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RECEIVED

AUG 17 2015

PUBLIC SERVICE
COMMISSION

VIA HAND DELIVERY

August 17, 2015

Mr. Jeff Derouen
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

Re: **Case No. 2012-00085**

In the Matter of the Application of Duke Energy Kentucky, Inc., for an Energy Efficiency Cost Recovery Mechanism and Approval of Additional Programs for Inclusion in its Existing Portfolio

Dear Mr. Derouen:

On March 6, 2012, Duke Energy Kentucky, Inc., (Duke Energy Kentucky) filed a Demand-Side Management (DSM) application (Application) requesting to add additional measures and new programs to its DSM program portfolio. The new measures included a live, theatrical production category to the Energy Education for Schools Program (Program). In a June 29, 2012 Order, this Commission approved that Program for three academic years. The Commission further ordered that Duke Energy Kentucky provide a status report on the Program by August 15, of each academic year. Duke Energy Kentucky hereby report the following information regarding this requirement:

The Names and Address of the Schools Where the Live Performances Were Held.

Please see Attachment A attached hereto.

The Number of Students at Each Performance

Mr. Jeff Derouen
August 17, 2015
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Please see Attachment A attached hereto. Duke Energy Kentucky provided a number by school but could not provide a number by performance.

The Number of Surveys Received by Duke Energy Kentucky from the Students and Their Families, by Performance

Please see Attachment A attached hereto. This number is by school, not performance.

The Number of Energy Efficiency Starter Kits Mailed to the Student's Homes, by Performance

Please see Attachment A attached hereto. This number is by school, not performance.

The Proposed Schools that will be Visited in the Next Academic Year

The list of proposed schools for the upcoming school year has not been designed at this time but can be provided when available.

In addition, a process and impact evaluation report is being provided for 2014, identified as Attachment B hereto.

Please file stamp the two copies of this letter enclosed herein and return in the enclosed return-addressed envelope.

Very truly yours,



Rocco O. D'Ascenzo
Associate General Counsel

Enclosure

cc: Jennifer B. Hans

NTC KY Performances 2014-2015

School Account: County	School Account: Account Name	School Street	School City	School State	School Account: Shipping Zip/Postal Code	Year	Performance Date	School Account: Enrollment	Total # of Students Attending	# of Performances
Boone	Chester Goodridge Elem School	3330 Cougar Path	Hebron	KY	41048-9642	2014	9/9/2014	839	800	3
Campbell	Regional School Programs	5516 E Alexandria Pike	Cold Spring	KY	41076	2014	9/11/2014	44	15	1
Kenton	Piner Elementary School	2845 Rich Rd	Morning View	KY	41063-9716	2014	9/15/2014	340	350	2
Kenton	Sixth District Elem School	1901 Maryland Ave	Covington	KY	41014-1442	2014	9/16/2014	350	550	2
Campbell	Silver Grove School	101 W 3rdst	Silver Grove	KY	41085	2014	9/16/2014	300	120	1
Kenton	Summit View Elementary School	5006 Madison Pike	Independence	KY	41051-7538	2014	9/17/2014	768	850	3
Boone	Charles Kelly Elem School	6775 Mcville Rd	Burlington	KY	41005-8659	2014	9/19/2014	227	250	1
Kenton	Prince of Peace School	625 Pike St	Covington	KY	41011-2194	2014	9/22/2014	108	90	1
Campbell	Donald E Cline Elementary School	5586 E Alexandria Pike	Cold Spring	KY	41076	2014	9/22/2014	370	175	1
Campbell	Grants Lick Elementary School	944 W Clay Ridge Rd	Alexandria	KY	41001-8018	2014	9/23/2014	280	300	1
Boone	Walton-Verona Elem School	15066 Porter Rd	Verona	KY	41092-9205	2014	9/23/2014	565	560	2
Campbell	St Joseph School	6829 Four Mile Rd	Campsprings	KY	41059-9507	2014	9/25/2014	39	34	1
Campbell	St Catherine of Siena School	1803 N Ft Thomas Rd	Fort Thomas	KY	41075	2014	9/25/2014	182	126	1
Kenton	R C Hinsdale Elementary School	440 Dudley Rd	Edgewood	KY	41017-3398	2014	9/29/2014	650	350	1
Boone	Ockerman Elementary School	8250 Highway 42	Florence	KY	41042	2014	9/30/2014	758	747	3
Kenton	Latonia Elementary School	3901 Huntington Ave	Covington	KY	41015-1698	2014	10/1/2014	350	400	2
Kenton	A J Lindeman Elementary School	558 Erlanger Rd	Erlanger	KY	41018-1305	2014	10/1/2014	325	350	2
Boone	Erpenbeck Elementary School	9001 Wetherington Blvd	Florence	KY	41042-8801	2014	10/1/2014	656	339	1
Kenton	Taylor Mill Elementary School	5907 Taylor Mill Rd	Taylor Mill	KY	41015-2399	2014	10/2/2014	625	600	2
Campbell	St Philip School	1400 Mary Ingles Hwy	Melbourne	KY	41059-	2014	10/3/2014	85	90	1
Kenton	Community Christian Academy	11875 Taylor Mill Rd	Independence	KY	41051-9732	2014	10/3/2014	225	100	1
Kenton	Holy Family Catholic School	338 E 16th St	Covington	KY	41014-1398	2014	10/6/2014	75	45	1
Kenton	St Pius X School	348 Dudley Pike	Edgewood	KY	41017-2698	2014	10/8/2014	640	337	1
Kenton	Turkey Foot Middle School	3230 Turkeyfoot Rd	Edgewood	KY	41017	2014	10/8/2014	978	370	1
Boone	Hillard Collins Elem School	9000 Spruce Dr	Florence	KY	41042-2795	2014	10/9/2014	574	778	2
Campbell	St Therese School	2516 Alexandria Pike	Southgate	KY	41071-3298	2014	10/9/2014	372	200	1
Campbell	Holy Trinity Elementary School	235 Division St	Bellevue	KY	41073-1101	2014	10/14/2014	75	100	1
Boone	Conner Middle School	3300 Cougar Path	Hebron	KY	41048	2014	10/14/2014	1082	700	2

School Account: County	School Account: Account Name	School Street	School City	School State	School Account: Shipping Zip/Postal Code	Year	Performance Date	School Account: Enrollment	Total # of Students Attending	# of Performances
Kenton	Kenton Elementary School	11246 Madison Pike	Independence	KY	41051-7502	2014	10/14/2014	645	110	1
Campbell	Newport Primary School	1102 York St	Newport	KY	41071-2135	2014	10/15/2014	687	550	2
Kenton	Grace Academy of Creative Learning	30 Short Hill Ln	Erlanger	KY	41018	2014	10/15/2014	27	20	1
Boone	Burlington Elementary School	5946 Orient St	Burlington	KY	41005-9739	2014	10/16/2014	868	300	2
Kenton	Ft Wright Elementary School	501 Farrell Dr	Fort Wright	KY	41011-3775	2014	10/16/2014	478	484	2
Kenton	St Augustine School	1840 Jefferson Ave	Covington	KY	41014-1165	2014	10/17/2014	136	100	1
Kenton	Holy Cross Elementary School	3615 Church St	Covington	KY	41015-1485	2014	10/17/2014	172	176	1
Kenton	Ryland Heights Elementary Sch	3845 Stewart Rd	Ryland Height	KY	41015-9307	2014	10/20/2014	520	505	2
Boone	Longbranch Elementary School	2805 Longbranch Rd 910 Holman, Pike & Holman	Union	KY	41091	2014	10/20/2014	767	325	2
Kenton	John G Carlisle Elem School	Holman	Covington	KY	41011-3090	2014	10/21/2014	350	500	2
Campbell	St Joseph School	4011 Alexandria Pike	Cold Spring	KY	41076-1895	2014	10/21/2014	475	280	1
Campbell	St Therese School	2516 Alexandria Pike	Southgate	KY	41071-3298	2014	10/21/2014	372	140	1
Boone	Camp Ernst Middle School	6515 Camp Ernst Rd	Burlington	KY	41005	2014	10/22/2014	1006	200	1
Kenton	Whites Tower Elementary School	2977 Harris Pike	Independence	KY	41051-7990	2014	10/23/2014	489	500	2
Kenton	Summit View Middle School	5002 Madison Pike	Independence	KY	41051	2014	10/23/2014	750	718	3
Kenton	Calvary Christian School	5955 Taylor Mill Rd	Covington	KY	41015-2398	2014	10/24/2014	450	163	1
Kenton	St Joseph School	2474 Lorraine Ave	Crescent SPGS	KY	41017-1493	2014	10/24/2014	550	100	1
Kenton	Woodland Middle School	5399 Old Taylor Mill Rd	Taylor Mill	KY	41015	2014	10/24/2014	749	240	1
Campbell	Crossroads Elementary School	475 Crossroads Blvd	Cold Spring	KY	41076-2342	2014	10/24/2014	575	560	2
Kenton	Mary Queen of Heaven School	1130 Donaldson Hwy	Erlanger	KY	41018-1048	2014	10/24/2014	230	176	1
Kenton	St Henry School	3825 Dixie Hwy	Erlanger	KY	41018-1863	2014	10/24/2014	300	75	1
Boone	North Pointe Elementary School	875 N Bend Rd	Hebron	KY	41048-9737	2014	10/27/2014	1071	225	1
Kenton	St Cecilia School	5313 Madison Pike	Independence	KY	41051-8611	2014	10/28/2014	410	154	1
Boone	A M Yealey Elementary School	10 Yealey Dr	Florence	KY	41042-9733	2014	10/28/2014	588	560	2
Kenton	J A Caywood Elementary School	3300 Turkeyfoot Rd	Edgewood	KY	41017	2014	10/29/2014	720	125	1
Boone	Ockerman Middle School	8300 US Highway 42	Florence	KY	41042	2014	10/29/2014	897	310	1
Kenton	Villa Madonna Academy	2500 Amsterdam Rd	Villa Hills	KY	41017-3798	2014	10/31/2014	450	225	1
Campbell	Johnson Elementary School	1180 N Ft Thomas Ave	Fort Thomas	KY	41075-1198	2014	10/31/2014	382	385	2
Kenton	Taylor Mill Christian Academy	5235 Taylor Mill Rd	Taylor Mill	KY	41015-2127	2014	11/4/2014	9	11	1
Campbell	SS Peter & Paul School	2160 California Cross Rd	California	KY	41007-8810	2014	11/5/2014	177	100	1
Kenton	John W Miles Elementary School	208 Sunset Ave	Erlanger	KY	41018-1526	2014	11/5/2014	300	285	2
Kenton	Dorothy Howell Elem School	909 Central Row	Elsmere	KY	41018-2309	2014	11/5/2014	325	350	1

School Account: County	School Account: Account Name	School Street	School City	School State	School Account: Shipping Zip/Postal Code	Year	Performance Date	School Account: Enrollment	Total # of Students Attending	# of Performances
Kenton	St Agnes School	1322 Sleepy Hollow Rd	Ft Wright	KY	41011-2795	2014	11/6/2014	412	233	1
Kenton	Dorothy Howell Elem School	909 Central Row	Elsmere	KY	41018-2309	2014	11/14/2014	325	0	1
Kenton	Beechwood Elementary School	54 Beechwood Rd	Ft Mitchell	KY	41017-2786	2014	11/18/2014	578	650	2
Kenton	Beechgrove Elementary School	1029 Bristow Rd	Independence	KY	41051-9600	2014	11/20/2014	617	194	1
Boone	St Paul School	7303 Dixie Hwy	Florence	KY	41042-2196	2014	11/20/2014	445	300	1
Campbell	SS Peter & Paul School	2160 California Cross Rd	California	KY	41007-8810	2015	1/12/2015	177	70	1
Kenton	Holy Cross Elementary School	3615 Church St	Covington	KY	41015-1485	2015	1/13/2015	172	75	1
Campbell	Silver Grove School Community Christian Academy	101 W 3rdst	Silver Grove	KY	41085	2015	1/15/2015	300	53	1
Kenton	New Haven Elementary School	11875 Taylor Mill Rd	Independence	KY	41051-9732	2015	1/21/2015	225	65	1
Boone	Crittenden-Mt Zion Elem School	10854 US Highway 42 270 Crittenden-MT Zion Rd	Union	KY	41091-9500	2015	2/24/2015	850	735	3
Grant	Dry Ridge Elementary School	103 Center St	Florence	KY	41035-8280	2015	3/2/2015	480	300	1
Boone	Florence Elementary School	103 Center St	Florence	KY	41042-1993	2015	3/3/2015	633	530	2
Kenton	Ninth District Elementary Sch	2800 Indiana Ave	Latonia	KY	41015-1095	2015	3/3/2015	350	350	1
Kenton	Glenn O Swing Elem School	501 W 19th St	Covington	KY	41014-1141	2015	3/4/2015	350	275	1
Campbell	Moyer Elementary School	219 Highland Ave	Fort Thomas	KY	41075-1699	2015	5/11/2015	503	520	2

2014-2015 Duke & Non Duke Surveys Received & Kits Shipped

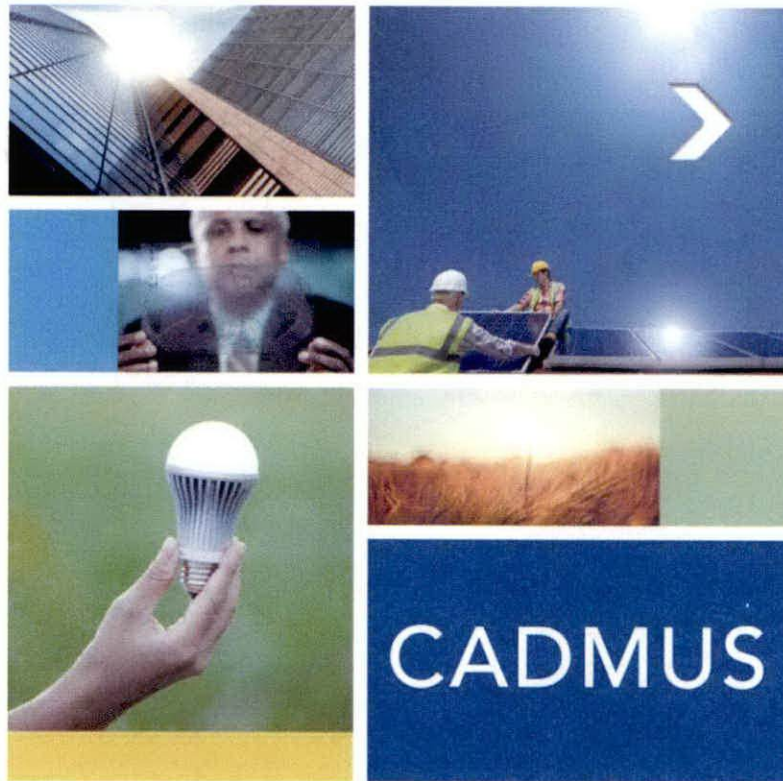
Kentucky School Name	Count of SURVEYS RECEIVED	Count of EE KITS SHIPPED
A J Lindeman Elementary School	44	39
A M Yealey Elementary School	114	104
Beechgrove Elementary School	48	46
Beechwood Elementary School	60	44
Burlington Elementary School	95	81
Calvary Christian School	28	22
Camp Ernst Middle School	35	30
Campbell Co Middle School	3	2
Charles Kelly Elem School	36	29
Chester Goodridge Elem School	114	81
Community Christian Academy	37	31
Conner Middle School	21	18
Crittenden-Mt Zion Elem School	46	40
Crossroads Elementary School	69	42
Donald E Cline Elem School	49	34
Dorothy Howell Elem School	41	34
Erpenbeck Elementary School	48	32
Flemingsburg Elementary School	1	1
Florence Elementary School	94	65
Ft Wright Elementary School	55	41
Glenn O Swing Elem School	30	27
Grace Acad of Creative Learnng	2	2
Grants Lick Elementary School	46	37
Hillard Collins Elem School	64	47
Holmes Middle School	4	2
Holy Cross Elementary School	18	15
Holy Family Catholic School	9	7
Holy Trinity Elementary School	15	10
J A Caywood Elementary School	23	20
James I Tichenor Middle School	2	2
John G Carlisle Elem School	91	61
John W Miles Elementary School	44	32
John W Reiley Elem School	1	1
Johnson Elementary School	49	46
Kenton Elementary School	89	74
Latonia Elementary School	67	49
Longbranch Elementary School	135	104
Mary Queen of Heaven School	66	61
Moyer Elementary School	73	65
n/a	25	
New Haven Elementary School	136	115
Newport Intermediate School	6	6
Newport Primary School	61	42

2014-2015 Duke Only Survey Received & Duke Kits Shipped

Kentucky School Name	Count of SURVEYS RECEIVED	Count of DUKE EE KITS SHIPPED
A J Lindeman Elementary School	44	39
A M Yealey Elementary School	103	94
Beechgrove Elementary School	16	14
Beechwood Elementary School	60	44
Burlington Elementary School	78	64
Calvary Christian School	26	20
Camp Ernst Middle School	33	28
Campbell Co Middle School	3	2
Charles Kelly Elem School	23	16
Chester Goodridge Elem School	107	76
Community Christian Academy	27	22
Conner Middle School	17	14
Crittenden-Mt Zion Elem School	30	24
Crossroads Elementary School	65	38
Donald E Cline Elem School	48	33
Dorothy Howell Elem School	41	34
Erpenbeck Elementary School	47	31
Florence Elementary School	87	59
Ft Wright Elementary School	54	40
Glenn O Swing Elem School	29	26
Grace Acad of Creative Learnng	2	2
Grants Lick Elementary School	20	13
Hillard Collins Elem School	60	43
Holmes Middle School	2	1
Holy Cross Elementary School	17	14
Holy Family Catholic School	9	7
Holy Trinity Elementary School	15	10
J A Caywood Elementary School	17	14
James I Tichenor Middle School	2	2
John G Carlisle Elem School	79	54
John W Miles Elementary School	44	32
John W Reiley Elem School	1	1
Johnson Elementary School	48	45
Kenton Elementary School	79	65
Latonia Elementary School	52	39
Longbranch Elementary School	104	73
Mary Queen of Heaven School	61	56
Moyer Elementary School	72	64
New Haven Elementary School	117	96
Newport Intermediate School	5	5
Newport Primary School	57	38
Ninth District Elementary Sch	33	21
North Pointe Elementary School	18	16

Kentucky School Name	Count of SURVEYS RECEIVED	Count of EE KITS SHIPPED
Ninth District Elementary Sch	41	29
North Pointe Elementary School	21	19
Ockerman Elementary School	93	84
Ockerman Middle School	14	12
Piner Elementary School	91	68
Prince of Peace School	46	39
R C Hinsdale Elementary School	98	63
Rector A Jones Middle School	4	3
Ryland Heights Elementary Sch	153	122
Silver Grove School	35	28
Sixth District Elem School	59	40
Southern Elementary School	2	1
SS Peter & Paul School	52	51
St Agnes School	63	47
St Augustine School	27	19
St Catherine of Siena School	22	17
St Cecilia School	56	51
St Henry School	7	3
St Joseph School	251	174
St Paul School	23	22
St Philip School	15	9
St Pius X School	162	119
St Therese School	119	79
Stephens Elementary School	2	1
Summit View Elementary School	129	107
Summit View Middle School	60	55
Taylor Mill Christian Academy	6	5
Taylor Mill Elementary School	84	59
Turkey Foot Middle School	12	7
Villa Madonna Academy	18	13
Walton-Verona Elem School	80	63
Westside Elementary School	11	10
Whites Tower Elementary School	70	53
Woodland Middle School	40	33
Grand Total	4060	3146

Kentucky School Name	Count of SURVEYS RECEIVED	Count of DUKE EE KITS SHIPPED
Ockerman Elementary School	81	73
Ockerman Middle School	14	12
Piner Elementary School	53	32
Prince of Peace School	45	38
R C Hinsdale Elementary School	93	59
Rector A Jones Middle School	4	3
Ryland Heights Elementary Sch	142	111
Silver Grove School	32	26
Sixth District Elem School	56	38
Southern Elementary School	1	
SS Peter & Paul School	24	23
St Agnes School	61	45
St Augustine School	26	18
St Catherine of Siena School	21	17
St Cecilia School	42	38
St Henry School	7	3
St Joseph School	240	166
St Paul School	23	22
St Philip School	12	7
St Pius X School	158	115
St Therese School	115	75
Stephens Elementary School	2	1
Summit View Elementary School	99	78
Summit View Middle School	33	28
Taylor Mill Christian Academy	5	4
Taylor Mill Elementary School	78	54
Turkey Foot Middle School	12	7
Villa Madonna Academy	17	12
Walton-Verona Elem School	56	40
Whites Tower Elementary School	58	43
Woodland Middle School	37	30
Grand Total	3499 KI	



Energy Efficiency in Schools Program

July 30, 2015

Evaluation, Measurement & Verification for Duke Energy Kentucky

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Prepared by:

Cadmus

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Evaluation Summary

Duke Energy engaged Cadmus and Minerva Smith (the Cadmus team) to perform process and impact evaluations of the Energy Education in Schools Program.¹ This report covers the impact and process evaluation findings for the evaluation period of June 1, 2014, through April 30, 2015.

Program Description

The Energy Efficiency Education Program for Schools (Energy Efficiency in Schools Program) is an energy conservation program available to K-12 students in Indiana, Ohio, North Carolina, South Carolina, and Kentucky public and private schools. The Energy Efficiency in Schools Program provides principals and teachers with an innovative math and science related curriculum that educates students about energy, natural resources, electricity, ways in which energy is wasted, and how to use our resources wisely. Duke Energy partners with three third-party contractors to implement the program: The National Theatre for Children (NTC), AM Conservation, and Relationship 1.

The Energy Efficiency in Schools Program launched in 2011. While program stakeholders update the storyline and curriculum each year, the focus remains on energy efficiency and the program delivery mechanisms have not been changed. The current program uses a pirate-themed storyline to educate students in kindergarten through eighth grade. The program uses classroom and take-home assignments to engage student's families and encourages students to complete a home energy survey with their families to receive an Energy Efficiency Home Kit, which contains energy saving measures such as CFLs and energy efficient showerheads. The program offers the contests, classroom activities, and prizes to encourage participation in the program and use of the Energy Efficiency Home Kit.

Evaluation Objectives

The Cadmus team's objectives for the evaluation were to estimate energy savings, document program operations, and identify any areas of improvement for future program implementation and customer experience with the program.

High-Level Impact Findings

This section summarizes the Cadmus Team's key impact findings for the evaluation period.

Energy Efficiency in Schools Program Savings

The Cadmus team conducted a billing analysis to estimate overall net energy savings for the Energy Efficiency in Schools Program in Kentucky per household. The Cadmus team also conducted an engineering analysis to estimate the relative savings contributions from the items provided in the Energy Efficiency Home Kit and a net-to-gross analysis to account for freeridership and spillover adjustments. By conducting billing, engineering, and net-to-gross analysis, the Cadmus team was able to determine what portion of the net energy savings achieved per household derived from the installation of items from the

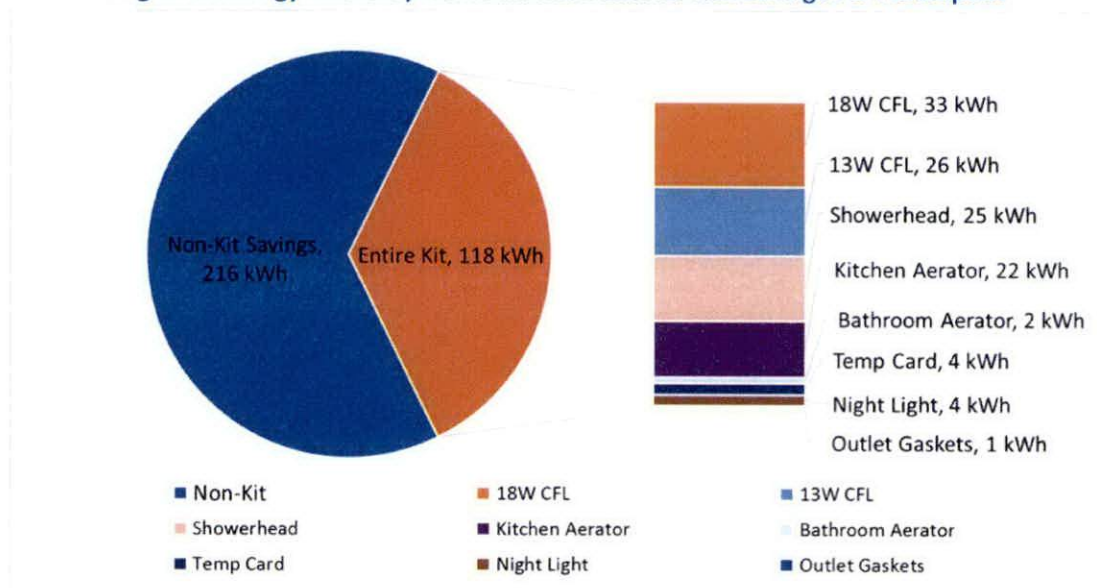
¹ While the tariffed program name is Energy Efficiency Education Program for Schools, the working title is Energy Efficiency in Schools program.

Energy Efficiency Home Kit and what portion of the savings resulted from energy saving actions and behaviors taken by participants.

Based on billing analysis results, the average participant household saved approximately 334 kWh, compared with 267 kWh in the previous evaluation period, as a result of participating in the Energy Efficiency in Schools Program. Engineering results, which relied on participant surveys, indicated that approximately 35% (118 kWh) of these savings resulted from participants installing Energy Efficiency Home Kits items. Based on these findings, the Cadmus team estimated that the remaining 65% of the household savings resulted from energy saving actions (including non-like spillover) and behaviors taken by participants because of their education through the program.

Figure 1 shows the contribution of kit savings (by each measure) and estimated behavior savings, totaling to the 334 kWh determined by the billing analysis.

Figure 1. Energy Efficiency Home Kit and Behavior Net Savings Per Participant



Net Impacts

Due to the impact analysis methodology, which compares the customer's electric meter readings before and after the program, the impact findings represent net savings and gross savings is not calculated. As shown in Table 1 and Table 2, the Energy Efficiency in Schools Program exceeded its net energy goals and achieved higher participant savings in 2015 than the previous evaluation period.

Table 1. Program Projected, Claimed, and Evaluated Net Energy Impacts

Program	Net Savings Goal (kWh)*	Net Reported Savings (kWh)**	Net Evaluated Savings (kWh)***
Energy Efficiency in Schools Program	186,900	669,768	742,816

* Based on previously evaluated savings of 267 kWh per Energy Efficiency Home Kit and program goal of 700 Energy Efficiency Home Kits delivered between July 2014 and June 2015

** Based on previously evaluated savings of 267 kWh per Energy Efficiency Home Kit and 2,537 reported Energy Efficiency Home Kits delivered between July 2014 and May 2015

*** Based on 2,224 Energy Efficiency Home Kits delivered during June 1, 2014, through April 30, 2015

Table 2. Household Net Energy Savings – 2014 and 2105

Program Year Evaluated	kWh Per Participant Annual Savings	Precision at 90% Confidence
2014	267 (115, 418)	±57%
2015	334 (217, 451)	±35%

Evaluation Parameters

The Cadmus team used multiple activities and analyses to conduct the impact evaluation of the Energy Efficiency in Schools Program. Table 3 lists the parameters of these activities, along with the estimated precision values.

Table 3. Evaluated Parameters with Value, Units, and Precision and Confidence

Program	Parameter	Units	Confidence/Precision
Energy Efficiency in Schools Program	334	kWh/household (net savings)	90% confidence with ±35% precision

Table 4 lists the start and end dates for activities conducted for the impact evaluation.

Table 4. Sample Period Start and End Dates

Evaluation Component	Sample Period	Dates Conducted	Total Conducted
Stakeholder Interviews	-	May 2015	5
Performance Reviews	-	May 2015*	1
Participant Surveys (which informs engineering and net-to-gross analysis)	June 1, 2014 – April 30, 2015	May 2015	84
Billing Analysis	June 1, 2014 – April 1, 2015	May 2015	1,995

* NTC cancelled three March 2015 performances, which the Cadmus team was originally scheduled to attend, due to inclement weather, as discussed further in the NTC Performance Review chapter; while May 2015 falls outside of the evaluation period, the performance was similar to those presented throughout the school year.

High-Level Process Findings

The section summarizes the Cadmus team's key process findings for the evaluation period.

Stakeholder Feedback

Interviews with program stakeholders (program management and implementation staff) focused on elements of program process and delivery, which have remained fundamentally unchanged since the previous evaluation. Stakeholders reported that the program ran smoothly and was successful at engaging and entertaining students. Duke Energy offers multiple contests and incentives to encourage schools and students to get the most value out of the program by ordering Energy Efficiency Home Kits and installing the included items.

Stakeholders reported minimal challenges with the Energy Efficiency in Schools Program this year. As with previous evaluations, stakeholders reported that the program requirement that participants can only receive one Energy Efficiency Home Kit during a three-year period may be impacting participation.

Although stakeholders reported participation concerns, the Energy Efficiency in Schools Program exceeded its participation goals for this program year and achieved greater energy savings than in previous program years.

The National Theatre for Children Performance

The Cadmus team observed a performance by The National Theatre for Children on May 18, 2015. The actors appeared to be enthusiastic and energetic and the audience appeared to be attentive and engaged. We observed students reciting the presentation's slogan during the performance, and they seemed responsive to interactive activities. In addition to educating students about energy and resources, the presentation provided instruction on how to participate in the Energy Efficiency in

Schools Program and how to use the energy saving items included in the Energy Efficiency Home Kit. The actors acknowledged Duke Energy multiple times and the logo was visible throughout the performance.

Energy Efficiency Home Kit

The Cadmus team asked respondents a series of questions regarding their use of the items in the Energy Efficiency Home Kits. Specifically, we asked participants to indicate one of the following outcomes:

- They were currently using the item (or had used it in the case of single-use items).
- They were not currently using the item, but planned to in the future.
- They were not currently using the item, and were not intending to use it.
- They had installed the item but had removed it.

Participants most often reported installing the lighting items included in the Energy Efficiency Home Kits (installation rates greater than 80%). Respondents reported much lower installation rates for the kitchen aerator (38%), bathroom aerator (31%), showerhead (25%), and outlet gasket insulations (21%) at the time of the survey. Forty-five percent of respondents said they used the water heater temperature card that was included in the kit, while 22% reported using the water flow meter bag. Participants who did not currently have items installed (either because they had never installed the measures or installed and subsequently removed the measures) provided the following explanations for low satisfaction with the items:

- Dissatisfied with performance
- Item could not be installed or used because it does not fit
- Item is difficult to install or use
- Item is damaged or defective
- Dissatisfied with quality

Energy Saving Tools and Behaviors

The Energy Efficiency Home Kit also included an informational booklet (Energy Savers booklet). When we asked participants to estimate how much of the information they had read, 38% (n=84) said they had read most or all of the information, 37% said they had read some, 19% reported they had glanced at the information, and 6% said they did not look at the Energy Savers booklet at all. Respondents generally reported that the booklet was easy to understand, informative, and helpful.

The Cadmus team asked participants who read the Energy Savers booklet what actions they took based on the prescriptive advice found inside. Participants most frequently reported turning off electronics when not in use (88%) and choosing efficient CFL and LED lighting (79%); about half of the participants reported sealing leaks (55%) and maintaining and upgrading HVAC equipment (50%).

Previous and Future Experience with Energy Efficiency Home Kit Items

The Cadmus team asked respondents about their experience with energy saving items similar to those included in the Energy Efficiency Home Kit prior to participating in the program, as well as after participating in the program. Respondents reported having installed CFLs and energy efficient showerheads (75%, n=79; 29%, n=80) most frequently, prior to participating in the Energy Efficiency in Schools Program. We asked respondents whether they intended to purchase items similar to those provided in the Energy Efficiency Home Kit prior to participating in the Energy Efficiency in Schools Program. In answering this question, 56% (n=80) of respondents said they had intended to or maybe would have purchased CFLs, and 37% (n=81) said they had intended to or maybe would have purchased LEDs. About 19% (n=81) of respondents reported that they had not intended to purchase an energy efficient showerhead because they already had one installed. When we asked participants if they purchased additional energy efficiency items on their own after receiving the Energy Efficiency Home Kit, 32% (n=84) said they had, with CFLs and LEDs purchased most frequently by respondents.

Participant Feedback

Survey respondents reported high levels of satisfaction with the overall program as well as the items included in the Energy Efficiency Home Kit. The Limelight night light most frequently received favorable feedback, followed by the bathroom aerator and the water heater temperature card. Conversely, the energy efficient showerhead received the lowest satisfaction ratings among respondents, with lower water pressure being the most cited reason for their dissatisfaction; respondents also reported installing this item less frequently than other items.

When we asked participants if their knowledge of how to save energy and reduce energy bills had changed after their household's participation in the program, participants most frequently responded that their knowledge had stayed the same (46%, n=81).

Program Comparison

The Cadmus team conducted a review of similar energy education programs provided by utilities in the Midwest. We found that other programs achieve net savings ranging from 401 kWh to 490 kWh per Energy Efficiency Home Kit. Additionally, we observed a difference in the Energy Efficiency Home Kit configurations offered by other utilities. Notably, one program offered six CFLs per Energy Efficiency Home Kit, as well as items not included in the Energy Efficiency Home Kit; specifically a filter tone alarm and digital thermometer.

Conclusions and Recommendations

The Cadmus team's evaluation revealed a few areas for potential improvements. This section summarizes our conclusions resulting from process and impact evaluation activities and provides potential areas Duke Energy could explore to further refine program operations or expand program benefits.

Conclusion: The Energy Efficiency in Schools Program is successful as measured by multiple metrics. The evaluation indicated that the Energy Efficiency in Schools Program has exceeded its participation

and savings goals. The program is effective at engaging students, it meets the state standards for science, and results in energy savings within the student home (through installation of kit items).

Recommendation: Continue using the same program delivery mechanism and processes.

Conclusion: The Energy Efficiency in Schools Program is successful at encouraging energy saving behaviors among participants and may be able to increase energy savings realized by Energy Efficiency Home Kit items by adjusting the quantity and type of items. While the program exceeded its savings goals, opportunities for increasing savings through modifications to the Energy Efficiency Home Kit may exist. The Cadmus team noted that similar energy education programs, offering slightly different Energy Efficiency Home Kit configurations, are achieving greater energy savings per kit. Additionally, lower installation rates for showerhead and faucet aerators result in lower energy savings for the Energy Efficiency in Schools Program. Some participants also indicated quality or performance issues with the Energy Efficiency Home Kit items.

Recommendations: Consider modifying the quantity and type of items included in the Energy Efficiency Home Kits, if Duke Energy finds it cost-effectively and sufficiently beneficial to do so. Because participants installed lighting measures most often and these measures received the highest satisfaction ratings, consider increasing lighting measures included in Energy Efficiency Home Kits. Additionally, to address quality issues and make products more attractive to participants, consider researching higher quality models of items provided in the Energy Efficiency Home Kit. Consideration may also be given to reducing or eliminating measures that are less frequently installed.

Conclusion: The Energy Efficiency in Schools Program is successful at engaging students with The National Theatre for Children presentation and may be able to increase energy savings by engaging parents. While most respondents remembered discussing aspects of the Energy Efficiency in Schools Program presentation with their children, they also indicated that their knowledge about energy and reducing energy bills had stayed the same after their children participated in the Energy Efficiency in Schools Program. The business reply cards, which are currently completed and returned by parents, may provide an opportunity to educate and connect at the household level.

Recommendations: Consider increasing outreach to adults in the student's household through modifications to the business reply cards included in Energy Efficiency Home Kits or additional follow-up surveys. The use of participant surveys may prompt parents to follow up on installing items from their Energy Efficiency Home Kits and act as a reminder about potential energy-saving activities. The business reply cards, which are currently used to survey parents and assess installation rates, could also be modified to provide additional education. For example, in addition to asking if parents installed the CFLs included in the Energy Efficiency Home Kits, the survey could provide information on how much energy each CFL saves in the average home.

Conclusion: Both participating schools and non-participating schools may have additional insights into the primary factors motivating school and student participation, as well as the primary barriers to

participation. Stakeholders reported that recruitment of new schools can be challenging. Feedback from staff at participating schools has been limited in previous evaluations and interviews with non-participating schools have not yet been conducted. More in-depth discussions with school staff may reveal opportunities for increasing student participation within the schools, as well as identify barriers to school participation.

Recommendations: Future evaluations should consider including additional, in-depth phone interviews with school staff that have participated in the program, as well as schools that have not participated in the program. Design the interviews to capture feedback on reasons for participation, barriers to participation, and suggestions for helping schools and students participate in the program. Determine samples based on the number of schools in the service territory.

Conclusion: There may be potential opportunities for Energy Efficiency Home Kit items that are not installed by participants. Participants do not install all of the items provided in the Energy Efficiency Home Kits. Participants may end up throwing away items that they do not install.

Recommendations: Consider providing schools with bins to collect unused Energy Efficiency Home Kit items for purpose of including in future kits or donating to charity. When communicating to the students, include education about reducing waste and information on how the returned, unused items will be used.

Conclusion: A substantial portion of the billing analysis savings are attributed to behavior changes and additional energy efficiency improvements. It follows that the performances successfully educated and motivated students and that savings may be seen at homes for children that did not receive kits.

Recommendations: Future evaluations should consider including additional populations for billing analysis. Cadmus recommends three groups for the billing analysis: the program kit participants, the homes of children that attended the presentations but did not receive a kit, and a control group of homes not exposed to the performances and outreach, if those populations are available.

Introduction

Program Description

The Energy Efficiency Education Program for Schools (Energy Efficiency in Schools Program) is an energy conservation program available to K-12 students in Indiana, Ohio, North Carolina, South Carolina, and Kentucky public and private schools in Duke territory. The Energy Efficiency in Schools Program provides principals and teachers with an innovative math and science related curriculum that educates students about energy, natural resources, electricity, ways in which energy is wasted, and how to use natural resources wisely. In implementing the program, Duke Energy partners with the following three third-party contractors:

- The National Theatre for Children (NTC), which is the implementer of the Energy Efficiency in Schools Program. NTC develops and presents live theatrical productions for elementary and middle school students, with performances for older students featuring more academically advanced performances.
- AM Conservation, which is the fulfillment vendor for the Energy Efficiency Home Kits.
- Relationship 1, which is Duke Energy's data management vendor. Relationship 1 processes all the Energy Efficiency Home Kit requests and surveys, verifies eligibility, hosts the program website, maintains the program dashboard, and provides data reporting.

Duke Energy first launched the Energy Efficiency in Schools program in 2011. While NTC updates the storyline and curriculum each year, the focus remains on energy efficiency, and the program delivery mechanisms have not been changed. The current program uses a pirate-themed storyline to educate students in elementary school and an improvisational storyline to educate middle school students. The program uses classroom and take-home assignments to engage student's families and encourages students to complete a home energy survey with their families to receive an Energy Efficiency Home Kit. The kit contains the following measures and materials:

- 1.5 gpm energy-efficient showerhead
- 1.5 gpm kitchen faucet aerator with swivel and flip valve
- Water flow meter bag
- Water temperature gauge card (Hot Water Temperature Card)
- 13-watt ENERGY STAR® rated mini compact fluorescent (60-watt incandescent equivalent), with 12,000 hour life
- 18-watt ENERGY STAR rated mini compact fluorescent (75-watt incandescent equivalent), with 12,000 hour life
- 1.0 gpm needle spray bathroom faucet aerator
- Combination pack of switch and outlet gasket insulators – eight outlets and four socket gasket insulators

- Energy-efficient Limelight style night light
- Duke Energy-labeled Department of Energy (DOE) Energy Savers booklet
- Roll of Teflon tape for showerhead
- Product information and instruction sheet
- Glow ring toy

Non-Duke Energy customers at the participating schools can receive a smaller Energy Efficiency Home Kit that contains the following materials:

- Water flow meter bag
- Water temperature gauge card (Hot Water Temp Card)
- 13-watt ENERGY STAR rated mini compact fluorescent (60-watt incandescent equivalent), with 12,000 hour life
- Eight outlet gasket insulators
- Duke Energy-labeled DOE Energy Savers booklet
- Glow ring toy

Program Design and Goals

The primary goal of the Energy Efficiency in Schools Program is to educate students about energy, natural resources, how to make electricity, ways in which energy is wasted, and how to use these resources wisely. Additionally, Duke Energy strives to meet these goals through the program:

- Integrate grade-appropriate energy efficiency learning activities and Duke Energy's Energy Efficiency Home Kit into existing science and math based curriculums.
- Achieve target participation and energy impacts through delivery of Energy Efficiency Home Kits and participant installation of energy saving measures in eligible households.
- Create program sustainability by reaching new participants every year (participants who have not received an Energy Efficiency Home Kit in the previous three years).

The Energy Efficiency in Schools Program exceeded its 2014-2015 participation goals in Kentucky, delivering over 2,000 Energy Efficiency Home Kits to households within Duke Energy's service territory during the evaluation period. Table 5 lists the program goals and achievements for the last three school years.

Table 5. Energy Efficiency Home Kit Participation Goals and Achievement

Program Year*	Participation Goal	Participation Achieved
2012-2013	1,000	650**
2013-2014	700	1,796 ***
2014-2015	700	2,224 ****

* Program year defined from July 1 through June 30.

** Previous evaluation reported participation at 65% of goal.

*** As of May 26, 2014, according to previous evaluation.

**** Duke Energy customer Energy Efficiency Home Kits distributed during the evaluation period, June 1, 2014, through April 30, 2015

Evaluation Methodology

In evaluating Duke Energy's Energy Efficiency in Schools Program, the Cadmus team identified the following objectives:

- Estimate the program's net energy savings through billing analysis;
- Estimate energy and demand savings resulting from installation of Energy Efficiency Home Kit items through engineering analysis;
- Assess freeridership and spillover through participant surveys;
- Assess the program's performance against goals; and
- Assess participant experience, satisfaction, and decision-making motivations.

Stakeholder Interviews

Cadmus conducted four management interviews with two program management staff members and three implementation staff members to capture insights about program operations and challenges. Specifically, Cadmus interviewed the following individuals:

- Duke Energy Program Staff
 - Program Manager: Christine Smith (5/12/2015)
 - Residential Market Manager: Lari Granger (5/12/2015)
- NTC Program Staff
 - Program Manager: Katie Miesen (05/14/2015)
- AM Conservation Staff
 - Senior Account Executive: Charlene Moody (05/14/2015)
- Relationship 1 Staff
 - Chief Operating Officer: Howard Mertz (05/27/2015)

We conducted additional interviews with elementary school staff and students when we attended the NTC performance on site.

The National Theatre for Children Performance Review

The Cadmus team attended one NTC performance at a participating school in May 2015. We had planned to attend additional performances on March 4 and 5, 2015; however, these schools canceled all classes and activities on these dates due to inclement weather. The only make-up performance the Cadmus team could attend was held on May 11, 2015. While on site, we gauged responses from teachers and children as they watched the performance and discussed the program with the person who coordinated with NTC for the school.

Participant Surveys

The Cadmus team designed participant surveys to cover both impact evaluation and process evaluation topics, including use of Energy Efficiency Home Kit items, energy saving behavior changes, freeridership, spillover, participant decision-making, and satisfaction. Duke Energy administered the online surveys and the Cadmus team analyzed the survey responses. Duke Energy sent survey invitations to 1,236 eligible customers who received Energy Efficiency Home Kits between June 16, 2014, and March 4, 2015.² Eighty-five percent (n=138) of participants who began the online survey remembered receiving the Energy Efficiency Home Kit, while 8% said they did not receive the Energy Efficiency Home Kit. Seven percent could not recall whether they had received the Energy Efficiency Home Kit. We did not ask respondents who did not receive or did not recall receiving the Energy Efficiency Home Kit any further questions about the program. In total, 84 respondents went on to complete the entire survey. The survey sampling methodology achieved precision of $\pm 8.8\%$ at the 90% confidence interval based on the total 2,224 participants who received Energy Efficiency Home Kits during the evaluation period.

Billing Analysis

The billing analysis relied on consumption data for 1,995 electric customers who participated in the program between June 2014 and April 2015.³ The Cadmus team tested two panel regression models to estimate program impact on post-treatment electric consumption, controlling for individual customers' fixed effects mean usage, month-specific trends, the effects of weather, and participation in other Duke Energy programs. Ultimately, we selected and used the model with the best precision values to estimate net energy savings per household. The results were statistically significant at the 95% confidence level.

Engineering Analysis

The Cadmus team conducted an engineering analysis to determine the Energy Efficiency Home Kit's contribution to the household net energy savings (as determined through the billing analysis). We collected data through participant surveys and used energy savings algorithms taken from the Ohio and Illinois Technical Reference Manuals (TRMs). We used the results of this analysis, in conjunction with the net-to-gross analysis, to estimate net energy savings for items included in the Energy Efficiency Home Kits.

² The program distributed 2,224 Energy Efficiency Home Kits (reported), but only 1,236 e-mail addresses were included in the available participant data. Duke Energy contacted survey respondents by e-mail and conducted the survey online.

³ While the Cadmus team calculated program savings based on the 2,224 reported kits distributed through the program during the evaluation period, we conducted the billing analysis with electric participants who met specific consumption requirements and passed through a screening process.

Net-to-Gross Analysis

To provide context for the net energy savings estimated through the billing analysis and to inform engineering calculations, the Cadmus team conducted a net-to-gross analysis. We used participant surveys to collect data necessary to estimate participant freeridership and spillover.

Program Comparison

We reviewed programs similar in design to the Energy Efficiency in Schools Program to provide reference for the savings estimates we determined for this program through the billing and engineering analyses. The Cadmus team prioritized programs with similar design characteristics, ultimately comparing two energy education programs offered through seven Midwest utilities. We gathered information on energy saving items offered, participation, and net savings per participant.

Threats to Validity and Sources of Bias and How Those Were Addressed

Billing Analysis

The specification of the model used in the billing analysis attempted to avoid the potential of omitted variable bias by including monthly variables that capture any non-program effects that affect energy usage, as well as other Duke Energy offers. The two models the Cadmus team tested did not correct for self-selection bias as the program remains voluntary. The model used for the billing analysis utilized a matching method that sought to address the data's unbalanced panel between pre- and post-period billing months. Since the program design did not include a control group, it was not possible to control for naturally-occurring changes in consumption in the post-period.

Engineering Analysis

To estimate per-unit net savings for each item in the Energy Efficiency Home Kit, the Cadmus team used engineering algorithms from Ohio and Illinois TRMs, along with participant-specific inputs captured through the participant survey. Because this analysis relied, in part, on participant responses, results may have been affected by self-selection bias, false-response bias, or positive-result bias.

Process Evaluation Findings

This chapter presents the Cadmus team’s process evaluation findings for Duke Energy’s Energy Efficiency in Schools Program and divides the findings into four sections: Stakeholder Interviews, National Theatre for Children Performance Review, Participant Surveys, and Program Comparison. Table 6 lists the primary evaluation activities and the dates the Cadmus team conducted them.

Table 6. Process Evaluation Data Collection and Analysis

Evaluation Component	Dates of Data Collection	Total Conducted
Stakeholder Interviews	May 12-27, 2015	5
Performance Reviews	May 18, 2015	1
Participant Surveys	May 5-18, 2015	84

Stakeholder Interviews

The Cadmus team interviewed program stakeholders to gain an in-depth understanding of the program and identify its successes and challenges. Results of these discussions are presented below, by topic.

Communication

All program staff and partners reported that they communicate on a regular basis and that communications are positive and effective. Duke Energy conducts weekly conference calls with NTC and Relationship 1 to discuss scheduling, communications, problems that may have come up and the associated solutions and program delivery strategies. During those meetings, NTC and Relationship 1 report to Duke Energy about any issues they identified during the week. In addition, NTC corresponds with Duke Energy via e-mail on a daily basis. NTC staff stated that Duke Energy welcomed any program suggestions, such as adjusting the marketing plan and introduction of new initiatives. In addition, AM Conservation staff attends in-person meetings with Duke Energy four times throughout the year. None of the program stakeholders reported any communication issues or concerns.

Program Delivery

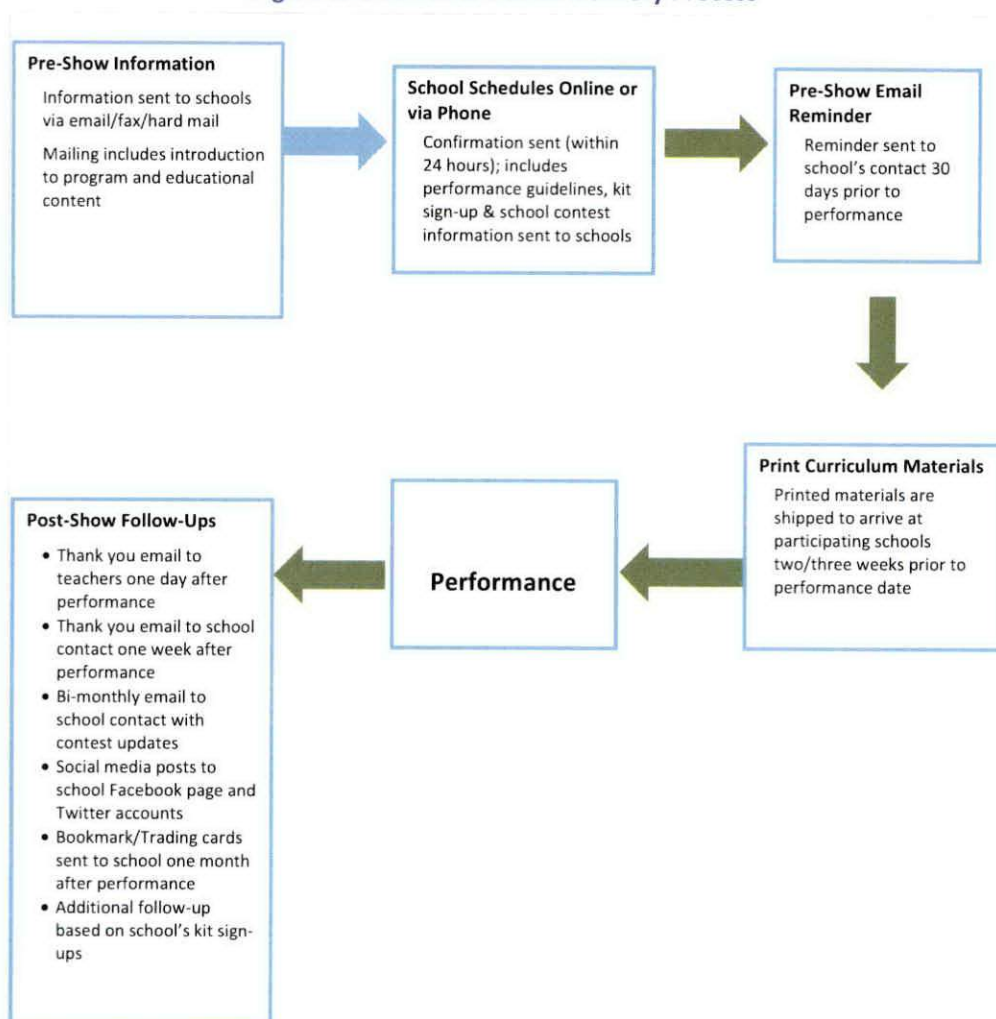
NTC delivers the Energy Efficiency in Schools Program to interested schools within Duke Energy’s service territory. NTC contacts principals through mass mailings occurring two to three times a year, as well as smaller, more targeted efforts throughout the year. Once a school decides to participate in the program, NTC provides scheduling information for the performance. NTC has flexibility in choosing the targeted schools and grades based on scheduling, routes, and the saturation of previous participants from past participation. If there is any issue with weather, NTC contacts affected schools to schedule a new appointment to keep participation rates up.

Once the principal (or other school administrator) has confirmed the performance date and time, NTC delivers the curriculum materials to the principal’s attention for teacher distribution two weeks prior to the performance. Materials include school posters, teacher guides, and classroom and family activity

books. After attending the NTC performance, students are encouraged to complete a home energy survey with their family (found in their activity book or online) to receive an Energy Efficiency Home Kit that contains specific energy efficiency measures to reduce home energy consumption. Non-Duke Energy customers at the participating schools can receive a smaller Energy Efficiency Starter Kit specifically for non-customers.

NTC also produces contest materials for the performance and conducts follow-up outreach activities to encourage future participation. The follow-up outreach includes newsletters and engaging in social media. Figure 2 shows the full program performance process.

Figure 2. K-12 Performance Delivery Process*



*Image provided courtesy of Duke Energy.

Promotion and Marketing

Program and implantation staff provided feedback on outreach and offerings delivered by the program. As in previous years, Duke Energy provided NTC with zip codes that are within the Duke Energy territory in Kentucky and also supplied statistics on the number of Duke Energy customers within each zip code. This allowed NTC to target schools that were more likely to have a high number of Duke Energy customers' children enrolled at those schools. In total, 76% of the 102 eligible schools in Kentucky participated in the program this year. This includes schools that have participated in the past and newly participating schools.

School Incentives

The program offers the following incentives to schools and students to encourage participation in the program:

- **Contests.** NTC sends invitations to participate in the program via e-mail and mail to the school principal or other administrator. NTC reported that schools participate because it is an engaging activity for the students, and they are further incentivized by the contests provided by NTC. Each participating Kentucky school is eligible to win a \$10,000 school prize for enrolling a minimum of 75 students.
- **Theatrical Performance.** The theatrical performance changes each school year according to NTC policy. Duke Energy reviews and approves the script before NTC performs it at the schools.
- **Classroom Activities.** NTC provides the teachers with a workbook containing classroom activities and an online whiteboard, which more teachers are using each year.⁴
- **Household Prizes.** Eligible households that sign up to receive an Energy Efficiency Home Kit and return the business reply card are entered into a drawing to receive a family prize package valued at \$2,500.
- **Energy Efficiency Home Kits.** The Energy Efficiency Home Kits are available to student family and teacher households that have not received an Energy Efficiency Home Kit in the previous three years.

Duke Energy and Implementer Data Tracking

NTC maintains a database of participating and eligible schools, including school staff and student counts. When NTC receives a request for an Energy Efficiency Home Kit, Relationship1 and Duke Energy review the request for eligibility. Duke Energy uploads the verified list of participants weekly for AM Conservation, and AM Conservation then distributes the Energy Efficiency Home Kits, sending out shipments approximately once a week.

⁴ All whiteboard activities are in SMARTboard notebook format and can be found online at: <https://www.resourcereward.org/tour-central.html>.

Because AM Conservation's system uses FedEx to track shipments, customers are able to track the status of orders themselves online or through a call-in number.

The Cadmus team identified minimal issues during the interviews. AM Conservation reported that customers who have billing addresses other than their home addresses may not be aware when their Energy Efficiency Home Kits have been delivered. For example, if a P.O. Box is on file as the customer's billing address, and the customer does not check their P.O. Box regularly, the Energy Efficiency Home Kit may be returned to the utility by post office staff. AM Conservation also reported that customers occasionally move after ordering an Energy Efficiency Home Kit. In both instances, AM Conservation notes the issue in the database that the customer did not receive an Energy Efficiency Home Kit and is not subject to the three-year waiting period to receive another Energy Efficiency Home Kit.

Market Barriers and Program Challenges

Both program and vendor staff agreed that the most challenging part of the program every year is recruiting new schools. Respondents said that due to a limited number of schools to reach out to, it was difficult to recruit more schools each year. According to Duke Energy, roughly half of the targeted schools contacted through the program go on to participate.

Stakeholders also said that keeping past participants engaged in the program was another challenge. Because participants can only receive Energy Efficiency Home Kits every three years, AM Conservation recommended distributing different Energy Efficiency Home Kits to customers who have participated within the past three years to ensure further participation in the program.

Program Feedback and Suggestions

Program and implementation staff provided feedback and suggestions when asked about what worked well for the program and what changes could be considered for future years.

Respondents reported that the program is working well across multiple components. They stated that marketing is efficient at getting the word out and reaching new households. Respondents also said that the presentation provides a positive message and actions participants can take to improve energy efficiency in their homes. NTC staff said that, overall, the program improves every year and that "It teaches. It entertains. It inspires."

The Cadmus team asked program staff and partners what suggestions they have to increase program participation. Duke Energy staff recommended more in-depth, prioritized targeting of schools by working with Duke Energy community leaders in areas where there are strong relationships with schools. AM Conservation and NTC suggested having different Energy Efficiency Home Kits for households that have already participated in the program within the three-year limit.

The National Theatre for Children Performance Review

The Cadmus team attended NTC's May 11, 2015, performance to assess how NTC was fulfilling Duke Energy's goal of providing energy conservation tips and encouraging students' families to order the Energy Efficiency Home Kit. Results of this review are presented below, by topic.

The Treasure Trove of Conservation: A Pirate's Tale

Two actors performed this year's presentation (Figure 3). NTC used pirate theme to educate students and staff on the following four main topics:

- Where energy and electricity come from
- Uses of electricity
- How energy is wasted
- How to conserve energy

Figure 3. A Pirate's Tale Actors



The actors incorporated the slogan "*Open Your Eyes, Be Resource Wise*" into this year's performance and repeated it multiple times throughout the presentation; we observed children enthusiastically reciting this slogan by the end of the performance.

Similar to previous years, the presentation included explanations of solar, hydro, and wind and identified them as renewable resources. The presentation also identified coal and natural gas as non-renewable resources. The actors told the audience that power companies use a combination of these resources and used graphics to identify resources.

Duke Energy Partnership

As shown in Figure 4, the Duke Energy logo was visible on stage throughout the performance. Additionally, the actors began the presentation by acknowledging Duke Energy's sponsorship of the program, while pointing to Duke Energy logo, and then ended the presentation by thanking Duke Energy for making the presentation possible.

Figure 4. NTC Performance Stage with Duke Energy Logo



Tying the Performance to the Energy Efficiency Home Kit

The actors tied the Energy Efficiency Home Kit into the pirate theme by referring to it as a "treasure kit." NTC displayed the Energy Efficiency Home Kit, and the performers told the students that the contents would help them save natural resources. Additionally, the actors tied the information provided in the performance directly to the items included in the Energy Efficiency Home Kit as well as actions that students could take in their homes. For instance, a volunteer from the audience held a banner displaying the performance slogan while completing the following short quiz:

- *Should we use an energy-efficient showerhead?*
- *Should we use CFLs to save natural resources?*
- *Should we use these treasure kits to save resources around our house?*

Students also learned that they could save electricity by turning off lights and appliances and using compact fluorescent light bulbs. Additionally, the performers discussed the importance of water conservation and provided students with water conservation ideas such as shutting off the water when brushing their teeth and using energy-efficient showerheads.

Encouraging Energy Efficiency Home Kit Orders

NTC displayed the items contained in the Energy Efficiency Home Kit to the students, who were encouraged to order an Energy Efficiency Home Kit for their families. The actors instructed students to request the Energy Efficiency Home Kit online or complete and mail the card provided in their program workbook. Additionally, the actors introduced a skull and crossbones labeled trading card that featured the program website address (www.xmarksthekit.org) and a toll free number for ordering the Energy Efficiency Home Kit. NTC provided these cards to teachers for distribution in the classroom.

As another incentive, the actors informed students that they could win a “pirate party” for their classroom if the Energy Efficiency Home Kit that they ordered through the program contains a “golden doubloon.” The Cadmus team observed students responding positively to this contest.

Appropriateness for School Children

NTC used multiple techniques to help children with different learning styles (such as auditory learners or visual learners) understand the information being discussed. For instance, the actors used graphics alongside verbal discussion to help students who benefit from visual aids.

Additionally, the performance related information in multiple ways, providing age-appropriate examples. In one case, the actors told students that if they turn off the water while they brush their teeth, they can save “eight gallons of water, which adds up to more than 200 gallons a month, which is enough to fill a large fish tank that would hold six small sharks.” In another case, the performers told students that if they change one incandescent light bulb to a CFL, they would save “about \$40 over the lifetime of the bulb which is the equivalent of three pizzas.”

Overall, the Cadmus team determined that the program covers the state standard for science (Standard 4-ESS3-1: Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment).⁵

Feedback from School

While on site, the Cadmus team met with the assistant principal to discuss her experience with the program. The assistant principal confirmed that the presentation had been rescheduled for May 2015 due to inclement weather earlier in the year. She also reported that NTC was very accommodating and gave the school several dates from which to choose when attempting to reschedule the performance. NTC mailed a comic-book style, pirate-themed information booklet, and posters advertising the event two weeks in advance of the scheduled performance. The Cadmus team observed the poster on display at the entrance to the school and confirmed that teachers passed out the booklets. The assistant principal reported being impressed with NTC and could not identify any improvements regarding communication or scheduling.

⁵ Available online: <http://www.nextgenscience.org/4ess3-earth-human-activity>

NTC team also received positive feedback from teachers and students. Teachers indicated that the program was “great” and students were eager to share information that they had learned from the presentation. Students primarily recalled ways to conserve natural resources; other lessons they recalled included the different types of natural resources and which of these resources are renewable.

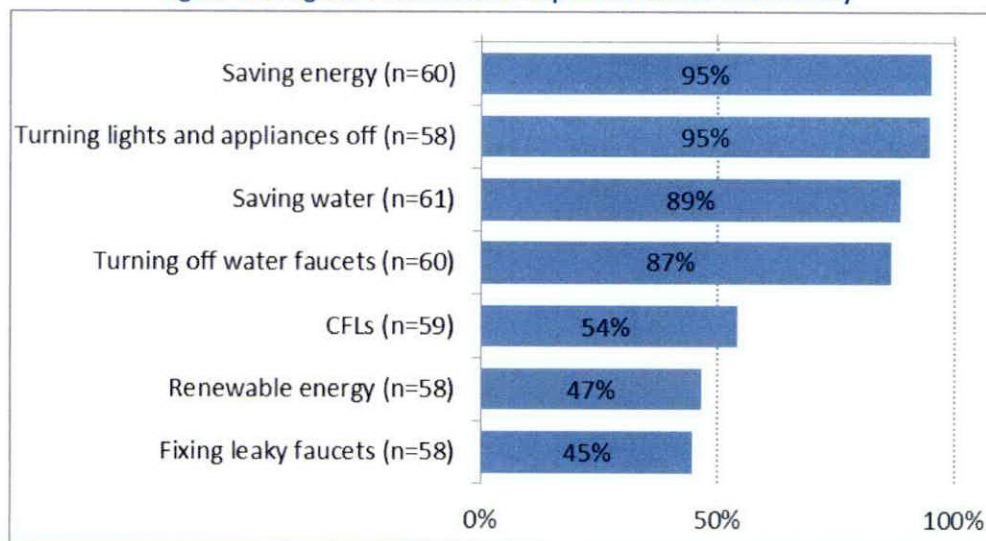
Participant Surveys

The Cadmus team conducted surveys with 84 Duke Energy customers who received Energy Efficiency Home Kits through the Energy Efficiency in Schools Program. This section presents the results of this review by topic. Except where noted, the Cadmus team excluded “don’t know” and “refused” responses, which is reflected in accompanying n-values.

Student Discussion of Performance

The Cadmus team asked customers if they remembered discussing the National Theatre for Children performance with their children. Seventy-three percent of 84 respondents answered affirmatively, with almost all mentioning “energy savings” and “turning lights and appliances off” as specific topics they discussed with their children (Figure 5). Only about half of the respondents recall talking to their children about CFLs, renewable energy, and fixing leaky faucets.

Figure 5. Program Performance Topics Discussed with Family



Source: Participant Survey Questions A2.1-7. Did your child say they heard about...?
(Multiple responses permitted.)

Energy Efficiency Home Kit

The Cadmus team asked respondents questions about their experiences with the Energy Efficiency Home Kit, including their recollection of receiving the Energy Efficiency Home Kit, use of energy saving items, and satisfaction with these items.

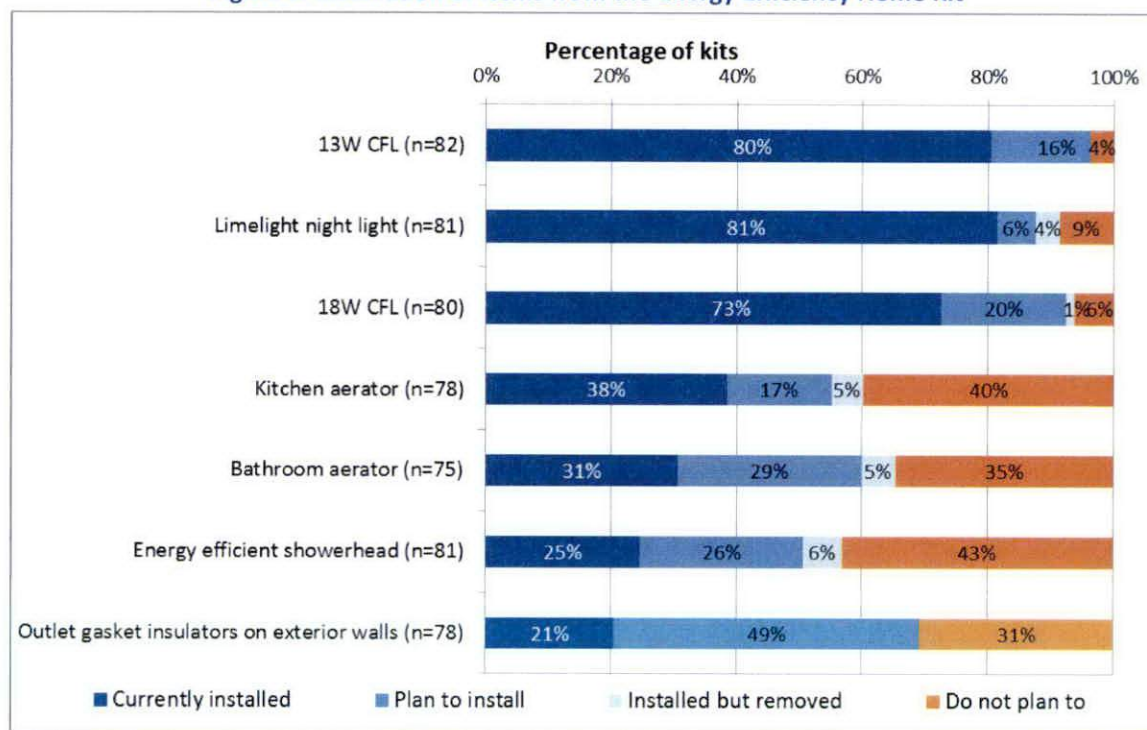
Use of Energy Efficiency Home Kit Items

We asked respondents a series of questions regarding their use of the items in their Energy Efficiency Home Kits. Specifically, we asked participants to indicate one of the following outcomes:

- Currently using the item (or had used it in the case of single-use items).
- Not currently using the item but planned to use it in the future.
- Currently using the item and were not intending to use it.
- Installed the item but already removed it.

Participants most often reported installing the lighting items included in the Energy Efficiency Home Kits, as shown in Figure 6. Only about one participant in five installed the outlet gasket insulators, though nearly half said they still intended to install these measures. Smaller percentages of participants reported installing and then removing aerators, showerheads, and Limelight night lights, while only one participant reported installing and removing a program CFL (1% of 18-watt and 0% of 13-watt CFLs installed).

Figure 6. Installation of Items from the Energy Efficiency Home Kit

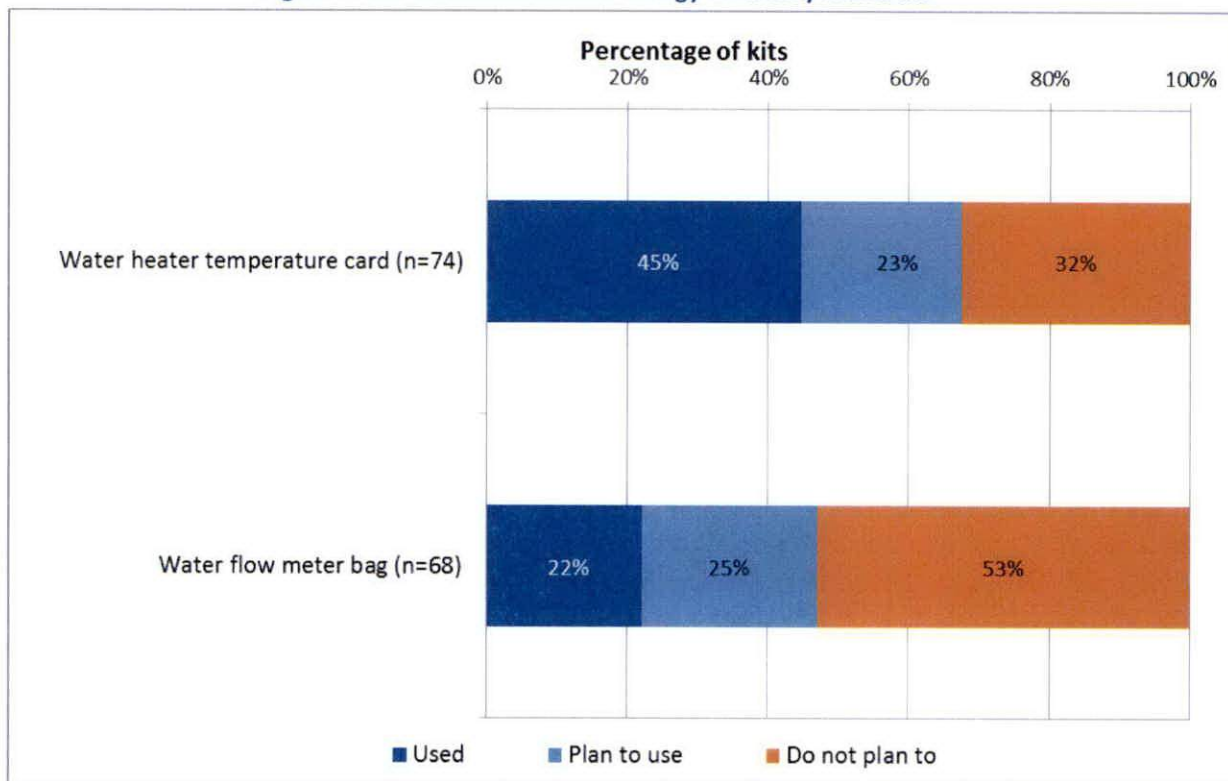


Source: Participant Survey Questions. Are the [items] that were provided in the Energy Efficiency Home Kit currently installed in your home?

The Energy Efficiency Home Kits also includes a water heater temperature care and a water flow meter bag. When we asked participants if they used the additional energy efficiency tools included with the

Energy Efficiency Home Kit, almost half reported checking their water temperature using the card, though fewer than a quarter of participants used the bag to check their water flow.

Figure 7. Use of Items from the Energy Efficiency Home Kit



Source: Participant Survey Questions. Did you use the [item] that was provided with the kit?

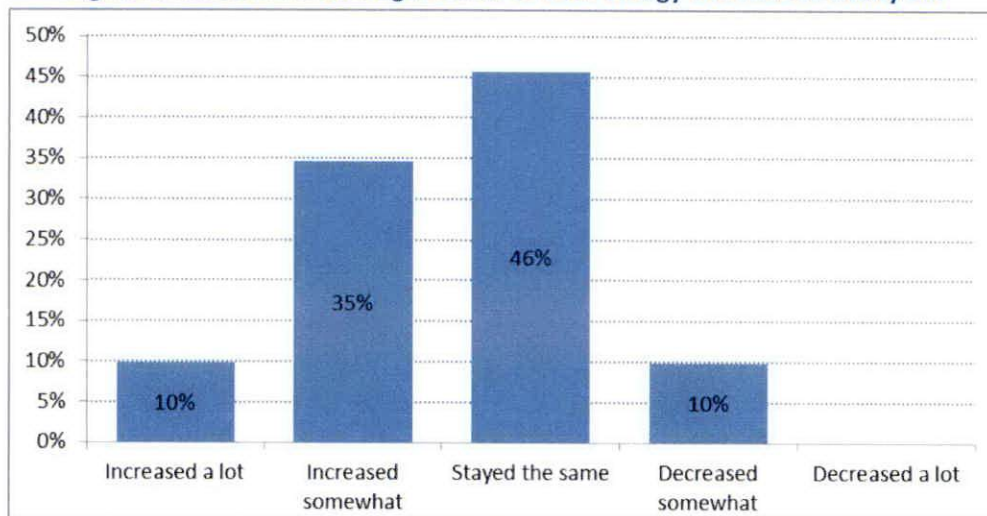
Appendix F. Energy Efficiency in Schools Program Participant Survey contains further details regarding the installation and use of items provided in the Energy Efficiency Home Kits.

Energy Saving Behaviors

The Energy Efficiency Home Kit also included an informational booklet (Energy Savers booklet). When we asked participants to estimate how much of the information they had read in the Energy Saver booklet, 38% (n=84) said they had read most or all of the information, 37% said they had read some, 19% reported they had glanced at the information, and 6% said they did not look at the Energy Savers booklet at all.

When we asked participants if their knowledge of how to save energy and reduce energy bills had increased or decreased after their household's participation in the program, 45% (n=81) said that their knowledge had increased somewhat or a lot (Figure 8). Ten percent of respondents reported their knowledge had somewhat decreased.

Figure 8. Increased Knowledge of How to Save Energy and Reduce Utility Bill

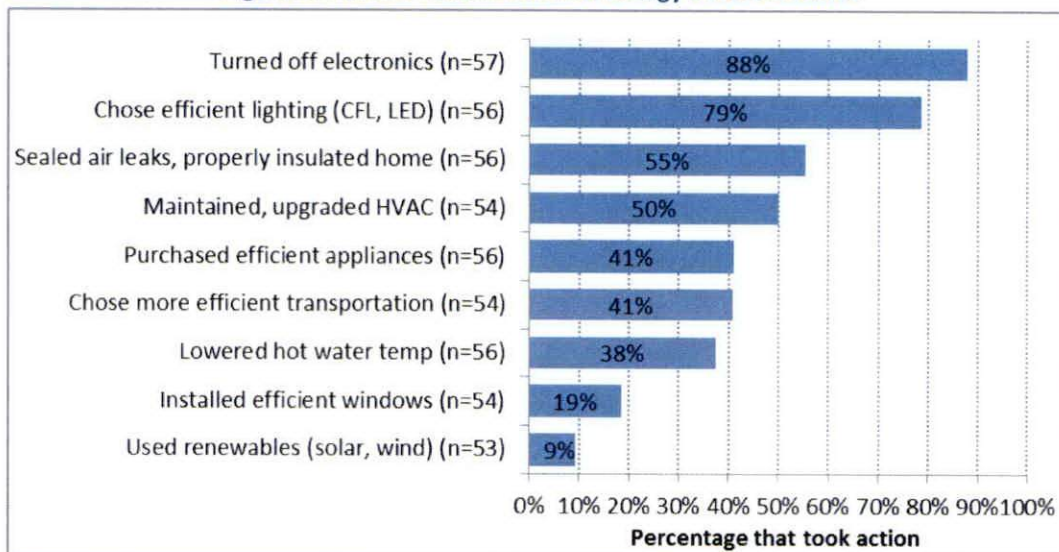


Source: Participant Survey Question A84. Since receiving the kit, has your knowledge of how to save energy and reduce your utility bill... (n=81)

The majority of the participants who read at least some of the Energy Savers booklet agreed that the Energy Savers booklet was easy to understand (72%, 44 out of 61) and informative (69%, 42 out of 61). Appendix F. Energy Efficiency in Schools Program Participant Survey contains further detail regarding participant responses to the Energy Savers booklet.

Despite the fact that many participants reported that their knowledge of how to save energy and reduce utility bills did not change based on the information provided, many participants did report one or more behavior changes as a result of participating in the program. The Cadmus team asked participants who read the Energy Savers booklet what actions they have taken based on the prescriptive advice found inside (Figure 9). Participants most frequently reported turning off electronics when not in use (88%) and choosing efficient CFL and LED lighting (79%), and about half reported sealing air leaks (55%) and maintaining and upgrading HVAC equipment (50%). Appendix F. Energy Efficiency in Schools Program Participant Survey contains further details regarding participants' actions taken as a result of reading the Energy Savers booklet.

Figure 9. Actions Taken Based on Energy Savers Booklet



Source: Participant Survey Questions A82.1-9. Based on the advice in the booklet, have you taken any of the following actions? (Multiple responses permitted. Percentages are of total number of respondents and exceed 100%.)

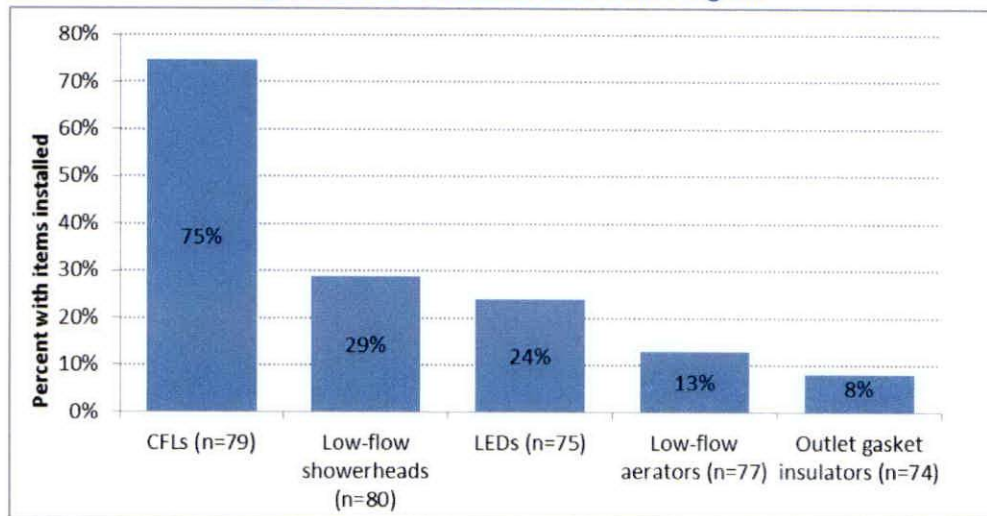
Previous and Future Experience with Energy Efficiency Home Kit Items

The Cadmus team asked participants about their experience with energy saving items similar to those included in the Energy Efficiency Home Kit prior to and after participating in the program.

Energy Efficient Items Installed Before the Program

We asked participants if they had previously installed items similar to the ones provided in the Energy Efficiency Home Kit prior to participating in the program. Of the 79 participants who responded, 75% had CFLs installed before the program (Figure 10).

Figure 10. Items Installed Before the Program



Source: Source: Participant Survey Questions A14, A21, A35, A49, and A59.

Did you have any [items] installed in your home before receiving the kit?

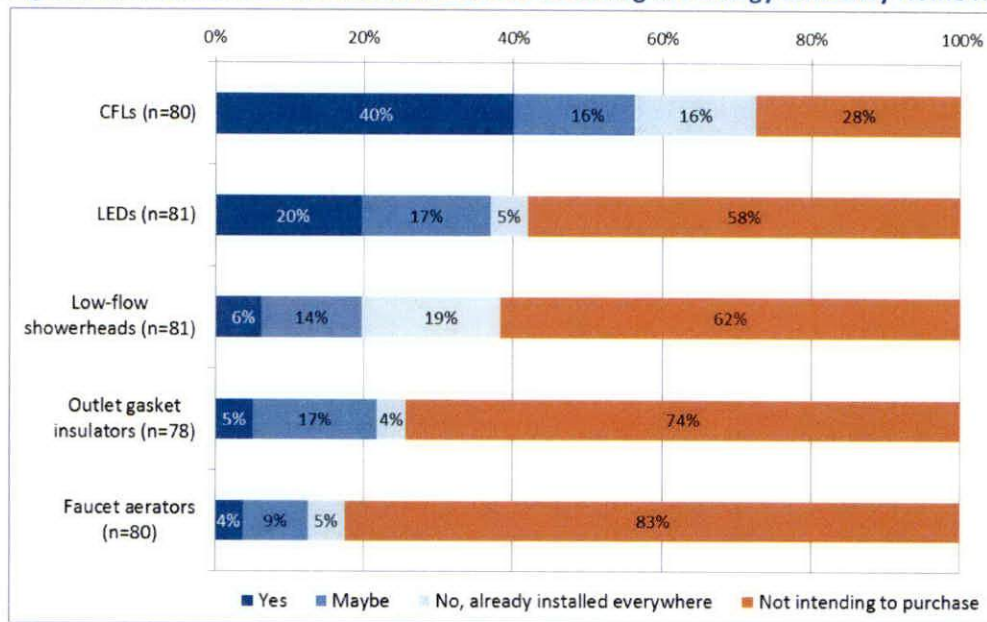
(Multiple responses permitted; percentages are for the total number of respondents and exceed 100%.)

Appendix F. Energy Efficiency in Schools Program Participant Survey contains additional information about CFLs and LEDs respondents installed before participating in the program.

Intention to Purchase Energy Efficient Items

We asked participants if they had been intending to purchase the items provided by the Energy Efficiency Home Kit before their household participated in the program (Figure 11). Fifty-six percent (n=80) of respondents indicated they did intend to or would maybe purchase CFLs, and 37% (n=81) reported the same for LEDs. About one participant in five was not intending to purchase energy efficient showerheads because they already had them installed. (Note: the Cadmus team used these survey questions to estimate freeridership for participants who installed these measures; the results presented here include all participants, including those who did not install these measures.)

Figure 11. Intention to Purchase Items Before Receiving the Energy Efficiency Home Kit



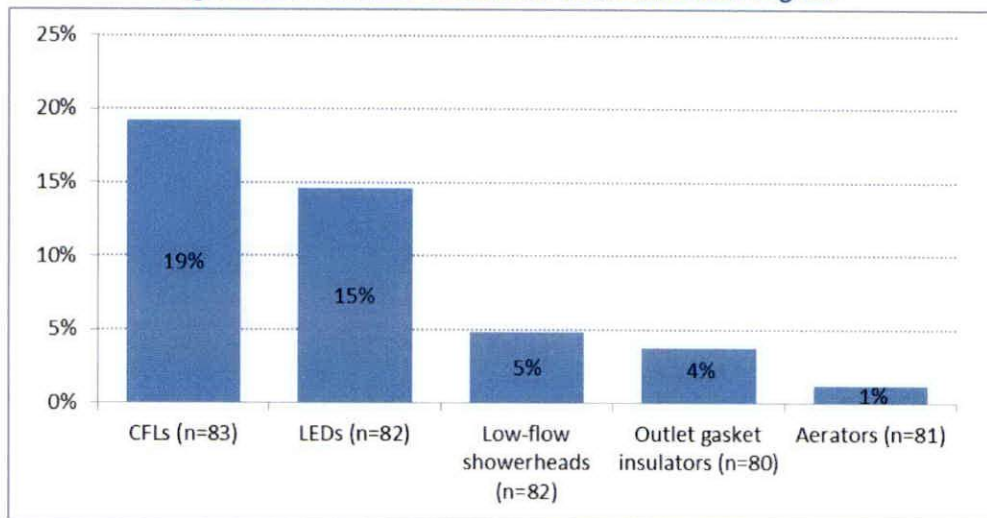
Source: Participant Survey Questions A16, A23, A36, A50, and A60.

Were you planning on buying [items] for your home before you received the kit?

Additional Items Purchased and Installed Since Receiving the Energy Efficiency Home Kit

When we asked participants if they purchased additional energy efficiency items after receiving the Energy Efficiency Home Kit, 32% of 84 respondents said they had. As shown in Figure 12, CFLs and LEDs were the items most frequently purchased by respondents. Appendix F. Energy Efficiency in Schools Program Participant Survey contains more information about additional measures participants purchased and installed after the program.

Figure 12. Purchase of Additional Items Since the Program



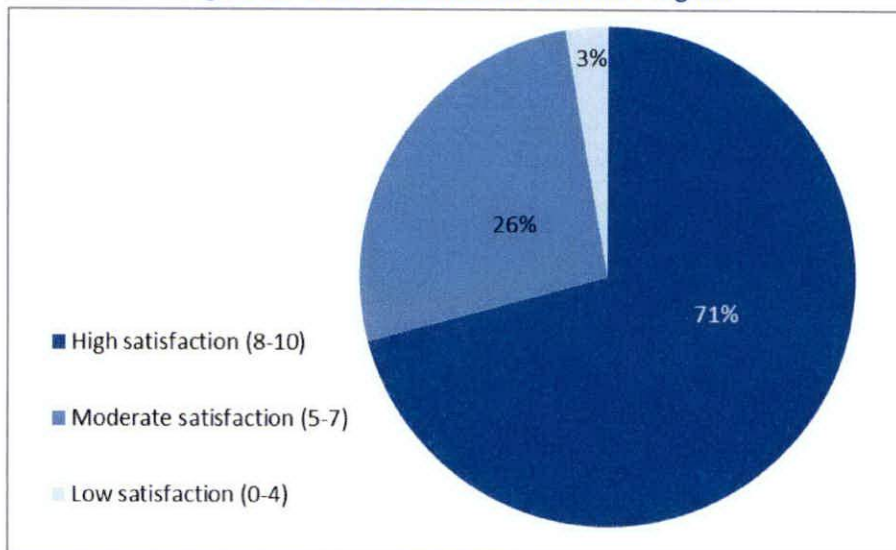
Source: Participant Survey Questions A17, A24, A37, A51, and A61.
Have you purchased any additional [items] since receiving the kit?

Satisfaction

Program Satisfaction, Improvements, and Benefits

The Cadmus team asked participants to rate their overall satisfaction with the program on a 10-point scale, where 0 indicates *extremely dissatisfied* and 10 indicates *extremely satisfied*. As shown in Figure 13, 71% of respondents (n=72) provided satisfaction ratings of 8 or higher, which included 38% who gave the program a 10 out of 10. Only 3% of respondents gave the program satisfaction ratings of 4 or lower. The average satisfaction rating for the program is 8.4 and the median rating is 9 out of 10.

Figure 13. Overall Satisfaction with the Program



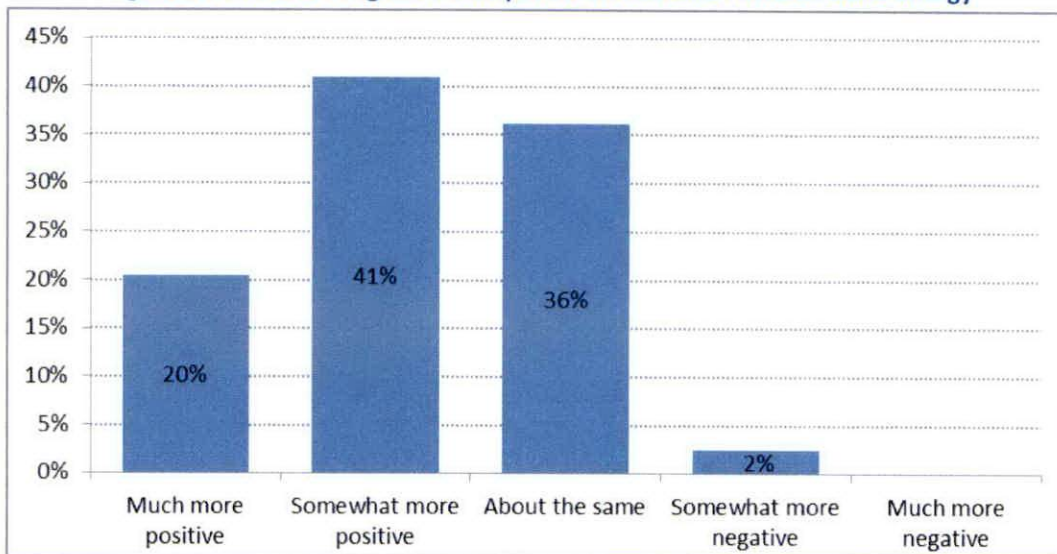
Source: Participant Survey Question A85. Thinking about the Duke Energy / The National Theatre for Children Program overall, on a scale from 0 to 10, where 0 is *extremely dissatisfied* and 10 is *extremely satisfied*, how would you rate your overall satisfaction with the program? (n=72)

Only one participant who gave a low satisfaction rating for the program offered a reason for the dissatisfaction: "All my light bulbs were broken and Duke wouldn't replace them, so we didn't get to install any of them. Lights are what cost us the most on our bill and we never got to see the savings."

When asked for suggestions to improve this program, only one participant of 84 surveyed offered a response: "Send this survey sooner so we can remember or motivate our kids to get everything installed."

When asked if participation in the program made them feel more positively or more negatively toward their utility, 61% of participants (n=83) felt more positive toward Duke Energy, while only 2% felt more negative (Figure 14).

Figure 14. Effect of Program Participation on Attitude Towards Duke Energy

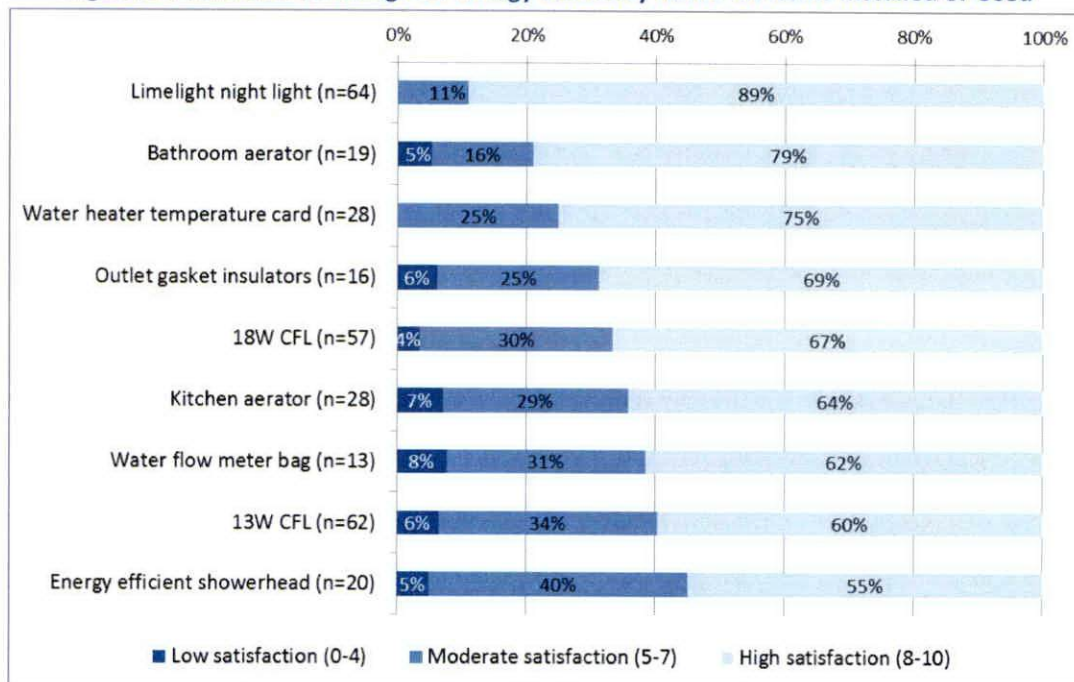


Source: Participant Survey Question A91. As a result of participating in this National Theatre for Children program, would you say your attitude toward Duke Energy is... (n=83)

Satisfaction with Energy Efficiency Home Kit Items

We asked respondents who reported using or installing items provided in the Energy Efficiency Home Kit to rate their satisfaction with these items on a 10-point scale, where 0 is *extremely unsatisfied* and 10 is *extremely satisfied*. The Limelight night light received the highest satisfaction ratings, with 89% of respondents reporting high satisfaction. Figure 15 shows the satisfaction ratings for each of the Energy Efficiency Home Kit items. The average satisfaction rating for all installed or used items is 8.3 on a 10-point scale, ranging from 7.7 (13-watt CFL) to 9.2 (Limelight night light).

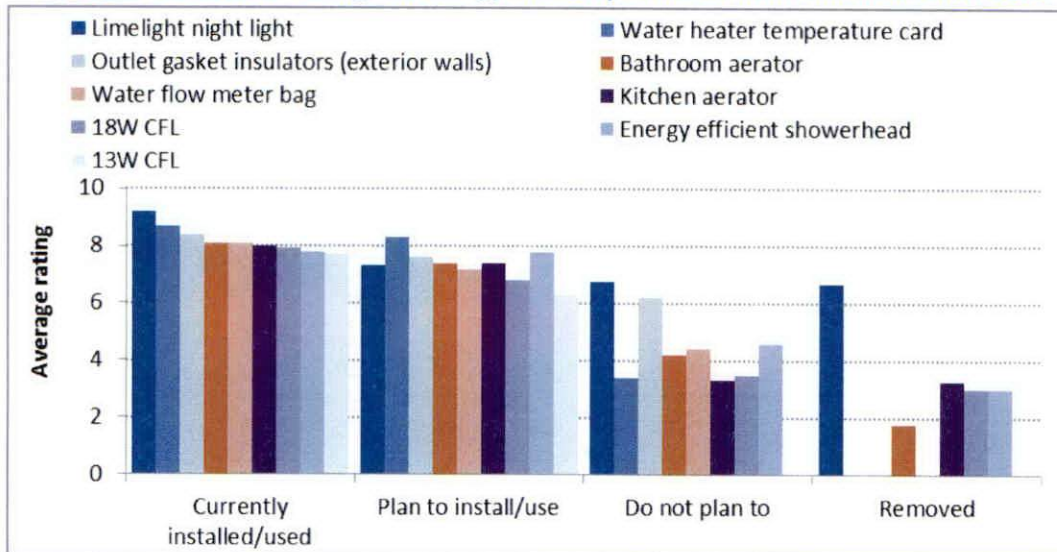
Figure 15. Satisfaction Ratings for Energy Efficiency Home Kit Items Installed or Used



Source: Participant Survey Questions A9, A11, A33, A44, A47, A57, A68, A74, and A78. On a scale from 0 to 10, where 0 is *extremely dissatisfied* and 10 is *extremely satisfied*, how satisfied are you with...

We also asked participants who reported they had not installed or used an item from the Home Energy Efficiency Kit to rate their satisfaction with the items using the same 10-point satisfaction scale (Figure 16). Participants who still planned to use or install these items gave satisfaction ratings that were only slightly lower than those who had already used or installed the items (average rating of 7.4 for items they planned to use or install). Participants who did not plan to install or use these items gave much lower satisfaction ratings (average rating 4.4), and participants who installed but then removed items gave the lowest ratings of all (average rating 3.4).

Figure 16. Satisfaction Ratings for Energy Efficiency Home Kit Items not Installed or Used



Source: Participant Survey Questions. On a scale from 0 to 10, where 0 is *extremely dissatisfied* and 10 is *extremely satisfied*, how satisfied are you with... (Valid n=26 to 74 by measure.)

We asked participants who gave satisfaction ratings of 4 or lower on the 10-point scale for a kit measure the reason for their low satisfaction. Table 7 lists a summary of satisfaction ratings, by reason, for each measure. These responses are from participants who installed these items but then removed them.

Table 7. Reasons for Low Satisfaction with Kit Measures

Reason for Lower Satisfaction (count of responses)	CFLs	Shower-heads	Aerators	Outlet gasket insulators	Water flow meter bag	Water heater temp card	Limelight night light	Total
Dissatisfied with performance of product	3	6	3			2		14
Does not fit / cannot install		1	7					8
Difficult to install / use				1	5			6
Damaged / defective item	2		1				1	4
Dissatisfied with quality	2		1					3
Other reasons				1				1

Program Comparison

The Cadmus team reviewed recent evaluations of two energy efficiency education programs that distribute energy saving kits at schools. While these programs are similar to the Energy Efficiency in Schools Program, we found the following notable differences in process and delivery:

- The comparison programs do not provide educational performance.
- The customer validation process may be different or absent – for instance, household accounts may not be verified

The comparison programs feature additional delivery channels, which are provided in parallel with energy kit delivery.

Table 8 lists the programs included in the review and the items provided through each program.

Table 8. Programs Included in Comparison

Program (year)	Grades Covered	State	Energy Kit Items
Energizing Indiana Schools Education Program (2013)	5	Indiana	<ul style="list-style-type: none"> • Three CFLs (13-watt) • Three CFLs (23-watt) • Energy efficient showerhead • Faucet aerator • LED night light • Filter tone alarm • Flow rate test bag • Digital thermometer • Reminder sticker and magnet pack • Parent/guardian comment card
Dayton Power and Light (2012)	5-12	Ohio	<ul style="list-style-type: none"> • CFLs* • LED night light • Bathroom faucet aerator • Kitchen faucet aerator • Energy efficient showerhead

* Quantity not available

Program Savings

The Cadmus team was able to determine kit-level savings by dividing program-level savings by the number of participants. As shown in Table 9, the savings per kit ranged from 401 kWh to 490 kWh. We used engineering analysis and the participant surveys to calculate the gross savings.

Table 9. Annual Savings (kWh) and Participation

Program		Annual Savings (kWh)	Participating Kits	Gross Savings Per Kit (kWh)*
Energizing Indiana Schools Education Program Dayton Power & Light	Duke Energy	22,047,728	44,426	496
	IPL	5,300,004	11,611	456
	I&M	3,484,496	7,939	439
	NIPSCO	4,356,224	13,464	324
	IMPA	1,331,056	2,743	485
	Vectren Indiana	1,283,318	3,039	422
			4,527,447	9,226

*Energizing Indiana: Net kWh; DP&L: Gross kWh

Impact Evaluation Findings

This chapter presents the results of the Cadmus team's impact evaluation for Duke Energy's Energy Efficiency in Schools Program and divides the findings into four sections: Program Savings, Billing Analysis, Engineering Analysis, and Net-to-Gross Analysis. Table 10 lists the primary evaluation activities and the dates the Cadmus team conducted them.

Table 10. Impact Evaluation Data Collection and Analysis

Evaluation Component	Participation Dates	Data Source(s)	Dates of Data Collection/Analysis
Billing Analysis	June 1, 2014 - April 1, 2015	<ul style="list-style-type: none"> Utility billing data (n=1,755 program participants) 	May 2015
Engineering Analysis	June 16, 2014 - March 4, 2015	<ul style="list-style-type: none"> Participant survey (n=84) Illinois TRM Ohio Draft TRM 	May 2015
Net-to-Gross Analysis	June 16, 2014 - March 4, 2015	<ul style="list-style-type: none"> Participant survey (n=84) 	May 2015

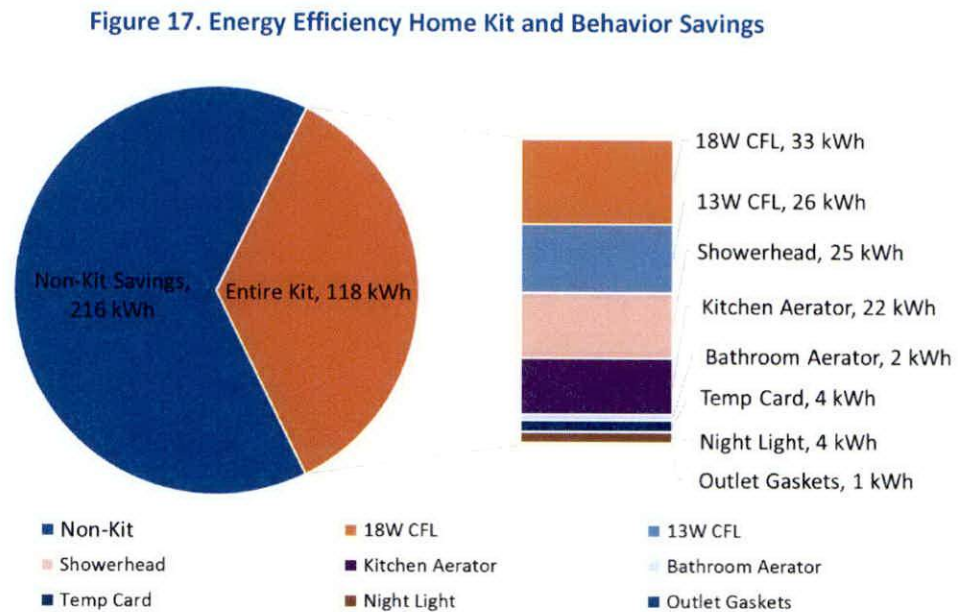
Energy Efficiency in Schools Program Savings

Cadmus conducted a billing analysis to estimate overall net energy savings per household for the Energy Efficiency in Schools Program in Kentucky. We also performed an engineering analysis to estimate relative savings contributions from the items provided in the Energy Efficiency Home Kit and a net-to-gross analysis to account for freeridership and spillover adjustments. By conducting billing, engineering, and net-to-gross analyses, Cadmus determined which portion of the net energy savings achieved per household resulted from installation of items from the Energy Efficiency Home Kit and which portion resulted from energy saving actions and behaviors taken by participants.

Results of the billing analysis indicate that the average participant household saved approximately 334 kWh as a result of participating in the Energy Efficiency in Schools Program. Results from the engineering results indicate that approximately 35% (118 kWh) of this savings came from participants installing Energy Efficiency Home Kits items. This remaining 65% of the household savings resulted from participants taking energy saving actions and behaviors because of their education through the program. As discussed in the participant survey findings, participants reported taking the following energy saving actions in their homes:

- Turned off lights and electronic items when not in use
- Sealed air leaks and properly insulated the home
- Maintained and upgraded HVAC equipment and major household appliances
- Used less heating and cooling (thermostat adjustments)
- Used lower power cycles or temperature settings for appliances

Cadmus used the proportion of energy savings associated with each item in the Energy Efficiency Home Kit to calculate its relative contribution to the overall household savings. Figure 17 shows the contribution of savings from each measure as well as overall contribution of estimated savings from behavior change.



In total, 2,224 Duke Energy participants received an Energy Efficiency Home Kit between June 2014 and April 2015, and the average participant saved 334 kWh.

Table 11 lists the total net program savings for the Energy Efficiency in Schools Program.

Table 11. Energy Efficiency in Schools Program Net Savings

Measure	Count	Net kWh Savings per Participant	Net kWh
Duke Energy Kit	2,224	334	742,816

The following sections present detailed results from the billing analysis, engineering analysis, and net-to-gross analysis.

Billing Analysis

Cadmus conducted a billing analysis of the participants in the Energy Efficiency in Schools Program in Kentucky. Duke Energy reported deliveries of 2,224 Energy Efficiency Home Kits for the evaluation period ending April 30, 2015. Duke Energy provided billing data for 2,107 electric customers who

participated in the Kentucky Energy Efficiency in Schools Program between June 1, 2014, and April 1, 2015.⁶

Cadmus tested two panel model specifications (Model 1 and 2) to determine program impacts, in which the dependent variable was daily electricity consumption from January 2011 to April 2015. Table 12 shows the results of the selected 2015 billing analysis, along with 2014 evaluated savings. This table shows that the Energy Efficiency in Schools Program produced statistically significant savings for participants in Kentucky.

Table 12. Estimated Kentucky Energy Efficiency in Schools Impacts

Program Year Evaluated	kWh Per Participant Annual Savings (Net)*	Precision at 90% Confidence
2014	267 (115, 418)	±57%
2015	334 (217, 451)	±35%

*90% confidence intervals shown in parentheses.

For this analysis, Cadmus had access to data for both households (i.e., cross-sectional) and over time (i.e., time-series). With this type of data, also known as panel data, it was possible to control, simultaneously, for differences across households, as well as differences across time, through the use of a fixed-effects panel model specification. Fixed-effect refers to the model specification aspect that differences across homes that did not vary over the estimation period (such as square footage, heating system, etc.) could be explained, in large part, by customer-specific intercept terms that captured the net change in consumption due to the program, controlling for other factors that did change with time (e.g., the weather).

Because the consumption data in the panel model included months before and after the installation of measures through the program, we could define the period of program participation (or the participation window) for each customer. This feature of the panel model allowed for the pre-installation months of consumption to act as controls for post-participation months. Because we knew the month of participation in the program for each participant, we were able to construct customer specific models that measured the change in usage consumption immediately before and after the date of program participation, controlling for weather and customer characteristics such as other Duke Energy efficiency programs.⁷

The fixed effects model can be viewed as a type of simple differencing model in which we captured all characteristics of the home that are independent of time and determine the level of energy

⁶ Note that participation data for the month of May 2014 was included in the 2014 program evaluation.

⁷ The month of participation is defined by when the household receives the Energy Efficiency Home Kit, as reported by the vendor. We must assume that participants install the kits the same month they are delivered.

consumption within the customer-specific constant terms. The following equation describes the general fixed-effect panel data model Cadmus used in the evaluation:

$$y_{it} = \alpha_i + \beta x_{it} + \varphi P_{it} + \theta T + \delta DP_{it} + \varepsilon_{it}$$

Where:

y_{it} = average daily consumption for home i during month t

α_i = constant term for home i (the fixed-effect)

T = indicator variables for each month-year in the analysis

P = indicator variable for whether the month is pre- or post-treatment. This variable equals 1 in months following the arrival of the energy efficiency Starter Kit and 0 otherwise.

DP = indicators for other utility-sponsored programs⁸

$\beta, \varphi, \theta, \delta$ = vectors of estimated coefficients

x = vector of non-program variables that represent factors causing changes in energy consumption for home i during month t (i.e., weather)

ε = error term for home i during month t .

With this specification, the only information necessary for estimation included those factors that vary month-to-month for each customer and that affected energy use, which were effectively weather conditions and participation in other Duke Energy programs. The model captured other non-measurable time-variant factors (such as economic conditions and season loads) through the use of monthly indicator variables.⁹ To control for weather effects, we included cooling degree days and heating degree days in the model.¹⁰

To estimate the effect of the Energy Efficiency in Schools Program, we included a variable that was equal to one for all months after the household participated in the program. The coefficient on this variable was the savings associated with the program. In order to account for differences in billing days, we normalized the usage by days in the billing cycle.

⁸ See Table 29 for the list of other programs.

⁹ Wooldridge, Jeffrey. *Econometric Analysis of Cross Section and Panel Data*. Cambridge: MIT Press. 2002. pp. 283-284. Includes a discussion of this model and its applicability to program evaluation.

¹⁰ The CDD and HDD variables were set using a 65 degree Fahrenheit base.

Cadmus used the equation above as the foundation to both Model 1 and Model 2 in that we included the same set of variables in both specifications. The main difference between the two models were the months included in the dataset. Model 1 included all pre- and post- period months, and Model 2 set a restriction on the months (t), as described below.

Model 1 was used in the 2014 evaluation. In the 2015 evaluation, Model 1 did not estimate statistically significant savings. This imprecision in Model 1 is most likely due to the unbalanced panel present in the 2015 program year—the majority of participants received Energy Efficiency Home Kits at the end of calendar year 2014. This allowed for very little post-period data (the mean number of participants' post-month bills was only 5.5). Model 1 compared participants' consumption in these few post-months to that of nearly 35 pre-period months for the average participant. As a result, the month-year indicators were not able to absorb all the seasonal variation between consumption in the post-period months, which occurred mainly during lower-consumption winter and spring months and pre-period months.

To adjust for this limited post-installation data, in Model 2 we paired pre- and post-installation months to prevent seasonal bias that would result from using mismatched months. For example, if participants received an Energy Efficiency Home Kit in November 2014, their post-period months would include five months (December 2014 to April 2015). In Model 2, we used these participant's pre-period consumption for the same five months in 2011 through 2013 dropping those years' remaining seven months. This allowed for a direct comparison of pre- and post-months in the absence of many post-period months. As such, we did not include the month-year indicators (T, in the equation above). As shown in Table 13, Cadmus was able to estimate statistically significant savings using Model 2.

To account for customers with insufficient data, Cadmus used a number of screening methods. For both models, we removed customers' month-bills if they were less than 30 kWh or if they included less than 15 days when we assumed homes were vacant. We also excluded large outliers when annual consumption exceeded 60,000 kWh. If a customer had fewer than 10 months of pre-period data, they were also removed. Data screening reduced the Model 1 sample size by approximately 0.2%

Model 2 involved additional screening at the customer level in order to adequately select pre- and post-month pairs. In Model 2, we limited the allowable amount of a customer's change in consumption from the mean pre-period months to the post-period months to $\pm 50\%$. In other words, if customers' usage shifted in the post-period by more than 50%, we excluded them from the dataset. This step removed 14.3% of customers who met this outlier criterion in the Model 2 dataset.

Table 13. Detailed Savings Model Estimates

Evaluation Year	Number of Accounts	Model*	n	Post-Coefficient (Daily kWh)	Yearly Savings Per Customer (kWh)**	Standard Error	T-Test	Precision	Mean Annual Per-Customer Pre-Usage	Percentage of Savings***
2014	1,999	Model 1	83,665	-0.73	267 (115,418)	0.25	-2.92	57%	16,498	1.62% (0.70%,2.54%)
2015	1,755	Model 2	40,105	-0.91	334 (217,451)	0.19	-4.71	35%	15,522	2.15% (1.40%, 2.90%)

*Model 1: ALL PRE/POST DATA: customer fixed-effects + weather + month-year indicators + other programs

Model 2: PAIRED MONTHS: customer fixed-effects + weather + other programs, 50% change or less

**90% Confidence intervals in parentheses

***Percentage of savings calculated as yearly savings divided by pre-treatment usage. 90% confidence intervals in parentheses.

In Table 13, the dependent variable is the daily energy use and that a reduction in usage reflects positive savings. To calculate the annual kWh savings, Cadmus annualized the post-period coefficient by multiplying by 365, which resulted in 334 kWh savings per year. We calculated the equivalent percentage as the coefficient (daily kWh) divided by average pre-program usage—334 kWh divided by the average annual pre-program usage of 15,522 kWh. Appendix C. Billing Analysis Regression Details contains the complete estimated model, including weather and time factors.

Engineering Analysis

Cadmus used engineering analysis to determine the proportion of household energy savings resulting from use of items included the Energy Efficiency Home Kit. In addition, the engineering estimates provide a ratio of coincident kW reduction to kWh savings. This section presents details of the engineering analysis and high-level results; Appendix D. Engineering Analysis Kit Savings Details additional details are provided in.

CFLs

The Energy Efficiency Home Kit distributed to Duke Energy customers included one 13-watt CFL and one 18-watt CFL. Table 14 lists the estimated savings associated with each of these CFLs.

Table 14. Savings Estimates per CFL Distributed to Duke Energy Customers*

Bulb Type	In Service Rate	Average Wattage of Bulb Removed	Average Adjusted Daily Hours of Use	Gross kWh	Gross kW	NTG	Net kWh	Net kW
13-watt	88%	47.3	3.26	39.27	0.0040	67.2%	26.38	0.0027
18-watt	84%	53.9	4.03	49.31	0.0040	67.2%	33.12	0.0027

*Cadmus obtained inputs to the engineering algorithm from participant surveys and the Ohio TRM.

In Service Rate (ISR) Calculation

To remain consistent with the Ohio TRM algorithm used for the CFL measures, Cadmus adjusted the first-year ISR reported by survey participants to reflect future installations. An example of this adjustment follows.

Participant surveys indicated the 18-watt CFL distributed in the Energy Efficiency Home Kit's had an ISR of 74%. That is, 74% of the 18-watt CFLs distributed to survey participants were installed at the time of the survey. ISR is calculated to be 84% using the following formula:

$$\text{ISR} = \text{first year ISR} + (43\% * \text{remainder}) = 74\% + (43\% * 23\%) = 84\%$$

Where, the remainder is the percentage of bulbs that are not installed in the first year ($100\% - 74\% = 26\%$) less 3% for the 97% lifetime ISR.¹¹ In this case, the remainder is 23%. The 43% represents the percentage of the remainder that will replace an incandescent bulb rather than a CFL.¹²

Self-Reporting Bias

Previous CFL studies conducted for Duke Energy in 2010-2013 included both customer surveys and lighting loggers. These studies compared customers' self-reported hours of operation to the actual hours of operation and showed that customers who responded to the survey overestimated their lighting usage by 27%.¹³ As the 2015 impact evaluation did not employ lighting loggers, Cadmus did not have appropriate data to make a similar comparison for the Energy Efficiency in Schools Program. Consequently, we reduced the self-reported hours of use obtained from the survey by 27%, as established through the collection of data from previous programs. This bias applies to CFLs only.

Table 15 shows the unadjusted average hours-of-use values and the updated average hours-of-use values after we applied the self-reporting bias. The final value for the average daily hours of use for a Duke Energy customer is 3.26 for 13-watt CFLs and 4.03 for 18-watt CFLs.

Table 15. Adjusted Average Daily Hours of Use

Adjustment	Magnitude of Adjustment	Average Daily Hours of Use (13W)	Average Daily Hours of Use (18W)
Unadjusted	N/A	4.47	5.52
Self-Reporting Bias Applied	27%	3.26	4.03

¹¹ Nexus Market Research, RLW Analytics, and GDS Associates. *New England Residential Lighting Markdown Impact Evaluation*. 2009.

¹² Nexus Market Research and RLW Analytics. *Impact Evaluation of the Massachusetts, Rhode Island, and Vermont 2003 Residential Lighting Programs*. 2004. Table 6-4: 24 out of 56 respondents indicated that they did not purchase the CFLs as spares.

¹³ The adjustment for the self-reporting bias used in this study was determined using paired lighting logger and customer self-reported data from Kentucky, Ohio, North Carolina, South Carolina, and Indiana, referenced in the Duke Energy *Process and Impact Evaluation of the Energy Efficiency in Schools Program*. 2014.

Energy Efficient Showerhead

Each Energy Efficiency Home Kit contained one energy efficient showerhead. Survey results indicate that 25% of the showerheads provided to participants were installed, and that approximately 44% of households use electric water heaters. Table 16 lists the ISR, electric water heater saturation, and savings estimates for this measure.

Table 16. Savings Estimates per Showerhead Distributed*

In Service Rate	Electric Water Heating**	gpm base	gpm low	Gross kWh	Gross kW	NTG	Net kWh	Net kW
25%	44%	2.35	1.5	24.58	0.0029	102.7%	25.25	0.0029

* Inputs to the engineering algorithm were obtained from participant surveys and the Illinois TRM.

**This measure produces zero kW or kWh savings in households that use gas water heaters

Faucet Aerators

The Energy Efficiency Home Kits included one kitchen aerator and one bathroom faucet aerator. Survey results indicated that 38% of the kitchen aerators were installed, 31% of the bathroom aerators were installed, and approximately 44% of households use electric water heaters. Table 17 presents the ISR, electric water heater saturation, and savings estimates for this measure.

Table 17. Savings Estimates per Aerator Distributed*

Measure	In Service Rate	Electric Water Heating**	Gross kWh	Gross kW	NTG	Net kWh	Net kW
Kitchen Aerator	38%	44%	20.69	0.0055	105.2%	21.77	0.0058
Bathroom Aerator	31%	44%	2.10	0.0044	105.2%	2.21	0.0046

* Inputs to the engineering algorithm were obtained from participant surveys and the Illinois TRM.

**This measure produces zero kW or kWh savings in households that use gas water heaters.

Outlet Gasket Insulators

The Energy Efficiency Home Kits included a 12-pack of switch and outlet gasket insulators. Survey results indicated that 5% were installed. Table 18 list the ISR, along with gross and net savings estimates per unit distributed.

Table 18. Savings Estimates per 12-Pack Distributed to Duke Energy Customers

In Service Rate*	Gross kWh	Gross kW	NTG	Net kWh	Net kW
5%	1.08	0.0005	89.6%	0.97	0.0004

We only included outlet gasket insulators installed in exterior walls in the ISR, as outlet gasket insulators installed in interior walls do not result in energy savings.

Limelight Night Light

The Energy Efficiency Home Kits included one Limelight night light. Survey results indicated that 81% were installed. However, 58% of these installations did not replace an existing light and, therefore, did not result in energy savings. Additionally, some participants replaced LED night lights with the Limelight night light, resulting in minimal energy savings.

For installations that replaced an existing incandescent night light, we assumed that the replaced bulb was five watts. Once we factored in the new installations and LED replacement, the average wattage for replaced bulbs drops to 1.81 watts. Table 19 lists the ISR, average wattage, and average hours of use, along with gross and net savings estimates per unit distributed. We assumed that demand savings to be zero for this measure.

Table 19. Savings Estimates per Limelight Night Light Distributed

In Service Rate	Average Wattage Light Removed	Average Daily Hours of Use Base	Average Daily Hours of Use EE	Gross kWh	Gross kW	NTG	Net kWh	Net kW
81%	1.78	8	24	3.96	0.0000	105.2%	4.17	0.0000

Water Heater Temperature Card

The Energy Efficiency Home Kits included a water heater temperature card. Survey results indicated that 14% of respondents used the card and went on to reduce the temperature of their hot water heater by an average of -13 degrees Fahrenheit. Table 20 lists the ISR and average temperature, along with gross and net savings estimates per unit distributed.

Table 20. Savings Estimates per Hot Water Temperature Card Distributed

In Service Rate	Electric Water Heating*	Average Temperature Adjustment (°F)	Gross kWh	Gross kW	NTG	Gross and Net kWh	Gross and Net kW
14%	44%	-13	4.05	0.0005	105.2%	4.26	0.0005

*This measure produces zero kW or kWh savings in households that use gas water heaters.

Net-to-Gross Findings

The presentation of freeridership and spillover is provided for informational purposes only; we did not use these estimates to adjust gross energy impacts to report net savings. Because the impact analysis approach compares the customer's electric meter readings before and after the program, the impact findings already represent net savings and do not need to be further adjusted. We conducted freeridership and spillover analysis for four measures to allow stakeholders to understand the degree of these influences that are already included in the reported net savings. This section presents net-to-gross results;

Appendix E. Net to Gross Ratio Calculations contains further information about the calculation of freeridership and spillover rates.

Cadmus calculated freeridership separately for the Energy Efficiency Home Kit¹⁴ items shown in Table 21.

Table 21. Freeridership for Energy Efficiency Home Kit Items*

Measure (n=participants who installed the measure)	Number of Freeriders	Freeridership %
CFLs (n=67)	56	38.1%
Low-flow showerhead (n=20)	1	2.5%
Faucet aerators (n=34)	3	0.0%**
Outlet gasket insulators (n=16 on outside walls)	4	15.6%

*Freeridership questions were not asked for the Limelight night light and a 0% freeridership score is applied.

** Survey sample program kWh savings used in the spillover calculation does not include behavior savings; it only includes kit measure savings. The behavior kWh savings estimated for the program includes any "non-like" program measure spillover activity.

As shown in Table 22, Cadmus estimated spillover for the kit portion of the program as 5.2% of the survey sample gross program savings.¹⁵

¹⁴ Energy education programs that provide energy kits to all student participants and do not require parents to request the energy kits commonly assume a net-to-gross ratio of 1.

Appendix E. Net to Gross Ratio Calculations contains more information on the spillover estimation.

Table 22. Spillover for Energy Efficiency Home Kit Items

Measure	Spillover %
CFL	4.2%
Energy efficient showerhead	0.8%
Faucet aerators	0.2%
Outlet gasket insulators	0.1%
Overall	5.2%

Appendix A. Participant Household Characteristics and Demographics

Table 23. Participant Household Characteristics and Demographics

Household Characteristics	Valid Responses	n value / Percentage
Home Ownership		n=83
Home owner		78%
Renter		22%
Type of Home		n=83
Single-family home, detached construction		82%
Single-family home, manufactured or modular		5%
Single-family mobile home		2%
Two- or three-family attached homes		5%
Apartment homes (4+ families)		2%
Condominium		2%
Other		1%
Home Age		n=79
Built before 1959		24%
1960 – 1979		16%
1980 – 1989		9%
1990 – 1997		13%
1998 – 2000		8%
2001 – 2007		16%
2008 – present		14%
Home Size		n=76
500 – 999 square feet		8%
1,000 – 1,499 square feet		30%
1,500 – 1,999 square feet		16%
2,000 – 2,499 square feet		25%
2,500 – 2,999 square feet		8%
3,000 – 3,499 square feet		9%
3,500 – 3,999 square feet		1%
4,000 or more square feet		3%

Household Characteristics	Valid Responses	n value / Percentage
Home Heating System		n=81
Central forced air furnace		79%
Heat pump		10%
Electric baseboard heat		4%
Other systems		7%
Home Cooling System		n=83
Central air conditioning		83%
Wall or window AC unit(s)		12%
Heat pump for cooling		5%
Primary Fuel Used for Heating		n=84
Natural gas		64%
Electricity		30%
Oil or kerosene		2%
Wood		2%
Propane		1%
Primary Fuel Used for Water Heating		n=84
Natural gas		52%
Electricity		44%
Oil or kerosene		1%
Wood		1%
Bottled, tank or LP gas		1%
Number of People in the Household (Year-Round)		n=84
1		2%
2		6%
3		15%
4		39%
5		20%
6 or more		17%

Household Characteristics	Valid Responses	n value / Percentage
Number of People Under Age 18 in the Household		n=84
Zero		2%
1		27%
2		38%
3		18%
4		12%
5		2%
Age of Respondent		n=84
18 – 24		1%
25 – 34		30%
35 – 44		40%
45 – 54		18%
55 – 64		8%
65 – 74		2%
75 or older		0%
Annual Household Income		n=83
Under \$15,000		1%
\$15,000 - \$29,999		10%
\$30,000 - \$49,999		14%
\$50,000 - \$74,999		20%
\$75,000 - \$99,999		19%
Over \$100,000		20%
Prefer not to answer		14%

Appendix B. Impact Algorithms

General Impact Algorithms by Measure

CFLs

Gross Summer Coincident Demand Savings

$$\Delta kW = \text{ISR} \times \left[\frac{\text{Watts}_{\text{base}} - \text{Watts}_{\text{ee}}}{1000} \right] \times \text{CF} \times (1 + \text{WHF}_d)$$

Gross Annual Energy Savings

$$\Delta kWh = \text{ISR} \times \left[\frac{(\text{Watts} \times \text{HOU})_{\text{base}} - (\text{Watts} \times \text{HOU})_{\text{ee}}}{1000} \right] \times 365 \times (1 + \text{WHF}_c)$$

Where:

- ΔkW = gross coincident demand savings
- ΔkWh = gross annual energy savings
- Watts_{ee} = connected load of energy-efficient unit
- $\text{Watts}_{\text{base}}$ = connected (nameplate) load of baseline unit(s) displaced
- HOU = Average daily hours of use (based on connected load)
- CF = coincidence factor = 0.11
- WHF_c = HVAC system interaction factor for annual electricity consumption = 1.07
- WHF_d = HVAC system interaction factor for demand = 1.21

The Cadmus team took the coincidence factor and HVAC interaction factors for this analysis from the Draft Ohio TRM.

Outlet Gasket Insulators

Gross Summer Coincident Demand Savings

$$\Delta kW = (\Delta \text{cfm/unit}) \times (\text{kW} / \text{cfm}) \times \text{DF} \times \text{CF}$$

Gross Annual Energy Savings

$$\Delta kWh = (\Delta \text{cfm/unit}) \times (\text{kWh} / \text{cfm})$$

Where:

- ΔkW = gross coincident demand savings
- ΔkWh = gross annual energy savings
- $\Delta cfm/unit$ = unit infiltration airflow rate (ft^3/min) reduction for each measure
- DF = demand diversity factor = 0.8
- CF = coincidence factor = 1.0
- kW/cfm = demand savings per unit cfm reduction
- kWh/cfm = electricity savings per unit cfm reduction
- $therm/cfm$ = gas savings per unit cfm reduction

Unit cfm savings per measure

We estimated the cfm reductions for each measure from equivalent leakage area (ELA) change data taken from the ASHRAE Handbook of Fundamentals (ASHRAE, 2001). We then converted the equivalent leakage area changes to infiltration rate changes using the Sherman-Grimsrud equation:

$$Q = ELA \times \sqrt{A \times \Delta T + B \times V^2}$$

Where:

- A = stack coefficient ($ft^3/min-in^4-^{\circ}F$)
 = 0.015 for one-story house
- ΔT = average indoor/outdoor temperature difference over the time interval of interest ($^{\circ}F$)
- B = wind coefficient ($ft^3/min-in^4-mph^2$) = 0.0065 (moderate shielding)
- V = average wind speed over the time interval of interest measured at a local weather station at a height of 20 ft (mph)

Table 24 lists the location-specific data.

Table 24. Location Assumptions

Location	Average Outdoor Temp	Average Indoor/Outdoor Temp Difference	Average Wind Speed (mph)	Specific Infiltration Rate (cfm/in^2)
Cincinnati	53	15	8.9	0.86

Table 25 lists measure ELA impact and cfm reductions.

Table 25. ELA Impacts and CFM Reductions

Measure	Unit	ELA change (in ² /unit)	ΔCfm/unit
Weather stripping	Linear foot	0.089	0.0766
Caulking	linear foot	0.047	0.0404
Door Sweeps	each	0.3	0.2580
Foam Insulation Spray	sink	0.6	0.5161

Unit energy and demand savings

The Cadmus team calculated the energy and peak demand impacts of reducing infiltration rates from infiltration rate parametric studies conducted using the DOE-2 residential building prototype models, as described at the end of this appendix. Table 26 lists the savings per cfm reduction by heating and cooling system type. We weighted these data according to the HVAC system type weights, as shown in the table.

Cincinnati, OH; Covington, KY

Table 26. Savings per CFM

Heating Fuel	Heating System	Cooling System	Weight	kWh/cfm	kW/cfm
Other	Any except Heat Pump	Any except Heat Pump	0.0029	1.14	0
		None	0.0002	0	0
Any Gas	Heat Pump	Heat Pump	0.0760	12.85	0.00248
		None	0.0111	0	0
Propane Oil	Central Furnace	Room/Window	0.7571	1.14	0
		Central AC	0.0046	23.27	0.01238
Electricity	Electric baseboard/central furnace	None	0.0046	23.27	0.01238
		Room/Window	0.1433	23.84	0.01485
None	None	Central AC	0.0049	0	0
		Any	0.0049	0	0
Total Weighted Average			1	5.37	0.00237

Energy Efficient Showerhead

Gross Summer Coincident Demand Savings

$$\Delta kW = \Delta kWh/Hours * CF \text{ Gross Annual Energy Savings}$$

$$\Delta kWh = \%ElectricDHW * ((gpm_base * L_base - gpm_low * L_low) * Household * SPCD * 365.25 / SPH) * EPG_electric * ISR$$

Where:

- ΔkW = gross coincident demand savings
- ΔkWh = gross annual energy savings
- %ElectricDHW = proportion of water heating supplied by electric resistance heating
- gpm_base = flow rate of baseline showerhead = 2.35
- gpm_low = flow rate of the low-flow showerhead = 1.5
- L_base = shower length in minutes with baseline showerhead = 7.8
- L_low = shower length in minutes with low-flow showerhead = 7.8
- Household = average number of people per household = 2.51
- SPCD = showers per capita per day = 0.6
- 365.25 = average days per year
- SPH = showerheads per household = 1.74
- EPG_electric = energy per gallon of hot water supplied by electric = 0.108
- ISR = in service rate = 25%
- Hours = annual electric DHW recovery hours for showerhead use = 239
- GPH = gallons per hour recovery of electric water heater = 29.3
- CF = coincidence factor for electric load reduction = 0.0278

Faucet Aerators

$$\Delta kW = \Delta kWh / \text{Hours} * CF$$

$$\Delta kWh = \%ElectricDHW * ((gpm_base * L_base - gpm_low * L_low) * Household * 365.25 * DF / FPH) * EPG_electric * ISR$$

Where:

- %ElectricDHW = proportion of water heating supplied by electric resistance heating = 44%
- gpm_base = Average flow rate, in gallons per minute, of the baseline faucet "as-used." = 1.39
- gpm_low = Average flow rate, in gallons per minute, of the low-flow faucet aerator "as-used" = 0.94

L_base = Average baseline daily length faucet use per capita = 4.5 kitchen ; 1.6 bathroom
L_low = Average retrofit daily length faucet use per capita = 4.5 kitchen ; 1.6 bathroom
Household = Average number of people per household = 2.51
365.25 = Average days in a year
DF = Drain Factor = 75% kitchen ; 90% bathroom
FPH = Faucets Per Household = 1 kitchen ; 2.69 bathroom
EPG_electric = Energy per gallon of water used by faucet supplied by electric water heater
= 0.088 kitchen ; 0.070 bathroom
ISR = In service rate = 38% kitchen ; 31% bathroom
Hours = Annual electric DHW recovery hours for faucet use per faucet = 83 kitchen ; 11 bathroom
GPH = Gallons per hour recovery of electric water heater = 29.3
CF = Coincidence Factor for electric load reduction = 0.022

Water Temperature Card

$$\Delta kW = \Delta kWh / \text{Hours} * CF$$

$$\Delta kWh = (UA * (T_{pre} - T_{post}) * \text{Hours}) / (3412 * RE_{electric})$$

Where:

U = Overall heat transfer coefficient of tank (Btu/Hr-°F-ft²) = 0.083
A = Surface area of storage tank (square feet) = 24.99
T_{pre} = hot water setpoint prior to adjustment = 134
T_{post} = new hot water setpoint = 121
Hours = Number of hours in a year = 8766
RE_{electric} = Recovery efficiency of electric hot water heater = 0.98
CF = Summer Peak Coincidence Factor for measure = 1

Limelight Night Lights

$$\Delta kWh = ((W_{base} * h_{base}) - (W_{NL} * h_{NL})) * 365 / 1000 * ISR$$

Where:

W_{NL} = Watts per electroluminescent nightlight = 0.03

W_{base} = Watts per baseline nightlight = 1.76

h_{NL} = Average hours of use per day per electroluminescent nightlight = 24

h_{base} = Average hours of use per day per baseline nightlight = 8

ISR = In-service rate per electroluminescent nightlight = 81%

The Cadmus team took the baseline fixture wattages and hours of use from the FES-L6a CFL and LED Lighting Residential workpaper.

Appendix C. Billing Analysis Regression Details

Table 27. Model 1: ALL PRE/POST DATA - customer fixed-effects + weather + month-year indicators + other programs

Parameter		Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr > Z
bill_mo	201101	1.8897	1.7202	-1.4817	5.2612	1.1	0.272
bill_mo	201102	1.3201	1.6563	-1.9262	4.5663	0.8	0.4254
bill_mo	201103	-2.3052	1.5638	-5.3702	0.7598	-1.47	0.1405
bill_mo	201104	-3.768	1.5445	-6.7951	-0.7409	-2.44	0.0147
bill_mo	201105	-3.8658	1.5298	-6.8642	-0.8675	-2.53	0.0115
bill_mo	201106	0.8813	1.5742	-2.2041	3.9667	0.56	0.5756
bill_mo	201107	3.4393	1.6731	0.16	6.7185	2.06	0.0398
bill_mo	201108	5.5168	1.7505	2.0858	8.9478	3.15	0.0016
bill_mo	201109	2.7663	1.5834	-0.3372	5.8698	1.75	0.0806
bill_mo	201110	-2.4877	1.5498	-5.5253	0.55	-1.61	0.1085
bill_mo	201111	-4.4248	1.5383	-7.4399	-1.4098	-2.88	0.004
bill_mo	201112	-0.6245	1.5625	-3.6868	2.4379	-0.4	0.6894
bill_mo	201201	2.2692	1.6202	-0.9063	5.4447	1.4	0.1613
bill_mo	201202	-0.0087	1.6082	-3.1608	3.1433	-0.01	0.9957
bill_mo	201203	-1.5599	1.5493	-4.5964	1.4766	-1.01	0.314
bill_mo	201204	-4.1178	1.5428	-7.1416	-1.0941	-2.67	0.0076
bill_mo	201205	-2.097	1.524	-5.084	0.89	-1.38	0.1688
bill_mo	201206	2.578	1.5562	-0.472	5.628	1.66	0.0976
bill_mo	201207	3.4931	1.7759	0.0124	6.9737	1.97	0.0492
bill_mo	201208	4.1329	1.7076	0.786	7.4798	2.42	0.0155
bill_mo	201209	4.5889	1.5897	1.4732	7.7045	2.89	0.0039
bill_mo	201210	-2.1238	1.5396	-5.1414	0.8937	-1.38	0.1677
bill_mo	201211	-4.6378	1.5324	-7.6412	-1.6344	-3.03	0.0025
bill_mo	201212	-1.3173	1.548	-4.3513	1.7166	-0.85	0.3948
bill_mo	201301	1.5655	1.6209	-1.6113	4.7423	0.97	0.3341
bill_mo	201302	0.629	1.6565	-2.6176	3.8757	0.38	0.7041
bill_mo	201303	-0.3706	1.6326	-3.5704	2.8292	-0.23	0.8204
bill_mo	201304	-2.7288	1.5495	-5.7658	0.3082	-1.76	0.0782
bill_mo	201305	-3.0128	1.525	-6.0017	-0.0239	-1.98	0.0482
bill_mo	201306	0.7559	1.5425	-2.2673	3.7791	0.49	0.6241
bill_mo	201307	3.9469	1.6142	0.783	7.1107	2.45	0.0145
bill_mo	201308	4.8905	1.5911	1.772	8.0091	3.07	0.0021

Parameter		Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr > Z
bill_mo	201309	5.3713	1.5947	2.2457	8.4969	3.37	0.0008
bill_mo	201310	1.0279	1.5518	-2.0137	4.0694	0.66	0.5077
bill_mo	201311	-4.3528	1.5421	-7.3752	-1.3304	-2.82	0.0048
bill_mo	201312	-0.2938	1.6108	-3.4508	2.8633	-0.18	0.8553
bill_mo	201401	2.6601	1.6556	-0.5847	5.9049	1.61	0.1081
bill_mo	201402	5.0333	1.745	1.6131	8.4535	2.88	0.0039
bill_mo	201403	-0.0345	1.6115	-3.193	3.1241	-0.02	0.9829
bill_mo	201404	-2.8223	1.53	-5.8211	0.1764	-1.84	0.0651
bill_mo	201405	-3.3112	1.5203	-6.2909	-0.3315	-2.18	0.0294
bill_mo	201406	2.013	1.5373	-1.0001	5.0262	1.31	0.1904
bill_mo	201407	5.1515	1.5856	2.0439	8.2591	3.25	0.0012
bill_mo	201408	3.5473	1.5677	0.4747	6.6199	2.26	0.0237
bill_mo	201409	3.9107	1.5645	0.8444	6.977	2.5	0.0124
bill_mo	201410	-1.5089	1.4826	-4.4147	1.3969	-1.02	0.3088
bill_mo	201411	-5.0116	1.4538	-7.861	-2.1621	-3.45	0.0006
bill_mo	201412	0.2684	1.5052	-2.6819	3.2186	0.18	0.8585
bill_mo	201501	2.3286	1.5716	-0.7517	5.4089	1.48	0.1384
bill_mo	201502	0.7166	1.6165	-2.4516	3.8849	0.44	0.6575
bill_mo	201503	1.3968	1.5212	-1.5846	4.3783	0.92	0.3585
bill_mo	201504	-2.8235	1.4078	-5.5828	-0.0643	-2.01	0.0449
avghdd		0.5777	0.0303	0.5183	0.6372	19.05	<.0001
avgcdd		1.9769	0.0777	1.8247	2.1291	25.45	<.0001
CFL_promo		-0.34	0.828	-1.9628	1.2828	-0.41	0.6814
CFL_special		-0.0746	1.0136	-2.0612	1.912	-0.07	0.9413
HEHC		1.0143	1.9299	-2.7682	4.7969	0.53	0.5992
LowInc_Weath		4.8749	2.2524	0.4603	9.2894	2.16	0.0304
PER_OHEC		-0.9233	0.4208	-1.7481	-0.0986	-2.19	0.0282
SmSvr_HVAC		-6.296	1.8536	-9.929	-2.663	-3.4	0.0007
Insul_Seal		3.0035	1.7955	-0.5156	6.5227	1.67	0.0944
Appl_Recycle		-1.605	2.7438	-6.9828	3.7728	-0.58	0.5586
Furnace_Replace		-2.9888	3.1024	-9.0695	3.0918	-0.96	0.3354
Refrige_Replace		-4.111	3.9958	-11.9427	3.7206	-1.03	0.3036
Property_Mgr		-0.847	2.0665	-4.8972	3.2032	-0.41	0.6819
MyHER		-0.0348	0.2884	-0.6	0.5305	-0.12	0.9041
partpost		-0.1932	0.548	-1.2673	0.8809	-0.35	0.7244

**Table 28. Model 2. Paired Months: customer fixed-effects + weather + other programs
 50% change or less**

Parameter	Parameter Estimate	Standard Error	95% Confidence Limits		Z	Pr > Z
avghdd	0.7885	0.0246	0.7404	0.8366	32.1	<.0001
avgcdd	3.0449	0.1688	2.714	3.3759	18.03	<.0001
CFL_promo	-1.1038	0.9997	-3.0631	0.8554	-1.1	0.2695
CFL_special	-0.2378	0.9428	-2.0856	1.61	-0.25	0.8008
HEHC	-0.4058	2.358	-5.0274	4.2158	-0.17	0.8634
LowInc_Weath	3.6969	2.7262	-1.6462	9.0401	1.36	0.1751
PER_OHEC	-0.019	0.4681	-0.9365	0.8984	-0.04	0.9676
SmSvr_HVAC	-5.6742	2.0125	-9.6187	-1.7298	-2.82	0.0048
Insul_Seal	10.4052	2.1189	6.2523	14.5581	4.91	<.0001
Appl_Recycle	-1.9309	2.9407	-7.6945	3.8328	-0.66	0.5114
Furnace_Replace	-7.41	3.6814	-14.6253	-0.1947	-2.01	0.0441
Refrige_Replace	-2.3939	4.8851	-11.9684	7.1807	-0.49	0.6241
Property_Mgr	0.2386	2.133	-3.9421	4.4193	0.11	0.9109
MyHER	0.1433	0.2557	-0.3578	0.6444	0.56	0.5752
partpost	-0.9149	0.1943	-1.2958	-0.534	-4.71	<.0001

Table 29. Other Duke Energy Programs in Kentucky

Program Name
CFL Special
Home Energy House Call
Low Income Weatherization
Personalized Energy Report / Online Home Energy Check
Smart Saver HVAC
Insulation Sealing
Appliance Recycling
Furnace Replacement
Refrigerator Replacement
Property Manager
My Home Energy Report

References

Itron, Inc., J.J. Hirsch and Associates, Synergy Consulting, and Quantum Consulting. *2004-2005 Database for Energy Efficiency Resources (DEER) Update Study: Final Report*. DEER. 2005. Available online: <http://www.energy.ca.gov/deer/>

Appendix D. Engineering Analysis Kit Savings Details

Metric	13W CFL	18W CFL	Low-flow showerhead	Kitchen Aerators	Bathroom Aerators	Hot Water Temp Card	Limelight Night Light	Outlet Gasket Insulators	Entire Kit
Units	Bulb	Bulb	Showerhead	Aerator	Aerator	Change	Light	12 pack	Kit
In Service Rate	88%	84%	25%	38%	31%	14%	81%	5%	
Gross kW Per Unit	0.0040	0.0040	0.0029	0.0055	0.0044	0.0005	0.0000	0.0005	0.0217
Gross kWh Per Unit	39.27	49.31	24.58	20.69	2.10	4.05	3.96	1.08	145.03
Freeridership Rate	38.1%	38.1%	2.5%	0.0%	0.0%	0.0%	0.0%	15.6%	23.8%
Spillover Rate	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
NTG Ratio	67.2%	67.2%	102.7%	105.2%	105.2%	105.2%	105.2%	89.6%	81.5%
Net kW Per Unit	0.0027	0.0027	0.0019	0.0037	0.0029	0.0003	0.0000	0.0003	0.0145
Net kWh Per Unit	26.38	33.12	25.25	21.77	2.21	4.26	4.17	0.97	118.13
Measure Life (Years)*	5	5	10	9	9	2	8	15	7
EUL Net kWh Per Unit	131.91	165.61	252.50	195.92	19.88	8.52	33.37	14.48	773.54

*To calculate overall measure life, the Cadmus team used a weighted average derived from the effective useful lives of the individual Energy Efficiency Home Kit items. We assigned weights based on each item's contribution to gross kWh savings.

Appendix E. Net to Gross Ratio Calculations

The presentation of freeridership and spillover is provided for informational purposes only and is not used to adjust gross energy impacts to report net savings. Because the impact analysis approach compares the customer's electric meter readings before and after the program the impact findings are already net savings and do not need to be further adjusted. The freeridership and spillover analysis is provided to allow stakeholders to understand the degree of these influences that are already included in the net savings reported.

Because Cadmus uses a different approach for estimating freeridership for energy efficient lighting than it does for other energy efficient items, freeridership for lighting is presented separately.

Lighting Freeridership

Cadmus used a three step approach to estimate freeridership for CFLs. This approach accounts for the increasing prevalence of LED bulbs, a technology that has not been taken into consideration for the purposes of calculating freeridership until recently. In this approach, freeridership is based on the responses to questions about how many CFLs and LEDs were in the homes of participants prior to the program, whether or not they would have purchased CFLs or LEDs in the absence of the program, and their future purchasing intentions.¹⁶

Step One: Diffusion of Adoption Curve

A CFL program participant's freeridership score is predominantly determined by their past behavior regarding the technology. Because the best predictor of future behavior is past behavior, it is assumed that the more CFLs and LEDs customers use in their home, the more likely they are to be freeriders. To assess past behavior, survey respondents are asked how many energy efficient light bulbs (CFLs and LEDs) were already installed in their home before they received bulbs through the program.¹⁷ Their responses, seen in Table 30, are mapped to the diffusion of adoption curve shown in Figure 18. The resulting percentage is considered their baseline freeridership.

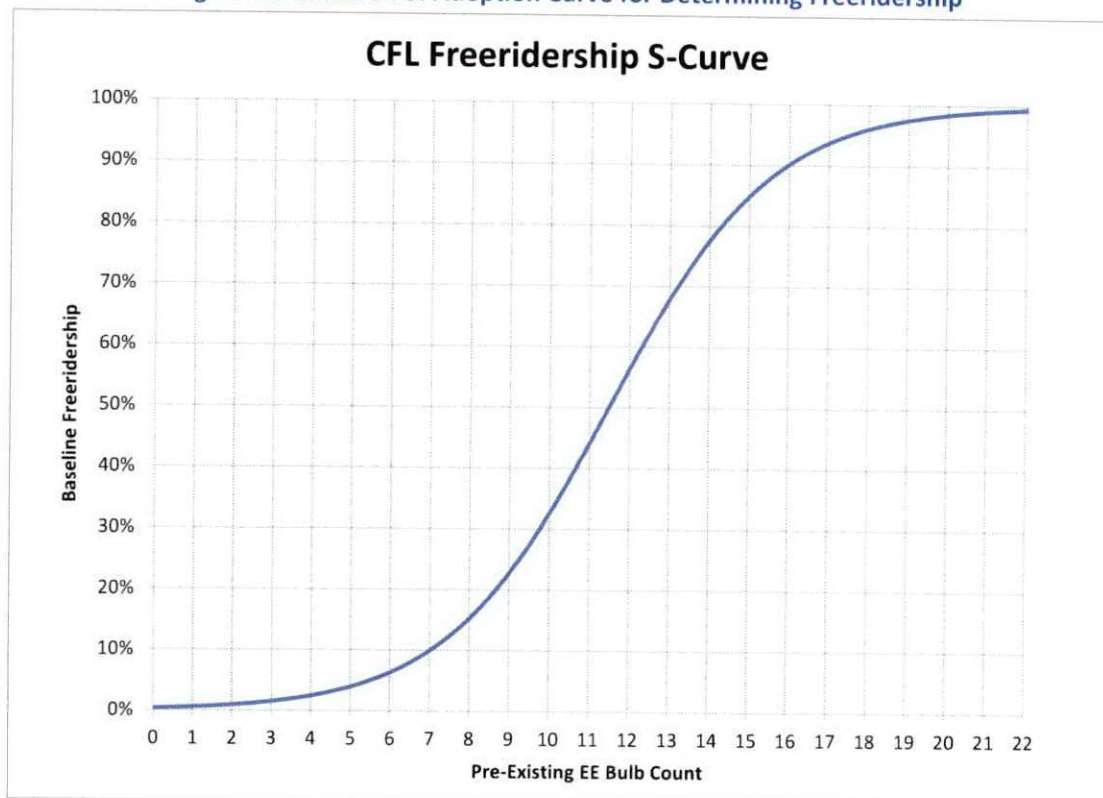
¹⁶ Using participant surveys to assess freeridership is a current and accepted practice in the industry. Please see the Basic Approach method in the section titled "Participant Net Impact Protocol" in the California Energy Efficiency Evaluation Protocols, April 2006. TecMarket Works, et al.

¹⁷ Table 30 presents the same data as in Appendix F. Participant Survey Frequency Tables, except that the table in this section only includes participants who installed CFLs from the kit and missing data has been replaced with median values.

Table 30. Efficient Light Bulbs Installed Before the Program and Baseline Freeridership Score (n=67)

Count of CFLs and LEDS Installed Before the Program	Baseline Freerider Percentage	Number of Respondents
0	0%	11
1	1%	0
2	1%	2
3	2%	2
4	2%	2
5	4%	7
6	6%	2
7	10%	0
8	15%	18
9	23%	2
10	33%	3
11	44%	5
12	56%	3
13	68%	0
14	78%	0
15	85%	3
16	90%	1
17	94%	0
18	96%	0
19	98%	1
20	99%	0
21	99%	0
22 or more	100%	5
TOTAL		67

Figure 18. Diffusion of Adoption Curve for Determining Freeridership



Step Two: Purchasing Intentions Prior to Participation

Because people's behavior changes over time, past purchase behavior needs to be informed by future purchase intent in order to assess freeridership. While self-reports of future behavior are not as reliable a predictor as past behavior and are impacted by several types of response bias, purchase intent is considered in the assessment of freeridership. To accomplish this, participants were asked about their purchasing intentions prior to their participation in the program. If a survey respondent indicates they were intent on purchasing CFL and/or LED light bulbs, respondents are asked how many of their next ten light bulb purchases will be CFLs, LEDs, standard incandescent or halogen bulbs. Participants are not asked this follow-up question if they either have no intention of purchasing energy efficient bulbs or already have them installed in all available sockets. The decision to move to step three of the analysis follows the logic matrix in Table 31.

Table 31. Step Two Decision Matrix Based on Purchasing Intentions

LEDs → CFLs ↓					
	Yes	No	Maybe	No, already installed in all sockets	DK/NS
Yes	Use step 3 multiplier	Use step 3 multiplier	Use step 3 multiplier	Automatic 100%	Use step 3 multiplier
No	Use step 3 multiplier	Multiply by 0.25	Use step 3 multiplier	Automatic 100%	Multiply by 0.25
Maybe	Use step 3 multiplier	Use step 3 multiplier	Use step 3 multiplier	Automatic 100%	Use step 3 multiplier
No, already installed in all sockets	Automatic 100%	Automatic 100%	Automatic 100%	Automatic 100%	Automatic 100%
DK/NS	Use step 3 multiplier	Multiply by 0.25	Use step 3 multiplier	Automatic 100%	Use step 3 multiplier

Step Three: Future Purchasing Intentions

To score future purchase intent, each of the three bulb categories (incandescent/halogen, CFL, LED) is assigned a freeridership adjustment factor, or multiplier. These multipliers are shown in the example scenario in Table 32. With this configuration, purchasing intent for incandescent or halogen bulb results in a 75% decrease in freeridership while purchasing intent for CFLs increases the respondent's freeridership by the same percentage. Purchasing intent for LEDs increases freeridership 75% over CFLs, as these respondents are considered to be ahead of the curve.

Once a survey respondent's purchasing intentions have been collected for the next ten bulbs, a weighted average freeridership multiplier is calculated. Table 32 represents a scenario in which a respondent has indicated that they will likely purchase equal amounts of incandescent and CFL bulbs for their next ten bulbs. The number in bold is the weighted average freeridership multiplier for this participant. This participant's freeridership score is then the product of their baseline freeridership and their weighted average freeridership multiplier. Since the multipliers of CFL and incandescent bulbs mirror each other, they are offset and freeridership is ultimately unaffected. That is, it is equal to the value from the diffusion of adoption curve in Table 30.

Table 32. Bulb Purchase Intention Multipliers and Example Scenario

Type	Count	Multiplier
Incandescent or Halogen	5	0.25
CFL	5	1.75
LED	0	2.5
Weighted Multiplier		1.0

Every participant who installed at least one program-provided CFL is assigned a freeridership score using the approach outlined above.¹⁸ The average of these scores represents the estimate for CFL freeridership, which calculated as 38.1%.

Non-Lighting Freeridership

For energy efficient showerheads, faucet aerators and outlet gasket insulators, the level of freeridership was determined using the responses to three questions in the survey. The three questions and the level of freeridership that was applied to the energy savings are presented in Table 33. All other possible combinations of answers to the series of questions resulted in 0% freeridership (not shown in table).

¹⁸ In order to calculate a freerider score for every participant, missing data has to be replaced with values derived from the survey results. If a participant could not recall whether they had CFLs or LEDs before the program, they are assigned the median valid response for pre-installed bulbs of that type (five for CFLs and zero for LEDs). If they recalled having a type of bulb but could not provide a bulb count, they are assigned the median number of bulbs installed by surveyed participants with that type of bulb installed who did provide counts (8.0 for CFLs and 3.5 for LEDs). Participants who did not answer the questions about future bulb purchase intentions are assigned the average "step three" multiplier value from all valid responses (which is 1.54).

Table 33. Freeridership Factors for Non-Lighting Energy Efficiency Kit Items

Did you have any [ITEMS] installed before you got the kit?	Were you planning on buying additional [ITEMS] before you got the kit?	Have you purchased any [ITEMS] since you got the kit?	Freeridership Score
yes	Yes	yes	1.00
yes	Yes	no	1.00
yes	No	yes	0
no	No	yes	0
no	Yes	no	0.50
no	Yes	yes	0.50
don't know	Yes	yes	0.75
don't know	Yes	no	0.50
don't know	No	yes	0
yes	already installed in all available sockets	yes	1.00
yes	already installed in all available sockets	no	1.00
yes	already installed in all available sockets	don't know	1.00
don't know	maybe	yes	0.25
yes	maybe	yes	0
yes	maybe	no	0.25
no	maybe	yes	0
yes	don't know	yes	0
no	don't know	yes	0
yes	Yes	don't know	1.00
don't know	Yes	don't know	0.50
no	Yes	don't know	0.50

Applying the scores to participants' responses to questions about energy efficient showerheads, faucet aerators (combined) and outlet gasket insulators (combined) yields the overall freeridership scores for each item, shown in Table 34.

Table 34. Freeridership for Showerheads, Aerators, and Outlet Gasket Insulators

Measure (n=participants installing)	Number of participants with freeridership	Freeridership %
Energy efficient showerhead (n=20)	1	2.5%
Faucet aerators (n=34)	3	0.0% ¹⁹
Outlet gasket insulators (n=16 on outside walls)	4	15.6%

Validity and Reliability of the Freerider Estimation Approach

The basic freeridership assessment approach, as specified in the California Evaluation Protocols, requires the construction of questions that allow the evaluation contractor to estimate the level of freeridership. The approach used in this evaluation is based on the results of a set of freerider questions incorporated into participant survey instruments, and examines the various ways in which the program impacts the customer's acquisition and use of CFLs in their home. A freeridership factor is allocated for each of the types of responses contained in the survey questions. The allocation approach assigns high freeridership values to participants who would have acquired CFLs on their own and that factor is influenced by their past purchase behavior and their stated future intentions.

Spillover Estimation

The evaluation measured spillover for the kit portion of the program by asking participants if, due to their program participation, they installed additional energy-efficient measure that were like ones they received through the kit. If respondents indicated they made energy-efficient improvements and/or purchased and installed products similar to the items received in the kit, the survey asked how influential they deemed the program on their purchasing decisions; participants could choose from a 0 to 10 rating scale where 0 means "not at all influential" and 10 means "extremely influential." Participants who answered a rating of 9 or 10 had 100% of estimated spillover measure savings attributed to the program. Participants who answered with a rating of 6, 7 or 8 had 50% of estimated spillover measure savings attributed to the program while any measures mentioned with a rating under 5 did not receive any attribution towards the program.

Table 29 shows the quantities, per-unit kWh savings estimates and total calculated spillover savings being attributed to the program. The spillover percent estimate is calculated by dividing the survey sample spillover kWh savings by the survey sample gross program kWh savings. Cadmus estimated spillover for the kit portion of the program overall as 5.2% of the survey sample gross program savings.

¹⁹ The Illinois TRM uses a common practice approach to defining the baseline condition. Average measured flow rates used as the baseline reflect the penetration or previously installed low flow fixtures, use of the faucet at less than rated flow, debris buildup, and lower than rated fixture water system pressure. The freerider rate for this measure is therefore deemed to be zero.

Table 35. Spillover for Energy Efficiency Home Kit Items

Spillover Measure	Quantity	Per Units kWh Savings	Total Spillover kWh Savings	Total Survey Sample Program kWh Savings	Spillover %
CFLs	11.6	44.3	511.1	12,183*	4.2%
Energy efficient showerhead	4.0	24.6	98.4		0.8%
Faucet aerators	2.0	11.4	22.8		0.2%
Outlet gasket insulators	5.5	1.0	5.5		0.0%**
Overall	N/A	N/A	637.8	12,183*	5.2%

*Survey sample program kWh savings does not include behavior savings, it only includes kit measure savings. The behavior savings estimate portion of the program includes any "non-like" program measure spillover activity.

**Rounded estimate is 0.0%; true estimate is 0.045%.

Appendix F. Energy Efficiency in Schools Program Participant Survey

Energy Efficiency for School's Program 4.28.15

Intro We are conducting this survey to obtain your opinions about the Duke Energy / Energy Efficiency for School's Program that provides an energy-related performance by the National Theatre for Children to local schools. Program records indicate that your child attended the performance at his or her school, and that your household subsequently received a kit containing items that can help you reduce your home's energy usage. The survey will take about 10 minutes and your answers will be confidential, and will help us make improvements to the program to better serve others.

1 Do you recall your child talking about the Duke Energy / National Theater for Children performance they saw at school?

- Yes (1)
 No (2)
 Don't know (3)

Answer If Do you recall your child talking about the Duke Energy / National Theater for Children performance they saw at school_ Yes Is Selected

2 Did your child say they heard about...

	Yes (1)	No (2)	Don't know (3)
Saving energy (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turning lights and appliances off when not in use (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turning off the water faucets when not in use (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Renewable (solar, wind, hydro) energy (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CFL light bulbs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saving water (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fixing leaky faucets (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3 Students were encouraged to complete a home energy survey with their family (found in their activity book) in order to receive an Energy Efficiency Starter Kit from Duke Energy that contains items for reducing home energy usage. Did you receive an Energy Efficiency Starter Kit?

- Yes (1)
- No (2)
- Don't know (3)

Answer If State_Cd Is Equal to OH

4 Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the program?

- 0 - Extremely dissatisfied (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 (7)
- 7 (8)
- 8 (9)
- 9 (10)
- 10 - Extremely satisfied (11)
- Don't know (12)

5a The energy efficiency kit you received contained various energy-saving items for your home, including a 13-watt CFL bulb and a 18-watt CFL bulb. Is the 13-watt bulb currently installed in your home? (If not, do you plan to install it?)

- Yes (1)
- No, installed but subsequently removed it (2)
- No, but I plan to install it (3)
- No, and I don't plan to install it (4)
- Don't know (5)

5b Is the 18-watt bulb currently installed in your home? (If not, do you plan to install it?)

- Yes (1)
- No, installed but subsequently removed it (2)
- No, but I plan to install it (3)
- No, and I don't plan to install it (4)
- Don't know (5)

Answer If The energy efficiency kit you received contained various energy-saving items for your home, including a 13-watt CFL bulb and a 18-watt CFL bulb. _Is the 13-watt bulb currently installed in you... No, installed but subsequently removed it Is Selected Or Is the 18-watt bulb currently installed in your home? (If not, do you plan to install it?) No, installed but subsequently removed it Is Selected

6 Why did you remove the CFL(s)?

- Not bright enough (1)
- Too bright (2)
- Did not like how the light looked (3)
- The CFL burned out (4)
- Too slow to start (5)
- CFL not dimmable (6)
- Other, please describe in the text box below: (7) _____

Answer If The energy efficiency kit you received contained various energy-saving items for your home, including a 13-watt CFL bulb and a 18-watt CFL bulb. _Is the 13 watt bulb currently installed in you... Yes Is Selected

7a Thinking about the 13-watt CFL bulb you received in the Energy Efficiency Kit, where in your home did you install it?

- Living/family room (1)
- Dining room (2)
- Kitchen (3)
- Master bedroom (4)
- Other bedroom (5)
- Hall (6)
- Closet (7)
- Basement (8)
- Garage (9)
- Outdoors/Exterior (10)
- Other specify: (11) _____

Answer If Is the 18-watt bulb _currently installed in your home? (If not, do you plan to install it?) Yes Is Selected

7b Thinking about the 18-watt CFL bulb you received in the Energy Efficiency Kit, where in your home did you install it?

- Living/family room (1)
- Dining room (2)
- Kitchen (3)
- Master bedroom (4)
- Other bedroom (5)
- Hall (6)
- Closet (7)
- Basement (8)
- Garage (9)
- Outdoors/Exterior (10)
- Other specify: (11) _____

Answer If Thinking about the 13-watt CFL bulb you received in the Energy Efficiency Kit, where in your home did you install it? Living/family room Is Displayed

7c On average, approximately how many hours per day is the 13-watt CFL in the location being used?

Answer If Thinking about the 18-watt CFL bulb you received in the Energy Efficiency Kit, where in your home did you install it? Living/family room Is Displayed

7d On average, approximately how many hours per day is the 18-watt CFL in the location being used?

Answer If The energy efficiency kit you received contained various energy-saving items for your home, including... Yes Is Selected

8a You noted that you installed the 13-watt bulb in the location. What type of bulb was installed prior to installing this new bulb?

- Standard incandescent (1)
- CFL (2)
- LED (3)
- Other, please describe in the text box below: (4) _____
- No bulb in socket / burned out bulb (5)
- Don't know (6)

Answer If You noted that you installed the 13-watt bulb in the location. What type of bulb was installed prior to i... Standard incandescent Is Selected Or You noted that you installed the 13-watt bulb in the location. What type of bulb was installed prior to i... CFL Is Selected Or You noted that you installed the 13-watt bulb in the location. What type of bulb was installed prior to i... LED Is Selected

8b The 13-watt CFL replaced a $\{q://QID121/ChoiceGroup/SelectedChoices\}$ bulb in the $\{q://QID15/ChoiceGroup/SelectedChoices\}\{q://QID15/ChoiceTextEntryValue/11\}$ location. What was the wattage of the $\{q://QID121/ChoiceGroup/SelectedChoices\}$ bulb?

Answer If You noted that you installed the_13-watt bulb in the__ location._ What type of bulb was installed prior to installing this new bulb? Other, please describe in the text box below: Is Selected

8bother The _was replaced by the 13-watt CFL bulb. What was the wattage of the _?

Answer If Is the 18-watt bulb currently installed in your home? (If not, do you plan to install it?) Yes Is Selected

8c You noted that you installed the 18-watt bulb in the __ location. What type of bulb was installed prior to installing this new bulb?

- Standard incandescent (1)
- CFL (2)
- LED (3)
- Other, please describe in the text box below: (4) _____
- No bulb in socket / burned out bulb (5)
- Don't know (6)

Answer If You noted that you installed the_18-watt_bulb in the _of bulb was installed prior to i... Standard incandescent Is Selected Or You noted that you installed the_18-watt_bulb in the _of bulb was installed prior to i... CFL Is Selected Or You noted that you installed the_18-watt_bulb in the _of bulb was installed prior to i... LED Is Selected

8d The 18-watt CFL replaced a $\{q://QID122/ChoiceGroup/SelectedChoices\}$ bulb in the __ location. What was the wattage of the $\{q://QID122/ChoiceGroup/SelectedChoices\}$ bulb?

Answer If You noted that you installed the_18-watt_bulb in the _of bulb was installed prior to i... Other, please describe in the text box below: Is Selected

8dother The $\{q://QID122/ChoiceTextEntryValue/4\}$ was replaced by the 18-watt CFL bulb. What was the wattage of the $\{q://QID122/ChoiceTextEntryValue/4\}$?

9 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the 13-watt CFL you received?

- 0 - Extremely dissatisfied (27)
- 1 (28)
- 2 (29)
- 3 (30)
- 4 (31)
- 5 (32)
- 6 (33)
- 7 (34)
- 8 (35)
- 9 (36)
- 10 - Extremely satisfied (37)
- Don't know (38)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

10 Why are you less than satisfied with the 13-watt CFL?

11 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the 18-watt CFL you received?

- 0 - Extremely dissatisfied (27)
- 1 (28)
- 2 (29)
- 3 (30)
- 4 (31)
- 5 (32)
- 6 (33)
- 7 (34)
- 8 (35)
- 9 (36)
- 10 - Extremely satisfied (37)
- Don't know (38)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is

"extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

12 Why are you less than satisfied with the 18-watt CFL?

Lighting Currently, there are a number of types of light bulbs available for purchase in the market. Incandescent bulbs are the most common type of light bulb. It features a screw-base and is known for providing bright, warm light instantly. Incandescent bulbs have been steadily phased out of the lighting market. Halogen light bulbs are similar to incandescent bulbs, but are known to be more energy efficient than standard incandescent bulbs and tend to be used in indoor and outdoor flood lighting, indoor recessed or track lighting, and in floor and desk lamps. CFLs, also known as compact fluorescent bulbs, are energy saving light bulbs that have a "twisty" shape like a soft-serve ice cream cone. LEDs, also known as light-emitting diodes, are a type of lighting that uses multiple tiny bulbs, or diodes, that are wired together on one lamp.

13 Thinking about the next 10 light bulbs you will purchase, how many will be of each of the following types? (Must total 10 bulbs. If you are unsure, place a 10 in the "Don't know" option).

- _____ Incandescent light bulbs (1)
- _____ Halogen light bulbs (2)
- _____ CFL light bulbs (3)
- _____ LED light bulbs (4)
- _____ Other light bulbs (please specify) (5)
- _____ Don't know (6)

14 Did you have any CFLs installed in your home before you received the Energy Efficiency kit from Duke Energy?

- Yes (1)
- No (2)
- Don't know (3)

Answer If Did you have any CFLs installed in your home before you received the Energy Efficiency kit from Duke Energy? Yes Is Selected

15 Do you know how many CFLs were installed in your home before you received the kit from Duke Energy?

- Yes. (Please note how many bulbs in the text box below, numeric only) (1) _____
- No, I do not know how many CFLs were installed. (2)

16 Were you planning on buying CFLs for your home before you received the kit?

- Yes (1)
- No (2)
- No, already have them installed in all available light sockets (3)
- Maybe (4)
- Don't know (5)

17 Have you purchased any additional CFLs since receiving the kit?

- Yes (1)
- No (2)
- Don't know (3)

Answer If Have you purchased any additional CFLs since receiving the kit? Yes Is Selected

18 Do you recall how many additional CFLs have you purchased?

- Yes, please list how you have purchased below (numeric only): (1) _____
- I don't know (2)

Answer If Have you purchased any additional CFLs since receiving the kit? Yes Is Selected

19 Do you recall how many of these additional CFLs that you purchased are currently installed in your home?

- Yes, please list how many are installed below (numeric only): (1) _____
- I don't know (2)

Answer If Do you recall how many of these additional CFLs that you purchased are currently installed in you... Yes, please list how many are installed below (numeric only): Is Greater Than 0

20 Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influential," how influential was the kit you received from Duke Energy and the National Theater for Children/ Energy Efficiency for Schools program on your decision to purchase and install these additional CFLs?

- 0 - Not at all influential (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 (7)
- 7 (8)
- 8 (9)
- 9 (10)
- 10 - Extremely influential (11)
- Don't know (12)

21 Did you have any LEDs installed in your home before you received the Energy Efficiency kit from Duke Energy?

- Yes (1)
- No (2)
- Don't know (3)

Answer If Did you have any LEDs installed in your home before you received the Energy Efficiency kit from Duke Energy? Yes Is Selected

22 Do you recall how many LEDs were installed in your home before you received the kit from Duke Energy?

- Yes. (Please note how many bulbs in the text box below, numeric only) (1) _____
- No, I do not know how many LEDs were installed. (2)

23 Were you planning on buying LEDs for your home before you received the kit?

- Yes (1)
- No (2)
- No, already have them installed in all available light sockets (3)
- Maybe (4)
- Don't know (5)

24 Have you purchased any additional LEDs since receiving the kit?

- Yes (1)
- No (2)
- Don't know (3)

Answer If Have you purchased any additional LEDs since receiving the kit?_ Yes Is Selected

25 Do you recall how many additional LEDs you have purchased?

- Yes, please list the number you have purchased below (numeric only): (1) _____
- I don't know (2)

Answer If Have you purchased any additional LEDs since receiving the kit?_ Yes Is Selected

26 Do you recall how many of these additional LEDs that you purchased are currently installed in your home?

- Yes, please list the number of installed bulbs below (numeric only): (1) _____
- I don't know (2)

Answer If Do you recall how many of these additional LEDs that you purchased are currently installed in you... Yes, please list the number of installed bulbs below (numeric only): Is Greater Than 0

27 Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influential," how influential was the kit you received from Duke Energy and the National Theater for Children/ Energy Efficiency for Schools program on your decision to purchase and install these additional LEDs?

- 0 - Not at all influential (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 (7)
- 7 (8)
- 8 (9)
- 9 (10)
- 10 - Extremely influential (11)
- Don't know (12)

28 The kit also included a low-flow showerhead. Did you install the low-flow showerhead that was provided in the kit?

- Yes (1)
- No, but plan to (2)
- No, and don't plan to (3)
- Don't know (4)

Answer If The kit also included a low-flow showerhead. _ Did you install the low-flow showerhead that was provided in the kit? Yes Is Selected

29 Is the showerhead you installed through the kit still installed in your home?

- Yes (1)
- No, I removed it (2)
- Don't know (3)

Answer If Is the showerhead you installed through the kit still installed in your home? No, I removed it Is Selected

30 Why did you remove the showerhead?

Answer If Is the showerhead you installed through the kit still installed in your home? Yes Is Selected

31 Typically, how many showers per week are taken using the showerhead from the kit?

Number of showers per week (1)

Answer If The kit also included a low-flow showerhead. Did you install the low-flow showerhead that was provided in the kit? Yes Is Selected

32 When you installed the low-flow showerhead from the kit, did you:

- Replace another low-flow showerhead (1)
- Replace a standard-flow showerhead (2)
- Don't know (3)

33 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the energy efficient showerhead you received?

- 0 - Extremely dissatisfied (277)
- 1 (278)
- 2 (279)
- 3 (280)
- 4 (281)
- 5 (282)
- 6 (283)
- 7 (284)

- 8 (285)
- 9 (286)
- 10 - Extremely satisfied (287)
- Don't know (288)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

34 Why are you less than satisfied with the showerhead?

35 Did you have any energy efficient showerheads installed in your home before you received the Energy Efficiency kit from Duke Energy?

- Yes (1)
- No (2)
- Don't know (3)

36 Were you planning on buying energy efficient showerheads for your home before you received the kit?

- Yes (1)
- No (2)
- No, already have them installed in all available showers (3)
- Maybe (4)
- Don't know (5)

37 Have you purchased any additional energy efficient showerheads since receiving the kit?

- Yes (1)
- No (2)
- Don't know (3)

If Yes Is Not Selected, Then Skip To The energy efficiency kit you receive...

38 Do you recall how many additional low-flow showerheads have you purchased?

- Yes, please note how many you have purchased below (numeric only): (1) _____
- I don't know (2)

39 Do you recall how many of these additional low-flow showerheads are currently installed in your home?

- Yes, please note how many you have installed below (numeric only): (1) _____
- I don't know (2)

Answer If Do you recall how many of these additional low-flow showerheads are currently installed in your h... Yes, please note how many you have installed below (numeric only): Is Greater Than 0

40 Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influential," how influential was the kit you received from Duke Energy and the National Theater for Children/ Energy Efficiency for Schools program on your decision to purchase these additional energy efficient showerheads?

- 0 - Not at all influential (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 (7)
- 7 (8)
- 8 (9)
- 9 (10)
- 10 - Extremely influential (11)
- Don't know (12)

Aerators The kit also included a low-flow kitchen aerator and a flow-flow bathroom aerator.

41a Is the low-flow kitchen aerator currently installed in your home?

- Yes (1)
- No, installed but subsequently removed it (2)
- No, but I plan to install it (3)
- No, and I don't plan to install it (4)
- Don't know (5)

41b Is the low-flow bathroom aerator currently installed in your home?

- Yes (1)
- No, installed but subsequently removed it (2)
- No, but I plan to install it (3)
- No, and I don't plan to install it (4)
- Don't know (5)

Answer If Is the low-flow kitchen aerator currently installed in your home? No, installed but subsequently removed it Is Selected Or Is the low-flow bathroom aerator currently installed in your home? No, installed but subsequently removed it Is Selected

42 Why did you remove the aerator(s)?

Answer If Is the low-flow kitchen aerator currently installed in your home? Yes Is Selected

43 Did the low-flow kitchen aerator that you installed in your kitchen replace another aerator?

- Yes, replaced another low-flow aerator (1)
- Yes, replaced a standard-flow aerator (2)
- Yes, replaced another aerator but not sure if it was low-flow or standard (3)
- No, there was previously no aerator on the faucet (4)
- Not sure / don't remember (5)

44 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the low-flow kitchen faucet aerator you received?

- 0 - Extremely dissatisfied (15)
- 1 (16)
- 2 (17)
- 3 (18)
- 4 (19)
- 5 (20)
- 6 (21)
- 7 (22)
- 8 (23)
- 9 (24)
- 10 - Extremely satisfied (25)
- Don't know (26)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

45 Why are you less than satisfied with the kitchen faucet aerator?

Answer If Is the low-flow bathroom aerator currently installed in your home? Yes Is Selected

46 Did the low-flow bathroom aerator that you installed in your bathroom replace another aerator?

- Yes, replaced another low-flow aerator (1)
- Yes, replaced a standard-flow aerator (2)
- Yes, replaced another aerator but not sure if it was low-flow or standard (3)
- No, there was previously no aerator on the faucet (4)
- Not sure / don't remember (5)

47 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the low-flow bathroom faucet aerator you received?

- 0 - Extremely dissatisfied (15)
- 1 (16)
- 2 (17)
- 3 (18)
- 4 (19)
- 5 (20)
- 6 (21)
- 7 (22)
- 8 (23)
- 9 (24)
- 10 - Extremely satisfied (25)
- Don't know (26)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

48 Why are you less than satisfied with the bathroom faucet aerator?

49 Did you have any low-flow faucet aerators installed in your home before you received the Energy Efficiency kit from Duke Energy?

- Yes (1)
- No (2)
- Don't know (3)

50 Were you planning on buying low-flow faucet aerators for your home before you received the kit?

- Yes (1)
- No (2)
- No, already have them installed in all available faucets (3)
- Maybe (4)
- Don't know (5)

51 Have you purchased any additional low-flow faucet aerators since receiving the kit?

- Yes (1)
- No (2)
- Don't know (3)

Answer If Have you purchased any additional low-flow faucet aerators since receiving the kit?_ Yes Is Selected

52 Do you recall how many additional low-flow faucet aerators have you purchased?

- Yes, please note how many you purchased below (numeric only): (1) _____
- I don't know (2)

Answer If Have you purchased any additional low-flow faucet aerators since receiving the kit?_ Yes Is Selected

53 Do you recall how many of these low-flow faucet aerators are currently installed in your home?

- Yes, please note how many you installed below (numeric only): (1) _____
- I don't know (2)

Answer If Do you recall how many of these low-flow faucet aerators are currently installed in your home? Yes, please note how many you installed below (numeric only): Is Greater Than 0

54 Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influential," how influential was the kit you received from Duke Energy and the National Theater for Children/ Energy Efficiency for Schools program on your decision to purchase these additional low-flow faucet aerators?

- 0 - Not at all influential (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 (7)
- 7 (8)
- 8 (9)

- 9 (10)
- 10 - Extremely influential (11)
- Don't know (12)

55 The kit also included outlet and switch gasket insulators. Are some or all of the insulators that were provided in the kit currently installed in your home?

- Yes (1)
- No, but I do plan to install some or all of them (2)
- No, and I don't plan to install any of them (3)
- Don't know (4)

Answer If The kit also included outlet and switch gasket insulators. _Are some or all of the insulators that were provided in the kit currently installed in your home? Yes Is Selected

56 Please select the locations where you have installed an outlet and switch gasket insulator, then indicate in the number installed below (select all that apply):

- Interior walls (1) _____
- Exterior walls (2) _____
- Not installed yet on any walls (3) _____
- Don't know (4)

57 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the outlet and switch gasket insulators you received?

- 0 - Extremely dissatisfied (27)
- 1 (28)
- 2 (29)
- 3 (30)
- 4 (31)
- 5 (32)
- 6 (33)
- 7 (34)
- 8 (35)
- 9 (36)
- 10 - Extremely satisfied (37)
- Don't know (38)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

58 Why are you less than satisfied with the gasket insulators?

59 Did you have any outlet and switch gasket insulators installed in your home before you received the Energy Efficiency kit from Duke Energy?

- Yes (1)
- No (2)
- Don't know (3)

60 Were you planning on buying outlet and switch gaskets for your home before you received the kit?

- Yes (1)
- No (2)
- No, already have them installed in all available outlets/switches (3)
- Maybe (4)
- Don't know (5)

61 Have you purchased any additional outlet and switch gaskets since receiving the kit?

- Yes (1)
- No (2)
- Don't know (3)

If Yes Is Not Selected, Then Skip To The energy efficiency kit you receive...

62 Do you recall how many additional outlet and switch gaskets have you purchased?

- Yes, please note how many you purchased below (numeric only): (1) _____
- I don't know (2)

64 Do you recall how many of these additional outlet and switch gaskets are currently installed on EXTERIOR WALLS of your home?

- Yes, please note how many you installed below (numeric only): (1) _____
- I don't know (2)

Answer If Do you recall how many of these additional outlet and switch gaskets are currently installed on E... Yes, please note how many you installed below (numeric only): Is Greater Than 0

65 Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influential," how influential was the kit you received from Duke Energy and the National Theater for Children/ Energy Efficiency for Schools program on your decision to purchase these additional outlet and switch gasket insulators?

- 0 - Not at all influential (1)
- 1 (2)
- 2 (3)
- 3 (4)

- 4 (5)
- 5 (6)
- 6 (7)
- 7 (8)
- 8 (9)
- 9 (10)
- 10 - Extremely influential (11)
- Don't know (12)

66 The kit also included a water flow meter bag. Did you use the water flow meter bag that was provided in the kit?

- Yes (1)
- No, but plan to (2)
- No, and don't plan to (3)
- Don't know (4)

If Yes Is Not Selected, Then Skip To On a scale from 0 to 10, where 0 is "...

67a On which faucet(s) did you check how many gallons of water you were using per minute? (select all that apply)

- Showerhead (1)
- Kitchen sink faucet (2)
- Bathroom sink faucet (3)
- Other sink faucet (4)

Answer If On which faucet(s) did you check how many gallons of water you were using per minute? (select all that apply) q://QID81/SelectedChoicesCount Is Greater Than 0

67b On which faucets did you then adjust the water flow based on the readings? (select all that apply)

68 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the water flow meter bag you received in the Energy Efficiency kit?

- Please select your rating here (2)
- 0 - Extremely dissatisfied (3)
- 1 (4)
- 2 (5)
- 3 (6)
- 4 (7)
- 5 (8)
- 6 (9)
- 7 (10)

- 8 (11)
- 9 (12)
- 10 - Extremely satisfied (13)
- Don't know (14)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

69 Why are you less than satisfied with the water flow meter bag?

70 The kit also included a water heater temperature card. Did you use the water heater temperature card to test the temperature of the hot water in your home?

- Yes (1)
- No, but plan to (2)
- No, and don't plan to (3)
- Don't know (4)

If Yes Is Not Selected, Then Skip To On a scale from 0 to 10, where 0 is "...

71 What was the temperature reading of the hot water in your home?

- Less than 120° (1)
- 120° (2)
- 130° (3)
- 140° (4)
- 150° (5)
- Above 150° (6)
- Don't Know (7)

72 Did you adjust your water heater temperature as a result?

- Yes (1)
- No (2)

Answer If Did you adjust your water heater temperature as a result? Yes Is Selected

73 What was the temperature reading of your hot water after you adjusted the water heater temperature?

- Less than 120° (1)
- 120° (2)
- 130° (3)

- 140° (4)
- 150° (5)
- Above 150° (6)
- Don't know (7)

74 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the water heater temperature card you received in the Energy Efficiency kit?

- Please select your rating here (2)
- 0 - Extremely dissatisfied (3)
- 1 (4)
- 2 (5)
- 3 (6)
- 4 (7)
- 5 (8)
- 6 (9)
- 7 (10)
- 8 (11)
- 9 (12)
- 10 - Extremely satisfied (13)
- Don't know (14)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

75 Why are you less than satisfied with the water heater temperature card?

76 The kit also included a night light. Is the night light that was provided in the kit currently installed in your home?

- Yes (1)
- No, installed but subsequently removed it (2)
- No, but plan to (3)
- No, and don't plan to (4)
- Don't know (5)

Answer If The kit also included a_night light. _Is the night light that was provided in the kit currently installed in your home? No, installed but subsequently removed it Is Selected

77 Why did you remove the night light?

78 On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with night light you received in the Energy Efficiency kit?

- 0 - Extremely dissatisfied (27)
- 1 (28)
- 2 (29)
- 3 (30)
- 4 (31)
- 5 (32)
- 6 (33)
- 7 (34)
- 8 (35)
- 9 (36)
- 10 - Extremely satisfied (37)
- Don't know (38)

Answer If On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 0 - Extremely dissatisfied Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 1 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 2 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 3 Is Selected Or On a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how... 4 Is Selected

79 Why are you less than satisfied with the night light?

80 How much would you say you read of the Energy Savers booklet from the Department of Energy?

- Read most or all of it (1)
- Read some of it, but not all of it (2)
- Glanced at it, but did not read it (3)
- Did not look at it at all (4)

If Did not look at it at all Is Selected, Then Skip To What other actions, if any, have you ...If Glanced at it, but did not ... Is Selected, Then Skip To What other actions, if any, have you ...

Answer If How much would you say you read of the Energy Savers booklet from the Department of Energy? Read most or all of it Is Selected Or How much would you say you read of the Energy Savers booklet from the Department of Energy? Read some of it, but not all of it Is Selected

81 Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means "strongly disagree" and 10 means "strongly agree."

It was helpful (1)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)
It was informative (2)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)
It offered tips for saving energy that I had not previously thought about (3)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)
It provided ideas that are feasible to implement (4)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)
It provided ideas that are affordable to implement (5)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)
It was easy to understand (6)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)
It was relevant to my household and the way I live (7)	<input type="radio"/> 0 - Strongly disagree (1)	<input type="radio"/> 1 (2)	<input type="radio"/> 2 (3)	<input type="radio"/> 3 (4)	<input type="radio"/> 4 (5)	<input type="radio"/> 5 (6)	<input type="radio"/> 6 (7)	<input type="radio"/> 7 (8)	<input type="radio"/> 8 (9)	<input type="radio"/> 9 (10)	<input type="radio"/> 10 - Strongly agree (11)	<input type="radio"/> Don't know (12)

Answer If How much would you say you read of the Energy Savers booklet from the Department of Energy? Read most or all of it Is Selected Or How much would you say you read of the Energy Savers booklet from the Department of Energy? Read some of it, but not all of it Is Selected

82 Based on the advice in the booklet, have you taken any of the following actions?

	Yes (1)	No, but plan to (2)	No, and don't plan to (3)	Don't know (4)
Sealed air leaks; properly insulated home (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintained and/or upgraded HVAC equipment (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lowered hot water temperature (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Installed energy efficient windows (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chose energy-efficient lighting, such as CFLs and LEDs (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Purchased more energy efficient appliances throughout home (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turned off home electronics when not in use (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chose more efficient transportation options (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used renewable energy at home such as solar and wind (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

83 What other actions, if any, have you taken in your home to save energy and reduce utility bills at least in part as a result of what you learned in the Duke Energy / National Theater for Children program?

84 Since receiving the kit, has your knowledge of how to save energy and reduce your utility bill

increased, stayed the same, or decreased?

- Increased a lot (1)
- Increased somewhat (2)
- Stayed about the same (3)
- Decreased somewhat (4)
- Decreased a lot (5)
- Don't know (6)

Answer If State_Cd Is Equal to NC Or State_Cd Is Equal to KY Or State_Cd Is Equal to IN Or State_Cd Is Equal to SC

85 Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0 to 10, where 0 is "extremely dissatisfied" and 10 is "extremely satisfied", how would you rate your overall satisfaction with the program?

- 0 - Extremely dissatisfied (27)
- 1 (28)
- 2 (29)
- 3 (30)
- 4 (31)
- 5 (32)
- 6 (33)
- 7 (34)
- 8 (35)
- 9 (36)
- 10 - Extremely satisfied (37)
- Don't know (38)

Answer If Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0... 0 - Extremely dissatisfied Is Selected Or Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0... 1 Is Selected Or Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0... 2 Is Selected Or Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0... 3 Is Selected Or Thinking about the Duke Energy / National Theater for Children program overall, on a scale from 0... 4 Is Selected

86 What, specifically, caused you to rate your satisfaction with Duke Energy's / National Theater for Children program a $\{q://QID100/ChoiceGroup/SelectedChoices\}$?

Answer If State_Cd Is Equal to OH

87 Finally, if you were rating your overall satisfaction with the Duke Energy / National Theater for Children program, would you say you were Very Satisfied, Somewhat Satisfied, Neither Satisfied nor Dissatisfied, or Very Dissatisfied?

- Very satisfied (1)
- Somewhat satisfied (2)
- Neither satisfied nor dissatisfied (3)
- Somewhat dissatisfied (4)
- Very dissatisfied (5)
- Don't know (6)

If Don't know Is Selected, Then Skip To Do you have any suggestions to improv...

Answer If State_Cd Is Equal to OH

88 Why do you give it that rating?

89 Do you have any suggestions to improve this program?

- Yes (1)
- No (2)
- Don't know (3)

Answer If Do you have any suggestions to improve this program? Yes Is Selected

90 How might the program be improved?

91 As a result of participating in this National Theater for Children program, would you say your attitude toward Duke Energy is more positive, more negative, or about the same?

- Much more positive (1)
- Somewhat more positive (2)
- About the same (3)
- Somewhat more negative (4)
- Much more negative (5)
- Don't know (6)

D intro Finally, we have some general demographic questions.

d1 In what type of building do you live?

- Single-family home, detached construction (1)
- Single family home, factory manufactured/modular (2)
- Single family, mobile home (3)
- Row House (4)
- Two or Three family attached residence-traditional structure (5)
- Apartment (4 + families)---traditional structure (6)
- Condominium---traditional structure (7)

- Other (8)
- Don't know (9)

d2 Approximately what year was this home first built?

- 1959 and before (1)
- 1960-1979 (2)
- 1980-1989 (3)
- 1990-1997 (4)
- 1998-2000 (5)
- 2001-2007 (6)
- 2008-present (7)
- Don't know (8)

d3 About how large is your home in square feet, excluding your garage and/or patio? Note: A 10-foot by 12 foot room is 120 square feet

- Less than 500 (1)
- 500 – 999 (2)
- 1000 – 1499 (3)
- 1500 – 1999 (4)
- 2000 – 2499 (5)
- 2500 – 2999 (6)
- 3000 – 3499 (7)
- 3500 – 3999 (8)
- 4000 or more (9)
- Don't know (10)

d4 Which of the following best describes your home's heating system?

- Central forced air furnace (1)
- Electric baseboard (2)
- Heat pump (3)
- Geothermal heat pump (4)
- Other, please describe in the text box below: (5) _____

d5 What type of fuel do you use to primarily heat your home?

- Natural gas (1)
- Bottled, tank, or LP (2)
- Electric (3)
- Oil, kerosene (4)
- Coal (5)
- Wood (6)
- Other, please describe in the text box below: (7) _____

d6 Which of the following best describes your home's cooling system?

- None, do not cool the home (1)
- Heat pump for cooling (2)
- Central air conditioning (3)
- Wall or window air conditioning unit (4)
- Geothermal heat pump (5)
- Other, please describe in the text box below: (6) _____

d7 What type of fuel do you use to heat water in your home?

- Natural gas (1)
- Bottled, tank, or LP gas (2)
- Electric (3)
- Oil, kerosene (4)
- Coal (5)
- Wood (6)
- Other, please describe in the text box below: (7) _____

d8 Do you own or rent your home?

- Rent (1)
- Own (2)

d9 How many people live in your home year-round? (numeric only)

d10 How many of the people who live in your home are under age 18? (numeric only)

11 What is your age group?

- 18-24 (1)
- 25-34 (2)
- 35-44 (3)
- 45-54 (4)
- 55-64 (5)
- 65-74 (6)
- 75+ (7)

d12 Which of the following categories best describes your total annual household income before taxes?

- Under \$15,000 (1)
- \$15,000 - \$29,999 (2)
- \$30,000 - \$49,999 (3)
- \$50,000 - \$74,999 (4)
- \$75,000 - \$100,000 (5)
- Over \$100,000 (6)
- Prefer not to answer (7)

Appendix G. Energy Efficiency in Schools Program Participant Survey Frequency Tables

CFL Installations

The energy efficiency kit you received contained various energy-saving items for your home, including a 13 watt CFL - is this currently installed in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	66	78.6	78.6	78.6
	No, but I plan to install it	13	15.5	15.5	94.0
	No, and I don't plan to install it	3	3.6	3.6	97.6
	Don't know	2	2.4	2.4	100.0
	Total	84	100.0	100.0	

Is the 18-watt bulb currently installed in your home? (If not, do you plan to install it?)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	59	70.2	71.1	71.1
	No, but I plan to install it	16	19.0	19.3	90.4
	No, and I don't plan to install it	5	6.0	6.0	96.4
	Don't know	3	3.6	3.6	100.0
	Total	83	98.8	100.0	
Missing	System	1	1.2		
Total		84	100.0		

Why did you remove the CFL(s)?

		Frequency	Percent
Missing	System	84	100.0

Thinking about the 13-watt CFL bulb you received in the Energy Efficiency Kit, where in your home...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Living/family room	13	15.5	19.7	19.7
	Dining room	3	3.6	4.5	24.2
	Kitchen	12	14.3	18.2	42.4
	Master bedroom	8	9.5	12.1	54.5
	Other bedroom	18	21.4	27.3	81.8
	Hall	4	4.8	6.1	87.9
	Basement	3	3.6	4.5	92.4
	Garage	1	1.2	1.5	93.9
	Outdoors/Exterior	2	2.4	3.0	97.0
	Other specify:	2	2.4	3.0	100.0
	Total	66	78.6	100.0	
Missing	System	18	21.4		
Total		84	100.0		

Thinking about the 13-watt CFL bulb you received in the Energy Efficiency Kit, where in your home...-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		82	97.6	97.6	97.6
	Basement bathroom	1	1.2	1.2	98.8
	Bathroom	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Thinking about the 18-watt CFL bulb you received in the Energy Efficiency Kit, where in your home...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Living/family room	19	22.6	32.2	32.2
	Dining room	3	3.6	5.1	37.3
	Kitchen	10	11.9	16.9	54.2
	Master bedroom	9	10.7	15.3	69.5
	Other bedroom	3	3.6	5.1	74.6
	Hall	5	6.0	8.5	83.1
	Closet	1	1.2	1.7	84.7
	Basement	3	3.6	5.1	89.8
	Outdoors/Exterior	2	2.4	3.4	93.2
	Other specify:	4	4.8	6.8	100.0
	Total	59	70.2	100.0	
Missing	System	25	29.8		
Total		84	100.0		

Thinking about the 18-watt CFL bulb you received in the Energy Efficiency Kit, where in your home...-TEXT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	80	95.2	95.2	95.2
bathroom	2	2.4	2.4	97.6
laundry room	1	1.2	1.2	98.8
Laundry room	1	1.2	1.2	100.0
Total	84	100.0	100.0	

On average, approximately how many hours per day is the 13-watt CFL in the ...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	21.4	21.4	21.4
.1	1	1.2	1.2	22.6
1	4	4.8	4.8	27.4
10	1	1.2	1.2	28.6
12	1	1.2	1.2	29.8
2	11	13.1	13.1	42.9
2 hrs	1	1.2	1.2	44.0
2-4	1	1.2	1.2	45.2
24	2	2.4	2.4	47.6
3	12	14.3	14.3	61.9
30 minutes	1	1.2	1.2	63.1
4	10	11.9	11.9	75.0
4-5	1	1.2	1.2	76.2
5	8	9.5	9.5	85.7
6	5	6.0	6.0	91.7
7	1	1.2	1.2	92.9
9	1	1.2	1.2	94.0
9 hrs per day.	1	1.2	1.2	95.2
about 5 hours	1	1.2	1.2	96.4
half the day but daily	1	1.2	1.2	97.6
less than 1	2	2.4	2.4	100.0
Total	84	100.0	100.0	

On average, approximately how many hours per day is the 18-watt CFL in the ...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25	29.8	29.8	29.8
.25	1	1.2	1.2	31.0
1	4	4.8	4.8	35.7
10	3	3.6	3.6	39.3
12	1	1.2	1.2	40.5
15	1	1.2	1.2	41.7
16	1	1.2	1.2	42.9
2	7	8.3	8.3	51.2
2-4	1	1.2	1.2	52.4
24	2	2.4	2.4	54.8
3	8	9.5	9.5	64.3
3 hrs per day.	1	1.2	1.2	65.5
30 minutes	1	1.2	1.2	66.7
4	5	6.0	6.0	72.6
4 hrs	1	1.2	1.2	73.8
5	7	8.3	8.3	82.1
6	4	4.8	4.8	86.9
7	3	3.6	3.6	90.5
8	4	4.8	4.8	95.2
9	1	1.2	1.2	96.4
also about 5 hours	1	1.2	1.2	97.6
daily	1	1.2	1.2	98.8
less than 1	1	1.2	1.2	100.0
Total	84	100.0	100.0	

You noted that you installed the 13-watt bulb in the \$(q://QID15/ChoiceGroup/SelectedChoices) loc...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Standard incandescent	45	53.6	68.2	68.2
CFL	13	15.5	19.7	87.9
LED	1	1.2	1.5	89.4
No bulb in socket / burned out bulb	2	2.4	3.0	92.4
Don't know	5	6.0	7.6	100.0
Total	66	78.6	100.0	
Missing System	18	21.4		
Total	84	100.0		

The 13-watt CFL replaced a \$(q://QID121/ChoiceGroup/SelectedChoices) bulb in the ...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	37	44.0	44.0	44.0
100	1	1.2	1.2	45.2
13	2	2.4	2.4	47.6
13 watts	1	1.2	1.2	48.8
18	1	1.2	1.2	50.0
25	1	1.2	1.2	51.2
40	4	4.8	4.8	56.0
45	1	1.2	1.2	57.1
60	17	20.2	20.2	77.4
60 w	1	1.2	1.2	78.6
60 watt	1	1.2	1.2	79.8
60-Watt	1	1.2	1.2	81.0
60w	2	2.4	2.4	83.3
60watt	1	1.2	1.2	84.5
65	1	1.2	1.2	85.7
75	3	3.6	3.6	89.3
Don't know	1	1.2	1.2	90.5
dont know	1	1.2	1.2	91.7
dont remember	1	1.2	1.2	92.9
I don't know.....	1	1.2	1.2	94.0
I don't recall	1	1.2	1.2	95.2
not sure	1	1.2	1.2	96.4
Not sure	2	2.4	2.4	98.8
unsure	1	1.2	1.2	100.0
Total	84	100.0	100.0	

You noted that you installed the 18-watt bulb in the \$(q://QID16/ChoiceGroup/SelectedChoices)...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	38	45.2	66.7	66.7
Standard incandescent	12	14.3	21.1	87.7
CFL	1	1.2	1.8	89.5
LED	2	2.4	3.5	93.0
Other, please describe in the text box below:	1	1.2	1.8	94.7
No bulb in socket / burned out bulb	3	3.6	5.3	100.0
Don't know	57	67.9	100.0	
Total	84	100.0		
Missing	27	32.1		
System				
Total	84	100.0		

You noted that you installed the 18-watt bulb in the \${q://QID16/ChoiceGroup/SelectedChoices}...-TEXT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	82	97.6	97.6	97.6
60	1	1.2	1.2	98.8
65	1	1.2	1.2	100.0
Total	84	100.0	100.0	

The 18-watt CFL replaced a \${q://QID122/ChoiceGroup/SelectedChoices} bulb in the ...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	38	45.2	45.2	45.2
100	3	3.6	3.6	48.8
100 watts	1	1.2	1.2	50.0
100w	1	1.2	1.2	51.2
13	2	2.4	2.4	53.6
18	1	1.2	1.2	54.8
25	1	1.2	1.2	56.0
30	1	1.2	1.2	57.1
40	1	1.2	1.2	58.3
60	18	21.4	21.4	79.8
60 w	1	1.2	1.2	81.0
60w	1	1.2	1.2	82.1
75	3	3.6	3.6	85.7
75-watt	1	1.2	1.2	86.9
Don't know	1	1.2	1.2	88.1
dont know	2	2.4	2.4	90.5
dont recall	1	1.2	1.2	91.7
I don't know....	1	1.2	1.2	92.9
I don't recall	2	2.4	2.4	95.2
not sure	1	1.2	1.2	96.4
Not sure	2	2.4	2.4	98.8
unsure	1	1.2	1.2	100.0
Total	84	100.0	100.0	

The \${q://QID122/ChoiceTextEntryValue/4} was replaced by the 18-watt CFL bulb. What was the watta...

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	83	98.8	98.8	98.8
60	1	1.2	1.2	100.0
Total	84	100.0	100.0	

Have you purchased any additional CFLs since receiving the kit?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	16	19.0	19.0	19.0
	No	67	79.8	79.8	98.8
	Don't know	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Do you recall how many additional CFLs have you purchased?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please list how you have purchased below (numeric only):	7	8.3	43.8	43.8
	I don't know	9	10.7	56.3	100.0
	Total	16	19.0	100.0	
Missing	System	68	81.0		
	Total	84	100.0		

Do you recall how many of these additional CFLs that you purchased are currently installed in you...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please list how many are installed below (numeric only):	7	8.3	43.8	43.8
	I don't know	9	10.7	56.3	100.0
	Total	16	19.0	100.0	
Missing	System	68	81.0		
	Total	84	100.0		

Do you recall how many of these additional CFLs that you purchased are currently installed in you...-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		77	91.7	91.7	91.7
	0	1	1.2	1.2	92.9
	1	2	2.4	2.4	95.2
	10	1	1.2	1.2	96.4
	2	1	1.2	1.2	97.6
	3	1	1.2	1.2	98.8
	6	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influent..."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - Not at all influential	3	3.6	50.0	50.0
	4	1	1.2	16.7	66.7
	10 - Extremely influential	2	2.4	33.3	100.0
	Total	6	7.1	100.0	
Missing	System	78	92.9		
Total		84	100.0		

Have you purchased any additional LEDs since receiving the kit?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	14.3	14.3	14.3
	No	70	83.3	83.3	97.6
	Don't know	2	2.4	2.4	100.0
	Total	84	100.0	100.0	

Do you recall how many additional LEDs you have purchased?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please list the number you have purchased below (numeric only):	7	8.3	58.3	58.3
	I don't know	5	6.0	41.7	100.0
	Total	12	14.3	100.0	
Missing	System	72	85.7		
Total		84	100.0		

Do you recall how many additional LEDs you have purchased?-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		77	91.7	91.7	91.7
	1	2	2.4	2.4	94.0
	10	2	2.4	2.4	96.4
	2	3	3.6	3.6	100.0
	Total	84	100.0	100.0	

Do you recall how many of these additional LEDs that you purchased are currently installed in you...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please list the number of installed bulbs below (numeric only):	6	7.1	50.0	50.0
	I don't know	6	7.1	50.0	100.0
	Total	12	14.3	100.0	
Missing	System	72	85.7		
Total		84	100.0		

Do you recall how many of these additional LEDs that you purchased are currently installed in you...-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		78	92.9	92.9	92.9
	0	1	1.2	1.2	94.0
	10	2	2.4	2.4	96.4
	2	3	3.6	3.6	100.0
	Total	84	100.0	100.0	

Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influent..."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - Not at all influential	1	1.2	20.0	20.0
	5	1	1.2	20.0	40.0
	7	1	1.2	20.0	60.0
	9	1	1.2	20.0	80.0
	10 - Extremely influential	1	1.2	20.0	100.0
	Total	5	6.0	100.0	
Missing	System	79	94.0		
Total		84	100.0		

Efficient Light Bulbs Installed Before the Program

Did you have any CFLs installed in your home before you received the Energy Efficiency kit from D...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	60	71.4	71.4	71.4
	No	19	22.6	22.6	94.0
	Don't know	5	6.0	6.0	100.0
	Total	84	100.0	100.0	

Do you know how many CFLs were installed in your home before you received the kit from Duke Energy?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes. (Please note how many bulbs in the text box below, numeric only)	34	40.5	56.7	56.7
	No, I do not know how many CFLs were installed.	26	31.0	43.3	100.0
	Total	60	71.4	100.0	
Missing	System	24	28.6		
g					
Total		84	100.0		

Do you know how many CFLs were installed in your home before you received the kit from Duke Energy? - TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		50	59.5	59.5	59.5
	0	1	1.2	1.2	60.7
	10	2	2.4	2.4	63.1
	11	1	1.2	1.2	64.3
	12	3	3.6	3.6	67.9
	15	5	6.0	6.0	73.8
	16	1	1.2	1.2	75.0
	17	1	1.2	1.2	76.2
	2	3	3.6	3.6	79.8
	22	1	1.2	1.2	81.0
	25	1	1.2	1.2	82.1
	3	2	2.4	2.4	84.5
	30	1	1.2	1.2	85.7
	31	1	1.2	1.2	86.9
	4	2	2.4	2.4	89.3
	5	4	4.8	4.8	94.0
	6	2	2.4	2.4	96.4
	8	2	2.4	2.4	98.8
	9	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Did you have any LEDs installed in your home before you received the Energy Efficiency kit from D...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	18	21.4	21.7	21.7
	No	57	67.9	68.7	90.4
	Don't know	8	9.5	9.6	100.0
	Total	83	98.8	100.0	
Missing	System	1	1.2		
Total		84	100.0		

Do you recall how many LEDs were installed in your home before you received the kit from Duke Ene...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes. (Please note how many bulbs in the text box below, numeric only)	12	14.3	66.7	66.7
	No, I do not know how many LEDs were installed.	6	7.1	33.3	100.0
	Total	18	21.4	100.0	
Missing	System	66	78.6		
Total		84	100.0		

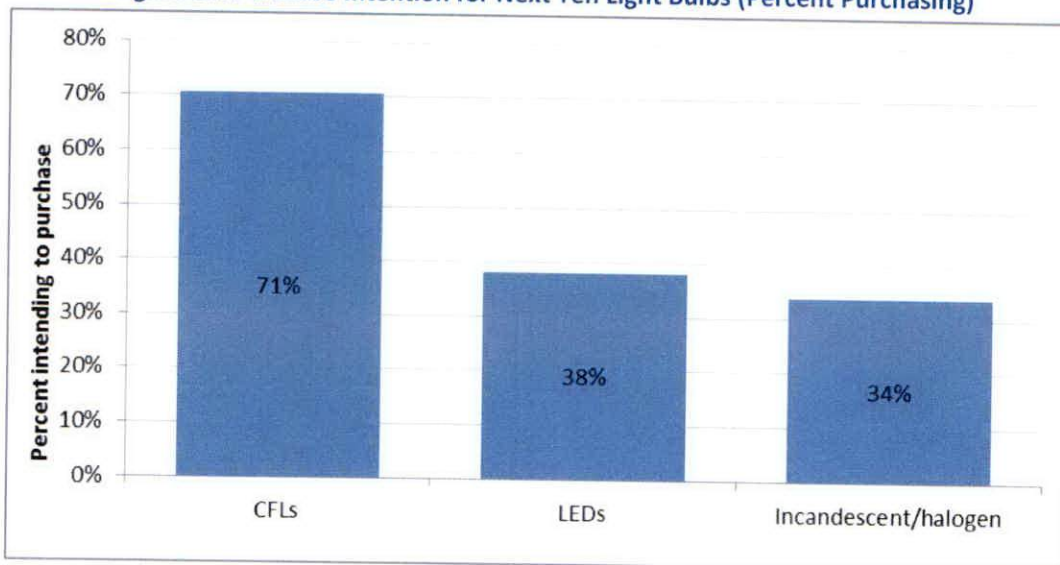
Do you recall how many LEDs were installed in your home before you received the kit from Duke Ene...-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		72	85.7	85.7	85.7
	1	1	1.2	1.2	86.9
	10	1	1.2	1.2	88.1
	2	4	4.8	4.8	92.9
	20	1	1.2	1.2	94.0
	3	1	1.2	1.2	95.2
	4	3	3.6	3.6	98.8
	8	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Future Light Bulb Purchase Intentions

Participants were asked what type of light bulbs they intend to purchase for their next ten bulbs purchased. As seen in Figure 19, a clear majority intend to purchase CFLs, while a third or more intend to purchase LEDs and incandescent or halogen bulbs.

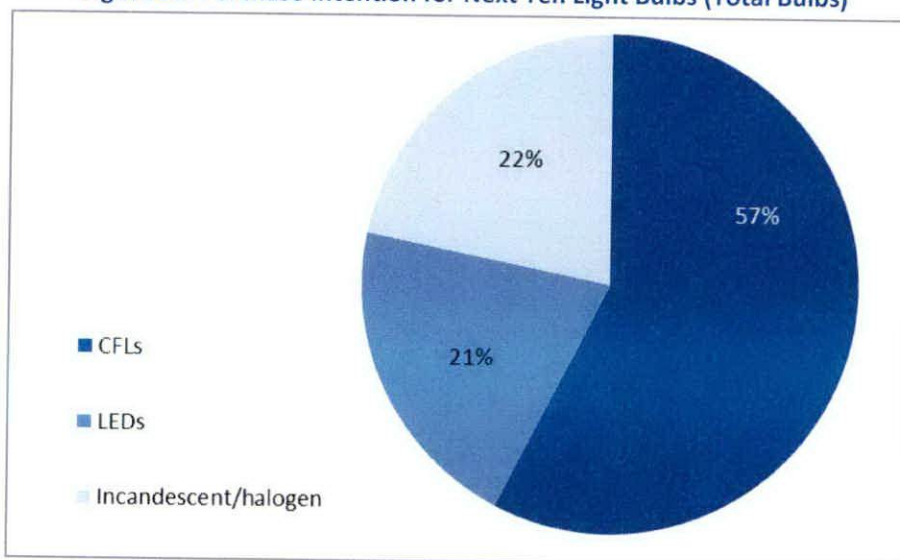
Figure 19. Purchase Intention for Next Ten Light Bulbs (Percent Purchasing)



Source: Participant Survey Questions A13.1-6. 12.13. Thinking about the next ten light bulbs you will purchase, how many will be of each of the following types? (valid n=68; multiple responses permitted. Percentages are of total number of respondents, and exceed 100%.)

Figure 20 shows the overall distribution of intended future bulb purchases; in total, 78% of light bulbs intended to be purchased by program participants will be CFLs or LEDs and only 22% will be incandescent or halogen bulbs.

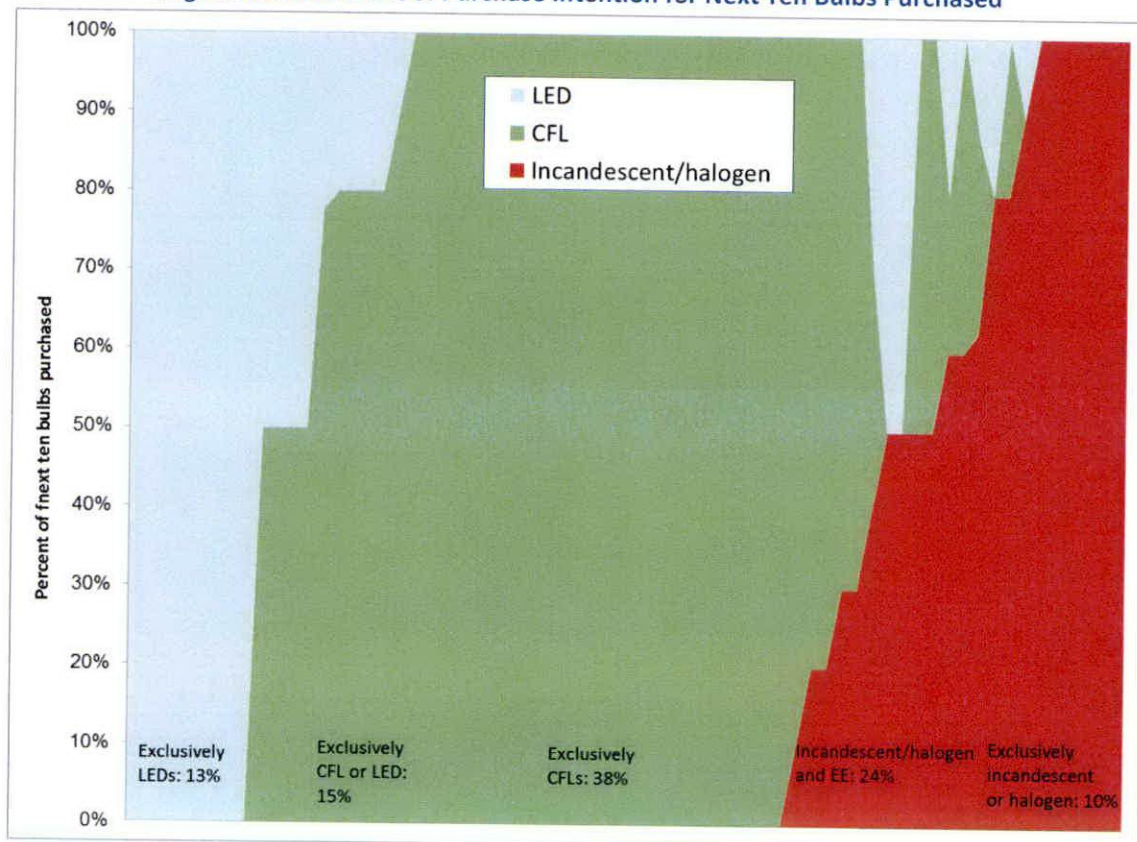
Figure 20. Purchase Intention for Next Ten Light Bulbs (Total Bulbs)



Source: Participant Survey Questions A13.1-6. 12.13. Thinking about the next ten light bulbs you will purchase, how many will be of each of the following types? (valid n=68)

Figure 21 presents the distribution of future bulb purchases in the form of an area chart as a visual aid: the Y-axis shows the distribution of bulbs intended to be purchased, and the X-axis shows all 68 valid responses sorted by the distribution of bulb types. The chart shows that a majority of customers surveyed say they intend to purchase exclusively efficient lighting for their next ten bulbs (the left and center area of the chart that is green and blue from top to bottom which accounts for 66% of respondents), while only a tenth percent of participants intend to purchase all incandescent and halogen bulbs for their next ten bulbs (the far right of the chart which is red from top to bottom). About one participant in four intends to purchase a mix of standard and efficient bulbs (the area of the chart that is a combination of red and blue or green).

Figure 21. Area Chart of Purchase Intention for Next Ten Bulbs Purchased



Source: Participant Survey Questions A13.1-6. 12.13. Thinking about the next ten light bulbs you will purchase, how many will be of each of the following types? (valid n=68)

Low-Flow Showerhead Installations

The kit also included a low-flow showerhead. Did you install the low-flow showerhead that was pro...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25	29.8	29.8	29.8
	No, but plan to	21	25.0	25.0	54.8
	No, and don't plan to	35	41.7	41.7	96.4
	Don't know	3	3.6	3.6	100.0
	Total	84	100.0	100.0	

Is the showerhead you installed through the kit still installed in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	23.8	80.0	80.0
	No, I removed it	5	6.0	20.0	100.0
	Total	25	29.8	100.0	
Missing	System	59	70.2		
Total		84	100.0		

Why did you remove the showerhead?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		79	94.0	94.0	94.0
	bought a better slow flow head	1	1.2	1.2	95.2
	Not enough water flow	1	1.2	1.2	96.4
	not enough water, everyone compained	1	1.2	1.2	97.6
	not strong enough water flow	1	1.2	1.2	98.8
	Weak pressure	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Typically, how many showers per week are taken using the showerhead from the kit?-Number of showers per week

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	64	76.2	76.2	76.2
10	5	6.0	6.0	82.1
12	1	1.2	1.2	83.3
15	3	3.6	3.6	86.9
20	1	1.2	1.2	88.1
21	2	2.4	2.4	90.5
26	1	1.2	1.2	91.7
4	1	1.2	1.2	92.9
42	1	1.2	1.2	94.0
5	1	1.2	1.2	95.2
6	3	3.6	3.6	98.8
7	1	1.2	1.2	100.0
Total	84	100.0	100.0	

When you installed the low-flow showerhead from the kit, did you:

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Replace another low-flow showerhead	3	3.6	12.0	12.0
Replace a standard-flow showerhead	20	23.8	80.0	92.0
Don't know	2	2.4	8.0	100.0
Total	25	29.8	100.0	
Missing				
System	59	70.2		
Total	84	100.0		

Have you purchased any additional energy efficient showerheads since receiving the kit?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Yes	4	4.8	4.8	4.8
No	78	92.9	94.0	98.8
Don't know	1	1.2	1.2	100.0
Total	83	98.8	100.0	
Missing				
System	1	1.2		
Total	84	100.0		

Do you recall how many additional low-flow showerheads have you purchased?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please note how many you have purchased below (numeric only):	4	4.8	100.0	100.0
Missing	System	80	95.2		
Total		84	100.0		

Do you recall how many additional low-flow showerheads have you purchased?-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		80	95.2	95.2	95.2
	1	3	3.6	3.6	98.8
	2	1	1.2	1.2	100.0
Total		84	100.0	100.0	

Do you recall how many of these additional low-flow showerheads are currently installed in your h...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please note how many you have installed below (numeric only):	3	3.6	75.0	75.0
	I don't know	1	1.2	25.0	100.0
	Total	4	4.8	100.0	
Missing	System	80	95.2		
Total		84	100.0		

Do you recall how many of these additional low-flow showerheads are currently installed in your h...-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		81	96.4	96.4	96.4
	0	1	1.2	1.2	97.6
	2	2	2.4	2.4	100.0
Total		84	100.0	100.0	

Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influent..."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9	1	1.2	50.0	50.0
	10 - Extremely influential	1	1.2	50.0	100.0
	Total	2	2.4	100.0	
Missing	System	82	97.6		
Total		84	100.0		

Faucet Aerator Installations

Is the low-flow kitchen aerator currently installed in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	30	35.7	35.7	35.7
	No, installed but subsequently removed it	4	4.8	4.8	40.5
	No, but I plan to install it	13	15.5	15.5	56.0
	No, and I don't plan to install it	31	36.9	36.9	92.9
	Don't know	6	7.1	7.1	100.0
Total		84	100.0	100.0	

Is the low-flow bathroom aerator currently installed in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	23	27.4	27.4	27.4
	No, installed but subsequently removed it	4	4.8	4.8	32.1
	No, but I plan to install it	22	26.2	26.2	58.3
	No, and I don't plan to install it	26	31.0	31.0	89.3
	Don't know	9	10.7	10.7	100.0
Total		84	100.0	100.0	

Why did you remove the aerator(s)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		79	94.0	94.0	94.0
	did not fit faucets	1	1.2	1.2	95.2
	leaked	1	1.2	1.2	96.4
	low pressure	1	1.2	1.2	97.6
	Not enough pressure with the flow of water. Did not leave me feeling clean	1	1.2	1.2	98.8
	portable dish washer	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Did the low-flow kitchen aerator that you installed in your kitchen replace another aerator?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Yes, replaced another low-flow aerator	3	3.6	10.0	10.0
	Yes, replaced a standard-flow aerator	14	16.7	46.7	56.7
	Yes, replaced another aerator but not sure if it was low-flow or standard	2	2.4	6.7	63.3
	No, there was previously no aerator on the faucet	9	10.7	30.0	93.3
	Not sure / don't remember	2	2.4	6.7	100.0
	Total	30	35.7	100.0	
Missing	System	54	64.3		
Total		84	100.0		

Did the low-flow bathroom aerator that you installed in your bathroom replace another aerator?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Yes, replaced another low-flow aerator	3	3.6	14.3	14.3
	Yes, replaced a standard-flow aerator	9	10.7	42.9	57.1
	Yes, replaced another aerator but not sure if it was low-flow or standard	3	3.6	14.3	71.4
	No, there was previously no aerator on the faucet	5	6.0	23.8	95.2
	Not sure / don't remember	1	1.2	4.8	100.0
	Total	21	25.0	100.0	
Missing	System	63	75.0		
Total		84	100.0		

Have you purchased any additional low-flow faucet aerators since receiving the kit?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	1.2	1.2	1.2
	No	80	95.2	95.2	96.4
	Don't know	3	3.6	3.6	100.0
	Total	84	100.0	100.0	

Do you recall how many additional low-flow faucet aerators have you purchased?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please note how many you purchased below (numeric only):	1	1.2	100.0	100.0
Missing	System	83	98.8		
	Total	84	100.0		

Do you recall how many additional low-flow faucet aerators have you purchased?-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	83	98.8	98.8	98.8
	Total	84	100.0	100.0	100.0

Do you recall how many of these low-flow faucet aerators are currently installed in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please note how many you installed below (numeric only):	1	1.2	100.0	100.0
Missing	System	83	98.8		
	Total	84	100.0		

Do you recall how many of these low-flow faucet aerators are currently installed in your home? -TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	83	98.8	98.8	98.8
	Total	84	100.0	100.0	100.0

Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influent..."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10 - Extremely influential	1	1.2	100.0	100.0
Missing	System	83	98.8		
Total		84	100.0		

Water Flow Meter Bag

The kit also included a water flow meter bag. Did you use the water flow meter bag that was provi...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	17.9	18.1	18.1
	No, but plan to	17	20.2	20.5	38.6
	No, and don't plan to	36	42.9	43.4	81.9
	Don't know	15	17.9	18.1	100.0
	Total	83	98.8	100.0	
Missing	System	1	1.2		
Total		84	100.0		

On which faucet(s) did you check how many gallons of water you were using per minute? (select all...- Showerhead

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	7.1	100.0	100.0
Missing	System	78	92.9		
Total		84	100.0		

On which faucet(s) did you check how many gallons of water you were using per minute? (select all...- Kitchen sink faucet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	15.5	100.0	100.0
Missing	System	71	84.5		
Total		84	100.0		

On which faucet(s) did you check how many gallons of water you were using per minute? (select all...-
Bathroom sink faucet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	5	6.0	100.0	100.0
Missing System	79	94.0		
Total	84	100.0		

On which faucet(s) did you check how many gallons of water you were using per minute? (select all...-
Other sink faucet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	1	1.2	100.0	100.0
Missing System	83	98.8		
Total	84	100.0		

On which faucets did you then adjust the water flow based on the readings? (select all that apply)-
Showerhead

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	1	1.2	100.0	100.0
Missing System	83	98.8		
Total	84	100.0		

On which faucets did you then adjust the water flow based on the readings? (select all that apply)-Kitchen
sink faucet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	5	6.0	100.0	100.0
Missing System	79	94.0		
Total	84	100.0		

On which faucets did you then adjust the water flow based on the readings? (select all that apply)-
Bathroom sink faucet

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	3	3.6	100.0	100.0
Missing System	81	96.4		
Total	84	100.0		

On which faucets did you then adjust the water flow based on the readings? (select all that apply)-Other
sink faucet

	Frequency	Percent
Missing System	84	100.0

Outlet Gasket Insulator Installations

The kit also included outlet and switch gasket insulators. Are some or all of the insulators that...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	27	32.1	32.1	32.1
	No, but I do plan to install some or all of them	38	45.2	45.2	77.4
	No, and I don't plan to install any of them	13	15.5	15.5	92.9
	Don't know	6	7.1	7.1	100.0
	Total	84	100.0	100.0	

Please select the locations where you have installed an outlet and switch gasket insulator, then...-Interior walls-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	1.2	7.7	7.7
	1.00	1	1.2	7.7	15.4
	2.00	3	3.6	23.1	38.5
	3.00	4	4.8	30.8	69.2
	4.00	1	1.2	7.7	76.9
	5.00	1	1.2	7.7	84.6
	6.00	1	1.2	7.7	92.3
	15.00	1	1.2	7.7	100.0
	Total	13	15.5	100.0	
Missing	System	71	84.5		
Total		84	100.0		

Please select the locations where you have installed an outlet and switch gasket insulator, then...-Exterior walls-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	4.8	25.0	25.0
	2.00	5	6.0	31.3	56.3
	3.00	1	1.2	6.3	62.5
	4.00	2	2.4	12.5	75.0
	5.00	1	1.2	6.3	81.3
	6.00	1	1.2	6.3	87.5
	7.00	1	1.2	6.3	93.8
	8.00	1	1.2	6.3	100.0
	Total	16	19.0	100.0	
Missing	System	68	81.0		

Total		84	100.0		
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Please select the locations where you have installed an outlet and switch gasket insulator, then...-Not installed yet on any walls-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	1.2	100.0	100.0
Missing	System	83	98.8		
Total		84	100.0		

Please select the locations where you have installed an outlet and switch gasket insulator, then...-Don't know

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	4.8	100.0	100.0
Missing	System	80	95.2		
Total		84	100.0		

Have you purchased any additional outlet and switch gaskets since receiving the kit?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	3	3.6	3.6	3.6
	No	77	91.7	92.8	96.4
	Don't know	3	3.6	3.6	100.0
	Total	83	98.8	100.0	
Missing	System	1	1.2		
Total		84	100.0		

Do you recall how many additional outlet and switch gaskets have you purchased?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please note how many you purchased below (numeric only):	2	2.4	66.7	66.7
	I don't know	1	1.2	33.3	100.0
	Total	3	3.6	100.0	
Missing	System	81	96.4		
Total		84	100.0		

Do you recall how many additional outlet and switch gaskets have you purchased?-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		82	97.6	97.6	97.6
	10	1	1.2	1.2	98.8
	4	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Do you recall how many of these additional outlet and switch gaskets are currently installed on E...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please note how many you installed below (numeric only):	3	3.6	100.0	100.0
Missing	System	81	96.4		
Total		84	100.0		

Do you recall how many of these additional outlet and switch gaskets are currently installed on E...-TEXT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		81	96.4	96.4	96.4
	0	1	1.2	1.2	97.6
	3	1	1.2	1.2	98.8
	4	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Using a scale of 0 to 10, where 0 means "not at all influential" and 10 means "extremely influen..."

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6	1	1.2	50.0	50.0
	10 - Extremely influential	1	1.2	50.0	100.0
	Total	2	2.4	100.0	
Missing	System	82	97.6		
Total		84	100.0		

Water Heater Temperature Card

The kit also included a water heater temperature card. Did you use the water heater temperature c...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	33	39.3	39.8	39.8
	No, but plan to	17	20.2	20.5	60.2
	No, and don't plan to	24	28.6	28.9	89.2
	Don't know	9	10.7	10.8	100.0
	Total	83	98.8	100.0	
Missing	System	1	1.2		
Total		84	100.0		

What was the temperature reading of the hot water in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 120°	6	7.1	18.2	18.2
	120°	9	10.7	27.3	45.5
	130°	5	6.0	15.2	60.6
	140°	6	7.1	18.2	78.8
	150°	2	2.4	6.1	84.8
	Don't Know	5	6.0	15.2	100.0
	Total	33	39.3	100.0	
Missing	System	51	60.7		
Total		84	100.0		

Did you adjust your water heater temperature as a result?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	10	11.9	31.3	31.3
	No	22	26.2	68.8	100.0
	Total	32	38.1	100.0	
Missing	System	52	61.9		
Total		84	100.0		

What was the temperature reading of your hot water after you adjusted the water heater temperature?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 120°	2	2.4	20.0	20.0
	120°	5	6.0	50.0	70.0
	130°	1	1.2	10.0	80.0
	Don't know	2	2.4	20.0	100.0
	Total	10	11.9	100.0	
Missing	System	74	88.1		
Total		84	100.0		

Limelight Night Light

The kit also included a night light. Is the night light that was provided in the kit currently in...

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	66	78.6	79.5	79.5
	No, installed but subsequently removed it	3	3.6	3.6	83.1
	No, but plan to	5	6.0	6.0	89.2
	No, and don't plan to	7	8.3	8.4	97.6
	Don't know	2	2.4	2.4	100.0
	Total	83	98.8	100.0	
Missing	System	1	1.2		
Total		84	100.0		

Why did you remove the night light?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		81	96.4	96.4	96.4
	broken	1	1.2	1.2	97.6
	don't kids removed	1	1.2	1.2	98.8
	small children playing with it	1	1.2	1.2	100.0
	Total	84	100.0	100.0	

Feedback on Energy Savers Booklet

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means...-It was helpful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	1.2	1.6	1.6
	4	2	2.4	3.2	4.8
	5	6	7.1	9.7	14.5
	6	8	9.5	12.9	27.4
	7	10	11.9	16.1	43.5
	8	10	11.9	16.1	59.7
	9	9	10.7	14.5	74.2
	10 - strongly agree	15	17.9	24.2	98.4
	don't know	1	1.2	1.6	100.0
	Total	62	73.8	100.0	
Missing	System	22	26.2		
Total		84	100.0		

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means...-It was informative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.2	1.6	1.6
	5	3	3.6	4.8	6.5
	6	6	7.1	9.7	16.1
	7	9	10.7	14.5	30.6
	8	14	16.7	22.6	53.2
	9	7	8.3	11.3	64.5
	10 - strongly agree	21	25.0	33.9	98.4
	don't know	1	1.2	1.6	100.0
	Total	62	73.8	100.0	
Missing	System	22	26.2		
Total		84	100.0		

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means it offered tips for saving energy that I had not previously thought about

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.2	1.6	1.6
	3	3	3.6	4.9	6.6
	4	2	2.4	3.3	9.8
	5	4	4.8	6.6	16.4
	6	8	9.5	13.1	29.5
	7	11	13.1	18.0	47.5
	8	14	16.7	23.0	70.5
	9	4	4.8	6.6	77.0
	10 - strongly agree	13	15.5	21.3	98.4
	don't know	1	1.2	1.6	100.0
	Total	61	72.6	100.0	
Missing	System	23	27.4		
Total		84	100.0		

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means it provided ideas that are feasible to implement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.2	1.6	1.6
	3	2	2.4	3.3	4.9
	5	5	6.0	8.2	13.1
	6	10	11.9	16.4	29.5
	7	12	14.3	19.7	49.2
	8	12	14.3	19.7	68.9
	9	7	8.3	11.5	80.3
	10 - strongly agree	11	13.1	18.0	98.4
	don't know	1	1.2	1.6	100.0
	Total	61	72.6	100.0	
Missing	System	23	27.4		
Total		84	100.0		

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means...-It provided ideas that are affordable to implement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.2	1.6	1.6
	3	3	3.6	4.9	6.6
	5	6	7.1	9.8	16.4
	6	9	10.7	14.8	31.1
	7	12	14.3	19.7	50.8
	8	15	17.9	24.6	75.4
	9	3	3.6	4.9	80.3
	10 - strongly agree	10	11.9	16.4	96.7
	don't know	2	2.4	3.3	100.0
	Total	61	72.6	100.0	
Missing	System	23	27.4		
Total		84	100.0		

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means...-It was easy to understand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	1.2	1.6	1.6
	5	4	4.8	6.6	8.2
	6	3	3.6	4.9	13.1
	7	9	10.7	14.8	27.9
	8	13	15.5	21.3	49.2
	9	9	10.7	14.8	63.9
	10 - strongly agree	22	26.2	36.1	100.0
	Total	61	72.6	100.0	
Missing	System	23	27.4		
Total		84	100.0		

Please rate the Energy Savers booklet in the following areas using a scale of 0 to 10, where 0 means it was not relevant to my household and the way I live

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.2	1.6	1.6
	3	3	3.6	4.9	6.6
	7	1	1.2	1.6	8.2
	5	6	7.1	9.8	18.0
	6	6	7.1	9.8	27.9
	7	11	13.1	18.0	45.9
	8	13	15.5	21.3	67.2
	9	7	8.3	11.5	78.7
	10 - strongly agree	13	15.5	21.3	100.0
	Total	61	72.6	100.0	
Missing	System	23	27.4		
Total		84	100.0		

Additional Actions Based on What Participants Learned from the Program

What other actions, if any, have you taken in your home to save energy and reduce utility bills at least in part as a result of what you learned in the Duke Energy / National Theater for Children program?

Category of Action	Count of Participants Mentioning
Thermostat adjustments / heating and cooling decisions	8
Turn off lights when not in use	5
Turn items off when not in use / unplug electronics	4
Conserving water (other than clothes washing)	3
Weather-stripping doors and windows / sealing leaks	1
Use dryer less often / clothesline	1
HVAC maintenance	1
Insulate water heater	1
Recycling	1
Keep windows and doors closed	1