2012 Compact Fluorescent Lamp Distribution Program Impact Evaluation

Prepared for FirstEnergy Ohio Companies:

The Cleveland Electric Illuminating Company

Ohio Edison Company

The Toledo Edison Company

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1. Executive Summary

During 2012, the Ohio Operating companies The Cleveland Electric Illuminating Company (CEI), Ohio Edison (OE), and The Toledo Edison (TE) (collectively "Companies"), continued the Compact Fluorescent Lamp ("CFL") Program. The program design provided for 23 watt spiral CFLs to be distributed through three distribution channels:

- **Retail.** Five retail chains composed of 189 stores offered the CFLs at the discounted unit price of 50 cents;
- **Low Income**. Ohio Partners for Affordable Energy ("OPAE") distributed complementary CFLs on request to eligible customers applying for assistance to help pay their gas and electric bills; and
- **Direct Mail**. Power Direct distributed CFL kits by mail to new service customers, high bill complaint customers, small business customers, and general use customers requesting CFLs.

The 2012 CFL Program evaluation was designed to achieve the following major objectives:

- Determine the number of CFLs distributed and installed by customers in 2012.
- Estimate the energy and demand impacts from the CFLs installed.

There were two primary components to the evaluation

Statistical reports prepared by the implementation contractors -- Power Direct Energy and OPAE -- detailing CFL shipments and distributions over the 2012 program year were analyzed to determine the number of CFLs requested by customers, the number of CFLs shipped to participating distribution agencies, and the number of CFLs distributed to customers in 2012.

Table 1-1. Overall Impact Evaluation Results

Utility	***Ex Ante Expected Gross Savings***		***Ex Post Verified Gross Savings***	
	Gross kWh	***Gross kW***	***Gross kWh***	***Gross kW***
Ohio Edison	27,087,572	4,426.37	17,826,720	2,742.57
CEI	27,363,819	4,479.00	17,975,188	2,765.41
Toledo Edison	7,618,257	1,248.18	4,999,051	769.08
Total	**62,069,648**	**10,153.55**	**40,800,959**	**6,277.07**

As shown in Table 1-1, verified electric savings were 40,800,959 kWh annually, which represents a realization rate of 66%. The variance between ex post verified savings and ex ante estimated savings was caused primarily by an delta-watts multiplier of 2.23 in ex post versus an

3.25 delta-watts multiplier in the ex ante calculations. The change in the delta-watts multiplier can be attributed to the average wattage of the bulbs replaced based on ADM survey data.

Verified summer peak demand reduction was 6,277.07 kW, which represents a realization rate of 62%. The variance can be attributed to the delta-watts multiplier just as above. Additionally, verified first-year (2012) savings were 29,926,830 kWh and verified lifetime savings were 326,407,675 kWh.

2. Introduction and Purpose of the Study

Under contract with the Companies, ADM performed evaluation, measurement and verification ("EM&V") services to confirm the savings and demand reduction realized through the CFL Program that was implemented in 2012. This document is the EM&V final evaluation report for the 2012 CFL Program in Ohio.

2.1 Background

The 2012 CFL Distribution Program allowed customers the option of receiving or purchasing CFLs through multiple channels. The distribution channels included discounted retail sales, and providing CFLs upon customer request through a direct mail operation and community programs providing energy assistance to low income families.

2.2 Evaluation Questions

In evaluating Ohio's 2012 CFL Program, ADM Associates addressed the following impact and evaluation questions:

- What were the observed and verified kWh energy savings?
    - Annual Savings
    - First Year Pro-Rata Savings
    - Lifetime Savings
- What were the observed summer peak demand kW reduction?

1.

3. Description of the Program

The CFL Program was launched in March 2011 and continued through December 2012, until the stock of approximately 3.76 million CFLs is distributed. In the 2012 program year, CFLs were distributed to customers using the following three channels:

1) Five retail chains sold CFLs at discounted prices ($0.50 each) through 192 stores. Retail chains included:

- Andersen's
- Discount Drug Mart
- Marcs
- Goodwill
- Dollar Tree

2) Low income customers participating in the Percentage of Income Payment Plan ("PIPP") received CFLs on request along with energy education materials from Ohio Partners for Affordable Energy (OPAE).

3) Power Direct distributed CFL kits[1] by mail to four customer segments that requested CFLs, including:

- High bill complaint customers;
- New service customers;
- General use customers; and
- Small business customers.

[1] The CFL kits were comprised of a six pack of 23 Watt CFLs plus energy conservation literature.

4. Methodology

This chapter provides a brief description of the impact and process evaluation methods used to collect and analyze data for the evaluation of the 2012 Ohio CFL Program.

4.1 Analysis of Ohio CFL Program Data

The AEG Vision System database was analyzed to answer the evaluation questions about program participation and the distribution of CFLs in 2012. The reports generated from this database included all bulbs distributed in the 2012 program year.

4.2 Customer Telephone Surveys

Sampling frames for the retail and low income channels were made available to our telephone survey subcontractor (Research America) for conducting random digit dialing interviews. Research America completed telephone surveys across the three Companies' service territories in March and April 2013. Since all samples are selected randomly, interviews will take place with customers who could have purchased and installed CFLs in any month spanning January through the end of 2012. The following information was be collected through the telephone interviews and enabled ADM to verify energy savings achieved by participants in Ohio's CFL Distribution Program.

- Installation rates for the CFL bulbs
- Installation locations at the residence
- Characteristics (e.g., type, watts) of light bulbs that the CFLs replaced

The RDD procedure was be carried out in zip codes prioritized according to the volume of retail CFL sales. The interviewers used screening questions to confirm that the respondent is (a) a Company customer, (b) had purchased discounted CFLs at a participating retail store, and (c) that the purchase took place since January 2012. A copy of the survey can be found in Appendix B.

4.3 Calculation of Ex Ante Savings

This section is a summary of the calculations that were used in the 2012 CFL Distribution Program for ex ante estimates of annual kWh savings and ex ante estimates of peak demand kW savings. A time of sale perspective is assumed.

4.3.1 Ex Ante Estimates of Annual Savings

Expected annual kWh savings were deemed based on the residential CFL "time of sale" formula specified in the 2010 DRAFT Ohio Technical Reference Manual (TRM)[2] and the ex post results obtained from the 2011 M&V analysis. The expected savings was 65.108 kWh per CFL. It was assumed that a 23 Watt CFL was installed in a residential location in 2012 and replaced a 100W incandescent light bulb. The ex ante calculation for estimating annual savings of lighting measures is as follows.

$$\textit{Annual kWh savings} = \textit{CFL Watts} * \Delta W * WHF_e * ISR * HOU/1000$$

Where:

CFL Watts = 23 Watts (Wattage of all CFLs in 2012 program)

ΔW = 3.25 (From TRM, used in 2011 M&V Study)

ISR= 0.8 (From 2011 M&V Study)

WHF_e = Waste Heat Factor = 1.07 (from TRM)

HOU= 1015 – Derived from M&V Surveying effort and 2010 Duke Energy Study.

The TRM assumes a delta watts multiplier of 2.06 for 2012 due to new federal efficiency standards meant to phase out the 100W incandescent bulb. Through an extensive study of retail stores, ADM determined that the 100W incandescent bulb was available throughout 2012 so the delta watts multiplier of 3.25, used in 2011 was suggested for ex ante calculations.

4.3.2 Ex Ante Estimates of Peak Demand Reduction Savings

Expected kW savings were derived based on the residential CFL "time of sale" formula specified in the TRM and the ex post results obtained from the 2011 M&V analysis. The ex ante value is approximately 0.01 kW per CFL. The deemed calculation for estimating summer peak savings for lighting measures is as follows.

$$\textit{Summer Peak kW savings} = \textit{CFL Watts} * \Delta W * WHF_e * ISR * \textit{Summer Coincidence Factor} / 1000$$

Where,

CFL Watts = 23 Watts (Wattage of all CFLs in 2012 program)

ΔW = 3.25 (From TRM, used 2011 M&V Study)

ISR= 0.8 (From 2011 M&V Study)

WHF_e = Waste Heat Factor = 1.07 (from TRM)

[2] Vermont Energy Investment Corporation (VEIC), *State of Ohio Energy Efficiency Technical Reference Manual*, Prepared for Public Utilities Commission of Ohio, Draft of August 6, 2010

Summer Coincidence Factor = 0.16 (from Joint Utility Comments to TRM)[3]

The TRM assumes a delta watts multiplier of 2.06 for 2012 due to new federal efficiency standards meant to phase out the 100W incandescent bulb. Through an extensive study of retail stores, ADM determined that the 100W incandescent bulb was available throughout 2012 so the delta watts multiplier of 3.25, used in 2011 was suggested for ex ante calculations.

4.4 Calculation of Ex Post Savings

In this section, the calculations used for estimating ex post annual kWh savings, peak demand kW savings, first year savings, and lifetime savings for the 2012 CFL Distribution Program are summarized.

4.4.1 Ex Post Estimates of Peak Demand Reduction Savings

ADM analyzed the data obtained from the telephone surveys to verify annual ex post energy savings attributable to the program. The formula used to calculate annual kWh ex post savings, as specified in the TRM, is:

$$\text{kWh Savings} = \Delta\text{kWh} = \left(\frac{\Delta\text{Watts}}{1{,}000}\right) * \text{ISR} * \text{Hours} * \text{WHFe}$$

Where:

ΔWatts = CFL watts * delta watts multiplier;

- CFL watts = wattage of installed CFL
- Delta watts multiplier = factor to account for baseline conditions.

ISR = In Service Rate

- Percentage of CFLs distributed that are actually installed, as estimated by the telephone survey

Hours = Average hours of use per year;

- Based on deemed values from Duke Energy associated with the location of installation, as estimated from the telephone survey

WHFe = Waste Heat Factor for energy

- To account for cooling savings from efficient lighting
- Set at a value of 1.07 by the TRM

To calculate ex post verified energy savings, ADM needed to determine the following five variables:

[3] November 3, 2010 Ohio TRM Joint Objections and Comments, Case Number 09-512-GE-UNC, 2010 Ohio Technical Reference Manual

- Watts per CFL = 23 (Only wattage of lamps incentivized)
- Hours of Use = 1,040 (TRM deemed value validated by ADM's survey results)
- Delta Watts Multiplier = 2.23 (see computation below)
- Waste Heat Factor for energy (WHFe) = 1.07 (deemed)
- In Service Rate or ISR = .801 (calculated from the telephone survey data)

Methodologies used to determine Delta Watts, Hours of Use and ISR from the survey data are described in the remainder of this section.

4.4.2 Hours of Use (HOU)

ADM determined the quantities of CFLs installed in specific rooms and usage areas through the follow-up telephone surveys. CFL daily hours of use were estimated based on deemed values associated with installation locations provided in the 2010 Duke Energy Report of the Ohio Residential Smart Saver CFL Programs.[4] Table 4-1 presents the predicted average daily hours of use by room or usage area, according to the Duke Energy Report.

Table 4-1. Average CFL Hours of Use per Day

CFL Hours of Use by Room	
Room	***Hours/Day (HOU_i from Duke Energy (2010)***
Kitchen	3.42
Living room	3.85
Entryway	2.10
Garage	1.11
Bedroom	1.96
Bathroom	0.88
Hallway	3.52
Basement	2.68
Dining room	2.54
Office	9.00
Den	0.69
Stairway	0.54

The result of this calculation was consistent with TRM deemed value of 1040 hours.

[4] Final Report. Ohio Residential Smart Saver CFL Program: Results of a Process and Impact Evaluation. Prepared for Duke Energy by TecMarket Works and BuildingMetrics. June 29, 2010. (see Table 9)

4.4.3 Delta Watts

The formula for computing the Delta Watts is:

$$\Delta Watts = CFL\ watts * delta\ watts\ multiplier$$

Where:

CFL watts = wattage of installed CFL (23W)

Delta watts multiplier = 2.23

The delta-watts multiplier is the difference in wattages between baseline and retrofit bulbs divided by wattage of the retrofit bulb. Survey results determined that the average wattage of bulbs replaced was 74.27. The delta-watts multiplier based on that result is 2.23, calculated as follows:

$$(74.27-23)/23 = 2.23$$

Plugging in the values previously identified for the Delta Watts calculation yields the following result:

$$\Delta Watts = (23*2.23) = 51.27$$

4.4.4 In-Service Rate (ISR)

The CFL installation rate or ISR for 2012 was determined from the telephone survey data collection. ISR was computed from two quantities:

(A) The total number of CFLs that had actually been installed in a room location, based on survey responses;

(B) The total number of CFLs stored that were installed by the end of 2012, based on responses

The ISR for 2012 was computed as A/B; the resulting ISR was determined to be .801

Inserting the appropriate values into the formula for computing kWh savings yields the following equation:

kWh Savings = $(23*2.23)/1000 * .801 * 1040 * 1.07 = 45.696$ per CFL bulb

4.4.5 Calculation of Ex Post Summer Peak Demand Savings

The formula for computing summer peak demand savings is:

$$\Delta kW = \left(\frac{\Delta Watts}{1000}\right) * ISR * WHFd * CF$$

Where:

ΔWatts = CFL watts * delta watts multiplier:

- CFL watts = wattage of installed CFL
- Delta watts multiplier = 2.23.

ISR = In Service Rate

- Defined as the percentage of units rebated that are actually installed according to the telephone survey

WHFd = Waste Heat Factor for Demand

- to account for cooling savings from efficient lighting

CF = Summer Peak Demand Coincidence Factor

Values specified in the Joint Utility Objections document were used for *WHFd* and *CF* in calculating summer coincident peak demand savings, with *WHFd* = 1.07 and *CF* = 0.16.

Inserting the appropriate values into the peak demand savings formula yields:

*Summer Peak kW savings per lamp =23 *2.23**1.07**0.801*0.16 /1000= 0.007 kW*

4.4.6 Calculation of First-Year Pro-Rata Savings

First-year pro-rata kWh savings were calculated based on CFL installation dates, prorated from the month of installation in 2012. The AEG vision database provided monthly sales numbers submitted on the first of each month. ADM assumed an installation date of the 15th of each month, in order to compensate for sales that took place over the span of the month.

4.4.7 Calculation of Lifetime kWh Savings

Lifetime kWh savings for CFLs distributed in 2012 were calculated by multiplying annual kWh savings by the deemed life for the measure, as determined in the TRM. The lifetime value specified in the TRM for CFLs is eight years.

5. Detailed Evaluation Findings

The Impact Evaluation component of the study addressed the following questions:

- What was the observed kWh energy savings?
  - Annual Savings
  - First Year Pro-Rata Savings
  - Lifetime Savings
- What was the observed summer peak demand kW reduction?

5.1 Calculation of Ex Post Savings

Verified electric savings were 40,800,959 kWh annually, which represents a realization rate of 66%; 29,926,830 kWh saved during the 2012 calendar year on a pro-rata basis; and 326,407,675 kWh saved over the expected life of the installed CFLs. Verified peak demand savings were 6,277 kW, which represents a realization rate of 62%. The energy impact findings are based on ex post analyses of a sample of 68 customers who acquired CFLs through the CFL Program and analyses of the CFL Program's data on CFL distribution in 2012. Conclusions drawn from these analyses exceed the requirements for ± 10 percent precision at the 90 percent confidence level.

The following subsections contain detailed results pertaining to:

- Annual and summer peak demand energy savings
- First year pro-rata and lifetime energy savings

5.1.1 Annual and Summer Peak Demand Energy Savings

Ex ante and ex post annual and summer peak demand savings for the total CFL Program in 2012 are presented in Table 5-1 below along with variances and realization rates. See Appendix A for summary of ex ante and ex post estimates of CFL distribution, annual savings, and peak demand savings by operating company.

Table 5-1. Energy Impact Summary

Savings Indicator	***Ex Ante***	***Ex Post***	***Variance***	***Realization Rate***
Annual Savings	62,069,648	40,800,959	-21,268,688	66%
Peak Demand Savings	10,154	6,277	-3,876	62%

The variance between ex post and ex ante annual and peak demand savings is caused by the difference in delta watts multipliers used *ex ante* and *ex post* calculations. The *ex ante* value was base on the TRM deemed value which is based on the assumption that a 23W CFL

replaces a 100W incandescent. Due to the unique nature of this program ADM's survey effort was used to determine that actual wattage of bulbs replaced by the programs 23W CFLs. This discrepancy is the reason for the low realization rate.

5.1.2 First Year Pro-Rata and Lifetime Energy Savings

Table 5-2 below summarizes first-year pro-rata kWh impacts and lifetime energy savings estimates. As stated in the methodology section, first-year pro-rata kWh impact is prorated from the month of installation and lifetime savings are based on an estimated CFL life of eight years.

Table 5-2. First-Year and Lifetime Energy Savings

First-Year (2012) kWh Savings	***Annual kWh Savings***	***Effective Useful Life (EUL), years***	***Lifetime Energy Savings, kWh***
29,926,830	40,800,959	8	326,407,675

6. Conclusions

This chapter reports the conclusions resulting from the impact evaluation of the 2012 CFL Distribution Program.

A total of 892,870 CFLs were distributed in the service territories of the three Companies through the CFL Program in 2012. The numbers of CFLs for each service territory were as follows:

- CEI 393,361
- OEC 390,112
- TEC 109,397

Estimated electric savings were 40,800,959 kWh annually, which represents a realization rate of 66%. The variance between ex post verified savings and ex ante estimated savings was caused primarily by an delta-watts multiplier of 2.23 in ex post versus an 3.25 delta-watts multiplier in the ex ante calculations.

Verified summer peak demand reduction was 6,277.07 kW, which represents a realization rate of 62%. The variance can be attributed to the delta-watts multiplier as well. Additionally, verified first-year (2012) savings were 29,926,830 kWh and verified lifetime savings were 326,407,675 kWh.

Appendix A: Participation Summary

Table A-1. 2012 kWh Summary Table

Utility	*CFLs Distributed*	*Ex Ante kWh per Unit Impact*	*Ex Ante kWh Impact, Total*	*Ex Post kWh per Unit Impact*	*Ex Post kWh Impact, Total*
OE	393,361	65.108	27,087,572	45.696	17,826,720
CEI	390,112	65.108	27,363,819	45.696	17,975,188
TE	109,397	65.108	7,618,257	45.696	4,999,051
Total	**892,870**		**62,069,648**		**40,800,959**

Table A-2. 2012 kW Summary Table

Utility	*CFLs Distributed*	*Ex Ante kW per Unit Impact*	*Ex Ante kW Impact, Total*	*Ex Post kW per Unit Impact*	*Ex Post kW Impact, Total*
OE	393,361	0.01	4,426.37	0.007	2,742.57
CEI	390,112	0.01	4,479.00	0.007	2,765.41
TE	109,397	0.01	1,248.18	0.007	769.08
Total	**892,870**		**10,153.55**		**6,277.07**

Appendix B: Survey Instrument

FirstEnergy
2012 CFL Program
Participant Telephone Survey

Customer Name: _____ Phone Number: _____/_____/_____

Customer Zip Code: _____ Date of Interview: _____/_____/_____

EDCs	
Toledo Edison	*1*
Ohio Edison	*2*
Illuminating Company	*3*

SQ1. *Hello. I am calling on behalf of [EDC]. Is [EDC] your electric utility company?*

Yes ……01 CONTINUE
No …….... 02 THANK RESPONDENT AND TERMINATE

SQ2. *[EDC] has a program distributing free CFLs and also discounting CFLs at many local retailers. Have you installed energy efficient light bulbs from this program in 2012?*

Yes ……01 CONTINUE
No …….... 02 THANK RESPONDENT AND TERMINATE
Don't Know…….. 03 THANK RESPONDENT AND TERMINATE

SQ3. *How did you acquire these bulbs?*

Method	Code	Instruction
Purchased at retailer	1	CONTINUE
Received bulbs from community organization	2	GO TO SQ4
Other	3	THANK AND TERMINATE

SQ4. *Which store did you purchase your CFLs from?*

Store	Code	Instruction
Dollar Tree	1	CONTINUE
Discount Drug Mart	2	CONTINUE
Marc's	3	CONTINUE
Goodwill	4	CONTINUE
Andersons	5	CONTINUE
Other	6	THANK AND TERMINATE

By participating in this brief telephone survey about energy efficient light bulbs, you will receive a $10 gift card. May I take a few minutes of your time to talk with you now about the CFLs you purchased? This will only take a few minutes.

Yes ……01	PROCEED WITH INTERVIEW
No ……..... 02	THANK RESPONDENT AND TERMINATE
Refused …… 99	THANK RESPONDENT AND TERMINATE

1. *How many CFL bulbs did you purchase/receive through the [EDC] CFL Program?*

Number of CFLs: _____	CONTINUE TO Q2
Don't know ……. 98	GO TO Q1a
Refused ……99	THANK AND TERMINATE

   a) *Do you think it might have been one CFL, a 2-pack of CFLs, 3-4 CFLs, 5-6 CFLs, or more than six CFLs?*

1 CFL……01	
2 CFLs……...02	
3-4 CFLs……03	
5-6 CFLs……04	
More than six CFLs……...05	
Don't know ……...98	THANK AND TERMINATE
Refused ……99	THANK AND TERMINATE

2. *Of the ___ CFLs you purchased/received, how many have you installed so far?*

Number of CFLs installed to date: _____	CONTINUE
Don't know …… 98	SKIP TO Q9
Refused ……99	THANK AND TERMINATE

3. *In which rooms have you installed the CFLs? How many were installed in each room? What month?*

Room Location	Code	# CFLs Installed	Month Installed
Bedrooms	1		
Bathrooms	2		
Living Room	3		
Kitchen	4		
Entry Way	5		
Dining Room	6		
Garage	7		
Basement	8		
Den	9		
Stairway	10		
Office	11		
Other Room/Location	12		
Store for Later Installation	13		
Don't Know	98		
Refused	99		

4. *Now I would like you to think about the kinds of lamps the installed CFLs replaced.*

   (a) *How many of the ___ [NUMBER FROM Q2] installed CFLs replaced incandescent light bulbs?*

   Number of installed CFLs that replaced incandescent light bulbs: _____
   Don't Know ……98
   Refused ……99

   (b) *How many of the replaced incandescent light bulbs were 100 Watts or more?*

   Number of replaced incandescent bulbs that were 100 Watts or more: _____
   Don't Know ……98
   Refused ……99

   (c) *How many of the replaced incandescent light bulbs were 75 Watts or less?*

   Number of replaced incandescent bulbs that were 75 Watts or less: _____
   Don't Know ……98
   Refused ……99

   (d) *How many of the new CFLs replaced other CFLs?*

   Number of old CFLs replaced by new CFLs: _____
   Don't Know ……98
   Refused ……99

   (e) *How many of the new CFLs were installed in a new light fixture?*

   Number of new CFLs installed in a new light fixture: _____

Don't Know ……98
Refused ……99

ASK Q6 IF CFLS REPLACED INCANDESCENT LIGHT BULBS; OTHERWISE SKIP TO Q7

5. *Were the incandescent bulbs that you replaced with CFLs still operating when you removed them or were they burned out?*

Still Operating…… 01
Burned Out…….. 02
Both: Some were Still Operating and some were Burned Out ……..……..03
Don't Know ……98
Refused ……99

6. *Before you received the CFLs from [EDC], about how many CFLs did you have installed in your home? Would you say:*

None……..…… 01
1-5…….. 02
6-10…… 03
More than 10…….. 04
Don't Know ……98
Refused ……...99

7. *Does your home presently contain more CFLs or more incandescent bulbs?*

More CFLs …… 01
More Incandescent ...…….. 02
About the same ……..……..……03
Don't Know ……98
Refused ……99

I would now like to ask you some questions about your experience with the [EDC] CFL Program.

8. *How did you hear about the [EDC] CFL Program?*

Newspaper ad ……..01
Radio ad……..……..02
TV ad……..……03
Retail store ad……04
First Energy Call Center ……05
When I signed up for electricity service……06
Word of mouth……07
Other……...08
Don't Know ……..……98
Refused ……..…99

Specify Other:_____

9. *Would you purchase CFLs in the future?*

Yes …… 01
No ..…… 02
Don't Know ……98
Refused ……99

10. How satisfied are you with your new CFLs?

Very satisfied ……..01
Somewhat satisfied ……02
Neither satisfied nor dissatisfied…..……..03
Somewhat dissatisfied ……04
Very dissatisfied ……..…05
Don't know……...98
Refused ……99

ASK Q12 IF DISSATISFIED WITH CFLS

11. Why aren't you satisfied with your new CFLs?

RECORD VERBATIM

Don't know……...98
Refused ……99

12. Have you noticed any savings on your electric bill since you installed the CFLs?

Yes, my electric bill has decreased ……..01
No, there does not seem to be a change in my electric bill ……02
Not sure or too soon to tell ……..……03
Don't know ……..98
Refused ……..…..…99

13. Overall, how satisfied are you with the [EDC] CFL Program?

Very satisfied ……..01
Somewhat satisfied ……02
Neither satisfied nor dissatisfied ……..03
Somewhat dissatisfied ……04
Very dissatisfied ……..…05
Don't Know ……98
Refused ……99

14. Why do you give it that rating?(RECORD VERBATIM RESPONSE)

15. Do you have any suggestions to improve the CFL Program?

Yes …… 01
No...…… 02
Don't Know ……98
Refused ……99

IF YES, RECORD VERBATIM RESPONSE:

I'd like to finish up by asking you some questions about your home.

16. Which of the following best describes your home? (READ LIST: OPTIONS 01-07)

Single-family home, detached construction……...01
Single-family home, factory manufactured/modular……02
Mobile home……...03
Row house……...04
Two or Three family attached residence……05
Apartment with 4+ families……06
Condominium……....07
Other……....08
Don't Know ……98
Refused …….....99

Specify Other: _____

17. Do you own or rent this residence?

Own …… 01
Rent ..…… .02
Don't Know ……..98
Refused ……99

18. *Approximately when was your home built?* [DO NOT READ RESPONSE OPTIONS]

Before 1960……01
1960-1969……..02
1970-1979……..03
1980-1989……..04
1990-1999……..05
2000-2005……..06
2006 or Later……..07
Don't know……98

Refused……...99

19. *How many square feet is the above-ground living space?*

Square Feet: _____
Don't know……98
Refused……...99

ASK Q21 IF Q20 = DON'T KNOW OR REFUSED

20. *Would you estimate the above-ground living space is about:*

Less than 1,000 square feet……..01
1000-2000 square feet……..02
2000-3000 square feet……..03
3000-4000 square feet……..04
4000-5000 square feet……..05
Greater than 5000 square feet……..06
Don't know……..98
Refused……99

21. *How many square feet of below-ground living space is heated or air conditioned?*

Square Feet: _____
Does not apply……88
Don't know……98
Refused……...99

ASK Q23 IF Q20 = DON'T KNOW OR REFUSED

22. *Would you estimate the below-ground living space is about:*

Less than 1,000 square feet……..01
1000-2000 square feet……..02
2000-3000 square feet……..03
3000-4000 square feet……..04
4000-5000 square feet……..05
Greater than 5000 square feet……..06
Don't know……..98
Refused……99

That's all the questions I have. Thank you for your time. Good bye.