_\_ Daylight Sensors \_\_\_\_\_  
 Time Clock\* \_\_\_\_\_ Other (explain) \_\_\_\_\_  
 Occupancy Sensors \_\_\_\_\_ Don't Know \_\_\_\_\_

\*If manual switches or time clock complete table <based on response to BP6>.

Description/Notes:

**Building Characteristics**

<p><b>[If BP1 Heating &gt;0, else skip to BC2]</b>  <b>BC1. Space heating fuel type:</b></p> <p>E=Electricity  G=Natural gas  P=Propane  EG=Electricity and gas  N=Neither electricity or gas  O=Other(specify)  DK= Don't know  REF=Refused</p>	<p>E G P EG N</p> <p>O _____</p> <p>DK REF</p>
<p><b>[If BC2=2 GO TO BC3, else skip to BC4]</b>  <b>BC2. Age of building</b></p>	<p>1. _____  2. Don't know  3. Refused</p>
<p><b>BC3. Age of building:</b></p> <ol style="list-style-type: none"> <li>1. Before 1950</li> <li>2. 1960's</li> <li>3. 1970's</li> <li>4. 1980's</li> <li>5. 1990-1994</li> <li>6. 1995-1999</li> <li>7. 2000's</li> <li>8. Don't know</li> <li>9. Refused to answer</li> </ol>	<p>1 2 3 4 5 6 7</p> <p>8 9</p>

<p><b>BC4. Primary business activity at the facility</b></p> <ol style="list-style-type: none"> <li>1. Office</li> <li>2. Retail (non-food)</li> <li>3. College/University</li> <li>4. School</li> <li>5. Grocery store</li> <li>6. Restaurant</li> <li>7. Health care (other than hospital)</li> <li>8. Hospital</li> <li>9. Hotel/Motel</li> <li>10. Warehouse</li> <li>11. Construction</li> <li>12. Community service/Religious/Municipality</li> <li>13. Industrial process/Manufacturing</li> <li>14. Condo association/Apt. management</li> <li>15. Greenhouse</li> <li>16. Laundry/Dry cleaner</li> <li>17. Other (specify) _____</li> <li>18. Don't know</li> <li>19. Refused</li> </ol>	<p><b>1 2 3 4 5 6 7 8 9</b></p> <p><b>10 11 12 13 14 15 16</b></p> <p><b>17</b> _____</p> <p><b>18 19</b></p>
<p><b>BC5. Number of part-time and full-time employees</b></p>	<ol style="list-style-type: none"> <li>1. _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>

[If BP1 Cooling >0, else skip to H1]  
 Cooling Equipment –Verification of Installed Measures

Cooling Type <from tracking system>	C1. Cooling Type Installed*	C2. Qty Installed	C3. Capacity	C4. Efficiency	C5. Building Area ID	C6. Frequency of Use*	C7. Hrs of Operation Vary with Weather
	SS PS PTAC EC C IAC W O _____ DK REF		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5	Y N DK REF
	SS PS PTAC EC C IAC W O _____ DK REF		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5	Y N DK REF
	SS PS PTAC EC C IAC W O _____ DK REF		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5	Y N DK REF
	SS PS PTAC EC C IAC W O _____ DK REF		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5	Y N DK REF
	SS PS PTAC EC C IAC W O _____ DK REF		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5	Y N DK REF

	<b>SS PS PTAC EC</b> <b>C IAC W</b> O _____ <b>DK REF</b>		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5		Y N DK REF	
	<b>SS PS PTAC EC</b> <b>C IAC W</b> O _____ <b>DK REF</b>		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5		Y N DK REF	
	<b>SS PS PTAC EC</b> <b>C IAC W</b> O _____ <b>DK REF</b>		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5		Y N DK REF	
	<b>SS PS PTAC EC</b> <b>C IAC W</b> O _____ <b>DK REF</b>		_____ tons _____ kBtuh _____ kW	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5		Y N DK REF	

**\*KEY CODES**

<b>Cooling Type</b>  <b>SS</b> =Split system <b>PS</b> =Package system <b>PTAC</b> =Package terminal AC or heat pump
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**EC**=Evaporative cooler  
**C**=Water chiller/cooling tower  
**IAC**=Individual AC or heat pump  
**W**=Window/Wall units  
**O** = Other (describe)  
**DK** = Don't know  
**REF** = Refused

**Frequency of Use**

1. All summer
2. Quite a bit
3. Only a few times when needed
4. Not at all
5. Don't know

Notes:

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**Cooling Equipment – Discrepancy of Installed Measures** (repeat set of questions for each type of equipment installed where verification identified discrepancies from tracking system and CATI data)

<p><b>CV1. Cooling Type</b></p> <p>SS=Split system  PS=Package system  PTAC=Package terminal AC or heat pump  EC=Evaporative cooler  C=Water chiller/cooling tower  IAC=Individual AC or heat pump  W=Window/Wall units  O = Other (describe)  DK = Don't know  REF = Refused</p>	<p><b>Installed Equipment</b></p> <p>SS PS PTAC EC  C IAC W  O _____  DK REF</p>
<p><b>[IF C2 not equal to quantity in tracker, else skip to CV3]</b></p> <p><b>CV2. Reason quantity differed:</b></p> <p>1. Put into storage  2. Installed at another facility  3. Insufficient financial resources to complete  4. Other (describe) _____  5. Don't know  6. Refused</p>	<p>1 2 3 4  5 _____  6 7</p>
<p><b>[IF C3 not equal to quantity in tracker, else skip to CR1]</b></p> <p><b>CV3. Reason capacity differed:</b></p> <p>1. Put into storage  2. Installed at another facility  3. Insufficient financial resources to complete  4. Other (describe) _____  5. Don't know  6. Refused</p>	<p>1 2 3 4  5 _____  6 7</p>
<p><b>[IF C4 not equal to quantity in tracker, else skip to CR1]</b></p> <p><b>CV4. Reason capacity differed:</b></p> <p>1. Put into storage  2. Installed at another facility  3. Insufficient financial resources to complete  4. Other (describe) _____  5. Don't know  6. Refused</p>	<p>1 2 3 4  5 _____  6 7</p>

Notes:

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**Cooling Equipment – Replaced Equipment** (repeat set of questions for each type of equipment replaced)

	Replaced Equipment
<b>CR1. Cooling Type Replaced</b> <b>SS</b> =Split system <b>PS</b> =Package system <b>PTAC</b> =Package terminal AC or heat pump <b>EC</b> =Evaporative cooler <b>C</b> =Water chiller/cooling tower <b>IAC</b> =Individual AC or heat pump <b>W</b> =Window/Wall units <b>O</b> = Other (describe) <b>N</b> =None <b>DK</b> = Don't know <b>REF</b> = Refused	<b>SS PS PTAC EC</b> <b>C IAC W</b> <b>O</b> _____ <b>N DK REF</b> <b>[If N, DK, REF skip to H1]</b>
<b>CR2. Quantity</b>	1. _____ 2. Don't know 3. Refused
<b>CR3. Capacity</b>	1. _____ tons 2. _____ Btu/hr 3. _____ therm 4. _____ kW 5. Don't know 6. Refused
<b>CR4. Condition of replaced equipment</b> <b>G</b> = Good <b>F</b> = Fair <b>P</b> =Poor <b>I</b> =Inoperable <b>DK</b> =Don't know <b>REF</b> =Refused	<b>G F P I DK REF</b>
<b>CR5. Efficiency</b>	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other
<b>CR6. Estimated Age</b> 1. <5 years old 2. 5-10 years old 3. 11-20 years old 4. >20 years old 5. Don't know 6. Refused	<b>1 2 3 4 5 6</b>

Notes:

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Heating Type <from tracking system>	H1. Heating Type Installed*	H2. Qty Installed	H3. Fuel Type	H4. Size	H5. Efficiency (AFUE)	H6. Building Area ID	H7. Frequency of Use*
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
	<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>		1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other_____	1. _____kW 2. _____kBtuh 3. _____HP 4. Other_____		A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5



<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>	1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other _____	1. _____ kW 2. _____ kBtuh 3. _____ HP 4. Other _____	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5
<b>C P SH SS</b> <b>F D R</b> <b>O _____</b> <b>DK REF</b>	1. Electricity 2. Natural gas 3. Fuel oil 4. LP gas 5. Other _____	1. _____ kW 2. _____ kBtuh 3. _____ HP 4. Other _____	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1 2 3 4 5

**\*KEY CODES**

**Heating Types**

**C**=Central Boiler  
**P**=Package Heating Units  
**SH**=Individual Space Heater/Portable Room Heater/Strip Heating  
**SS**=Split-system Heat Pumps  
**F**=Central Furnaces  
**D**=District Steam or Hot Water  
**R**=Radiant Heaters  
**O**=Other (specify) \_\_\_\_\_  
**DK**=Don't know  
**REF**=Refused

Notes:

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**Heating Equipment –Installed Measures Discrepancies** (repeat set of questions for each type of equipment installed where verification identified discrepancies from tracking system and CATI data)

	Installed Equipment
<b>HV1. Heating Type Installed</b> <b>C</b> =Central boilers <b>P</b> =Package heating units <b>SH</b> =Individual space heater/portable room heater/strip heating <b>SS</b> =Split system heat pumps <b>F</b> =Central furnaces <b>D</b> =District steam or hot water <b>R</b> =Radiant heaters <b>O</b> =Other (specify) _____ <b>DK</b> =Don't know <b>REF</b> =Refused	<b>C P SH SS F D R</b>  <b>O</b> _____  <b>DK REF</b>
<p><b>[Ask If quantity not equal to quantity in tracker, else skip to HV3]</b></p> <b>HV2. Reason quantity differed:</b> <ol style="list-style-type: none"> <li>1. Put into storage</li> <li>2. Installed at another facility</li> <li>3. Insufficient financial resources to complete</li> <li>4. Other (describe) _____</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<b>1 2 3 4</b>  <b>5</b> _____  <b>6 7</b>
<p><b>[Ask If capacity not equal to quantity in tracker, else skip to HR1]</b></p> <b>HV3. Reason capacity differed:</b> <ol style="list-style-type: none"> <li>1. Put into storage</li> <li>2. Installed at another facility</li> <li>3. Insufficient financial resources to complete</li> <li>4. Other (describe) _____</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<b>1 2 3 4</b>  <b>5</b> _____  <b>6 7</b>

Notes:

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**Heating Equipment – Replaced Equipment** (repeat set of questions for each type of equipment replaced)

	Replaced Equipment
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<b>HR1. Heating Type Replaced</b> <b>C</b> =Central boilers <b>P</b> =Package heating units <b>SH</b> =Individual space heater/portable room heater/strip heating <b>SS</b> =Split system heat pumps <b>F</b> =Central furnaces <b>D</b> =District steam or hot water <b>R</b> =Radiant heaters <b>O</b> =Other (specify)_____ <b>N = None</b> <b>DK</b> =Don't know <b>REF</b> =Refused	<b>C P SH SS F D R</b>  <b>O</b> _____  <b>N DK REF</b>  <b>[If N, DK, REF, skip to CDV1]</b>
<b>HR2. Quantity</b>	1. _____ 2. Don't know 3. Refused
<b>HR3. Capacity</b>	1. _____ tons 2. _____ Btu/hr 3. _____ therm 4. _____ kW 5. Don't know 6. Refused
<b>HR4. Condition of replaced equipment</b> <b>G</b> = Good <b>F</b> = Fair <b>P</b> =Poor <b>I</b> =Inoperable <b>DK</b> =Don't know <b>REF</b> =Refused	<b>G F P I DK REF</b>
<b>HR5. Efficiency</b>	_____ EER _____ SEER _____ Btu/hr _____ kW/ton _____ Other
<b>HR 6. Estimated Age</b> 1. <5 years old 2. 5-10 years old 3. 11-20 years old 4. >20 years old 5. Don't know 6. Refused	<b>1 2 3 4 5 6</b>

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**[If BP1 Heating or Cooling >0, else skip to RV1]**

**Heating/Cooling Controls and VSD Equipment – Installed**  
 (repeat set of questions for each type of equipment installed under the program)

	Installed Equipment
<p><b>CDV1. Controls Type Installed</b>  <b>ASD</b>=Adjustable speed drives or variable speed drives  <b>EMS</b>=Energy management system  <b>CMT</b>=HVAC controls – manual thermostat  <b>CBT</b>=HVAC controls – bypass timer  <b>CTC</b>=HVAC controls – time clock  <b>CPT</b>=HVAC controls – programmable thermostat  <b>SV</b>=CO2 sensor/demand control ventilation  <b>E</b>=Economizers <b>O</b>=Other (specify) _____  <b>N</b> = None  <b>DK</b>=Don't know  <b>REF</b>=Refused</p>	<p><b>ASD EMS</b>  <b>CMT CBT CTC CPT</b>  <b>SV E</b>  <b>O</b> _____  <b>N DK REF</b>  <b>[If N, DK, REF, skip to R1]</b></p>
<p><b>CDV2. Quantity</b></p>	<p>1. _____  2. Don't know  3. Refused</p>
<p><b>CDV3. Percentage of total enclosed floor space in the facility the control serves?</b></p>	<p>1. _____  2. Don't know  3. Refused</p>
<p><b>[Ask if CDV2 not equal to quantity in tracker, else skip to CDR1]</b></p> <p><b>CDV4. Reason quantity differed:</b></p> <ol style="list-style-type: none"> <li>1. Put into storage</li> <li>2. Installed at another facility</li> <li>3. Insufficient financial resources to complete</li> <li>4. Other (describe) _____</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<p><b>1 2 3 4</b>  <b>5</b> _____  <b>6 7</b></p>

Notes:

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**Heating/Cooling Controls and VSD Equipment – Replaced**

	Replaced Equipment
<b>CDR1. Controls Type Replaced</b> <b>ASD</b> =Adjustable speed drives <b>EMS</b> =Energy management system <b>CMT</b> =HVAC controls – manual thermostat <b>CBT</b> =HVAC controls – bypass timer <b>CTC</b> =HVAC controls – time clock <b>CPT</b> =HVAC controls – programmable thermostat <b>SV</b> =CO2 sensor/demand control ventilation <b>E</b> =Economizers <b>O</b> =Other (specify) _____ <b>N</b> =None <b>DK</b> =Don't know <b>REF</b> =Refused	<b>ASD EMS</b> <b>CMT CBT CTC CPT</b> <b>SV E</b> <b>O</b> _____ <b>N DK REF</b> <b>[If N, DK, REF, skip to R1]</b>
<b>CDR2. Quantity</b>	1. _____ 2. Don't know 3. Refused
<b>CDR3. Condition of replaced equipment</b> <b>G</b> = Good <b>F</b> = Fair <b>P</b> =Poor <b>I</b> =Inoperable <b>DK</b> =Don't know <b>REF</b> =Refused	<b>G F P I DK REF</b>
<b>CDR4. Estimated Age</b> 1. <5 years old 2. 5-10 years old 3. 11-20 years old 4. >20 years old 5. Don't know 6. Refused	<b>1 2 3 4 5 6</b>

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**Refrigeration Equipment – Installed**

(repeat set of questions for each type of equipment installed under the program) **[If BP1 Refrigeration >0, else skip to M1]**

	Installed Equipment
<b>RV1. Refrigeration Measure</b> RR=Residential sized refrigerator RF=Residential sized freezer LR=Large standard refrigerator (>30 cf) HC=Self contained – coffin/horizontal case VC=Self contained – vertical case (multi shelf) SDO=Single deck display cases - open single deck SDD=Single deck display cases – glass door cases MDO=Multi deck display cases – open single deck MDD=Multi deck display cases – glass door cases WF=Walk-in freezers O=Other (specify) _____ DK=Don't know REF=Refused	RR RF LR HC VC SDO SDD  MDO MDD WF  O _____  DK REF
<b>RV2. Quantity</b>	1. _____ 2. Don't know 3. Refused
<b>[Ask if RV2 not equal to quantity in tracker, else skip to RV4]</b>  <b>RV3. Reason quantity differed:</b>  1. Put into storage 2. Installed at another facility 3. Insufficient financial resources to complete 4. Other (describe) _____ 5. Don't know 6. Refused	1    2    3    4  5 _____  6    7
<b>RV4. How many were used to REPLACE existing units?</b>	1. _____ 2. Don't know 3. Refused
<b>RV5. Total size of the units installed to replace existing units</b>	1. _____ 2. Don't know 3. Refused
<b>RV6. How many were used to INCREASE refrigeration capacity?</b>	1. _____ 2. Don't know 3. Refused
<b>RV7. Total size of the units installed to increase refrigeration capacity</b>	1. _____ 2. Don't know 3. Refused
<b>RV8. Number of hours the unit is left open</b>	1. _____ 2. Don't know 3. Refused
<b>RV9. When the unit is closed, number of times it is opened per hour</b>	1. _____ 2. Don't know 3. Refused

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	Replaced Equipment					
<p><b>[Ask If RV4&gt;0, else skip to M1]</b></p> <p><b>RR1. Amount of refrigeration equipment removed compared to the amount of capacity installed:</b></p> <ol style="list-style-type: none"> <li>1. Same</li> <li>2. More</li> <li>3. Less</li> <li>4. Don't know</li> <li>5. Refused</li> </ol>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<p><b>[Ask If RR1 =2, else skip to RR3]</b></p> <p><b>RR2. How much LESS capacity was installed?</b></p>						<ol style="list-style-type: none"> <li>1. _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<p><b>[Ask If RR1 =3, else skip to RR4]</b></p> <p><b>RR3. How much MORE capacity was installed?</b></p>						<ol style="list-style-type: none"> <li>1. _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<p><b>RR4. What year was the old equipment removed?</b></p> <ol style="list-style-type: none"> <li>1. 2008</li> <li>2. 2009</li> <li>3. 2010</li> <li>4. 2011</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<p><b>RR5. Condition of replaced equipment</b></p> <p><b>G</b>= Good  <b>F</b>= Fair  <b>P</b>=Poor  <b>I</b>=Inoperable  <b>DK</b>=Don't know  <b>REF</b>=Refused</p>	<b>G</b>	<b>F</b>	<b>P</b>	<b>I</b>	<b>DK</b>	<b>REF</b>
<p><b>RR6. Estimated age of removed equipment</b></p> <ol style="list-style-type: none"> <li>1. &lt;5 years old</li> <li>2. 5-10 years old</li> <li>3. 11-20 years old</li> <li>4. &gt;20 years old</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

**Motors – Verification of Installed Measures**

Motor Size (HP)	M1: Qty Purchased <from tracking>	M2: Qty Installed	M3: Qty Premium Efficiency	[If M2 not equal to M1] M4: Reason for Qty Discrepancy*	M5: Equipment Type Driven by Motor (multiple responses)*	M6: Qty Replaced	M7: Qty of Existing Motors Rewound
<b>1-5</b>							
<b>6-20</b>							
<b>21-50</b>							
<b>51-100</b>							
<b>101-200</b>							
<b>201-500</b>							

**\*KEY CODES**

Reason for quantity discrepancy:

1. Put into storage
2. Installed at another facility
3. Insufficient financial resources to complete
4. Other (describe)\_\_\_\_\_
5. Don't know
6. Refused

Motor Applications:

1. HVAC equipment (describe in notes section the type of equipment: condenser fans, exhaust fans, etc.)
2. Pump (describe in notes section type of equipment: hot water pumps, chilled water primary pump, chilled water secondary pump, hot water secondary or primary pump, condenser pumps, etc.)
3. Fan
4. Air compressor
5. Conveyor belt or other materials handling
6. Production process machinery

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- 7. Other(describe) \_\_\_\_\_
  - 8. Don't know
  - 9. Refused

**Motors – Hours of Operation for Non-HVAC Installed Motors** (repeat for each multiple response to M5)

	<b>Non-HVAC Installed Motors</b>
<b>M8. Number of hours per day the equipment typically operates</b>	1. _____ 2. Don't know 3. Refused
<b>M9. Number of days per week the equipment typically operates</b>	1. _____ 2. Don't know 3. Refused
<b>M10. Are there months during the year that differ significantly from the responses to M8 and M9?</b>	1. Yes 2. No 3. Don't know 4. Refused
<b>[Ask if M10 = Yes, else skip to L1]</b>	
<b>M11. Number of hours per day the equipment operates during the periods with different operating schedules</b>	1. _____ 2. Don't know 3. Refused
<b>M12. Number of days per week does the equipment operates during the periods with different operating schedules</b>	1. _____ 2. Don't know 3. Refused
<b>M12. Number of months the equipment operates on the different operating schedules</b>	1. _____ 2. Don't know 3. Refused

Notes:

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**Lighting Equipment and Controls – Verification of Installed Measures**

Measure Type <from tracking system>	L1. Qty Installed	L2. Wattage of Installed Measure	L3. Operational	L4. Building Area ID	L5. Square Feet Served by Measure
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused
			Y      N	A1 A2 A3 A4 A5 A6 A7 A8 A9 A10	1. _____ 2. Don't know 3. Refused

**Lighting Control Measures**

Control Measure Type <from tracking system>	LC1. Wattage Controlled	LC2. Hours/day before Control	LC3. % Reduction in Operating Hours
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused
			1. _____ 2. Don't know 3. Refused

**Lighting – Installed Measures Discrepancies** (repeat set of questions for each type of equipment installed where verification identified discrepancies from tracking system and CATI data)

	<b>Installed Equipment</b>
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<p><b>[Ask If L1 differs from quantity in trackers, else LV2]</b></p> <p><b>LV1. Reason quantity differed:</b></p> <ol style="list-style-type: none"> <li>1. No idea</li> <li>2. Put into storage</li> <li>3. Installed at another facility</li> <li>4. Insufficient financial resources to complete</li> <li>5. Other (describe) _____</li> <li>6. Don't know</li> <li>7. Refused</li> </ol>	<p>1   2   3   4</p> <p>5 _____</p> <p>6   7</p>
<p><b>[Ask If L2 differs from quantity in trackers, else LR1]</b></p> <p><b>LV2. Reason wattage differed:</b></p> <ol style="list-style-type: none"> <li>1. Put into storage</li> <li>2. Installed at another facility</li> <li>3. Insufficient financial resources to complete</li> <li>4. Other (describe) _____</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<p>1   2   3   4</p> <p>5 _____</p> <p>6   7</p>

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Lighting – Replaced Equipment** (repeat set of questions for each type of equipment replaced)

	<b>Replaced Equipment</b>
<b>LR1: Type of lighting fixtures replaced*</b>	<b>[If N, DK, REF, skip to O1, else continue to LR2]</b>
<p><b>LR2. Did you remove the same number of old fixtures as installed?</b></p> <ol style="list-style-type: none"> <li>1. Same</li> <li>2. More</li> <li>3. Less</li> <li>4. Don't know</li> <li>5. Refused</li> </ol>	<p>1   2   3   4   5</p>
<p><b>[If LR2=2, else skip to LR4]</b></p> <p><b>LR3. How fewer fixtures were installed?</b></p>	<ol style="list-style-type: none"> <li>1. _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<p><b>[If LR2=2, else skip to LR8]</b></p> <p><b>LR4. How many more fixtures installed?</b></p>	<ol style="list-style-type: none"> <li>1. _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<p><b>LR 5. Estimated age of removed equipment</b></p>	<ol style="list-style-type: none"> <li>1. _____</li> </ol>



	2. Don't know 3. Refused
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**\*KEY CODES**

**N**= Did not replace anything  
**HT8**= High performance T8 – 1” diameter bulbs  
**T8**= T8 fluorescent fixtures – 1” diameter bulbs  
**T10**= T10 fluorescent fixtures  
**T12**= T12 fixtures – 1.5” diameter bulbs  
**HID**= High density discharge fixtures, compact  
**CFS**=Compact fluorescent – screw-in modular  
**CFH**= Compact fluorescent – hardwire  
**I**=Incandescent  
**EXCF**=Exit signs – compact fluorescent  
**EXL**=Exit signs – LED  
**H**=Halogen  
**EB**=Electronic ballast  
**DK** = Don't know  
**REF**= Refused

**MB**=Magnetic ballast  
**FT**=Fat/thick tubes  
**ST**=Skinny/thin tubes  
**T5**=T5 fixtures – 5/8” diameter  
**HPS**=High pressure sodium  
**MH**=Metal halide  
**MV**=Mercury vapor  
**OTH**=Other (specify)  
**DK**=Don't know  
**REF**=Refused

**Other Measure Verification**

<b>O1. Type of equipment</b>	<p>_____</p>
<b>O2. Quantity installed through the program</b>	<ol style="list-style-type: none"> <li>1. Number _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<b>O3. Facility's square footage served by this equipment</b>	<ol style="list-style-type: none"> <li>1. _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<b>O4. Type of equipment that was replaced</b>	<p>_____</p>
<b>O5. Condition of replaced equipment</b> <b>G= Good</b> <b>F= Fair</b> <b>P=Poor</b> <b>I=Inoperable</b> <b>DK=Don't know</b> <b>REF=Refused</b>	<p><b>G F P I DK REF</b></p>
<b>O6. Estimated Age</b> <ol style="list-style-type: none"> <li>1. &lt;5 years old</li> <li>2. 5-10 years old</li> <li>3. 11-20 years old</li> <li>4. &gt;20 years old</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<p><b>1 2 3 4 5 6</b></p>
<b>O7. Did you remove the same amount of equipment as installed?</b>  <ol style="list-style-type: none"> <li>1. Same</li> <li>2. More</li> <li>3. Less</li> <li>4. Don't know</li> <li>5. Refused</li> </ol>	<p><b>1 2 3 4 5</b></p>

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## L.26. OS-1 RESIDENTIAL

### Contact Information:

Owner Name: \_\_\_\_\_

Occupant Name (if different from owner) \_\_\_\_\_

Owner Phone: \_\_\_\_\_ Tenant Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_

*\* Mailing address is only needed if different from building address*

### Survey Tracking Information

Surveyor Name: \_\_\_\_\_ Travel Mileage: \_\_\_\_\_

Start Time: \_\_\_\_\_ Finish Time: \_\_\_\_\_ Total Time (mins):  
(Onsite, QC, Travel)

Scheduling Notes:

Month/Year of Home Performance Assessment	Month/Year of Home Performance Work Completion
Number of Year Round Occupants	Change in number of occupants over the past 12 months?
Any significant changes to household energy consumption over the past 12 months?	Y / N (if yes, please document the changes below)

Site & Survey Notes (Please note any changes to the household's energy usage or occupancy over the past 12 months):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Room(s) that could not be entered:	Reason?

### Background Information

### Dwelling Information

Dwelling type	
Year Built	
Number of stories	

### Utility Information

	Electric	Natural Gas
Utility		
Account Number		
Meter Number		

### Installed Measures

	Measure Description	Quantity	Energy Savings	Units of Savings	Total Customer Cost
EE Measure 1					
EE Measure 2					
EE Measure 3					
EE Measure 4					
EE Measure 5					
EE Measure 6					
EE Measure 7					
EE Measure 8					

**Interview & Introduction**

Hello, my name is [NAME] and I work with DNV GL. I am working on behalf of [Sponsor] to conduct an independent assessment of energy-efficiency technologies installed under the &Program. I am here to meet with [FirstName1 LastName2] to discuss energy-using technologies in this home. (Show letter, identification and business card.) During my visit I'd like to ask a few questions about your home's general characteristics and then would like walk through to note the number and type of lighting fixtures and visually inspect heating, cooling, and water heating equipment. The survey should take no more than 300 minutes to complete. Do you have any questions regarding my visit?

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

**Cooling Equipment –Inventory**

	Primary	Secondary
<b>C1. Cooling Type</b> C = Central Air Conditioning CO=Cooling coil HPA = Heat Pump – air HPG= Heat Pump - ground R = Room air conditioning N = No AC OTH = Other (describe) DK= Don't Know	C CO HPA HPG R N DK OTH _____ [If N or DK skip to CV1]	C CO HPA HPG R N DK OTH _____ [If N or DK skip to CV1]
<b>C2. Size</b>	tons / kBtu / kW	tons / kBtu / kW
<b>C3. Manufacturer</b>		
<b>C4. Model Number</b>		
<b>C5. Serial Number</b>		
<b>C6. Estimated Age</b> 1. <1 year old 2. 1-4 years old 3. 5-10 years old 4. 11-15 years old 5. 16-20 years old 6. >20 years old 7. Don't Know	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>C7. Manufacturer Date</b>		
<b>C8. Efficiency</b> (from yellow sticker)	SEER / EER	SEER / EER



<b>C9. Space Served</b>	<ol style="list-style-type: none"><li>1. Serves home or apartment only</li><li>2. Serves more than one home or apartment</li></ol>	<ol style="list-style-type: none"><li>1. Serves home or apartment only</li><li>2. Serves more than one home or apartment</li></ol>
<b>C10. Frequency of Use</b> <ol style="list-style-type: none"><li>1. All summer</li><li>2. Quite a bit</li><li>3. Only a few times when needed</li><li>4. Not at all</li><li>5. Don't know</li></ol>	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>

\* If Type = Room AC, note the quantity in the notes section

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**Cooling Equipment – Verification of Installed Measures** (repeat set of questions for each type of equipment installed under the program)

	Installed Equipment
<b>CV1. Cooling Type Installed</b> <b>C</b> = Central Air Conditioning <b>E</b> = Evaporative coolers (swamp coolers) <b>HPA</b> = Heat Pump – air <b>HPG</b> =Heat Pump - ground <b>R</b> = Room air conditioning <b>DK</b> = Don't Know <b>OTH</b> = Other (describe)	<b>C E HPA HPG R</b>  <b>DK</b>  <b>OTH</b> _____
<b>CV2. Quantity</b>	
<b>CV3. Efficiency</b> (from yellow sticker)	SEER / EER
<b>[If CV2not equal to quantity in tracker, else skip to CR1]</b>  <b>CV4. Reason quantity differed:</b>  7. No idea 8. Put into storage 9. Installed somewhere else in U.S. 10. Insufficient financial resources to complete 11. Other (describe)_____ 12. Don't know 13. Refused	<b>1 2 3 4</b>  <b>5</b> _____  <b>6 7</b>
<b>CV5. Do you plan to install in the next year?</b>  <b>Y</b> = Yes <b>N</b> = No <b>DK</b> =Don't know <b>REF</b> =Refused	<b>Y N DK REF</b>

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Replaced Equipment	
<b>CR1. Cooling Type Replaced</b> <b>C</b> = Central Air Conditioning <b>E</b> = Evaporative coolers (swamp coolers) <b>H</b> = Heat Pump (heats & cools) <b>R</b> = Room air conditioning <b>DK</b> = Don't know <b>REF</b> = Refused <b>OTH</b> = Other (describe) <b>NO</b> =no cooling equipment replaced	<b>C E H R DK REF</b> <b>OTH</b> _____  <b>NO</b> <b>[If NO, DK, REF, skip to H1]</b>
<b>CR2. Quantity</b>	
<b>CR3. Efficiency</b> (from yellow sticker)	SEER / EER
<b>CR4. Condition of replaced equipment</b> <b>G</b> = Good <b>F</b> = Fair <b>P</b> =Poor <b>I</b> =Inoperable <b>DK</b> =Don't know <b>REF</b> =Refused	<b>G F P I DK REF</b>
<b>CR5. Estimated Age</b> 1. <5 years old 2. 5-10 years old 3. 11-20 years old 4. >20 years old 5. Don't know 6. Refused	<b>1 2 3 4 5 6</b>

Notes:

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**Heating Equipment –Inventory**

	Primary	Secondary
<b>H1. Fuel Type</b> N=Natural gas B= Bottled gas/propane E=Electric O=Oil K=Kerosene W=Wood S=Solar G=Geothermal OTH=Other (describe) _____ NO=No heating system DK=Don't know	N B E O K W S G OTH _____ NO DK [If NO or DK skip to HV1]	N B E O K W S G OTH _____ NO DK [If NO or DK skip to HV1]
<b>H2. Heating Type</b> 1. Central forced air furnace 2. Steam boiler (upright radiators or baseboards) 3. Hot water boiler (upright radiator or base boards) 4. Baseboard, wall heaters without fans or ceiling cables 5. Wall heaters with fans 6. Air source heat pump 7. Ground source heat pump 8. Direct vent space heaters 9. Un-vented space heaters 10. Portable heaters 11. Fireplace inserts 12. Stoves 13. Other _____ 14. No heating system 15. Don't know	1 2 3 4 5 6 7 8 9 10 11 12 13 _____ 14 15	1 2 3 4 5 6 7 8 9 10 11 12 13 _____ 14 15
<b>H3. Input Capacity</b>	kBtuh / kW / GPH	kBtuh / kW / GPH
<b>H4. Output Capacity</b>	kBtuh / kW	kBtuh / kW
<b>H5. Manufacturer</b>		
<b>H6. Model Number</b>		
<b>H7. Serial Number</b>		
<b>H8. Estimated Age</b> 1. <1 year old 2. 1-4 years old 3. 5-10 years old 4. 11-15 years old 5. 16-20 years old 6. >20 years old 7. Don't know	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>H9. Manufacturer Date</b>		
<b>H10. Efficiency *</b>	AFUE / COP	AFUE / COP



<b>H11. Space Served</b>	<ol style="list-style-type: none"><li>1. Serves home or apartment only</li><li>2. Serves more than one home or apartment</li></ol>	<ol style="list-style-type: none"><li>1. Serves home or apartment only</li><li>2. Serves more than one home or apartment</li></ol>
<b>H12. Frequency of Use</b>	<ol style="list-style-type: none"><li>1. Everyday</li><li>2. 3-5 days per week</li><li>3. 1-2 days per week</li><li>4. Only a few days a year</li><li>5. Don't know</li><li>6. Refused to answer</li></ol>	<ol style="list-style-type: none"><li>1. Everyday</li><li>2. 3-5 days per week</li><li>3. 1-2 days per week</li><li>4. Only a few days a year</li><li>5. Don't know</li><li>6. Refused to answer</li></ol>

\* If efficiency not available for electric equipment, note volts and amperage from nameplate. (For non-electric equipment, note input and output values).

Notes:

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**Heating Equipment – Verification of Installed Measures** (repeat set of questions for each type of equipment installed under the program)

	Installed Equipment
<b>HV1. Heating Type Installed</b> <b>G</b> = Natural gas boiler <b>W</b> =Wood pellet boiler <b>H</b> = Heat pump (heats & cools) <b>DK</b> = Don't know <b>OTH</b> = Other (describe)	<b>G W H DK</b> <b>OTH</b> _____
<b>HV2. Quantity</b>	
<b>HV3. Fuel type</b> <b>N</b> =Natural gas <b>B</b> = Bottled gas/propane <b>E</b> =Electric <b>O</b> =Oil <b>W</b> =Wood <b>S</b> =Solar <b>OTH</b> =Other (describe)_____	<b>N B E O W S</b> <b>OTH</b> _____
<b>[If HV2 not equal to Quantity in Tracker, else skip to HR1]</b> <b>HV4. Reason quantity differed:</b>  1. No idea 2. Put into storage 3. Installed somewhere else in U.S. 4. Insufficient financial resources to complete 5. Other (describe)_____ 6. Don't know 7. Refused	<b>1 2 3 4</b> <b>5</b> _____ <b>6 7</b>
<b>HV5. Do you plan to install in the next year?</b>  <b>Y</b> = Yes <b>N</b> = No <b>DK</b> =Don't know <b>REF</b> =Refused	<b>Y N DK REF</b>

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	Replaced Equipment
<b>HR 1. Heating Type Replaced</b> <b>G</b> = Natural gas boiler <b>W</b> =Wood pellet boiler <b>F</b> =Furnace <b>DK</b> = Don't Know <b>REF</b> = Refused <b>OTH</b> = Other (describe) <b>NO</b> =No heating equipment replaced	<b>G W F DK REF</b> <b>OTH</b> _____  <b>NO</b>  <b>[IF NO, DK, REF, skip to WH1]</b>
<b>HR 2. Condition of replaced equipment</b> <b>G</b> = Good <b>F</b> = Fair <b>P</b> =Poor <b>I</b> =Inoperable <b>DK</b> =Don't know <b>REF</b> =Refused	<b>G F P I DK REF</b>
<b>HR 3. Estimated Age</b> 7. <5 years old 8. 5-10 years old 9. 11-20 years old 10. >20 years old 11. Don't know 12. Refused	<b>1 2 3 4 5 6</b>

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**Water Heating Equipment –Inventory**

	Primary	Secondary
<b>WH1. Fuel Type</b> N=Natural gas B= Bottled gas/propane E=Electric O=Oil K=Kerosene W=Wood S=Solar G=Geothermal OTH=Other (describe) _____ NO=No heating system DK=Don't know	N B E O K W S G OTH _____ NO DK [If NO or DK skip to WHV1]	N B E O K W S G OTH _____ NO DK [If NO or DK skip to WHV1]
<b>WH2. Equipment Type:</b> 1. Traditional water heater tank 2. Whole house tankless system or instantaneous 3. Heat pump water heater 4. High efficiency gas storage water heater 5. Indirect tank attached to a boiler 6. Other _____ 7. Don't know 8. Refused to answer	1 2 3 4 5 6 _____ 8 9	1 2 3 4 5 6 _____ 8 9
<b>WH3. Manufacturer</b>		
<b>WH4. Model Number</b>		
<b>WH5. Serial Number</b>		
<b>WH6. Manufacture Date</b>		
<b>WH7. Quantity</b>		
<b>WH8. Size:</b> Tank Capacity/Volume in Gallons		
<b>WH9. Rated Input Capacity</b>		
<b>WH10. Rated Input Capacity Units:</b> (W=kW or B=kBtuh)	W B	W B
<b>WH11. Location</b> 1. Garage 2. Attic 3. Conditioned space 4. Outside closet 5. Mechanical room/closet 6. Other _____	1 2 3 4 5 6 _____	1 2 3 4 5 6 _____
<b>WH12. Location dimensions (W x D x H)</b>		
<b>WH13. Is water heater less than 8' away from all DHW fixtures?</b>	Y N	Y N



<b>WH14. Estimated Age</b> 1. <1 year old 2. 1-4 years old 3. 5-10 years old 4. 11-15 years old 5. 16-20 years old 6. >20 years old 7. Don't know	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>WH 15. Water Heater wrap</b>	Y N DK	Y N DK
<b>WH16. Hot water pipes insulated</b>	Y N DK	Y N DK
<b>WH17. Water heater timer visible?</b>	Y N DK	Y N DK

\*Select solar water heater back-up fuel [N = natural gas, E = electricity, F = fuel oil, P = propane]

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**Water Heating Equipment – Verification of Installed Measures** (repeat set of questions for each type of equipment installed under the program)

	<b>Installed Equipment</b>
<b>WHV1. Fuel type</b> N=Natural gas B= Bottled gas/propane E=Electric O=Oil S=Solar DK = Don't know OTH=Other (describe)_____	N B E O S DK OTH_____
<b>WHV2. Quantity</b>	
<b>WHV3. Temperature setting</b>	1. _____ 2. Don't know 3. Refused



**[Ask If WHV2 not equal Quantity in Tracking, else skip to WHR1]**

**WHV4. Reason quantity differed:**

- 1. No idea
- 2. Put into storage
- 3. Installed somewhere else in U.S.
- 4. Insufficient financial resources to complete
- 5. Other (describe) \_\_\_\_\_
- 6. Don't know
- 7. Refused

1   2   3   4  
5 \_\_\_\_\_  
6   7

**WHV5. Do you plan to install in the next year?**

**Y**= Yes  
**N**= No  
**DK**=Don't know  
**REF**=Refused

**Y   N   DK   REF**

Notes:

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**Water Heating Equipment – Replaced Equipment**

	Replaced
<b>WHR1. Fuel Type</b> <b>N</b> =Natural gas <b>B</b> = Bottled gas/propane <b>E</b> =Electric <b>S</b> =Solar <b>G</b> =Geothermal <b>OTH</b> =Other (describe)_____ <b>NO</b> =No heating system <b>DK</b> =Don't know <b>REF</b> =Refused	<b>N B E S G</b>  <b>OTH</b> _____  <b>NO DK REF</b>
<b>WHR2. Equipment Type:</b> 1. Traditional water heater tank 2. Tankless or instantaneous hot water heater 3. Other _____ 4. Don't know 5. Refused to answer	<b>1 2</b>  <b>3</b> _____  <b>4 5</b>
<b>WHR3. Temperature setting</b>	<b>1.</b> _____ <b>2. Don't know</b> <b>3. Refused</b>
<b>WHR4. Is a clothes washer present?</b> <b>Y</b> = Yes <b>N</b> = No <b>DK</b> =Don't know	<b>Y N DK</b>
<b>WHR5. Do you wash clothes in warm or hot water?</b> <b>A</b> =Always <b>S</b> =Sometimes <b>N</b> =Never <b>DK</b> =Don't know <b>REF</b> =Refused	<b>A S N DK REF</b>
<b>WHR6. Is a dishwasher present?</b> <b>Y</b> = Yes <b>N</b> = No <b>DK</b> =Don't know	<b>Y N DK</b>

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**Lighting Inventory**

Record information on all interior and exterior lighting sockets on the attached sheets. Refer to bulb shape code list.

Fixture Group Information									
F1. Fixture Group #									
F2. Location (Room Type)									
F3. Control Type	SDL3 MPT								
F4. Fixture Type									
F5. Total # of Fixtures									
Lamp Information									
L1. Lamps per Fixture									
L2. Watts per Lamp									
L3. Lamp Type	I C F H L O								
L4. Lamp Shape									
L5. Base Type	SM SS P O								

\* **I** = Incandescent, **C** = Compact Fluorescent, **F** = Fluorescent, **H** = Halogen, **L** = LED, **O** = Other  
**SM** = Mini Screw **SS** = Standard Screw **P** = Pin **O** = Other  
**S** = Switch **D** = Dimmer **L** = Photocell **3** = Three-way **M** = Motion **P** = Photomotion **T** = Timer

Notes:

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Room Types	Fixture Types	Lamp Types	Lamp Descriptions
Basement	Ceiling fixtures	CF-I-A	Compact fluorescent integrated – Use code from below
Bathroom – 1	Ceiling Fan	CF-Mini	Any CFL with mini screw base
Bathroom – 2	Floor Lamp	CF-PIN-Base	Compact fluorescent type all, non-integrated ballast (pin base)
Bathroom – 3	Other	F-12	T-12 Fluorescent
Bathroom – Master	Architecturally Integrated (built into furniture)	F-4	T-4 Fluorescent
Bedroom – 1	Garage Door Opener	F-5	T-5 Fluorescent
Bedroom – 2	Wall mount	F-8	T-8 Fluorescent
Bedroom – 3	Recessed can	F-CIR	T-12 or T-8 Circular
Bedroom – 4	Torchiere	F-OTH	Other Tube Fluorescent not listed above
Bedroom – Mster	Chandelier / Hanging	F-TUBE-UNK	Unknown fluorescent tube lamp
Breakfast Nook	Table lamps	HAL-MR	MR-16 pin based halogen
Closet	Track lighting	HAL-PAR	Halogen Parabolic Reflector
Dining Rm	Under Cabinet	HAL-QTZTUB	Halogen quartz tube
Family Room	Exterior – post	HAL-OTH	Other Halogen lamp not listed above
Garage	Exterior – walkway	I-DEC	Decorative screw based incandescent
Hall	Exterior – wall mount	I-FLOOD	Flood/PAR screw based incandescent
Kitchen	<b>Control Types</b>	I-GLO	Globe style screw based incandescent
Laundry Rm	Switch	I-Mini	Any incandescent with mini screw base
Living Rm	Dimmer	I-OTH	Other screw based incandescent
Office	Motion	I-STD	Standard screw based incandescent
Other	Photocell	I-UNK	Unknown type screw based incandescent
Exterior Porch	Photo/motion	HEAT LAMP	Relatively high wattage incandescent lamp commonly found in bathrooms
Exterior – Other	Timer	SSL	Any Solid State Lamp
Rec Rm			
<b>Wattage</b>			
888 – three way			

999 –  
unknown

A bulb AB
A bulb, 3-way AB3
A bulb, dimmable ABD
Bug lamp BG
Bullet BL
Bullet, 3-way BL3
Bullet, dimmable BLD
Circline CL
Circline, 3-way CL3
Circline, dimmable CLD
Double tube DT
Double tube, 3-way DT3
Double tube, dimmable DTD
Flood lamp FL
Flood lamp, 3-way FL3
Flood lamp, dimmable FLD



Globe GL
Globe, 3-way GL3
Globe, dimmable GLD
Quad tube QT
Quad tube, 3-way QT3
Quad tube, dimmable QTD
Spiral SP
Spiral, 3-way SP3
Spiral, dimmable SPD
Torpedo TP
Torpedo, 3-way TP3
Torpedo, dimmable TPD
Torpedo, candelabra base TPC
Triple tube TT
Triple tube, 3-way TT3
Triple tube, dimmable TTD



**[Ask If F5 not equal to Quantity in Tracker, else skip to DW1]**

**LV1. Reason quantity differed:**

1. No idea
2. Put into storage
3. Installed somewhere else in U.S.
4. Insufficient financial resources to complete
5. Other (describe) \_\_\_\_\_
6. Don't know
7. Refused

1   2   3   4

5 \_\_\_\_\_

6   7

**LV2. Do you plan to install in the next year?**

Y= Yes  
N= No  
DK=Don't know  
REF=Refused

Y   N   DK   REF

**Appliance Verification**

<b>Dishwasher</b>	
<b>DW1. Did you replace an existing dishwasher?</b> Y= Yes N= No DK=Don't know REF=Refused	Y N DK REF  <b>[If N, DK, REF then skip to DW5]</b>
<b>DW2. Estimated Age of replaced dishwasher</b> <1 year old 1-4 years old 5-10 years old >10 years old Don't know Refused	1 2 3 4 5 6
<b>DW3. Was the replaced dishwasher working?</b> Y= Yes N= No DK=Don't know REF=Refused	Y N DK REF  <b>[If N, DK, REF, skip to DW5]</b>
<b>DW4. Condition of replaced dishwasher</b> G= Good F= Fair P=Poor DK=Don't know REF=Refused	G F P DK REF
<b>[ Ask If quantity not equal to quantity in tracker, else skip to CW1]</b>  <b>DW5. Reason quantity differed:</b>  No idea Put into storage Installed somewhere else in U.S. Insufficient financial resources to complete Other (describe) _____ Don't know Refused	1 2 3 4  5 _____  6 7



<p><b>DW6. Do you plan to install in the next year?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y N DK REF</p>
<p><b><i>Clothes Washer</i></b></p>	
<p><b>CW1. Did you replace an existing clothes washer?</b></p> <p>Y= Yes N= No DK=Don't know REF = Refused</p>	<p>Y N DK REF</p> <p>[If N, DK, REF skip to CW4]</p>
<p><b>CW2. Estimated Age of replaced clothes washer</b></p> <p>&lt;1 year old 1-4 years old 5-10 years old &gt;10 years old Don't know Refused</p>	<p>1 2 3 4 5 6</p>
<p><b>CW3. Was the replaced clothes washer working?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y N DK REF</p>
<p><b>CW4. Do you have a clothes dryer?</b></p>	<p>Y N DK REF</p> <p>[If N, DK, REF skip to CW6]</p>
<p><b>CW5. Fuel type of clothes dryer:</b></p> <p>E=Electric N=Natural Gas OTH=Other (specify) _____ DK=Don't know REF=Refused</p>	<p>E N</p> <p>OTH _____</p> <p>DK REF</p>
<p><b>[Ask if quantity not equal to quantity in tracker, else skip to R1]</b></p> <p><b>CW6. Reason quantity differed:</b></p> <p>No idea Put into storage Installed somewhere else in U.S. Insufficient financial resources to complete Other (describe) _____ Don't know Refused</p>	<p>1 2 3 4</p> <p>5 _____</p> <p>6 7</p>



<p><b>CW7. Do you plan to install in the next year?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y N DK REF</p>
<p><b>Refrigerator</b></p>	
<p><b>R1. Location of freezer:</b></p> <ol style="list-style-type: none"> <li>1. Freezer on bottom</li> <li>2. Freezer on top</li> <li>3. Freezer on side</li> <li>4. Don't know</li> <li>5. Refused</li> </ol>	<p>1 2 3 4 5</p>
<p><b>R2. Through the door ice machine in new refrigerator:</b></p> <p>Y= Yes N= No DK=Don't know</p>	<p>Y N DK</p>
<p><b>R3. Type of defrost:</b></p> <p>A=Automatic defrost P=Partial automatic defrost M=Manual defrost DK=Don't know</p>	<p>A P M DK</p>
<p><b>R4. Plugged in and operating:</b></p> <ol style="list-style-type: none"> <li>1. All the time</li> <li>2. Special occasions only</li> <li>3. During certain months</li> <li>4. Never plugged in</li> <li>5. Don't know</li> </ol>	<p>1 2 3 4 5</p>
<p><b>R5. Size:</b></p> <p>C=Compact S=Standard O=Oversized DK= Don't know</p>	<p>C S O DK</p>
<p><b>R6. Did this refrigerator replace an existing refrigerator</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y N DK REF</p> <p>[If N, DK, REF, skip to R14]</p>



<p><b>R7. Location of freezer for replaced refrigerator:</b></p> <ol style="list-style-type: none"> <li>1. Freezer on bottom</li> <li>2. Freezer on top</li> <li>3. Freezer on side</li> <li>4. Don't know</li> <li>5. Refused</li> </ol>	<p>1 2 3 4 5</p>
<p><b>R8. Through the door ice machine in replaced refrigerator:</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y N DK REF</p>
<p><b>R9. Through the door ice machine in replaced refrigerator:</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y N DK REF</p>
<p><b>R10. Estimated Age of replaced refrigerator</b></p> <ol style="list-style-type: none"> <li>1. &lt;1 year old</li> <li>2. 1-4 years old</li> <li>3. 5-10 years old</li> <li>4. &gt;10 years old</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<p>1 2 3 4 5 6</p>
<p><b>R11. Has the replaced refrigerator been removed from the home?</b></p> <p>R=Removed from home S=Still have it DK=Don't know REF=Refused</p>	<p>R S DK REF</p> <p><b>[If S, DK, REF, skip to R13]</b></p>



<p><b>R12. How did you dispose of your old refrigerator?</b></p> <ol style="list-style-type: none"> <li>1. Took it recycler or scrap dealer</li> <li>2. Took it to a landfill or threw away</li> <li>3. Sold or gave it to a private party</li> <li>4. Sold it to a used refrigerator/freezer dealer</li> <li>5. Hired someone to pick it up</li> <li>6. Utility program hauled it away</li> <li>7. Left it behind when moved</li> <li>8. Other (specify) _____</li> <li>9. Don't know</li> <li>10. Refused</li> </ol>	<p>1 2 3 4 5 6 7</p> <p>8 _____</p> <p>9 10</p>
<p><b>R13. Was the replaced refrigerator working?</b>  <b>Y= Yes</b>  <b>N= No</b>  <b>DK=Don't know</b>  <b>REF=Refused</b></p>	<p>Y N DK REF</p>
<p><b>[If quantity not equal to quantity in tracker, else skip to I1]</b></p> <p><b>R14. Reason quantity differed:</b></p> <ol style="list-style-type: none"> <li>1. No idea</li> <li>2. Put into storage</li> <li>3. Installed somewhere else in U.S.</li> <li>4. Insufficient financial resources to complete</li> <li>5. Other (describe) _____</li> <li>6. Don't know</li> <li>7. Refused</li> </ol>	<p>1 2 3 4</p> <p>5 _____</p> <p>6 7</p>
<p><b>R15. Do you plan to install in the next year?</b>  <b>Y= Yes</b>  <b>N= No</b>  <b>DK=Don't know</b>  <b>REF=Refused</b></p>	<p>Y N DK REF</p>

Notes: \_\_\_\_\_

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**Other Measure Verification**

<b>Insulation</b>	
<b>I1. Did you add insulation to walls, attic/ceiling or both?</b> <b>W</b> = Wall only <b>A</b> =Attic/ceiling only <b>B</b> =Both <b>DK</b> =Don't know <b>REF</b> =Refused	<b>W A B DK REF</b>  <b>[If A skip to I8, if DK, REF skip to SHA1]</b>
<b>I2. Was there existing insulation in walls?</b> <b>Y</b> = Yes <b>N</b> = No <b>DK</b> =Don't know <b>REF</b> =Refused	<b>Y N DK REF</b>  <b>[If N, DK, REF skip to I4]</b>
<b>I3. Previous R value or number of inches in wall insulation:</b>	1. R Value _____ 2. # of inches _____ 3. Don't know 4. Refused
<b>I4. Current R value or number of inches in wall insulation:</b>	1. R Value _____ 2. # of inches _____ 3. Don't know 4. Refused
<b>I5. Number of Rooms insulated</b>	1. Number of rooms _____ 2. Don't know 3. Refused



<p><b>[Ask If quantity not equal to quantity in tracker, else if I1= B skip to I8, else skip to SHA1]</b></p> <p><b>I6. Reason quantity differed:</b></p> <ol style="list-style-type: none"> <li>1. No idea</li> <li>2. Put into storage</li> <li>3. Installed somewhere else in U.S.</li> <li>4. Insufficient financial resources to complete</li> <li>5. Other (describe)_____</li> <li>6. Don't know</li> <li>7. Refused</li> </ol>	<p>1   2   3   4</p> <p>5 _____</p> <p>6   7</p>
<p><b>I7. Do you plan to install in the next year?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y   N   DK   REF</p>
<p><b>I8. Existing insulation in attic/ceiling?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y   N   DK   REF</p> <p><b>[If N, DK, REF skip to I10]</b></p>
<p><b>I9. Previous R value or number of inches in attic/ceiling insulation:</b></p>	<ol style="list-style-type: none"> <li>1. R Value _____</li> <li>2. # of inches _____</li> <li>3. Don't know</li> <li>4. Refused</li> </ol>
<p><b>I10. Current R value or number of inches in attic/ceiling insulation:</b></p>	<ol style="list-style-type: none"> <li>1. R Value _____</li> <li>2. # of inches _____</li> <li>3. Don't know</li> <li>4. Refused</li> </ol>



<p><b>[Ask If quantity not equal to quantity in tracker, else, skip to SHA1]</b></p> <p><b>I11. Reason quantity differed:</b></p> <ol style="list-style-type: none"> <li>1. No idea</li> <li>2. Put into storage</li> <li>3. Installed somewhere else in U.S.</li> <li>4. Insufficient financial resources to complete</li> <li>5. Other (describe) _____</li> <li>6. Don't know</li> <li>7. Refused</li> </ol>	<p>1   2   3   4</p> <p>5 _____</p> <p>6   7</p>
<p><b>I12. Do you plan to install in the next year?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y   N   DK   REF</p>
<p><b><i>Showerhead and Faucet Aerators</i></b></p>	
<p><b>SHA1. Quantity showerheads installed through the program</b></p>	<ol style="list-style-type: none"> <li>1. Number _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>
<p><b>SHA2. Where was the showerhead installed?</b> <i>(more than one response allowed)</i></p> <ol style="list-style-type: none"> <li>1. Main shower (one shower in home)</li> <li>2. Master bathroom shower</li> <li>3. Guest shower</li> <li>4. Outdoor shower</li> <li>5. Other _____</li> <li>6. Don't know</li> <li>7. Refused</li> </ol>	<p>1   2   3   4</p> <p>5 _____</p> <p>6   7</p>
<p><b>SHA3. Quantity aerators installed through the program</b></p>	<ol style="list-style-type: none"> <li>1. Number _____</li> <li>2. Don't know</li> <li>3. Refused</li> </ol>



<p><b>IF SHA1 or SHA3 not equal to quantity in tracker, else skip to DT1]</b></p> <p><b>SHA6. Reason quantity differed:</b></p> <ol style="list-style-type: none"> <li>1. No idea</li> <li>2. Put into storage</li> <li>3. Installed somewhere else in U.S.</li> <li>4. Insufficient financial resources to complete</li> <li>5. Other (describe) _____</li> <li>6. Don't know</li> <li>7. Refused</li> </ol>	<p>1   2   3   4</p> <p>5 _____</p> <p>6   7</p>
<p><b>SHA8. Do you plan to install in the next year?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y   N   DK   REF</p>
<p><b><i>Duct testing and Sealing</i></b></p>	
<p><b>DT1. Was the duct system installed or replaced during the time you have lived in the home?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y   N   DK   REF</p>
<p><b>DT2. Estimated Age</b></p> <ol style="list-style-type: none"> <li>1. &lt;5 years old</li> <li>2. 5-10 years old</li> <li>3. 11-20 years old</li> <li>4. &gt;20 years old</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>	<p>1   2   3   4   5   6</p>
<p><b><i>Other Equipment Installed Through the Program (repeat as needed)</i></b></p>	
<p><b>O1. Type of equipment</b></p>	<p>_____</p> <p><b>[If none, skip to D1]</b></p>
<p><b>O2. Quantity installed through the program</b></p>	<ol style="list-style-type: none"> <li>4. Number _____</li> <li>5. Don't know</li> <li>6. Refused</li> </ol>



<p><b>[IF O2 not equal to quantity in tracker, else skip to D1]</b></p> <p><b>O3. Reason quantity differed:</b></p> <ul style="list-style-type: none"><li>1. No idea</li><li>2. Put into storage</li><li>3. Installed somewhere else in U.S.</li><li>4. Insufficient financial resources to complete</li><li>5. Other (describe) _____</li><li>6. Don't know</li><li>7. Refused</li></ul>	<p>1    2    3    4</p> <p>5 _____</p> <p>6    7</p>
<p><b>O4. Do you plan to install in the next year?</b></p> <p>Y= Yes N= No DK=Don't know REF=Refused</p>	<p>Y    N    DK    REF</p>

Notes:

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**Housing and Demographic Information**

<p><b>D1. Housing Type:</b></p> <ol style="list-style-type: none"> <li>1. One-family detached</li> <li>2. One-family home attached to one or more houses</li> <li>3. Apartment building with 2 apartments</li> <li>4. Apartment building with 3 or 4 apartments</li> <li>5. Apartment building with 5 or more apartments</li> <li>6. Mobile home</li> <li>7. Boat, RV, van etc.</li> <li>8. Other _____</li> <li>9. Don't know</li> <li>10. Refused to answer</li> </ol>	<p>1 2 3 4 5 6 7</p> <p>8 _____</p> <p>9 10</p>
<p><b>D2. Number of year-round occupants:</b></p>	<p>4. _____</p> <p>5. Don't know</p> <p>6. Refused to answer</p>
<p><b>D3. Number of rooms (exclude laundry rooms, foyers, unfinished spaces and garages):</b></p>	<p>1. _____</p> <p>2. Don't know</p> <p>3. Refused to answer</p>
<p><b>D4. Square footage:</b></p>	<p>1. _____</p> <p>2. Don't know</p> <p>3. Refused to answer</p>
<p><b>D5. Number of floors:</b></p> <ol style="list-style-type: none"> <li>1. 1 floor</li> <li>2. 2 floors</li> <li>3. 3 floors</li> <li>4. More than 3 floors</li> <li>5. Don't know</li> <li>6. Refused to answer</li> </ol>	<p>1 2 3 4</p> <p>5 6</p>
<p><b>D6. Age of building:</b></p> <ol style="list-style-type: none"> <li>10. Before 1970's</li> <li>11. 1970's</li> <li>12. 1980's</li> <li>13. 1990-1994</li> <li>14. 1995-1999</li> <li>15. 2000's</li> <li>16. Don't know</li> <li>17. Refused to answer</li> </ol>	<p>1 2 3 4 5 6</p> <p>7 8</p>



## L.27. NON-PILOT COMMUNITY IN-DEPTH INTERVIEW GUIDE

*This interview guide is intended for evaluating [PROGRAM NAME] Non-Pilot program participants that signed resolutions in program year [PROGRAM YEAR/PERIOD] to reach [STATE] goals. Non-Pilot communities are distinguished from Pilot Communities based on the fact that they did not receive grant funding to officially create a plan for this target.*

*This guide will collect data and information on any project or initiative that was implemented since the resolution was signed to meet this goal, and asking what attribution this resolution had on getting these projects started. **Note that all activities conducted or being conducted prior to the signing of the resolution are out of scope.***

*The target respondent for these interviews are Community Energy Coordinators/Managers knowledgeable about projects that were or will be implemented since program year [PROGRAM YEAR/PERIOD] to meet goals.*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and the evaluation team expects that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This information will be used to collect information to determine and calculate the following:

- Influence on program implementation;
- Program impacts
- Funding sources outside of SEP;
- Linkages to other programs.

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	
Interviewer name:	
Interviewer organization:	



## **SCHEDULE INTERVIEW**

*The evaluation team will briefly contact community representatives to schedule the interview, as needed depending upon data provided. The interviewer will screen for individuals who understand the range of information within their SEP effort, and who are in a position to comment on the program over time (historical and future).*

## **BACKGROUND STATEMENT**

This interview is intended to familiarize our team with [PROGRAM], and the resolution your community signed in support of the program goals. The information you supply will be used to characterize what programs or projects were implemented in [PROGRAM YEAR/PERIOD] to help meet this goal, and the influence the resolution had in these actions.

The US Department of Energy's State Energy Program contracted us to talk with communities involved with the [PROGRAM], and those that specifically signed resolutions in program year [PROGRAM YEAR/PERIOD]. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of other [STATE] communities we interview. All information will then be aggregated and reported on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

## **RESPONDENT ELIGIBILITY SCREENING**

To start, I need to understand your role in your community's commitment to the [PROGRAM] and the resolution that was signed during program year [PROGRAM YEAR/PERIOD].

- S1. Can you confirm that your community signed a resolution between July [PROGRAM YEAR/PERIOD]?
- S2. Were you involved with your community's decision to sign the resolution in [PROGRAM YEAR/PERIOD]? If yes, how?
- S3. What was your title and what were your job responsibilities in [PROGRAM YEAR/PERIOD]?
- S4. (IF S2 IS "NO") Who is the most knowledgeable person to talk about the signing of the [PROGRAM] in [PROGRAM YEAR/PERIOD]?
- S5. For how many months/years did or have you served in that capacity? [PROBE:]
  - a. pre-2008 to 2008
  - b. 2008 to 2009-2010/ARRA period

**[PROGRAM YEAR/PERIOD] period to present Program Logic**

In order to evaluate the impact, we first need to outline all of the programs and activities that were related to meeting the goal that were implemented after the signing of the resolution. Once these programs are described, we will discuss what impact the resolution had on getting those programs off the ground.

AV1. There are various categories of program types related to energy efficiency and renewable energy that I would like to read to you. As we go through this list, please let me know if there are any projects or initiatives that were implemented after the resolution was signed in [PROGRAM YEAR/PERIOD] that fit into each category. We will go into more detail after we create this master list:

**Table 1-Catalog of Energy Programs Implemented from [PROGRAM YEAR/PERIOD] to today**

Broad Program Area	Key Subareas	Mark all that apply	Mark once discussed
<b>A. <a href="#">Energy Efficiency Building Retrofits</a></b>	1. <a href="#">Lighting</a>		
	2. <a href="#">Cooling Equipment</a>		
	3. <a href="#">Heating Equipment</a>		
	4. <a href="#">Refrigeration</a>		
	5. <a href="#">Electric Motors</a>		
	6. <a href="#">Weatherization</a>		
	7. <a href="#">Other</a>		
<b>B. <a href="#">Lighting (non-buildings)</a></b>			
<b>C. <a href="#">Renewable Energy</a></b>	1. <a href="#">Solar PV</a>		
	2. <a href="#">Wind</a>		
	3. <a href="#">Solar Water Heater</a>		
	4. <a href="#">Biomass</a>		
	5. <a href="#">Biogas</a>		
	6. <a href="#">Other</a>		
<b>D. <a href="#">Alternative Fuel Vehicles</a></b>			
<b>E. <a href="#">Purchase of Renewable Energy</a></b>			

## Building Retrofit-Lighting

[\(Back to Catalog of Programs\)](#)

**In this section we'll be discussing the lighting project that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to lighting measures installed and energy saved. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**BC1.** How many buildings were involved with this project? What was the square footage of each one?

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F	P	N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y		N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y		N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y		N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y		N
If Yes, what kind of feedback is provided?			

**FACILITY**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal - Offices	
Municipal – Fire or Police Station	
Municipal – Water/wastewater facility	
Municipal – Storage, garage, etc.	
Office	
Retail (non-food)	
College/University	
School	
Grocery Store	
Restaurant	
Health Care (other than Hospital)	
Hospital	
Hotel or Motel	
Warehouse	
Construction	
Community Service/Church/Temple	
Industrial Process/ Manufacturing/ Assembly	
Condo Assoc./Apartment Mgr.	
Greenhouse	
Laundry/Cleaners/Carwash other high water usage business	
Auto repair, welding, other high electricity usage business	
OPEN\Other - SPECIFY	
[Don't know]	
[Refused]	

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 2-Building Information for Lighting**

#	Building Name	Square Footage	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1							
2							
3							
4							
5							
6							
7							
8							

## **LIGHTING FIXTURES**

Use the table below to answer the following four questions:

- LI2a.** Which of the following kinds of lighting fixtures, if any, did/will you install? How many fixtures of this type?
- LI2b.** Which types of lighting fixtures were replaced? How many were replaced, and by which fixtures?
- LI2c.** What is the total area (in sq. ft.) served by these lighting fixtures?
- LI2d.** Which building did this apply to?
- LI3.** List of the types of fixtures, if any, that could be replaced when installing updated lighting:

Did not replace anything - new equipment
High performance T8 (1" diameter bulbs)
T8 fluorescent fixtures (1" diameter bulbs)
T10 fluorescent fixtures
T12 Fixtures (1.5" diameter bulbs)
HID (High Density Discharge) Fixtures, Compact
Compact Fluorescent, Screw-in Modular
Compact Fluorescent, Hardwire
Incandescent
Exit Signs, Compact Fluorescent
Exit Signs, Incandescent
Halogen
Linear fluorescent with Electronic Ballast
Linear fluorescent with Magnetic Ballast
Other Fluorescent
T5 Fixtures (5/8" diameter)
High pressure sodium
Metal Halide
Mercury Vapor
Other (Specify_____)
[Don't know]
[Refused]

**Table 3- Lighting Fixture Comparison for Building Lighting**

Type of Lighting Fixture	Building #/name	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	Area served by lighting (sq ft)	Notes
New light fixture #1						
Old light fixture #1						
New light fixture #2						
Old light fixture #2						
New light fixture #3						
Old light fixture #3						

**LI4b – LI4l.** What types of spaces do these bulbs serve? What percent of the total space served is accounted for by each type of space?

**Table 4- Building Lighting by % of Area Served**

Type of Light Fixture	Area served by fixtures (sq ft)	% office/professional	% warehouse	% food sales	% health care	% public assembly	% food service	% hotel/motel/dorm	% retail	% non-food service	% education	% other
New light fixture #1												
Old light fixture #1												
New light fixture #2												
Old light fixture #2												
New light fixture #3												
Old light fixture #3												

**CONTROL TECHNOLOGIES**

**This section will ask questions pertaining to any control technologies installed:**

**PL1a.** What type of controls did you have before signing the resolution? What type of controls did you install after signing the resolution?

<b><i>Controls</i></b>
Time/clock controls
Occupancy sensors
Bypass/Delay Timers
Photocell, light sensors
Daylighting control strategies
Other Controls

**PL1b.** What types of lighting fixtures were controlled by each control technology?

Fluorescent
Metal Halide
High Pressure Sodium
LED
Induction
Other, [Describe _____]
[Don't Know]
[Refused]

**PL1c.** Approximately how many lighting fixtures did/does the control technology turn off?

**PL1d.** What is the average wattage of these fixtures?

**PL1e.** How many hours per day are the fixtures on? What is the % reduction in operating hours when the control technology is used?

**Table 5- Control Technology for Building Lighting**



Type of Control Unit Installed	Building #/name	Type of lighting fixtures	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	% reduction in operating hours due to control technology	Notes
New Control Unit #1							
Baseline #1							
New Control Unit #2							
Baseline #2							
New Control Unit #3							
Baseline #3							

**Job Creation- Lighting**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management of this lighting?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this lighting?

- a. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of this lighting? [PROBE: List by year]

	Staff	pre-2008	2008	2009/2010	2011+
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

- 
- J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]
- J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]
- Please describe the contribution/collaboration role.
  - What is the contact information for this collaborator?

### **Attribution- Lighting**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence of signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - If NO, could you estimate the percent of influence signing the resolution had on your decision to install this equipment? Can you explain why?
- A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- If later, how many months later?
- A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"
- A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Lighting (non-building)**

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**In this section we'll be discussing the lighting in non-building settings, such as street lights, that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to measures installed and energy saved. The second section will discuss job impacts related to the**

**program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**PL1.** Which of the following kinds of lighting products, if any, did/will you install?

Traffic or Pedestrian Signals
Lighting Controls
Other Pole-Mounted Lighting
_____
[Don't Know]
[Refused]

**PL2.** What type of lighting fixture replaced the old fixture? How many of each of the new lighting fixtures did you install?

<b>Example of Traffic Signal upgrades</b>
Red LED Traffic Signals
Yellow LED Traffic Signals
Green LED Traffic Signals
LED Arrows
LED Walk / Don't Walk Signals
Other, [Describe _____]

**PL3.** What type of bulb did the old lighting fixture previously have?

**PL4.** What's the average usage for this lighting fixture (hours/day)

**Table 6-Lighting Fixture Comparison for Non-Building Lighting**

Name of Lighting Fixture	Type of lighting fixtures	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	Notes
New Unit Installed #1					
Old Unit Removed #1					
New Unit Installed #2					
Old Unit Removed #2					
New Unit Installed #3					
Old Unit Removed #3					

**This next section will ask questions regarding control technologies that impact when lights are turned on and off.**

**PL5a.** What type of controls did you have before signing the resolution? What type of controls did you install after signing the resolution?

Early-Morning Shutoff Controls
Remote Telephone or Electronic Controls
Occupancy Sensors
Other, [Describe _____]
[Don't Know]
[Refused]

**PL5b.** What types of lighting fixtures were controlled by each control technology?

Fluorescent
Metal Halide
High Pressure Sodium
LED
Induction
Other, [Describe _____]
[Don't Know]
[Refused]

**PL5c.** Approximately how many lighting fixtures did/does the control technology turn off?

**PL5d.** What is the average wattage of these fixtures?

**PL5e.** How many hours per day are the fixtures on? What is the % reduction in operating hours when the control technology is used?

**Table 7-Control Technology for Non-Building Lighting**

Type of Control Unit Installed	Type of lighting fixtures	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	% reduction in operating hours from control technology	Notes
New Control Unit Installed #1						
Baseline #1						
New Control Unit Installed #2						
Baseline #2						
New Control Unit Installed #3						
Baseline #3						

**Job Creation- Lighting (Non-Building)**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management of this lighting?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this lighting?

- a. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of this lighting? [PROBE: List by year]

	Staff	pre-2008	2008	2009/2010	2011+
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

- 
- J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?
- J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]
- Please describe the contribution/collaboration role.
  - What is the contact information for this collaborator?

### **Attribution- Lighting (Non-Building)**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - If NO, could you estimate the percent of influence signing the resolution had on your decision to install this equipment? Can you explain why?
- A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- If later, how many months later?
- A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"
- A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Building Retrofit-Cooling Equipment

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**In this section we'll be discussing the cooling equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to cooling equipment installed and energy saved. We will proceed through this section by talking about a new piece of equipment installed, and when applicable, the old piece of equipment that was replaced. We'll go through this process for each new piece of equipment installed. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**BC1.** How many buildings were involved with this project? What is each of their square footage? What % of the building is cooled?

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F	P	N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y		N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y		N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y		N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y		N
If Yes, what kind of feedback is provided?			

**FACILITY**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal - Offices
Municipal – Fire or Police Station
Municipal – Water/wastewater facility
Municipal – Storage, garage, etc.
Office
Retail (non-food)
College/University
School
Grocery Store
Restaurant
Health Care (other than Hospital)
Hospital
Hotel or Motel
Warehouse
Construction
Community Service/Church/Temple
Industrial Process/ Manufacturing/ Assembly
Condo Assoc./Apartment Mgr.
Greenhouse
Laundry/Cleaners/Carwash other high water usage business
Auto repair, welding, other high electricity usage business
OPEN\Other - SPECIFY
[Don't know]
[Refused]

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 8-Non-Residential Building Information for Cooling Equipment**

#	Building Name	Total Square Footage	% of sq. ft. cooled	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1								
2								
3								
4								
5								
6								
7								
8								

**COOLING EQUIPMENT**

**Now we would like to discuss the new cooling equipment that was installed:**

- CL-N1.** What types of cooling equipment did you install?
- CL-N2.** How many units of cooling equipment did you install?
- CL-N3.** What is the total capacity of all of the units installed?
- CL-N4.** What was the efficiency rating of the cooling units that you installed?
- CL-N5.** Are the operating hours for the cooling equipment independent of the weather? For example, is the equipment used for process cooling, a data center, or something else that requires it to run even when it is cool outside?
- CL-N6.** How many hours per year does the equipment operate?
- CL-N7.** Have there been any major changes in cooling load corresponding to the new equipment installation, such as addition on building, change in heat-producing equipment, large change in # of occupants, etc.?

Addition on building
Change in heat-producing equipment
Large change in # of occupants
Other, etc.
[Don't know]
[Refused]

**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new cooling equipment through the program.**

- CL8a.** What types of cooling equipment, if any, were replaced when installing the new cooling technology?
- CL8b.** How many units were removed?
- CL8c.** What was the total capacity of the units you removed?
- CL8d.** Generally, how would you describe the condition of unit(s) that was/were removed and replaced?
- CL8e.** What was the efficiency rating of the removed unit(s)?
- CL8f.** On average, how old was the equipment that was removed and replaced?

<b>Equipment Name</b>	<b>Description</b>
Split system	two components; compressor is separate from the supply air fan, air conditioner, or heat pump
Packaged systems	one component; rooftop units
Package Terminal A/C or Heat Pump	e.g., Hotel/Motel units
Evaporative coolers	swamp coolers
Water Chiller/Cooling Towers	Central plant
Individual A/C or Heat Pump Units	e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business
Window/Wall Units	
Other (Specify)	

**Table 9-Cooling Equipment Comparison for Non-Residential Buildings**

Name of Cooling System	Building #/name	Number of Cooling Systems	Total Capacity of each system	Capacity units	Efficiency Number/Rating	Efficiency Units (EER, SEER, KW/Ton)	Age of Equipment	Condition of Equipment	Average Usage (hrs/year)	Changes to building usage	Notes
New Unit #1											
Old Unit #1											
New Unit #2											
Old Unit #2											
New Unit #3											
Old Unit #3											

The following questions pertain to controls and variable speed drives for the cooling equipment. If these were not used, we can skip this section.

**CL9a.** Did you install any cooling controls or variable speed drives as part of the project?

**CL9b.** What kinds of variable speed drives and/or controls did you install?

<b>New Installed any cooling controls or variable speed drives</b>
Adjustable Speed Drives
Energy Management System
HVAC Controls: Manual thermostat
HVAC Controls: Bypass Timer
HVAC Controls: Time Clock
HVAC Controls: Set-Back Programmable Thermostat
CO2 Sensors/Demand Control Ventilation
Economizers

**CL9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

**CL9d.** What kinds of controls, if any, did the new equipment replace?

**CL9e.** Generally, how would you describe the condition of the heating and heating control equipment that was removed and replaced? Was it...

Inoperable (broken)
Poor condition
Fair condition
Good condition
[Don't know]
[Refused]

**CL9f.** On average, how old was the control equipment that was removed and replaced? Would you say...

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old
[Don't know]
[Refused]

**Table 10-Control Technology for Non-Residential Building Cooling Equipment**



Type of Control Unit Installed	Building #/name	Total square footage	% of square footage that control unit serve	Condition of replaced control equipment	Age of replaced equipment	Average Usage (hrs/day)	% reduction in operating hours from control technology	Notes
New Control Unit Installed #1								
Baseline #1								
New Control Unit Installed #2								
Baseline #2								
New Control Unit Installed #3								
Baseline #3								

**Job Creation- Cooling Equipment**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management of this cooling equipment?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this cooling equipment?

- a. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of this cooling equipment? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

#### **Attribution- Cooling Equipment**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A5. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A6. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A7. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A8. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Building Retrofit-Heating Equipment

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**In this section we'll be discussing the heating equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to cooling equipment installed and energy saved. We will proceed through this section by talking about a new piece of equipment installed, and when applicable, the old piece of equipment that was replaced. We'll go through this process for each new piece of equipment installed. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**BC1a.** How many buildings were involved with this project? What is each of their square footage? What % of the building is heated?

**BC1b.** Which of the following fuel sources are used for heating the space?

Electricity
Gas
Propane
Fuel Oil
Wood
Biomass
OPEN\Other-RECORD
[Don't know]
[Refused]

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F P N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y N
If Yes, what kind of feedback is provided?	

**FACILITY**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal – Offices	
Municipal – Fire or Police Station	
Municipal – Water/wastewater facility	
Municipal – Storage, garage, etc.	
Office	
Retail (non-food)	
College/University	
School	
Grocery Store	
Restaurant	
Health Care (other than Hospital)	
Hospital	
Hotel or Motel	
Warehouse	
Construction	
Community Service/Church/Temple	
Industrial Process/ Manufacturing/ Assembly	
Condo Assoc./Apartment Mgr.	
Greenhouse	
Laundry/Cleaners/Carwash other high water usage business	
Auto repair, welding, other high electricity usage business	
OPEN\Other – SPECIFY	
[Don't know]	
[Refused]	

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 11-Non-Residential Building Information for Heating Equipment**

#	Building Name	Total Square Footage	% sq. ft. heated	Fuel Source for Heating	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1									
2									
3									
4									
5									
6									
7									
8									

## HEATING EQUIPMENT

**Now we would like to discuss the new heating equipment that was installed:**

**HT-N1.** What types of heating equipment did you install?

**HT-N2.** How many units of each type of heating equipment did you install?

**HT-N3.** What is the total capacity of each of the units you installed?

**HT-N4.** What was the efficiency rating and capacity of each of the heating units that you installed?

**HT-N5.** How many hours per year does the equipment operate?

**HT-N6.** Have there been any major changes in heating load corresponding to the new equipment installation, such as addition on building, large change in # of occupants, etc.?

<b>Examples of Heating Equipment:</b>
Central Boilers
Packaged Heating Units
Individual Space Heater / Portable Room Heater / Strip Heating
Split-system Heat Pumps
Central Furnaces
District Steam or Hot Water
Radiant Heaters
Other (Specify)

**HT7a.** What types of heating equipment, if any, were replaced when installing the new heating equipment?

**HT7b.** How many units were removed?

**HT7c.** What was the total capacity of the units you removed?

**HT7d.** Generally, how would you describe the condition of the unit(s) that was removed and replaced?

**HT7e.** What was the efficiency rating and capacity of the units you removed?

**HT7f.** On average, how old was the unit that was removed and replaced?

**Table 12-Heating Equipment Comparison for Non-Residential Buildings**

Name of Heating System	Building #/name	Number of Heating Systems	Total Capacity of each system	Capacity units	Efficiency Number/Rating	Efficiency Units (EER, SEER, KW/Ton)	Age of Equipment	Condition of Equipment	Average Usage (hrs/year)	Changes to building usage	Notes
New Unit #1											
Old Unit #1											
New Unit #2											
Old Unit #2											
New Unit #3											
Old Unit #3											

**The following questions pertain to controls and variable speed drives for the heating equipment. If these were not used, we can skip this section.**

**HT9a.** Did you install any heating or heating controls or variable speed drives?

**HT9b.** What kinds of controls did you install?

Adjustable Speed Drives
Energy Management System
HVAC Controls: Manual thermostat
HVAC Controls: Bypass Timer
HVAC Controls: Time HTock
HVAC Controls: Set-Back Programmable Thermostat
CO2 Sensors/Demand Control Ventilation
Economizers
Other, Specify_____
[Don't know]
[Refused]

**HT9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

**HT9d.** What kinds of controls, if any, did the new equipment replace?

**HT9e.** Generally, how would you describe the condition of the heating and heating control equipment that was removed and replaced? Was it...

Inoperable (broken)
Poor condition
Fair condition
Good condition
[Don't know]
[Refused]

**HT9f.** On average, how old was the control equipment that was removed and replaced? Would you say...

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old
[Don't know]
[Refused]

**Table 13-Control Technology for Non-Residential Building Heating Equipment**



Type of Control Unit Installed	Building #/name	Total square footage	% of square footage that control unit serves	Condition of replaced equipment	Age of replaced equipment	Average Usage (hrs/day)	% reduction in operating hours from control technology	Notes
New Control Unit Installed #1								
Baseline #1								
New Control Unit Installed #2								
Baseline #2								
New Control Unit Installed #3								
Baseline #3								

**Job Creation- Heating Equipment**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management of this heating equipment?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this heating equipment?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of this heating equipment? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

#### **Attribution- Heating Equipment**

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Building Retrofit-Refrigeration

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In this section we'll be discussing the refrigeration equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to cooling equipment installed and energy saved. We will proceed through this section by talking about a new piece of equipment installed, and when applicable, the old piece of equipment that was replaced. We'll go through this process for each new piece of equipment installed. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

**RF1.** Which of the following kinds of refrigeration equipment did you install through the program?

**RF2a.** What type of refrigeration equipment was already installed?

Refrigeration Types
Residential Sized Refrigerator
Residential Sized Freezer
Larger Standard Refrigerator (>30 cf)
Self Contained - Coffin/Horizontal Case
Self Contained - Vertical Case (multi shelf)
Single-Deck display cases - Open single-deck
Single-Deck display cases -
Multi-Deck (vertical) display cases - Open/reach-in
Multi-Deck (vertical) display cases - Glass-door cases
Walk-Ins - Freezer/Low Temp
Walk-Ins - Cooler/Med Temp
Night covers for display cases
Strip curtains
Glass doors on vertical open display cases
Main door cooler/freezer door gaskets
Auto closers for coolers/freezers
Anti-sweat heat controllers
[Don't know]
[Refused]

**RF2b.** Which kinds of refrigeration controls, if any, did you install through the program?

**RF2c.** Approximately what was the size of each of the units installed to replace existing units? What was the size of the previous unit?

**RF2d.** How many of each type of units were installed? How many of each type of units were already installed?

**RF2e.** Approximately what was the size of the units installed for new refrigeration capacity? What was the size of the previous unit?

**RF2f.** [Ask for units]?

**RF2g.** For the old and new equipment, how many hours per day is the refrigerator/freezer left open, including for stocking and in and out?

**RF2h.** For the old and new equipment, when the refrigerator/freezer is NOT left open, what is the average traffic through the door per hour (# times opened per hour)?

**RF2i.** Does your old or new refrigeration technology have strip curtains or another type of insulation?

**RF3a.** Did you remove the same amount of refrigeration equipment as you installed through the project, in terms of capacity?

**RF3b.** Did you remove more or less equipment than you installed through the project?

**RF3c.** How much more/fewer capacity did you install?

**RF3d** On average, how old was the removed equipment?

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old
[Don't know]
[Refused]

**RF3e.** What percent of the removed capacity was disposed of using the following methods?

Never removed equipment
Sent to a landfill
Moved to another location of our firm
Sold or given to another firm or residence for use
Recycled or sold for scrap
[Don't know]
[Refused]

**Table 14-Refrigeration Equipment Comparison for Non-Residential Buildings**

Type of Refrigeration Technology	Capacity of the unit	# of units	Total Capacity of all units	Hours left open (hrs/day)	Traffic (# of times opened/day)	Insulation?	Age of unit	Amount Removed	% Landfill	% Moved	% Sold	% Scrapped	Notes
New Unit #1								N/A	N/A	N/A	N/A	N/A	
Old Unit #1													
New Unit #2								N/A	N/A	N/A	N/A	N/A	
Old Unit #2													
New Unit #3								N/A	N/A	N/A	N/A	N/A	
Old Unit #3													

### Job Creation- Refrigeration

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of this refrigeration equipment?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of this refrigeration equipment?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of this refrigeration equipment? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

### Attribution- Refrigeration Equipment

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A5. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A6. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A7. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A8. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### Building Retrofit-Electric Motors

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**In this section we'll be discussing the electric motor equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to motor equipment installed and energy saved. We will proceed through this section by going through each motor purchased, and the uses for that motor. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**MT1a.** What type of motors did you purchase/install?

<b>Motor Horsepower Category</b>
1-5
6-20
21 - 50
51- 100
101 - 200
200 - 500

**MT1b.** How many of each of these motors did you purchase and install?

**MT1c.** How many of the motors were used in new construction, that is, to operate additional (new) equipment rather than replacing an existing motor?

**MT1d.** How many of the motors were put into storage and not installed? Your best approximation is fine.

**MT1e.** How many of the motors were fitted with variable frequency drives? Your best approximation is fine.

**READ:** *In this survey we use the term "NEMA Premium motors" to refer to very high efficiency motors that meet specific performance criteria developed by the National Electrical Manufacturers Association.*

**MT2.** How many of the motors were NEMA Premium motors or were characterized as "premium efficiency" motors by your motor vendor?

**[FOR EACH MT HP GROUP POPULATED IN MT1 GRID, ASK MT3]**

**NOTE: GIVEN THAT THE EPACT 1992 STANDARDS WENT INTO EFFECT IN 1997, WE WILL ASSUME THAT MOTORS REPLACED MET EPACT 1992 STANDARDS UNLESS THEY WERE REWOUND, IN WHICH CASE WE WILL ASSUME THEY WERE PRE-EPACT STANDARD MOTORS. IF RESPONDENT CANNOT PROVIDE ANSWERS BY HP CATEGORY, ACCEPT ANSWERS FOR ALL MOTORS.**

**MT3a.** How many motors were removed and replaced through this project?

**MT3b.** How many of those motors had been rewound?

**MT3c.** What kind of equipment do motors in this horsepower category drive in your facility?

HVAC equipment
Pump, non-HVAC
Fan, non-HVAC
Air Compressor
Conveyor belt or other materials handling
Production process machinery
Other, Specify _____
[Don't know]
[Refused]

**HOURS OF OPERATION**

**NOTE: FOR MOTORS ATTACHED TO HVAC EQUIPMENT, WE WILL USE FULL LOAD HOUR ESTIMATES IN TECHNICAL RESOURCE MANUALS. THESE QUESTIONS ARE DESIGNED TO PROBE OPERATING HOURS FOR MOTORS THAT OPERATE PRODUCTION EQUIPMENT.**

**READ:** **Now I would like to ask you a few questions about the hours of operation for motors that drive machinery *other than* heating, cooling, and ventilation (HVAC). This would include industrial process machinery, pumps used for industrial processes or wastewater systems, compressed air systems, and material handling systems.**

**MT4a.** In the past month, how many hours per day did this motor equipment typically operate?

**MT4b.** How many days per week?

**MT4c.** Are there any months during the year when the operating schedule for this equipment differs significantly from what you just described?

- 
- MT4d.** How many hours per day does the motor equipment typically operate during the periods with different operating schedules?
- MT4e.** How many days per week does the equipment typically operate during the periods with different operating schedules?
- MT4f.** How many months per year does the equipment run on the alternative schedule?

**Table 15-Motor Equipment Comparison for Non-Residential Buildings**

Type of Motor Technology	# of Motors installed	Additional or Replacement	Put in Storage	Variable Freq. drive	NEMA Premium	# motors replaced	# motors rewound	Equipment Driven	Hours per day	Days per week	Months diff sched	Hours per day diff sched	Days per week diff sched	Months per year diff sched	Notes
									Only fill-in for non-HVAC, equipment-driven motors						

**Job Creation- Motors**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of these motors?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these motors?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these motors? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

**Attribution- Motors**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?

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### Building Retrofit-Weatherization

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**In this section we'll be discussing the weatherization initiatives that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to weatherization equipment installed and energy saved. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**BC1a.** How many buildings were involved with this project? What is each of their square footage? What % of this square footage is heated and cooled?

**BC1b.** Which of the following fuel sources are used for heating the space?

Electricity
Gas
Propane
Fuel Oil
Wood
Biomass
OPEN\Other-RECORD
[Don't know]
[Refused]

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F	P	N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y		N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y		N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y		N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y		N
If Yes, what kind of feedback is provided?			

**FACILITY**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal - Offices
Municipal - Fire or Police Station
Municipal - Water/wastewater facility
Municipal - Storage, garage, etc.
Office
Retail (non-food)
College/University
School
Grocery Store
Restaurant
Health Care (other than Hospital)
Hospital
Hotel or Motel
Warehouse
Construction
Community Service/Church/Temple
Industrial Process/ Manufacturing/ Assembly
Condo Assoc./Apartment Mgr.
Greenhouse
Laundry/Cleaners/Carwash other high water usage business
Auto repair, welding, other high electricity usage business
OPEN\Other - SPECIFY



[Don't know]
--------------

[Refused]
-----------

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 16-Non-Residential Building Information for Weatherization**

#	Building Name	Total Square Footage	% of sq ft. heated and cooled	Fuel Source for Heating	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1									
2									
3									
4									
5									
6									
7									
8									

## **WEATHERIZATION**

**Now we are going to ask questions regarding the specific weatherization measures implemented, and more specific details about the buildings heating and cooling system.**

**WZ1.** Which kinds of Weatherization Measures did you install?

<b>Weatherization Measures</b>
Caulking/weather-stripping
Air sealing
Duct sealing & repair
Attic insulation
Wall insulation
Floor/foundation insulation
Other insulation
Windows
Exterior Doors
Other: specify

**WZ2.** Approximately how much/many weatherization technologies were installed?

**WZ3a.** What was the primary fuel used to heat the building(s) before the weatherization measures were installed?

<b>FUEL TYPE</b>
Natural Gas
Propane/LPG
Fuel Oil
Electricity
Wood and Biomass
Other (specify: _____)

**WZ3b.** What was the primary type space-heating system before the weatherization measures were installed?

<b>SYSTEM TYPE</b>
Central (ducted) warm-air furnace (forced air or gravity, any fuel)

Heat pump
Built in electric units (electric baseboards, ceiling heat)
Steam or hot water system (floor or baseboard radiators, convectors)
Floor, wall or pipeless (ductless) furnace (floor or wall furnace)
Room/space heater (non-portable)
Portable space heater
Other (specify: _____)

**WZ3c.** What supplemental fuel(s) were used to heat the building(s) before the weatherization measures were installed? (See Fuel Type list above)

**WZ4a.** What was the primary fuel used to heat the building(s) after the weatherization measures were installed? (See Fuel Type list above)

**WZ4b.** What was the primary type space-heating system after the weatherization measures were installed? (See System Types list above)

**WZ4c.** What supplemental fuel(s) were used to heat the building(s) after the weatherization measures were installed? (See Fuel Type list above)

**WZ5a.** What type of operable air conditioning system was present in the building(s) before the installation of the weatherization measures?

Central air conditioning/heat pump
Window/wall units
Evaporative cooling system (swamp coolers)

**WZ5b.** How many window/wall air conditioning units were present before the weatherization?

**WZ6a.** What type of operable air conditioning system is present in the building(s) after the installation of the weatherization measures?

Central air conditioning/heat pump
Window/wall units
Evaporative cooling system (swamp coolers)

**WZ6b.** How many window/wall air conditioning units are present after the weatherization?



### Job Creation- Weatherization

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of these weatherization upgrades?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these weatherization upgrades?

- a. Yes -----> **How many part/split time staff? \_\_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these weatherization upgrades? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

### Attribution- Weatherization

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### Building Retrofit-Other

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**OE1.** Which kinds of additional measures did you install through the program?

**OE2.** Approximately how many other were purchased?

**OE2a.** Approximately what percentage of your facility's total square footage was served by these purchases?

**OE2b.** How many of the \_\_\_\_\_ purchased using were used to replace existing \_\_\_\_\_ units?

**OE3.** What types of equipment were replaced when installing \_\_\_\_\_?

**OE3a.** Did you remove the same number of \_\_\_\_\_ as you installed through the project?

**OE3b.** Did you remove more or less number of \_\_\_\_\_ than you installed through the project?

**OE3c.** How many more/less \_\_\_\_\_ did you install?

**OE3d.** What was the condition of the removed equipment?

Inoperable (broken)
Poor condition
Fair condition
Good condition
[Don't know]
[Refused]

**OE3e.** How old was the removed equipment?

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old

**RESPONSE GRID OE3**

	<b>OE3</b>	<b>OE3a Remove same amount</b>	<b>OE3b Remove more or less</b>	<b>OE3c Amount removed</b>	<b>OE3d Condition removed equip</b>	<b>OE3e Age removed equip</b>
1	Specify:					
2	Specify:					
3	Specify:					
4	Specify:					
5	Specify:					
6	Specify:					

**COMMENT: In order to understand the potential energy savings results from [MEASURE], we may conduct a follow up call with you.**

**Job Creation- Other**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management of this \_\_\_\_\_?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this \_\_\_\_\_?

- a. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of this \_\_\_\_\_?  
[PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

- 
- J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]
- J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]
- Please describe the contribution/collaboration role.
  - What is the contact information for this collaborator?

### **Attribution- Other**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?
- A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- If later, how many months later?
- A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"
- A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Renewables-Solar PV**

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**In this section we'll be discussing the solar PV installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.**

**PVU1.** What is the manufacturer and model number of your PV modules?

**PVU1a.** How many of that type of PV module have been installed after signing the resolution in [PROGRAM YEAR/PERIOD]?

**PVU2.** Are all of these panels still installed?

**PVU2a.** How many of these panels have been removed?

**PVU2b.** Why did you remove some of the panels?

**PVU3.** Are there other types of PV panels installed through the [PROGRAM]?

**INSTALLATION**

**PVN1.** When was your PV system installed?

**PVN2.** Have you modified the system since it was first installed?

**PVN2a.** Was the modification an addition, an equipment replacement, or something else?

**PVN2b.** What have you added?

**PVN2c.** What did you replace?

**PVN2d.** When did you make these changes?

<b>RECORD MONTH AND YEAR (if possible get date)</b>	
[DON'T KNOW]	97
[REFUSED]	98

**PVN2e.** Why did you make these changes?

**PVN3.** What is the tilt angle of your panels, on average, including the angle of your roof (if any)?

**PVN3a.** Do you adjust your panel tilt manually?

**PVN3b.** How many times per year?

**PVN4.** Are your panels on an automatic tracking system?

**[IF RESPONDENT IS UNFAMILIAR WITH THE TERM "Automatic Tracking", SAY "They pivot automatically throughout the day to follow the sun."]**

**PVN4a.** How many degrees east or west from south are your panels facing?

**PVN4b.** Is your tracking system DUAL axis?

**[IF RESPONDENT IS UNFAMILIAR WITH THE TERM "Dual Axis", SAY "They pivot both left and right and up and down."]**

**PVN5.** Are your panels shaded at all during the year?



		<b>PVN5a.</b> Which months of the year are they shaded at least part of the day?	<b>PVN5b.</b> For each month that they are shaded part of the day, what times of day are they shaded, and what percent of the panels are shaded on average?	
<b>Month</b>			<b>Time of Day</b>	<b>Percent Shaded</b>
January	1		_____	_____
February	2		_____	_____
March	3		_____	_____
April	4		_____	_____
May	5		_____	_____
June	6		_____	_____
July	7		_____	_____
August	8		_____	_____
September	9		_____	_____
October	10		_____	_____
November	11		_____	_____
December	12		_____	_____

**PVN6.** Are your panels snow covered at all during the year?

<b>Month</b>	<b>PVN6a.</b> Which months of the year are they often covered at least part of the time?	<b>PVN6b.</b> For each month that they are snow covered what percent of the time are they covered?
January	1	_____
February	2	_____
March	3	_____
April	4	_____
May	5	_____
June	6	_____
July	7	_____
August	8	_____
September	9	_____
October	10	_____
November	11	_____
December	12	_____
[DON'T KNOW]	97 <b>[GO TO PVP1]</b>	97
[REFUSED]	98 <b>[GO TO PVP1]</b>	98

**PRODUCTION**

PVP1. Did your system begin producing electricity on the date it was installed?

PVP1a When did it begin producing electricity?

PVP2. Has there been any major down-time (more than a few days) since the system was installed?

PVP2a. How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible, get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	97
[REFUSED]	98

PVP2b. Why was the system down?

PVP3. Please tell me your PV system total kW capacity.

PVP4. Please tell me the total kWh production of the system since it started generating power. If you don't know exactly, your best estimate is ok.

PVP4a. How did you determine the total kWh production? [READ CHOICES, CIRCLE ALL THAT APPLY]

Read-out display on inverter?	
Separate utility meter for PV production?	
Computer tracking software	
Estimate	
[Other, Specify]	
[DON'T KNOW]	
[REFUSED]	

PVP4b When was the display last reset?

PVP5. What percentage of the expected savings has your system actually produced?

[IF PVP5 NOT EQUAL 100%]

PVP5a. Why do think the actual savings are different from the expected savings?

### Job Creation- Solar PV

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of your solar PV array?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your solar PV array?

- a. Yes -----> **How many part/split time staff? \_\_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these solar PV arrays? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

### Attribution- Solar PV

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?
- A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- a. If later, how many months later?
- A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"
- A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## **Renewables-Wind**

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In this section we'll be discussing the wind turbine installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

WU1. What is the manufacturer and model number of your wind turbine?

WU1a. How many of that type of wind turbine have been installed?

WU1b. What is/are the (average) hub height(s) of this/these turbine(s)? [Height at the top of the tower, where the blades connect to the tower]

WU1c. What is the manufacturer's rated capacity of the turbine (in kW)?

WU1d. What is the rotor diameter (diameter of the blades)? [in feet, inches, or meters]

WU2. Are all of these turbines still installed?

WU2a. If not, how many of these turbines have been removed?



WU2b. Why did you remove some of the turbines?

WU3. Are there other types of Wind turbines installed?

INSTALLATION

WN1. When was your wind power system installed?

WN2. Have you modified the system since it was first installed?

WN2a. Was the modification an addition, an equipment replacement, or something else?

WN2b. What have you added?

WN2c. What did you replace?

WN2d. When did you make these changes?

WN2e. Why did you make these changes?

**WN3.** From what direction is the prevailing wind?

North	
North-East	
East	
South-East	
South	
South-West	
West	
North-West	
[DON'T KNOW]	
[REFUSED]	

**WN3a.**

	<b>WN3a1.</b> What are the nearest tall obstructions (e.g. trees, buildings, etc...) to your wind turbines in the direction of the prevailing wind?	<b>WN3a2.</b> How tall is this obstruction? (in feet or yards – indicate units)	<b>WN3a3.</b> How far is this obstruction from the turbine? (in feet or yards – indicate units)	<b>WN3a4.</b> What direction is this obstruction from the turbine? (e.g. north, south-west, etc.)
Obstruction #1				
Obstruction #2				
Obstruction #3				
Obstruction #4				

**PRODUCTION**

**WP1.** Did the turbine begin producing electricity on the date it was installed?

**WP1a.** When did it begin producing electricity?

**WP2.** Has there been any major down-time (more than a few days) with the system since installation, other than times when the wind wasn't blowing strongly enough to generate power?

**WP2a.** How long was the most substantial downtime period, and when did it occur?

<b>WHEN: RECORD Month and Year (if possible get day)</b>	
<b>FOR HOW LONG: RECORD Months, Years, Days (if possible)</b>	

**WP2b.** Why was the system down?

**WP3.** Please tell me the total kWh production of the system since it started generating power. If you don't know exactly, your best estimate is ok.

**WP3a.** How did you determine the total kWh production? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**WP3b.** When was the display last reset?

**WP4.** What was the manufacturer's estimated production for the system, in kWh?

**WP5.** What percentage of the expected savings has your system actually produced?

**WP5a. [IF WP5 NOT EQUAL 100%]**

Why do you think the actual savings are different from the expected savings?

#### Job Creation- Wind

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of your wind turbines?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your wind turbines?

- a. Yes -----> **How many part/split time staff? \_\_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these wind turbines? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

- 
- J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]
- J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]
- a. Please describe the contribution/collaboration role.
  - b. What is the contact information for this collaborator

### **Attribution- Wind**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?
- A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- a. If later, how many months later?
- A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"
- A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Renewables-Solar Water Heater**

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In this section we'll be discussing the solar water heater installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second

section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

SWU1. What is the manufacturer and model number of your solar water heating modules?

SWU1a. How many of that type of module have been installed?

SWU2. Are all of these modules still installed?

SWU2a. How many of these modules have been removed?

SWU2b. Why did you remove some of the modules?

SWU3. Are there other types of solar water heater modules installed?

In Either Case

SWU4. What type of solar water heating modules were installed?

Unglazed	
Glazed	
Evacuated tube	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWU5. What is the total square footage surface area of this installation?

ACCESSORIES

SWA1. Most solar hot water systems have a pump that circulates water within the modules. What is the manufacturer of your system's pump?

SWA1a. What is the model number?

SWA1b. What is the motor horsepower?

SWA2. How is your pump powered? Did you install a small solar electric panel to power the pump? Or does the pump run off your regular electricity, or something else?

Small solar electric panel	
Regular electricity	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWA3. How many tanks are heated?

SWA4. What is the capacity of each of these tanks?

INSTALLATION

SWN1. When was your solar water heating system installed?

SWN2. Have you modified the system since it was first installed?

SWN2a. Was the modification an addition, an equipment replacement, or something else?

Addition	
Replacement	
Addition and replacement	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWN2b. What have you added? [Probe: Does this impact capacity?]

SWN2c. What did you replace? [Probe: Does this impact capacity?]

SWN2d. When did you make these changes?

SWN2e. Why did you make these changes?

SWN3. What is your solar water heating system used for?

Domestic Hot Water	
Space Heating	
Pool Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWN3a. What is the size of the pool?

[CAPACITY - enter gallons]	
[or SIZE - feet by depth]	
[DON'T KNOW]	
[REFUSED]	

SWN3b. Is this pool...

Indoor	
Outdoor above ground	
Outdoor in ground	
[DON'T KNOW]	
[REFUSED]	

SWN4. How many degrees east or west from south do your modules face?

SWN5. What is the tilt angle of your modules, on average, including the angle of your roof (if any)?

SWN6. Are your modules shaded at all during the year?

	SWN6a. Which months of the year are they shaded at least part of the day?	SWN6b. For each month that they are shaded part of the day, what times of day are they shaded, and what percent of the panels are shaded on average?	
Month		Time of Day	Percent Shaded
January		_____	_____
February		_____	_____
March		_____	_____
April		_____	_____
May		_____	_____
June		_____	_____
July		_____	_____
August		_____	_____
September		_____	_____
October		_____	_____
November		_____	_____
December		_____	_____
[DON'T KNOW]			
[REFUSED]			

SWN7. Are your modules snow covered at all during the year?

Month	SWN7a. Which months of the year are they often covered at least part of the time?	SWN7b. For each month that they are snow covered what percent of the time are they covered?
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

[DON'T KNOW]		
[REFUSED]		

PRODUCTION

SWP1. Is your solar water heating system used year-round?

SWP1a. In what months is it used?

Month	
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	
[DON'T KNOW]	
[REFUSED]	

SWP2. Has there been any major down-time (more than a few days) with the system since installation?

SWP2a. How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	
[REFUSED]	

SWP2b. Why was the system down?

[IF SWN3 NOT EQUAL "Domestic Hot Water" GO TO SWP5]

SWP3. About how much hot water do you use per month (in gallons)?

SWP3a. What is this estimate based on?

SWP3b. [Non-Residential] What type of facility is this?

Laundry	
---------	--

Restaurant	
Hospital	
Nursing Home	
Dormitory	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWP3c. How many residents live at the facility?

SWP4. At what time of day does most of your water usage occur?

Before 6 AM	
Between 6 AM and noon	
Between noon and 6 PM	
Between 6 PM and 10 PM	
After 10 PM	
Other	
[DON'T KNOW]	
[REFUSED]	

SWP5. What temperature, in degrees Fahrenheit, does the water in the tank(s) reach on a sunny day in winter?

SWP6. What temperature, in degrees Fahrenheit, does the water in the tank(s) reach on a sunny day in summer?

SWP7. What is your supplemental source for water heating?

Natural Gas Tankless Water Heater	
Natural Gas Tank Style Water Heater	
Natural Gas Boiler	
Propane Fired Water Heater or Boiler	
Oil Fired Water Heater or Boiler	
Electric Tankless Water Heater	
Electric Tank Style Water Heater	
Electric Heat Pump Water Heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWP8. Did the solar water heater replace an existing water heater?

[YES]	
[NO]	
[DON'T KNOW]	
[REFUSED]	

SWP8a. What was your previous source for water heating?

Natural Gas Tankless Water Heater	
Natural Gas Tank Style Water Heater	
Natural Gas Boiler	
Propane Fired Water Heater or Boiler	
Oil Fired Water Heater or Boiler	
Electric Tankless Water Heater	
Electric Tank Style Water Heater	
Electric Heat Pump Water Heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

SWP9. What percentage of the expected savings has your system actually produced?

SWP9a. Why do think the actual savings are different from the expected savings?

#### Job Creation- Solar Water Heater

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of your solar water heaters?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your solar water heaters?

- a. Yes -----> **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these solar water heaters? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]



J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

**Attribution- Solar Water Heater**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

## Renewables-Biomass

[\(Back to Catalog of Programs\)](#)

In this section we'll be discussing the biomass installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

BMU1. What is the manufacturer and model number of your biomass units?

BMU1a. How many of that type of unit have been installed?

BMU2. Are all of these units still installed?

BMU2a. How many of these units have been removed?

BMU2b. Why did you remove some of the units?

BMU3. Are there other types of biomass units installed?

### In Either Case

BMU4. How would you describe the biomass system you use? Is it a: [CIRCLE ALL THAT APPLY]

Pellet stove, furnace, or boiler	
Wood chip furnace or boiler	
Log wood furnace or boiler	
Biomass furnace or boiler	
Wood stove	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMU5. What is the total heating capacity of biomass units (in BTUs)?

### INSTALLATION

BMN1. When was your biomass system installed?

BMN2. How do you use the energy from the biomass system? [CIRCLE ALL THAT APPLY]

Space Heating	
Water Heating	
Industrial Process Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMN3. Is this biomass system installed indoors, in space that is heated in winter?

BMN4. Have you modified the system since it was first installed?

BMN4a. Was the modification an addition, an equipment replacement, or something else?

Addition	
Replacement	
Addition and replacement	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMN4b. If applicable, what have you added?

BMN4c. If applicable, what did you replace?

BMN4d. When did you make these changes?

BMN4e. Why did you make these changes?

### FUELS

BMF1. What is your primary source of fuel? [CIRCLE ALL THAT APPLY]

Wood logs	
Wood chips	
Biomass pellets [specify type]	
Corn	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF1a. For the wood, do you primarily burn hardwoods or softwoods?

Primarily (over 75%) Hardwood (oak, maple)	
Primarily (over 75%) Softwood (pines; alders)	
Mix of both	
[DON'T KNOW]	
[REFUSED]	

BMF1b. How long is this wood allowed to dry before burning?

Less than 6 months	
6-12 months	
greater than 12 months	

Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF2. What percent of your fuel would you estimate that you get from the following sources?

Byproducts from another on-site process: [ENTER PERCENT]	
Harvested on-site: [ENTER PERCENT]	
Purchased from vendor: [ENTER PERCENT]	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

[IF SUM OF RESPONSES TO BGF2 <100%, PROMPT SAYING "These responses add to <Sum of BGF2 Responses>. Would you to adjust the categories, or is there another source not mentioned?"]

[IF BMF4: "Purchased from Vendor" > 30%, ASK BMF3, ELSE GO TO BMF4]

PURCHASED FUEL

BMF3. Who is the [supplier or manufacturer] of the fuel you purchase?

[Supplier 1] \_\_\_\_\_  
 [Supplier 2] \_\_\_\_\_

[IF SUM OF BMF4: "Harvested on Site" AND "Byproducts ..." IS GREATER THAN 30%, ASK BMF4 THROUGH BMF4d, ELSE GO TO BMF5]

On-Site Produced Fuel

BMF4. Do you mechanically dry your on-site produced fuel before using it?

BMF4a. What type of system do you use to dry your fuel? [READ CHOICES]

Fan Only	
Fuel-fired drying system	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF4b. What type of fuel do you use for the fuel drying system?

Natural Gas	
Electricity	
Oil	

Propane	
Nothing	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF4c. How much fuel do you burn per month in your drying system?

BMF4d. What is the total horsepower of your drying system fans?

BMF4e. How many hours per year would you say these fans run?

BMF5. What is the average moisture content of the fuel when burned?

ACCESSORIES

BMA1. Are there any electrical or mechanical devices that assist in feeding fuel to your system?

BMA1a How do you feed the fuel into the biomass system? [Probe: conveyor, chute, shovels]

BMA1b. What is the total horsepower of motors used to feed fuel to your biomass system?

BMA1c. How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	
[REFUSED]	

BMA2. Does your biomass system require mechanical air circulation to operate?

BMA2a. What is the total horsepower of motors used to circulate air?

BMA2b. How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	
[REFUSED]	

BMA3. Does your biomass system require mechanical water circulation to operate?

BMA3a. What is the total horsepower of the pumps used to circulate water?

BMA3b. How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	97
[REFUSED]	98

PRODUCTION

BMP1. During which months of the year is this biomass system used?

BMP2. Did your system begin operating on the date it was installed?

BMP2a When did it begin operating?

BMP3. Has there been any major down-time (more than a few days) with the system since installation?

BMP3a. How long was the most substantial downtime period, and when did it occur?

BMP3b. Why was the system down?

[LOOP THROUGH BMP4 THROUGH BMP5b FOR EACH RESPONSE TO BMN2 (type of biomass system)]

BMP4. What percentage of your <BMN2 RESPONSE> usage is provided by the biomass system?

BMP5. What type of back-up fuel do you use for your <BMN2 RESPONSE> system?

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
REFUSED	
DON'T KNOW	

BMP5a. How much fuel does this backup <BMN2 RESPONSE> system use per year?

BMP5b. How much does your backup <BMN2 RESPONSE> system fuel cost per year?

BMP5c. What type of <BMN2 RESPONSE> system is this?

Furnace	
Boiler	
Tank water heater	

Tankless water heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMP5d. Was this backup <BMN2 RESPONSE> system in place before the biomass system was installed?

BMP5e. What type of system was used prior to the <BMN2 RESPONSE> biomass system?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
None	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMP5f. What type of fuel was used by the system that your biomass system replaced?

Natural Gas	
Electricity	
Oil	
Propane	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMP5g. How much fuel did this <BMN2 RESPONSE> system use per year prior to the biomass system installation?

BMP5h. How much did this <BMN2 RESPONSE> system's fuel cost per year prior to the biomass system installation?

BMP6. What percentage of the expected energy savings has your system actually produced?

BMP6a. [IF BMP6 NOT EQUAL 100%]

Why do you think the actual savings are different from the expected savings?

**Job Creation- Biomass**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of your biomass technologies?

- a. Yes -----> **How many full time staff? \_\_**
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your biomass technologies?

- a. Yes -----> **How many part/split time staff? \_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these biomass technologies? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

**Attribution- Biomass**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]



b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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**Renewables-Biogas**

[\(Back to Catalog of Programs\)](#)

In this section we'll be discussing the biogas installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

BGU1. What is the manufacturer and model number of your biogas units?

BGU2a. How many of that type of unit have been installed through the &PROGRAM?

BGU3. Are all of these units still installed?

BGU3a. How many of these units have been removed?

BGU3b. Why did you remove some of the units?

**INSTALLATION**

BGN1. When was your biogas system installed?

BGN2. Have you modified the system since it was first installed?

BGN2a. Was the modification an addition, an equipment replacement, or something else?

[Addition]	
[Replacement]	

[Addition and replacement]	
[Other, Specify]	
[DON'T KNOW]	
[REFUSED]	

BGN2b. What have you added?

BGN2c. What did you replace?

BGN2d. When did you make these changes?

BGN2e. Why did you make these changes?

**BIOGAS SOURCES**

BGS1. Does your biogas come from an influent or manure digester, landfill gas, or another source? [CIRCLE ALL THAT APPLY]

Digester	
Landfill Gas	
Other, specify	
[DON'T KNOW]	
[REFUSED]	

BGS2. What percentage of the following types of materials make up your biodigester influent, not including animal bedding? [READ LIST AND ENTER PERCENT FOR EACH]

Manure \_\_\_\_\_  
 Other Agricultural Waste \_\_\_\_\_  
 Other, specify \_\_\_\_\_

[IF SUM OF RESPONSES TO BGS2 <100%, PROMPT SAYING "These responses add to <Sum of BGS2 Responses>. Would you to adjust the categories, or is there another source not mentioned?"]

[IF BGS2 "Manure" response <10%, GO TO BGS3]

BGS2a. Of the manure, what percent comes from the following animals?

ENTER PERCENT FOR EACH	
Chicken	_____
Cow	_____
Swine	_____
Other, Specify	_____
Other 2, Specify	_____
[DON'T KNOW]	97
[REFUSED]	98

[IF SUM OF RESPONSES TO BGS2a <100%, PROMPT SAYING "These responses add to <Sum of BGS2a Responses>. Would you to adjust the categories, or is there another source not mentioned?"]

BGS2b. Does your manure mixture include animal bedding?

BGS3. What is the total volume or mass of material fed to your digester on average, per month?

### PRODUCTION

BGP1. What percentage of the biogas produced are you... [READ LIST, ENTER PERCENT FOR EACH]

Using onsite in a generator	_____
Using by digester for heating influent	_____
Using in vehicles	_____
Flaring onsite	_____
Selling off site	_____
Other, Specify	_____
[DON'T KNOW]	_____
[REFUSED]	_____

[IF SUM OF RESPONSES TO BGP1 <100%, PROMPT SAYING "These responses add to <Sum of BGP1 Responses>. Would you to adjust the categories, or is there another use not mentioned?"]

BGP2. Did your system begin operating on the date it was installed?

BGP2a When did it begin operating?

BGP3. Are there differences in energy production seasonally or between years?

BGP3a. Describe the production changes the system sees yearly, and between years.

BGP4. Are there differences in how you use the biogas seasonally or between years?

BGP4a. Describe the usage changes the system sees yearly, and between years.

BGP5. Has there been any major down-time (more than a few days) with the system since installation?

BGP5a. Why was the system down?

BGP5b. Please describe what components of the system stopped operating, and whether other components were able to operate?

BGP5c. How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	
[REFUSED]	

[IF BGP1: "Using onsite in a generator" = 0%, GO TO BGP8]

Electrical Generation

BGP6. Please tell me your rated generation capacity for all operating generators, not including backup generator capacity (in kW).

BGP7. Please tell me the total kWh production of the system since it started generating power. If you DON'T KNOW exactly, your best estimate is ok.

BGP7a. How did you determine the total kWh production? [READ CHOICES, CIRCLE ALL THAT APPLY]

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP7b When was the display last reset?

[IF BGP1: "Using onsite for heating" = 0%, "Using in vehicles"=0%, "Used by digester for heating influent"=0%, and "Selling off site"=0%, GO TO BGP10]

Fuel Production

BGP8. Please tell me the total amount of biogas produced by the system for use in vehicles, heating, and for sale. If you DON'T KNOW exactly, your best estimate is ok.

BGP8a. How did you determine the total production? [READ CHOICES, CIRCLE ALL THAT APPLY]

Read-out display on generator	
Separate utility meter for biogas production	

Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP8b When was the display last reset?

BGP9. How did you determine the total amount of biogas produced? [READ CHOICES, CIRCLE ALL THAT APPLY]

Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

[IF BGP1: "Using onsite for heating" > 0%, ASK BGP10 through BGP11h, ELSE GO TO BGP12]

Other Heating Sources

BGP10. What percentage of your heating usage is provided by the biogas system?

BGP11. What type of back-up fuel do you use for your biogas heating system?

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP11a. How much fuel does this backup heating system use per year?

BGP11b. How much does your backup heating system fuel cost per year?

BGP11c. What type of heating system is this?

Furnace
Boiler
Tank water heater

Tankless water heater
Other, Specify
[DON'T KNOW]
[REFUSED]

BGP11d. Was this heating system in place before the biogas system was installed?

BGP11e. What type of system was used prior to the heating biogas system?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
None	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP11f. What type of fuel was used by the system that your biomass system replaced?

Natural Gas	
Electricity	
Oil	
Propane	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP11g. How much fuel did this heating system use per year prior to the biogas system installation?

BGP11h. How much does this heating system's fuel cost per year prior to the biogas system installation?

[IF BGP1: "Using in vehicles" > 0%, ASK BGP12, ELSE GO TO BGP13]

BGP12. What fuels did your vehicles use prior to conversion to biogas?

Gasoline	
Diesel	
Propane	
Natural Gas	
[DON'T KNOW]	
[REFUSED]	



BGP13. What percentage of the expected savings has your system actually produced?

BGP13a. [IF BGP13 NOT EQUAL 100%]

Why do think the actual savings are different from the expected savings?

Job Creation- Biogas

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

Does your organization currently have any full time staff assigned to the management and maintenance of your biogas technologies?

Yes -----> How many full time staff? \_\_

No

Not sure / don't know

Does your organization currently have any part time or split-time staff assigned to the management and maintenance of your biogas technologies?

Yes -----→ How many part/split time staff? \_\_\_ in FTEs?

No

Not sure / don't know

Over the last 5 years, how many FTE staff were associated with the management and maintenance of these biogas technologies? [PROBE: List by year]

	Staff	pre-2008	2008	2009/2010	2011+
1	Number of full-time staff...				
2	Number of part-time staff... (in FTEs)				
4	Don't know				
5	Refused				

In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

Please describe the contribution/collaboration role.

What is the contact information for this collaborator

#### **Attribution- Biogas**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?

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**Renewables-Other**

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**OU1.** What is the manufacturer and model number of your \_\_\_\_\_ units?

**OU1a.** How many of that type of unit have been installed?

**OU2.** Are all of these units still installed?

**OU2a.** How many of these units have been removed?

**OU2b.** Why did you remove some of the units?

**OU3.** Did you install any other kinds of energy efficiency measures through the program?

**OU4.** When was your \_\_\_\_\_ system installed?

**OU5.** How do you use the energy from the \_\_\_\_\_ system? **[CIRCLE ALL THAT APPLY]**

Space heating	
Water Heating	
Industrial Process Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**Job Creation- Other**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

Does your organization currently have any **full time** staff assigned to the management and maintenance of your \_\_\_\_\_?

Yes -----> **How many full time staff?** \_\_\_

No

Not sure / don't know

Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your \_\_\_\_\_?

Yes -----> **How many part/split time staff?** \_\_\_ **in FTEs?**

No

Not sure / don't know

Does your organization currently have any **full time** staff assigned to the management and maintenance of these \_\_\_\_\_?

Yes -----> **How many full time staff?** \_\_\_

No

Not sure / don't know

Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these \_\_\_\_\_?

Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?

No

Not sure / don't know

Over the last 5 years, how many FTE staff were associated with the management and maintenance of these \_\_\_\_\_? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

Please describe the contribution/collaboration role.

What is the contact information for this collaborator

#### **Attribution- Other**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

### **Alternative Fuel Vehicles**

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In this section we'll be discussing the alternative fuel vehicles that your community purchased after signing the resolution. The first section of questions is intended to understand the vehicle fleet as a whole. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

AV1. Can you estimate the total number of alternative fuel vehicles you purchased during the [PROGRAM YEAR/PERIOD] period that received [PROGRAM] rebates? [PROBE: What are the fuel types, make, model and year?]

AV2. Did these alternative fuel vehicles replace existing vehicles in your fleet?

- a. If YES to question AV2: Do you know the make, model, year and fuel type of each of the replaced vehicles, and the make, model, year and fuel type of the alternative fuel car that replaced it?
- b. If NO to question AV2: If you had not bought the alternative fuel vehicles, what type of car would have been purchased in their place? [PROBE: If available, ask about make, model, year and fuel type of each of new alternative fuel vehicles, and the non-alternative fuel vehicles they would have purchased instead.]What type of activities were the new, alternative fuel vehicles used for? Please list for each vehicle. Can you estimate what the average annual mileage was for these alternative fuel vehicles during this timeframe?
- c. If the alternative fuel vehicle HAD REPLACED an existing vehicle: What were the activities and the average annual mileage for the vehicle it replaced? [PROBE: How did the driving patterns for the new, alternative fuel car compare with the driving patterns of the car it replaced?]
- d. If the alternative fuel vehicle HAD NOT REPLACED an existing vehicle: What would the average annual mileage have been of the non-alternative fuel vehicle that would have been purchased instead?

AV3. Can you estimate how long you expect each alternative fuel vehicle to last before needing replacement?

- a. If the alternative fuel vehicle HAD REPLACED an existing vehicle: In [PROGRAM YEAR/PERIOD], how long did you expect the vehicle that was replaced to last before needing replacement? [PROBE: Was their purchasing timeframe expedited due to the [PROGRAM] rebate program or any other program, or was the original vehicle ready to be replaced anyway.]

- 
- b. If the alternative fuel vehicle HAD NOT REPLACED an existing vehicle: If you had purchased a non-alternative vehicle in [PROGRAM YEAR/PERIOD] instead of the alternative fuel vehicle, how long would you expect it to last before needing replacement?



	Qty	Fuel Type	Manufacturer	Model	Year	Activities	Miles / Year	Expected Life before Replacement from [PROGRAM YEAR/PERIOD]	Notes
New Alt. Fuel Vehicle #1									
Old Vehicle #1									
Hypothetical Non-Alt. Fuel Vehicle #1									
New Alt. Fuel Vehicle #2									
Old Vehicle #2									
Hypothetical Non-Alt. Fuel Vehicle #2									
New Alt. Fuel Vehicle #3									
Old Vehicle #3									
Hypothetical Non-Alt. Fuel Vehicle #3									
New Alt. Fuel Vehicle #4									
Old Vehicle #4									



Hypothetical Non-Alt. Fuel Vehicle #4									
---	--	--	--	--	--	--	--	--	--

- AV4. What were the overall goals of your alternative vehicle purchases in [PROGRAM YEAR/PERIOD]?
- AV5. Are there policies, legislation, or other organizational goals that influenced these purchases? [PROBE: Why was your organization motivated to purchase these vehicles? Were you required? Was it a state policy?]
- AV6. What non-energy savings goals did you have? [PROBE: Was job creation one of the goals? Was carbon emissions reduction one of the goals?]
- AV7. Please describe how you identified the need for these vehicles. [PROBE: Did you need to increase your fleet, replace vehicles that needed to be replaced, or both?]
- AV8. What was the timeline for the expected program goals to be met? [PROBE]
- 0 to 1 years?
  - 2 to 3 years?
  - 3 to 5 years?
  - 5 or more years?
- AV9. Do you have any program reports or data to show progress toward these goals?
- AV10. How does the program work to achieve the goals you stated above? [PROBE: What were actions taken and objectives achieved?]

#### **Job Creation- Alternative Fuel Vehicle**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

- J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of your fleet of vehicles?
- Yes -----→ **How many full time staff?** \_\_\_
  - No
  - Not sure / don't know
- J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your fleet of vehicles?
- Yes -----→ **How many part/split time staff? \_\_\_ in FTEs?**
  - No
  - Not sure / don't know
- J3. Does your organization currently have any **full time** staff assigned to the management and maintenance of these vehicles?
- Yes -----→ **How many full time staff?** \_\_\_
  - No
  - Not sure / don't know
- J4. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these rebated vehicles?
- Yes -----→ **How many part/split time staff? \_\_\_ in FTEs?**
  - No
  - Not sure / don't know

J5. Over the last 5 years, how many FTE staff were associated with the management and maintenance these rebated vehicles? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J6. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J7. Without these rebated vehicles, how many FTE staff would have been associated with the management and maintenance of your fleet? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J8. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

#### **Attribution- Alternative Fuel Vehicle**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to purchase this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on purchasing these vehicles? Could you estimate the percent of influence being an and signing the resolution had on your decision to purchase these vehicles? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to purchase these vehicles? Can you explain why?

A2. Without the resolution would you have purchased <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have purchased <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have purchased <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have purchased the same amount, less, more, or not have purchased anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> purchased because of the resolution?"

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### **Purchased Renewable Energy**

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In this section we'll be discussing the purchase of renewable energy that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to the total amount of renewable energy purchased. The second section will discuss job impacts related to the program. Finally, the third section will focus on the influence the resolution had on making this program happen.

- RE1. What type of Renewable Energy did your community purchase? [PROBE: Was it a REC style program? Was the energy generated within [STATE] or another place?]
- RE2. Can you estimate how much renewable energy your community had purchased in year before [PROGRAM YEAR/PERIOD]?
- RE3. Can you estimate how much renewable energy your community has purchased since signing the resolution in [PROGRAM YEAR/PERIOD]?
- RE4. Can you estimate how many years into the future your community will purchase renewable energy? [PROBE: At the same rate? Or an increasing/decreasing pace?]

### **Job Creation- Purchased Renewable Energy**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

- J1. Does your organization currently have any **full time** staff assigned to the management of purchased renewable energy?
  - a. Yes -----> **How many full time staff? \_\_\_**
  - b. No
  - c. Not sure / don't know
- J2. Does your organization currently have any **part time** or split-time staff assigned to the management of purchased renewable energy?
  - a. Yes -----> **How many part/split time staff? \_\_\_ in FTEs?**
  - b. No
  - c. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of purchased renewable energy? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

**Attribution- Purchased Renewable Energy**

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," "slightly higher than standard efficiency," "between standard efficiency and the efficiency that you installed," or "slightly lower than the high efficiency that was installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## L.28. [PROGRAM] –PILOT COMMUNITY IN-DEPTH INTERVIEW GUIDE

*This interview guide is intended for evaluating [PROGRAM] Pilot program participants that signed resolutions in program period [PROGRAM YEAR/ PERIOD] to reach [STATE]’s goals. Pilot communities are distinguished from Non-Pilot Communities based on the fact that they received grant funding to officially create a plan for this target.*

*This guide will collect data and information on any project or initiative that was implemented since the resolution was signed to meet this goal, and will ask what effect this resolution had on getting these projects started.*

*The target respondents for these interviews are Community Energy Coordinators/Managers knowledgeable about projects that were or will be implemented since program year [PROGRAM YEAR/ PERIOD] to meet the goal.*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent.*

*Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and the evaluation team expects that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This information will be used to collect information to determine and calculate the following:

- influence on program implementation;
- Program impacts
- Funding sources outside of SEP;
- Linkages to other programs.



**BACKGROUND INFORMATION**

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	
Interviewer name:	
Interviewer organization:	

## **SCHEDULE INTERVIEW**

*The evaluation team will briefly contact community representatives to schedule the interview, as needed depending upon data provided. The interviewer will screen for individuals who understand the range of information within their SEP effort, and who are in a position to comment on the program over time (historical and future).*

## **BACKGROUND STATEMENT**

This interview is intended to familiarize our team with [STATE]'s [PROGRAM], the resolution your community signed in support of the goals, and the Pilot program your community took part in. The information you supply will be used to characterize what programs or projects were implemented in [PROGRAM YEAR/ PERIOD] to help meet this goal, and the influence the resolution had in these actions.

The US Department of Energy's State Energy Program contracted us to talk with communities involved with the [PROGRAM], and those that specifically signed resolutions in program year [PROGRAM YEAR/ PERIOD]. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of other communities we interview. All information will then be aggregated and reported on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

## **RESPONDENT ELIGIBILITY SCREENING**

To start, I need to understand your role in your community's commitment to the [PROGRAM] program and the resolution that was signed during program year [PROGRAM YEAR/ PERIOD].

- S1. Can you confirm that your community signed a resolution between [PROGRAM YEAR/ PERIOD] and were selected to be a Pilot community?
- S2. Were you involved with your community's decision to sign the resolution in [PROGRAM YEAR/ PERIOD]? If yes, how?
- S3. Were you involved with your community's decision to apply for the Pilot program grant funds?
- S4. What was your title and what were your job responsibilities in [PROGRAM YEAR/ PERIOD]?
- S5. (IF S2 IS "NO") Who is the most knowledgeable person to talk about the signing of the resolution in [PROGRAM YEAR/ PERIOD]?
- S6. For how many months/years did or have you served in that capacity? [PROBE:]
  - c. pre-2008 to 2008
  - d. 2008 to 2009-2010/ARRA period

**[PROGRAM YEAR/ PERIOD] Program Logic**

In order to evaluate the [PROGRAM] and resolution impact, we first need to outline all of the programs and activities that were related to meeting the goal that were implemented after the signing of the resolution. Once these programs are described, we will discuss what impact the resolution had on getting those programs off the ground.

AV1. We have a list of measures that were listed on your community’s Pilot Plan that we’d like to talk about. For each measure that we read, let us know if your community pursued/is still pursuing that measure, or decided not to pursue it at all. We will eventually go into detail for each measure, but we first want to compile this complete measure list. [This will be done in an MS Excel template developed specifically for the [STATE] [PROGRAM] evaluation.]

AV2. If we missed any measures, there are various categories of program types related to energy efficiency and renewable energy that I would like to read to you. As we go through this list, please let me know if there are any projects or initiatives that were implemented after the resolution was signed in [PROGRAM YEAR/ PERIOD] that fit into each category. We will go into more detail after we create this master list:

- i. If many measures applied to one building, let’s start with describing the building, and then list all the measures for that building.

**Table 18-Catalog of Energy Programs Implemented from [PROGRAM YEAR/ PERIOD] to today**

Broad Program Area	Key Subareas	Mark all that apply	Mark once discussed
<b>F. <a href="#">Energy Efficiency Building Retrofits</a></b>	8. <a href="#">Lighting</a>		
	9. <a href="#">Cooling Equipment</a>		
	10. <a href="#">Heating Equipment</a>		
	11. <a href="#">Refrigeration</a>		
	12. <a href="#">Electric Motors</a>		
	13. <a href="#">Weatherization</a>		
	14. <a href="#">Other</a>		
<b>G. <a href="#">Lighting (non-buildings)</a></b>			
<b>H. <a href="#">Renewable Energy</a></b>	7. <a href="#">Solar PV</a>		
	8. <a href="#">Wind</a>		
	9. <a href="#">Solar Water Heater</a>		
	10. <a href="#">Biomass</a>		
	11. <a href="#">Biogas</a>		
	12. <a href="#">Other</a>		
<b>I. <a href="#">Alternative Fuel Vehicles</a></b>			
<b>J. <a href="#">Purchase of Renewable Energy</a></b>			

## Building Retrofit-Lighting

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In this section we'll be discussing the lighting project that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to lighting measures installed and energy saved. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

BC1. How many buildings were involved with this project? What was the square footage of each one?

BC2. In what year was your facility built?

BC3. With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F P N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y N
If Yes, what kind of feedback is provided?	

Facility

FM1. What is the main business or FUNCTION performed at this facility?

Municipal - Offices	
Municipal – Fire or Police Station	
Municipal – Water/wastewater facility	
Municipal – Storage, garage, etc.	
Office	
Retail (non-food)	
College/University	
School	
Grocery Store	
Restaurant	
Health Care (other than Hospital)	
Hospital	
Hotel or Motel	
Warehouse	
Construction	
Community Service/Church/Temple	
Industrial Process/ Manufacturing/ Assembly	
Condo Assoc./Apartment Mgr.	
Greenhouse	
Laundry/Cleaners/Carwash other high water usage business	
Auto repair, welding, other high electricity usage business	
OPEN\Other - SPECIFY	
[Don't know]	
[Refused]	

FM2. How many people (the number of full time equivalent employees) are currently working at this facility?

FM3. Is this building or facility a leased space or it owner occupied?

Table 19-Building Information for Lighting

#	Building Name	Square Footage	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1							
2							
3							
4							
5							
6							
7							
8							

Lighting Fixtures

Use Table 2 below to answer the following four questions:

[LI1 INTENTIONALLY OMITTED]

LI2a. Which of the following kinds of lighting fixtures, if any, did/will you install? How many fixtures of this type?

LI2b. Which types of lighting fixtures were replaced? How many were replaced, and by which fixtures?

LI2c. What is the total area (in sq. ft.) served by these lighting fixtures?

LI2d. Which building did this apply to?

LI3. List of the types of fixtures, if any, that were replaced when installing updated lighting:

Did not replace anything - new equipment
High performance T8 (1" diameter bulbs)
T8 fluorescent fixtures (1" diameter bulbs)
T10 fluorescent fixtures
T12 Fixtures (1.5" diameter bulbs)
HID (High Density Discharge) Fixtures, Compact
Compact Fluorescent, Screw-in Modular
Compact Fluorescent, Hardwire
Incandescent
Exit Signs, Compact Fluorescent
Exit Signs, Incandescent
Halogen
Linear fluorescent with Electronic Ballast
Linear fluorescent with Magnetic Ballast
Other Fluorescent
T5 Fixtures (5/8" diameter)
High pressure sodium
Metal Halide
Mercury Vapor
Other (Specify_____)
[Don't know]
[Refused]



Table 20- Lighting Fixture Comparison for Building Lighting

Type of Lighting Fixture	Building #/name	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	Area served by lighting (sq ft)	Notes
New light fixture #1						
Old light fixture #1						
New light fixture #2						
Old light fixture #2						
New light fixture #3						
Old light fixture #3						

LI4b – LI4l. What types of spaces do these bulbs serve? What percent of the total space served is accounted for by each type of space?

**Table 21- Building Lighting by % of Area Served**

<b>Type of Light Fixture</b>	<b>Area served by fixtures (sq ft)</b>	<b>% office / professional</b>	<b>% warehouse</b>	<b>% food sales</b>	<b>% health care</b>	<b>% public assembly</b>	<b>% food service</b>	<b>% hotel/motel/dorm</b>	<b>% retail</b>	<b>% non-food service</b>	<b>% education</b>	<b>% other</b>
New light fixture #1												
Old light fixture #1												
New light fixture #2												
Old light fixture #2												
New light fixture #3												
Old light fixture #3												

**Control Technologies**

**This section will ask questions pertaining to any control technologies installed:**

**PL1a.** What type of controls did you have before signing the resolution? What type of controls did you install after signing the resolution?

<b><i>Controls</i></b>
Timeclock controls
Occupancy sensors
Bypass/Delay Timers
Photocell, light sensors
Daylighting control strategies
Other Controls

**PL1b.** What type of lighting fixtures were controlled by each control technology?

Fluorescent
Metal Halide
High Pressure Sodium
LED
Induction
Other, [Describe _____ ]
[Don't Know]
[Refused]

**PL1c.** Approximately how many lighting fixtures did/does the control technology turn off?

**PL1d.** What is the average wattage of these fixtures?

**PL1e.** How many hours per day are the fixtures on? What is the % reduction in operating hours when the control technology is used?

**Table 22- Control Technology for Building Lighting**



Type of Control Unit Installed	Building #/name	Type of lighting fixtures	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	% reduction in operating hours due to control technology	Notes
New Control Unit #1							
Baseline #1							
New Control Unit #2							
Baseline #2							
New Control Unit #3							
Baseline #3							

**Job Creation- Lighting**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management of this lighting?

- d. Yes -----> **How many full time staff?** \_\_\_
- e. No
- f. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this lighting?

- d. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- e. No
- f. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with the management of this lighting?  
[PROBE: List by year]

	Staff	pre-2008	2008	2009/2010	2011+
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

- 
- J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]
- J5. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]
- Please describe the contribution/collaboration role.
  - What is the contact information for this collaborator?

### **Attribution- Lighting**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- If YES, could you estimate the percent of influence these other incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?
- A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- If later, how many months later?
- A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"
- A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Lighting (non-building)**

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In this section we'll be discussing the lighting in non-building settings, such as street lights, that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to measures installed and energy saved. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**PL1.** Which of the following kinds of lighting products, if any, did/will you install?

Traffic or Pedestrian Signals
Lighting Controls
Other Pole-Mounted Lighting
[Don't Know]
[Refused]

**PL2.** What type of lighting fixture replaced the old fixture? How many of each of the new lighting fixtures did you install?

<b>Example of Traffic Signal upgrades</b>
Red LED Traffic Signals
Yellow LED Traffic Signals
Green LED Traffic Signals
LED Arrows
LED Walk / Don't Walk Signals
Other, [Describe _____]

**PL3.** What type of bulb did the old lighting fixture previously have?

**PL4.** What's the average usage for this lighting fixture (hours/day)

**Table 23-Lighting Fixture Comparison for Non-Building Lighting**

Name of Lighting Fixture	Type of lighting fixtures	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	Notes
New Unit Installed #1					
Old Unit Removed #1					
New Unit Installed #2					
Old Unit Removed #2					
New Unit Installed #3					
Old Unit Removed #3					

**This next section will ask questions regarding control technologies that impact when lights are turned on and off.**

**PL5a.** What type of controls did you have before signing the resolution? What type of controls did you install after signing the resolution?

Early-Morning Shutoff Controls
Remote Telephone or Electronic Controls
Occupancy Sensors
Other, [Describe _____]
[Don't Know]
[Refused]

**PL5b.** What type of lighting fixtures were controlled by each control technology?

Fluorescent
Metal Halide
High Pressure Sodium
LED
Induction
Other, [Describe _____]
[Don't Know]
[Refused]

**PL5c.** Approximately how many lighting fixtures did/does the control technology turn off?

**PL5d.** What is the average wattage of these fixtures?

**PL5e.** How many hours per day are the fixtures on? What is the % reduction in operating hours when the control technology is used?

**Table 24-Control Technology for Non-Building Lighting**

Type of Control Unit Installed	Type of lighting fixtures	Number of lighting fixtures	Average Wattage of these lighting fixtures	Average Usage (hrs/day)	% reduction in operating hours from control technology	Notes
New Control Unit Installed #1						
Baseline #1						
New Control Unit Installed #2						
Baseline #2						
New Control Unit Installed #3						
Baseline #3						

**Job Creation- Lighting (Non-Building)**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J6. Does your organization currently have any **full time** staff assigned to the management of this lighting?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J7. Does your organization currently have any **part time** or split-time staff assigned to the management of this lighting?

- a. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J8. Over the last 5 years, how many FTE staff were associated with the management of this lighting? [PROBE: List by year]

	Staff	pre-2008	2008	2009/2010	2011+
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				



J9. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J10. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

a. Please describe the contribution/collaboration role.

b. What is the contact information for this collaborator?

### **Attribution- Lighting (Non-Building)**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A5. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

a. If YES, could you estimate the percent of influence these other incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]

b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A6. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A7. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A8. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Building Retrofit-Cooling Equipment

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In this section we'll be discussing the cooling equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to cooling equipment installed and energy saved. We will proceed through this section by talking about a new piece of equipment installed, and when applicable, the old piece of equipment that was replaced. We'll go through this process for each new piece of equipment installed. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**BC1.** How many buildings were involved with this project? What is each of their square footage? What % of the building is cooled?

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F	P	N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y		N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y		N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y		N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y		N
If Yes, what kind of feedback is provided?			

**Facility**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal - Offices
Municipal – Fire or Police Station
Municipal – Water/wastewater facility
Municipal – Storage, garage, etc.
Office
Retail (non-food)
College/University
School
Grocery Store
Restaurant
Health Care (other than Hospital)
Hospital
Hotel or Motel
Warehouse
Construction
Community Service/Church/Temple
Industrial Process/ Manufacturing/ Assembly
Condo Assoc./Apartment Mgr.
Greenhouse
Laundry/Cleaners/Carwash other high water usage business
Auto repair, welding, other high electricity usage business
OPEN\Other - SPECIFY
[Don't know]
[Refused]

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 25-Non-Residential Building Information for Cooling Equipment**

#	Building Name	Total Square Footage	% of sq. ft. cooled	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1								
2								
3								
4								
5								
6								
7								
8								

## **Cooling Equipment**

**Now we would like to discuss the new cooling equipment that was installed:**

**CL-N1.** What types of cooling equipment did you install?

**CL-N2.** How many units of cooling equipment did you install?

**CL-N3.** What is the total capacity of all of the units installed?

**CL-N4.** What was the efficiency rating of the cooling units that you installed?

**CL-N5.** Are the operating hours for the cooling equipment independent of the weather? For example, is the equipment used for process cooling, a data center, or something else that requires it to run even when it is cool outside?

**CL-N6.** How many hours per year does the equipment operate?

**CL-N7.** Have there been any major changes in cooling load corresponding to the new equipment installation, such as addition on building, change in heat-producing equipment, large change in # of occupants, etc.?

Addition on building
Change in heat-producing equipment
Large change in # of occupants
Other, etc.
[Don't know]
[Refused]

**Next, I'd like to ask you a few questions about the equipment that was removed and replaced when you installed the new cooling equipment through the program.**

**CL8a.** What types of cooling equipment, if any, were replaced when installing the new cooling technology?

**CL8b.** How many units were removed?

**CL8c.** What was the total capacity of the units you removed?

**CL8d.** Generally, how would you describe the condition of unit(s) that was/were removed and replaced?

**CL8e.** What was the efficiency rating of the removed unit(s)?

**CL8f.** On average, how old was the equipment that was removed and replaced?

Equipment Name	Description
Split system	two components; compressor is separate from the supply air fan, air conditioner, or heat pump
Packaged systems	one component; rooftop units
Package Terminal A/C or Heat Pump	e.g., Hotel/Motel units
Evaporative coolers	swamp coolers
Water Chiller/Cooling Towers	Central plant
Individual A/C or Heat Pump Units	e.g., Unitary Equipment, Central A/C with multiple units, single unit for small business
Window/Wall Units	
Other (Specify)	

**Table 26-Cooling Equipment Comparison for Non-Residential Buildings**

Name of Cooling System	Building #/name	Number of Cooling Systems	Total Capacity of each system	Capacity units	Efficiency Number/Rating	Efficiency Units (EER, SEER, KW/Ton)	Age of Equipment	Condition of Equipment	Average Usage (hrs/year)	Changes to building usage	Notes
New Unit #1											
Old Unit #1											
New Unit #2											
Old Unit #2											
New Unit #3											
Old Unit #3											

**The following questions pertain to controls and variable speed drives for the cooling equipment. If these were not used, we can skip this section.**

**CL9a.** Did you install any cooling controls or variable speed drives as part of the project?

**CL9b.** What kinds of variable speed drives and/or controls did you install?

<b>New Installed any cooling controls or variable speed drives</b>
Adjustable Speed Drives
Energy Management System
HVAC Controls: Manual thermostat
HVAC Controls: Bypass Timer
HVAC Controls: Time Clock
HVAC Controls: Set-Back Programmable Thermostat
CO2 Sensors/Demand Control Ventilation
Economizers

**CL9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

**CL9d.** What kinds of controls, if any, did the new equipment replace?

**CL9e.** Generally, how would you describe the condition of the heating and heating control equipment that was removed and replaced? Was it...

Inoperable (broken)
Poor condition
Fair condition
Good condition
[Don't know]
[Refused]

**CL9f.** On average, how old was the control equipment that was removed and replaced? Would you say...

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old
[Don't know]
[Refused]

**Table 27-Control Technology for Non-Residential Building Cooling Equipment**



Type of Control Unit Installed	Building #/name	Total square footage	% of square footage that control unit serve	Condition of replaced control equipment	Age of replaced equipment	Average Usage (hrs/day)	% reduction in operating hours from control technology	Notes
New Control Unit Installed #1								
Baseline #1								
New Control Unit Installed #2								
Baseline #2								
New Control Unit Installed #3								
Baseline #3								

**Job Creation- Cooling Equipment**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J11. Does your organization currently have any **full time** staff assigned to the management of this cooling equipment?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J12. Does your organization currently have any **part time** or split-time staff assigned to the management of this cooling equipment?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J13. Over the last 5 years, how many FTE staff were associated with the management of this cooling equipment? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J14. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J15. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

#### **Attribution- Cooling Equipment**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A2. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A3. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A4. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Building Retrofit-Heating Equipment

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In this section we'll be discussing the heating equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to cooling equipment installed and energy saved. We will proceed through this section by talking about a new piece of equipment installed, and when applicable, the old piece of equipment that was replaced. We'll go through this process for each new piece of equipment installed. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**BC1a.** How many buildings were involved with this project? What is each of their square footage? What % of the building is heated?

**BC1b.** Which of the following fuel sources are used for heating the space?

Electricity
Gas
Propane
Fuel Oil
Wood
Biomass
OPEN\Other-RECORD
[Don't know]
[Refused]

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager responsible for all energy-related expenses (Full-time/Part-Time/None)	F P N
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y N
If Yes, what kind of feedback is provided?	

**Facility**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal – Offices	
Municipal – Fire or Police Station	
Municipal – Water/wastewater facility	
Municipal – Storage, garage, etc.	
Office	
Retail (non-food)	
College/University	
School	
Grocery Store	
Restaurant	
Health Care (other than Hospital)	
Hospital	
Hotel or Motel	
Warehouse	
Construction	
Community Service/Church/Temple	
Industrial Process/ Manufacturing/ Assembly	
Condo Assoc./Apartment Mgr.	
Greenhouse	
Laundry/Cleaners/Carwash other high water usage business	
Auto repair, welding, other high electricity usage business	
OPEN\Other – SPECIFY	
[Don't know]	
[Refused]	

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 28-Non-Residential Building Information for Heating Equipment**

#	Building Name	Total Square Footage	% sq. ft. heated	Fuel Source for Heating	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1									
2									
3									
4									
5									
6									
7									
8									

## **Heating Equipment**

**Now we would like to discuss the new heating equipment that was installed:**

**HT-N1.** What types of heating equipment did you install?

**HT-N2.** How many units of each type of heating equipment did you install?

**HT-N3.** What is the total capacity of each of the units you installed?

**HT-N4.** What was the efficiency rating and capacity of each of the heating units that you installed?

**HT-N5.** How many hours per year does the equipment operate?

**HT-N6.** Have there been any major changes in heating load corresponding to the new equipment installation, such as addition on building, large change in # of occupants, etc.?

<b>Examples of Heating Equipment:</b>
Central Boilers
Packaged Heating Units
Individual Space Heater / Portable Room Heater / Strip Heating
Split-system Heat Pumps
Central Furnaces
District Steam or Hot Water
Radiant Heaters
Other (Specify)

**HT7a.** What types of heating equipment, if any, were replaced when installing the new heating equipment?

**HT7b.** How many units were removed?

**HT7c.** What was the total capacity of the units you removed?

**HT7d.** Generally, how would you describe the condition of the unit(s) that was removed and replaced?

**HT7e.** What was the efficiency rating and capacity of the units you removed?

**HT7f.** On average, how old were the units that were removed and replaced?

**Table 29-Heating Equipment Comparison for Non-Residential Buildings**

Name of Heating System	Building #/name	Number of Heating Systems	Total Capacity of each system	Capacity units	Efficiency Number/Rating	Efficiency Units (EER, SEER, KW/Ton)	Age of Equipment	Condition of Equipment	Average Usage (hrs/year)	Changes to building usage	Notes
New Unit #1											
Old Unit #1											
New Unit #2											
Old Unit #2											
New Unit #3											
Old Unit #3											

**The following questions pertain to controls and variable speed drives for the cooling equipment. If these were not used, we can skip this section.**

**HT9a.** Did you install any heating or heating controls or variable speed drives?

**HT9b.** What kinds of controls did you install?

Adjustable Speed Drives
Energy Management System
HVAC Controls: Manual thermostat
HVAC Controls: Bypass Timer
HVAC Controls: Time HTock
HVAC Controls: Set-Back Programmable Thermostat
CO2 Sensors/Demand Control Ventilation
Economizers
Other, Specify _____
[Don't know]
[Refused]

**HT9c.** What percentage of the total enclosed floor space in your facility do those new controls serve?

**HT9d.** What kinds of controls, if any, did the new equipment replace?

**HT9e.** Generally, how would you describe the condition of the heating and heating control equipment that was removed and replaced? Was it...

Inoperable (broken)
Poor condition
Fair condition
Good condition
[Don't know]
[Refused]

**HT9f.** On average, how old was the control equipment that was removed and replaced? Would you say...



Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old
[Don't know]
[Refused]

**Table 30-Control Technology for Non-Residential Building Heating Equipment**

Type of Control Unit Installed	Building #/name	Total square footage	% of square footage that control unit serves	Condition of replaced equipment	Age of replaced equipment	Average Usage (hrs/day)	% reduction in operating hours from control technology	Notes
New Control Unit Installed #1								
Baseline #1								
New Control Unit Installed #2								
Baseline #2								
New Control Unit Installed #3								
Baseline #3								

### Job Creation- Heating Equipment

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J16. Does your organization currently have any **full time** staff assigned to the management of this heating equipment?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J17. Does your organization currently have any **part time** or split-time staff assigned to the management of this heating equipment?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J18. Over the last 5 years, how many FTE staff were associated with the management of this heating equipment? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J19. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J20. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

### Attribution- Heating Equipment

A5. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]



b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A6. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A7. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A8. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### Building Retrofit-Refrigeration

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In this section we'll be discussing the refrigeration equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to cooling equipment installed and energy saved. We will proceed through this section by talking about a new piece of equipment installed, and when applicable, the old piece of equipment that was replaced. We'll go through this process for each new piece of equipment installed. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**RF1.** Which of the following kinds of refrigeration equipment did you install through the program?

**RF2a.** What type of refrigeration equipment was already installed?

Refrigeration Types
Residential Sized Refrigerator
Residential Sized Freezer
Larger Standard Refrigerator (>30 cf)
Self Contained - Coffin/Horizontal Case
Self Contained - Vertical Case (multi shelf)
Single-Deck display cases - Open single-deck
Single-Deck display cases -

Multi-Deck (vertical) display cases - Open/reach-in
Multi-Deck (vertical) display cases - Glass-door cases
Walk-Ins - Freezer/Low Temp
Walk-Ins - Cooler/Med Temp
Night covers for display cases
Strip curtains
Glass doors on vertical open display cases
Main door cooler/freezer door gaskets
Auto closers for coolers/freezers
Anti-sweat heat controllers
[Don't know]
[Refused]

- RF2b.** Which kinds of refrigeration controls, if any, did you install through the program?
- RF2c.** Approximately what was the size of each of the units installed to replace existing units? What was the size of the previous unit?
- RF2d.** How many of each type of units were installed? How many of each type of units were already installed?
- RF2e.** Approximately what was the size of the units installed for new refrigeration capacity? What was the size of the previous unit?
- RF2f.** [Ask for units]?
- RF2g.** For the old and new equipment, how many hours per day is the refrigerator/freezer left open, including for stocking and in and out?
- RF2h.** For the old and new equipment, when the refrigerator/freezer is NOT left open, what is the average traffic through the door per hour (# times opened per hour)?
- RF2i.** Does your old or new refrigeration technology have strip curtains or another type of insulation?
- RF3a.** Did you remove the same amount of refrigeration equipment as you installed through the project, in terms of capacity?
- RF3b.** Did you remove more or less equipment than you installed through the project?
- RF3c.** How much more/fewer capacity did you install?
- RF3d** On average, how old was the removed equipment?

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old
[Don't know]
[Refused]

**RF3e.** What percent of the removed capacity was disposed of using the following methods?

Never removed equipment
Sent to a landfill
Moved to another location of our firm
Sold or given to another firm or residence for use
Recycled or sold for scrap
[Don't know]
[Refused]

**Table 31-Refrigeration Equipment Comparison for Non-Residential Buildings**

Type of Refrigeration Technology	Capacity of the unit	# of units	Total Capacity of all units	Hours left open (hrs/day)	Traffic (# of times opened/day)	Insulation?	Age of unit	Amount Removed	% Landfill	% Moved	% Sold	% Scrapped	Notes
New Unit #1								N/A	N/A	N/A	N/A	N/A	
Old Unit #1													
New Unit #2								N/A	N/A	N/A	N/A	N/A	
Old Unit #2													
New Unit #3								N/A	N/A	N/A	N/A	N/A	
Old Unit #3													

### Job Creation- Refrigeration

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J21. Does your organization currently have any **full time** staff assigned to the management and maintenance of this refrigeration equipment?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J22. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of this refrigeration equipment?

- a. Yes -----→ 4.1 **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J23. Over the last 5 years, how many FTE staff were associated with the management and maintenance of this refrigeration equipment? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J24. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J25. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

### Attribution- Refrigeration Equipment

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A9. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM] community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A10. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A11. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A12. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### Building Retrofit-Electric Motors

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**In this section we'll be discussing the electric motor equipment that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to motor equipment installed and energy saved. We will proceed through this section by going through each motor purchased, and the uses for that motor. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.**

**MT1a.** What type of motors did you purchase/install?

<b>Motor Horsepower Category</b>
1-5
6-20
21 - 50
51- 100
101 - 200
200 - 500

**MT1b.** How many of each of these motors did you purchase and install?

**MT1c.** How many of the motors were used in new construction, that is, to operate additional (new) equipment rather than replacing an existing motor?

**MT1d.** How many of the motors were put into storage and not installed? Your best approximation is fine.

**MT1e.** How many of the motors were fitted with variable frequency drives? Your best approximation is fine.

**READ:** *In this survey we use the term "NEMA Premium motors" to refer to very high efficiency motors that meet specific performance criteria developed by the National Electrical Manufacturers Association.*

**MT2.** How many of the motors were NEMA Premium motors or were characterized as "premium efficiency" motors by your motor vendor?

**[FOR EACH MT HP GROUP POPULATED IN MT1 GRID, ASK MT3]**

**NOTE:** GIVEN THAT THE EPACT 1992 STANDARDS WENT INTO EFFECT IN 1997, WE WILL ASSUME THAT MOTORS REPLACED MET EPACT 1992 STANDARDS UNLESS THEY WERE REWOUND, IN WHICH CASE WE WILL ASSUME THEY WERE PRE-EPACT STANDARD MOTORS. IF RESPONDENT CANNOT PROVIDE ANSWERS BY HP CATEGORY, ACCEPT ANSWERS FOR ALL MOTORS.

**MT3a.** How many motors were removed and replaced through this project?

**MT3b.** How many of those motors had been rewound?

**MT3c.** What kind of equipment do motors in this horsepower category drive in your facility?

HVAC equipment
Pump, non-HVAC
Fan, non-HVAC
Air Compressor
Conveyor belt or other materials handling
Production process machinery
Other, Specify _____
[Don't know]
[Refused]

#### HOURS OF OPERATION

**NOTE:** FOR MOTORS ATTACHED TO HVAC EQUIPMENT, WE WILL USE FULL LOAD HOUR ESTIMATES IN TECHNICAL RESOURCE MANUALS. THESE QUESTIONS ARE DESIGNED TO PROBE OPERATING HOURS FOR MOTORS THAT OPERATE PRODUCTION EQUIPMENT.

**READ:** Now I would like to ask you a few questions about the hours of operation for motors that drive machinery *other than* heating, cooling, and ventilation (HVAC). This would include industrial process machinery, pumps used for industrial processes or wastewater systems, compressed air systems, and material handling systems.

**MT4a.** In the past month, how many hours per day did this motor equipment typically operate?

**MT4b.** How many days per week?

- 
- MT4c.** Are there any months during the year when the operating schedule for this equipment differs significantly from what you just described?
- MT4d.** How many hours per day does the motor equipment typically operate during the periods with different operating schedules?
- MT4e.** How many days per week does the equipment typically operate during the periods with different operating schedules?
- MT4f.** How many months per year does the equipment run on the alternative schedule?

**Table 32-Motor Equipment Comparison for Non-Residential Buildings**

Type of Motor Technology	# of Motors installed	Additional or Replacement	Put in Storage	Variable Freq. drive	NEMA Premium	# motors replaced	# motors rewound	Equipment Driven	Hours per day	Days per week	Months diff sched	Hours per day diff sched	Days per week diff sched	Months per year diff sched	Notes
									Only fill-in for non-HVAC, equipment-driven motors						

**Job Creation- Motors**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J26. Does your organization currently have any **full time** staff assigned to the management and maintenance of these motors?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J27. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these motors?

- a. Yes -----> **How many part/split time staff? \_\_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J28. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these motors? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J29. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?

J30. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

**Attribution- Motors**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A13. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A14. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A15. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A16. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?

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### Building Retrofit-Weatherization

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In this section we'll be discussing the weatherization initiatives that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to weatherization equipment installed and energy saved. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**BC1a.** How many buildings were involved with this project? What is each of their square footage? What % of this square footage is heated and cooled?

**BC1b.** Which of the following fuel sources are used for heating the space?

Electricity
Gas
Propane
Fuel Oil
Wood
Biomass
OPEN\Other-RECORD
[Don't know]
[Refused]

**BC2.** In what year was your facility built?

**BC3.** With respect to tracking of energy use, please indicate which of the following applies (note all that apply):

The building has an in-house energy manager	F P N
---	-------

responsible for all energy-related expenses (Full-time/Part-Time/None)		
The building retains outside management to track and evaluate energy use and costs (Y/N)	Y	N
Occupants are provided with regular monthly feedback on energy consumption use (bills or summaries) (Y/N)	Y	N
Occupants are provided with detailed usage pattern information, including daily (or less) usage reports (Y/N)	Y	N
Occupants are provide with feedback on the results of energy-savings measures that are installed as part of this program (Y/N)	Y	N
If Yes, what kind of feedback is provided?		

**Facility**

**FM1.** What is the main business or FUNCTION performed at this facility?

Municipal - Offices
Municipal - Fire or Police Station
Municipal - Water/wastewater facility
Municipal - Storage, garage, etc.
Office
Retail (non-food)
College/University
School
Grocery Store
Restaurant
Health Care (other than Hospital)
Hospital
Hotel or Motel
Warehouse
Construction
Community Service/Church/Temple
Industrial Process/ Manufacturing/ Assembly
Condo Assoc./Apartment Mgr.
Greenhouse
Laundry/Cleaners/Carwash other high water usage business
Auto repair, welding, other high electricity usage business
OPEN\Other - SPECIFY
[Don't know]
[Refused]

**FM2.** How many people (the number of full time equivalent employees) are currently working at this facility?

**FM3.** Is this building or facility a leased space or it owner occupied?

**Table 33-Non-Residential Building Information for Weatherization**

#	Building Name	Total Square Footage	% of sq ft. heated and cooled	Fuel Source for Heating	Year Built	Main Business/Function	How many people (FTE) occupy it	Leased or Owned	Notes
1									
2									
3									
4									
5									
6									
7									
8									

**Weatherization**

**Now we are going to ask questions regarding the specific weatherization measures implemented, and more specific details about the buildings heating and cooling system.**

**WZ1.** Which kinds of Weatherization Measures did you install?

<b>Weatherization Measures</b>
Caulking/weather-stripping
Air sealing
Duct sealing & repair
Attic insulation
Wall insulation
Floor/foundation insulation
Other insulation
Windows
Exterior Doors
Other: specify

**WZ2.** Approximately how much/many weatherization technologies were installed?

**WZ3a.** What was the primary fuel used to heat the building(s) before the weatherization measures were installed?

<b>FUEL TYPE</b>
Natural Gas
Propane/LPG
Fuel Oil
Electricity
Wood and Biomass
Other (specify: _____)

**WZ3b.** What was the primary type space-heating system before the weatherization measures were installed?

<b>SYSTEM TYPE</b>
Central (ducted) warm-air furnace (forced air or gravity, any fuel)
Heat pump
Built in electric units (electric baseboards, ceiling heat)
Steam or hot water system (floor or baseboard radiators, convectors)

Floor, wall or pipeless (ductless) furnace (floor or wall furnace)
Room/space heater (nonportable)
Portable space heater
Other (specify: _____)

**WZ3c.** What supplemental fuel(s) were used to heat the building(s) before the weatherization measures were installed? (See Fuel Type list above)

**WZ4a.** What was the primary fuel used to heat the building(s) after the weatherization measures were installed? (See Fuel Type list above)

**WZ4b.** What was the primary type space-heating system after the weatherization measures were installed? (See System Types list above)

**WZ4c.** What supplemental fuel(s) were used to heat the building(s) after the weatherization measures were installed? (See Fuel Type list above)

**WZ5a.** What type of operable air conditioning system was present in the building(s) before the installation of the weatherization measures?

Central air conditioning/heat pump
Window/wall units
Evaporative cooling system (swamp coolers)

**WZ5b.** How many window/wall air conditioning units were present before the weatherization?

**WZ6a.** What type of operable air conditioning system is present in the building(s) after the installation of the weatherization measures?

Central air conditioning/heat pump
Window/wall units
Evaporative cooling system (swamp coolers)

**WZ6b.** How many window/wall air conditioning units are present after the weatherization?



### Job Creation- Weatherization

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J31. Does your organization currently have any **full time** staff assigned to the management and maintenance of these weatherization upgrades?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J32. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these weatherization upgrades?

- a. Yes -----→ **How many part/split time staff? \_\_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J33. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these weatherization upgrades? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J34. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J35. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

### Attribution- Weatherization

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A17. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A18. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A19. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A20. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### Building Retrofit-Other

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**OE1.** Which kinds of additional measures did you install through the program?

**OE2.** Approximately how many other were purchased?

**OE2a.** Approximately what percentage of your facility's total square footage was served by these purchases?

**OE2b.** How many of the \_\_\_\_\_ purchased using were used to replace existing \_\_\_\_\_ units?

**OE3.** What types of equipment were replaced when installing \_\_\_\_\_?

**OE3a.** Did you remove the same number of \_\_\_\_\_ as you installed through the project?

**OE3b.** Did you remove more or less number of \_\_\_\_\_ than you installed through the project?

**OE3c.** How many more/less \_\_\_\_\_ did you install?

**OE3d.** What was the condition of the removed equipment?

Inoperable (broken)
Poor condition
Fair condition
Good condition
[Don't know]

[Refused]

**OE3e.** How old was the removed equipment?

Less than 5 years old
Between 5 and 10 years old
10 to 20 years old
More than 20 years old

RESPONSE GRID OE3

	OE3	OE3a Remove same amount	OE3b Remove more or less	OE3c Amount removed	OE3d Condition removed equip	OE3e Age removed equip
1	Specify:					
2	Specify:					
3	Specify:					
4	Specify:					
5	Specify:					
6	Specify:					

**COMMENT: In order to understand the potential energy savings results from &MEASURE, we may conduct a follow up call with you.**

**Job Creation- Other**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J36. Does your organization currently have any **full time** staff assigned to the management of this \_\_\_\_\_?

- a. Yes -----> **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J37. Does your organization currently have any **part time** or split-time staff assigned to the management of this \_\_\_\_\_?

- a. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J38. Over the last 5 years, how many FTE staff were associated with the management of this \_\_\_\_\_? [PROBE: List by year]

	Staff	pre-2008	2008	2009/2010	2011+
1	Number of full-time staff...				
2	Number of part-time staff... (in FTEs)				
4	Don't know				



5	Refused				
---	---------	--	--	--	--

- J39. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]
- J40. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]
- a. Please describe the contribution/collaboration role.
  - b. What is the contact information for this collaborator?

**Attribution- Other**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A21. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?
- A22. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- a. If later, how many months later?
- A23. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"
- A24. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Renewables-Solar PV

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In this section we'll be discussing the solar PV installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

PVU1. What is the manufacturer and model number of your PV modules?

PVU1a. How many of that type of PV module have been installed after signing the resolution in [PROGRAM YEAR/ PERIOD]?

PVU2. Are all of these panels still installed?

PVU2a. How many of these panels have been removed?

PVU2b. Why did you remove some of the panels?

PVU3. Are there other types of PV panels installed through the &PROGRAM?

### INSTALLATION

PVN1. When was your PV system installed?

PVN2. Have you modified the system since it was first installed?

PVN2a. Was the modification an addition, an equipment replacement, or something else?

PVN2b. What have you added?

PVN2c. What did you replace?

PVN2d. When did you make these changes?

<a href="#">RECORD MONTH AND YEAR (if possible get date)</a>	_____
[DON'T KNOW]	97
[REFUSED]	98

**PVN2e.** Why did you make these changes?

**PVN3.** What is the tilt angle of your panels, on average, including the angle of your roof (if any)?

**PVN3a.** Do you adjust your panel tilt manually?

**PVN3b.** How many times per year?

**PVN4.** Are your panels on an automatic tracking system?

**[IF RESPONDENT IS UNFAMILIAR WITH THE TERM "Automatic Tracking", SAY "They pivot automatically throughout the day to follow the sun."]**

**PVN4a.** How many degrees east or west from south are your panels facing?

**PVN4b.** Is your tracking system DUAL axis?

[IF RESPONDENT IS UNFAMILIAR WITH THE TERM "Dual Axis", SAY "They pivot both left and right and up and down."]

**PVN5.** Are your panels shaded at all during the year?

		<b>PVN5a.</b> Which months of the year are they shaded at least part of the day?	<b>PVN5b.</b> For each month that they are shaded part of the day, what times of day are they shaded, and what percent of the panels are shaded on average?	
<b>Month</b>			<b>Time of Day</b>	<b>Percent Shaded</b>
January	1		_____	_____
February	2		_____	_____
March	3		_____	_____
April	4		_____	_____
May	5		_____	_____
June	6		_____	_____
July	7		_____	_____
August	8		_____	_____
September	9		_____	_____
October	10		_____	_____
November	11		_____	_____
December	12		_____	_____

**PVN6.** Are your panels snow covered at all during the year?

Month	PVN6a. Which months of the year are they often covered at least part of the time?	PVN6b. For each month that they are snow covered what percent of the time are they covered?
January	1	_____
February	2	_____
March	3	_____
April	4	_____
May	5	_____
June	6	_____
July	7	_____
August	8	_____
September	9	_____
October	10	_____
November	11	_____
December	12	_____
[DON'T KNOW]	97 <b>[GO TO PVP1]</b>	97
[REFUSED]	98 <b>[GO TO PVP1]</b>	98

**PRODUCTION**

**PVP1.** Did your system begin producing electricity on the date it was installed?

**PVP1a** When did it begin producing electricity?

**PVP2.** Has there been any major down-time (more than a few days) since the system was installed?

**PVP2a.** How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible, get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	97
[REFUSED]	98

**PVP2b.** Why was the system down?

**PVP3.** Please tell me your PV system total kW capacity.

**PVP4.** Please tell me the total kWh production of the system since it started generating power. If you don't know exactly, your best estimate is ok.

**PVP4a.** How did you determine the total kWh production? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on inverter?	
Separate utility meter for PV production?	
Computer tracking software	
Estimate	
[Other, Specify]	
[DON'T KNOW]	
[REFUSED]	

**PVP4b** When was the display last reset?

**PVP5.** What percentage of the expected savings has your system actually produced?

**[IF PVP5 NOT EQUAL 100%]**

**PVP5a.** Why do think the actual savings are different from the expected savings?

**Job Creation- Solar PV**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

Does your organization currently have any **full time** staff assigned to the management and maintenance of your solar PV array?

Yes -----> **How many full time staff?** \_\_\_

No

Not sure / don't know

Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your solar PV array?

Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?

No

Not sure / don't know

Over the last 5 years, how many FTE staff were associated with the management and maintenance of these solar PV arrays? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J41. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J42. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

a. Please describe the contribution/collaboration role.

b. What is the contact information for this collaborator

**Attribution- Solar PV**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A25. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A26. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A27. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A28. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Renewables-Wind**

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In this section we'll be discussing the wind turbine installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**WU1.** What is the manufacturer and model number of your wind turbine?

**WU1a.** How many of that type of wind turbine have been installed?

**WU1b.** What is/are the (average) hub height(s) of this/these turbine(s)? [Height at the top of the tower, where the blades connect to the tower]

**WU1c.** What is the manufacturer's rated capacity of the turbine (in kW)?

**WU1d.** What is the rotor diameter (diameter of the blades)? [in feet, inches, or meters]

**WU2.** Are all of these turbines still installed?



**WU2a.** If not, how many of these turbines have been removed?

**WU2b.** Why did you remove some of the turbines?

**WU3.** Are there other types of Wind turbines installed?

**INSTALLATION**

**WN1.** When was your wind power system installed?

**WN2.** Have you modified the system since it was first installed?

**WN2a.** Was the modification an addition, an equipment replacement, or something else?

**WN2b.** What have you added?

**WN2c.** What did you replace?

**WN2d.** When did you make these changes?

**WN2e.** Why did you make these changes?

**WN3.** From what direction is the prevailing wind?

North	
North-East	
East	
South-East	
South	
South-West	
West	
North-West	
[DON'T KNOW]	
[REFUSED]	

WN3a.

	<b>WN3a1.</b> What are the nearest tall obstructions (e.g. trees, buildings, etc...) to your wind turbines in the direction of the prevailing wind?	<b>WN3a2. How tall is this obstruction?</b> (in feet or yards – indicate units)	<b>WN3a3. How far is this obstruction from the turbine?</b> (in feet or yards – indicate units)	<b>WN3a4. What direction is this obstruction from the turbine?</b> (e.g. north, south-west, etc.)
Obstruction #1				
Obstruction #2				
Obstruction #3				
Obstruction #4				

**PRODUCTION**

WP1. Did the turbine begin producing electricity on the date it was installed?

WP1a. When did it begin producing electricity?

WP2. Has there been any major down-time (more than a few days) with the system since installation, other than times when the wind wasn't blowing strongly enough to generate power?

WP2a. How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible get day)	
FOR HOW LONG: RECORD Months, Years, Days (if possible)	

**WP2b.** Why was the system down?

**WP3.** Please tell me the total kWh production of the system since it started generating power. If you don't know exactly, your best estimate is ok.

**WP3a.** How did you determine the total kWh production? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**WP3b.** When was the display last reset?

**WP4.** What was the manufacturer’s estimated production for the system, in kWh?

**WP5.** What percentage of the expected savings has your system actually produced?

**WP5a. [IF WP5 NOT EQUAL 100%]** Why do you think the actual savings are different from the expected savings?

**Job Creation- Wind**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J43. Does your organization currently have any **full time** staff assigned to the management and maintenance of your wind turbines?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J44. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your wind turbines?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J45. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these wind turbines? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J46. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J47. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

### **Attribution- Wind**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A29. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A30. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A31. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A32. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Renewables-Solar Water Heater**

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In this section we'll be discussing the solar water heater installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**SWU1.** What is the manufacturer and model number of your solar water heating modules?

**SWU1a.** How many of that type of module have been installed?

**SWU2.** Are all of these modules still installed?

**SWU2a.** How many of these modules have been removed?

**SWU2b.** Why did you remove some of the modules?

**SWU3.** Are there other types of solar water heater modules installed?

**In Either Case**

**SWU4.** What type of solar water heating modules were installed?

Unglazed	
Glazed	
Evacuated tube	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWU5.** What is the total square footage surface area of this installation?

**ACCESSORIES**

**SWA1.** Most solar hot water systems have a pump that circulates water within the modules. What is the manufacturer of your system's pump?

**SWA1a.** What is the model number?

**SWA1b.** What is the motor horsepower?

**SWA2.** How is your pump powered? Did you install a small solar electric panel to power the pump? Or does the pump run off your regular electricity, or something else?

Small solar electric panel	
Regular electricity	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWA3.** How many tanks are heated?

**SWA4.** What is the capacity of each of these tanks?

**INSTALLATION**

**SWN1.** When was your solar water heating system installed?

**SWN2.** Have you modified the system since it was first installed?

**SWN2a.** Was the modification an addition, an equipment replacement, or something else?

Addition	
Replacement	
Addition and replacement	

Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWN2b.** What have you added? [Probe: Does this impact capacity?]

**SWN2c.** What did you replace? [Probe: Does this impact capacity?]

**SWN2d.** When did you make these changes?

**SWN2e.** Why did you make these changes?

**SWN3.** What is your solar water heating system used for?

Domestic Hot Water	
Space Heating	
Pool Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWN3a.** What is the size of the pool?

[CAPACITY – enter gallons]	
[or SIZE – feet by depth]	
[DON'T KNOW]	
[REFUSED]	

**SWN3b.** Is this pool...

Indoor	
Outdoor above ground	
Outdoor in ground	
[DON'T KNOW]	
[REFUSED]	

**SWN4.** How many degrees east or west from south do your modules face?

**SWN5.** What is the tilt angle of your modules, on average, including the angle of your roof (if any)?

**SWN6.** Are your modules shaded at all during the year?



	<b>SWN6a.</b> Which months of the year are they shaded at least part of the day?	<b>SWN6b.</b> For each month that they are shaded part of the day, what times of day are they shaded, and what percent of the panels are shaded on average?	
<b>Month</b>		<b>Time of Day</b>	<b>Percent Shaded</b>
January		_____	_____
February		_____	_____
March		_____	_____
April		_____	_____
May		_____	_____
June		_____	_____
July		_____	_____
August		_____	_____
September		_____	_____
October		_____	_____
November		_____	_____
December		_____	_____
[DON'T KNOW]			
[REFUSED]			

**SWN7.** Are your modules snow covered at all during the year?

<b>Month</b>	<b>SWN7a.</b> Which months of the year are they often covered at least part of the time?	<b>SWN7b.</b> For each month that they are snow covered what percent of the time are they covered?
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		
[DON'T KNOW]		
[REFUSED]		

**PRODUCTION**

**SWP1.** Is your solar water heating system used year-round?

**SWP1a.** In what months is it used?

<b>Month</b>	
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	
[DON'T KNOW]	
[REFUSED]	

**SWP2.** Has there been any major down-time (more than a few days) with the system since installation?

**SWP2a.** How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	
[REFUSED]	

**SWP2b.** Why was the system down?

**[IF SWN3 NOT EQUAL "Domestic Hot Water" GO TO SWP5]**

**SWP3.** About how much hot water do you use per month (in gallons)?

**SWP3a.** What is this estimate based on?

**SWP3b.** [Non-Residential] What type of facility is this?

Laundry	
Restaurant	
Hospital	
Nursing Home	
Dormitory	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWP3c.** How many residents live at the facility ?

**SWP4.** At what time of day does most of your water usage occur?

Before 6 AM	
Between 6 AM and noon	
Between noon and 6 PM	
Between 6 PM and 10 PM	
After 10 PM	
Other	
[DON'T KNOW]	
[REFUSED]	

**SWP5.** What temperature, in degrees Fahrenheit, does the water in the tank(s) reach on a sunny day in winter?

**SWP6.** What temperature, in degrees Fahrenheit, does the water in the tank(s) reach on a sunny day in summer?

**SWP7.** What is your supplemental source for water heating?

Natural Gas Tankless Water Heater	
Natural Gas Tank Style Water Heater	
Natural Gas Boiler	
Propane Fired Water Heater or Boiler	
Oil Fired Water Heater or Boiler	
Electric Tankless Water Heater	
Electric Tank Style Water Heater	
Electric Heat Pump Water Heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWP8.** Did the solar water heater replace an existing water heater?

[YES]	
[NO]	
[DON'T KNOW]	
[REFUSED]	

**SWP8a.** What was your previous source for water heating?

Natural Gas Tankless Water Heater	
Natural Gas Tank Style Water Heater	
Natural Gas Boiler	
Propane Fired Water Heater or Boiler	
Oil Fired Water Heater or Boiler	
Electric Tankless Water Heater	
Electric Tank Style Water Heater	
Electric Heat Pump Water Heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**SWP9.** What percentage of the expected savings has your system actually produced?

**SWP9a.** Why do think the actual savings are different from the expected savings?

**Job Creation- Solar Water Heater**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J48. Does your organization currently have any **full time** staff assigned to the management and maintenance of your solar water heaters?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J49. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your solar water heaters?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J50. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these solar water heaters? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J51. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J52. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

**Attribution- Solar Water Heater**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A33. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]

- 
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?
- A34. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- a. If later, how many months later?
- A35. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"
- A36. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Renewables-Biomass**

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In this section we'll be discussing the biomass installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

**BMU1.** What is the manufacturer and model number of your biomass units?

**BMU1a.** How many of that type of unit have been installed?

**BMU2.** Are all of these units still installed?

**BMU2a.** How many of these units have been removed?

**BMU2b.** Why did you remove some of the units?

**BMU3.** Are there other types of biomass units installed?

#### **In Either Case**

**BMU4.** How would you describe the biomass system you use? Is it a: **[CIRCLE ALL THAT APPLY]**

Pellet stove, furnace, or boiler	
Wood chip furnace or boiler	
Log wood furnace or boiler	
Biomass furnace or boiler	
Wood stove	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMU5.** What is the total heating capacity of biomass units (in BTUs)?

**INSTALLATION**

**BMN1.** When was your biomass system installed?

**BMN2.** How do you use the energy from the biomass system? **[CIRCLE ALL THAT APPLY]**

Space Heating	
Water Heating	
Industrial Process Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMN3.** Is this biomass system installed indoors, in space that is heated in winter?

**BMN4.** Have you modified the system since it was first installed?

**BMN4a.** Was the modification an addition, an equipment replacement, or something else?

Addition	
Replacement	
Addition and replacement	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMN4b.** If applicable, what have you added?

**BMN4c.** If applicable, what did you replace?

**BMN4d.** When did you make these changes?

**BMN4e.** Why did you make these changes?

**FUELS**

**BMF1.** What is your primary source of fuel? **[CIRCLE ALL THAT APPLY]**

Wood logs	
Wood chips	
Biomass pellets [specify type]	
Corn	

Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMF1a.** For the wood, do you primarily burn hardwoods or softwoods?

Primarily (over 75%) Hardwood (oak, maple)	
Primarily (over 75%) Softwood (pines; alders)	
Mix of both	
[DON'T KNOW]	
[REFUSED]	

**BMF1b.** How long is this wood allowed to dry before burning?

Less than 6 months	
6-12 months	
greater than 12 months	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMF2.** What percent of your fuel would you estimate that you get from the following sources?

Byproducts from another on-site process: [ENTER PERCENT]	
Harvested on-site: [ENTER PERCENT]	
Purchased from vendor: [ENTER PERCENT]	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**[IF SUM OF RESPONSES TO BGF2 <100%, PROMPT SAYING "These responses add to <Sum of BGF2 Responses>. Would you to adjust the categories, or is there another source not mentioned?"]**

**[IF BMF4: "Purchased from Vendor" > 30%, ASK BMF3, ELSE GO TO BMF4]  
Purchased Fuel**

BMF3. Who is the [supplier or manufacturer] of the fuel you purchase?

[Supplier 1] \_\_\_\_\_  
[Supplier 2] \_\_\_\_\_

**[IF SUM OF BMF4: "Harvested on Site" AND "Byproducts ..." IS GREATER THAN 30%, ASK BMF4 THROUGH BMF4d, ELSE GO TO BMF5]**

On-Site Produced Fuel

BMF4. Do you mechanically dry your on-site produced fuel before using it?

BMF4a. What type of system do you use to dry your fuel? [\[READ CHOICES\]](#)

Fan Only	
Fuel-fired drying system	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMF4b.** What type of fuel do you use for the fuel drying system.

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMF4c.** How much fuel do you burn per month in your drying system?

**BMF4d.** What is the total horsepower of your drying system fans?

**BMF4e.** How many hours per year would you say these fans run?

**BMF5.** What is the average moisture content of the fuel when burned?

**ACCESSORIES**

**BMA1.** Are there any electrical or mechanical devices that assist in feeding fuel to your system?

**BMA1a** How do you feed the fuel into the biomass system? [Probe: conveyor, chute, shovels]

**BMA1b.** What is the total horsepower of motors used to feed fuel to your biomass system?

**BMA1c.** How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	
[REFUSED]	

**BMA2.** Does your biomass system require mechanical air circulation to operate?

**BMA2a.** What is the total horsepower of motors used to circulate air?

**BMA2b.** How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	
[REFUSED]	

**BMA3.** Does your biomass system require mechanical water circulation to operate?

**BMA3a.** What is the total horsepower of the pumps used to circulate water?

**BMA3b.** How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	97
[REFUSED]	98

**PRODUCTION**

BMP1. During which months of the year is this biomass system used?

BMP2. Did your system begin operating on the date it was installed?

BMP2a When did it begin operating?

BMP3. Has there been any major down-time (more than a few days) with the system since installation?

BMP3a. How long was the most substantial downtime period, and when did it occur?

BMP3b. Why was the system down?

**[LOOP THROUGH BMP4 THROUGH BMP5b FOR EACH RESPONSE TO BMN2 (type of biomass system)]**

**BMP4.** What percentage of your <BMN2 RESPONSE> usage is provided by the biomass system?

**BMP5.** What type of back-up fuel do you use for your <BMN2 RESPONSE> system.

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
REFUSED	
DON'T KNOW	

**BMP5a.** How much fuel does this backup <BMN2 RESPONSE> system use per year?

**BMP5b.** How much does your backup <BMN2 RESPONSE> system fuel cost per year?

**BMP5c.** What type of <BMN2 RESPONSE> system is this?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMP5d.** Was this backup <BMN2 RESPONSE> system in place before the biomass system was installed?

**BMP5e.** What type of system was used prior to the <BMN2 RESPONSE> biomass system?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
None	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMP5f.** What type of fuel was used by the system that your biomass system replaced?

Natural Gas	
Electricity	
Oil	
Propane	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BMP5g.** How much fuel did this <BMN2 RESPONSE> system use per year prior to the biomass system installation?

**BMP5h.** How much did this <BMN2 RESPONSE> system's fuel cost per year prior to the biomass system installation?

**BMP6.** What percentage of the expected energy savings has your system actually produced?

**BMP6a. [IF BMP6 NOT EQUAL 100%]**

Why do think the actual savings are different from the expected savings?

**Job Creation- Biomass**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J53. Does your organization currently have any **full time** staff assigned to the management and maintenance of your biomass technologies?

- a. Yes -----> 3.1. **How many full time staff?** \_\_
- b. No
- c. Not sure / don't know

J54. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your biomass technologies?

- a. Yes -----> 4.1 **How many part/split time staff?** \_\_ **in FTEs?**
- b. No
- c. Not sure / don't know

J55. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these biomass technologies? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J56. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J57. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

## Attribution- Biomass

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A37. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?
- If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
  - If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?
- A38. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- If later, how many months later?
- A39. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"
- A40. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## Renewables-Biogas

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**In this section we'll be discussing the biogas installations that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to renewable energy generated. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.**

**BGU1.** What is the manufacturer and model number of your biogas units?

**BGU2a.** How many of that type of unit have been installed through the &PROGRAM?

**BGU3.** Are all of these units still installed?

**BGU3a.** How many of these units have been removed?

**BGU3b.** Why did you remove some of the units?

**INSTALLATION**

**BGN1.** When was your biogas system installed?

**BGN2.** Have you modified the system since it was first installed?

**BGN2a.** Was the modification an addition, an equipment replacement, or something else?

[Addition]	
[Replacement]	
[Addition and replacement]	
[Other, Specify]	
[DON'T KNOW]	
[REFUSED]	

**BGN2b.** What have you added?

**BGN2c.** What did you replace?

**BGN2d.** When did you make these changes?

**BGN2e.** Why did you make these changes?

**BIOGAS SOURCES**

**BGS1.** Does your biogas come from an influent or manure digester, landfill gas, or another source?  
[\[CIRCLE ALL THAT APPLY\]](#)

Digester	
Landfill Gas	
Other, specify	
[DON'T KNOW]	
[REFUSED]	

**BGS2.** What percentage of the following types of materials make up your biodigester influent, not including animal bedding? [\[READ LIST AND ENTER PERCENT FOR EACH\]](#)

Manure \_\_\_\_\_  
 Other Agricultural Waste \_\_\_\_\_  
 Other, specify \_\_\_\_\_

[\[IF SUM OF RESPONSES TO BGS2 <100%, PROMPT SAYING "These responses add to <Sum of BGS2 Responses>. Would you to adjust the categories, or is there another source not mentioned?"\]](#)

[\[IF BGS2 "Manure" response <10%, GO TO BGS3\]](#)

**BGS2a.** Of the manure, what percent comes from the following animals?

<b>ENTER PERCENT FOR EACH</b>	
Chicken	_____
Cow	_____
Swine	_____



Other, Specify	_____
Other 2, Specify	_____
[DON'T KNOW]	97
[REFUSED]	98

[IF SUM OF RESPONSES TO BGS2a <100%, PROMPT SAYING "These responses add to <Sum of BGS2a Responses>. Would you to adjust the categories, or is there another source not mentioned?"]

BGS2b. Does your manure mixture include animal bedding?

BGS3. What is the total volume or mass of material fed to your digester on average, per month?

PRODUCTION

BGP1. What percentage of the biogas produced are you... [READ LIST, ENTER PERCENT FOR EACH]

Using onsite in a generator	_____
Using by digester for heating influent	_____
Using in vehicles	_____
Flaring onsite	_____
Selling off site	_____
Other, Specify	_____
[DON'T KNOW]	
[REFUSED]	

[IF SUM OF RESPONSES TO BGP1 <100%, PROMPT SAYING "These responses add to <Sum of BGP1 Responses>. Would you to adjust the categories, or is there another use not mentioned?"]

BGP2. Did your system begin operating on the date it was installed?

BGP2a When did it begin operating?

BGP3. Are there differences in energy production seasonally or between years

BGP3a. Describe the production changes the system sees yearly, and between years.

BGP4. Are there differences in how you use the biogas seasonally or between years?

BGP4a. Describe the usage changes the system sees yearly, and between years.

BGP5. Has there been any major down-time (more than a few days) with the system since installation?

BGP5a. Why was the system down?

BGP5b. Please describe what components of the system stopped operating, and whether other components were able to operate?

BGP5c. How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	
[REFUSED]	

[IF BGP1: "Using onsite in a generator" = 0%, GO TO BGP8]

Electrical Generation

BGP6. Please tell me your rated generation capacity for all operating generators, not including backup generator capacity (in kW).

BGP7. Please tell me the total kWh production of the system since it started generating power. If you DON'T KNOW exactly, your best estimate is ok.

BGP7a. How did you determine the total kWh production? [READ CHOICES, CIRCLE ALL THAT APPLY]

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP7b When was the display last reset?

[IF BGP1: "Using onsite for heating" = 0%, "Using in vehicles"=0%, "Used by digester for heating influent"=0%, and "Selling off site"=0%, GO TO BGP10]

Fuel Production

BGP8. Please tell me the total amount of biogas produced by the system for use in vehicles, heating, and for sale . If you DON'T KNOW exactly, your best estimate is ok.

BGP8a. How did you determine the total production? [READ CHOICES, CIRCLE ALL THAT APPLY]

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BGP8b** When was the display last reset?

**BGP9.** How did you determine the total amount of biogas produced? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**[IF BGP1: "Using onsite for heating" > 0%, ASK BGP10 through BGP11h, ELSE GO TO BGP12]**

**Other Heating Sources**

BGP10. What percentage of your heating usage is provided by the biogas system?

BGP11. What type of back-up fuel do you use for your biogas heating system?

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BGP11a.** How much fuel does this backup heating system use per year?

**BGP11b.** How much does your backup heating system fuel cost per year?

**BGP11c.** What type of heating system is this?

Furnace
Boiler
Tank water heater
Tankless water heater
Other, Specify
[DON'T KNOW]
[REFUSED]

**BGP11d.** Was this heating system in place before the biogas system was installed?

**BGP11e.** What type of system was used prior to the heating biogas system?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
None	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BGP11f.** What type of fuel was used by the system that your biomass system replaced?

Natural Gas	
Electricity	
Oil	
Propane	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**BGP11g.** How much fuel did this heating system use per year prior to the biogas system installation?

**BGP11h.** How much does this heating system's fuel cost per year prior to the biogas system installation?

**[IF BGP1: "Using in vehicles" > 0%, ASK BGP12, ELSE GO TO BGP13]**

BGP12. What fuels did your vehicles use prior to conversion to biogas?

Gasoline	
Diesel	
Propane	
Natural Gas	
[DON'T KNOW]	
[REFUSED]	

BGP13. What percentage of the expected savings has your system actually produced?

BGP13a. **[IF BGP13 NOT EQUAL 100%]**

Why do think the actual savings are different from the expected savings?

### **Job Creation- Biogas**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J58. Does your organization currently have any **full time** staff assigned to the management and maintenance of your biogas technologies?

- a. Yes -----→ **How many full time staff? \_\_**
- b. No
- c. Not sure / don't know

J59. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your biogas technologies?

- a. Yes -----→ **How many part/split time staff? \_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J60. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these biogas technologies? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J61. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J62. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

**Attribution- Biogas**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A41. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A42. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

a. If later, how many months later?

A43. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A44. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?

### Renewables-Other

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OU1. What is the manufacturer and model number of your \_\_\_\_\_ units?

OU1a. How many of that type of unit have been installed?

OU2. Are all of these units still installed?

OU2a. How many of these units have been removed?

OU2b. Why did you remove some of the units?

OU3. Did you install any other kinds of energy efficiency measures through the program?

OU4. When was your \_\_\_\_\_ system installed?

OU5. How do you use the energy from the \_\_\_\_\_ system? **[CIRCLE ALL THAT APPLY]**

Space heating	
Water Heating	
Industrial Process Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

### Job Creation- Other

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J63. Does your organization currently have any **full time** staff assigned to the management and maintenance of your \_\_\_\_\_?

- a. Yes -----> **How many full time staff?** \_\_\_\_
- b. No
- c. Not sure / don't know

J64. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your \_\_\_\_\_?

- a. Yes -----→ **How many part/split time staff? \_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J65. Does your organization currently have any **full time** staff assigned to the management and maintenance of these \_\_\_\_\_?

- a. Yes -----→ **How many full time staff? \_\_**
- b. No
- c. Not sure / don't know

J66. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these \_\_\_\_\_?

- a. Yes -----→ **How many part/split time staff? \_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J67. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these \_\_\_\_\_? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J68. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J69. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

**Attribution- Other**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A45. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]

- 
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?
- A46. Without the resolution would you have installed <measure> at the same time, earlier, later or never?
- a. If later, how many months later?
- A47. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?
- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"
- A48. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?
- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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### **Alternative Fuel Vehicles**

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In this section we'll be discussing the alternative fuel vehicles that your community purchased after signing the resolution. The first section of questions is intended to understand the vehicle fleet as a whole. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

- AV3. Can you estimate the total number of alternative fuel vehicles you purchased during the [PROGRAM YEAR/ PERIOD] period that received [PROGRAM] rebates? [PROBE: What are the fuel types, make, model and year?]
- AV4. Did these alternative fuel vehicles replace existing vehicles in your fleet?
- a. If YES to question AV2: Do you know the make, model, year and fuel type of each of the replaced vehicles, and the make, model, year and fuel type of the alternative fuel car that replaced it?
- b. If NO to question AV2: If you had not bought the alternative fuel vehicles, what type of car would have been purchased in their place? [PROBE: If available, ask about make, model, year and fuel type of each of new alternative fuel vehicles, and the non-alternative fuel vehicles they would have purchased instead.]What type of activities were the new, alternative fuel vehicles used for? Please list for each vehicle. Can you estimate what the average annual mileage was for these alternative fuel vehicles during this timeframe?
- c. If the alternative fuel vehicle HAD REPLACED an existing vehicle: What were the activities and the average annual mileage for the vehicle it replaced? [PROBE: How did the driving patterns for the new, alternative fuel car compare with the driving patterns of the car it replaced?]

- 
- d. If the alternative fuel vehicle HAD NOT REPLACED an existing vehicle: What would the average annual mileage have been of the non-alternative fuel vehicle that would have been purchased instead?

AV5. Can you estimate how long you expect each alternative fuel vehicle to last before needing replacement?

- a. If the alternative fuel vehicle HAD REPLACED an existing vehicle: In [PROGRAM YEAR/ PERIOD], how long did you expect the vehicle that was replaced to last before needing replacement? [PROBE: Was their purchasing timeframe expedited due to the [PROGRAM] rebate program or any other program, or was the original vehicle ready to be replaced anyway.]
- b. If the alternative fuel vehicle HAD NOT REPLACED an existing vehicle: If you had purchased a non-alternative vehicle in [PROGRAM YEAR/ PERIOD] instead of the alternative fuel vehicle, how long would you expect it to last before needing replacement?



	Qty	Fuel Type	Manufacturer	Model	Year	Activities	Miles / Year	Expected Life before Replacement from [PROGRAM YEAR/ PERIOD]	Notes
New Alt. Fuel Vehicle #1									
Old Vehicle #1									
Hypothetical Non-Alt. Fuel Vehicle #1									
New Alt. Fuel Vehicle #2									
Old Vehicle #2									
Hypothetical Non-Alt. Fuel Vehicle #2									
New Alt. Fuel Vehicle #3									
Old Vehicle #3									
Hypothetical Non-Alt. Fuel Vehicle #3									
New Alt. Fuel Vehicle #4									
Old Vehicle #4									
Hypothetical Non-Alt. Fuel Vehicle #4									

- AV6. What were the overall goals of your alternative vehicle purchases in [PROGRAM YEAR/ PERIOD]?
- AV7. Are there policies, legislation, or other organizational goals that influenced these purchases? [PROBE: Why was your organization motivated to purchase these vehicles? Were you required? Was it a state policy?]
- AV8. What non-energy savings goals did you have? [PROBE: Was job creation one of the goals? Was carbon emissions reduction one of the goals?]
- AV9. Please describe how you identified the need for these vehicles. [PROBE: Did you need to increase your fleet, replace vehicles that needed to be replaced, or both?]
- AV10. What was the timeline for the expected program goals to be met? [PROBE]
  - a. 0 to 1 years?
  - b. 2 to 3 years?
  - c. 3 to 5 years?
  - d. 5 or more years?
- AV11. Do you have any program reports or data to show progress toward these goals?
- AV12. How does the program work to achieve the goals you stated above? [PROBE: What were actions taken and objectives achieved?]

**Job Creation- Alternative Fuel Vehicle**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

- J70. Does your organization currently have any **full time** staff assigned to the management and maintenance of your fleet of vehicles?
  - a. Yes -----→ **How many full time staff? \_\_**
  - b. No
  - c. Not sure / don't know
- J71. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your fleet of vehicles?
  - a. Yes -----→ **How many part/split time staff? \_\_ in FTEs?**
  - b. No
  - c. Not sure / don't know
- J72. Does your organization currently have any **full time** staff assigned to the management and maintenance of these vehicles?
  - a. Yes -----→ **How many full time staff? \_\_**
  - b. No
  - c. Not sure / don't know
- J73. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these rebated vehicles?
  - a. Yes -----→ **How many part/split time staff? \_\_ in FTEs?**
  - b. No
  - c. Not sure / don't know

J74. Over the last 5 years, how many FTE staff were associated with the management and maintenance these rebated vehicles? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J75. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J76. Without these rebated vehicles, how many FTE staff would have been associated with the management and maintenance of your fleet? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J77. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator

**Attribution- Alternative Fuel Vehicle**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A49. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to purchase this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on purchasing these vehicles? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to purchase these vehicles? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to purchase these vehicles? Can you explain why?

A50. Without the resolution would you have purchased <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A51. Without the resolution, would you have purchased <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have purchased <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A52. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have purchased the same amount, less, more, or not have purchased anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> purchased because of the resolution?"

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### **Purchased Renewable Energy**

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In this section we'll be discussing the purchase of renewable energy that your community implemented after signing the resolution. The first section of questions is intended to understand the project as a whole as it relates to the total amount of renewable energy purchased. The second section will discuss job impacts related to the project. Finally, the third section will focus on the influence the resolution had on making this project happen.

RE5. What type of Renewable Energy did your community purchase? [PROBE: Was it a REC style program? Was the energy generated within [STATE] or another place?]

RE6. Can you estimate how much renewable energy your community had purchased in 2007?

RE7. Can you estimate how much renewable energy your community has purchased since signing the resolution in [PROGRAM YEAR/ PERIOD]?

RE8. Can you estimate how many years into the future your community will purchase renewable energy? [PROBE: At the same rate? Or an increasing/decreasing pace?]

### **Job Creation- Purchased Renewable Energy**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J78. Does your organization currently have any **full time** staff assigned to the management of purchased renewable energy?

- a. Yes -----> **How many full time staff? \_\_\_**
- b. No
- c. Not sure / don't know

J79. Does your organization currently have any **part time** or split-time staff assigned to the management of purchased renewable energy?

- a. Yes -----> **How many part/split time staff? \_\_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J80. Over the last 5 years, how many FTE staff were associated with the management of purchased renewable energy? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J81. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J82. Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? [PROBE: List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

**Attribution- Purchased Renewable Energy**

A53. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides the resolution that influenced your community to install this <measure>?

- a. If YES, could you estimate the percent of influence these incentives had on installing this equipment? Could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? [ NOTE: make sure percentages add to 100%]
- b. If NO, could you estimate the percent of influence being an [PROGRAM]community and signing the resolution had on your decision to install this equipment? Can you explain why?

A54. Without the resolution would you have installed <measure> at the same time, earlier, later or never?

- a. If later, how many months later?

A55. Without the resolution, would you have installed <measure> of the same efficiency as what you installed, lower efficiency, or higher efficiency?

- a. If "lower": Without the resolution, would you have installed <measure> that was "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually installed?"

A56. Without the resolution, how different would the <number/size> of the <equipment type> have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

- a. If less or more, by what percentage did you change the amount of <equipment type> installed because of the resolution?"

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## L.29. PROJECT MANAGER INTERVIEW GUIDE

*This interview guide is intended for evaluating specific activities conducted by the SEO under the [PROGRAM YEAR/ PERIOD] programmatic activity titled, [PROGRAM]. As part of this PA, the SEO provided support to various biomass demonstration projects.*

*This guide will collect data and information to determine the outcomes of the demonstration projects and the role the SEO played in supporting these initiatives.*

*The target respondents for these interviews are the Program Managers for the biomass demonstration projects that received support from the SEO during [PROGRAM YEAR/ PERIOD].*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and the evaluation team expects that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This guide will be used to collect information to determine and obtain the following:

- Activities SEO conducted in support of demonstration project;
- Outcomes from demonstration project;
- Attribution of outcomes to SEO.

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant Amount:	
Grant Scope:	
2008 Budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	
Interviewer Name:	
Interviewer Organization:	

### SCHEDULE INTERVIEW

*The evaluation team will briefly contact project representatives to schedule an interview. The interviewer will screen for Project Managers or other individuals who worked on the respective demonstration project.*

**BACKGROUND STATEMENT**

This interview is intended to familiarize our team with the [STATE] Department of Commerce's PY [PROGRAM YEAR/PERIOD] activities conducted under their program entitled "Renewable Projects." More specifically, we are interested in the support you received from the State Energy Office (SEO) for [PROJECT NAME]. The information you supply will be used to characterize the SEO's involvement in this demonstration project, and the impact of these actions. The US Department of Energy's State Energy Program contracted us to talk with those stakeholders who received support from the [STATE] SEO's renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

#### **RESPONDENT ELIGIBILITY SCREENING**

To start, I need to understand your role in [PROJECT NAME] during program year [PROGRAM YEAR/PERIOD].

- S1. Can you confirm that you were involved in the \_\_\_\_\_ biomass project in [STATE] in [PROGRAM YEAR/PERIOD]? If yes, how so?
- a. If no, can you give us the name and contact information of the person who was?
- S2. What was your title and responsibilities in [PROGRAM YEAR/PERIOD]?
- S3. For how many months/years did, or have you served in that capacity? **[PROBE:]**
- e. Pre-2008 to 2008
  - f. 2008 to 2009-2010/ARRA period

#### **PROJECT OVERVIEW & SEO ACTIVITIES**

A1. What was the focus of [PROJECT NAME]?

- a. Can you provide a timeline and details of the project?

A2. What were the goals of the project?

A3. Do you remember the [STATE] SEO's involvement in supporting this project? (Specifically related to non-funding support)

- a. If yes, can you describe the specific activities that they performed?
- b. Can you provide the name(s) of the SEO staff that provided this support?

#### **PROJECT OUTCOMES**

The following questions are designed to understand what effect **[PROJECT NAME]** had on the biomass market.

A1. What were the results of the project? Were the results published/distributed? If yes, how and by whom?

A2. Is the technology from this demonstration project still in operation?

- a. If no, approximately what date did your company stop using this technology?

A3. What happened after the project was complete? Are you aware of any biomass projects that were implemented, within your company or elsewhere, as a result of this project's findings?

- a. If yes, can you identify these projects and provide contact information for them?

A4. Did the biomass market for this technology change as a result of this demonstration project?

- a. If yes, how so?
- b. If no, why not?

#### **Attribution**

Finally, I would like to ask a series of questions to better understand the SEO's influence on **[PROJECT NAME]**.

A1. Were there any other support (i.e. rebates, tax breaks, grants etc.) besides the [STATE] SEO that provided assistance to this project?

- a. If YES, could you estimate the percent of influence these other supports had on this project? Can you estimate the percent of influence the SEO support had on this project? **[Ask for a percent contribution for each, making sure they add up to 100%]**
- b. If NO, could you estimate the percent of influence the [STATE] SEO had on this project?

A2. Without the [STATE] SEO, would this project have started at the same time, earlier, later or never?

- a. If later, how many months later?

#### **Biomass**

BMU1. What is the manufacturer and model number of your biomass units?

BMU1a. How many of that type of unit have been installed?

BMU2. Are all of these units still installed?

BMU2a. How many of these units have been removed?

BMU2b. Why did you remove some of the units?

BMU3. Are there other types of biomass units installed?

**In Either Case**

BMU4. How would you describe the biomass system you use? Is it a: **[CIRCLE ALL THAT APPLY]**

Pellet stove, furnace, or boiler	
Wood chip furnace or boiler	
Log wood furnace or boiler	
Biomass furnace or boiler	
Wood stove	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMU5. What is the total heating capacity of biomass units (in BTUs)?

**INSTALLATION**

B1. When was your biomass system installed?

B2. How do you use the energy from the biomass system? **[CIRCLE ALL THAT APPLY]**

Space Heating	
Water Heating	
Industrial Process Heating	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

B3. Is this biomass system installed indoors, in space that is heated in winter?

B4. Have you modified the system since it was first installed?

B4a. Was the modification an addition, an equipment replacement, or something else?

Addition	
Replacement	
Addition and replacement	
Other, Specify	

[DON'T KNOW]	
[REFUSED]	

B4b. If applicable, what have you added?

B4c. If applicable, what did you replace?

B4d. When did you make these changes?

B4e. Why did you make these changes?

**FUELS**

BMF1. What is your primary source of fuel? [CIRCLE ALL THAT APPLY]

Wood logs	
Wood chips	
Biomass pellets [specify type]	
Corn	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF1a. For the wood, do you primarily burn hardwoods or softwoods?

Primarily (over 75%) Hardwood (oak, maple)	
Primarily (over 75%) Softwood (pines; alders)	
Mix of both	
[DON'T KNOW]	
[REFUSED]	

BMF1b. How long is this wood allowed to dry before burning?

Less than 6 months	
6-12 months	
greater than 12 months	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF2. What percent of your fuel would you estimate that you get from the following sources?

Byproducts from another on-site process: [ENTER PERCENT]	
Harvested on-site: [ENTER	

PERCENT]	
Purchased from vendor: [ENTER PERCENT]	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

**[IF SUM OF RESPONSES TO BGF2 <100%, PROMPT SAYING "These responses add to <Sum of BGF2 Responses>. Would you to adjust the categories, or is there another source not mentioned?"]**

**[IF BMF4: "Purchased from Vendor" > 30%, ASK BMF3, ELSE GO TO BMF4]**

**Purchased Fuel**

BMF3. Who is the [supplier or manufacturer] of the fuel you purchase?

[Supplier 1] \_\_\_\_\_

[Supplier 2] \_\_\_\_\_

**[IF SUM OF BMF4: "Harvested on Site" AND "Byproducts ..." IS GREATER THAN 30%, ASK BMF4 THROUGH BMF4d, ELSE GO TO BMF5]**

**On-Site Produced Fuel**

BMF4. Do you mechanically dry your on-site produced fuel before using it?

BMF4a. What type of system do you use to dry your fuel? **[READ CHOICES]**

Fan Only	
Fuel-fired drying system	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF4b. What type of fuel do you use for the fuel drying system.

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMF4c. How much fuel do you burn per month in your drying system?

BMF4d. What is the total horsepower of your drying system fans?

BMF4e. How many hours per year would you say these fans run?

BMF5. What is the average moisture content of the fuel when burned?

## **ACCESSORIES**

BMA1. Are there any electrical or mechanical devices that assist in feeding fuel to your system?

BMA1a How do you feed the fuel into the biomass system? [Probe: conveyor, chute, shovels]

BMA1b. What is the total horsepower of motors used to feed fuel to your biomass system?

BMA1c. How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	
[REFUSED]	

BMA2. Does your biomass system require mechanical air circulation to operate?

BMA2a. What is the total horsepower of motors used to circulate air?

BMA2b. How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	
[REFUSED]	

BMA3. Does your biomass system require mechanical water circulation to operate?

BMA3a. What is the total horsepower of the pumps used to circulate water?

BMA3b. How are they controlled?

RECORD RESPONSE [IF NOT MENTIONED, PROMPT: ARE THE MOTOR(S) ON VFD(S)?]	
[DON'T KNOW]	97
[REFUSED]	98

## **PRODUCTION**

BMP1. During which months of the year is this biomass system used?

BMP2. Did your system begin operating on the date it was installed?

BMP2a When did it begin operating?

BMP3. Has there been any major down-time (more than a few days) with the system since installation?

BMP3a. How long was the most substantial downtime period, and when did it occur?

BMP3b. Why was the system down?

[LOOP THROUGH BMP4 THROUGH BMP5b FOR EACH RESPONSE TO B2 (type of biomass system)]

BMP4. What percentage of your <B2 RESPONSE> usage is provided by the biomass system?

BMP5. What type of back-up fuel do you use for your <B2 RESPONSE> system.

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
REFUSED	
DON'T KNOW	

BMP5a. How much fuel does this backup <B2 RESPONSE> system use per year?

BMP5b. How much does your backup <B2 RESPONSE> system fuel cost per year?

BMP5c. What type of <B2 RESPONSE> system is this?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMP5d. Was this backup <B2 RESPONSE> system in place before the biomass system was installed?

BMP5e. What type of system was used prior to the <B2 RESPONSE> biomass system?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
None	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMP5f. What type of fuel was used by the system that your biomass system replaced?

Natural Gas	
Electricity	
Oil	
Propane	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BMP5g. How much fuel did this <B2 RESPONSE> system use per year prior to the biomass system installation?

BMP5h. How much did this <B2 RESPONSE> system's fuel cost per year prior to the biomass system installation?

BMP6. What percentage of the expected energy savings has your system actually produced?

BMP6a. **[IF BMP6 NOT EQUAL 100%]**

Why do think the actual savings are different from the expected savings?

### **Biogas**

BGU1. What is the manufacturer and model number of your biogas units?

BGU2a. How many of that type of unit have been installed through the &PROGRAM?

BGU3. Are all of these units still installed?

BGU3a. How many of these units have been removed?

BGU3b. Why did you remove some of the units?

### **INSTALLATION**

BGN1. When was your biogas system installed?

BGN2. Have you modified the system since it was first installed?

BGN2a. Was the modification an addition, an equipment replacement, or something else?

[Addition]	
[Replacement]	
[Addition and replacement]	
[Other, Specify]	
[DON'T KNOW]	
[REFUSED]	

BGN2b. What have you added?

BGN2c. What did you replace?

BGN2d. When did you make these changes?

BGN2e. Why did you make these changes?

**BIOGAS SOURCES**

BGS1. Does your biogas come from an influent or manure digester, landfill gas, or another source?  
[CIRCLE ALL THAT APPLY]

Digester	
Landfill Gas	
Other, specify	
[DON'T KNOW]	
[REFUSED]	

BGS2. What percentage of the following types of materials make up your biodigester influent, not including animal bedding? [READ LIST AND ENTER PERCENT FOR EACH]

Manure \_\_\_\_\_  
Other Agricultural Waste \_\_\_\_\_  
Other, specify \_\_\_\_\_

[IF SUM OF RESPONSES TO BGS2 <100%, PROMPT SAYING "These responses add to <Sum of BGS2 Responses>. Would you to adjust the categories, or is there another source not mentioned?"]

[IF BGS2 "Manure" response <10%, GO TO BGS3]

BGS2a. Of the manure, what percent comes from the following animals?

<b>ENTER PERCENT FOR EACH</b>	
Chicken	_____
Cow	_____
Swine	_____
Other, Specify	_____
Other 2, Specify	_____
[DON'T KNOW]	97
[REFUSED]	98

**[IF SUM OF RESPONSES TO BGS2a <100%, PROMPT SAYING "These responses add to <Sum of BGS2a Responses>. Would you to adjust the categories, or is there another source not mentioned?"]**

BGS2b. Does your manure mixture include animal bedding?

BGS3. What is the total volume or mass of material fed to your digester on average, per month?

**PRODUCTION**

BGP1. What percentage of the biogas produced are you... [\[READ LIST, ENTER PERCENT FOR EACH\]](#)

Using onsite in a generator	_____
Using by digester for heating influent	_____
Using in vehicles	_____
Flaring onsite	_____
Selling off site	_____
Other, Specify	_____
[DON'T KNOW]	
[REFUSED]	

[\[IF SUM OF RESPONSES TO BGP1 <100%, PROMPT SAYING "These responses add to <Sum of BGP1 Responses>. Would you to adjust the categories, or is there another use not mentioned?"\]](#)

BGP2. Did your system begin operating on the date it was installed?

BGP2a When did it begin operating?

BGP3. Are there differences in energy production seasonally or between years

BGP3a. Describe the production changes the system sees yearly, and between years.

BGP4. Are there differences in how you use the biogas seasonally or between years?

BGP4a. Describe the usage changes the system sees yearly, and between years.

\_\_\_\_\_

\_\_\_\_\_

BGP5. Has there been any major down-time (more than a few days) with the system since installation?

BGP5a. Why was the system down?

BGP5b. Please describe what components of the system stopped operating, and whether other components were able to operate?

BGP5c. How long was the most substantial downtime period, and when did it occur?

WHEN: RECORD Month and Year (if possible get day)	_____
FOR HOW LONG: RECORD Months, Years, Days (if possible)	_____
[DON'T KNOW]	
[REFUSED]	

**[IF BGP1: "Using onsite in a generator" = 0%, GO TO BGP8]**

**Electrical Generation**

BGP6. Please tell me your rated generation capacity for all operating generators, not including backup generator capacity (in kW).

BGP7. Please tell me the total kWh production of the system since it started generating power. If you DON'T KNOW exactly, your best estimate is ok.

BGP7a. How did you determine the total kWh production? **[READ CHOICES, CIRCLE ALL THAT APPLY]**

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP7b. When was the display last reset?

[IF BGP1: "Using onsite for heating" = 0%, "Using in vehicles"=0%, "Used by digester for heating influent"=0%, and "Selling off site"=0%, GO TO BGP10]

**Fuel Production**

BGP8. Please tell me the total amount of biogas produced by the system for use in vehicles, heating, and for sale . If you DON'T KNOW exactly, your best estimate is ok.

BGP8a.  
APPLY]

How did you determine the total production? [READ CHOICES, CIRCLE ALL THAT

Read-out display on generator	
Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP8b. When was the display last reset?

BGP9. How did you determine the total amount of biogas produced? [READ CHOICES, CIRCLE ALL THAT APPLY]

Separate utility meter for biogas production	
Computer tracking software	
Estimate	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

[IF BGP1: "Using onsite for heating" > 0%, ASK BGP10 through BGP11h, ELSE GO TO BGP12]

**Other Heating Sources**

BGP10. What percentage of your heating usage is provided by the biogas system?

BGP11. What type of back-up fuel do you use for your biogas heating system?

Natural Gas	
Electricity	
Oil	
Propane	
Nothing	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP11a. How much fuel does this backup heating system use per year?

BGP11b. How much does your backup heating system fuel cost per year?

BGP11c. What type of heating system is this?

Furnace
Boiler
Tank water heater
Tankless water heater
Other, Specify
[DON'T KNOW]
[REFUSED]

BGP11d. Was this heating system in place before the biogas system was installed?

BGP11e. What type of system was used prior to the heating biogas system?

Furnace	
Boiler	
Tank water heater	
Tankless water heater	
None	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP11f. What type of fuel was used by the system that your biomass system replaced?

Natural Gas	
Electricity	
Oil	
Propane	
Other, Specify	
[DON'T KNOW]	
[REFUSED]	

BGP11g. How much fuel did this heating system use per year prior to the biogas system installation?

BGP11h. How much does this heating system's fuel cost per year prior to the biogas system installation?

**[IF BGP1: "Using in vehicles" > 0%, ASK BGP12, ELSE GO TO BGP13]**

BGP12. What fuels did your vehicles use prior to conversion to biogas?



Gasoline	
Diesel	
Propane	
Natural Gas	
[DON'T KNOW]	
[REFUSED]	

BGP13. What percentage of the expected savings has your system actually produced?

BGP13a. **[IF BGP13 NOT EQUAL 100%]**

Why do think the actual savings are different from the expected savings?



## L.30. BIOMASS TECHNOLOGY ADOPTERS INTERVIEW GUIDE

The SEO provided support to various biomass demonstration projects under the [PROGRAM YEAR/PERIOD] programmatic activity titled, [PROGRAM]. As part of this study the evaluation team interviewed the demonstration project PMs to better understand the SEOs contribution to these projects.

This interview is the next step in the evaluation and will collect data and information from companies/organizations that installed biomass technology as a result of the demonstration projects.

This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews, and the evaluation team expects that some interviews will lead to the exploration of topics not included in this guide.

**Interview Objective:** This guide will be used to collect information to determine and obtain the following:

- Decision making process behind [TECHNOLOGY] installation;
- Outcomes of [TECHNOLOGY] installing;
- Job creation as a result of [TECHNOLOGY] installing;
- Attribution of [DEMO PROJECT] on installation/technology adoption.

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant Amount:	
Grant Scope:	
2008 Budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	
Interviewer Name:	
Interviewer Organization:	

### SCHEDULE INTERVIEW

The evaluation team will briefly contact project representatives to schedule the interview, as needed depending upon data provided. The interviewer will screen for individuals who were involved with the [PROJECT NAME] effort, and who are in a position to comment on the project over time (historical and future).

## BACKGROUND STATEMENT

This interview is intended to assist with a study we are conducting regarding the [STATE] Department of Commerce's support of biomass projects throughout the state. The US Department of Energy's State Energy Program contracted us to talk to stakeholders involved in these [STATE] energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

## RESPONDENT ELIGIBILITY SCREENING

To start, I need to understand your degree of involvement in your company's decision to install **[TECHNOLOGY]**.

S1. Were you part of the decision-making process to install **[TECHNOLOGY]**?

- a. If no, can you give us the name and contact information of the person who was?

S2. What was your title and responsibilities during the implementation of **[TECHNOLOGY]**?

**S3.** For how many months/years did or have you served in that capacity? **[PROBE:]**

### TECHNOLOGY IMPLEMENTATION / INSTALLATION

S1. We are interested in learning more about your installation/implementation of **[TECHNOLOGY]**?

S4. When did your organization install **[TECHNOLOGY]**?

S5. Is **[TECHNOLOGY]** still be used?

- a. If not when/why did they stop using?

S6. Was your company aware of **[DEMO PROJECT]** when they implemented **[TECHNOLOGY]**?

- a. If yes, how so?
- b. If no, how did you become aware of this technology?

S7. What were/are the outcomes of implementing **[TECHNOLOGY]**? **[PROBE: Generation, Savings, Other]**

**PROJECT OUTCOMES**

A1. What impacts did **[DEMO PROJECT]** have on the biomass market?

A2. Has the biomass market for this technology changed since **[DEMO PROJECT]**?

- a. If yes, how so?
- b. If no, why not?

**Job Creation**

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to your biomass projects?

- g. Yes -----> **How many full time staff? \_\_**
- h. No
- i. Not sure/don't know

J2. Does your organization currently have any **part time** or **split-time** staff assigned to your biomass projects?

- g. Yes -----> **How many part/split time staff? \_\_ in FTEs?**
- h. No
- i. Not sure/don't know

**J3.** Over the last 5 years, how many FTE staff were associated with this project? **[PROBE: List by year]**

	<b>Staff</b>	<b>Pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	[DON'T KNOW]				
<b>5</b>	[REFUSED]				

**J4.** In your opinion, please describe what affected the changes in staffing levels? **[PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]**

J5. Please specify the sources of funding for these jobs. What were all the sources of funding? **[PROBE: List and for all that apply ask the following]**

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?



### Attribution

Finally, I would like to ask a series of questions that will allow us to properly attribute how **[DEMO PROJECT]** influenced your decision to implement **[TECHNOLOGY]**.

A1. Were there any other influences (i.e. rebates, tax breaks, grants etc.) besides **[DEMO PROJECT]** that provided for your organizations projects?

a. If YES, could you estimate the percent of influence these other supports had on this project? Can you estimate the % influence the **[DEMO PROJECT]** had on this project? **[Ask for a percent contribution for each, making sure they add up to 100%]**

b. If NO, could you estimate the percent of influence **[DEMO PROJECT]** had on this project?

A2. Without the **[DEMO PROJECT]**, would you have attempted your project at the same time, earlier, later or never?

a. If later, how many months later?

A3. Without the **[DEMO PROJECT]**, would you pursued this project with standard efficiency, lower efficiency, or higher efficiency?

a. If "lower": Without the **[DEMO PROJECT]**, would you have initiated the "standard efficiency on the market at that time," or "an efficiency between the standard and the high efficiency of what you actually researched?"

A4. Without the **[DEMO PROJECT]**, how different would the size of your project have been? Would you say you would have installed the same amount, less, more, or not have installed anything?

If less or more, by what percentage did you change the amount installed because of the **[DEMO PROJECT]**

## L.31. RENEWABLE ENERGY PROJECTS- SOLAR CHARGING STATIONS FOR PHEV

*This interview guide is intended for evaluating specific activities conducted by the [STATE ENERGY OFFICE NAME] under the [PROGRAM YEAR/PERIOD] programmatic activity titled, [PROGRAM]. As part of this PA, the [STATE] provided support to [PROGRAM OBJECTIVE].*

*This guide will collect data and information to determine the impact of these [PROGRAM ACTIVITIES], and the role SEP played in getting them implemented. The target respondents are members of [PROGRAM] that worked on this project back in [PROGRAM YEAR/PERIOD].*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and the evaluation team expects that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This guide will be used to collect information to determine and obtain the following:

- Impact of solar charging station on PHEV vehicle usage;
- Impact of projects on solar charging and PHEV markets
- Attribution of outcomes to [STATE] Energy Office.

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant Amount:	
Grant Scope:	
2008 Budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	
Interviewer Name:	
Interviewer Organization:	

### SCHEDULE INTERVIEW

*The evaluation team will briefly contact report representatives to schedule the interview as needed depending upon data provided. The interviewer will screen for individuals who understand the range of information within their SEP effort and who are in a position to comment on the program over time (historical and future).*



## BACKGROUND STATEMENT

This interview is intended to familiarize our team with [STATE]'s Renewable Projects, specifically the [PROGRAM ACTIVITIES]. The information you supply will be used to characterize what projects and studies were pursued in [PROGRAM YEAR/PERIOD], and the impact of these actions.

The US Department of Energy's State Energy Program contracted us to talk stakeholders involved in these [STATE]'s renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of other communities we interview. All information will then be aggregated and reported on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

## RESPONDENT ELIGIBILITY SCREENING

To start, I need to understand your experience with the [PROGRAM ACTIVITIES] during program year [PROGRAM YEAR/PERIOD].

- S1. Can you confirm that you participated in the [[PROGRAM ACTIVITIES] and are knowledgeable about this program?
- S2. (IF S1 IS "NO") Who is the most knowledgeable person to talk about this [PROGRAM] solar charging stations?
- S3. What were your title and job responsibilities in [PROGRAM YEAR/PERIOD]?
- S4. For how many months/years did or have you served in that capacity? **[PROBE:]**
  - g. Pre-2008 to 2008
  - h. 2008 to 2009-2010/ARRA period

### **[PROGRAM YEAR/PERIOD] period to present Program Logic**

In order to evaluate the [PROGRAM ACTIVITIES], we first need to outline your involvement with the program.

- A1. Can you briefly describe the program?
- A2. What additional details can you provide about the [CITY/STATE] solar charging stations during [PROGRAM YEAR/PERIOD]?

- a. How many cars?
- b. Types of cars?
- c. Fuel Economy? (Electric and gas)
- d. Usage of cars (avg miles driven/yr)
- e. What type of cars would have been used for that purpose instead of PHEV?
- f. What is the rated capacity charging station? Net metering?
- g. Are these cars/stations still in use?

A3. What was the goal of these specific stations?

A4. Were those goals met? How?

A5. What was the [STATE] State Energy Office role in helping develop the [CITY] stations during [PROGRAM YEAR/PERIOD]?

- a. What information or support services did the SEP provide?

A6. What did the PHEV market look like before this program?

- a. How has this market changed?

A7. What did the [PROGRAM ACTIVITIES] market look like before this program?

- a. How has this market changed?

A8. Did these stations spur the development of other solar PHEV stations?

- a. If yes, let's talk about those station characteristics/cars:

### Job Creation

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to State policy development regarding solar?

- j. Yes -----> **How many full time staff?** \_\_\_
- k. No
- l. Not sure / don't know

J2. Does your organization currently have any **part time** or **split-time** staff assigned to State policy development regarding solar?

- j. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
- k. No
- l. Not sure / don't know

J3. Over the last 5 years, how many FTE staff were associated with State policy development regarding solar? **[PROBE: List by year]**

	Staff	Pre-2008	2008	2009/2010	2011+
1	Number of full-time staff...				

2	Number of part-time staff... (in FTEs)				
4	Don't know				
5	Refused				

**J4.** In your opinion, please describe what affected the changes in staffing levels? **[PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]**

**J5.** Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? **[PROBE: List and for all that apply ask the following]**

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

**Attribution**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this report.

**A1.** Without the [STATE] SEP support that you described above, would you have pursued these projects/initiatives in [PROGRAM YEAR/PERIOD] at the same time, earlier, later or never?

- a. If later, how many months later?

**A2.** Without the [STATE] [PROGRAM] support that you described above, would the cars/solar panels have standard efficiency, lower efficiency, or higher efficiency?

- a. If "lower": Without the [STATE] SEP, would you have researched the "standard efficiency on the market at that time," or "efficiency between the standard and the high efficiency of what you actually pursued?"

**A3.** Without the [STATE] [PROGRAM] solar charging stations, how different would the size of the solar projects/initiatives would have been, or the number of PHEVs? Would you say the same size, less, more, or not have pursued anything?

- a. If less or more, by what percentage did you change the size of the project/initiative because of the [STATE] SEP?

**A4.** Were there any other influences besides the [STATE] SEP State that supported your projects/initiatives you listed above for [PROGRAM YEAR/PERIOD]?

- a. If YES, could you list those influences and estimate the percent of influence these other supports had on your actions? Can you estimate the % influence the [STATE] SEP had on your projects/initiatives? [Ask for a percent contribution for each, making sure they add up to 100%]
- b. If NO, could you estimate the percent of influence the [STATE] SEP had on your projects/initiatives?

## L.32. RENEWABLE ENERGY PROJECTS- MUNICIPAL EXECUTIVE TEAM MEETINGS INTERVIEW GUIDE

*This interview guide is intended for evaluating specific activities conducted by the SEO under the PY [PROGRAM YEAR/PERIOD] programmatic activity titled, [PROGRAM]. As part of this PA, the SEO participated in [PROGRAM ACTIVITIES].*

*This guide will collect data and information to determine the outcomes of these meetings. The target respondents are the meeting participants.*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and the evaluation team expects that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This information will be used to collect information to determine and obtain the following:

- Activities of executive team meetings;
- Goals and outcomes of executive team meetings;
- Attribution of outcomes to SEO.

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	
Interviewer name:	
Interviewer organization:	

### SCHEDULE INTERVIEW

*The evaluation team will contact meeting participants.*

### BACKGROUND STATEMENT

This interview is intended to familiarize our team with [STATE] Renewable Projects, specifically [PROGRAM ACTIVITIES]. The information you supply will be used to characterize what projects and studies were pursued in [PROGRAM YEAR/PERIOD] as an outcome of these activities.

The US Department of Energy's State Energy Program contracted us to talk stakeholders involved in these [STATE] renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be aggregated and reported on a national level. The information you provide us today is extremely important to show the impact of the National SEP.

### **RESPONDENT ELIGIBILITY SCREENING**

S1. Can you confirm that you attended the [PROGRAM ACTIVITIES]?

a. If yes, how many?

S2. What was your title and what were your job responsibilities in [PROGRAM YEAR/PERIOD]?

(IF S1 IS "NO") Who is the most knowledgeable person to talk about the [PROGRAM ACTIVITIES]?

S3. For how many months/years did or have you served in that capacity? **[PROBE:]**

- i. Pre-2008 to 2008
- j. 2008 to 2009-2010/ARRA period

### **Respondent participation**

In order to evaluate the [PROGRAM ACTIVITIES], we first need to outline your involvement with the [PROGRAM ACTIVITIES].

A1. How did you learn about the [PROGRAM ACTIVITIES]?

A2. How many [PROGRAM ACTIVITIES] did you attend?

A3. Why did you attend these [PROGRAM ACTIVITIES]?

A4. What was discussed at each of the [PROGRAM ACTIVITIES]?

A5. What role did the SEO play in the [PROGRAM ACTIVITIES]?

### **[PROGRAM ACTIVITIES] goals and outcomes**

O1. How has the solar market changed in [STATE] since [PROGRAM YEAR/PERIOD]?

a. Do you know the increase in solar generation/installations?

O2.What were the desired goals and outcomes of the [PROGRAM ACTIVITIES]? **[PROBE: Policy changes? Demonstration projects? Etc.]**

O3.What were the policy outcomes of this [PROGRAM ACTIVITIES]?

a. Other outcomes from this [PROGRAM ACTIVITIES]?

O4.Did these policies/outcomes have an impact on solar policy in the state of [STATE]?

i. If yes, how so? (Can you verify or provide any impact on solar generation/installations?)

ii. If no, why not

O5.Did these [PROGRAM ACTIVITIES] influence the [STATE] solar market?

i. If yes, how so?

ii. If no, why not

O6.Were there other outcomes from the [PROGRAM ACTIVITIES] (please list)?

O7.Were there networking opportunities at these [PROGRAM ACTIVITIES]? Did they result in any business or projects?

### **ATTRIBUTION**

Now we would like to discuss with you in more detail how much influence the SEO involvement had on the [PROGRAM ACTIVITIES] outcomes.

A1. We would like to know what influence the **SEO** had on formulating the policies that resulted from [PROGRAM ACTIVITIES].

a. Without the involvement of the SEO, would the [PROGRAM ACTIVITIES] produced the same policies at the same time, later or never?

i. If later, how many months?

b. Can you assign an actual contribution % to the SEO for the [PROGRAM ACTIVITIES]?

A2. What influence did these [PROGRAM ACTIVITIES] have on **Solar Policies** that have been put in place since 2008.

a. If the [PROGRAM ACTIVITIES] did not take place, would Solar Policies have been developed at the same time, later, or never (role that [PROGRAM ACTIVITIES] played in Solar Policy development)

i. If later, how many months? Or, please provide an estimated % influence?

- b. Can you assign an actual contribution % to the [PROGRAM ACTIVITIES] for these Municipal Solar Policies that have been put in place since 2008?

Since PY'08, there has been an \_\_\_\_\_ increase in solar capacity in [STATE]. There are several factors that contribute solar generation expansion, and we are interested in parsing out attribution of these factors. Specifically, we are interested in exploring how [PROGRAM ACTIVITIES] influenced this expansion:

A3. We would like to know what % of this increase in solar generation in [STATE] was a result of **Overarching Policy Influence** (being any Federal, Municipal, Municipal policies).

- a. Without these Overall Policy Influences, would the solar expansion that has occurred over the past four years in [STATE] have happened at the same time, later, or never.?
  - i. If later, how many months? Or, please provide an estimated % influence?
- b. Would the same quantity of solar be present without Overall Policy Influence?
  - i. If less, what % less?

A4. We would like to know what % of this **Overall Policy Influence** came from **Municipal Policy**.

- a. Without the Municipal Policies, would solar expansion have happened at the same time, later, or never.? (the role that Municipal policy played)
  - i. If later, how many months? Or, please provide an estimated % influence?
- b. Would the same quantity of solar be present without the Municipal policies?
  - i. If less, what % less?

### Job Creation

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

- J1. Does your organization currently have any **full time** staff assigned to Municipal policy development regarding solar?
  - m. Yes -----> **How many full time staff?** \_\_\_
  - n. No
  - o. Not sure / don't know
- J2. Does your organization currently have any **part time** or **split-time** staff assigned to Municipal policy development regarding solar?
  - m. Yes -----> **How many part/split time staff?** \_\_\_ in FTEs?
  - n. No
  - o. Not sure / don't know
- J3. Over the last 5 years, how many FTE staff were associated with Municipal policy development regarding solar? **[PROBE: List by year]**

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				



**J4.** In your opinion, please describe what affected the changes in staffing levels? **[PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]**

**J5.** Please specify the sources of funding for these jobs. What were all the sources of funding besides SEP? **[PROBE: List and for all that apply ask the following]**

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?



## L.33. CLEAN ENERGY POLICY SUPPORT PROGRAM MANAGERS IN-DEPTH INTERVIEW GUIDE

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### BACKGROUND INFORMATION (to be filled in prior to interview):

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Understood structure of SEP funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### PART 1. INTRODUCTION

My name is [INTERVIEWER NAME] from DNV GL. The US Department of Energy's State Energy Program has hired us to talk with organizations involved with the management of your [Name of Program] that received SEP funding in Program Year [PROGRAM YEAR/PERIOD]. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

**PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

Our understanding is that you are the program manager for [\[Name of program\]](#) that received SEP funding for the [\[PROGRAM YEAR/PERIOD\]](#). Is this correct:

Yes – Correct person and year for SEP funded <a href="#">[Name of program]</a>	<a href="#">[Continue]</a>
Yes – Correct person, wrong year for SEP funded <a href="#">[Name of program]</a>	<a href="#">[Correct year and Continue if the year in question is within the study period]</a>
No – Incorrect person for SEP funded <a href="#">[Name of program]</a>	<a href="#">[Ask for correct person for [Name of program]]</a>
No – There were no SEP funded <a href="#">[Name of program]</a>	<a href="#">[Thank you and terminate]</a>

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 60 minutes. For quality control purposes, this call will be recorded and monitored. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
 Oak Ridge National Laboratory  
 e-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 phone: 919/929-0995

I would like to ask you some questions about [\[Name of program\]](#) that received SEP funding in the [2008 Program Year](#).

1. Were you involved in the design and/or management of [\[Name of program\]](#) that received SEP funding in [\[Program Year\]](#)?

- 1 Yes
- 2 No [\[IF NO, REQUEST CONTACT NAME AND TELEPHONE NUMBER OF A KNOWLEDGEABLE INDIVIDUAL. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON\]](#)

2. Who else at your organization is knowledgeable about the overall allocation of funding to [\[Name of program\]](#) that received SEP funding in [\[Program Year\]](#)?

Name/contact info/role: \_\_\_\_\_  
 Name/contact info/role: \_\_\_\_\_  
 Name/contact info/role: \_\_\_\_\_

3. [\[IF OTHERS MENTIONED IN Q2\]](#) Among you and [\[INSERT QUESTION 2 RESPONSE\]](#), who is most familiar with the activities conducted by your organization for [\[PROGRAM NAME\]](#) in [\[PROGRAM YEAR\]](#)?

[\[IF NOT RESPONDENT, THANK AND TERMINATE AND CONTACT MOST KNOWLEDGEABLE PERSON\]](#)

4. What were your responsibilities in regard to [\[Name of program\]](#) that received SEP funding in [\[Program Year\]](#)?

5. In what year did you first become involved with [\[Name of program\]](#) that received SEP funding?

6. Are you still involved with managing this program? If not, when did your involvement end?

7. How long have you been involved in administering programs funded by SEP?
8. Based on information provided by DOE, you received \$\_\_\_\_\_ in SEP funding for [\[Name of program in Program Year\]](#). Our understanding is that these funds may have been applied to programmatic or administrative activities supporting clean energy through either education and marketing support, advocacy or research efforts, or pure administrative activities. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT ]_____	[AMOUNT ]_____
	[REMAINING AMOUNT]_____

9. I'd like to identify how this funding was used to support [\[SEP Program Name\]](#) which was taken from the WINSAGA database.
- Could you tell me what specific program activities were supported with this SEP-funded Program? [ENTER BRIEF DESCRIPTION IN COLUMN 9a.](#)
  - Were there different or separate program names for each of these activities? [IF YES: Please list them.](#)
  - Roughly what percentage of total funding under [\[SEP PROGRAM NAME\]](#) was accounted for by each of these activities?
  - [IF YOU CAN'T DETERMINE WHICH CATEGORY AN ACTIVITY FALLS INTO, ASK:](#) Which of the following best describes this activity?
    - Direct Program Delivery.** Examples include funding education and marketing efforts for clean energy programs and policies.
    - Policy, Regulatory or Legislative Support.** Examples include advocacy efforts or funding given to policy development or market studies.
    - Administrative Support.** Examples include providing administrative, legal, human resources and financial staff or services to support direct program or regulatory/legislative activities



9a. Description of Activity	9b. Program Name	9c. % of Total PA Funding	9d. Activity Type
9.1			
9.2			
9.3			
9.4			
9.5			

### PART 3. SPECIFIC ACTIVITY DETAILS

#### FOR EACH ACTIVITY IN Q9 CHARACTERIZED AS DIRECT PROGRAM DELIVERY, ASK:

[\[Please Read\]](#) In this next set of questions I would like to understand how the SEP funds were used for direct program support.

10. What were the ultimate objectives for the program?

---

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11. In what year did this program begin?

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12. Please describe how the program is operating now in regard to its activities, the resources it uses, and the outcomes it is achieving.

12a1. Let's start with ACTIVITIES. **PROBE:**

- MARKETING AND OUTREACH TO STAKEHOLDERS OR PARTICIPANTS
- RECRUITMENT OF PARTICIPANTS/STAKEHOLDERS:
- RECRUITMENT OF TRADE ALLIES AND OTHER DELIVERY PARTNERS
- DELIVERY OF INFORMATION AND TECHNICAL SERVICES
- PROVISION OF FINANCIAL SUPPORT: INCENTIVES, LOANS, LOAN GUARANTEES
- INSPECTION, QUALITY CONTROL OF INSTALLED PROJECTS

12a2. INPUTS: What resources are being used to deliver the program? **PROBE:**

- STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME
- OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME
- STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME
- CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT
- TECHNICAL SERVICES
- FINANCIAL SERVICES
- MARKETING SERVICES
- ADMINISTRATIVE SERVICES

12a3. OUTSIDE FUNDING: Are organizations other than the U. S. Department of Energy, through the State Energy Program, contributing funding to this program? This would include competitive grants, PVE funds, state leveraged funding, non-state leveraged funding, any others? **IF YES, PROBE:**

- NAME OF THE ORGANIZATION(S)
- AMOUNT OF FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008 OR ARRA PERIOD)

- PERCENTAGE OF TOTAL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT.
- USES OF THE FUNDING PROVIDED
- TERMS OF LEVERAGE, IF APPLICABLE

12a4. RESULTS/OUTPUTS: Could you summarize the results your program has achieved so far? **IF YES, PROBE:**

- NUMBER OF PARTICIPANTS ENROLLED
- NUMBER OF UNITS OF SERVICE DELIVERED (AUDITS, WORKSHOP ATTENDANCE, ETC)
- NUMBER OF INSTALLATION PROJECTS SUPPORTED
- ESTIMATED SAVINGS FROM INSTALLATIONS SUPPORTED

12a5. RESULTS VERSUS GOALS: Were you able to (Do you anticipate being able to) achieve the level of results you included in your program plans and applications to the U. S. Department of Energy?

**IF YES:** How did this activity perform compared to the goals? Please be specific.

**IF NO:** What circumstances prevented you (are preventing you) from achieving those goals?

12a6. If you had not received the SEP funding for this program, what would you have done differently in this program? What would have been different in terms of the amount of funding, number and types of activities, timing of the activities, the program results, market conditions, etc.

**FOR EACH ACTIVITY IN Q9 CHARACTERIZED AS POLICY/LEGISLATIVE/REGULATORY SUPPORT, ASK:**  
[\[Please Read\]](#) In this next set of questions I would like to understand how the SEP funds were used for policy, legislative, or regulatory support.

13. What specific changes in policy, laws or regulations, or market conditions, did your agency seek to achieve through the activities funded by SEP?

13a. In what year did this effort begin? When was it first funded through SEP?

14. What activities did you undertake to promote those changes?

**PROBE:** DID THE ACTIVITIES ACCELERATE THE SPEED WITH WHICH THE POLICY/LEGISLATION/REGULATION WAS ENACTED?

14a1. INPUTS: What resources are being used to support the policy initiative? **PROBE:**

- STATE ENERGY OFFICE STAFF: NUMBER, TYPE, PERCENT OF TIME
- OTHER GOVERNMENT STAFF: NUMBER, TYPE, PERCENT OF TIME
- STAFF OF OTHER AGENCIES OR ORGANIZATIONS: NUMBER, TYPE, PERCENT OF TIME
- CONTRACTED SERVICES: PROBE NAME OF PROVIDER AND TYPE OF SERVICE, APPROXIMATE NUMBER OF CONTRACTOR STAFF OR SIZE OF CONTRACT
- TECHNICAL SERVICES
- FINANCIAL SERVICES
- MARKETING SERVICES
- ADMINISTRATIVE SERVICES

14a2. OUTSIDE FUNDING: Are organizations other than the U. S. Department of Energy, through the State Energy Program, contributing funding to this program? This would include competitive grants, PVE funds, state leveraged funding, non-state leveraged funding, any others? **IF YES, PROBE:**

- NAME OF THE ORGANIZATION(S)
- AMOUNT OF FUNDING PROVIDED IN THE PERIOD UNDER EVALUATION (2008)
- PERCENTAGE OF TOTAL FUNDING FOR THE PA UNDER EVALUATION IN 2007, 2008, ARRA PERIOD, AS RELEVANT.
- USES OF THE FUNDING PROVIDED
- TERMS OF LEVERAGE, IF APPLICABLE

15. Have the laws or regulations your agency supported with the help of SEP resources been adopted? **IF YES:**

- a. What specific provisions were adopted?
- b. When was the legislation passed or regulations issued?

16. On what date did the policy, legislation, regulation become effective?

17. On a scale of 1 to 10, where 1 is not at all likely and 10 is extremely likely, how likely is it that your state regulator/legislature would have adopted the policy, regulations, or legislation in the absence of the activities your agency took with the support of SEP?

ENTER NUMBER FROM 1 TO 10 \_\_\_\_\_  
 Don't know \_\_\_\_\_

18. **IF 17 < 4 or DK, ASK:** Why do you say that? [THEN SKIP TO 20]

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**IF 17 >= 4, ASK:** In the absence of the activities your agency took with the support of SEP, in what year do you think these policies/regulations/legislations would have come into effect in this state?

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019+

19. What are your main reasons for this assessment?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Additional follow-up questions**

20. During the 5 years prior to [PROGRAM YEAR], had there been efforts in your state to effect the policy, legislative or regulatory changes targeted by your agency with the support of 2008 SEP funding?
- d. Yes
  - e. No (GO TO 30)
  - f. Don't know (GO TO 30)

IF 20 = YES, ASK: Which organizations advocated for adoption of these changes? **PROBE FOR PARTICIPATION OF THE RESPONDENT'S AGENCY.**

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21. What organizations or constituencies opposed adoption of these changes, if any?

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22. **ASK FOR ALL RESPONSES IN 22; ELSE SKIP.** What were their principal objections to the regulation or legislation?

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23. **ASK FOR ALL RESPONSES IN 20 AND 22.** How effective were the advocates and opponents of the policy in enlisting political support for their views? What evidence do you have for this assessment?

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24. On a scale of 1 to 10, where 1 means "not at all influential" and 10 means "very influential", to what extent was your state energy office's influential in the development and adoption of the policy, regulations or laws you supported using **[PROGRAM YEAR/PERIOD]** SEP resources?

ENTER 1 – 10, 99 FOR DK/REF: \_\_\_\_\_

25. Why do you say that?

---

---

---

26. If the changes we have been discussing in laws and regulations had not occurred, do you think the **[NUMBER OF ENERGY EFFICIENCY PROJECTS/RENEWABLE ENERGY PROJECTS – EDIT TO FIT LEGISLATION/REGULATION]** would have been less than, greater than, or about the same as it actually has been since those laws/regulation took effect?

- c. Less than [THAT IS, THE LAWS/REGULATIONS HAD A POSITIVE EFFECT]
- d. Greater than [THAT IS, THE LAWS/REGULATIONS HAD A NEGATIVE EFFECT]
- e. The same [NO EFFECT]
- f. Don't know/Refused

27. Why do you say that?

---

---

---

28. IF 27 = a (LAWS/REGULATION HAD A POSITIVE EFFECT, ASK: Do you have any information on the number of projects that have been implemented under the influence of the laws/regulations we have discussed or on the savings that are associated with those projects?

IF YES: PROBE FOR:

- ESTIMATES OF SAVINGS,
- DOCUMENTATION,
- OTHER MARKET OBSERVERS WHO COULD CORROBORATE RESPONDENT'S OBSERVATIONS AND OPINIONS.
- DESCRIPTION OF MARKET CONDITIONS OR MAGNITUDE OF CHANGES.

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**FOR EACH ACTIVITY IN Q9 CHARACTERIZED AS ADMINISTRATIVE SUPPORT SUPPORT, ASK:**

29. Please describe the administrative activities that were funded by the SEP funds.

---

---

30. What activities were these administrative activities supporting?

[Probe to: Determine if they were supporting direct program efforts or legislative/regulatory services. If direct support or legislative or policy support is determined, repeat Q12 series for direct delivery and 13 to 29 series for policy and legislative support].

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31. Were these same activities occurring prior to [Program Year]?

[If Q32=No then ask Q33; else skip to Q35]

What other activities, if any, were occurring prior to [Program Year] relating to this program activity sponsored by SEP?

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32. How do the administrative activities occurring now differ from those occurring prior to [Program Year]?

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33. If you had not received the SEP funding in [Program Year], how would this have impacted the administrative efforts you mentioned above.

[Probe:

- Would you have found funding for these efforts elsewhere? From what source?
- Would you have scaled back these activities?
- Would you have not been able to perform these activities?]

What are your main reasons for this assessment?

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**Those are all the questions I have for you today. Thank you for your time and help in this important study.**

## L.34. PROGRAM ADMINISTRATOR INTERVIEW GUIDE

**PA Summary:** *These funds were used to partially fund a staff member from the [STATE] state energy office. This staff member supported [PROGRAM ACTIVITIES].*

### BACKGROUND INFORMATION (to be filled in prior to interview):

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

### INTERVIEW TRACKING INFORMATION

Interviewer		Survey Length (min.)	
Completion Date			

### TO BE COMPLETED IN ADVANCE BY INTERVIEWER

Program Administrator Name:	
Year:	2008
BPAC Area	Clean Energy Policy Support
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	Department of Energy and Environmental Protection (DEEP)
Contact Phone:	
Street Address:	
City, State, Zip:	
Contact Disposition:	

### PART 1. INTRODUCTION

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts that received funding from the State Energy Program and the American Recovery and Reinvestment Act. I'd like to talk to you about the [STATE] [PROGRAM].

This interview is part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

## **PART 2. IDENTIFY THE APPROPRIATE RESPONDENT(S)**

These first few questions are meant to verify that we are speaking with the right person.

1. First, were you engaged in any activities related to the [STATE] [PROGRAM] at any time from [PROGRAM YEAR/PERIOD] to the present?
  - a. Yes → CONTINUE
  - b. No → VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION. TERMINATE INTERVIEW AND ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  - c. DK/Ref → TERMINATE INTERVIEW ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of this program from 2008 to the present time?
  - a. Yes → CONTINUE
  - b. No → TERMINATE INTERVIEW ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
Oak Ridge National Laboratory  
e-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
phone: 919/929-0995

## **PART 3 – ORGANIZATION**

Next, I'd like to ask you a few questions relating to you and your organization.

3. What is your current job title or position at [ORGANIZATION]?
  
4. What are your general responsibilities?
  
5. How long have you been in that role?
  
6. Can you briefly outline the range of activities you are engaged in that relate to the [PROGRAM]?
  
7. The [PROGRAM] appears to be split into three areas: Increasing Energy Efficiency with Bond Funding, Energy Savings Performance Contracting, and Building Operational Improvements. Do you administer any of these three areas of the [PROGRAM]? [Record all areas respondent administers and ask for referrals for others]

[PROGRAM] Area	Yes?	No
7a. Increasing Energy Efficiency with Bond Funding		Referral Name and Agency_____
7b. Energy Savings Performance Contracting		Referral Name and Agency_____
7c. Building Operational Improvements		Referral Name and Agency_____

**PART 4 – Connection of the current [PROGRAM] to the [PROGRAM ACTIVITIES]**

I'd like to ask you some questions about the history of the program your department is administering.

- 8. Can you please describe the foundations of the [PROGRAM] in its current form? Were there any specific policies that led to the creation of this program?
- 9. In [PROGRAM YEAR/PERIOD], the [STATE] discussed developing [PROGRAM] in support of policies to reduce greenhouse gas emissions from state agencies by:
  - [PROGRAM ACTIVITY 1]
  - [PROGRAM ACTIVITY 2]
  - [PROGRAM ACTIVITY 3]

Is there any relationship between the [PROGRAM] and those [PROGRAM ACTIVITIES]?

[IF YES] How is the [PROGRAM] your department administers related to these [PROGRAM ACTIVITIES]?

- 10. In [YEAR], [POLICY #] created your department. Is there any relationship between the [PROGRAM] and [POLICY #]?

[IF YES] How is the [PROGRAM] your department administers related to this legislative act?

**PART 5 – Increasing Energy Efficiency with [PROGRAM ACTIVITY]  
[Ask if 7a= Yes]**

I would now like to ask you a few questions to gather more detail on how the [PROGRAM] is using the [PROGRAM ACTIVITIES] funds to increase energy efficiency.

- 11. Information we have gathered indicates that as of [MONTH and YEAR], [\$DOLLARS] of bonded funds were made available for energy efficiency upgrades in state buildings. Can you confirm or correct our understanding that the [PROGRAM] received [\$DOLLARS] in funds in [MONTH and YEAR].

Confirmed	Revised amount
	\$_____

- 12. As of today, how many projects have been funded by the bonded funds made available to the [PROGRAM]? Your response should include projects that have been implemented and those that are planned and have received funding. [Record number of projects in table below.]

Implemented	Planned
-------------	---------

--	--

13. How much of the bond funding has been committed to these projects?

14. Have or will additional bond funding be made available to this program? If yes, how much additional funding has been planned and when will the program receive these funds?

[If yes, fill out table]

Date of funding	Funding amount
	\$ _____
	\$ _____
	\$ _____

15. What is the aggregate forecasted energy savings that will result from the currently funded projects? Your best estimate is fine. [If estimates are provided, make sure to ask about the time frame, i.e. are the savings yearly or over the project life?]

Now, I'd like to ask you some questions about the process state agencies go through to apply for bond funding.

16. Generally, what is the process for a state agency to apply for project funding under the [PROGRAM]?

17. How does your agency decide which projects will receive funding?

18. Have the approved programs fallen into particular measure categories? If so, please list those categories. [Do not read list to interviewee. Circle all that apply,]

- a. Windows
- b. Lighting
- c. HVAC
- d. Building Automation/Energy Management Systems
- e. Variable Frequency Drives
- f. Boilers
- g. OTHER \_\_\_\_\_
- h. OTHER \_\_\_\_\_

19. Could we get information from your department detailing the projects currently approved, along with the funding amounts allocated to each project and the forecasted energy savings for each project? [Probe: Is documentation available from those buildings/agencies that applied for funding? INTERVIEWER TO FOLLOW UP].

**PART 6- Energy Savings Performance Contracting**  
**[Ask if 7b= Yes]**

Now, I'd like to ask you about the Performance Contracting portion of the [PROGRAM]. I understand that the Energy Savings Performance Contracting process will enable state agencies to implement retrofit projects that are paid through future energy savings.

20. How, specifically, does the Performance Contracting program function in practice? [Probe: where does the funding come from for the initial program investment?]

21. How do state agencies or municipalities apply to this program?

22. To date, how many state agencies or municipalities are taking advantage of the Performance Contracting program?

23. What is the aggregate forecasted energy savings for currently approved projects? Your best estimate is fine.

24. Could we get information from your department regarding specific projects that have been approved, the cost of those projects, and projected energy savings from those projects? [Probe: Is documentation available from those buildings/agencies that applied for funding? INTERVIEWER TO FOLLOW UP]

**PART 7: Building Operational Improvements**

Our information also indicates that the [PROGRAM] provides energy monitoring services for certain state buildings. I'd like to ask you a few questions regarding this part of the program.

25. What are the goals of this monitoring program?

26. How many buildings are currently being monitored under this program?

27. What are the criteria for selecting buildings to be monitored?

28. What is the aggregate forecasted energy savings for currently approved projects? Your best estimate is fine. [Probe to see if there is any overlap between the [PROGRAM ACTIVITY] and other sections of the [PROGRAM]. If the interviewee indicates some overlap, determine which forecasted savings are not already discussed under the bond funding program. If estimates are provided, make sure to ask about the time frame, i.e. are the savings yearly or over the project life?]

29. Could we get information from your department regarding specific projects that have been approved, the cost of those projects, and projected energy savings from those projects? [Probe: Is documentation available from those buildings/agencies that applied for funding? INTERVIEWER TO FOLLOW UP]

**PART 8: [PROGRAM] Goals**

I have a final few questions for you regarding the goals of the [PROGRAM].

30. Can you confirm or correct our understanding that the goal is a [GOAL]?

Confirmed	Revised goal
[Skip to Q31]	_____

31. Why was the original goal laid out in [YEAR] revised?



32. What is the baseline for the [percent reduction from Q30]?

33. In your opinion, will the program meet its goal of [goal from Q30] [If yes, skip to Q35]

34. In your opinion, what changes to the program would have to take place, or what resources would be needed for the [PROGRAM] to meet its goals?

35. Based on the questions I've asked you so far, is there anything else you would like to tell me regarding the [STATE] [PROGRAM]?

**Thank you for your time**

## L.35. [STATE] PROGRAM ADMINISTRATOR INTERVIEW GUIDE

### Part 1. Introduction

My name is [INTERVIEWER NAME] from [DNV GL]. The US Department of Energy's State Energy Program has hired us to gather information on the results of efforts that received funding from the State Energy Program and the American Recovery and Reinvestment Act. I'd like to talk to you about the [PROGRAM].

This interview is part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

### Part 2. Identify the appropriate respondent(s)

These first few questions are meant to verify that we are speaking with the right person.

I1. We understand that you were not the original Project Manager (PM), but have you engaged in any activities related to the [PROGRAM] at any time from [PROGRAM YEAR/PERIOD] to the present?

- I1a. Yes → CONTINUE
- I1b. No → VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION. TERMINATE INTERVIEW AND ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
- I1c. DK/Ref → TERMINATE INTERVIEW ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW

I2. Are you familiar with the planning and management of this program from 2008 to the present time?

- I2a. Yes → CONTINUE
- I2b. No → TERMINATE INTERVIEW ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
Oak Ridge National Laboratory  
e-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
phone: 919/929-0995

### Part 3. Organization

Next, I'd like to ask you a few questions relating to you and your organization.

- O1. What is your current job title or position at [[ORGANIZATION]]?
- O2. What are your general responsibilities?
- O3. How long have you been in that role?
- O4. Can you briefly outline the range of activities you are engaged in that relate to the [PROGRAM]?

**PROBE:**

- Marketing and outreach to stakeholders or participants?
- Recruitment of participants/stakeholders?
- Delivery of information and technical services?
- Provision of financial support: incentives, loans, loan guarantees?
- Inspection, quality control of installed projects

O5. The [PROGRAM] appears to be split into two areas: the outreach and promotion of the voluntary pledges and the pilot programs. Do you administer either of these two areas of the [PROGRAM]?

O6. Were there any other major areas of the [PROGRAM] besides the two mentioned previously?

O6a. **[If O6=YES]** Can you describe this area?

O6b. **[If O6=YES]** Do you administer this area? [Record all areas respondent administers and ask for referrals for others]

[PROGRAM] Area	Yes?	No
O5a. Outreach and promotion of voluntary pledges		Referral Name and Agency_____
O5b. Pilot programs		Referral Name and Agency_____
O6. Other Areas Describe:_____		Referral Name and Agency_____

### Part 4. Background of [PROGRAM]

I'd like to ask you some questions about the history of the program your organization is administering. Our current understanding is that in [PROGRAM YEAR/PERIOD] [PROGRAM] was launched, which created a mandate for [PROGRAM GOAL].

- B1. What was the reason for launching the [PROGRAM] in [PROGRAM YEAR/PERIOD]?
- B2. What was the role of the [ORGANIZATION] in initiating the [PROGRAM]?
- B3. What were the main goals of the [PROGRAM]?
- B3a. How have the goals changed since the launch of the [PROGRAM]?
- B4. What are the results of the [PROGRAM] to date?

PROBE:

- How many participants have signed up?
- How much energy has been saved?
- What other programs have been created because of the [PROGRAM MANDATE]?

B5. Are you on track to meet the Program's goals?

B5a. [IF B5=NO] What changes to the program would have to take place or what resources would be needed for the to meet its goals?

B6. What is the current status of the [PROGRAM MANDATE]?

PROBE:

- Are you still working to meet the goal reduction targets?
- If on hold, what was the reason for the stoppage?

B7. Is the still actively being administered by the [ORGANIZATION]?

B7a. [IF B7=NO] Which organization has then taken over leadership of the [PROGRAM GOAL]?

### Part 5. Pilot Programs

Our information indicates in 2008 through the [PROGRAM], [PROGRAM ACTIVITIES AND GOALS].

P1. What were the goals of the pilot projects?

P2. Our next set of questions is about the initial activities performed in these pilot programs. It is our understanding that the pilot programs were initially composed of [PROGRAM ACTIVITIES].

P2a. Do you have access to, or do you know where we could obtain the results of [PROGRAM ACTIVITY 1]?

P2b. Do you have access to, or do you know where we could obtain the results of [PROGRAM ACTIVITY 2]?

P2c. What information do you have on the initial outcomes of [PROGRAM ACTIVITY 3]?

P3. Was the decision to perform these pilot projects a direct result of the [PROGRAM GOAL], or were plans already in place to [PROGRAM ACTIVITIES]?

P4. After the initial pilot programs were completed did the [PROGRAM ACTIVITIES] continue?

P4a. [IF P4= YES] Were they a result of successes/ failures of the pilot programs?

P4b. [IF P4= NO] Why didn't the communities continue making improvements?

P5. Are these pilot communities expected to reach the same goal of energy savings as the buildings that pledged the [PROGRAM GOAL]? P5a. [IF P5= YES] Are they on track to meet this goal?

P5b. [IF P5=NO] What is their savings goal? Are they on track to meet this goal?

P6. After the pilot programs were completed did the [ORGANIZATION] sponsor similar programs in other communities based upon lessons learned in these pilots?

P6a. [IF P6= YES] Were these programs similar in design and magnitude to the original pilots?

P6b. [IF P6= NO] What different actions were taken?

P7. How effective were these three pilots at influencing public perceptions on energy efficiency and advancing the goals of the [PROGRAM GOAL]?

### Part 6. Public Outreach and Participation



To produce greater results for the [PROGRAM] we understand that the [PROGRAM] encouraged the public to [PROGRAM GOAL]. To raise public awareness about the [PROGRAM], [PROGRAM ACTIVITY] was done in [YEAR].

PO1. Do you know what materials the [ORGANIZATION] received from the [FIRM] to reach out to the public regarding the [PROGRAM GOAL]? [IF PO1=YES, GO TO PO2; IF PO1=NO, GO TO PO3]

PO2. Are these materials still being used for outreach activities today?

PO2a. [If PO2= YES] What other types of outreach have you done since [PROGRAM YEAR/PERIOD]?

PO2b. [IF PO2= NO] What type of outreach have you done since [PROGRAM YEAR/PERIOD]? PO3. If NO- What type of outreach have you done since [PROGRAM YEAR/PERIOD]?

PO4. Since this is a voluntary program, were any incentives used to attract residents and businesses to make the pledge to reduce their energy use?

PO5. What are the goals associated with this voluntary portion of the [PROGRAM YEAR/PERIOD]?

### **Part 7: Future Plans and Further Actions**

Finally, I would look to ask about your insights on long term goals or further actions that you know of in regard to the [PROGRAM GOAL].

FP1. Do you know of any plans to expand the [PROGRAM GOAL].?

FP1a. [IF FP1=YES] What are the new target goals, and timeframe?

FP1b. [IF FP1=NO] What was the reason for deciding to suspend the program in [YEAR]?

FP2. Based on the questions that I have asked you above is there anything else you would like to tell me about the [PROGRAM]?

**Thank you for your time and insights**

## L.36. PILOT COMMUNITY IN-DEPTH INTERVIEW GUIDE

*This guide is intended to collect information pertaining to the energy efficiency pilot program that took place in your community during Program Year [PROGRAM YEAR/PERIOD] as part of the [PROGRAM]. The target audience is the Energy Coordinators/Managers that were present or are knowledgeable about the activities of Program Year [PROGRAM YEAR/PERIOD].*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This information will be used to collect information to determine and calculate the following:

- [PROGRAM] influence on program implementation
- [PROGRAM ACTIVITY] outcomes
- Funding sources including SEP
- Improvements made and actions taken

**BACKGROUND INFORMATION (to be filled in prior to interview):**

Community Name:	
Program Administrator Name:	
Contact Phone:	
Year:	
BPAC Area	Clean Energy Policy Support
PY2008 Funding amount:	
Known programmatic activities prior to interview:	

**Part 1. Introduction**

My name is [INTERVIEWER NAME] from DNV GL. The U.S. Department of Energy’s State Energy Program has hired us to gather information on the results of efforts that received funding from the State Energy Program. I’d like to talk to you today about your [PROGRAM] that received SEP funding in Program Year [PROGRAM YEAR/PERIOD]. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U.S. Department of Energy.

**Part 2. Identify the appropriate respondent(s)**

These first few questions are meant to verify that we are speaking with the right person.

I1. Are you the original Program Coordinator for the activities related to the [PROGRAM] during [PROGRAM YEAR/PERIOD]?

- I1a. Yes →CONTINUE
- I1b. No →VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION. TERMINATE INTERVIEW AND ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
- I1c. DK/Ref → TERMINATE INTERVIEW ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW

I2. Are you familiar with the planning and management of this program during [PROGRAM YEAR/PERIOD]?

- I2a. Yes →CONTINUE
- I2b. No → TERMINATE INTERVIEW ASK TO BE REFERRED TO A PERSON WHO HAS

## BEEN SO INVOLVED

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 30 minutes. For quality control purposes, with your expressed consent this call will be recorded and monitored. Do you consent to this call being recorded? If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
Oak Ridge National Laboratory  
e-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
phone: 919/929-0995

### Part 3. Organization

Next, I'd like to ask you a few questions relating to you and your organization.

- O1. What is your current job title or position at the [CITY]?
- O2. What are your general responsibilities?
- O3. How long have you served in that capacity?
- O4. [IF O3 < 3.5 years] What role did you have at [CITY] in [PROGRAM YEAR/PERIOD]?
- O5. [IF O3 < 3.5 years] How long did you serve in that role?

### Part 4. Project Overview and [SEO] Activities

P1. Our records indicate that the [CITY] [PROGRAM] was adopted in [PROGRAM YEAR/PERIOD]. Was the adoption of that program a direct result of the [PROGRAM]?

P1a. [If P1=Yes] Were there any other programs or policies that influenced your community to start the [PROGRAM]?

P1b. [If P1=No] What influenced your community to start the [PROGRAM]?

P2. Our records also indicate that [CITY] agreed to be a pilot community in support of the [PROGRAM] in [PROGRAM YEAR/PERIOD]. Can you confirm that [CITY] agreed to be a pilot community for the [PROGRAM] in [PROGRAM YEAR/PERIOD]?

[IF YES] GO TO P3; [IF NO] TERMINATE INTERVIEW AND ASK TO BE GIVEN NAME OF PERSON THAT WOULD KNOW THIS INFORMATION

P3. What was your reason for deciding to become a pilot community for the [PROGRAM]?

P3a. How did you first hear about the program?

P3b. How did you sign up for this program?

P3c. [SUPRESSED] – PROGRAM ACTIVITY SPECIFIC

P4. What were the goals of the pilot program as articulated by the [STATE SEO]?

P5. How much funding did you receive from the [STATE SEO] to support the pilot program activities?

P4a. What activities did these funds support?

P6. Did you receive outside sources of funding as well?

P6a. [IF P6=Yes] What were the sources?

P6b. [IF P6=Yes] How much funding did you receive?

P6c. [IF P6=Yes] What specific activities did these funds cover?

**Table 1: Funding Information**

P6a. Funding Source	P6b. Funding Amount	P6c. Activities Funded

P7. Did the [STATE SEO] initially have any stipulations on where the funds would be directed and how the money would be spent?

P7a. [IF P7=YES] What were these stipulations?

P8. [If P7=Yes] How did the initial stipulations of the [STATE SEO] change for the pilot program in [CITY] over the duration of the program?

### Part 5. Project Actions

PA1. This section will look at the activities that occurred as part of pilot program in [CITY]. We would like to gather information about the activities conducted as part of this program and determine any energy savings based on the number and types of devices installed during this time. We initially would like to know, what activities were undertaken during the pilot program in [CITY]?

PA2. Our research indicates that you hired [CONTRACTOR] to provide energy audits on buildings in [CITY], can you confirm this?

PA2a. [IF PA2= YES] Now I'd like to ask you a few questions regarding the results of the audits [List audit results in Table 2 below]

PA2b. [IF PA2= NO] Was an audit performed by another contractor?

PA2b1. [IF PA2b=Yes] Now I'd like to ask you a few questions regarding the results of the audits. [List audit results in Table 2 below]

PA3. [IF PA2 or PA2b= YES] Besides the activities related to the audits, did your community pursue any other improvements as part of the pilot program?

[List other activities in Table 2 below]  
PA4. [IF PA2b= NO] What improvements did your community pursue as part of the pilot program?

[List other activities in Table 2]

**Table 2: Pilot Program Actions-** See Attached Excel sheet

PA5. What role did the [STATE SEO] play during the implementation of the pilot program?

## Part 6. Project Outcomes

The following questions are designed to understand what effect [PROGRAM] had on the energy reductions in your community.

PO1. Would you say that the goals of the [STATE SEO]'s pilot program were met?

PO1a. [If PO1=No] Please explain why not.

PO2. Were you required to submit the results of the improvements made in your community to any other organizations at the completion of the pilot program?

PO2a. [If PO1=yes] Can you share these results with us?

PO3. Our research indicates that the results of the pilot program were going to be featured in case studies published for the DOE. Do you have access to these, and would you be willing to share these case studies or other materials which documented the improvements made and energy reductions achieved in your community?

## Part 7. Attribution

This section aims to uncover the motivations, feasibility, and timing of energy efficiency projects in [CITY] during 2009.

A1. [IF PA2 or PA2b= YES] Could you estimate the percent of influence the pilot program and SEP funding had on your decision to conduct the energy audits in your community? Can you explain why?

A2. Without the pilot program and SEP funding would you have conducted this audit at the same time? Earlier, later, never?

A2a. [IF A2=Later] How many months later?

A3. [If Table 2 G or G1= Yes] On a scale of 1 to 10, where 1 is not at all likely and 10 is extremely likely, how likely is it that you would have performed this improvement if the energy audit had not occurred? (Answer in Table 2-S)

A4. [If A3>3] Without the SEP funded audit would you have made this improvement at the same time? Earlier, later, never? (Answer in Table 2- S1)

A4a. [IF A4=Later] How many months later? (Answer in Table 2- S2)

A5. [If Table 2 H1= Yes] On a scale of 1 to 10, where 1 is not at all likely and 10 is extremely likely, how likely is it that you would have performed this improvement without the pilot program? (Answer in Table 2- T)

A6. [If A5>3] Without the pilot program would you have made this improvement at the same time? Earlier, later, never? (Answer in Table 2- T1)

A6a. [IF A6=Later] How many months later? (Answer in Table 2- T2)

A7. On a scale of 1 to 10, where 1 is not at all likely and 10 is extremely likely, how likely is it that you would have performed the same amount (both type and quantity) of retrofits without the audit and/or pilot program? (Answer in Table 2-U)

A8. [If A7<8] Would you say you would have installed the same amount, less, more, or not have installed anything? (Answer in Table 2-U1)

A8a. [If A8=Less or More] By what percentage did you change the amount of <equipment type> installed because of the pilot program? (Answer in Table 2-U2)

## L.37. [STATE] BIOMASS STAKEHOLDER INTERVIEW GUIDE

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

#### Interview Tracking Information

Interviewer		Survey Length (min.)	
Completion Date			

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Street Address:	
City, State, Zip:	
Contact Disposition:	

## **PART 1. Introduction and background**

My name is [INTERVIEWER NAME] from DNV GL.

This interview is part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

## **PART 2. Respondent Eligibility Screening**

These first few questions are meant to verify that we are speaking with the right person.

1. First, was your organization engaged in any activities related to biomass in [STATE] between the beginning of 2008 and the present time?
  - a. Yes →CONTINUE
  - b. No →VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION AND REPORT TO STATE ENERGY OFFICE CONTACT
  - c. DK/Ref → ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of those activities since 2008 to present time?
  - a. Yes →CONTINUE
  - b. No →ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

## **PART 3. ORGANIZATION**

Next, I'd like to ask you a few questions relating to you and your organization.

01.What is your current job title or position at [ORGANIZATION]?

02.What are your general responsibilities?

03.How long have you been in that role?

Now, I have some questions about [ORGANIZATION]?

04.[IF COMMERCIAL BUSINESS] Briefly, what kind of services does your [ORGANIZATION]

provide?

O5.[IF NON-PROFIT OR ASSOCIATION] Briefly, what are the goals of [ORGANIZATION]?

O6.Can you briefly outline the range of activities your organization is engaged in related to biomass generation in [STATE]?

**PART 4. AWARENESS OF [STATE SEO] [POLICY].**

Now, I'd like to ask you about your awareness of the [POLICY].

A1.Are you aware of the [POLICY] regarding biomass production in [STATE]?

1. Yes
2. No

**[IF A1=NO, SKIP TO A3]**

- a. How did you first hear about the [YEAR][POLICY] regarding biomass?
- b. How did the [YEAR][POLICY] shape or change your daily operations at [ORGANIZATION]?
- c. How did the [YEAR][POLICY] shape or change medium or long term planning goals at [ORGANIZATION]?
- d. Did the [YEAR][POLICY] support or hinder your organization's efforts related to biomass generation? Why do you say that?
- e. Was the [YEAR][POLICY] sufficient in addressing the biomass market? Why do you say that?

A2.Are you aware of the [YEAR][POLICY].

1. Yes
2. No

**[IF A2=NO, SKIP TO A3]**

- a. How did you first hear about the [PARTICULAR POLICY]?
- b. How did the [PARTICULAR POLICY] under the [YEAR][POLICY] affect your organization's day to day activities?
- c. How did the [PARTICULAR POLICY] under the [YEAR][POLICY] affect your medium or long term planning goals at [ORGANIZATION]?
- d. Were there any other market conditions or planned events at your organization during this period that would have changed or affected your operations related to biomass?
  - i. If yes, what were these market conditions or events?

A3. Are you aware of the recently revised [YEAR][POLICY] as it pertains to biomass?

1. Yes
2. No

**[IF A3=NO, SKIP TO C1]**

- a. Did the revised [YEAR][POLICY] address any concerns or issues [ORGANIZATION] had with the [YEAR][POLICY]?
  - i. If yes, what specific concerns or issues did the revised [POLICY] address?
- b. What changes in the [YEAR][POLICY] will have the biggest affect on your organization?
  - i. Why do you say that?
- c. Overall, how will the revised [YEAR][POLICY] impact your organization?
- d. What effect do you think the [YEAR][POLICY] will have on the biomass industry in [STATE]?

**PART 5. CAPACITY: BIOMASS MARKET**

C1. Do you know what the biomass capacity in [STATE] was at the time of the [YEAR][POLICY]? [PROVIDE RANGES b-e if needed]

- a. RECORD CAPACITY: \_\_\_\_\_
- b. 0-25 MW
- c. 26-50 MW
- d. 51-100 MW
- e. 101 and greater
- f. Don't Know

C2. In your opinion, what would have been the generation capacity of biomass from [YEAR] until now had the [YEAR][POLICY] not been suspended? [PROVIDE RANGES b-e if needed]

- a. RECORD CAPACITY: \_\_\_\_\_
- b. 0-25 MW
- c. 26-50 MW
- d. 51-100 MW
- e. 101 and greater
- f. Don't Know

C3. Why do you say that?

- a. **[PROBE IF NECESSARY]:**  
By how much would the biomass capacity of existing generation units have changed? Would this capacity amount have increased, decreased, or stayed the same?

b. **[PROBE IF NECESSARY]:**

By how much would the number of online generation units have changed? Do you think this number would have increased, decreased, or stayed the same?

C4. Currently, biomass capacity in [STATE]' is approximately [INSERT CAPACITY FROM [STATE SEO] INTERVIEW]. As a result of the revised [YEAR][POLICY], what do you estimate the biomass generation capacity in [STATE] will be in...

[Ask for capacity estimates, if respondent is unable to provide, ask for estimated change in percent from 2012 capacity]

a.

Date	Capacity	Percent Change
Today	Record current capacity from [STATE SEO] interview: _____ MW	N/A
5 Years		
10 Years		
20 Years		
30 Years		

b. Why do you say that?

i. **[PROBE IF NECESSARY]:** What kind of shift do you see in the biomass market? What will cause this shift? (Will more generation come online due to the [YEAR][POLICY]? Will the [YEAR][POLICY] revisions limit more generation or force current plants to shut down? Will generation be limited by available fuel stock?)

C5. Do you believe that the [YEAR][POLICY] will impact resources for biomass energy generation?

a. **[PROBE IF NECESSARY]:** Will the amount of forest residues available for generation units' increase or decrease?

C6. [If C7 = Yes] Where will the additional forest residues be sourced from? Can the additional demand be met with [STATE] supply or must other sources be investigated?

**PART 6. EFFICIENCY REQUIREMENTS OF [YEAR][POLICY]**

The [YEAR][POLICY] for Biomass outlined new provisions for increased plant efficiency and reductions in green house gas emissions.

E1. Are you familiar with the efficiency requirements of the [YEAR][POLICY]?

- 1. Yes
- 2. No

**[IF E1=NO, SKIP to L1]**

E2. Will the efficiency requirements of the [YEAR][POLICY] affect the total biomass capacity in [STATE]?

- a. [IF YES] Will the efficiency requirements increase or decrease future capacity?
- b. By what percent will capacity increase or decrease because of the efficiency requirements?

**PART 7. LABOR**

Next, I'd like to ask some questions regarding the labor impacts of the [YEAR][POLICY].

L1. Did your organization add any positions to support the development and implementation of the revised [YEAR][POLICY]? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. [IF L1a >0] How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?

Job classification	Number FTE added
Administrative	
Technical	
Services	
Professional	
Management	
Other	

L2. Has your organization developed any new capabilities or resources to support the [YEAR][POLICY] revisions? PROBE:

- a. Contacts and relationships with market actors
- b. Tools such as building analysis software

- 
- c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula



## L.38. [STATE SEO] INTERVIEW GUIDE

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

#### Interview Tracking Information

Interviewer		Survey Length (min.)	
Completion Date			

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Street Address:	
City, State, Zip:	
Contact Disposition:	

### **PART 1. Introduction and Background**

My name is [INTERVIEWER NAME] from DNV GL.

This interview is part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information.

The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

### **PART 2. Respondent Eligibility Screening**

These first few questions are meant to verify that we are speaking with the right person.

1. First, were you engaged in any activities related to biomass in [STATE] between the beginning of 2008 and the present time?
  - a. Yes →CONTINUE
  - b. No →VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION AND REPORT TO STATE ENERGY OFFICE CONTACT
  - c. DK/Ref → ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of those activities since 2008 to present time?
  - a. Yes →CONTINUE
  - b. No →ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

Next, I'd like to ask you a few questions relating to you and your organization.

3. What is your current job title or position at [ORGANIZATION]?
4. What are your general responsibilities?
5. How long have you been in that role?

### **PART 3. CAPACITY: BIOMASS MARKET**

Now, I'd like to ask you a few questions regarding the size of the biomass market and the effects of the [YEAR][POLICY] regarding biomass capacity in [STATE]. The [YEAR][POLICY] was suspended due to public concern regarding air emissions, greenhouse gas emissions, and forest impacts. New units could not qualify under the [YEAR][POLICY] during the suspension. The [YEAR][POLICY] addressed concerns regarding biomass and redefined the eligible sources of biomass and increased the efficiency criterion and carbon accounting requirements included in the [YEAR][POLICY].

C1. What is the current annual biomass generation capacity in [STATE]? [Use options b-e to probe respondent if unsure]

- a. RECORD CAPACITY: \_\_\_\_\_
- b. 0-25 MW
- c. 26-50 MW
- d. 51-100 MW
- e. 101 and greater
- f. Don't Know

C2. What was the annual biomass generation capacity in [STATE] at the time of the [YEAR][POLICY]? [Use options b-e to probe respondent if unsure]

- a. RECORD CAPACITY: \_\_\_\_\_
- b. 0-25 MW
- c. 26-50 MW
- d. 51-100 MW
- e. 101 and greater
- f. Don't Know

C3. In your opinion, if the [POLICY] had not occurred, would the annual generation capacity of biomass from [YEAR] until now have stayed the same, increased or decreased?

- a. By how much?  
Record Percent: \_\_\_\_\_
- b. Why do you say that?
  - i. **[PROBE IF NECESSARY]:** Do you think existing generation units would have produced the same amount of biomass capacity, a lesser amount of biomass capacity, or a greater amount of biomass capacity? Why?
  - ii. **[PROBE IF NECESSARY]:** Do you think that more generation units would have come online, no generation units would have come online, or do you think some generations would have gone offline?

C4. You indicated earlier that the current annual biomass generation capacity in [STATE] is approximately [Response to C1] MW. As a result of the [YEAR][POLICY], what do you estimate the biomass generation capacity in [STATE] will be in...

[Ask for capacity estimates, if respondent is unable to provide, ask for estimated change in percent from [YEAR] capacity]

a.

Date	Capacity	Percent Change
Today	Record current capacity from C1: _____ MW	N/A
5 Years		
10 Years		
20 Years		
30 Years		

b. Why do you say that?

- i. **[PROBE IF NECESSARY]:** What kind of shift do you project in the biomass market? What will cause this shift? (Will more generation come online due to the [YEAR][POLICY]? Will the [YEAR][POLICY] limit more generation or force current plants to shut down? Will generation be limited by available fuel stock?)

C5. Next I'd like to discuss current and planned biomass generation units in [STATE]. I'll read a list of generation units and ask some follow-up questions regarding each one. At the end, please identify any units we have overlooked.

- a. Is [Generation Unit] an existing or planned biomass generation unit in [STATE]? [IF NO skip to next unit]
- b. Is [Generation Unit] online at this time?
- c. [IF C4b=No] What is the expected online date for this unit?
- d. What is the rated capacity of this unit? Please only identify the capacity as it relates to biomass. Do not include capacity for other fuel sources used at this location.
- e. Is this unit expected to Qualify for the [YEAR][POLICY]?
- f. [IF C4e=No] Why do you say that? Will the unit go offline as a result?

#### **PART 4. Fuel Resource trends**

Now I would like to ask you some questions regarding the availability of fuel sources for biomass. For the purposes of this discussion, I'd like to only discuss biomass sources eligible under the [YEAR][POLICY]. This includes [POLICY DETAILS]

F1. During the following time periods in [STATE], what was the demand for biomass resources in tons? Your best estimate is fine.

F2. What percent of this demand was fulfilled by available resources within [STATE]? Your best estimate is fine.

F3. ASK IF DEMAND INCREASED AFTER POLICY: Do you believe that the [YEAR][POLICY] will impact resources for biomass energy generation? Please Explain.

F4. [IF F4= YES] Where will the additional biomass be sourced from? Can the additional demand be met with [STATE] supply or must out-of-state sources be investigated?

#### **PART 5. Efficiency and Emissions**

Now, I'd like to talk about the new provisions for increased plant efficiency and reductions in greenhouse gas emissions as stated in the [YEAR][POLICY].

E1. Will the efficiency requirements of the [YEAR][POLICY] affect the total biomass capacity in

[STATE]?

- a. [IF YES] Will the efficiency requirements increase or decrease future capacity?
- b. By what percent will capacity increase or decrease because of the efficiency requirements?

E2. What impact will [POLICY DETAIL] have on the biomass market?

- a. [PROBE IF NECESSARY] By how much will the [POLICY DETAIL] have encourage further development in the biomass market?

E3. Did emission levels from biomass increase, decrease, or stay the same after the [YEAR][POLICY] have? By how much?

E4. After the suspension of qualifications, did emission levels from biomass increase, decrease, or stay the same? By how much?

E5. Do you expect emission levels from biomass to change in response to the [YEAR][POLICY] have? By how much?

Years	% Change
E3. Pre-2008	
E4. 2008-2012	
2012 and on	

**PART 6. LABOR**

Next, I'd like to ask some questions regarding the labor impacts of the [YEAR][POLICY] have

L1. Did your organization add any positions to support the development and implementation of the revised [YEAR][POLICY]? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. [IF L1a >0]How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?

Job classification	Number FTE added
Administrative	
Technical	
Services	
Professional	
Management	



Other	
-------	--

- L2. Has your organization developed any new capabilities or resources to support the [YEAR][POLICY]? PROBE:
- a. Contacts and relationships with market actors
  - b. Tools such as building analysis software
  - c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula

These are all the questions I have for you today. Thank you for your time and insights

## L.39. [STATE] BIOMASS GENERATION UNIT INTERVIEW GUIDE

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

#### Interview Tracking Information

Interviewer		Survey Length (min.)	
Completion Date			

Program Administrator Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Known programmatic activities prior to interview:	
Description of target markets:	
Structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Street Address:	
City, State, Zip:	
Contact Disposition:	

### **PART 1. Introduction and Background**

My name is [INTERVIEWER NAME] from DNV GL. This interview is part of an evaluation of the State Energy Program being conducted by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy. The U.S. Department of Energy (DOE) would like to inform each individual that the information requested here is being solicited under the statutory authority of Title III of the Energy Policy and Conservation Act of 1975, as amended, which authorizes DOE to administer the State Energy Program (SEP). This information is being sought as part of a national evaluation of SEP, the purpose of which is to reliably quantify Program accomplishments and help inform decisions on future operations. The sole use of the information collected will be for an analysis of national-level Program impacts. Disclosure of this information is voluntary and there will be no adverse effects associated with not providing all or any part of the requested information. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the

interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

**PART 2. Respondent Eligibility and Screening**

These first few questions are meant to verify that we are speaking with the right person.

1. First, was your organization engaged in any activities related to biomass in [STATE] between the beginning of 2008 and the present time?
  - a. Yes →CONTINUE
  - b. No →VERIFY THAT THE RESPONDENT IS SURE OF THIS INFORMATION AND REPORT TO STATE ENERGY OFFICE CONTACT
  - c. DK/Ref → ASK TO BE REFERRED TO SOMEONE WHO MIGHT KNOW
  
2. Have you been involved in the planning and management of those activities since 2008 to present time?
  - a. Yes →CONTINUE
  - b. No →ASK TO BE REFERRED TO A PERSON WHO HAS BEEN SO INVOLVED

**PART 3. ORGANIZATION**

Next, I'd like to ask you a few questions relating to you and your organization.

O1.What is your current job title or position at [ORGANIZATION]?

O2.What are your general responsibilities?

O3.How long have you been in that role?

Now, I have some questions about [ORGANIZATION]?

O4.Briefly, what kind of services does your [ORGANIZATION] provide?

O5.Can you briefly outline the range of activities your organization is engaged in related to biomass generation in [STATE]?

**PART 4. GENERATION UNIT**

Now I would like to discuss the characteristics of [GENERATION UNIT].

G1.What year did [GENERATION UNIT] come online?

G2.What is the expected lifetime of the [GENERATION UNIT] (in years)?

G3.What is the capacity of [GENERATION UNIT]?

RECORD CAPACITY \_\_\_\_\_

- a. What percent of the total is from biomass?

- b. What are the other fuels that [GENERATION UNIT] uses and what percent of that fuel source is used?

	Fuel Type	Percent of capacity/generation Pre 2008	Percent of capacity/generation between 2008 and 2012	Percent of capacity/generation post 2012
G3a.	Biomass			
G3b.				
G3b.				
G3b.				

G4. What is the annual biomass use in tons at this facility?

- a. Before 2008
- b. 2008- 2012
- c. Projections for 2012 and onward

Time	Annual Biomass Use in Tons
Before 2008	
2008-2012	
Projections for 2012 and onward	

#### **PART 5. AWARENESS OF [YEAR][POLICY]**

Now, I'd like to ask you about your awareness of the [STATE] [YEAR][POLICY].

A1. Are you aware of the [YEAR][POLICY] regarding biomass production in [STATE]?

1. Yes
2. No

**[IF A1=NO, SKIP TO A3]**

- a. How did you first hear about the [YEAR][POLICY] regarding biomass?
- b. Did your facility undergo any technological changes or retrofits in order to accommodate requirements in the [YEAR][POLICY]?
- c. How did the [YEAR][POLICY] shape or change your daily operations at [ORGANIZATION]?
- d. [IF G1<2008] By how much did the [YEAR][POLICY] change the generation capacity at your unit?
  - i. Why do you say that?
- e. By how much did the [YEAR][POLICY] shape or change medium or long term planning goals at [ORGANIZATION]?
- f. Did the [YEAR][POLICY] support or hinder your organizations efforts related to

biomass generation? Why do you say that?

- g. Was the [YEAR][POLICY] sufficient in addressing the biomass market? Why do you say that?

A2. Are you aware of the [YEAR][POLICY DETAIL]?

1. Yes

2. No

**[IF A2=NO, SKIP TO A3]**

- a. How did you first hear about the [YEAR][POLICY DETAIL]?
- b. How did the suspension of qualifications under [YEAR][POLICY] affect your organization's day to day activities?
- c. [IF G1<2008] Did the [POLICY DETAIL] change operations at your unit?
  - i. Why do you say that?
- d. How did the suspension of qualifications under POLICY DETAIL affect your medium or long term planning goals at [ORGANIZATION]?
- e. Were there any other market conditions or planned events at your organization at this time that would have changed or affected your operations and generation in the absence of the suspension of qualifications?
  - i. Why do you say that?

A3. Are you aware of the [POLICY DETAIL] as it pertains to biomass?

1. Yes

2. No

**[IF A3=NO, SKIP TO C1]**

- a. Did the [YEAR][POLICY] address any concerns or issues [ORGANIZATION] had with the [YEAR][POLICY] ?
  - i. If yes, what specific concerns or issues did the [YEAR][POLICY] address?
- b. Will your generation unit qualify under the [YEAR][POLICY] ?
  - i. [IF A3b=NO] Please explain.
  - ii. [IF A3b=NO] Do you plan to retrofit your unit in order to qualify under the [YEAR][POLICY] ?
- c. [IF A3b= Yes] What [POLICY DETAIL] will have the biggest affect on your

organization?

- i. Please explain.
- ii. Do you expect the mix of fuels or overall capacity to change due to the [YEAR][POLICY] ?
  1. By what percent do you expect it to [Increase/decrease]?
- iii. [IF YES] Will the use of biomass increase, decrease, or stay the same?
  1. By what percent do you expect it to [Increase/decrease]?
- iv. [IF YES] Do you expect the overall capacity of this facility to increase, decrease, or stay the same?
  1. By what percent do you expect it to [Increase/decrease]?
- d. Overall, how will the [YEAR][POLICY] impact your organization?
- e. What effect do you think the [YEAR][POLICY] will have on the biomass industry in [STATE]?

**PART 6. CAPACITY: BIOMASS MARKET**

Now, I'd like to ask you a few questions regarding the size of the biomass market and the effects of the [YEAR][POLICY] regarding biomass capacity in [STATE].

C1. What was the annual biomass generation capacity in [STATE] at the time of the [YEAR][POLICY] ? [PROVIDE RANGES b-e if needed]

- a. RECORD CAPACITY: \_\_\_\_\_
- b. 0-25 MW
- c. 26-50 MW
- d. 51-100 MW
- e. 101 and greater
- f. Don't Know

C2. In your opinion if the [POLICY DETAIL] had not occurred, what would the annual generation capacity of biomass from 2008 until now have been? [PROVIDE RANGES b-e if needed]

- a. RECORD CAPACITY: \_\_\_\_\_
- b. 0-25 MW
- c. 26-50 MW
- d. 51-100 MW
- e. 101 and greater
- f. Don't Know

C3. Why do you say that?

C4. Do you believe that the [YEAR][POLICY] will impact resources for biomass energy generation?

- a. **[PROBE IF NECESSARY]:** By how much do you think the demand for biomass will change?
- b. **[PROBE IF NECESSARY]** By how much do you think the amount of biomass available for generation units will change?

**PART 7. EFFICIENCY REQUIREMENTS OF POLICY**

E1. Are you familiar with the efficiency requirements of the [YEAR] [POLICY]?

- 1. Yes
- 2. No

**[IFE1=NO, go to L1]**

E2. [IF E1= Yes] Will your generation unit under go any renovation efforts to comply with the [YEAR] [POLICY]?

E3. Will the efficiency requirements of the [YEAR] [POLICY] affect the total biomass capacity in [STATE]?

- a. [IF YES] Will the efficiency requirements increase or decrease future capacity?
- b. By what percent will capacity increase or decrease because of the efficiency requirements?

**PART 8. LABOR**

Next, I'd like to ask some questions regarding the labor impacts of the [YEAR][POLICY] .

L1. Did your organization add any positions to support the development and implementation of the revised [YEAR][POLICY] ? Please include positions that may be split between a number of different programmatic and administrative activities.

IF YES:

- a. How many positions did your organization add?
- b. [IF L1a >0]How many FTEs were added in each of the following job classifications: administrative, technical services, professional, management?

Job classification	Number FTE added
Administrative	
Technical	
Services	

Professional	
Management	
Other	

- L2. Has your organization developed any new capabilities or resources to support the [YEAR][POLICY] revisions? PROBE:
- a. Contacts and relationships with market actors
  - b. Tools such as building analysis software
  - c. Project financing facilities such as loan funds, loan loss reserve programs, etc.
  - d. Technical education materials and curricula

These are all the questions I have for you today. Thank you for your time and insights



## L.40. RENEWABLE MANUFACTURING PROGRAM MANAGERS

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] and year of the PA offering [PROGRAM YEAR].*

### **BACKGROUND INFORMATION (to be filled in prior to interview):**

Programmatic Activity Name:	
Year:	
BPAC Area	
2008 Budget:	
2008 Market Title Sampled	
2009-2010 ARRA budget	
2009-2010 ARRA Market Title Sampled	
Types of Services Provided through Programmatic Activity:	
Understood structure of SEP/ARRA funded activities from informal discussions with SEP representative from first round discussions (from database)	
Contact Name:	
Contact Company:	
Contact Phone:	
Contact Disposition:	

### **Introduction**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. The US Department of Energy's State Energy Program has hired us to talk with program managers for renewable energy manufacturing projects supported by SEP or SEP/ARRA funds.

Because your agency had such a program, I would like to ask you some questions about the impact of the program. The data you supply will be used to characterize the program in [PROGRAM YEAR]. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:

Martin Schweitzer, Senior R&D Staff  
 Oak Ridge National Laboratory  
 E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

**Screening**

Our understanding is that you are the program manager for [Renewable Manufacturing Program] that received SEP/ARRA funding in [YEAR]? Is this correct:

Yes – Correct person and year for SEP/ARRA funded Renewable Manufacturing Projects	[Continue]
Yes – Correct person, wrong year for SEP/ARRA funded Renewable Manufacturing Projects	[Correct year and Continue if the year in question is within the study period]
No – Incorrect person for SEP/ARRA funded Renewable Manufacturing Projects	[Ask for correct person for Renewable Manufacturing programs]
No – There were no SEP/ARRA funded Renewable Manufacturing Projects	[Thank you and terminate]

Your participation in this survey is voluntary, and your answers are confidential. The information from all respondents will be combined for analysis purposes and data will not be released in a way that would reveal an individual respondent. If you prefer not to answer a question, just let me know and we'll go on to the next question. The length of the interview varies from person to person, but most interviews last about 30 minutes to an hour. For quality control purposes, this call may be recorded and monitored. If you have any questions about this study, you can contact [MAIN STUDY CONTACT?].

1. Were you personally involved in developing and administering the program element that involved funding to renewable energy manufacturing activities in [PROGRAM YEAR]?
  - a. Yes
  - b. No (IF NOT, REQUEST CONTACT NAME AND TELEPHONE NUMBER OF A KNOWLEDGEABLE INDIVIDUAL. IF NO ONE AT ORGANIZATION IS KNOWLEDGEABLE ABOUT THE PROGRAM, STATE DETAILED REASON)
2. Who else at your agency/organization was involved in managing and developing the program element involving renewable energy manufacturing activities?
  - i. Name/contact info/role: \_\_\_\_\_
  - ii. Name/contact info/role: \_\_\_\_\_
  - iii. Name/contact info/role: \_\_\_\_\_
3. (IF OTHERS MENTIONED IN QUESTION ABOVE) Among you and [INSERT QUESTION ABOVE RESPONSE], who is most familiar with the program's renewable energy manufacturing funded activities in [PROGRAM YEAR]?
  - a. (IF NOT RESPONDENT, THANK AND TERMINATE AND CONTACT MOST KNOWLEDGEABLE PERSON)
4. What was your role and responsibilities with respect to renewable energy manufacturing in the [PROGRAM] in [PROGRAM YEAR]?
5. In what year did you first become involved with the programs that received SEP ARRA funding?
6. Are you still involved with managing this program? If not, when did your involvement end?

7. How long have you been involved in SEP programs?
8. Based on information provided by DOE, you received \$\_\_\_\_\_ in SEP/ARRA funding for Renewable Manufacturing Projects. Is this correct?

Listed Amount	Corrected Amount
[AMOUNT _____]	[AMOUNT _____]
	[REMAINING AMOUNT _____]

**Interviewee/Organization Background**

9. What is your job title? [Record verbatim]
10. Could you briefly describe your job responsibilities and role within the agency/company?
11. How is your agency/company specifically involved in managing the SEP/ARRA funded renewable energy manufacturing activities?
12. In what year did your agency/organization first become involved with funding renewable energy manufacturing activities?
13. Is your agency/organization still involved with funding renewable energy manufacturing activities? If not, when did your involvement end?

**Program Baseline**

14. What are the programs under which you funded REM projects using SEP or SEP/ARRA funds? Did you fund [specific name of REM project/program being evaluated]? [Note: confirming we are evaluating the correct program]
15. Did you fund other REM activities under SEP separate from this ARRA/SEP activity? If yes, please identify the magnitude of the ARRA/SEP REM funding relative to the other SEP REM activities.
16. Please list the goals of the SEP-funded program relative to improvements in performance, cost or other improvement features.
17. What was the timeframe for completing the projects and for achieving the targeted goals?
18. Was there a legislative or regulatory requirement separate from SEP or SEP/ARRA that influenced the funding or goals of the renewable energy manufacturing activities?
19. Were the SEP-funded REM program goals established in a roadmap or policy document? [YES/NO] If yes; request the document(s)
20. To what extent did the SEP-funded REM goals in the roadmap or policy document relate to market place needs and barriers (prompt if needed)

**Program Implementation**

21. We would like to confirm and complete this list of awarded projects from your program in terms of dollar budget, technology group and goals set for each project.

(Pre-populated from initial contact with Program Manager in setting up interview. We will prompt on quantitative goals but focus primarily on identifying sources of goals for the projects)

Project	Dollar Budget	Match funding	Technology group	Cost reduction goals	Goal for Increase in	Goal for Reduction in carbon	Jobs creation goal

					renewable energy production	emissions	

22. Do the above-listed goals match the overarching REM program goals?
- a. If no, do the SEP-funded REM project goals represent interim steps to achieving the REM Program goals?
23. For each technology area, please identify if there was a match between the program goals and the market needs in the technology area
24. Do the REM projects have milestones?
- a. IF YES: Are the milestones linked to condition of payment?
25. Can you please provide us with copies of the SEP-funded REM project contracts?
- a. IF YES, note how to obtain them
26. Do you track progress of the individual REM projects?
- a. IF YES; Please provide % progress towards completion of each of the awarded REM projects and % success in achieving their stated REM improvement goals for each completed project to the best of your knowledge [IF NO, SKIP TO Next]

Project	% Progress towards Completion	% Goal achievement for completed projects

27. Can you please provide us with names of any other key contacts we should interview in assessing the progress of the projects?

Project	Contact

**Program Impacts**

28. Did you develop estimates of the amount of fossil energy that will be displaced due to the improvements made by the SEP-funded project?
- a. If yes, please identify the estimated amount of displaced energy and explain the reasoning behind the estimates [if there is written documentation on the estimation methods, request a copy]
- b. If the REM funded product does not result in increased displacement of fossil energy per each unit of deployed capacity, please explain the basis for claiming any increased energy displacement [probe to find out how other improvements will result in increased market adoption]
29. Do you have any process to measure and verify the progress of SEP-funded projects in the marketplace?

If YES: Please provide the verification documents (record with whom and how to follow up for the documents)

30. From your perspective, how much did sales of the new or improved product contribute to overall sales in the targeted market sector?  
(record % increase by each technology group)
31. From your perspective, how much did sales of the new or improved SEP-funded REM product increase renewable energy production within the targeted market sector?  
[Record % increase by technology group]
32. Is there anyone else you recommend we talk to regarding the extent of the improvement of the REM funded product or it's ability to penetrate the marketplace?  
If YES: Record name and contact info

**Job Creation**

As part of our evaluation effort, we are trying to establish the job impacts of this program. The next series of questions is one part of this process.

33. To the best of your knowledge, how many additional FTE staff has been associated with the management and implementation of this SEP program? [Probe number of FTE staff assigned in each year to establish any change as a result of the ARRA funding]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff...				
<b>2</b>	Number of part-time staff... (in FTEs)				
<b>3</b>	Never had any staff assigned only to program				
<b>4</b>	Don't know				
<b>5</b>	Refused				

34. Did the activities funded by the program lead to additional jobs in renewable manufacturing in the marketplace? Please give us your best estimate if this was not a formal exercise conducted by the program.
- a. How many? [less than 10, 10 to 50, 50 to 100, more than 100]
  - b. What types of jobs? [prompt for categories with examples]
35. If the funded renewable manufacturing activities were to be suspended or cease operations, would the companies involved in the activities continue to employ those individuals?
- a. IF YES: Why do you think that? What resources would be available to support such activities?
  - b. If NO: How many people would you estimate would be without jobs?

**Attribution of Impacts**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

36. From your perspective, please identify renewable energy and manufacturing improvement programs in the pre-2008, 2008, 2009-2010, and subsequent time periods that may have addressed the ARRA goals. [PROBE FOR SPECIFIC TIMES TO ANCHOR TIMELINE]

		<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Program Description				
<b>2</b>	Goals				

37. In your knowledge are there other sources of funding or support available to the manufacturers that were awarded funds under your program, IF YES; LIST

<b>Source of support</b>	<b>Program</b>	<b>Dollar budget</b>

38. To what extent and in what ways did you coordinate your [PROGRAM] activities with other programs and organizations that offer services like those offered via this program? With whom and how? (PROBE: for co-sponsoring, funding from other sources, feeding into utility programs or government incentive programs)

39. In what other ways has your [PROGRAM] impacted activities and professional practices? (PROBE: increased service offerings, stocking, recommendations, availability/manufacturing, improved skill set of staff, etc.)

Thank you for your time and insights

## L.41. RENEWABLE ENERGY MANUFACTURING SUBGRANTEES – WIND/PV

### **Overview:**

*This template is intended to capture project specific information for Renewable Energy Manufacturing (REM) Wind or PV projects that represent an expansion or modification of existing manufacturing capability. The purpose of the survey is to identify how changes in the manufacturing process will lead to increased market penetration of the product (which would then increase overall energy savings). The increase in market penetration could occur in several ways:*

- *Lowering the cost point of the product directly through design changes to the product;*
- *Lowering the cost of manufacturing of the product; or*
- *Increased manufacturing rates.*

*The survey is meant to help identify ways in which the expansion or modification of manufacturing was tied to lowering the cost point, lowering the cost of the manufactured product, increasing the manufacturing rates or in some other way leading to increased consumer adoption and therefore higher market penetration of the REM product. In addition, we want to obtain quantitative responses to the changes. For example, we want to understand the extent to which the cost point was lowered; not simply that it was lowered. In order to attribute differences in energy savings from the resulting increased market penetration, we will need to find out the extent to which these modifications actually resulted in increased sales.*

*The interviews are meant to be somewhat informal and open ended; not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide. Note that changes in the product that could affect the performance of the product in the field are covered under the other REM subgrantee survey templates.*

## **GUIDE #SG1: MANUFACTURING EXPANSION/MODIFICATION OF WIND OR PV**

**Table 35: Subgrantee Background Information [To be pre-populated prior to interview]**

<b>Company Name</b>	
<b>Project Name</b>	
<b>ARRA Award Amount</b>	
<b>Year Awarded</b>	
<b>Contact Name &amp; Title</b>	
<b>Phone</b>	
<b>Email</b>	
<b>Address</b>	

### **Introduction /Background Statement**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. This interview is intended to familiarize our team with the activities conducted using SEP or SEP/ARRA funds. More specifically, we are interested in the support you received from the [INSERT STATE] State Energy Office (SEO) for [PROJECT NAME]. The information you supply will be used to characterize the SEO's involvement in this project, and the impact of these actions. In particular, I want to focus on the impacts associated with how ARRA funding may have affected the cost of manufacturing your renewable energy product(s), the volume or rate of production, number of sales associated with changes in manufactured product(s) and impacts on jobs and your company's market position.

The US Department of Energy's State Energy Program contracted us to talk with those stakeholders who received support from SEP/ARRA for renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

### **Screening**

- 1.** Our understanding is that your company/organization received funding under the SEP/ARRA program in [YEAR] for Renewable Manufacturing projects? Is this correct?

[Verify Project was done during ARRA Period of 2009 or later]

<b>ARRA Program Year:</b>	<b>2009 to present</b>
SEP Program Year (baseline):	July 2008 – June 2009

2. *What is your job title and what was your role and responsibilities with respect to the project for which you received renewable energy manufacturing funding under SEP/ARRA?*
3. *Who else at your company/organization was involved in leading or managing the SEP/ARRA project for which you received renewable energy manufacturing funding?*

[Obtain Name, Title, Role and Contact Info of anyone else]

4. [If Yes in Q3]: *Among you and [INSERT RESPONSE FROM Q3], who is most familiar with the project for which you received the ARRA renewable energy manufacturing funding in [PROGRAM YEAR]?*

[If another is most familiar, ask about the likelihood that they are available to speak.]

#### **Pre-ARRA Questions (Identifying Baseline)**

*We are interested in knowing more about how ARRA funding impacted your company. Could you describe a bit about what were you doing before ARRA funding; what you hoped to achieve as a result of obtaining ARRA funding, and what the ARRA funding actually allowed you to do?* [Follow up with specific questions]

#### **5. Before you received ARRA funding, what product(s) were you manufacturing?**

[Obtain general specs including size, application, volume, market needs]

[For REM projects, ask for the following specific metrics. Skip if a non-REM project]

- Performance
  - Type of product (e.g., wind components, complete systems, etc.)?
  - Typical materials used for manufacturing the product (e.g., thin film, silicon)
  - Size (e.g., for wind: hub heights, blade lengths)
  - Rated Capacity & Efficiency of turbine (kW; electrical efficiency)
  - What were the typical applications (e.g., utility scale)?
  - Do you know where these product(s) were typically installed for energy production (e.g., locations in [STATE])?
  - Did you monitor performance of your product(s)? If so, do you have representative load profiles?
- Manufacturing Production Volume
  - Typical production rates (units per hour; units per month, etc.)
  - Annual sales (number of units sold per year)
  - Customers/target audience
- Cost
  - Cost of Production (\$/unit)
  - Sales Price (\$/unit)

- Jobs
  - Number of people employed by your company prior to ARRA, in 2008
  - Job types (e.g., engineers, technicians, sales staff, etc.)
  - Full-time vs Part time staff
- Pre-ARRA market impact
  - Market Penetration (what kind of percent market share do you believe you had for this type of product in [STATE]?) How many units or installed kW of this type of product was in the [STATE] marketplace prior to the ARRA funding being offered?
  - Do you know roughly how much energy was produced (kWhr/year) for the products your company provided prior to ARRA funds?
  - What was your timing to market?

6. *Why did you apply for ARRA funding? What were your specific goals?*

[Examples: ramp up production, lower cost of manufacturing through manufacturing process changes or design of product]

7. *What market data (if any) did you reference in developing your business plan? Do you have data or market studies that indicated market support for your expansion/development of your new product?*

8. *What are your industry's main market drivers and barriers?*

9. *What specific customer needs/market gaps are you fulfilling?*

- Need for a product with X% lower cost than existing technology
- Need for a product that operates in lower class wind regime as a certain cost point
- Need for a technology that provides multiple benefits as required by consumers in that market place

10. *Who is your target audience for the REM product you are improving?*

[What specific market sector and type of customers are served by the REM product?]

11. *What would you have done if you had NOT been awarded ARRA money?*

- What technology would you have produced?
  - Stayed on course with old technology?
  - Manufactured new technology anyway
  - Made improvements that were less significant than with ARRA but better than your original product?
  - Changed products?
  - Gone out of business?
- Over what time period would this activity have sustained?

12. *Did you have specific goals relative to the amount of ARRA funding provided?*

[Try to prepopulate from project proposal]

- Overarching project goals? (e.g., project milestones like to create jobs or spend \$ ASAP)
- Product attribute goals? (e.g., on efficiency, cost, achieve performance goals, production goals, cost goals, job goals, market goals)?
- Production goals?

- Sales goals?
- Any marketplace goals (e.g., installations, RE generation goals)?

### **ARRA Questions**

13. *When did you apply for ARRA funding?* [Pinpoint date, RFP]

14. *Of your total operating and capital expenses, what portion does ARRA money represent?*

15. *What are the other sources of income that fund your operations? What types of activities did those non-ARRA sources fund?*

[Describe funding levels, public programs/other funding sources, and how each part contributed to your operations]

16. *What specific activities did ARRA fund?*

17. *Do the ARRA activities represent an expansion to your existing product lines or does this represent an entirely new product effort?*

[Make sure this is an expansion, i.e., SG1]

[Try also to get a sense of how well they know the market and if they are in position to project market demand]

18. *When did you receive ARRA funding and how was it delivered (in increments, lump sum)?*

19. *Was payment contingent on meeting any of your project goals? If so, which goals?*

20. *Can you share your funding contract with us?*

### **METRICS**

**Tell us about the renewable energy product(s) you've manufactured with ARRA money.**

21. *What are the characteristics of the products you manufactured with ARRA funds?*

- Type of manufactured products (including specific design characteristics)
- Sizes (e.g., kW) and application (e.g., utility scale; behind the meter customer)
- Can you provide us with a specification sheet(s) of the products you manufactured using ARRA funds?

### **Product Performance: PV/Wind Manufacturing Expansion**

**Tell us about how the changes you made in the manufacturing process may help increase energy savings.**

*[We're looking at three possible ways the manufacturer may have modified the manufacturing:*

- *Changes only the efficiency of the manufacturing process (no increase in volume production and no change in the performance of the product), in which case, energy savings accrue only to the change in the manufacturing;*

- Changes which result in increased volume production but no change in the performance of the product, in which case energy savings are associated with baseline performance of the product and accrue with increases in the number of deployed units; and
- Changes in volume production of components of overall renewable energy systems (e.g., blades or rotors of wind turbines, stand offs for PV panels, etc.), in which case energy savings must be attributed to the component. This third case is the most difficult case in which to estimate savings.]

**Changes in the manufacturing process:**

22. Did you make only changes in the efficiency of the manufacturing process (i.e., no increase in volume production and no change in the performance of the product)? [If no, skip to 25]

23. How much efficiency improvement resulted from the modification? [Ideally, we want this in saved energy per year, but need to document evidence of energy savings]

24. Did you measure the energy savings resulting from the manufacturing modifications?

- Please provide the estimated energy savings (i.e., kWh/production cycle; kWh/year)
- Can you please provide us with a copy of the test measurement report?

25. Did you make changes which resulted only in the volume production but no changes in the performance of the product? [if no, skip to 27]

26. What was the increase in volume production of the product resulting from the manufacturing modification (i.e., number of units per production cycle, number of units per year)?

- Can you please provide us with a copy of the test measurement report?

**[Note: if they made changes which increased both the efficiency of the manufacturing and the volume, need to make sure that we obtain information on both changes]**

27. Are you a manufacturer of only components to wind or solar systems; or do you manufacture complete systems?[If complete systems, skip to 30]

28. What components do you manufacture (e.g., wind blades for wind turbines; PV modules for solar systems; towers for wind turbines; stand offs for PV systems, etc.)?

- Obtain listing of each major component if there are multiple components

29. Do you know how your component products affect the amount of energy produced from the complete system (e.g., percent of energy produced from a complete system)? [If no, skip to 30]

- What is the basis of your estimate (i.e., report from the literature, test results, etc.)?
- If you have test results, can you provide us with a copy?
- If estimates are based on literature, can you please provide us with a reference?

30. Can you estimate annual energy generation of your products at the typical applications in which they are used?[This will depend on design and operating conditions, so need to collect the following information]

- Annual energy generation per “typical” system
  - Did you monitor performance of installed systems?
    - If generation profiles are available, can we obtain a copy of representative generation profiles?
  - Ratings of the above referenced systems
  - Geographical locations for the above installed systems
- Size of units you manufacture (i.e., rated power in kW)
  - For wind turbines, need a power curve for rating at different wind speeds
  - For solar PV, need rating at STC (PVUSA)
- Average annual capacity factor in typical applications
  - For wind, need wind speeds, hub heights, etc. for typical applications and measured or estimated annual capacity factor corresponding to these conditions
  - For solar PV, need TMY2 conditions and configuration (e.g., tilt, orientation, etc.) corresponding to annual capacity factor
- What is the estimated effective useful life (EUL) of the product?

31. *Do you have any data on the current market penetration or kW installed of your technology?*

- *Can you please provide us with estimates of sales numbers or actual installations?*

32. *In the course of applying for ARRA funding, did you estimate possible GHG savings?[ if no, skip to 33].*

- *How did you estimate GHG emissions offsets (i.e., what are your sources, methodology and calculations)?*
- *How much energy content did you assume was offset?*

33. **Baseline Comparison.** *How does your panel/component’s performance compare to your competitors? Compare to the marketplace baseline? Do you have data/studies on the performance and market penetration of similar technologies?*

34. **Forecast.** *Do you have product performance goals moving forward (e.g., efficiency goals)? What are your targets through 2017?[This shouldn’t apply to manufacturing expansions]*

### **Manufacturing Expansion/Production Attributes**

35. *To what extent did the SEP/ARRA grant expand or build on your prior activity?*

[e.g., grew from manufacturing 2 units/month to 8 units/month. Isolate what ARRA portion impacted]

36. *Describe which production improvements you made as a result of using ARRA dollars*

37. *[If increase in production volume]: Did you make changes to the manufacturing process that made the overall process more efficient? Please explain what you did.*

[e.g., Did you make improvements to the manufacturing line? E.g., not having to pull components off the line to adjust them, less energy used in process)

38. *Can you give me specific numbers on how much your production/output rates changed since receiving ARRA funding?*

[Obtain production rates at time of ARRA funding, and over time until reaching peak production (or expected peak production, through 2017 if available.)]

39. *Were there any manufacturing improvements made that affected the non-energy aspects of the technology?*

[e.g., Improvement in market or technical (non-energy) performance of the technology, such as a reduction of down-time, lower maintenance cost, easier accessibility, reduction of time for parts delivery, etc]

40. *Did you calculate the energy efficiency savings from the increase in manufacturing efficiency? Have these costs been integrated in the final product price/cost of production? Do you have calculations?*

### **Product Attributes [This shouldn't apply to SG1]**

41. *In addition to an expansion, did you change some of the characteristics of your product?*

42. *Describe which product improvements you made as a result of using ARRA dollars.*

- Any design changes/improvements?
- Unit efficiency improvement?

[E.g., increased or stabilized renewable energy generation per unit of capacity for the equipment in question?]

- Product design improvements that have affected how you operate the manufacturing line?

43. *How have these changes affected product attributes, like efficiency, cost, application, sales, manufacturing efficiency?*

44. *What would you say differentiates your technology from what's already in the marketplace?*

### **Cost Attributes**

45. *What is your cost per unit of production? Per unit efficiency? Per unit capacity (e.g., kW)?*

[Obtain whatever cost metrics are available]

46. *[If baseline equipment was a REM product] What was your cost per unit/efficiency/capacity of the product you produced prior to receiving ARRA funding (see product in Baseline Section)?*

47. *What specific manufacturing line changes led to these cost changes, and to what degree?*

[Identify what aspects of manufacturing expansions or changes to product attributes have affected unit cost, by how much, and how/why]

Examples:

- a. Decrease in unit cost?
- b. Decrease in price per unit of efficiency?
- c. Decrease in the price per unit of capacity?
- d. Moderation in the price per unit compared to non-SEP influenced markets?

48. *Do you have data/analysis on how additional changes in cost would affect market penetration (e.g., how much more of a market could be penetrated with an \$x drop in price)?*

49. **Forecast.** *Do you have cost forecasts (or goals) going forward (through 2017)? How do you expect to achieve these costs (e.g., through what means)? How do you plan to fund these activities?*

### **Sales Price**

50. *What is your sales price per unit manufactured?*

51. *Do you have tiered sales prices depending on the customer (e.g., bulk purchases)?*

52. *Have you experienced a moderation in price per unit compared to the market baseline?*

53. *Have prices changed pre- and post-ARRA? If so, by how much?*

54. *What specific production changes (mentioned earlier) have led to changes in price? And to what degree?*

[Probe for quantitative cost changes attributable to each change]

55. *Have reduced sales prices made it possible for you to reach more customers or tap into more markets? Do you have actual numbers or forecasts?*

56. *How does your sales price compare to your competitors' in the marketplace?*

57. **Forecast.** *Do you have price forecasts (or goals) going forward (through 2017)? How do you expect to achieve these prices? How do you plan to fund these activities?*

### **Market Impact/Sales**

58. *What have been your sales numbers to date? [Start with baseline period to ARRA]*

59. *Have you experienced an increase or stabilization of sales?*

60. *When did you achieve peak sales? [If peak sales not achieved yet: When do you expect to achieve peak sales? What will be your peak sales numbers?]*

61. *Has your timing to market changed since receiving ARRA funding? If so, how?*

62. How have ARRA-funded activities (e.g., manufacturing changes) affected sales? [Probe by listing changes from above sections]

- a. Changes in price affecting sales?
- b. Greater production which allows for greater supply available to sell?
- c. Changes in product attributes affecting sales?

63. Do you have data showing how much additional renewable energy generation (kWh) or capacity (kW) your operations contributed to in the marketplace above a projected BAU value? What market studies are you referencing for this calculation?(e.g., an NREL study may have forecasted xx additional capacity added in 2011; can they prove from their sales numbers that their respective & actual capacity additions were xx+xy – therefore xy above BAU)?

64. How much of the impact would you say is attributable to increased sales/output (greater product impact) versus increase in manufacturing efficiency (e.g., energy savings captured due to improved process) versus higher efficiency level of product (e.g., design changes increasing output per panel) [This will be hard to answer]

65. **Forecast.** Do you have sales forecasts (or targets) going forward (through 2017)? How do you expect to ramp up production? How do you plan to fund these activities?

## **Jobs**

Please describe job changes since ARRA.

66. How many FTE were employed in each of 2009, 2010, 2011, 2012? Were they FT vs PT? What job types & salaries were they?

- How many of these were retained from 2008? [Confirm the rest are new employees, and then calculate an incremental increase in FTE since ARRA funding]
- Do you know the number of “new” employees added since ARRA funding (i.e., incremental number of new employees)?
- How many are FT vs. PT?
- How many salaries are directly funded by ARRA money?
- How many are “indirect”, meaning created as a result of ARRA improvements to your plant (e.g., a manufacturing expansion that created a need for 5 new manufacturing employees - salaries are NOT directly funded by ARRA dollars.) How many of these jobs have been retained from the prior year?

67. Do you have any data on the number of jobs that have been induced from ARRA activity at your facility (e.g., increase in food service workers)?

## **Post-ARRA Activities**

68. Are you still involved with the SEP/ARRA program? If not, when did your involvement end?

69. What are your plans when ARRA funding goes away?

[Identify how critical ARRA funding is to their operations now]

- Stay on course, without significant changes

- Make continued improvements to product or manufacturing process
- Change business plan/model
- Go out of businesses

70. For the above choice, over what time period do you expect to see this happening (1, 3, 5, 10 years)?

71. Without ARRA funding, how would you sustain your manufacturing activities?

- Internal cash accounts
- Look for outside funding [from where, probe what types of public/private programs]
  - Private investments
  - Public programs [probe what kinds, how much]

72. How will the following items be affected from a loss of ARRA funding:

*Performance/Product Attributes*

- Type and Materials
- Size and Application
- Product Quality
- Rated Power and Efficiency/Output
- What is the EUL of the product?

*Production/Output*

- Production rates (b/c of ARRA)
- Sales #
- Customers/target audience

*Cost*

- Cost of Production
- Sales Price

*Jobs*

- What is your jobs outlook? How will you sustain any jobs currently funded by ARRA? How many jobs will be retained, created, eliminated? What types of jobs and salaries? How long will they remain?

*Market Impact*

- Timing to Market
- Fulfilling a Market Need

73. Do you have any data on the future market impact of your technology?

74. Is your company still involved with the ARRA program? If not, when did the involvement end?

75. Is there anyone else you recommend we talk to regarding the extent of the improvement of the REM funded product or its ability to penetrate the marketplace?

**OTHER THOUGHTS**



76. Overall, can you identify anything else that the ARRA funds allowed you to accomplish or achieve that we have not addressed or on which you would like to elaborate?

**Thank you for your time and insight**

## L.42. RENEWABLE ENERGY MANUFACTURING SUBGRANTEES – NEW WIND

### Overview:

*This template is intended to capture project specific information for New Wind Renewable Energy Manufacturing (REM) Projects. The purpose of the survey is to determine changes made to effect wind turbine performance or cost points which will lead to increased market penetration of the product and result in increased overall energy savings<sup>1</sup>. Energy savings can be impacted by new wind turbine designs in several ways. Examples include:*

- Increased blade length which increases the wind-swept area and so improves power output;*
- Development of multiple gears (within the gear box) improves reliability by reducing downtime (which then increases annual capacity factors);*
- Increased hub height increases the effective power output (essentially increases the wind speed seen by the turbine), which increases annual energy delivery; or*
- Addition of storage or some hybrid configuration to extend power output during peak hours.*

*The survey is meant to help identify ways in which design changes made to wind technologies may increase power output, hours of effective operation, or peak generation capacity. Our intent is to obtain quantitative data about the design changes and their impacts. For example, we want to determine how much more renewable energy was produced as a result of a specific change (e.g., increase in blade length) in order to attribute energy savings above the baseline (i.e., in the absence of the ARRA funding).*

*The interviews are meant to be somewhat informal and open ended. Not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Note that changes in the manufacturing process of the product that could affect the performance of the product in the field are covered under the other REM subgrantee survey templates.*

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<sup>1</sup> Increased market penetration results in energy savings by offsetting traditional grid electricity. Improvements in product efficiency can further increase those savings.

**GUIDE #SG2: MANUFACTURING OF NEW WIND TECHNOLOGIES**

**Table 36: Subgrantee Background Information [To be pre-populated prior to interview]**

<b>Company Name</b>	
<b>Project Name</b>	
<b>ARRA Award Amount</b>	
<b>Year Awarded</b>	
<b>Contact Name &amp; Title</b>	
<b>Phone</b>	
<b>Email</b>	
<b>Address</b>	

**Introduction**

*My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. This interview is intended to familiarize our team with the activities conducted using SEP or SEP/ARRA funds. More specifically, we are interested in the support you received from the [INSERT STATE] State Energy Office (SEO) for [PROJECT NAME]. The information you supply will be used to characterize the SEO’s involvement in this project, and the impact of these actions. In particular, I want to focus on the impacts associated with how ARRA funding may have affected the cost of manufacturing your renewable energy product(s), the volume or rate of production, number of sales associated with changes in manufactured product(s) and impacts on jobs and your company’s market position.*

*The US Department of Energy’s State Energy Program contracted us to talk with those stakeholders who received support from SEP/ARRA for renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.*

*The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:*

*Martin Schweitzer, Senior R&D Staff  
 Oak Ridge National Laboratory  
 E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 Phone: (919) 929-0995*

*Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.*

**Screening**

1. *Our understanding is that your company/organization received funding under the SEP/ARRA program in [YEAR] for Renewable Manufacturing projects? Is this correct?*

[Verify Project was done during ARRA Period of 2009 or later]

<b>ARRA Program Year:</b>	<b>2009 to present</b>
SEP Program Year (baseline):	July 2008 – June 2009

2. *What is your job title and what was your role and responsibilities with respect to the project for which you received renewable energy manufacturing funding under SEP/ARRA?*
3. *Who else at your company/organization was involved in leading or managing the SEP/ARRA project for which you received renewable energy manufacturing funding?*

[Obtain Name, Title, Role and Contact Info of anyone else]

4. [If Yes in Q3]: *Among you and [INSERT QUESTION ABOVE RESPONSE], who is most familiar with the project for which you received the ARRA renewable energy manufacturing funding in [PROGRAM YEAR]?*

[If another is most familiar, ask about the likelihood that they are available to speak.]

**Pre-ARRA Questions (Identifying Baseline)**

*We are interested in knowing more about how ARRA funding impacted your company relative to REM activities. Could you describe a bit about what were you doing relative to REM activities before ARRA funding; what you hoped to achieve as a result of obtaining ARRA funding, and what the ARRA funding actually allowed you to do? [Follow up with specific questions]*

5. *Before you received ARRA funding, what REM product(s) were you manufacturing?*

[Obtain general specs including size, application, volume, market needs]

[For REM projects, ask for the following specific metrics. Skip if a non-REM project]

- Product Characteristics
  - Type of product (e.g., complete wind systems, wind turbine components, etc.)?
  - Rated Capacity & Efficiency of turbine (kW; electrical efficiency)
  - Size (e.g., for wind: hub heights, blade lengths)
  - What were the typical applications (e.g., utility-scale, behind the customer meter, etc.)?
  - Do you know where these product(s) were typically installed for energy production (e.g., locations in [STATE])?
  - Did you monitor performance of your product(s)? If so, do you have representative generation and matching wind speed profiles?
- Manufacturing Production Volume/Market Impacts/Sales
  - Typical production rates (units per hour; units per month, etc.)
  - Annual sales (number of units sold per year)

- Customers/target audience
- Cost
  - Cost of Production (\$/unit)
  - Sales Price (\$/unit)
- Jobs
  - Number of people employed by your company prior to ARRA, in 2008
  - Job types (e.g., engineers, technicians, sales staff, etc.)
  - Please identify the above as Full-time vs Part time staff
- Pre-ARRA market impact
  - Market Penetration (what kind of percent market share do you believe you had for this type of product in [STATE]?) How many units or installed kW of this type of product was in the [STATE] marketplace prior to the ARRA funding being offered?
    - [Note that we may need to probe further if (as expected), wind turbines were sold for outside of [STATE] applications]
  - Do you know roughly how much energy was produced (kWhr/year) for the products your company provided prior to ARRA funds?
  - What was your timing to market?

6. *When did these ARRA-funded activities begin?*

7. *Why did you apply for ARRA funding? What were your specific goals for the funding?*  
 [Examples: ramp up production, lower cost of manufacturing through manufacturing process changes or design of product]

8. *What market data (if any) did you reference in developing your business plan? Do you have data or market studies that indicated market support for your expansion/development of your new product?*

9. *What are your industry's main market drivers and barriers?*

10. *What specific customer needs/market gaps are you fulfilling?*

- Need for a product with X% lower cost than existing technology
- Need for a product that operates in lower class wind regime at a certain cost point
- Need for a technology that provides multiple benefits as required by consumers in that market place

11. *Who is your target audience for the REM product you are improving?*

[What specific market sector and type of customers are served by the REM product?]

12. *What would you have done if you had NOT been awarded ARRA money?*

- What technology would you have produced?
  - Stayed on course with old technology?
  - Manufactured new technology anyway
  - Made improvements that were less significant than with ARRA but better than your original product?
  - Changed products?
  - Gone out of business?
- Over what time period would this activity have sustained?

13. *Did you have specific goals relative to the amount of ARRA funding provided?*

[Try to prepopulate from project proposal]

- Overarching project goals? (e.g., project milestones like to create jobs or spend \$ ASAP)
- Product attribute goals? (e.g., on efficiency, cost, achieve performance goals, production goals, cost goals, job goals, market goals)?
- Production goals?
- Sales goals?
- Any marketplace goals (e.g., installations, RE generation goals)?

### **ARRA Questions**

14. *When did you apply for ARRA funding?* [Pinpoint date, RFP]

15. *Of your total operating and capital expenses, what portion does ARRA money represent?*

16. *What are the other sources of income that fund your operations? What types of activities did those non-ARRA sources fund?*

[Describe funding levels, public programs/other funding sources, and how each part contributed to your operations]

17. *What specific activities did ARRA fund?*

18. *Do the ARRA activities represent an entirely new product effort or an expansion to your existing product lines?*

[Make sure this is a new product effort, i.e., SG2]

[Try also to get a sense of how well they know the market and if they are in position to project market demand]

19. *When did you receive ARRA funding and how was it delivered (in increments, lump sum)?*

20. *Was payment contingent on meeting any of your project goals? If so, which goals?*

21. *Can you share your funding contract with us?*

### **METRICS**

**Tell us about the renewable energy product(s) manufactured with ARRA money.**

22. *What were your product characteristics?*

- Type of product (e.g., turbine, blade, hub – obtain specific models/characteristics)
- Size and Application (e.g., utility scale, offshore)
- Can you give us a specification sheet showing the product characteristics (especially of the new product versus the older product)?

23. *What specific characteristics of your product would you say differentiates it from what's already in the marketplace (or, what makes your product new to the market)?*

## **Product Performance: New Wind Technology**

24. *What are your product's performance characteristics?*
- Rated Power (e.g., kW) [Note that we will need to ask for power curves for different wind speeds]
  - Average capacity factor in various conditions
  - What is the EUL of the product?
25. *Do you have any data on the current market penetration or kW installed of your technology? Can we look at sales numbers or actual installations?*
26. *Where were units sited? Did you monitor performance?*
- Do you have measured generation profiles that are matched with wind speed data?
  - Do you know how much energy was produced by your system?
  - For your area, do you have data on resource availability and energy output? [to be used for translating measured wind speed and generation data to other applications in the area]
27. *[If a component technology] how does a hub, for example, translate into an actual turbine and actual RE production? How much of a contribution does this part have on the total piece of REM equipment? (e.g., a blade contributes xx% of energy production, or blades are xx% of cost translating to same % energy production)?*
28. *Did you calculate GHG savings? How much energy content did you assume was offset? What are your sources, methodology and final calculations?*
29. **Forecast.** *Do you have performance goals moving forward (e.g., efficiency goals)? What are your targets through 2017?*
30. **Baseline Comparison.** *How does your turbine/component's performance compare to your competitors? Compare to the marketplace baseline? Do you have data/studies on the performance and market penetration of similar technologies?*

## **Product Attributes: New Wind Technology**

31. *What differentiates your technology from what's already on the market (e.g., what characteristics?)*
32. *What specific product attributes represent a change from prior manufacturing activity?*
33. *Describe the specific product improvements (and any changes, good or "bad") you made as a result of using ARRA dollars.*
- Design Changes/Improvements (that may have led to an):
    - Increase in Unit Efficiency
    - Increase in Power Output
    - Increase in Peak Generation capacity
    - Increase in hours of effective operation [may be the case if they have developed new or use multiple gears]?

- Increase/stabilization of energy generation?
- Product design improvements that affect how the technology is operated (e.g., making it easier/cheaper to operate, possibly encouraging more sales)?
- Product design changes that increase the number of technology applications (e.g., making the product more accessible or usable in more environments)?
- Product design changes that reduce downtime (e.g., require less maintenance)?
- Product design improvements that increase the efficiency of the manufacturing line, thereby allowing the production of more units at the same cost (e.g., eliminating the need for a complicated/costly/time consuming manufacturing step)?

Wind Examples:

- Development of multiple gears (e.g., within the gear box, to improve reliability by reducing downtime and increases annual capacity factors)?
- Increased hub heights (which increases the effective power output by increasing the wind speed seen by the turbine, which increases annual energy delivery)?
- Addition of storage or some hybrid configuration to extend power output during peak hours?

34. *Were any of the aforementioned activities/changes funded by sources other than ARRA (e.g., internal cash or other grants)? If so, can you distinguish what activities were exclusively funded by ARRA and which by other sources?*

35. *Were there any activities funded by other sources that also affected (directly or indirectly) the ARRA-funded technology (e.g., a facility upgrade funded by the State but ARRA-funded design changes that, in concert, resulted in greater production of a higher efficiency product) ?*

### **Cost Attributes**

36. *What is your cost per unit production? Per unit efficiency? Per unit capacity (e.g., kW)?*

[Obtain whatever cost metrics are available]

37. *[If baseline equipment was a REM product] What was your cost per unit/efficiency/capacity of the product you produced prior to receiving ARRA funding (see product in Baseline Section)?*

38. *What specific design changes/improvements (or manufacturing line changes) led to these cost changes, and to what degree?*

[Probe for quantitative cost changes attributable to each design change. Run through each design change mentioned in earlier section]

Examples:

- a. Decrease in unit cost?
- b. Decrease in price per unit of efficiency?
- c. Decrease in the price per unit of capacity?
- d. Moderation in the price per unit compared to non-SEP influenced markets?

39. Do you have data/analysis on how additional changes in cost would affect market penetration (e.g., how much more of a market could be penetrated with an \$x drop in price)?

40. **Forecast.** Do you have cost forecasts (or goals) going forward (through 2017)? How do you expect to achieve these costs (e.g., through what means)? How do you plan to fund these activities?

### **Sales Price**

41. What is your sales price per unit manufactured?

42. Do you have tiered sales prices depending on the customer (e.g., bulk purchases)?

43. Have you experienced a moderation in price per unit compared to the market baseline?

44. Have prices changed pre- and post-ARRA? If so, by how much?

45. What specific design changes (mentioned earlier) have led to changes in price? And to what degree?

[Probe for quantitative cost changes attributable to each design change]

46. Have reduced sales prices made it possible for you to reach more customers or tap into more markets? Do you have actual numbers or forecasts?

47. How does your sales price compare to your competitors' in the marketplace?

48. **Forecast.** Do you have price forecasts (or goals) going forward (through 2017)? How do you expect to achieve these prices? How do you plan to fund these activities?

### **Market Impacts/Sales**

49. What have been your sales numbers to date? [Start with baseline period to ARRA]

50. Have you experienced an increase or stabilization of sales?

51. When did you achieve peak sales? [If peak sales not achieved yet: When do you expect to achieve peak sales? What will be your peak sales numbers?]

52. Has your timing to market changed since receiving ARRA funding? If so, how?

53. How have ARRA-funded activities (e.g., design changes) affected sales? [Probe by listing changes from above sections]

a. Changes in price affecting sales?

b. Changes in product attributes affecting sales?

c. Greater production which allows for greater supply available to sell?

54. Do you have data showing how much additional renewable energy generation (kWh) or capacity (kW) your operations contributed to in the marketplace above a projected BAU value? What market studies are you referencing for this calculation?(e.g., an NREL study may have forecasted xx additional capacity added in 2011; can they prove from their sales numbers that their respective & actual capacity additions were xx+xy – therefore xy above BAU)?

55. How much of the impact would you say is attributable to increased sales/output (greater product impact) versus increase in manufacturing efficiency (e.g., energy savings captured due to improved process) versus higher efficiency level of product (e.g., design changes increasing output per turbine) [This will be hard to answer]

56. **Forecast.** Do you have sales forecasts (or targets) going forward (through 2017)? How do you expect to ramp up production? How do you plan to fund these activities?

## **Jobs**

Please describe job changes since ARRA.

57. How many FTE were employed in each of 2009, 2010, 2011, 2012? Were they FT vs PT? What job types & salaries were they?

- How many of these were retained from 2008? [Confirm the rest are new employees, and then calculate an incremental increase in FTE since ARRA funding]
- Do you know the number of “new” employees added since ARRA funding (i.e., incremental number of new employees)?
- How many are FT vs. PT?
- How many salaries are directly funded by ARRA money?
- How many are “indirect”, meaning created as a result of ARRA improvements to your plant (e.g., a manufacturing expansion that created a need for 5 new manufacturing employees - salaries are NOT directly funded by ARRA dollars.)
- How many of these jobs have been retained from the prior year?

58. Do you have any data on the number of jobs that have been induced from ARRA activity at your facility (e.g., increase in food service workers)?

59. **Forecast.** Do you have job forecasts through 2017? What types of jobs will these be? [Determine time phase of impacts, short-term vs. long-term persistent changes]

## **Changes in Manufacturing Line (refer to SG1) [Note: This shouldn't be applicable – only if they made manufacturing line changes in addition to design changes]**

60. Have you also made changes to your manufacturing line? [If Yes, refer to SG1 page 6].

- a. Production improvements
- b. Increase in production volume: did you make changes to the manufacturing process that made the overall process more efficient?

61. If increase in production volume: Please explain what you did.

[e.g., Did you make improvements to the manufacturing line? E.g., not having to pull components off the line to adjust them, less energy used in process]

62. *Can you give me specific numbers on how much your production/output rates changed since receiving ARRA funding?*

[Obtain production rates at time of ARRA funding, and over time until reaching peak production (or expected peak production, thru 2017 if available.)]

63. *Were there any manufacturing improvements made that affected the non-energy aspects of the technology?*

[e.g., Improvement in market or technical (non-energy) performance of the technology, such as a reduction of down-time, lower maintenance cost, easier accessibility, reduction of time for parts delivery, etc]

64. *Did you calculate the energy efficiency savings from the increase in manufacturing efficiency? Have these costs been integrated in the final product price/cost of production? Do you have calculations?*

65. **Forecast.** *Do you have production forecasts/targets moving forward (through 2017)?*

### **Post-ARRA Activities**

66. *Are you still involved with the SEP/ARRA program? If not, when did your involvement end?*

67. *What are your plans when ARRA funding goes away?*

[Identify how critical ARRA funding is to their operations now]

- Stay on course, without significant changes
- Make continued improvements to product or manufacturing process
- Change business plan/model
- Go out of business

68. *For the above choice, over what time period do you expect to see this happening (1, 3, 5, 10 years)?*

69. *Without ARRA funding, how would you sustain your manufacturing activities?*

- Internal cash accounts
- Look for outside funding [from where, probe what types of public/private programs]
  - Private investments
  - Public programs [probe what kinds, how much]

70. *How will the following items be affected from a loss of ARRA funding:*

#### *Performance/Product Attributes*

- Type and Materials
- Size and Application
- Product Quality
- Rated Power and Efficiency/Output

- What is the EUL of the product?

*Production/Output*

- Production rates (b/c of ARRA)
- Sales #
- Customers/target audience

*Cost*

- Cost of Production
- Sales Price

*Jobs*

- What is your jobs outlook? How will you sustain any jobs currently funded by ARRA? How many jobs will be retained, created, eliminated? What types of jobs and salaries? How long will they remain?

*Market Impact*

- Timing to Market
- Fulfilling a Market Need

*71. Do you have any data on the future market impact of your technology?*

*72. Is your company still involved with the ARRA program? If not, when did the involvement end?*

*73. Is there anyone else you recommend we talk to regarding the extent of the improvement of the REM funded product or its ability to penetrate the marketplace?*

**OTHER THOUGHTS**

*74. Overall, can you identify anything else that the ARRA funds allowed you to accomplish or achieve that we have not addressed or on which you would like to elaborate?*

**Thank you for your time and insight**



## L.43. RENEWABLE ENERGY MANUFACTURING SUBGRANTEES – NEW PV

### Overview:

*This template is intended to capture project specific information for New PV Renewable Energy Manufacturing (REM) Projects. The purpose of the survey is to determine changes made to effect PV performance and identify how they will lead to increased market penetration of the product and result in increased overall energy savings<sup>2</sup>. Energy savings can be impacted by new PV design in at least several ways:*

- Development of new materials that increase cell/module efficiencies thereby increasing annual energy output;*
- Development of concentrating approaches that increase the amount of effective energy hitting the PV cells/modules, thereby increasing the annual energy output;*
- Improvement in reliability (e.g., inverters with extended lifetime) that increase annual capacity factor and therefore annual energy output;*
- Changes in design or operational aspects that mitigate shading or soiling affects;*
- For tracking systems, changes in design or operational aspects that increase reliability and therefore increase annual energy output;*
- Addition of storage or some hybrid configuration that increases power output during peak hours.*

*The survey is meant to help identify ways in which design changes made to PV technologies may increase power output, hours of effective operation, or peak generation capacity. Our intent is to obtain quantitative data about the design changes and their impacts. For example, we want to determine how much more renewable energy was produced as a result of a specific change in module efficiency in order to attribute energy savings.*

*The interviews are meant to be somewhat informal and open ended; not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Note that changes in the manufacturing process of the product that could affect the performance of the product in the field are covered under the other REM subgrantee survey templates.*

### **[STATE] Subgrantees:**

### **GUIDE #SG3: MANUFACTURING OF NEW PV TECHNOLOGIES**

**Figure 1: Subgrantee Background Information [To be pre-populated prior to interview]**

<b>Company Name</b>	
<b>Project Name</b>	
<b>ARRA Award Amount</b>	
<b>Year Awarded</b>	

<sup>2</sup> Energy savings is achieved through offsetting traditional grid electricity

<b>Contact Name &amp; Title</b>	
<b>Phone</b>	
<b>Email</b>	
<b>Address</b>	

### Introduction

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. This interview is intended to familiarize our team with the activities conducted using SEP or SEP/ARRA funds. More specifically, we are interested in the support you received from the [INSERT STATE] State Energy Office (SEO) for [PROJECT NAME]. The information you supply will be used to characterize the SEO's involvement in this project, and the impact of these actions. In particular, I want to focus on the impacts associated with how ARRA funding may have affected the cost of manufacturing your renewable energy product(s), the volume or rate of production, number of sales associated with changes in manufactured product(s) and impacts on jobs and your company's market position.

The US Department of Energy's State Energy Program contracted us to talk with those stakeholders who received support from SEP/ARRA for renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:

Martin Schweitzer, Senior R&D Staff  
 Oak Ridge National Laboratory  
 E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

## Screening

1. *Our understanding is that your company/organization received funding under the SEP/ARRA program in [YEAR] for Renewable Manufacturing projects? Is this correct?*

[Verify Project was done during ARRA Period of 2009 or later]

<b>ARRA Program Year:</b>	<b>2009 to present</b>
SEP Program Year (baseline):	July 2008 – June 2009

2. *What is your job title and what was your role and responsibilities with respect to renewable energy manufacturing program activities under SEP/ARRA?*
3. *Who else at your company/organization was involved in leading or managing the SEP/ARRA funded renewable energy manufacturing activities?*

[Obtain Name, Title, Role and Contact Info of anyone else]

4. [If Yes in Q3]: *Among you and [INSERT QUESTION ABOVE RESPONSE], who is most familiar with the program's renewable energy manufacturing funded activities in [PROGRAM YEAR]?*

[If another is most familiar, ask about the likelihood that they are available to speak.]

### Pre-ARRA Questions (Identifying Baseline)

*We are interested in knowing more about how ARRA funding impacted your company. Could you describe a bit about what were you doing before ARRA funding; what you hoped to achieve as a result of obtaining ARRA funding, and what the ARRA funding actually allowed you to do?* [Follow up with specific questions]

5. ***Before you received ARRA funding, what product(s) were you manufacturing?***

[Obtain general specs including size, application, volume, market needs]

[For REM projects, ask for the following specific metrics. Skip if a non-REM project]

- Performance
  - Type of product (e.g., panel, system, component, converter box)
  - Typical materials used for manufacturing the product (e.g., thin film, silicon)
  - Size (e.g., 30 kW PV system)
  - Rated Capacity & Efficiency of panel (kW; electrical efficiency)
  - What were the typical applications (e.g., utility scale)?
  - Do you know where these product(s) were typically installed for energy production (e.g., locations in [STATE])?
  - Did you monitor performance of your product(s)? If so, do you have representative load profiles?
- Manufacturing Production Volume/Market Impacts/Sales
  - Typical production rates (units per hour; units per month, etc.)
  - Annual sales (number of units sold per year)

- Customers/target audience
- Cost
  - Cost of Production (\$/unit)
  - Sales Price (\$/unit)
- Jobs
  - Number of people employed by your company prior to ARRA, in 2008
  - Job types (e.g., engineers, technicians, sales staff, etc.)
  - Full-time vs Part time staff
- Pre-ARRA market impact
  - Market Penetration (what kind of percent market share do you believe you had for this type of product in [STATE]?) How many units or installed kW of this type of product was in the [STATE] marketplace prior to the ARRA funding being offered?
  - Do you know roughly how much energy was produced (kWhr/year) for the products your company provided prior to ARRA funds?
  - What was your timing to market?

6. *When did these ARRA-funded activities begin?*

7. *Why did you apply for ARRA funding? What were your specific goals for the funding?*  
 [Examples: ramp up production, lower cost of manufacturing through manufacturing process changes or design of product]

8. *What market data (if any) did you reference in developing your business plan? Do you have data or market studies that indicated market support for your expansion/development of your new product?*

9. *What are your industry's main market drivers and barriers?*

10. *What specific customer needs/market gaps are you fulfilling?*

- Need for a product with X% lower cost than existing technology
- Need for a product that operates in cloudier environments at a certain cost point
- Need for a technology that provides multiple benefits as required by consumers in that market place

11. *Who is your target audience for the REM product you are improving?*

[What specific market sector and type of customers are served by the REM product?]

12. *What would you have done if you had NOT been awarded ARRA money?*

- What technology would you have produced?
  - Stayed on course with old technology?
  - Manufactured new technology anyway?
  - Made improvements that were less significant than with ARRA but better than your original product?
  - Changed products?
  - Gone out of business?
- Over what time period would this activity have sustained?

13. *Did you have specific goals relative to the amount of ARRA funding provided?*

[Try to prepopulate from project proposal]

- Overarching project goals? (e.g., project milestones like to create jobs or spend \$ ASAP)
- Product attribute goals? (e.g., on efficiency, cost, achieve performance goals, production goals, cost goals, job goals, market goals)?
- Production goals?
- Sales goals?
- Any marketplace goals (e.g., installations, RE generation goals)?

### **ARRA Questions**

14. *When did you apply for ARRA funding?* [Pinpoint date, RFP]

15. *Of your total operating and capital expenses, what portion does ARRA money represent?*

16. *What are the other sources of income that fund your operations? What types of activities did those non-ARRA sources fund?*

[Describe funding levels, public programs/other funding sources, and how each part contributed to your operations]

17. *What specific activities did ARRA fund?*

18. *Do the ARRA activities represent an entirely new product effort or an expansion to your existing product lines?*

[Make sure this is a new product effort, i.e., SG3]

[Try also to get a sense of how well they know the market and if they are in position to project market demand]

19. *When did you receive ARRA funding and how was it delivered (in increments, lump sum)?*

20. *Was payment contingent on meeting any of your project goals? If so, which goals?*

21. *Can you share your funding contract with us?*

### **METRICS**

**Tell us about the renewable energy product(s) manufactured with ARRA money.**

22. *What are your product characteristics?*

- Type of product (e.g., panel, system, component (inverter) – obtain specific models/characteristics)
- Size and Application (e.g., utility scale, home)
- Do you have a spec sheet?

23. *What specific characteristics of your product would you say differentiates it from what's already in the marketplace (or, what makes your product new to the market)?*

### **Product Performance: New PV Technology**

- 24. *What are your product's performance characteristics?*
  - Rated Power (e.g., kW)
  - Average capacity factor in various conditions
  - What is the EUL of the product?
  
- 25. *Do you have any data on the current market penetration or kW installed of your technology? Can we look at sales numbers or actual installations?*
  
- 26. *Where were units sited? Did you monitor performance?*
  - Do you have load profiles?
  - Do you know how much energy was produced by your panel?
  - For your area, do you have data on resource availability and energy output?
  
- 27. *[If a component technology] how does an inverter, for example, translate into an actual PV system and actual RE production? How much of a contribution does this part have on the total piece of REM equipment? (e.g., an inverter contributes xx% of energy production, or inverters are xx% of cost translating to same % energy production)?*
  
- 28. *Did you calculate GHG savings? How much energy content did you assume was offset? What are your sources, methodology and final calculations?*
  
- 29. **Forecast.** *Do you have performance goals moving forward (e.g., efficiency goals)? What are your targets through 2017?*
  
- 30. **Baseline Comparison.** *How does your panel/component's performance compare to your competitors? Compare to the marketplace baseline? Do you have data/studies on the performance and market penetration of similar technologies?*

### **Product Attributes: New PV Technology**

- 31. *What differentiates your technology from what's already on the market (e.g., what characteristics?)*
  
- 32. *What specific product attributes represent a change from prior manufacturing activity?*
  
- 33. *Describe the specific product improvements (and any changes, good or "bad") you made as a result of using ARRA dollars.*
  - Design Changes/Improvements (that may have led to an):
    - Increase in Unit Efficiency
    - Increase in Power Output
    - Increase in Peak Generation capacity
    - Increase in hours of effective operation?
    - Increase/stabilization of energy generation?
  - Product design improvements that affect how the technology is operated (e.g., making it easier/cheaper to operate, possibly encouraging more sales)?
  - Product design changes that increase the number of technology applications (e.g., making the product more accessible or usable in more environments)?

- Product design changes that reduce downtime (e.g., require less maintenance)?
- Product design improvements that increase the efficiency of the manufacturing line, thereby allowing the production of more units at the same cost (e.g., eliminating the need for a complicated/costly/time consuming manufacturing step)?

PV Examples:

- Development of new materials that increase cell/module efficiencies thereby increasing annual energy output;
- Development of concentrating approaches that increase the amount of effective energy hitting the PV cells/modules, thereby increasing the annual energy output;
- Improvement in reliability (e.g., inverters with extended lifetime) that increase annual capacity factor and therefore annual energy output;
- Changes in design or operational aspects that mitigate shading or soiling affects;
- For tracking systems, changes in design or operational aspects that increase reliability and therefore increase annual energy output;
- Addition of storage or some hybrid configuration that increases power output during peak hours;
- Design changes such as interlocking panels that do not change how the product functions, but are a cost savings.

34. *Were any of the aforementioned activities/changes funded by sources other than ARRA (e.g., internal cash or other grants)? If so, can you distinguish what activities were exclusively funded by ARRA and which by other sources?*

35. *Were there any activities funded by other sources that also affected (directly or indirectly) the ARRA-funded technology (e.g., a facility upgrade funded by the State but ARRA-funded design changes that, in concert, resulted in greater production of a higher efficiency product) ?*

### **Cost Attributes**

36. *What is your cost per unit production? Per unit efficiency? Per unit capacity (e.g., kW)?*

[Obtain whatever cost metrics are available]

37. *[If baseline equipment was a REM product] What was your cost per unit/efficiency/capacity of the product you produced prior to receiving ARRA funding (see product in Baseline Section)?*

38. *What specific design changes/improvements (or manufacturing line changes) led to these cost changes, and to what degree?*

[Probe for quantitative cost changes attributable to each design change. Run through each design change mentioned in earlier section]

Examples:

- a. Decrease in unit cost?
- b. Decrease in price per unit of efficiency?
- c. Decrease in the price per unit of capacity?
- d. Moderation in the price per unit compared to non-SEP influenced markets?

39. Do you have data/analysis on how additional changes in cost would affect market penetration (e.g., how much more of a market could be penetrated with an \$x drop in price)?

40. **Forecast.** Do you have cost forecasts (or goals) going forward (through 2017)? How do you expect to achieve these costs (e.g., through what means)? How do you plan to fund these activities?

### **Sales Price**

41. What is your sales price per unit manufactured?

42. Do you have tiered sales prices depending on the customer (e.g., bulk purchases)?

43. Have you experienced a moderation in price per unit compared to the market baseline?

44. Have prices changed pre- and post-ARRA? If so, by how much?

45. What specific design changes (mentioned earlier) have led to changes in price? And to what degree?

[Probe for quantitative cost changes attributable to each design change]

46. Have reduced sales prices made it possible for you to reach more customers or tap into more markets? Do you have actual numbers or forecasts?

47. How does your sales price compare to your competitors' in the marketplace?

48. **Forecast.** Do you have price forecasts (or goals) going forward (through 2017)? How do you expect to achieve these prices? How do you plan to fund these activities?

### **Market Impacts/Sales**

49. What have been your sales numbers to date? [Start with baseline period to ARRA]

50. Have you experienced an increase or stabilization of sales?

51. When did you achieve peak sales? [If peak sales not achieved yet: When do you expect to achieve peak sales? What will be your peak sales numbers?]

52. Has your timing to market changed since receiving ARRA funding? If so, how?

53. How have ARRA-funded activities (e.g., design changes) affected sales? [Probe by listing changes from above sections]

d. Changes in price affecting sales?

e. Changes in product attributes affecting sales?

f. Greater production which allows for greater supply available to sell?

54. Do you have data showing how much additional renewable energy generation (kWh) or capacity (kW) your operations contributed to in the marketplace above a projected BAU value? What market studies are you referencing for this calculation?(e.g., an NREL study may have forecasted xx additional capacity added in 2011; can they prove from their sales numbers that their respective & actual capacity additions were xx+xy – therefore xy above BAU)?

55. How much of the impact would you say is attributable to increased sales/output (greater product impact) versus increase in manufacturing efficiency (e.g., energy savings captured due to improved process) versus higher efficiency level of product (e.g., design changes increasing output per panel) [This will be hard to answer]

56. **Forecast.** Do you have sales forecasts (or targets) going forward (through 2017)? How do you expect to ramp up production? How do you plan to fund these activities?

## **Jobs**

Please describe job changes since ARRA.

57. How many FTE were employed in each of 2009, 2010, 2011, 2012? Were they FT vs PT? What job types & salaries were they?

- How many of these were retained from 2008? [Confirm the rest are new employees, and then calculate an incremental increase in FTE since ARRA funding]
- Do you know the number of “new” employees added since ARRA funding (i.e., incremental number of new employees)?
- How many are FT vs. PT?
- How many salaries are directly funded by ARRA money?
- How many are “indirect”, meaning created as a result of ARRA improvements to your plant (e.g., a manufacturing expansion that created a need for 5 new manufacturing employees - salaries are NOT directly funded by ARRA dollars.)
- How many of these jobs have been retained from the prior year?

58. Do you have any data on the number of jobs that have been induced from ARRA activity at your facility (e.g., increase in food service workers)?

59. **Forecast.** Do you have job forecasts through 2017? What types of jobs will these be? [Determine time phase of impacts, short-term vs. long-term persistent changes]

## **Changes in Manufacturing Line (refer to SG1) [Note: This shouldn't be applicable – only if they made manufacturing line changes in addition to design changes]**

60. Have you also made changes to your manufacturing line?[ If Yes, refer to SG1 page 6].

- c. Production improvements
- d. Increase in production volume: did you make changes to the manufacturing process that made the overall process more efficient?

61. If increase in production volume: Please explain what you did.

[e.g., Did you make improvements to the manufacturing line? E.g., not having to pull components off the line to adjust them, less energy used in process)

62. *Can you give me specific numbers on how much your production/output rates changed since receiving ARRA funding?*

[Obtain production rates at time of ARRA funding, and over time until reaching peak production (or expected peak production, through 2017 if available.)]

63. *Were there any manufacturing improvements made that affected the non-energy aspects of the technology?*

[e.g., Improvement in market or technical (non-energy) performance of the technology, such as a reduction of down-time, lower maintenance cost, easier accessibility, reduction of time for parts delivery, etc]

64. *Did you calculate the energy efficiency savings from the increase in manufacturing efficiency? Have these costs been integrated in the final product price/cost of production? Do you have calculations?*

65. **Forecast.** *Do you have production forecasts/targets moving forward (through 2017)?*

#### **Post-ARRA Activities**

66. *Are you still involved with the SEP/ARRA program? If not, when did your involvement end?*

67. *What are your plans when ARRA funding goes away?*

[Identify how critical ARRA funding is to their operations now]

- Stay on course, without significant changes
- Make continued improvements to product or manufacturing process
- Change business plan/model
- Go out of business

68. *For the above choice, over what time period do you expect to see this happening (1, 3, 5, 10 years)?*

69. *Without ARRA funding, how would you sustain your manufacturing activities?*

- Internal cash accounts
- Look for outside funding [from where, probe what types of public/private programs]
  - Private investments
  - Public programs [probe what kinds, how much]

70. *How will the following items be affected from a loss of ARRA funding:*

*Performance/Product Attributes*

- Type and Materials

- Size and Application
- Product Quality
- Rated Power and Efficiency/Output
- What is the EUL of the product?

*Production/Output*

- Production rates (b/c of ARRA)
- Sales #
- Customers/target audience

*Cost*

- Cost of Production
- Sales Price

*Jobs*

- What is your jobs outlook? How will you sustain any jobs currently funded by ARRA? How many jobs will be retained, created, eliminated? What types of jobs and salaries? How long will they remain?

*Market Impact*

- Timing to Market
- Fulfilling a Market Need

*71. Do you have any data on the future market impact of your technology?*

*72. Is your company still involved with the ARRA program? If not, when did the involvement end?*

*73. Is there anyone else you recommend we talk to regarding the extent of the improvement of the REM funded product or its ability to penetrate the marketplace?*

**OTHER THOUGHTS**

*74. Overall, can you identify anything else that the ARRA funds allowed you to accomplish or achieve that we have not addressed or on which you would like to elaborate?*

**Thank you for your time and insight**



## L.44. RENEWABLE ENERGY MANUFACTURING SUBGRANTEES – BIOMASS

### Overview:

*This template is intended to capture project specific information for Biomass Renewable Energy Manufacturing (REM) Projects. The purpose of the survey is to identify improvements in performance or cost points, other changes that may have given the sub-grantee's product an advantage in the marketplace (e.g., lower air pollution rates, better ability to be located closer to biomass supplies, ability to use a broader range of low cost biomass fuels, etc.); and changes in the manufacturing process. Examples of the classification of topics we will need to discuss with sub-grantees include the following:*

- *Improvements in product performance*
  - *Improvements in design of the energy conversion process that lead to higher energy output*
  - *Change in the fuel feeding or energy conversion process that reduces outages*
- *Reduction in product cost point (or increase in product value)*
  - *Manufactured changes that lead to higher energy content of the fuel*
  - *Development of a higher value commodity that may be a side revenue to the energy product (e.g., pharmaceutical bioproducts)*
- *Other changes that may have given the sub-grantee's product an advantage in the marketplace*
  - *Lower air pollution rates*
  - *Better ability to be located closer to biomass supplies*
  - *Ability to use a broader range of low cost biomass fuels*
- *Improvements in the manufacturing process itself*
  - *Increased throughput*

*The interviews are meant to be somewhat informal and open ended; not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

*Biomass projects include both the production of new types of biomass and biofuels, as well as manufacturing expansions of biofuel infrastructure or fuels. Both of these will be covered in this survey template.*

**GUIDE #SG4: MANUFACTURING OF BIOMASS TECHNOLOGIES**

**Table 2: Subgrantee Background Information [To be pre-populated prior to interview]**

<b>Company Name</b>	
<b>Project Name</b>	
<b>ARRA Award Amount</b>	
<b>Year Awarded</b>	
<b>Contact Name &amp; Title</b>	
<b>Phone</b>	
<b>Email</b>	
<b>Address</b>	

**Introduction**

*My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. This interview is intended to familiarize our team with the activities conducted using SEP or SEP/ARRA funds. More specifically, we are interested in the support you received from the [INSERT STATE] State Energy Office (SEO) for [PROJECT NAME]. The information you supply will be used to characterize the SEO's involvement in this project, and the impact of these actions. In particular, I want to focus on the impacts associated with how ARRA funding may have affected the cost of manufacturing your renewable energy product(s), the volume or rate of production, number of sales associated with changes in manufactured product(s) and impacts on jobs and your company's market position.*

*The US Department of Energy's State Energy Program contracted us to talk with those stakeholders who received support from SEP/ARRA for renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.*

*The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:*

*Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995*

*Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.*

**Screening**

1. *Our understanding is that your company/organization received funding under the SEP/ARRA program in [YEAR] for Renewable Manufacturing projects? Is this correct?*

[Verify Project was done during ARRA Period of 2009 or later]

<b>ARRA Program Year:</b>	<b>2009 to present</b>
SEP Program Year (baseline):	July 2008 – June 2009

2. *What is your job title and what was your role and responsibilities with respect to renewable energy manufacturing program activities under SEP/ARRA?*
3. *Who else at your company/organization was involved in leading or managing the SEP/ARRA funded renewable energy manufacturing activities?*

[Obtain Name, Title, Role and Contact Info of anyone else]

4. [If Yes in Q3]: *Among you and [INSERT QUESTION ABOVE RESPONSE], who is most familiar with the program’s renewable energy manufacturing funded activities in [PROGRAM YEAR]?*

[If another is most familiar, ask about the likelihood that they are available to speak.]

**Pre-ARRA Questions (Identifying Baseline)**

*We are interested in knowing more about how ARRA funding impacted your company. Could you describe a bit about what were you doing before ARRA funding; what you hoped to achieve as a result of obtaining ARRA funding, and what the ARRA funding actually allowed you to do? [Follow up with specific questions]*

5. *Before you received ARRA funding, what product(s) were you manufacturing?*

[Obtain general specs including size, application, volume, market needs]

[For REM projects, ask for the following specific metrics. Skip if a non-REM project]

- Performance
  - Type of product (e.g., biomass, biofuel, infrastructure, etc.)?
  - Feedstock or product used (e.g., tire fuel, infrastructure for biofuel blends)
  - Size (e.g., gallons of production, amount of biomass feedstock processed)
  - What were the typical applications (e.g., fleet vehicles, biomass power plants)
  - Do you know where these product(s) were typically installed for energy production (e.g., locations in [STATE])?
  - Did you monitor performance of your product(s)?
- Manufacturing Production Volume/Market Impacts/Sales
  - Typical production rates (units per hour; units per month, etc.)
  - Annual sales (number of units sold per year)
  - Customers/target audience
- Cost

- Cost of Production (\$/unit)
- Sales Price (\$/unit)
- Jobs
  - Number of people employed by your company prior to ARRA, in 2008
  - Job types (e.g., engineers, technicians, sales staff, etc.)
  - Please identify the above as Full-time vs Part time staff
- Pre-ARRA market impact
  - Market Penetration (what kind of percent market share do you believe you had for this type of product in [STATE]?) How many units or gallons/pounds of feedstock of this type of product was in the [STATE] marketplace prior to the ARRA funding being offered?
    - [Note that we may need to probe further if (as expected), biofuels may have been sold for outside of [STATE] applications]
  - Do you know roughly how much energy was produced (gallons/year) for the products your company provided prior to ARRA funds?
  - What was your timing to market?

6. *When did these ARRA-funded activities begin?*

7. *Why did you apply for ARRA funding? What were your specific goals for the funding?*  
 [Examples: ramp up production, lower cost of manufacturing through manufacturing process changes or design of product]

8. *What market data (if any) did you reference in developing your business plan? Do you have data or market studies that indicated market support for your expansion/development of your new product?*

9. *What are your industry's main market drivers and barriers?*

10. *What specific customer needs/market gaps are you fulfilling?*

- Need for a product with X% lower cost than existing technology
- Need for a product that operates in lower class wind regime at a certain cost point
- Need for a technology that provides multiple benefits as required by consumers in that market place

11. *Who is your target audience for the REM product you are improving?*

[What specific market sector and type of customers are served by the REM product?]

12. *What would you have done if you had NOT been awarded ARRA money?*

- What technology would you have produced?
  - Stayed on course with old technology?
  - Manufactured new technology anyway
  - Made improvements that were less significant than with ARRA but better than your original product?
  - Changed products?
  - Gone out of business?
- Over what time period would this activity have sustained?

13. *Did you have specific goals relative to the amount of ARRA funding provided?*

[Try to prepopulate from project proposal]

- Overarching project goals? (e.g., project milestones like to create jobs or spend \$ ASAP)
- Product attribute goals? (e.g., on efficiency, cost, achieve performance goals, production goals, cost goals, job goals, market goals)?
- Production goals?
- Sales goals?
- Any marketplace goals (e.g., installations, RE generation goals)?

#### **ARRA Questions**

14. *When did you apply for ARRA funding?* [Pinpoint date, RFP]

15. *Of your total operating and capital expenses, what portion does ARRA money represent?*

16. *What are the other sources of income that fund your operations? What types of activities did those non-ARRA sources fund?*

[Describe funding levels, public programs/other funding sources, and how each part contributed to your operations]

17. *What specific activities did ARRA fund?*

18. *Do the ARRA activities represent an entirely new product effort or an expansion to your existing product lines?*

[Make sure this is a new product effort, i.e., SG4]

[Try also to get a sense of how well they know the market and if they are in position to project market demand]

19. *When did you receive ARRA funding and how was it delivered (in increments, lump sum)?*

20. *Was payment contingent on meeting any of your project goals? If so, which goals?*

21. *Can you share your funding contract with us?*

#### **METRICS**

[We are looking at four possible ways the manufacturer may have impacted energy savings:

- *Improvements in product performance*
- *Improvements in the manufacturing process itself*
- *Reduction in product cost point (or increase in product value)*
- *Other changes that may have given the sub-grantee's product an advantage in the marketplace]*

### **Improvements in Product Performance**

**Tell us about the renewable energy product(s) you've manufactured with ARRA money.**

22. *What are the characteristics of the products you manufactured with ARRA funds?*
- Type of manufactured product (including specific type of fuel/feedstock, infrastructure type and purpose)
    - If feedstock: Energy content of biomass/biofuel
    - If infrastructure: Capacity (e.g., gallons of fuel for fueling stations, etc)
  - Application (e.g., biofuels for cars, biofuel infrastructure for fleet vehicles, biomass feedstock for power plants, production of green chemicals for use in industry)
  - For infrastructure projects: what is the EUL of the product?
  - Can you provide us with a specification sheet(s) of the products you manufactured using ARRA funds?
23. *Do you have any data on the current market penetration of your product? Can we look at (1) sales numbers, (2) actual installations and utilization rates (e.g., of infrastructure) or (3) actual fuel consumption (e.g., gallons of fuel, pounds of feedstock)?*
24. *Where were biomass products sited or used? Did you monitor performance or usage?*
- Do you have the amount of energy generated (e.g., kWh) or fuel consumed (e.g., gallons of fuel or number of cars serviced and their usage patterns) by territory?
  - For your area, do you have data on biofuel/biomass resource availability and energy/fuel production?
25. *[If a biomass infrastructure or feedstock product] how does a production of biofuel fueling stations, for example, translate into an actual biofuel usage? How much of a contribution does the infrastructure have on the total piece of REM equipment? (e.g., one fueling station contributes to xx gallons of fuel consumed)?*
26. *Did you calculate GHG savings? How much energy content did you assume was offset? What are your sources, methodology and final calculations?*
27. **Forecast.** *Do you have performance goals moving forward (e.g., efficiency goals)? What are your targets through 2017?*
28. **Baseline Comparison.** *How does your product's performance compare to your competitors? Compare to the marketplace baseline? Do you have data/studies on the performance and market penetration of similar technologies?*

### **Product Attributes: Biomass Technology**

29. *What would you say differentiates your technology from what's already in the marketplace?*
30. *[If new biomass/biofuel production (vs manufacturing expansion)] What specific product attributes represent a change from prior manufacturing activity?*
31. *Describe the specific product improvements (and any changes, good or "bad") you made as a result of using ARRA dollars.*
- Design Changes/Improvements (that may have led to an):
    - Increase in the energy content of fuel
    - Ability to produce a bio-product that is underrepresented in the marketplace

- Ability to utilize more biomass or biofuel by creating infrastructure to use the fuel, or developing feedstock that can be utilized in existing biomass facilities
- Increase in hours of effective operation?
- Increase/stabilization of energy generation?
- Product design improvements that affect how the technology is used (e.g., making it easier/cheaper to utilize, ability to be used in more applications, possibly encouraging more sales)?
- Product design changes that increase the number of technology applications (e.g., making the product more accessible to customers or usable in more environments)?
- Product design changes that reduce downtime (e.g., require less maintenance)?
- Product design improvements that increase the efficiency of the manufacturing process, thereby allowing the production of more gallons/pounds of energy at the same cost (e.g., eliminating the need for a complicated/costly/time consuming manufacturing step)?

**Biomass Examples:**

- Improvements in design of the energy conversion process that lead to higher energy output
- Change in the fuel feeding or energy conversion process that reduces outages

32. *Were any of the aforementioned activities/changes funded by sources other than ARRA (e.g., internal cash or other grants)? If so, can you distinguish what activities were exclusively funded by ARRA and which by other sources?*

33. *Were there any activities funded by other sources that also affected (directly or indirectly) the ARRA-funded technology (e.g., a facility upgrade funded by the State but ARRA-funded design changes that, in concert, resulted in greater production of a higher efficiency product) ?*

## **Changes in Manufacturing Line**

**Tell us about how the changes you made in the manufacturing process may help increase energy savings.**

*[We're looking at three possible ways the manufacturer may have modified the manufacturing process:*

- *Changes only the efficiency of the manufacturing process (no increase in volume production and no change in the performance of the product), in which case, energy savings accrue only to the change in the manufacturing;*
- *Changes which result in increased volume production but no change in the performance of the product, in which case energy savings are associated with baseline performance of the product and accrue with increases in the number of deployed units; and*
- *Changes in volume production of components of overall renewable energy systems (e.g., in which case energy savings must be attributed to the component). This third case is the most difficult case in which to estimate savings.]*

34. *Have you made changes to your manufacturing line?*  
 a. *Production improvements*

b. *Increase in production volume: did you make changes to the manufacturing process that made the overall process more efficient?*

35. *If increase in production volume: Please explain what you did.*

[e.g., Did you make improvements to the manufacturing line? E.g., not having to pull components off the line to adjust them, less energy used in process)

36. *Can you give me specific numbers on how much your production/output rates changed since receiving ARRA funding?*

[Obtain production rates at time of ARRA funding, and over time until reaching peak production (or expected peak production, through 2017 if available.)]

37. *Were there any manufacturing improvements made that affected the non-energy aspects of the technology?*

[e.g., Improvement in market or technical (non-energy) performance of the technology, such as a reduction of down-time, lower maintenance cost, easier accessibility, reduction of time for parts delivery, etc]

38. *Did you calculate the energy efficiency savings from the increase in manufacturing efficiency? Have these costs been integrated in the final product price/cost of production? Do you have calculations?*

39. **Forecast.** *Do you have production forecasts/targets moving forward (through 2017)?*

### **Cost Attributes**

[We are looking for specific reductions in the product cost point (or increase in product value)]

- *Manufactured changes that lead to higher energy content of the fuel*
- *Development of a higher value commodity that may be a side revenue to the energy product (e.g., pharmaceutical bioproducts)]*

40. *What is your cost per unit production?*

[Obtain whatever cost metrics are available]

41. *[If baseline equipment was a REM product] What was your cost per unit of the product you produced prior to receiving ARRA funding?*

42. *What specific manufacturing process changes led to these cost changes, and to what degree?*

43. *What specific design changes/improvements (or manufacturing process changes) led to these cost changes, and to what degree?*

[Probe for quantitative cost changes attributable to each design change. Run through each design change mentioned in earlier section]

Examples:

- a. Decrease in unit cost?
- b. Decrease in the price per unit of capacity?
- c. Decrease in the price per unit efficiency?
- d. Moderation in the price per unit compared to non-SEP influenced markets?

44. *Do you have data/analysis on how additional changes in cost would affect market penetration (e.g., how much more of a market could be penetrated with an \$x drop in price)?*

45. **Forecast.** *Do you have cost forecasts (or goals) going forward (through 2017)? How do you expect to achieve these costs (e.g., through what means)? How do you plan to fund these activities?*

### **Sales Price**

46. *What is your sales price per unit manufactured?*

47. *Do you have tiered sales prices depending on the customer (e.g., bulk purchases)?*

48. *Have you experienced a moderation in price per unit compared to the market baseline?*

49. *Have prices changed pre- and post-ARRA? If so, by how much?*

50. *What specific manufacturing changes (mentioned earlier) have led to changes in price? And to what degree?*

[Probe for quantitative sales price changes attributable to each manufacturing change]

51. *What specific design changes (mentioned earlier) have led to changes in price? And to what degree?*

[Probe for quantitative sales price changes attributable to each design change]

52. *Have reduced sales prices made it possible for you to reach more customers or tap into more markets? Do you have actual numbers or forecasts?*

53. *How does your sales price compare to your competitors' in the marketplace?*

54. **Forecast.** *Do you have price forecasts (or goals) going forward (through 2017)? How do you expect to achieve these prices? How do you plan to fund these activities?*

### **Market Impacts/Sales**

55. *What have been your sales numbers to date? [Start with baseline period to ARRA]*

56. *Have you experienced an increase or stabilization of sales?*

57. *When did you achieve peak sales? [If peak sales not achieved yet: When do you expect to achieve peak sales? What will be your peak sales numbers?]*

58. *Has your timing to market changed since receiving ARRA funding? If so, how?*

59. *How have ARRA-funded activities (e.g., design changes or manufacturing expansions) affected sales? [Probe by listing changes from above sections]*

- a. *Changes in price affecting sales?*
- b. *Changes in product attributes affecting sales?*
- c. *Greater production which allows for greater supply available to sell?*

60. *Do you have data showing how much additional renewable energy generation (gallons of biofuel, kWh of biomass fueled electricity) or capacity (xx-gallon biodiesel production facility) your operations contributed to in the marketplace above a projected BAU value? What market studies are you referencing for this calculation?(e.g., an NREL study may have forecasted xx additional capacity added in 2011; can they prove from their sales/production numbers that their respective & actual capacity additions were xx+xy – therefore xy above BAU)?*

61. *How much of the impact would you say is attributable to increased sales/output (greater product impact) versus increase in manufacturing efficiency (e.g., energy savings captured due to improved process) versus higher efficiency level of product (e.g., design changes increasing output per gallon of fuel/kWh produced per unit of biomass) [This will be hard to answer]*

62. **Forecast.** *Do you have sales forecasts (or targets) going forward (through 2017)? How do you expect to ramp up production? How do you plan to fund these activities?*

## **Jobs**

Please describe job changes since ARRA.

63. *How many FTE were employed in each of 2009, 2010, 2011, 2012? Were they FT vs PT? What job types & salaries were they?*

- *How many of these were retained from 2008? [Confirm the rest are new employees, and then calculate an incremental increase in FTE since ARRA funding]*
- *Do you know the number of “new” employees added since ARRA funding (i.e., incremental number of new employees)?*
- *How many are FT vs. PT?*
- *How many salaries are directly funded by ARRA money?*
- *How many are “indirect”, meaning created as a result of ARRA improvements to your plant (e.g., a manufacturing expansion that created a need for 5 new manufacturing employees - salaries are NOT directly funded by ARRA dollars.)*
- *How many of these jobs have been retained from the prior year?*

64. *Do you have any data on the number of jobs that have been induced from ARRA activity at your facility (e.g., increase in food service workers)?*

65. **Forecast.** *Do you have job forecasts through 2017? What types of jobs will these be? [Determine time phase of impacts, short-term vs. long-term persistent changes]*

## **Post-ARRA Activities**

66. *Are you still involved with the SEP/ARRA program? If not, when did your involvement end?*

67. *What are your plans when ARRA funding goes away?*

[Identify how critical ARRA funding is to their operations now]

- Stay on course, without significant changes
- Make continued improvements to product or manufacturing process
- Change business plan/model
- Go out of business

68. *For the above choice, over what time period do you expect to see this happening (1, 3, 5, 10 years)?*

69. *Without ARRA funding, how would you sustain your manufacturing activities?*

- Internal cash accounts
- Look for outside funding [from where, probe what types of public/private programs]
  - Private investments
  - Public programs [probe what kinds, how much]

70. *How will the following items be affected from a loss of ARRA funding:*

*Performance/Product Attributes*

- Type and Materials
- Size and Application
- Product Quality
- Rated Power and Efficiency/Output
- What is the EUL of the product?

*Production/Output*

- Production rates (b/c of ARRA)
- Sales #
- Customers/target audience

*Cost*

- Cost of Production
- Sales Price

*Jobs*

- What is your jobs outlook? How will you sustain any jobs currently funded by ARRA? How many jobs will be retained, created, eliminated? What types of jobs and salaries? How long will they remain?

*Market Impact*

- Timing to Market
- Fulfilling a Market Need

71. *Do you have any data on the future market impact of your technology?*

72. *Is your company still involved with the ARRA program? If not, when did the involvement end?*



*73. Is there anyone else you recommend we talk to regarding the extent of the improvement of the REM funded product or its ability to penetrate the marketplace?*

**OTHER THOUGHTS**

*74. Overall, can you identify anything else that the ARRA funds allowed you to accomplish or achieve that we have not addressed or on which you would like to elaborate?*

**Thank you for your time and insight**

## L.45. RENEWABLE ENERGY MANUFACTURING SUBGRANTEES – GRID INTEGRATION

### Overview:

*This template is intended to capture project specific information for Grid Integration Renewable Energy Manufacturing (REM) Projects. The purpose of the survey is to identify improvements in technologies associated with better integration of single or combined renewable energy technologies into the grid. For example, a manufacturing process that focuses on improved integration of solar PV with storage could lead to increased power output during peak hours; thereby increasing market penetration and overall energy savings. Similarly, a product that enables blending of intermittent renewables with fast response conventional fueled technologies leads to overall improvement of capacity factor and therefore increased annual energy output. Examples of the classification of topics we will need to discuss with sub-grantees include the following:*

- *Improvements in grid integration product performance*
  - *Improvements in design of the grid integration product process that lead to improved integration of renewables (e.g., greater capacities; increased reliability or better responsiveness)*
  - *Change in the integration of renewables that results in fewer or less pronounced outages*
- *Reduction in grid integration product cost point (or increase in product value)*
  - *Manufactured changes that lead to lower cost of the integration product (e.g., lower cost inverter controls)*
  - *Development of an integration product that results in higher value of the renewables commodity (e.g., increases renewables during peak demand)*
- *Other changes that may have given the sub-grantee's product an advantage in the marketplace*
  - *More easily enhanced controls (fits in with existing utility control schema)*
  - *Wider acceptance to existing renewable products*
  - *Ability to use a broader range of renewables*
- *Improvements in the manufacturing process itself*
  - *Increased throughput*

*The interviews are meant to be somewhat informal and open ended; not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

## **GUIDE #SG5: MANUFACTURING OF GRID INTEGRATION TECHNOLOGIES**

**Table 3: Subgrantee Background Information [To be pre-populated prior to interview]**

<b>Company Name</b>	
<b>Project Name</b>	
<b>ARRA Award Amount</b>	
<b>Year Awarded</b>	
<b>Contact Name &amp; Title</b>	
<b>Phone</b>	
<b>Email</b>	
<b>Address</b>	

### **Introduction**

My name is [INTERVIEWER NAME] from [INTERVIEWER ORGANIZATION]. This interview is intended to familiarize our team with the activities conducted using SEP or SEP/ARRA funds. More specifically, we are interested in the support you received from the [INSERT STATE] State Energy Office (SEO) for [PROJECT NAME]. The information you supply will be used to characterize the SEO's involvement in this project, and the impact of these actions. In particular, I want to focus on the impacts associated with how ARRA funding may have affected the cost of manufacturing your renewable energy product(s), the volume or rate of production, number of sales associated with changes in manufactured product(s) and impacts on jobs and your company's market position.

The US Department of Energy's State Energy Program contracted us to talk with those stakeholders who received support from SEP/ARRA for renewable energy initiatives. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the US Department of Energy.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you may contact:

Martin Schweitzer, Senior R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your community in any way. All data collected will be grouped together with the responses of respondents from other programs that we interview. All information will then be aggregated and projected on a national level. The information you provide us today is extremely important to show the impact of the National State Energy Program.

**Screening**

1. *Our understanding is that your company/organization received funding under the SEP/ARRA program in [YEAR] for Renewable Manufacturing projects? Is this correct?*

[Verify Project was done during ARRA Period of 2009 or later]

<b>ARRA Program Year:</b>	<b>2009 to present</b>
SEP Program Year (baseline):	July 2008 – June 2009

2. *What is your job title and what was your role and responsibilities with respect to renewable energy manufacturing program activities under SEP/ARRA?*
3. *Who else at your company/organization was involved in leading or managing the SEP/ARRA funded renewable energy manufacturing activities?*

[Obtain Name, Title, Role and Contact Info of anyone else]

4. [If Yes in Q3]: *Among you and [INSERT QUESTION ABOVE RESPONSE], who is most familiar with the program’s renewable energy manufacturing funded activities in [PROGRAM YEAR]?*

[If another is most familiar, ask about the likelihood that they are available to speak.]

**Pre-ARRA Questions (Identifying Baseline)**

*We are interested in knowing more about how ARRA funding impacted your company. Could you describe a bit about what were you doing before ARRA funding; what you hoped to achieve as a result of obtaining ARRA funding, and what the ARRA funding actually allowed you to do? [Follow up with specific questions]*

5. *Before you received ARRA funding, what product(s) were you manufacturing?*

[Obtain general specs including size, application, volume, market needs]

[For REM projects, ask for the following specific metrics. Skip if a non-REM project]

- Performance
  - Type of product (e.g., inverter; storage; hybrid generation/storage, etc.)?
  - Size (e.g., kW, kWh for storage; etc.)
  - What were the typical applications (e.g., behind the meter installation; distribution level application within the distribution feeder; utility-scale at substation; etc.)
  - Do you know where these product(s) were typically installed for grid integration (e.g., within [STATE], outside of [STATE])?
  - Did you monitor performance of your product(s)?
    - Need to probe for aspects of what they monitored and how if they did conduct monitoring
- Manufacturing Production Volume/Market Impacts/Sales
  - Typical production rates (units per hour; units per month, etc.)
  - Annual sales (number of units sold per year)

- Customers/target audience
- Cost
  - Cost of Production (\$/unit)
  - Sales Price (\$/unit)
- Jobs
  - Number of people employed by your company prior to ARRA, in 2008
  - Job types (e.g., engineers, technicians, sales staff, etc.)
  - Please identify the above as Full-time vs Part time staff
- Pre-ARRA market impact
  - Market Penetration (what kind of percent market share do you believe you had for this type of product in [STATE]?) How many units of this type of product was in the [STATE] marketplace prior to the ARRA funding being offered?
    - [Note that we may need to probe further if (as expected), grid integration systems or products may have been sold for outside of [STATE] applications]
  - Do you know roughly how much energy was produced (kWh/year) for the products your company provided prior to ARRA funds?
  - What was your timing to market?

6. *When did these ARRA-funded activities begin?*

7. *Why did you apply for ARRA funding? What were your specific goals for the funding?*  
 [Examples: ramp up production, lower cost of manufacturing through manufacturing process changes or design of product]

8. *What market data (if any) did you reference in developing your business plan? Do you have data or market studies that indicated market support for your expansion/development of your new product?*

9. *What are your industry's main market drivers and barriers?*

10. *What specific customer needs/market gaps are you fulfilling?*

- Need for a product with X% lower cost than existing technology
- Need for a product that provides grid integration at a certain cost point
- Need for a technology that provides multiple benefits as required by consumers in that market place

11. *Who is your target audience for the REM product you are improving?*

[What specific market sector and type of customers are served by the REM product?]

12. *What would you have done if you had NOT been awarded ARRA money?*

- What technology would you have produced?
  - Stayed on course with old technology?
  - Manufactured new technology anyway
  - Made improvements that were less significant than with ARRA but better than your original product?
  - Changed products?
  - Gone out of business?
- Over what time period would this activity have sustained?

13. *Did you have specific goals relative to the amount of ARRA funding provided?*

[Try to prepopulate from project proposal]

- Overarching project goals? (e.g., project milestones like to create jobs or spend \$ ASAP)
- Product attribute goals? (e.g., on efficiency, cost, achieve performance goals, production goals, cost goals, job goals, market goals)?
- Production goals?
- Sales goals?
- Any marketplace goals (e.g., installations, RE generation goals)?

#### **ARRA Questions**

14. *When did you apply for ARRA funding?* [Pinpoint date, RFP]

15. *Of your total operating and capital expenses, what portion does ARRA money represent?*

16. *What are the other sources of income that fund your operations? What types of activities did those non-ARRA sources fund?*

[Describe funding levels, public programs/other funding sources, and how each part contributed to your operations]

17. *What specific activities did ARRA fund?*

18. *Do the ARRA activities represent an entirely new product effort or an expansion to your existing product lines?*

[Make sure this is a new product effort, i.e., SG5]

[Try also to get a sense of how well they know the market and if they are in position to project market demand]

19. *When did you receive ARRA funding and how was it delivered (in increments, lump sum)?*

20. *Was payment contingent on meeting any of your project goals? If so, which goals?*

21. *Can you share your funding contract with us?*

#### **METRICS**

[We are looking at four possible ways the manufacturer may have impacted energy savings:

- *Improvements in product performance*
- *Improvements in the manufacturing process itself*
- *Reduction in product cost point (or increase in product value)*
- *Other changes that may have given the sub-grantee's product an advantage in the marketplace]*

#### **Improvements in Product Performance**

**Tell us about the renewable energy product(s) you've manufactured with ARRA money.**

22. *What are the characteristics of the products you manufactured with ARRA funds?*

- Type of manufactured product (including specific type grid integration product, and is this solely hardware or combined hardware/software)
- Application (e.g., behind the meter integration of renewables or renewables/storage; distribution feeder integration; substation integration, etc.)
- Purpose to be achieved via the grid integration system
- Can you provide us with a specification sheet(s) of the products you manufactured using ARRA funds?

23. *Do you have any data on the current market penetration of your product? Can we look at (1) sales numbers, (2) actual installations and utilization rates or (3) actual energy integrated (e.g., kWh, MWh, etc.)?*

24. *Where were grid integration products sited or used? Did you monitor performance or usage?*

- Do you have the amount of energy generated (e.g., kWh) or energy integrated by territory?
- For your area, do you have data on actual grid integration impacts (e.g., energy saved as kWhr, etc)?

25. *Did you calculate GHG savings? How much energy content did you assume was offset? What are your sources, methodology and final calculations?*

26. **Forecast.** *Do you have performance goals moving forward (e.g., efficiency goals)? What are your targets through 2017?*

27. **Baseline Comparison.** *How does your product's performance compare to your competitors? Compare to the marketplace baseline? Do you have data/studies on the performance and market penetration of similar technologies?*

**Product Attributes: Grid Integration Technology**

28. *What would you say differentiates your technology from what's already in the marketplace?*

29. *[If new grid integration production (vs manufacturing expansion)] What specific product attributes represent a change from prior manufacturing activity?*

30. *Describe the specific product improvements (and any changes, good or "bad") you made as a result of using ARRA dollars.*

- Design Changes/Improvements (that may have led to an):
  - Ability to produce a grid integration product that is underrepresented in the marketplace
  - Ability to achieve increased grid integration of renewables
  - Increase in hours of effective operation?
  - Increase/stabilization of energy generation?

- Product design improvements that affect how the technology is used (e.g., making it easier/cheaper to utilize, ability to be used in more applications, possibly encouraging more sales)?
- Product design changes that increase the number of technology applications (e.g., making the product more accessible to customers or usable in more environments)?
- Product design changes that reduce downtime (e.g., require less maintenance)?
- Product design improvements that increase the efficiency of the manufacturing process, thereby allowing the production of more grid integration products at the same cost (e.g., eliminating the need for a complicated/costly/time consuming manufacturing step)?

31. *Were any of the aforementioned activities/changes funded by sources other than ARRA (e.g., internal cash or other grants)? If so, can you distinguish what activities were exclusively funded by ARRA and which by other sources?*

32. *Were there any activities funded by other sources that also affected (directly or indirectly) the ARRA-funded technology (e.g., a facility upgrade funded by the State but ARRA-funded design changes that, in concert, resulted in greater production of a higher efficiency product) ?*

### **Changes in Manufacturing Line**

**Tell us about how the changes you made in the manufacturing process may help increase energy savings.**

*[We're looking at three possible ways the manufacturer may have modified the manufacturing process:*

- *Changes only the efficiency the manufacturing process (no increase in volume production and no change in the performance of the product), in which case, energy savings accrue only to the change in the manufacturing;*
- *Changes which result in increased volume production but no change in the performance of the product, in which case energy savings are associated with baseline performance of the product and accrue with increases in the number of deployed units; and*
- *Changes in volume production of components of overall renewable energy systems (e.g., in which case energy savings must be attributed to the component). This third case is the most difficult case in which to estimate savings.]*

33. *Have you made changes to your manufacturing line?*

*c. Production improvements*

*d. Increase in production volume: did you make changes to the manufacturing process that made the overall process more efficient?*

34. *If increase in production volume: Please explain what you did.*

*[e.g., Did you make improvements to the manufacturing line? E.g., not having to pull components off the line to adjust them, less energy used in process)*

35. *Can you give me specific numbers on how much your production/output rates changed since receiving ARRA funding?*

[Obtain production rates at time of ARRA funding, and over time until reaching peak production (or expected peak production, through 2017 if available.)]

36. *Were there any manufacturing improvements made that affected the non-energy aspects of the technology?*

[e.g., Improvement in market or technical (non-energy) performance of the technology, such as a reduction of down-time, lower maintenance cost, easier accessibility, reduction of time for parts delivery, etc]

37. *Did you calculate the energy efficiency savings from the increase in manufacturing efficiency? Have these costs been integrated in the final product price/cost of production? Do you have calculations?*

38. **Forecast.** *Do you have production forecasts/targets moving forward (through 2017)?*

### **Cost Attributes**

[We are looking for specific reductions in the product cost point (or increase in product value)

- *Manufactured changes that lead to higher energy content of the fuel*
- *Development of a higher value commodity that may be a side revenue to the energy product (e.g., pharmaceutical bioproducts)]*

39. *What is your cost per unit of production?*

[Obtain whatever cost metrics are available]

40. *[If baseline equipment was a REM product] What was your cost per unit of the product you produced prior to receiving ARRA funding?*

41. *What specific manufacturing process changes led to these cost changes, and to what degree?*

42. *What specific design changes/improvements (or manufacturing process changes) led to these cost changes, and to what degree?*

[Probe for quantitative cost changes attributable to each design change. Run through each design change mentioned in earlier section]

Examples:

- e. *Decrease in unit cost?*
- f. *Decrease in the price per unit of capacity?*
- g. *Decrease in price per unit of efficiency?*
- h. *Moderation in the price per unit compared to non-SEP influenced markets?*

43. *Do you have data/analysis on how additional changes in cost would affect market penetration (e.g., how much more of a market could be penetrated with an \$x drop in price)?*

44. **Forecast.** Do you have cost forecasts (or goals) going forward (through 2017)? How do you expect to achieve these costs (e.g., through what means)? How do you plan to fund these activities?

### **Sales Price**

45. What is your sales price per unit manufactured?

46. Do you have tiered sales prices depending on the customer (e.g., bulk purchases)?

47. Have you experienced a moderation in price per unit compared to the market baseline?

48. Have prices changed pre- and post-ARRA? If so, by how much?

49. What specific manufacturing changes (mentioned earlier) have led to changes in price? And to what degree?

[Probe for quantitative sales price changes attributable to each design change]

50. What specific design changes (mentioned earlier) have led to changes in price? And to what degree?

[Probe for quantitative sales price changes attributable to each design change]

51. Have reduced sales prices made it possible for you to reach more customers or tap into more markets? Do you have actual numbers or forecasts?

52. How does your sales price compare to your competitors' in the marketplace?

53. **Forecast.** Do you have price forecasts (or goals) going forward (through 2017)? How do you expect to achieve these prices? How do you plan to fund these activities?

### **Market Impacts/Sales**

54. What have been your sales numbers to date? [Start with baseline period to ARRA]

55. Have you experienced an increase or stabilization of sales?

56. When did you achieve peak sales? [If peak sales not achieved yet: When do you expect to achieve peak sales? What will be your peak sales numbers?]

57. Has your timing to market changed since receiving ARRA funding? If so, how?

58. How have ARRA-funded activities (e.g., design changes or manufacturing expansions) affected sales? [Probe by listing changes from above sections]

d. Changes in price affecting sales?

e. Changes in product attributes affecting sales?

f. Greater production which allows for greater supply available to sell?

59. Do you have any data on how much additional renewable energy was enabled (e.g., capacity or generation) because of the grid integration efforts of your company above a calculated BAU amount? What market studies are you referencing? (e.g., an NREL study may have forecasted xx additional capacity (of wind, PV, bifuels) added in 2011; can they prove from their sales numbers that their product caused or enabled actual capacity additions of xx+xy (therefore xy above BAU) and are they able to attribute this to their grid technology and not improvements on the PV/Wind/Biomass side)?

60. How much of the impact would you say is attributable to increased sales/output (greater product impact) versus increase in manufacturing efficiency (e.g., energy savings captured due to improved process) versus higher efficiency level of product (e.g., design changes increasing output per panel) [This will be hard to answer]

61. **Forecast.** Do you have sales forecasts (or targets) going forward (through 2017)? How do you expect to ramp up production? How do you plan to fund these activities?

## **Jobs**

Please describe job changes since ARRA.

62. How many FTE were employed in each of 2009, 2010, 2011, 2012? Were they FT vs PT? What job types & salaries were they?

- How many of these were retained from 2008? [Confirm the rest are new employees, and then calculate an incremental increase in FTE since ARRA funding]
- Do you know the number of "new" employees added since ARRA funding (i.e., incremental number of new employees)?
- How many are FT vs. PT?
- How many salaries are directly funded by ARRA money?
- How many are "indirect", meaning created as a result of ARRA improvements to your plant (e.g., a manufacturing expansion that created a need for 5 new manufacturing employees - salaries are NOT directly funded by ARRA dollars.)
- How many of these jobs have been retained from the prior year?

63. Do you have any data on the number of jobs that have been induced from ARRA activity at your facility (e.g., increase in food service workers)?

64. **Forecast.** Do you have job forecasts through 2017? What types of jobs will these be? [Determine time phase of impacts, short-term vs. long-term persistent changes]

## **Post-ARRA Activities**

65. Are you still involved with the SEP/ARRA program? If not, when did your involvement end?

66. What are your plans when ARRA funding goes away?

[Identify how critical ARRA funding is to their operations now]

- Stay on course, without significant changes
- Make continued improvements to product or manufacturing process
- Change business plan/model
- Go out of business

67. For the above choice, over what time period do you expect to see this happening (1, 3, 5, 10 years)?

68. Without ARRA funding, how would you sustain your manufacturing activities?

- Internal cash accounts
- Look for outside funding [from where, probe what types of public/private programs]
  - Private investments
  - Public programs [probe what kinds, how much]

69. How will the following items be affected from a loss of ARRA funding:

*Performance/Product Attributes*

- Type and Materials
- Size and Application
- Product Quality
- Rated Power and Efficiency/Output
- What is the EUL of the product?

*Production/Output*

- Production rates (b/c of ARRA)
- Sales #
- Customers/target audience

*Cost*

- Cost of Production
- Sales Price

*Jobs*

- What is your jobs outlook? How will you sustain any jobs currently funded by ARRA? How many jobs will be retained, created, eliminated? What types of jobs and salaries? How long will they remain?

*Market Impact*

- Timing to Market
- Fulfilling a Market Need

70. Do you have any data on the future market impact of your technology?

71. Is your company still involved with the ARRA program? If not, when did the involvement end?

72. Is there anyone else you recommend we talk to regarding the extent of the improvement of the REM funded product or its ability to penetrate the marketplace?

### **OTHER THOUGHTS**

73. Overall, can you identify anything else that the ARRA funds allowed you to accomplish or achieve that we have not addressed or on which you would like to elaborate?



**Thank you for your time and insight**

## L.46. TRANSPORTATION/ALTERNATE FUELS PROGRAM MANAGERS

*This interview will be used with individuals who understand the alternative fuel programs within their SEP effort, and who are in a position to comment on the program over time (historical and future).*

*We anticipate interviewing the SEP Transportation Program Managers first, followed by the Grantees, and then by the Suppliers. This staging of efforts will help target information collection.*

*This interview guide is designed to provide direction to the interviewer to ensure that all relevant topics are explored to the extent possible and appropriate with the respondent. Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This information will be used to determine the following:

- Program manager roles and responsibilities for alternative fuel efforts;
- Program activities;
- Market place influence;
- Funding sources outside of SEP;
- Program products and outcome;
- Funding, co-funding and decision-making around how funding is used, including coordination with others;
- Linkages to other programs.

*Information in [BRACKETS] will be customized to reflect the unique PA program [PROGRAM] in 2008.*

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Program year:	
Geography:	
2008 Budget:	
Contact Name:	
Contact Company:	
Contact Phone:	

Contact Disposition:	
Interviewer name:	
Interview organization:	

**SCHEDULE INTERVIEW**

We will briefly contact program managers to schedule the interview, as needed depending upon data provided. We will screen for individuals who understand the range of information within their SEP effort, and who are in a position to comment on the program over time (historical and future).

**BACKGROUND STATEMENT**

My name is [INTERVIEWER NAME] from DNV GL. [IF APPLICABLE] We spoke briefly on [DATE SCHEDULED] regarding your role in the SEP 2008 [PROGRAM]’s alternative fuel activities.

This interview is intended to familiarize our team with your alternative fuels activities, as well as the history of your SEP [PROGRAM] information and training efforts, and other similar offerings in your market. The information you supply will be used to characterize the SEP [PROGRAM] in 2008.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact [ORNL CONTACT INFORMATION].

[IF NECESSARY] The US Department of Energy’s State Energy Program has hired us to talk with organizations involved with the management of the alternative fuels efforts for [PROGRAM] in 2008. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

**RESPONDENT ELIGIBILITY SCREENING**

To start, I need to understand your role in the [PROGRAM].

- S1. Were you the program manager or otherwise the most knowledgeable person to talk about [PROGRAM] in 2008?
- S2. What was your title and what were your job responsibilities in 2008?
- S3. (IF S1 IS “NO”) Who is the most knowledgeable person to talk about [PROGRAM] in 2008? [THANK AND TERMINATE]
- S4. Our understanding is that you are the program manager for [NAME OF PROGRAM] that received SEP funding for the 2008 Program Year. Is this correct:

Answer	Next Step
Yes – Correct person and year for SEP funded [NAME OF PROGRAM]	[CONTINUE]
Yes – Correct person, wrong year for SEP funded [NAME OF PROGRAM]	[CORRECT YEAR AND CONTINUE IF THE YEAR IN QUESTION IS WITHIN THE STUDY PERIOD]
No – Incorrect person for SEP funded	[ASK FOR CORRECT PERSON FOR [NAME

[NAME OF PROGRAM]	OF PROGRAM]]
No – There were no SEP funded [NAME OF PROGRAM]	[THANK YOU AND TERMINATE]

S5. For how long did or have you served in that capacity? [PROBE]

- k. pre-2008 to 2008
- l. 2008 to 2009-2010/ARRA period
- m. 2010/ARRA (to present)

S6. Is the program still ongoing?

S7. (IF S6 IS "NO") Why is the program no longer in operation?

### Program Logic

In order to evaluate [PROGRAM], we need to understand how the program worked. This means understanding the resources required as well as the goals and objectives.

- AV1. Have you developed a program logic model or a process flow diagram for this program that you can share with us?
- AV2. What were the overall goals of your alternative fuels efforts in 2008 for this SEP [PROGRAM]? Please be specific [PROBE: BTUs of gasoline saved, carbon saved, jobs created, etc.]
- AV3. What was your SEO seeking to acquire or accomplish with the grants you offered in 2008?
- AV4. Can you describe the range of program efforts with the grants you offered in 2008?
- AV5. Are there policies, legislation, or other organizational goals that influenced this program?
- AV6. What non-Carbon emissions savings goals did you have? [PROBE: Labor Impacts, Energy Security, Market Development?]
- AV7. In what year did this alternative fuels program begin?
- AV8. Was it sponsored by SEP funding when it began?
  - a. [IF YES] How much of the total funding was from SEP?
  - b. [IF NO] When did SEP begin funding this program?
- AV9. What would you define as the key target markets for the services provided by your SEP alternative fuels program in 2008? [PROBE: Production, Storage, Delivery and Operations]
- AV10. Please describe how potential participants were identified and recruited, both collaborators and participants, including how they were ultimately engaged by the program.
- AV11. Will you please describe and enumerate the key participants, collaborators, or stakeholders and their respective roles? [PROBE: Grantees, Suppliers, Contractors, Fleet Operators]

- a. What is the name of the organization?
  - b. Please describe the participation role.
- AV12. What types of activities did this program implement? [PROBE: Station Retrofits, New Stations Built.] Please be specific.
- a. Do you have any program performance records, data, or documentation on these activities?
- AV13. What was the timeline for the expected program goals to be met? [PROBE]
- a. 0 to 1 years?
  - b. 2 to 3 years?
  - c. 3 to 5 years?
  - d. 5 or more years?
- AV14. Do you have any program reports or data to show progress toward these goals?
- AV15. How does the program work to achieve the goals you stated above? [PROBE: Actions Taken and Objectives Achieved.]

### Job Creation

As part of our evaluation effort, we are trying to establish the job impacts of this program. The next series of questions is one part of this process.

- J1. Does your organization currently have any **full time** staff assigned to the management and implementation of this SEP alternative fuel effort?
- p. Yes -----> [INSERT IN TABLE BELOW]
    - i. How many full time staff for this alternative fuel program? \_\_\_
    - ii. What proportion of these program staff costs are from SEP funding? \_\_\_%
  - q. No
  - r. Not sure / don't know
- J2. Does your organization currently have any **part time** or split-time staff assigned to the management and implementation of this SEP alternative fuel effort?
- p. Yes -----> [INSERT IN TABLE BELOW]
    - i. How many part time staff for this alternative fuel program? \_\_\_
    - ii. What proportion of these program staff costs are from SEP funding? \_\_\_%
  - q. Not sure / don't know
- J3. Over the last 5 years, how many FTE staff were associated with the management and implementation of these SEP alternative fuel efforts? Let's start with the period before 2008... [PROBE: By Year]

	<b>SEP-Funded Full-Time Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>(J1.) 2011+</b>
<b>1</b>	Number of full-time staff				
<b>2</b>	Proportion of full-time staff costs funded by SEP				
<b>3</b>	Don't know				
<b>4</b>	Refused				

	<b>SEP-Funded Part-Time Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>(J2.) 2011+</b>
<b>1</b>	Number of part-time staff (in FTEs)				
<b>2</b>	Proportion of part-time staff costs funded by SEP				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: With Funding Sources, Legislative or Regulatory Changes, and Other Previously Mentioned Factors.]

J5. Without SEP/ARRA funding, how many FTE staff would have been associated with the management and implementation of this alternative fuel efforts? [PROBE: By Year]

	<b>Program Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff				
<b>2</b>	Number of part-time staff (in FTEs)				
<b>3</b>	This alternative fuel effort would not have taken place				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J6. [IF J7 IS NON-ZERO] Please specify the sources of funding for these jobs.

J7. What were all the sources of funding besides SEP? [PROBE: List and for All that Apply Ask the Following]

- a. Please describe the contribution/collaboration role.
- b. Please estimate how many FTE staff for this [SUBGRANTEE/SUPPLIER] were associated with this particular program activity? [PROBE: By Year]

	<b>Program Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of full-time staff				
<b>2</b>	Number of part-time staff (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

- c. What is the contact information for this collaborator?

### **Attribution**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Please describe the history of your efforts pre-2008, 2008, 2009-2010/ARRA period, since 2010. How did the program change over time in terms of the kind of support you provided to subgrantees in terms of dollars and the range of fuels or services for those fuels supported? [PROBE: Ask for Specific Times to Anchor Timeline).
  - a. Have the goals for these efforts changed over time? (Please describe)
- A2. Please describe how the alternative fuel market in [GEOGRAPHY] looks like now compared to 2008? Has it increased/decreased or stayed the same? What about the kinds of fuels offered and supported now compared to 2008?
- A3. How was the SEP [ACTIVITY] branded to partners and participants?
- A4. Can you describe the marketplace prior to when SEP support for the program began, and the market gaps the program was seeking to fill, if any?
- A5. How many alternative fuel stations were in [STATE] prior to this program? What types of fuels were offered? How much of each fuel was consumed within [STATE]?
- A6. Who else in the geographic area offered similar alternative fuel stations? [PROBE: For Other Influences in the Market at that Time.]
- A7. [IF THERE WERE OTHER FUNDING SOURCES IN J7] For each activity, can you tell me the total level of funding in 2008, the funding from SEP, and the funding from these other sources? [PROBE: For Any Conditions/Restrictions on Funding]
- A8. In your opinion, what was the relative importance of each of these contributions to the completion of the projects completed in 2008?
- A9. In the absence of the [PROGRAM] activities in 2008, what do you think the market would have looked like? How much additional infrastructure would have been installed and fuel delivered? [PROBE: For Supplier/Subgrantee Baseline Practices in the Absence of the Program, Number of Vendors in the Market, Infrastructure in Place to Deliver Alternative Fuels.]
- A10. How many alternative fuel stations are now in place? Has there been a change in the fuels offered? How much of each fuel is now consumed?
  - a. Who else can provide this information, is it [INSERT CONTACT FROM J7C] or someone else? [WRITE DOWN CONTACT].

## L.47. TRANSPORTATION/ALTERNATE FUELS PROGRAM SUBGRANTEES

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Interviewer name:	
Interviewer organization:	

### BACKGROUND STATEMENT

The US Department of Energy's State Energy Program has hired us to talk with organizations involved with the management of the alternative fueling infrastructure efforts for [PROGRAM] in 2008. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

This interview is intended to familiarize our team with your activities related to the [PROGRAM], as well as the history of your station and fuel purchases, and other similar offerings in your market. The information you supply will be used to characterize the [PROGRAM] in 2008. The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

Your response will be confidential and not associated with you or your company in any way, and will be grouped together with the responses of other suppliers we interview and reported as a total. This information is extremely important to show the impact of the State Energy Programs.

**RESPONDENT ELIGIBILITY SCREENING**

To start, I need to understand your role in the alternative fueling infrastructure purchases that received rebates from the [STATE] SEO.

- S1. Can you confirm that your organization purchased alternative fuel infrastructure (i.e. fuel pumps and tanks) between July 2008 and July 2009, and received rebates for all or some of this equipment from the [STATE]? [PROBE: Any other types of equipment for alternative fuels besides pumps and tanks? How many pieces of the equipment were purchased? What were the manufacturers and models, if this information is available?]
- S2. Were you the purchasing manager or otherwise knowledgeable enough to talk about that purchase in 2008?
- S3. What was your title and what were your job responsibilities in 2008?
- S4. (IF S2 IS "NO") Who is the most knowledgeable person to talk about these rebated purchases in 2008? [THANK AND TERMINATE, if they are unfamiliar with the project. Otherwise continue with the survey]
- S5. For how long did or have you served in that capacity? [PROBE]
  - a. pre-2008 to 2008
  - b. 2008 to 2009-2010/ARRA period

**2009-2010/ARRA period to present Program Logic**

In order to evaluate the [PROGRAM], we need to understand how this program influenced the market. This means understanding how the program worked.

- AV1. Can you estimate how many pumps or pieces of fueling equipment you purchased during the July 2008 through July 2009 period?
  - a. Can you estimate how many petroleum or diesel pumps or pieces of fueling equipment you purchased in total during that time? [PROBE: If this information is available, ask for manufacturer, model, supplier and fuel type of each piece of equipment. Did the supplier or others provide assistance with purchasing the equipment?]

Equipment Description	Quantity	Manufacturer	Model	Assistance with Purchasing

- b. Can you estimate how many alternative fuel pumps or pieces of equipment you purchased in total during that time? [PROBE: If this information is available, ask for manufacturer, model, supplier and fuel type of each piece of equipment? Did they receive funding other than from [PROGRAM]? If so, do you have documentation from that program that you could share with us?]

Equipment Description	Quantity	Manufacturer	Model	Assistance with Purchasing

- c. How many of the alternative fuel pumps or equipment that were purchased received rebates from the [PROGRAM]? [PROBE: Did they receive additional funding support?]
- d. (If answer to c. is zero): Can you elaborate on why the purchase was not completed?
- e. (If answer to c. is not zero): Are the pumps or equipment that were purchased with the help of the [PROGRAM] still in operation now? [PROBE: If not, why not? And when did they stop being operational? What were they replaced with?]

AV2. (If L1 is zero): Why did you not purchase any stations using [PROGRAM]?

AV3. What were the overall goals of your alternative pump and equipment purchases in 2008?

AV4. Why was your organization motivated to purchase these pumps or equipment? [PROBE: Were you influenced to purchase these pumps or equipment by the [PROGRAM]? Or, were there other influences?]

AV5. What non-energy savings goals did you have? [PROBE: Was carbon emissions reduction one of the goals?]

AV6. Please describe how you identified the need for these pumps or equipment. What were your reasons for installing the new equipment? [PROBE: Did you need to increase your service offering or the number of stations, replace existing stations, or both?]

AV7. How many gallons of fuel did you sell through each of these pumps or equipment on a monthly basis after they were installed? [PROBE: How much fuel was sold each year since the installation?]

AV8. Have you purchased additional pumps or equipment since you purchased the pumps or equipment that were rebated by the [PROGRAM]?

- a. (IF "YES") How many did you purchase? [PROBE: Were they through the same supplier?]
- b. (IF "YES") Why did you purchase the additional equipment? Was it influenced by the [PROGRAM]'s program?
- c. (IF "NO") Why not?

AV9. What was the timeline for the expected program goals to be met? [PROBE]

- a. 0 to 1 years?
- b. 2 to 3 years?

- c. 3 to 5 years?
- d. 5 or more years?

AV10. Do you have any project reports or data to show progress toward these goals? [PROBE: IF "YES," ask for copies of these]

AV11. How did the alternative fuel equipment project that was funded by [PROGRAM] help to achieve the goals you stated above? [PROBE: What were actions taken and objectives achieved?]

### Job Creation

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of stations?

- a. Yes -----> **How many full time staff? \_\_**
- b. No
- c. Not sure / don't know

J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your stations?

- a. Yes -----> **How many part/split time staff? \_\_ in FTEs?**
- b. No
- c. Not sure / don't know

J3. If you have alternative fuel stations, does your organization currently have any **full time** staff assigned to the management and maintenance of those stations specifically?

- a. Yes -----> **How many full time staff? \_\_**
- b. No
- c. Not sure / don't know

J4. If you have alternative fuel stations, does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of those stations specifically?

- a. Yes -----> **How many part/split time staff? \_\_ in FTEs?**
- b. No
- c. Not sure / don't know [PROBE: List by year]

J5. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these rebated pumps? [PROBE: List by year]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of SEP full-time staff...				
<b>2</b>	Number of SEP part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J6. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources?]

Without these rebated pumps, how many FTE staff would have been associated with the management and maintenance of your pumps? [PROBE: List by year]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of SEP full-time staff...				
<b>2</b>	Number of SEP part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J7. Please specify the sources of funding for these jobs. What were all the sources of funding besides [STATE] [PROGRAM]? [List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

#### **Attribution**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

- A1. Without the [STATE] [PROGRAM] rebate, did you purchase the alternative fuel pumps or equipment?
  - a. If yes, were they the same pumps or equipment, at the same quantities, and at the same time? [PROBE: If available, ask about manufacturer, model, supplier and fuel type]
  - b. If no, what did you purchase instead, how many did you purchase and at what time? [PROBE: If available, ask about manufacturer, model, supplier and fuel type. If you did not purchase, what would you have done instead to meet the need for those additional pumps or equipment?]
- A2. Are there more alternative fuel pumps and equipment in the market in [STATE] in 2009 and now, compared to 2008?
- A3. When did you start to purchase alternative fuel pumps or equipment with the help of the [PROGRAM]'s funding?
- A4. Can you describe the marketplace at the time, and the market gaps the rebate program was seeking to fill, if any?
- A5. Can you estimate how many alternative fuel pumps and equipment were in the state prior to this program? What types of fuels were offered? How much of each fuel was consumed?
- A6. Who else in the geographic area offered similar alternative fuel pumps and equipment? [PROBE: Ask for other influences in the market at the time]
- A7. (IF THERE WERE OTHER FUNDING SOURCES IN QUESTION J88) For each activity, can you tell me the total level of funding in 2008, the funding from the [PROGRAM], and the funding from these other sources? [PROBE: Were there any conditions / restrictions on funding?]

- A8. In your opinion, what was the relative importance of each of these contributions to the purchase and maintenance of these pumps in 2008?
- A9. In the absence of the [PROGRAM]'s funding in 2008, what do you think the market would have looked like? How much additional infrastructure has been installed and fuel delivered? [PROBE: Ask for supplier/subgrantee baseline practices in the absence of the program, number of vendors in the market, infrastructure in place to deliver alternative fuels.]
- A10. Can you estimate how many alternative fuel pumps or equipment are now in place and were in place in 2009 in [STATE]? Has there been a change in the fuel types offered? How much of each fuel is now consumed? [PROBE: Ask for other sources of this information if respondent does not know this.]
- A11. Can you estimate the lifetime of the alternative fuel pumps or equipment installed during this program year (i.e. how many years does this equipment normally last)? [Probe: Can you estimate the yearly sales of these fuel pumps or equipment at each station? Lifetime sales for each station?]

<b>Equipment Description</b>	<b>Lifetime (yrs)</b>	<b>Yearly sales</b>	<b>Lifetime sales</b>	<b>Notes</b>

## L.48. TRANSPORTATION/ALTERNATE FUELS PROGRAM SUPPLIERS

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 ARRA budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Interviewer name:	
Interviewer organization:	

### BACKGROUND STATEMENT

The US Department of Energy's State Energy Program has hired us to talk with organizations involved with the alternative fuels vehicles efforts for the [PROGRAM] in 2008. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy. This interview is intended to familiarize our team with your activities related to the [PROGRAM], as well as your organization's history with the [PROGRAM], and other similar programs in your market. The information you supply will be used to characterize the [PROGRAM] in 2008. The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
 Oak Ridge National Laboratory  
 E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 Phone: (919) 929-0995

Your response will be confidential and not associated with you or your company in any way, and will be grouped together with the responses of other suppliers we interview and reported as a total. This information is extremely important to show the impact of the State Energy Programs.

### RESPONDENT ELIGIBILITY SCREENING

To start, I need to understand your involvement with the [PROGRAM].

- 
- S1. Did your firm sell alternative fuel vehicles and/or hybrid vehicles in 2008 that were rebated by the [PROGRAM]?
  - S2. What services and products did your firm provide in 2008 to your customers in [STATE]?
  - S3. Did you help your customers obtain the [PROGRAM] rebates offered from July, 2008 to July, 2009?
  - S4. (If S3 is "YES") Who were the customers that you worked with for these rebates? Are you able to provide their contact information?
  - S5. Did you supply just alternative fuel or hybrid fuel vehicles, or did you also supply fuel and/or fueling infrastructure (e.g. pumps, tanks, fueling equipment, etc.)? When did you decide to enter the market to supply these products and services in [STATE]?
  - S6. Do you still supply these products and services in [STATE]? If not, why not?
  - S7. Is your organization still supplying alternative fuel vehicles or hybrid fuel vehicles to grantees in [STATE]? [PROBE: List all here] If not, when did your involvement end?

#### **Background**

- B1. How does your organization select which of your possible customers to target for selling alternative fuel vehicles? [PROBE: Is it by geographic areas, rebate availability in certain areas, infrastructure needs, and/or target technologies?]
- B2. How does your organization market to your customers? Please describe.
- B3. In your opinion, what influences your customers to select alternative and hybrid fuel vehicles?
- B4. What have been the major barriers in the alternative and hybrid fuel vehicle sales markets for your organization, and major barriers for your customers in purchasing alternative and hybrid fuel vehicles?
- B5. What major barriers to higher penetration remain in this market for your organization and for other market participants (e.g. alternative fuel infrastructure suppliers, alternative fuel distributors, gas stations, etc.)?

#### **SEP Influence in the Marketplace**

1. Which municipalities did your company supply that qualified for this program?
2. Does your company supply other organizations besides those rebated through the [PROGRAM]?
3. In percentage terms, how much of your total business in the US in 2008 was directly due or indirectly influenced by this program?
4. In percentage terms, how much of your business in [STATE] in 2008 was directly due or indirectly influenced by this program?
5. Prior to providing services that qualified for the [PROGRAM], did your organization provide these same services in [STATE], and outside of [STATE]? [PROBE: quantity of services provided before program and how this changed after becoming a partner]
6. Are you aware of programs (e.g. industry support services, publicly or privately funded programs or trade association programs) sponsored by other organizations in your market that offer similar services (i.e. rebates) to the types of alternative and hybrid fuel vehicle purchasers targeted by the [PROGRAM]? (IF "YES":)

- a. Can you tell me what organizations sponsor those programs and what kinds of assistance they offer?
  - b. How did you learn of these programs?
  - c. Have you participated in these programs or worked on projects that received support from them?
7. To what extent and in what ways did you coordinate your involvement with [PROGRAM] activities with other programs and organizations? Who and how? [PROBE: Ask about co-sponsoring, funding from other sources or government incentive programs.]
  8. In your opinion, what was the relative importance of each of these program contributions to the alternative and hybrid fuel vehicles rebated in 2008?
  9. In the absence of the [PROGRAM] in 2008, how would your service offerings have differed? What would your company have done to manage the lack of funding support (e.g. identify other forms of funding, had lower sales)?
  10. Over the last 5 years, how many FTE staff were associated with the servicing of customers supported (either full-time or part-time) by this program in [STATE]? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of additional full-time staff...				
<b>2</b>	Number of additional part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

11. In what other ways has your business through the [PROGRAM] impacted your business and professional practices? [PROBE: Increased service offerings, stocking, recommendations, availability/manufacturing, improved skill set of staff, etc.]
12. Did this program impact the business and professional practices of other contractors similar to you? How?
13. What actions would participating alternative fuel vehicle or hybrid fuel vehicle purchasers have taken in the absence of this program? [PROBE: Impact on timing, quantity, efficiency levels of vehicles]



## L.49. TRANSPORTATION/ALTERNATE FUELS PROGRAM - SUBGRANTEES

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Interviewer name:	
Interviewer organization:	

### BACKGROUND STATEMENT

The US Department of Energy's State Energy Program has hired us to talk with organizations involved with the management of the alternative fuels efforts for the [PROGRAM] in 2008. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

This interview is intended to familiarize our team with your activities related to the [PROGRAM] as well as the history of your SEP biodiesel fuel purchase efforts, and other similar offerings in your market. The information you supply will be used to characterize the [PROGRAM] in 2008.

The length of the interview varies from person to person, but most interviews last about 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
 Oak Ridge National Laboratory  
 E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 Phone: (919) 929-0995

Your response will be confidential and not associated with you or your company in any way, and will be grouped together with the responses of other suppliers we interview and reported as a total. This information is extremely important to show the impact of the State Energy Programs.

## RESPONDENT ELIGIBILITY SCREENING

To start, I need to understand your role in the biodiesel fuel purchases that received rebates from the [STATE] [PROGRAM].

- S1. Can you confirm that your organization purchased biodiesel fuel between July 2008 and July 2009, and received rebates for all or some of the fuel from the [PROGRAM]?
- S2. Were you the project manager / purchasing manager or otherwise knowledgeable enough to talk about that grant in 2008?
- S3. What was your title and what were your job responsibilities in 2008?
- S4. (IF S2 IS "NO") Who is the most knowledgeable person to talk about these rebated biodiesel fuel purchases in 2008? [THANK AND TERMINATE, if they are unfamiliar with the project. Otherwise continue with the survey.]
- S5. For how long did or have you served in that capacity? [PROBE]
  - c. pre-2008 to 2008
  - d. 2008 to 2009-2010/ARRA period
  - e. 2009-2010/ARRA period to present
- S6. Who were your fuel suppliers that you worked with for these rebates; can you provide their contact information?

### 2008 Period to Present Program Logic

In order to evaluate the [PROGRAM], we need to understand how this program influenced the market. This means understanding how the program worked.

- AV1. Can you estimate how much fuel you purchased during the July 2008 through July 2009 period?
  - a. Can you estimate how much petroleum or diesel fuel you purchased in total during that time? [PROBE: If this information is available, ask about supplier and fuel type. Did the supplier or others provide assistance with purchasing the equipment?]
  - b. Can you estimate how much biodiesel fuel you purchased in total during that time? [PROBE: Ask for type of biodiesel, supplier information. Did the supplier or others provide assistance with purchasing the equipment? How much of the biodiesel fuel that you purchased received rebates from the [PROGRAM]? If you have any records of these purchases, would it be possible for us to take a look at these?]
- AV2. What were the overall goals of your alternative fuels purchases in 2008?
- AV3. Are there policies, legislation, or other organizational goals that influenced these purchases? [PROBE: Why was your organization motivated to purchase this fuel? Were you required? Was it a state policy?]
- AV4. What non-energy savings goals did you have? [PROBE: Was job creation one of the goals? Was carbon emissions reduction one of the goals?]

- AV5. Please describe how you identified the need for this fuel. [PROBE: Did you increase your fleet size or usage pattern, or purchase biodiesel vehicles?]
- AV6. Will you please enumerate the vehicle fleet and needs? [PROBE: Vehicle fleet inventory by year or vintage]
- AV7. For what type of activities was the biodiesel fuel that received [PROGRAM] rebated used? [PROBE: Were they used for buses, delivery vehicles, or general vehicles for all employee needs. List all activities]
- AV8. Did your fuel usage pattern change after purchasing this fuel? [PROBE: Did you drive more or less? Did you have to use more biodiesel fuel for the same miles driven?]
- AV9. What was the timeline for the expected program goals to be met? [PROBE]
- 0 to 1 years?
  - 2 to 3 years?
  - 3 to 5 years?
  - 5 or more years?
- AV10. Do you have any program reports or data to show progress toward these goals? [PROBE: IF "YES," ask for copies of these]
- AV11. How did the biodiesel program funded by [PROGRAM] help to achieve the goals you stated above? [PROBE: What were actions taken and objectives achieved?]

### Job Creation

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

- J1. Does your organization currently have any **full time** staff assigned to the management of this alternative fuel?
- Yes -----→ **How many full time SEP staff? \_\_\_**
  - No
  - Not sure / don't know
- J2. Does your organization currently have any **part time** or split-time staff assigned to the management of this alternative fuel?
- Yes -----→ **How many part/split time SEP staff? \_\_\_ in FTEs?**
  - No
  - Not sure / don't know
- J3. Over the last 5 years, how many FTE staff was associated with the management of this alternative fuels? [PROBE: List by year]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of SEP full-time staff...				
<b>2</b>	Number of SEP part-time staff... (in FTEs)				

<b>4</b>	Don't know				
<b>5</b>	Refused				

J4. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources, legislative or regulatory changes, and other previously mentioned factors?]

J5. Without the [PROGRAM] funding for the biodiesel fuel, how many FTE staff would have been associated with the management of this alternative fuel? [PROBE: List by year]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of SEP full-time staff...				
<b>2</b>	Number of SEP part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J6. Please specify the sources of funding for these jobs.

J7. What were all the sources of funding besides the [PROGRAM]? [PROBE: List and for all that apply ask the following questions]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

### **Attribution**

Finally, I would like to ask a series of questions that will allow us to properly attribute the outcomes of this program.

A1. Without the [PROGRAM] rebate, would you still have purchased the biodiesel fuel?

- a. If yes, would you have purchased the same type of biodiesel, at the same quantities, and for the same duration?
- b. If no, what would you have purchased instead, how much would you have purchased and for how long?

A2. Did you continue to purchase biodiesel fuel after you stopped receiving incentives from the [PROGRAM] for your biodiesel purchase? [PROBE: How much fuel did you purchase? How long did you continue to purchase the fuel?]

- a. Why did you continue to purchase the fuel?

A3. Are there more biodiesel fuel offerings in the market in [STATE] in 2009 and now compared to 2008?

A4. When did you begin to purchase biodiesel fuel with the help of [PROGRAM] funding?

A5. Can you describe the marketplace at the time, and the market gaps the rebate program was seeking to fill, if any?

- 
- A6. Can you estimate how many biodiesel fuel stations were in the state prior to this program? What types of biodiesel fuels were offered? How much of each fuel was consumed?
- A7. Who else in the geographic area used similar biodiesel fuel? [PROBE: Ask for other influences in the market.]
- A8. (IF THERE WERE OTHER FUNDING SOURCES IN J7) For each activity, can you tell me the total level of funding in 2008, the funding from the [PROGRAM], and the funding from these other sources? [PROBE: Were there any conditions / restrictions on funding?]
- A9. In your opinion, what was the relative importance of each of these contributions to the purchase of the biodiesel fuel in 2008 and beyond?
- A10. In the absence of the [PROGRAM] funding in 2008, what do you think the market would have looked like? How much additional biodiesel fuel would have been delivered? [PROBE: Ask for supplier/subgrantee baseline practices in the absence of the program, number of vendors in the market, infrastructure in place to deliver alternative fuels.]
- A11. Can you estimate how many alternative fuel stations are now in place and were in place in 2009 in NJ? Has there been a change in the fuels offered? How much of each fuel is now consumed? [PROBE: Ask for other sources of this information if respondent does not know this.]



## L.50. TRANSPORTATION/ALTERNATE FUELS PROGRAM - SUBGRANTEES

*Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.*

**Interview Objective:** This information will be used to determine the following:

- Market place influence;
- Funding sources outside of SEP;
- Linkages to other programs.

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Interviewer name:	
Interviewer organization:	

### BACKGROUND STATEMENT

This interview is intended to familiarize our team with your alternative fueling infrastructure activities, as well as the history of your pump and fuel purchases, and other similar offerings in your market. The information you supply will be used to characterize the SEP [PROGRAM]. The length of the interview varies from person to person, but most interviews last about 30 – 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
 Oak Ridge National Laboratory  
 E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
 Phone: (919) 929-0995

The US Department of Energy’s State Energy Program has hired us to talk with organizations involved with the management of the alternative fueling infrastructure efforts for [STATE]’s [PROGRAM] in 2008. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

Your response will be confidential and not associated with you or your company in any way, and will be grouped together with the responses of other suppliers we interview and reported as a total. This information is extremely important to show the impact of the State Energy Programs.

### RESPONDENT ELIGIBILITY SCREENING

To start, I need to understand your role in the alternative fueling infrastructure purchases that received rebates from the [STATE ENERGY OFFICE].

- S1. Can you confirm that your organization purchased alternative fuel infrastructure or any products or services associated with alternative fuel use (e.g. fuel pumps, tanks) between July 2008 and July 2009, and received rebates for all or some of that from the [STATE ENERGY OFFICE]? [PROBE: What type of equipment if not pumps? How many pieces of the equipment were purchased? What were the manufacturers and models, if this information is available?]
- S2. Were you the purchasing manager or otherwise knowledgeable enough to talk about that purchase in 2008?
- S3. What was your title and what were your job responsibilities in 2008?
- S4. (IF S2 IS "NO") Who is the most knowledgeable person to talk about these rebated purchases in 2008? [THANK AND TERMINATE, if they are unfamiliar with the project. Otherwise continue with the survey]
- S5. For how long did or have you served in that capacity? [PROBE:]
- f. pre-2008 to 2008
  - g. 2008 to 2009-2010/ARRA period

#### **2008 period to present Program Logic**

In order to evaluate the [STATE] alternative fuel program, we need to understand how this program influenced the market. This means understanding how the program worked.

- AV1. Can you estimate how many pumps or pieces of equipment you purchased during the July 2008 through July 2009 period?
- a. Can you estimate how many petroleum or diesel pumps or pieces of equipment you purchased in total during that time? [PROBE: If this information is available, ask for manufacturer, model, supplier and fuel type of each piece of equipment. Did the supplier or others provide assistance with purchasing the equipment?]
  - b. Can you estimate how many alternative fuel pumps or pieces of equipment you purchased in total during that time? [PROBE: If this information is available, ask for manufacturer, model, supplier and fuel type of each piece of equipment. Did the supplier or others provide assistance with purchasing the equipment? Did they receive funding other than from [STATE ENERGY OFFICE]?]
  - c. How many of the alternative fuel pumps or equipment that were purchased received rebates from the [STATE ENERGY OFFICE]? [PROBE: Did they receive additional funding support?]
  - d. Are the pumps or equipment that were purchased with the help of the [STATE ENERGY OFFICE] rebate still in operation now? [PROBE: If not, why not? And when did they stop being operational? What were they replaced with?]
- AV2. What were the overall goals of your alternative pump purchases in 2008?
- AV3. Why was your organization motivated to purchase these pumps or equipment? [PROBE: Were you influenced to purchase these pumps or equipment by [STATE ENERGY OFFICE]? Or, were there other influences?]
- AV4. What non-energy goals did you have? [PROBE: Was carbon emissions reduction one of the goals?]

- AV5. Please describe how you identified the need for these pumps or equipment. What were your reasons for installing the new equipment? [PROBE: Did you need to increase your service offering or the number of pumps, replace existing pumps, or both?]
- AV6. How much fuel in gallons did you sell through each of these pumps or equipment on a monthly basis after the pumps or equipment were installed? [PROBE: How much fuel was sold each year since the installation?]
- AV7. Have you purchased additional alternative fuel fueling pumps or equipment since you purchased the alternative fuel pumps or equipment that were rebated by the [STATE ENERGY OFFICE]?
- (IF "YES") How many did you purchase? [PROBE: Were they through the same supplier?]
  - (IF "YES") Why did you purchase the additional equipment? Was it influenced by the [STATE ENERGY OFFICE] program?
  - (IF "NO") Why not?
- AV8. What was the timeline for the expected project goals to be met? [PROBE]
- 0 to 1 years?
  - 2 to 3 years?
  - 3 to 5 years?
  - 5 or more years?
- AV9. Do you have any project reports or data to show progress toward these goals? [PROBE: IF "YES," ask for copies of these]
- AV10. How did the alternative fuel equipment project that was funded by [STATE ENERGY OFFICE] help to achieve the goals you stated above? [PROBE: What were actions taken and objectives achieved?]

### Job Creation

As part of our evaluation effort, we are trying to establish the job impact of this program. The next series of questions is one part of this process.

- J1. Does your organization currently have any **full time** staff assigned to the management and maintenance of pumps?
- Yes -----→ **How many full time staff?** \_\_\_
  - No
  - Not sure / don't know
- J2. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of your pumps?
- Yes -----→ **How many part/split time staff?** \_\_\_ **in FTEs?**
  - No
  - Not sure / don't know

J3. Does your organization currently have any **full time** staff assigned to the management and maintenance of these rebated pumps specifically?

- a. Yes -----→ **How many full time staff?** \_\_\_
- b. No
- c. Not sure / don't know

J4. Does your organization currently have any **part time** or split-time staff assigned to the management and maintenance of these rebated pumps specifically?

- a. Yes -----→ **How many part/split time staff?** \_\_\_ in FTEs?
- b. No
- c. Not sure / don't know

J5. Over the last 5 years, how many FTE staff were associated with the management and maintenance of these rebated pumps? [PROBE: List by year]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of SEP full-time staff...				
<b>2</b>	Number of SEP part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J6. In your opinion, please describe what affected the changes in staffing levels? [PROBE: Was it due to funding sources?]

J7. Without these rebated pumps, how many FTE staff would have been associated with the management and maintenance of your pumps? [PROBE: List by year]

	<b>SEP Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of SEP full-time staff...				
<b>2</b>	Number of SEP part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

J8. Please specify the sources of funding for these jobs. What were all the sources of funding besides [STATE ENERGY OFFICE]? [List and for all that apply ask the following]

- a. Please describe the contribution/collaboration role.
- b. What is the contact information for this collaborator?

**Attribution**

The following questions will allow us to properly attribute the outcomes of this program.

A1. Without the [STATE ENERGY OFFICE] rebate, would you still have purchased the alternative fuel pumps or equipment?

- 
- a. If yes, would they have still been the same pumps or equipment, at the same quantities, and at the same time? [PROBE: If available, ask about manufacturer, model, supplier and fuel type]
  - b. If no, what would you have purchased instead, how many would you have purchased and at what time? [PROBE: If available, ask about manufacturer, model, supplier and fuel type. If you would not have purchased, what would you have done instead to meet the need for those additional pumps or equipment?]
- A2. Are there more alternative fuel pumps or equipment in the market in [STATE] in 2009 and now, compared to 2008?
  - A3. When did you start to purchase alternative fuel pumps or equipment with the help of the [STATE ENERGY OFFICE] funding?
  - A4. Can you describe the marketplace at the time, and the market gaps the rebate program was seeking to fill, if any?
  - A5. Can you estimate how many alternative fuel pumps or equipment were in the state prior to this program? What types of fuels were offered? How much of each fuel was consumed?
  - A6. Who else in the geographic area offered similar alternative fuel pumps or equipment? [PROBE: Ask for other influences in the market at the time]
  - A7. (IF THERE WERE OTHER FUNDING SOURCES IN QUESTION J88) For each activity, can you tell me the total level of funding in 2008, the funding from the [STATE ENERGY OFFICE], and the funding from these other sources? [PROBE: Were there any conditions / restrictions on funding?]
  - A8. In your opinion, what was the relative importance of each of these contributions to the purchase and maintenance of these pumps in 2008?
  - A9. In the absence of the [STATE ENERGY OFFICE] funding in 2008, what do you think the market would have looked like? How much additional infrastructure would have been installed and fuel delivered? [PROBE: Ask for supplier/subgrantee baseline practices in the absence of the program, number of vendors in the market, infrastructure in place to deliver alternative fuels.]
  - A10. Can you estimate how many alternative fuel pumps are now in place and were in place in 2009 in [STATE]? Has there been a change in the fuels offered? How much of each fuel is now consumed? [PROBE: Ask for other sources of this information if respondent does not know this.]



## L.51. TRANSPORTATION GRANTS PROGRAM - SUPPLIERS

### Transportation/Alternative Fuels

Note that our interviews are meant to be somewhat informal and open ended – not all topics will be covered in all interviews and we expect that some interviews will lead to the exploration of topics not included in this guide.

**Interview Objective:** This information will be used to determine the following:

- Market place influence;
- Market size

### BACKGROUND INFORMATION

To be completed prior to interview:

Program:	
Project:	
Program year:	
Geography:	
Grant amount:	
Grant scope:	
2008 budget	
Contact Name:	
Contact Company:	
Contact Phone:	
Interviewer name:	
Interviewer organization:	

### BACKGROUND STATEMENT

This interview is intended to familiarize our team with your alternative fuels activities, as well as your organization's history with the [STATE ENERGY OFFICE] [PROGRAM], and other similar programs in your market. The information you supply will be used to characterize the [STATE] [PROGRAM] in 2008.

The length of the interview varies from person to person, but most interviews last about 30 – 45 minutes. For quality control purposes, this call will be recorded. If you have any questions about this study, you can contact:

Martin Schweitzer, R&D Staff  
Oak Ridge National Laboratory  
E-mail: [schweitzerm@ornl.gov](mailto:schweitzerm@ornl.gov)  
Phone: (919) 929-0995

The US Department of Energy's State Energy Program has hired us to talk with organizations involved with the alternative fuels infrastructure efforts for [STATE] program in [PROGRAM YEAR/PERIOD]. This interview is being conducted as part of an evaluation of the State Energy Program being carried out by DNV GL and managed by Oak Ridge National Laboratory on behalf of the U. S. Department of Energy.

Your response will be confidential and not associated with you or your company in any way, and will be grouped together with the responses of other suppliers we interview and reported as a total. This information is extremely important to show the impact of the State Energy Programs.

### RESPONDENT ELIGIBILITY SCREENING

To start, I need to understand your involvement with the [STATE] program.

- S1. Did your firm sell or provide any products or services associated with alternative fuel infrastructure (e.g. alternative fuel pumps, tanks) in [PROGRAM YEAR/PERIOD]?
- S2. What services and products did your firm provide in [PROGRAM YEAR/PERIOD]. to your customers in [STATE]?
- S3. Did you help your customers obtain the [STATE] rebates offered from [PROGRAM YEAR/PERIOD].?
- S4. (If S3 is "YES") Who were the customers that you worked with for these rebates; can you provide their contact information?
- S5. Did you supply just fueling infrastructure or did you also supply alternative fuel? If you did not supply fuel, who did?
- S6. When did you decide to enter the market to supply these alternative fuel products and services in [STATE]?
- S7. Do you still supply these products and services in [STATE]? If not, why not?
- S8. Is your organization still supplying alternative fueling infrastructure and/or fuel to grantees in [STATE]? [PROBE: List all here] If not, when did your involvement end?

#### **Background**

- B1. How does your organization select which of your possible customers to target for selling service or equipment or fuel? [PROBE: Is it by geographic areas, rebate availability in certain areas, infrastructure needs, and/or target technologies?]
- B2. How does your organization market to your customers (not to be confused with the end-user customers who purchase fuel for their vehicles)? Is it RFP (request for proposal) based or another mechanism? Please describe?
- B3. In your opinion, what influences your customers and the end user customers to select alternative fuels?
- B4. What have been the major barriers in the alternative fuels infrastructure sales markets for your organization?
- B5. What have been major barriers for your customers in selling alternative fuels to end-user customers?
- B6. What major barriers to higher penetration remain in this market for your organization and for other market participants (e.g. alternative fuel infrastructure suppliers, alternative fuel distributors, gas pumps, etc.)?

#### **SEP Influence in the Marketplace**

1. Which pumps or products did your organization supply that qualified for this program?
2. In percentage terms, how much of your total business in the US in [PROGRAM YEAR/PERIOD]. was directly due to or indirectly influenced by this program?
3. In percentage terms, how much of your business in [STATE] in [PROGRAM YEAR/PERIOD]. was directly due to or indirectly influenced by this program?
4. Does your organization supply other pumps or products besides those rebated through the [STATE ENERGY OFFICE] [PROGRAM]?

5. Prior to providing services that received the [STATE] alternative fuel rebate in [PROGRAM YEAR/PERIOD]., did your organization provide these same services (e.g. sell services, equipment or fuel) in [STATE], and outside of [STATE]? [PROBE: quantity of services provided before program and how this changed after becoming a partner]
6. Are you aware of programs (e.g. industry support services, publicly or privately funded programs or trade association programs) sponsored by other organizations in your market that offer similar services (e.g. grant programs, support services) to the types of alternative fuel station owners targeted by the [STATE] alternative fuel program? (IF "YES":)
  - a. Can you tell me what organizations sponsor those programs and what kinds of assistance they offer?
  - b. How did you learn of these programs?
  - c. Have you participated in these programs or worked on projects that received support from them?
7. To what extent and in what ways did you coordinate your involvement with [STATE] alternative fuel program activities with other programs and organizations? Who and how? [PROBE: Ask about co-sponsoring, funding from other sources or government incentive programs.]
8. In your opinion, what was the relative importance of each of these program contributions to the completion of the infrastructure projects that received [STATE] alternative fuel program rebates completed in [PROGRAM YEAR/PERIOD].?
9. In the absence of the [STATE] alternative fuel program in [PROGRAM YEAR/PERIOD]., how would your service offerings have differed? What would your company have done to manage the lack of funding support (e.g. identify other forms of funding, had lower sales)?
10. Over the last 5 years, how many FTE staffs were associated with the servicing of customers supported (either full-time or part-time) by this program in [STATE]? [PROBE: List by year]

	<b>Staff</b>	<b>pre-2008</b>	<b>2008</b>	<b>2009/2010</b>	<b>2011+</b>
<b>1</b>	Number of additional full-time staff...				
<b>2</b>	Number of additional part-time staff... (in FTEs)				
<b>4</b>	Don't know				
<b>5</b>	Refused				

11. In what other ways has your business through the [STATE] alternative fuel program impacted your business and professional practices? [PROBE: Increased service offerings, stocking, recommendations, availability/manufacturing, improved skill set of staff, etc.]

- 
12. Did this program impact the business and professional practices of other contractors similar to you?  
How?
  13. What actions would participating alternative fuel station owners have taken in the absence of this program? [PROBE: Impact on timing, quantity]
    - a. Would they have continued to install the alternative fuel pump or product in the same quantity and at the same time?
    - b. Would they have installed a petroleum or diesel pump or product instead in the same quantity and at the same time?
  14. Can you provide some information on the amount of annual alternative fuel sales at these alternative fuel pumps in [STATE]?



## **ABOUT DNV GL**

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.