



# Focus on Energy Calendar Year 2013 Evaluation Report

Volume I  
May 15, 2014

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## List of Acronyms

Acronym	Term
CB&I	Chicago Bridge & Iron Company
CFL	Compact Fluorescent Lamp
CY	Calendar Year
EIA	Energy Information Administration
EM&V	Evaluation, Measurement, and Verification
EUL	Expected Useful Life
HVAC	Heating, Ventilation, and Air Conditioning
KBtu/h	Thousand British Thermal Units per Hour
kW	Kilowatt
kWh	Kilowatt Hour
LED	Light-Emitting Diode
LMP	Locational Marginal Pricing
MISO	Midcontinent Independent Transmission System Operator, Inc.
MMBtu	Million British Thermal Units
MThm	Megatherm
MWh	Megawatt Hour
NTG	Net-to-Gross
PSC	Public Service Commission of Wisconsin
QA/QC	Quality Assurance/Quality Control
SEERA	Statewide Energy Efficiency and Renewable Administration
SMP	Standard Market Practice
SPECTRUM	Statewide Program for Energy Customer Tracking, Resource Utilization, and Data Management
TRC	Total Resource Cost (test)
TRM	Technical Reference Manual
VFD	Variable-Frequency Drive (also known as Variable-Speed Drive)

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# Executive Summary

This report describes the evaluation findings and impacts achieved by Focus on Energy, for calendar year (CY) 2013. Volume I of the evaluation report summarizes findings across all programs and measure categories in the portfolio, and Volume II provides detailed evaluation results for each program. The report appendices contain additional detail on evaluation approaches including savings by county, political district, and utility territory as well as supporting data and evaluation materials. All three report sections (Volume I, Volume II, and the Appendices) should be read together to gain a comprehensive perspective on the Focus on Energy portfolio.

The CY 2013 programs overall were cost effective, experienced growing participation, and achieved high degrees of customer satisfaction. The programs in whole made significant progress toward quadrennial net, gross, annual, and lifecycle savings goals.

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## Summary of Findings

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The Evaluation Team defined the following key evaluation terms as follows:

- **Gross savings:** The unadjusted program reported change in energy consumption and/or demand that results from program-related actions taken by participants in an efficiency program.
- **Verified gross savings:** Energy savings verified by an independent evaluation team based on inspections and reviews of the number and types of implemented energy- efficiency measures and the engineering calculations used to estimate the energy saved.
- **Net savings:** Savings directly attributable to program efforts, i.e., net of what would have occurred in the program's absence. Net savings reflect the total calculated savings considering the influence of freeriders and/

or spillover. Freeriders are defined as participants who would have adopted the energy-efficient measure without the program. Participant spillover is defined as participants who, after an initial program experience, go on to adopt more energy-saving products or practices without program assistance.

To determine verified gross savings, the Evaluation Team reviewed and assessed the technical assumptions used in calculating savings, participation levels, as well as measure installation and retention rates. To determine net savings, the Evaluation Team relied almost exclusively upon primary research conducted in CY 2011, CY 2012, CY 2013, and early CY 2014.



In CY 2013, as reported prior to verification, Focus on Energy's program-tracking records contained a total of 823,645,123 kilowatt hour (kWh) and 21,124,650 therms savings. Table 1 lists first-year annual gross claimed savings, verified gross savings, and verified net savings for residential and nonresidential programs.

**Table 1. CY 2013 First-Year Annual Savings by Segment<sup>1</sup>**

Savings Type	Unit	Residential	Nonresidential	Total <sup>1</sup>
<b>Gross</b>	kWh	383,937,330	439,707,793	823,645,123
	kW	38,371	68,740	107,111
	Therms	5,124,812	15,999,837	21,124,650
<b>Verified Gross</b>	kWh	375,444,357	465,825,160	841,269,517
	kW	47,762	78,381	126,143
	Therms	4,587,420	17,656,515	22,243,935
<b>Verified Net</b>	kWh	297,880,259	321,538,168	619,418,427
	kW	35,793	51,816	87,608
	Therms	3,412,565	14,064,701	17,477,267

<sup>1</sup>Totals may not match the sum of nonresidential and residential savings due to rounding.

Public Service Commission of Wisconsin Order, docket 5-GF-191 (PSC REF#:158228), adopted a four-year (CY 2011 to CY 2014) net annual electric energy savings goal of 1,816,320,000 kWh and a net annual natural gas savings goal of 73,040,000 therms. Table 2 lists the net annual savings achieved in the first three years of the quadrennial period (January 1, 2011, to December 31, 2013). During the first three years, Focus on Energy has achieved 74% of the electric energy savings goal and 62% of the gas savings goal.

**Table 2. CY 2011, CY 2012, and CY 2013 First-Year Annual Verified Net Savings by Segment<sup>1</sup>**

Calendar Year	Unit	Residential	Nonresidential	Total
<b>2011</b>	kWh	61,368,714	207,596,331	268,965,045
	kW	12,763	34,558	47,320
	Therms	2,088,348	9,163,081	11,251,429
<b>2012</b>	kWh	126,367,389	334,417,343	460,784,732
	kW	18,299	48,518	66,817
	Therms	3,273,440	13,203,348	16,476,788
<b>2013</b>	kWh	297,880,259	321,538,168	619,418,427
	kW	35,793	51,816	87,608
	Therms	3,412,565	14,064,701	17,477,267
<b>Total</b>	<b>kWh</b>	<b>485,616,362</b>	<b>863,551,842</b>	<b>1,349,168,204</b>
	<b>kW</b>	<b>66,855</b>	<b>134,892</b>	<b>201,745</b>
	<b>Therms</b>	<b>8,774,353</b>	<b>36,431,130</b>	<b>45,205,484</b>

<sup>1</sup>Includes Renewable Energy Measures. Totals may not match the sum of nonresidential and residential savings due to rounding.

Additionally, PSC Order 5-GF-191 requires that the Focus on Energy Program Administrator and Implementers track savings goals relative to gross life-cycle savings targets.

Table 3 shows the life-cycle savings achieved by Focus on Energy in CY 2013. Life-cycle savings represent the savings programs can realize through measures installed during CY 2013, over their effective useful lifetimes (EULs).

**Table 3. CY 2013 Gross Verified Life-Cycle Savings by Segment<sup>1</sup>**

Savings Type	Unit	Residential	Nonresidential	Total <sup>1</sup>
<b>Gross</b>	kWh	3,382,968,508	5,382,141,808	8,765,110,316
	kW	38,371	68,740	107,111
	Therms	100,807,711	203,245,946	304,053,657
<b>Verified Gross</b>	kWh	2,965,153,969	5,628,502,360	8,593,656,329
	kW	47,762	78,381	126,143
	Therms	90,424,987	227,669,922	318,094,910
<b>Verified Net</b>	kWh	1,842,968,754	3,821,941,257	5,664,910,011
	kW	35,793	51,816	87,608
	Therms	63,878,514	177,472,322	241,350,836

<sup>1</sup> Includes Renewable Energy Measures. Totals may not match the sum of nonresidential and residential savings due to rounding.

Table 4 lists verified gross life-cycle savings by segment for CY 2011, CY 2012, and CY 2013.

**Table 4. CY 2011, CY 2012, and CY 2013 Verified Gross Life-Cycle Savings by Segment<sup>1</sup>**

Calendar Year	Unit	Residential	Nonresidential	Total
<b>2011</b>	kWh	885,561,963	4,374,342,776	5,259,904,739
	kW	19,327	57,747	77,074
	therms	60,435,758	185,735,647	246,171,405
<b>2012</b>	kWh	1,578,656,352	5,390,366,110	6,969,022,462
	kW	28,697	65,522	94,219
	therms	80,249,406	273,269,275	353,518,681
<b>2013</b>	kWh	2,965,153,969	5,628,502,360	8,593,656,329
	kW	47,762	78,381	126,143
	therms	90,424,987	227,669,922	318,094,910
<b>Total</b>	<b>kWh</b>	<b>5,429,372,284</b>	<b>15,393,211,246</b>	<b>20,822,583,530</b>
	<b>kW</b>	<b>95,786</b>	<b>201,650</b>	<b>297,436</b>
	<b>therms</b>	<b>231,110,151</b>	<b>686,674,844</b>	<b>917,784,996</b>

<sup>1</sup> Includes Renewable Energy Measures. Totals may not match the sum of nonresidential and residential savings due to rounding.



Table 5 lists the findings from the Evaluation Team’s benefit/cost analysis of the CY 2013 portfolio. The residential and nonresidential segments and overall portfolio were cost effective.

**Table 5. CY 2013 Cost-Effectiveness Results**

	<b>2013 Two Segments Inclusive of Renewables</b>	<b>2013 Two Segments and Renewables Separate</b>
Nonresidential Segment	3.51	3.80
Residential Segment	3.22	3.27
Renewables	n/a	0.97
<b>Total</b>	<b>3.41</b>	<b>3.41</b>

## Introduction

Focus on Energy is Wisconsin's statewide energy-efficiency and renewable-resource program funded by the state's investor-owned energy utilities—as required under Wisconsin Statute §196.374(2)(a)—and participating municipal and electric cooperative utilities. The Public Service Commission of Wisconsin (PSC) provides oversight of Focus on Energy.

Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy-efficiency and renewable-energy projects. Information, resources, and financial incentives enable consumers to implement and complete energy projects they otherwise would not have been able to complete or to complete projects ahead of schedule. Focus on Energy helps Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect the environment, and control Wisconsin's growing demand for electricity and natural gas. The 2005 Wisconsin Act 141 requires the PSC to conduct a review of energy-efficiency and renewable-resource programs at least once every four years; the last review was conducted in 2010 to set policies for CY 2011-2014.<sup>1</sup>

In November 2011, the PSC contracted with a team of energy consulting and market research firms to verify Focus on Energy savings and evaluate the programs during the quadrennial cycle (CY 2011 to CY 2014). These firms, collectively referred to as the Evaluation Team, are Cadmus, Nexant, Inc., TecMarket Works, and St. Norbert College Strategic Research Institute.

CB&I (Chicago Bridge & Iron Company; formerly Shaw Environmental & Infrastructure, Inc.) is contracted to serve as the Program Administrator for the quadrennial cycle (CY 2011 to CY 2014). CB&I is responsible for designing all of Focus on Energy's programs and the overall performance of these programs in meeting Wisconsin's energy-savings goals. CB&I is also responsible for managing and coordinating individual program offerings, supporting customers and trade allies through a customer service center, coordinating with participating utilities, guiding marketing and communication activities, and reporting to the Statewide Energy Efficiency and Renewable Administration (SEERA) and to the PSC. SEERA, formed by the state's investor-owned utilities, is responsible for collecting utility funding for Focus on Energy and contracting with the Program Administrator.

In CY 2013, Focus on Energy targeted two customer segments:

- The residential segment, servicing single-family and multifamily homes.
- The nonresidential segment, servicing commercial, industrial, schools, government, and agricultural customers.

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<sup>1</sup> The PSC is currently conducting a new planning process to set policies for 2015-2019.

**CY 2013 Evaluation**

The Evaluation Team investigated the performance of 17 programs delivering energy savings during CY 2013. Table 6 lists the programs evaluated by residential and nonresidential segments. Appendix C provides detailed descriptions of these programs.

**Table 6. Residential and Nonresidential Programs**

Residential Programs	Nonresidential Programs
Multifamily Direct Install	Business Incentive
Multifamily Energy Savings	Chain Stores and Franchises
Appliance Recycling	Large Energy Users
Residential Lighting and Appliance	Small Business
Home Performance with ENERGY STAR®	Retrocommissioning
Assisted Home Performance with ENERGY STAR	Design Assistance
New Homes	Renewable Energy Competitive Incentive
Residential Rewards	
Enhanced Rewards	
Express Energy Efficiency	

**Summary of Measures by Segment**

The Evaluation Team assessed the electric and gas savings each measure that was installed in CY 2013 achieved during the first year of its operation as well as the impacts that can occur over each measure’s EUL. Reporting on both first-year annual and life-cycle savings provides the most applicable representation of each program’s performance.

Table 7 lists all measure categories in the residential and nonresidential programs.

**Table 7. CY 2013 Residential and Nonresidential Program Measure Categories**

Residential Only	Residential and Nonresidential Segments	Nonresidential Only
<ul style="list-style-type: none"> <li>• Appliance Recycling</li> <li>• Lighting Fixtures</li> <li>• Furnace</li> <li>• LED Holiday Light</li> </ul>	<ul style="list-style-type: none"> <li>• Boiler</li> <li>• Bonus<sup>1</sup></li> <li>• Building Shell</li> <li>• Compact Fluorescent Lighting (CFL)</li> <li>• Controls</li> <li>• Dishwasher</li> <li>• Domestic Hot Water</li> <li>• Energy Recovery</li> <li>• Fuel Conversion<sup>2</sup></li> <li>• Hot Water</li> <li>• HVAC</li> <li>• HVAC Controls</li> <li>• Laundry</li> <li>• LED Lighting</li> <li>• Lighting</li> <li>• Lighting Controls</li> <li>• Motors and Drives</li> <li>• New Construction</li> <li>• Refrigeration</li> <li>• Renewable Energy</li> <li>• T8/T5 Fluorescent Lighting</li> <li>• Training and Special<sup>3</sup></li> <li>• Vending and Plug Loads</li> <li>• Whole Building<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Aeration System</li> <li>• Boiler Controls</li> <li>• Boiler Service</li> <li>• Compressed Air/Vacuum Pumps</li> <li>• Compressor Equipment</li> <li>• Compressor Service</li> <li>• Computer Technology/IT</li> <li>• Custom<sup>5</sup></li> <li>• Food Service</li> <li>• Greenhouse</li> <li>• High Intensity Discharge (HID)<sup>6</sup></li> <li>• Industrial – Custom</li> <li>• Industrial Ovens and Furnaces</li> <li>• New Building Design</li> <li>• Pools</li> <li>• Process Efficiency</li> <li>• Refrigeration Controls</li> <li>• EMS Scheduling<sup>7</sup></li> <li>• Waste Water Treatment</li> </ul>

<sup>1</sup> Bonus incentives applied to certain savings levels or certain customer categories.

<sup>2</sup> Changing equipment to a more efficient fuel source for a particular application.

<sup>3</sup> Energy education and training on energy-saving operations and maintenance practices.

<sup>4</sup> Customized equipment and building retrofits that treat the building as an energy system with interacting components.

<sup>5</sup> Customized equipment and building retrofits tailored to suit the needs of a business or facility.

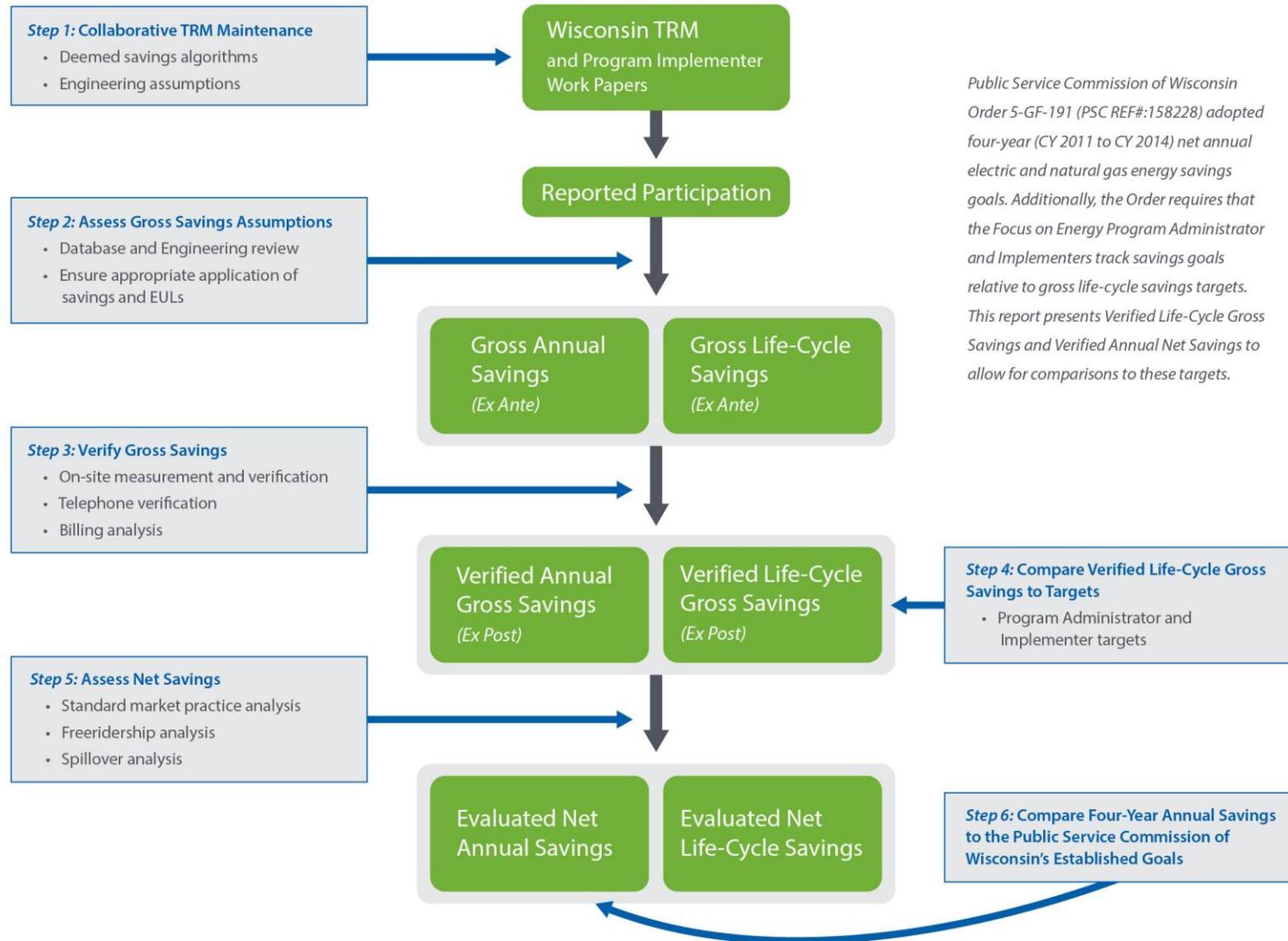
<sup>6</sup> High-intensity discharge lamps (HID) are a type of electrical gas-discharge lamp.

<sup>7</sup> Process used to improve commercial facilities' energy management systems (EMS).

## Overview of Evaluation Activities

Figure 1 depicts the six steps the Evaluation Team used to determine net savings. The Evaluation Team is conducting this process on an ongoing basis within the quadrennial period of CY 2011 through CY 2014.

**Figure 1. Evaluation Steps to Determine Net Savings**



The Evaluation Team conducted the following steps:

- **Step 1.** Collaborated with the PSC and key Focus on Energy program actors to ensure that the programs' deemed savings, algorithms, and input assumptions are appropriate. Documentation is currently being compiled into the Wisconsin Technical Reference Manual (TRM). The TRM will serve as a comprehensive reference in future years.
- **Step 2.** Conducted a review of the implementation database to check for entry errors, inconsistencies, ineligible equipment, and any other potential errors. This information was reconciled with Program Administrator and Program Implementer data. The process produced the *ex ante* gross annual and life-cycle savings.
- **Step 3.** Conducted an assessment of the gross savings. In this step the Evaluation Team verified—either through site visits or phone surveys—installation of measures and assessed gross savings, including revisiting baseline assumptions and engineering inputs. The Evaluation Team's data collection and analysis methods depended on the program and the installed measures.
- **Step 4.** Compared *ex post* gross life-cycle saving to the targets for the Program Administrator and Program Implementers.
- **Step 5.** Estimated net-to-gross (NTG) ratios (that is, freeridership and spillover). The Evaluation Team applied the NTG ratios to the *ex post* savings from Step 4 and estimated net savings.
- **Step 6.** Compared evaluated net annual savings to the four-year goal established in Public Service Commission of Wisconsin Order, docket 5-GF-191 (PSC REF#:158228).

There has been ongoing discussion between the PSC, Program Administrator, and Program Implementers concerning the accuracy of self-report for calculating net-to-gross. Two primary concerns have been raised regarding their accuracy:

1. To what extent a customer can accurately explain their likely behavior in hypothetical absence of a program.
2. If the customer is aware of all the influences of a program, particularly when some of those influences target upstream actors.

While the Evaluation Team believes self-report is a cost-effective and valid approach for calculating NTG for many programs, for certain programs and measures there is an opportunity to examine new approaches that address these concerns. Additionally, some programs have always necessitated the use of alternative approaches to self-report. The Evaluation Team has worked with the PSC and Administrator to begin to define alternative approaches for calculating NTG which decrease dependency on self-report and increase reliance on empirical data. The alternative approach being used in this report has been termed the “Standard Market Practice” (SMP) method, which calculates net savings based on the difference between the efficiency levels of program measures and those of the technologies used by non-participants. SMP is defined further in Volume II and Appendix L of this report.

Table 8 lists the specific data collection activity and sample size used in each segment for the CY 2013 evaluation.

**Table 8. CY 2013 Evaluation Activities**

<b>Evaluation Activity</b>	<b>Residential</b>	<b>Nonresidential</b>	<b>Total</b>
On-Site Evaluation Measurement and Verification (EM&V) <sup>1</sup>	286	218	<b>504</b>
Project Audit and Verification Surveys <sup>2</sup>	0	215	<b>215</b>
Participant Survey Completes	989	414	<b>1,403</b>
Partial and Nonparticipant Survey Completes	118	75	<b>193</b>
Stakeholder Interviews <sup>3</sup>	18	50	<b>68</b>
Trade Ally and Market Actor Interviews <sup>3</sup>	102	110	<b>212</b>

<sup>1</sup>All projects included in on-site EM&V also received a project records review.

<sup>2</sup>Exclusive of project audits conducted for on-site EM&V.

<sup>3</sup>Values represent number of individuals interviewed.

### Evaluation Findings

Table 9 lists the overall net annual electricity and gas savings for the portfolio by calendar year.

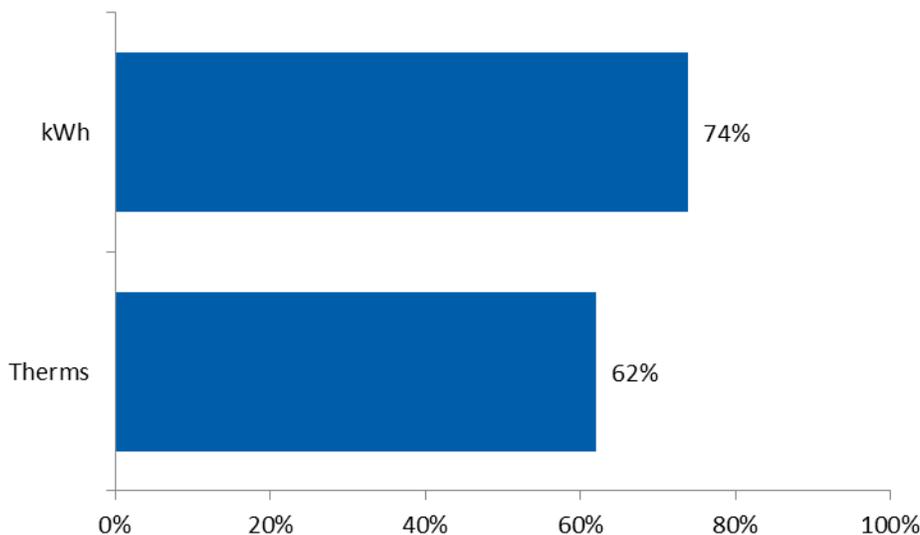
**Table 9. Overall Portfolio Net Savings by Calendar Year**

Calendar Year	Electric Savings (kWh)	Gas Savings (therms)
2011	268,965,045	11,251,429
2012	460,784,732	16,476,789
2013	619,418,427	17,477,267
<b>Total—All Years</b>	<b>1,349,168,204</b>	<b>45,205,484</b>

Relative to the net annual savings goals established in PSC Order, docket 5-GF-191 (PSC REF#:158228), —1,816,320,000 kWh and 73,040,000 therms—the total savings had reached 74% of the kWh savings goal and 62% of the therms savings goal for the quadrennial period as of the end of CY 2013.

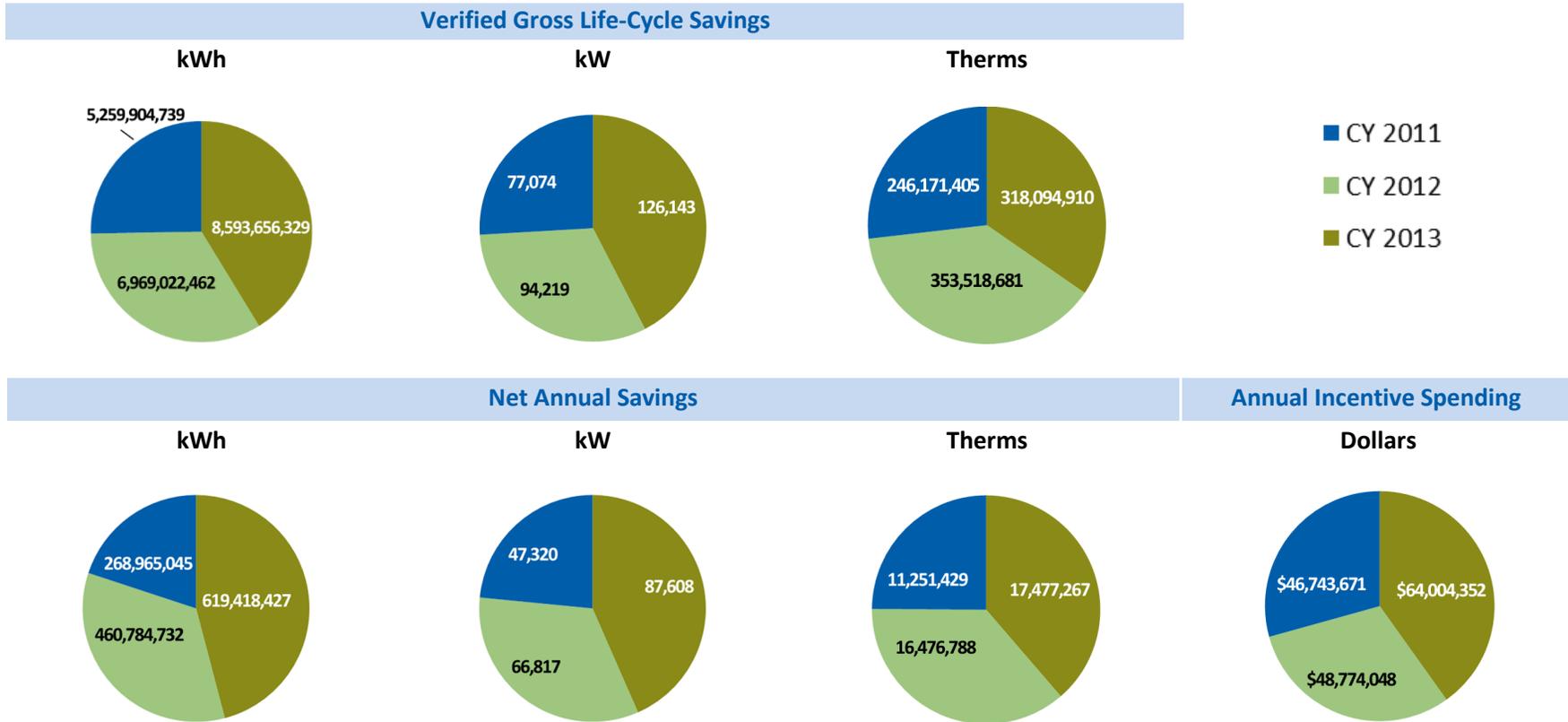
Figure 2 and Figure 3 show the actual savings and spending totals (CY 2011 to CY 2013) compared to the PSC’s quadrennial savings and spending goals. This report shows savings and progress toward goals on an annual basis. The PSC’s established goals and verified gross targets are for the full four-year cycle. The Evaluation Team will assess whether or not the programs achieved the goals at the conclusion of the quadrennial cycle. This report presents annual figures to help illustrate the pace at which programs have realized savings.

**Figure 2. Focus on Energy’s Progress in Meeting Four-Year (CY 2011-2014) Savings and Budget Goal<sup>1</sup>**



<sup>1</sup>100% reflects PSC’s established net annual goals of 1,816,320,000 kWh and 73,040,000 therms. Relative to total net kW savings; no goal established.

Figure 3. Focus on Energy Four-Year (CY 2011-2014) Savings and Budget Progress Comparison



### **Summary of Findings by Program**

Volume II discusses savings for each program and the approaches used for calculating the savings values. The Evaluation Team varied its approach and activities by program, depending upon the level of participation, the savings achieved, and the information available.

Across all programs, the Evaluation Team applied the following standard methods when calculating verified and evaluated savings:

#### **Equation for Verified Gross Life-Cycle Savings:**

$$\text{Verified Gross Life – Cycle Savings} = \sum(\text{Verified Gross Annual Savings} \times \text{EUL for each measure})$$

#### **Equation for Net Annual Savings:**

$$\text{Verified Net Annual Savings} = \sum(\text{Verified Gross Annual Savings} \times \text{NTG for each measure})$$

#### **Equation for Net Life-Cycle Savings:**

$$\text{Verified Net Life – Cycle Savings} = \sum(\text{Verified Gross Lifecycle Savings} \times \text{NTG for each measure})$$

This section provides a summary of the savings and participation for each program in the Focus on Energy portfolio in CY 2013. Table 10 lists the total participation in CY 2013 (measured as number of participating customers) in each program and segment.

Figure 4 shows the percentage of gross verified life-cycle savings by sector. Figure 5 and Figure 6 show a summary of the verified gross electric and verified gross gas energy savings by program for residential and nonresidential programs. Key findings from both segments include:

- The Residential Lighting and Appliance Program provided the greatest amount of electric savings for the residential segment.
- The Residential Rewards Program provided the greatest amount of gas savings for the residential segment.
- The Business Incentive Program provided the greatest amount of electric savings for the nonresidential segment.
- The Large Energy Users Program provided the greatest amount of gas savings for the nonresidential segment.

**Table 10. Total Participation by Program in CY 2013**

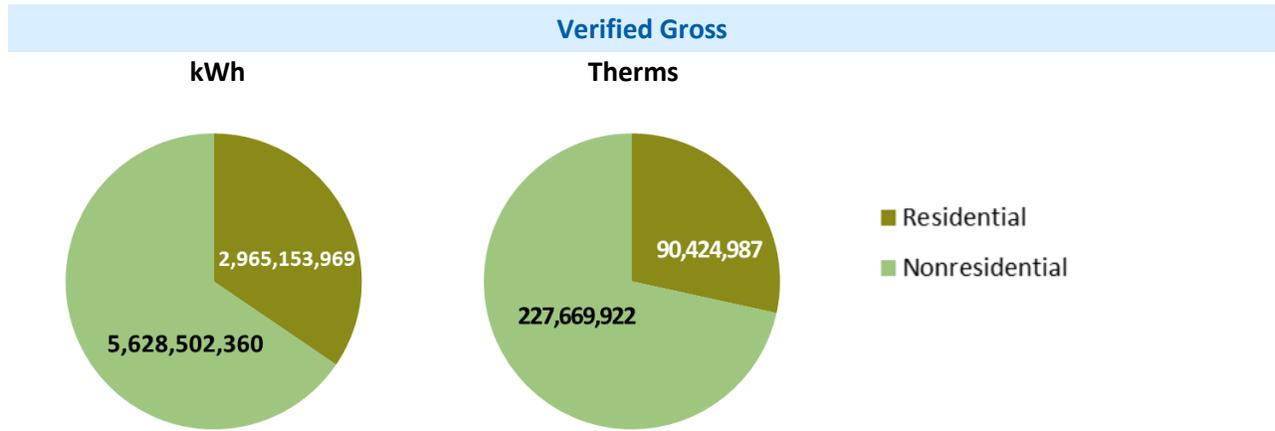
Segment	Program	Participation
Residential	Multifamily Direct Install <sup>1</sup>	287
Residential	Multifamily Energy Savings <sup>1</sup>	290
Residential	Appliance Recycling	23,451
Residential	Residential Lighting and Appliance <sup>2</sup>	(see below)
Residential	Home Performance with ENERGY STAR	3,232
Residential	Assisted Home Performance with ENERGY STAR	723
Residential	New Homes	1,947
Residential	Residential Rewards	22,177
Residential	Enhanced Rewards	1,313
Residential	Express Energy Efficiency	24,872
<b>Residential Subtotal<sup>3</sup></b>		<b>78,292</b>
Nonresidential	Business Incentive <sup>1</sup>	3,727
Nonresidential	Chain Stores and Franchises	502
Nonresidential	Large Energy Users <sup>1</sup>	367
Nonresidential	Small Business	5,176
Nonresidential	Retrocommissioning	24
Nonresidential	Design Assistance	2
Nonresidential	The Renewable Energy Competitive Incentive	21
<b>Nonresidential Subtotal</b>		<b>9,819</b>

<sup>1</sup>Includes legacy programs and carryover participation.

<sup>2</sup> 7,268,454 total measure units, not unique participants. To estimate the number of individuals who purchased bulbs, showerheads, and clothes washers in each calendar year, the Evaluation Team, in the absence of precise data, assumed that participants were buying only one clothes washer and one showerhead annually. For bulbs, the Evaluation Team relied on CY 2012 data obtained from customers who used coupons for purchases of compact fluorescent lamps or other bulbs through the Program (4.56 bulbs per person). These coupons represent a small percentage of the overall bulb sales recorded in the upstream lighting programs. At this time, the data from the coupons are the best data available on unit purchases by customer. Since customers do not interact directly with upstream programs, there are no other Program records available for participating customers. The CY 2013 total participation estimate for the Residential Lighting Appliance Program is 1,601,063 customers. Further discussion of the Residential Lighting and Appliance Program participation is included in the Program Chapter in Volume II of this Report.

<sup>3</sup> Does not include Residential Lighting and Appliance Program participation.

Figure 4. CY 2013 Gross Verified Life-Cycle Savings Impact by Sector<sup>1</sup>



<sup>1</sup> Renewables for CY 2013 accounted for less than 0.01% of total savings in each category. The renewables values are included with their market segment.

Figure 5. CY 2013 Verified Gross Electric Energy Impacts by Program

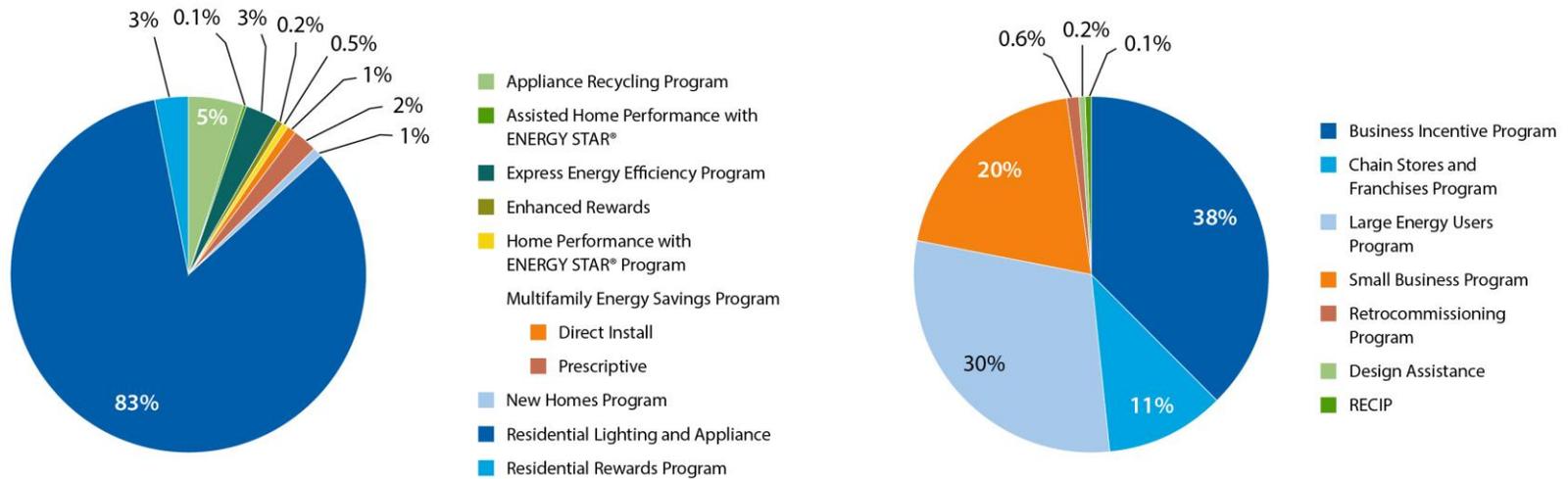


Figure 6. CY 2013 Verified Gross Gas Energy Impacts by Program

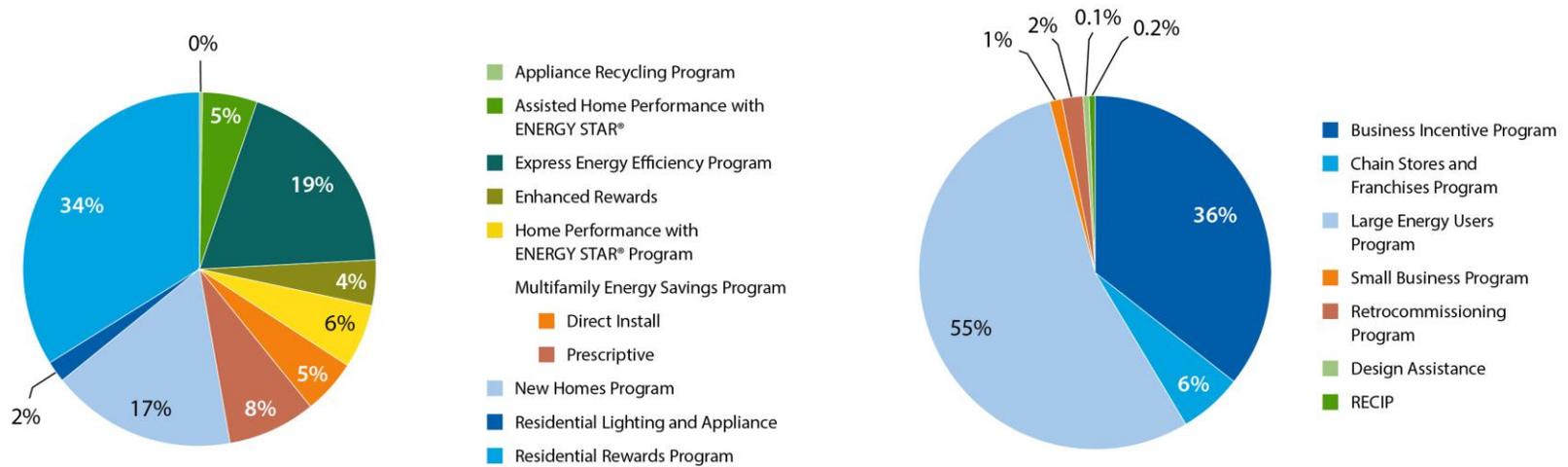


Table 11 lists the first-year annual gross, verified gross, and verified net peak demand savings for electricity and gas by program, segment, and overall portfolio.

**Table 11. Summary of First-Year Annual Savings (CY 2013) By Program**

Program Name	Gross			Verified Gross			Verified Net		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
<b>Residential Programs</b>									
Multifamily Direct Install	4,190,116	220	214,182	4,066,166	214	207,637	4,066,166	214	207,637
Multifamily Energy Savings	8,037,638	1,008	374,445	8,037,638	1,008	374,445	6,075,125	751	261,427
Appliance Recycling	25,569,705	3,827	0	20,459,217	3,062	0	10,854,033	1,625	0
Residential Lighting and Appliance	314,956,253	24,724	89,482	311,837,741	34,685	105,447	253,757,862	27,699	31,441
Home Performance with ENERGY STAR	1,389,943	501	649,832	1,882,561	683	271,597	1,826,240	656	259,921
Assisted Home Performance with ENERGY STAR	395,178	173	212,403	400,803	173	212,309	400,803	173	212,309
New Homes	3,543,042	1,074	788,938	3,543,042	1,074	788,938	2,383,303	705	509,433
Residential Rewards	12,550,786	5,470	1,582,401	12,550,786	5,470	1,582,401	5,850,324	2,577	885,751
Enhanced Rewards	597,350	278	180,187	597,350	278	180,187	597,350	278	180,187
Express Energy Efficiency	12,707,319	1,096	1,032,943	12,069,052	1,116	864,461	12,069,052	1,116	864,461
<b>Residential Total</b>	<b>383,937,330</b>	<b>38,371</b>	<b>5,124,812</b>	<b>375,444,357</b>	<b>47,762</b>	<b>4,587,420</b>	<b>297,880,259</b>	<b>35,793</b>	<b>3,412,565</b>
<b>Nonresidential Programs</b>									
Business Incentive (New in CY 2013)	150,187,694	20,641	5,087,715	152,429,054	28,399	4,938,554	94,948,510	16,067	3,981,524
Business Incentive (Carryover)	24,004,623	4,470	1,453,315	24,055,036	4,713	1,454,468	25,524,978	5,001	1,543,347
Chain Stores and Franchises	53,206,722	9,077	1,176,558	53,495,479	9,031	1,144,921	28,544,068	4,765	575,922
Large Energy Users (New in CY 2013)	100,978,475	13,143	6,930,112	123,884,115	15,868	8,547,936	87,517,333	11,244	6,418,933
Large Energy Users (Carryover)	13,386,977	1,548	915,375	14,960,099	1,680	1,106,782	14,960,099	1,680	1,106,782
Small Business	92,429,075	18,120	130,132	92,455,544	18,021	131,421	66,033,437	12,433	111,766
Retrocommissioning	3,136,877	255	273,965	2,867,235	225	285,695	2,849,745	225	280,706
Design Assistance	1,065,500	120	11,405	1,065,500	120	11,405	524,216	65	9,082
Renewable Energy Competitive Incentive	1,311,849	1,367	21,261	613,099	323	35,332	635,784	335	36,639
<b>Nonresidential Total</b>	<b>439,707,793</b>	<b>68,740</b>	<b>15,999,837</b>	<b>465,825,160</b>	<b>78,381</b>	<b>17,656,515</b>	<b>321,538,168</b>	<b>51,816</b>	<b>14,064,701</b>
<b>Total All Programs</b>	<b>823,645,123</b>	<b>107,111</b>	<b>21,124,650</b>	<b>841,269,517</b>	<b>126,143</b>	<b>22,243,935</b>	<b>619,418,427</b>	<b>87,608</b>	<b>17,477,267</b>

**Summary of Findings by Measure Category**

Table 12 lists CY 2013 residential energy savings, demand savings, and incentive monies spent by measure category.

**Table 12. Summary of First-Year Annual Savings by Measure Category in the Residential Segment<sup>1</sup>**

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Appliance Recycling	20,459,217	6.71%	3,045	9.12%	-	0.00%	\$1,172,550	4.04%
Boiler Controls	-	-	-	-	9,061	0.20%	\$1,600	0.01%
Boiler Equipment	-	-	-	-	266,388	5.92%	\$421,136	1.45%
Boiler Service	-	-	-	-	58,276	1.30%	\$17,573	0.06%
Bonus <sup>2</sup>	1,422,375	0.47%	-	0.00%	472,412	10.50%	\$5,342,036	18.39%
Building Shell	741,270	0.24%	223	0.67%	21,412	0.48%	\$71,588	0.25%
CFL	269,654,992	88.46%	23,215	69.50%	-	0.00%	\$10,779,678	37.10%
Clothes Washer	1,077,597	0.35%	333	1.00%	30,507	0.68%	\$513,905	1.77%
Dishwasher	118,710	0.04%	-	-	6,595	0.15%	\$31,855	0.11%
Energy Recovery	-16,055	-0.01%	9	0.03%	9,854	0.22%	\$7,538	0.03%
Faucet Aerator	1,399,366	0.46%	-	0.00%	332,967	7.40%	\$183,432	0.63%
Furnace Equipment	11,320,600	3.71%	5,265	15.76%	1,593,829	35.44%	\$6,862,875	23.62%
Geothermal	714,982	0.23%	14	0.04%	4,297	0.10%	\$58,500	0.20%
HVAC Controls	333,596	0.11%	-	-	14,339	0.32%	\$42,442	0.15%
HVAC Equipment	358,336	0.12%	57	0.17%	-	-	\$43,392	0.15%
HVAC Other	184,164	0.06%	151	0.45%	33,436	0.74%	\$50,815	0.17%
HVAC Service	3,000	0.00%	-	-	-	-	\$80	0.00%
LED	2,650,499	0.87%	280	0.84%	-	0.00%	\$271,051	0.93%
Lighting Controls	299,598	0.10%	-	-	-	-	\$16,590	0.06%
Lighting Other	1,108,222	0.36%	114	0.34%	-	-	\$84,008	0.29%
Motors and Drives	360,536	0.12%	27	0.08%	-	-	\$25,139	0.09%
Other	-	0.00%	-	0.00%	-	0.00%	\$807,976	2.78%
Program Adjustment	-15,846,928	-5.20%	-953	-2.85%	23,600	0.52%	\$15,419	0.05%
Refrigeration Equipment	141,474	0.05%	18	0.05%	-	-	\$29,905	0.10%
Showerhead	2,776,950	0.91%	3	0.01%	698,284	15.53%	\$237,491	0.82%

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Solar Electric	1,253,467	0.41%	523	1.57%	-	-	\$452,510	1.56%
Solar Thermal	26,898	0.01%	0	0.00%	2,623	0.06%	\$33,774	0.12%
T8/T5 Fluorescent	418,316	0.14%	49	0.15%	-	-	\$55,761	0.19%
Water Heater Controls	30,401	0.01%	-	0.00%	38,968	0.87%	-	0.00%
Water Heater Equipment	283,285	0.09%	13	0.04%	69,484	1.55%	\$154,245	0.53%
Water Heater Other	486,998	0.16%	-	0.00%	24,338	0.54%	\$141,989	0.49%
Whole Building	3,065,136	1.01%	1,015	3.04%	786,440	17.49%	\$1,128,050	3.88%

<sup>1</sup> Includes legacy programs and carryover.

<sup>2</sup> Bonus measures are additional rewards that complement Focus on Energy Measures.

Table 13 lists CY 2013 nonresidential savings and incentive monies spent by measure category.

**Table 13. Summary of First year Annual Savings by Measure Category in the Nonresidential Segment<sup>1</sup>**

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
Agriculture	782,168	0.17%	99.3	0.13%	161,068	0.92%	\$ 95,211	0.24%
Biogas	7,620,589	1.64%	862.8	1.10%	(8,111)	-0.05%	\$ 731,049	1.84%
Biomass	-	-	-	-	26,280	0.15%	\$ 12,100	0.03%
Boiler Controls	-	0.00%	-	0.00%	301,054	1.73%	\$ 95,480	0.24%
Boiler Equipment	-	0.00%	-	0.00%	470,341	2.70%	\$ 390,540	0.98%
Boiler Other	-73,726	-0.02%	16.1	0.02%	627,27	3.60%	\$ 286,207	0.72%
Boiler Service	-	0.00%	-	0.00%	3,421,56	19.65%	\$ 481,414	1.21%
Bonus <sup>2</sup>	1,065,500	0.23%	120.0	0.15%	11,405	0.07%	\$ 6,208,923	15.61%
Building Shell	5,599,266	1.20%	1803.3	2.31%	1,322,192	7.59%	\$ 974,780	2.45%
CFL	43,939,920	9.44%	9678.7	12.38%	-	0.00%	\$ 1,997,499	5.02%
Compressor Controls	5,171,477	1.11%	811.5	1.04%	-	0.00%	\$ 47,600	0.12%
Compressor Equipment	12,325,978	2.65%	2051.1	2.62%	-	0.00%	\$ 931,446	2.34%
Compressor Other	9,035,397	1.94%	1182.8	1.51%	-	0.00%	\$ 365,568	0.92%
Compressor Service	22,465,479	4.83%	2066.8	2.64%	-	0.00%	\$ 381,228	0.96%
Design and Modeling	-	0.00%	-	0.00%	-	0.00%	\$ 144,920	0.36%
Dishwasher	310,395	0.07%	37.1	0.05%	4,711	0.03%	\$ 20,750	0.05%
Energy Recovery	3,148,557	0.68%	1545.9	1.98%	3,176,373	18.24%	\$ 1,655,832	4.16%
Faucet Aerator	1,425,350	0.31%	219.9	0.28%	28,230	0.16%	\$ 42,236	0.11%
Food Service	318,774	0.07%	65.5	0.08%	73,297	0.42%	\$ 82,701	0.21%
Furnace Equipment	207,867	0.04%	-	0.00%	1,881	0.01%	\$ 69,950	0.18%
Geothermal	-119,334	-0.03%	119.4	0.15%	32,815	0.19%	\$ 256,454	0.64%
Greenhouse	-	0.00%	-	0.00%	772	0.00%	\$ 454	0.00%
High Intensity Discharge (HID)	549,499	0.12%	119.4	0.15%	-	0.00%	\$ 38,805	0.10%
HVAC Controls	11,479,013	2.47%	501.1	0.64%	757,472	4.35%	\$ 943,675	2.37%
HVAC Equipment	10,513,807	2.26%	2638.3	3.37%	1,457,689	8.37%	\$ 2,070,164	5.20%
HVAC Other	15,189,352	3.26%	1700.6	2.18%	3,032,626	17.41%	\$ 1,435,681	3.61%

Measure Category	Verified Gross						Incentive Dollars	Incentive Dollars %
	kWh	kWh %	kW	kW %	Therms	Therms %		
HVAC Service	3,136,818	0.67%	3430.4	4.39%	-	0.00%	\$ 207,692	0.52%
Information Technology	5,965,379	1.28%	238.9	0.31%	-	0.00%	\$ 237,401	0.60%
Laundry Other	58,936	0.01%	5.0	0.01%	56,995	0.33%	\$ 34,271	0.09%
LED	42,541,248	9.14%	5753.4	7.36%	-	0.00%	\$ 2,729,016	6.86%
Lighting Controls	12,010,284	2.58%	516.7	0.66%	-	0.00%	\$ 627,694	1.58%
Lighting Other	54,266,843	11.66%	11125.9	14.23%	-	0.00%	\$ 2,746,443	6.90%
Motors and Drives	54,793,695	11.77%	4296.0	5.49%	-	0.00%	\$ 1,921,302	4.83%
Other	-	0.00%	-	0.00%	-	0.00%	-	0.00%
Oven and Furnace Other	1,745,694	0.37%	170.9	0.22%	1,606	0.01%	\$ 98,385	0.25%
Pools	105,181	0.02%	5.1	0.01%	10,170	0.06%	\$ 7,274	0.02%
Process	13,829,352	2.97%	1737.5	2.22%	2,132,510	12.24%	\$ 1,132,488	2.85%
Program Adjustment	-26,025	-0.01%	-150.7	-0.19%	2,270	0.01%	\$ 15,930	0.04%
Refrigeration Controls	3,602,034	0.77%	65.5	0.08%	-	0.00%	\$ 106,878	0.27%
Refrigeration Equipment	3,765,868	0.81%	413.1	0.53%	864	0.00%	\$ 219,453	0.55%
Refrigeration Other	6,691,233	1.44%	1054.9	1.35%	-	0.00%	\$ 406,657	1.02%
Refrigeration Service	5,322,928	1.14%	886.9	1.13%	-	0.00%	\$ 119,276	0.30%
Retrocommissioning	88,532	0.02%	-	-	20,761	0.12%	\$ 19,167	0.05%
Showerhead	1,215,004	0.26%	-	-	83,706	0.48%	\$ 29,480	0.07%
Solar Electric	675,183	0.15%	223.3	0.29%	-	-	\$ 627,746	1.58%
Solar Thermal	(5,518)	0.00%	-0.2	0.00%	7,580	0.04%	\$ 131,235	0.33%
T8/T5 Fluorescent	92,076,826	19.78%	21408.3	27.38%	-	0.00%	\$ 7,435,025	18.69%
Vending and Plug Loads	1,329,034	0.29%	-	0.00%	-	0.00%	\$ 121,825	0.31%
Waste Water Treatment	9,908,807	2.13%	1280.6	1.64%	30,923	0.18%	\$ 605,274	1.52%
Water Heater Equipment	501,222	0.11%	37.7	0.05%	15,054	0.09%	\$ 37,131	0.09%
Water Heater Other	940,837	0.20%	46.8	0.06%	155,399	0.89%	\$ 327,231	0.82%
Wind	108,580	0.02%	-	-	-	-	\$ 75,000	0.19%

<sup>1</sup> Includes legacy programs and carryover.

<sup>2</sup> Bonus measures are additional rewards that complement Focus on Energy Measures.

### ***Residential Segment Level Findings***

For the CY 2013 evaluation of the residential programs, the Evaluation Team collected information and perspectives from customers, Trade Allies, Program Implementers, the Program Administrator, and other market actors such as Building Performance Consultants. The Evaluation Team also conducted engineering reviews and site inspections in addition to analyses of data from the database, SPECTRUM, and project documentation.

Over 78,000 residential customers in Wisconsin participated in Focus on Energy's programs in CY 2013 (not including measures purchased through the Residential Lighting and Appliance Program). Measures installed by these customers, as well as measures purchased through the Residential Lighting and Appliance Program, reduced annual requirements for electricity by 297,880,259 kWh and for natural gas by 3,412,565 therms. These customers installed energy-efficiency measures across a wide range of technologies, as previously shown in Table 12.

### **Cross-Program Participation**

The Evaluation Team reviewed participation across programs to identify participants who took part in more than one program during the calendar year. In CY 2013, 548 residential participants (less than 1% of all residential participants) participated in two or more residential Focus on Energy programs.

Table 14 presents the participant overlap during CY 2013. The highest cross-participation occurred between the Residential Rewards Program and the Appliance Recycling Program (310 common participants) and between the Residential Rewards Program and Home Performance with ENERGY STAR® Program (122 common participants).

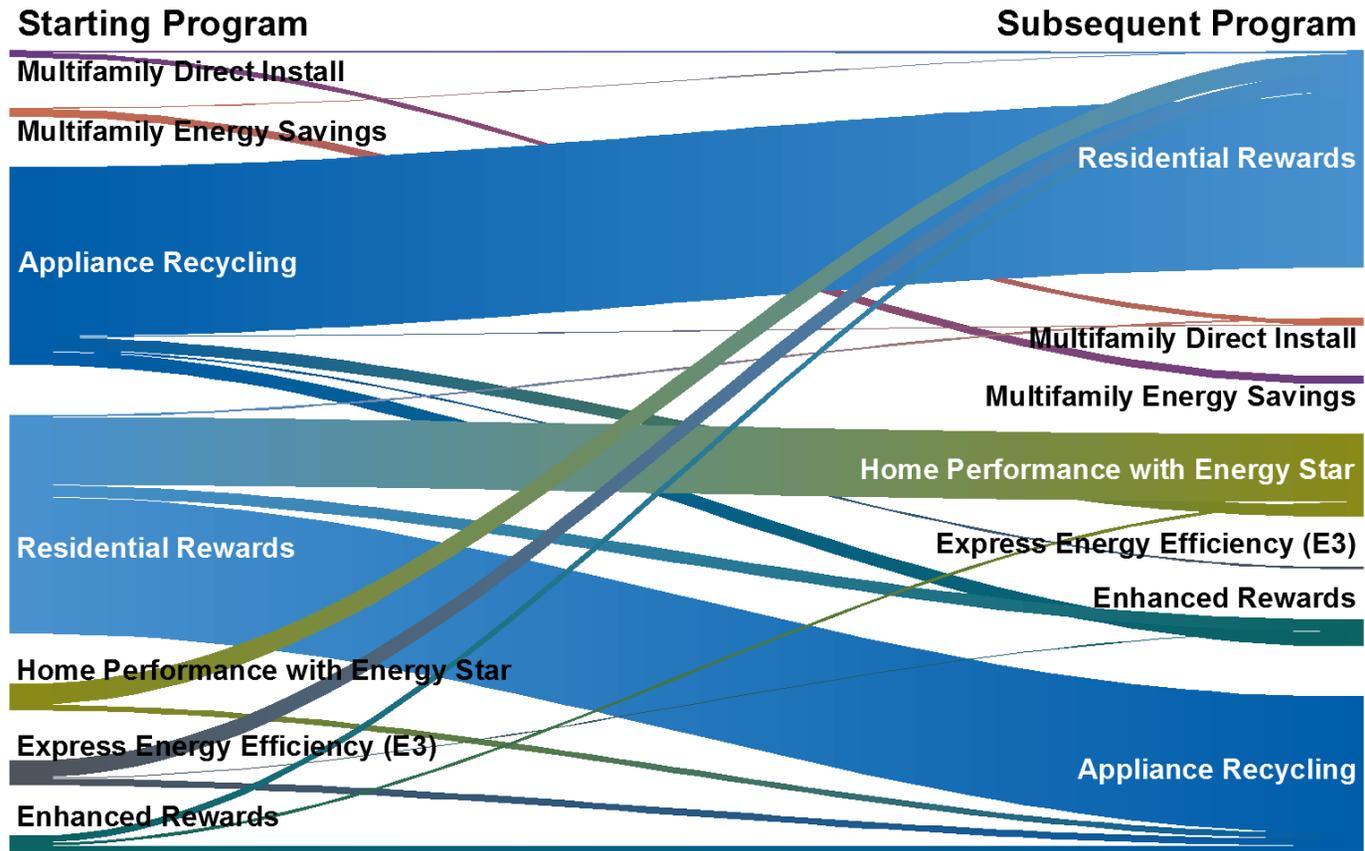
Figure 7 estimates the movement of participants from one program to another. The "Starting Program" shows the first program the participant submitted an application for in CY 2013. As noted above, the largest quantity of cross-program participation occurred between the Appliance Recycling and Residential Rewards Programs. Figure 7 shows that nearly the same number of participants started in each program before crossing over; about 40 more participants started in Appliance Recycling and moved to Residential Rewards than the reverse. Some of the data used to estimate program ordering was provided by an early-stage analysis being performed by the Administrator on the length of time an application is considered "in-process" in the SPECTRUM system. As such, these data should be considered approximations, which merits continued research and may not reflect the true ordering, which could change in quadrennial reporting.

Table 14. Residential Cross-Program Participation in CY 2013

Program Name <sup>1</sup>	Multifamily	Appliance Recycling	Home Performance with ENERGY STAR	Assisted Home Performance with ENERGY STAR	New Homes	Residential Rewards	Enhanced Rewards	Express Energy Efficiency
Multifamily Energy Savings and Direct Install	-	1	0	0	0	5	0	0
Appliance Recycling	1	-	35	1	0	310	22	9
Home Performance with ENERGY STAR	0	35	-	3	1	112	6	0
Assisted Home Performance with ENERGY STAR	0	1	3	-	0	1	2	0
New Homes	0	0	1	0	-	0	0	0
Residential Rewards	5	310	112	1	0	-	22	17
Enhanced Rewards	0	22	6	2	0	22	-	1
Express Energy Efficiency	0	9	0	0	0	17	1	-

<sup>1</sup>This analysis excluded the Residential Lighting and Appliances Program: due to its upstream delivery mechanism, individual participants are not tracked in SPECTRUM. Programs are listed across columns and rows, so each unique combination of programs appears twice in this table.

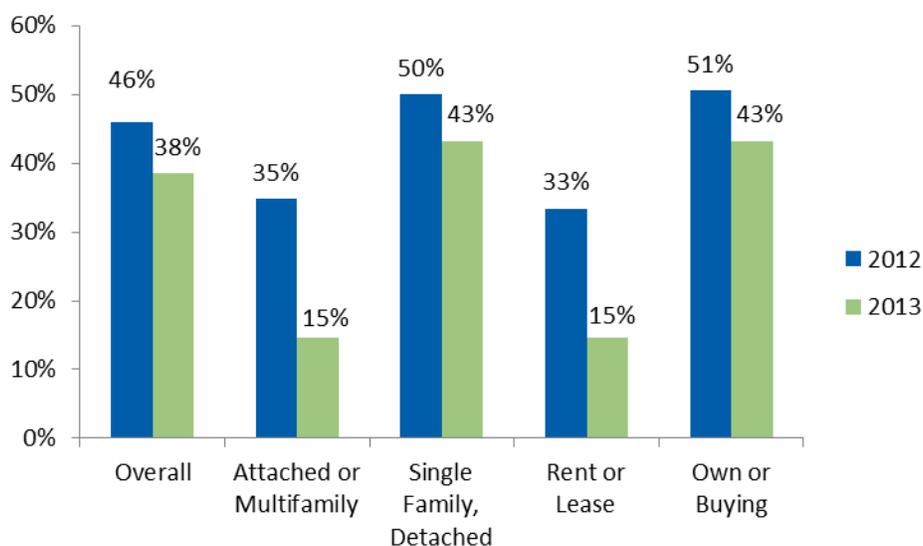
Figure 7. Residential Cross-Program Participation Movement



### Familiarity with Focus on Energy

As part of the Residential Lighting and Appliance Program evaluation, the Evaluation Team conducted a survey with a general population sample of 223 people living within the Focus on Energy territory. The Evaluation Team used these responses to assess residential customer familiarity with Focus on Energy and compare that familiarity across demographic groups.<sup>2</sup> The phone survey conducted by the Evaluation Team in CY 2013 indicated that 38% of customers were familiar with Focus on Energy, as shown in Figure 8. This finding represents a statistically significant decline in familiarity when compared to the results of the CY 2012 phone survey, which found that 46% of surveyed customers were familiar with Focus on Energy.<sup>3</sup>

**Figure 8. Familiarity with Focus on Energy by Customers’ Housing Type and Homeownership**



Source: 2012 and 2013 Wisconsin Focus on Energy Residential Lighting and Appliance Program Phone Survey; QA1. “Are you familiar with Focus on Energy?” (2012 Overall n=243; 2013 Overall n=221; 2012 Single family, Detached n=197; 2013 Single family, Detached n=185; 2012 Attached or Multifamily n=46; 2013 Attached or Multifamily n=34; 2012 Own or Buying n=200; 2013 Own or Buying n=184; 2014 Rent or Lease n=45; 2013 Rent or Lease n=34)

Customers’ familiarity with Focus on Energy programs was not significantly different between education levels. However, the survey did indicate a difference in familiarity with Focus on Energy between homeowners and renters as well as between residents of single-family homes and multifamily homes.

<sup>2</sup> The topic of awareness of Focus on Energy was also addressed through the Community Awareness Survey. Those results are included in that section of this volume.

<sup>3</sup> In the CY 2012 survey, the sample size was 221 and the distribution across demographic groups was similar to the CY 2013 survey.

Multifamily residents and renters were less likely than other categories of customers to be familiar with Focus on Energy. Though homeowners are more likely than renters to undertake energy-efficiency upgrades in their homes, these differences in familiarity may indicate that Focus on Energy’s marketing is not reaching certain residential customers.

**Outreach**

During the participant surveys, the Evaluation Team asked respondents how they had most recently heard about the program in which they participated (see Table 15).

**Table 15. Top Communication Channels for Program Participants**

Surveyed Population	Top Communication Channel	Percentage of Respondents
Multifamily Direct-Install Program Building Owners (n=25)	Focus on Energy or utility representative	32%
Multifamily Energy Savings Program Building Owners (n=25)	Focus on Energy or utility representative	28%
Appliance Recycling Program Participants (n=127)	Bill insert	24%
Residential Lighting and Appliance Participants (n=84)	Don't know	35%
Home Performance with ENERGY STAR Participants (n=70)	Contractor	30%
Home Performance with ENERGY STAR Audit-Only Participants (n=49)	Bill insert	18%
New Homes Program Homebuyers (n=15)	Television	50%
Residential Rewards Program Participants (n=134)	Contractor	63%
Enhanced Rewards Program Participants (n=70)	Contractor	64%
Express Energy Efficiency Program Participants (n=70)	Bill insert	33%

Source: Wisconsin Focus on Energy Program Phone Surveys; "Where did you most recently hear about the Focus on Energy [Program Name] Program?"

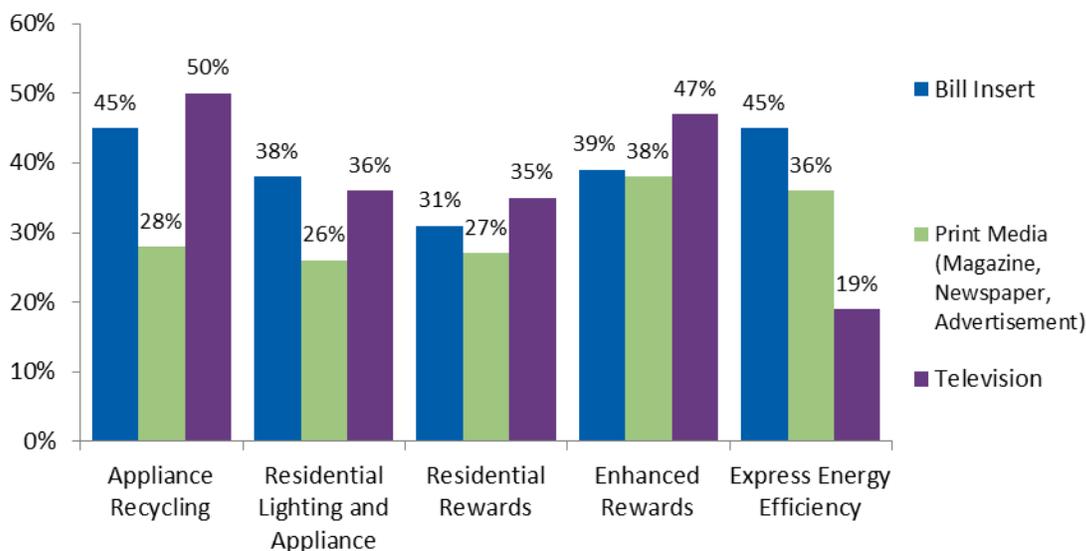
Top communication channels varied among the programs and generally appeared to align with the programs’ primary outreach strategies. For example, 35% of customers who recalled participating in the Residential Lighting and Appliance Program did not recall how they had heard of this Program—this is consistent with this Program’s predominantly upstream retail-based outreach strategy.

Overall, for the residential programs, the channels through which customers most commonly said they had heard about a particular program were contractors and bill inserts. The prevalence of contractors as a source of information underlines the importance of Trade Allies in outreach for the residential segment. The lower awareness level among renters is expected, since landlords are typically responsible for major home repairs and upgrades.

The Evaluation Team also asked participants what, in their opinion, was the best way for Focus on Energy to inform the public of energy-efficiency programs. Figure 9 summarizes the results of this

question, showing the most commonly mentioned communication channels: bill inserts, print media, and television advertising. These results reflect reported customer preferences, but they may not reflect the most influential or effective methods for targeting prospective participants. For example, mass media approaches can be effective in raising awareness, but they should always be balanced with targeted direct communications with specific calls to action.

**Figure 9. Best Ways to Inform the Public About Energy-Efficiency Programs**



Source: Wisconsin Focus on Energy Program Phone Surveys; “What do you think is the best way for Focus on Energy to inform the public about energy-efficiency programs?” (Appliance Recycling n=121; Residential Lighting and Appliance n=204; Residential Rewards n=128; Enhanced Rewards n=64; Express Energy Efficiency n=67)

## Participation Decisions

Several of the Evaluation Team’s process evaluations examined customer motivation for participation. These results, shown in Table 16 and presented in greater detail in each program-specific chapter, indicate that financial factors were key motivators for participation.

**Table 16. Top Motivators for Program Participation**

Surveyed Population	Top Motivator	Percentage of Respondents
Multifamily Energy Savings Program Building Owners (n=25)	Reduce owner or operator cost	48%
Multifamily Direct-Install Program Building Owners (n=25)	Reduce owner or operator cost	60%
Appliance Recycling Program Participants (n=131)	Cash rebate or incentive payment	36%
Residential Rewards Program Participants (n=140)	Save money	39%
Enhanced Rewards Program Participants (n=70)	Save money	53%
Express Energy Efficiency Program Participants (n=68)	Save money	69%

Source: Wisconsin Focus on Energy Program Phone Surveys; "What motivated you to participate in Focus on Energy's [Program Name] Program?"

Building owners or managers participating in the multifamily programs most frequently cited reducing costs as their primary motivation for participation. The second most frequently mentioned motivation among participants in the Residential Rewards Program and the Express Energy Efficiency Program was saving energy. But for programs overall, financial motivations were more commonly mentioned than energy-related motivations.

### Trade Allies

The Evaluation Team interviewed Trade Allies who participated in five residential programs during CY 2013. Overall, participating Trade Allies were highly satisfied with the resources available to them from Focus on Energy. Enhanced Rewards Program Trade Allies were satisfied with the Program, and believed their customers were as well. No Trade Allies offered any suggestions for ways to improve the Program. Similarly, the Residential Rewards Program Trade Allies noted they did not face any challenges in their participation or receive any customer complaints.

Customers reported wanting more information from program actors, while Trade Allies reported difficulty in communicating information. Participants in the Home Performance with ENERGY STAR, Assisted Home Performance with ENERGY STAR, New Homes, and Residential Rewards Programs indicated that they would have liked to receive more information or better communication from the Trade Allies with whom they worked.

Trade Allies from the Home Performance with ENERGY STAR Programs said that explaining the differences between the two Programs was complicated, and that they saw lower profits for Assisted Home Performance with ENERGY STAR Program projects. These factors held them back from actively promoting and explaining the Programs.

Builders for the New Homes Program noted they did not actively promote the Program because even the non-Focus on Energy homes they built had similar features.

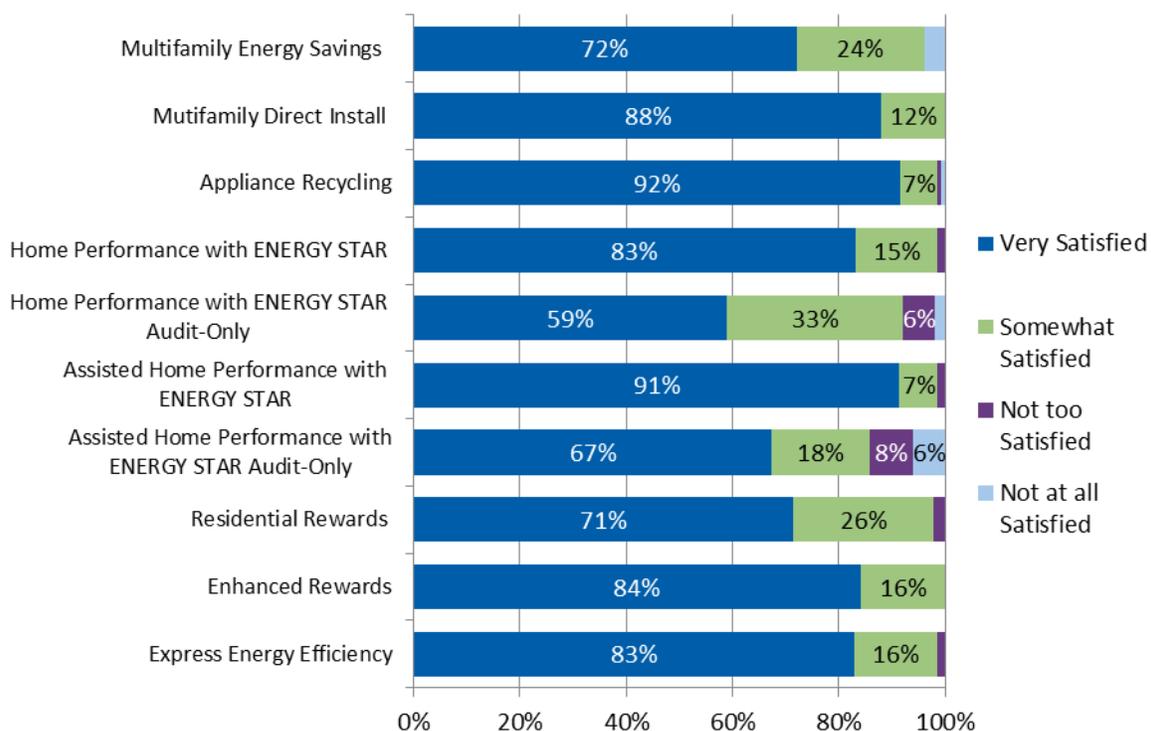
## Participant Satisfaction

The Evaluation Team asked program participants how satisfied they were with Focus on Energy’s programs. Across all programs, the majority of participants said they were “very satisfied.” Although only two programs surveyed participants in CY 2012, those participants also indicated high satisfaction.

For both the Home Performance with ENERGY STAR Programs, participants who received only an audit were less satisfied than participants who went on to install energy-saving upgrades. This could indicate that customers who invest more time and money into their energy-efficiency upgrades are more satisfied with the outcomes.

Figure 10 shows participants’ overall satisfaction levels with with each residential program.

**Figure 10. Participant Satisfaction with Program Overall**

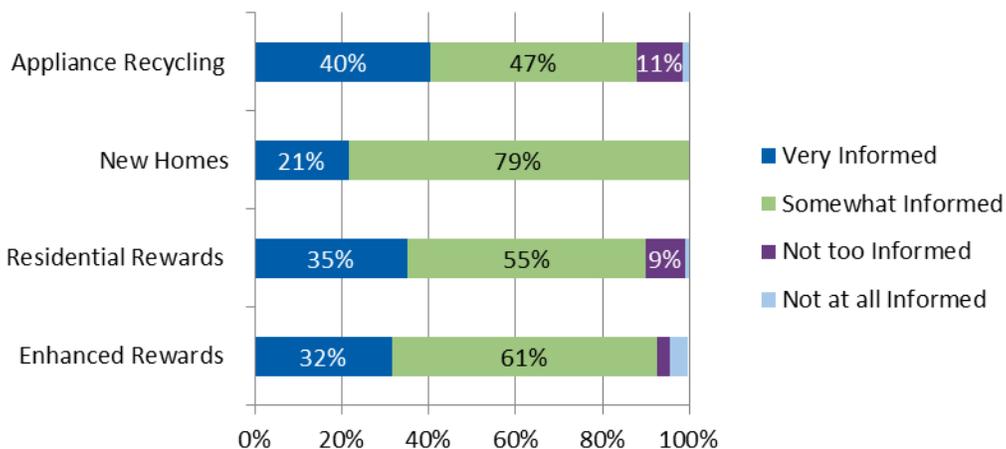


Source: Wisconsin Focus on Energy Program Phone Surveys; “How satisfied are you with Focus on Energy’s [Program Name] Program Overall?” (Multifamily Energy Services and Multifamily Direct Install n=25; Appliance Recycling n=131; Home Performance with ENERGY STAR n=71; Home Performance with Energy Star Audit-Only n=51; Assisted Home Performance with ENERGY STAR n=70; Assisted Home Performance with ENERGY STAR Audit-Only n=49; Residential Rewards n=136; Enhanced Rewards and Express Energy Efficiency n=70)

## Energy Attitudes

Where survey length allowed, the Evaluation Team asked participants questions about their general attitudes toward energy, including how informed they were about saving energy. The majority of respondents said they were either “very informed” or “somewhat informed” about ways to save energy. Figure 11 shows the participant responses. Differences between programs were not statistically significant.

**Figure 11. How Informed Participants Felt About Saving Energy**

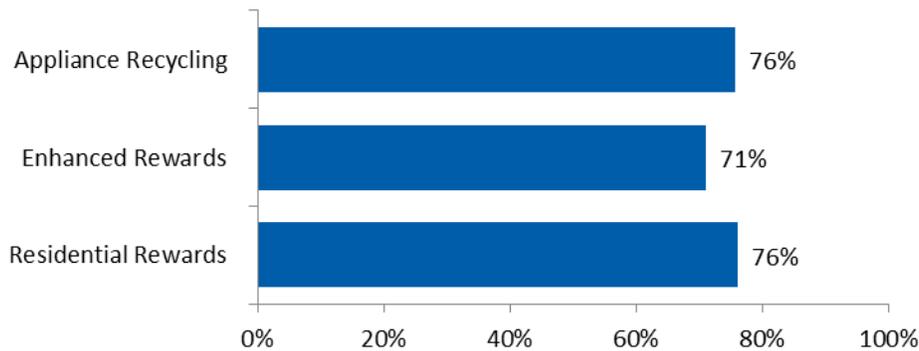


Source: Wisconsin Focus on Energy Program Phone Surveys; “How informed do you feel about all the ways you can save energy, including buying and using energy efficient appliances and equipment?” (Appliance Recycling n=131; Enhanced Rewards n=70; New Homes n=14; Residential Rewards n=139)

The Evaluation Team also asked participants to rate how much attention they pay to the amount of energy they use in their homes using a scale of zero to five, where five is “a lot of attention” and zero is “not a lot of attention.” Most participants said they paid “a lot” of attention to their home energy use.

As shown in Figure 12, respondents from three residential programs most frequently rated their attention level a four or five. Differences between programs were not statistically significant.

**Figure 12. Percentage of Participants Who Pay “A Lot” of Attention to Home Energy Use**



Source: Wisconsin Focus on Energy Program Phone Surveys; “On a scale of zero to five where five is a lot of attention and zero is not a lot of attention, how much attention do you pay to the amount of energy—gas or electric—that you use in your home?”  
 (Appliance Recycling n=131; Enhanced Rewards n=70; Residential Rewards n=139)

These findings about energy attitudes indicate that Focus on Energy’s residential program participants have a high level of awareness and a desire to conserve energy, which aligns with participants’ motivation to save money.

**Demographics**

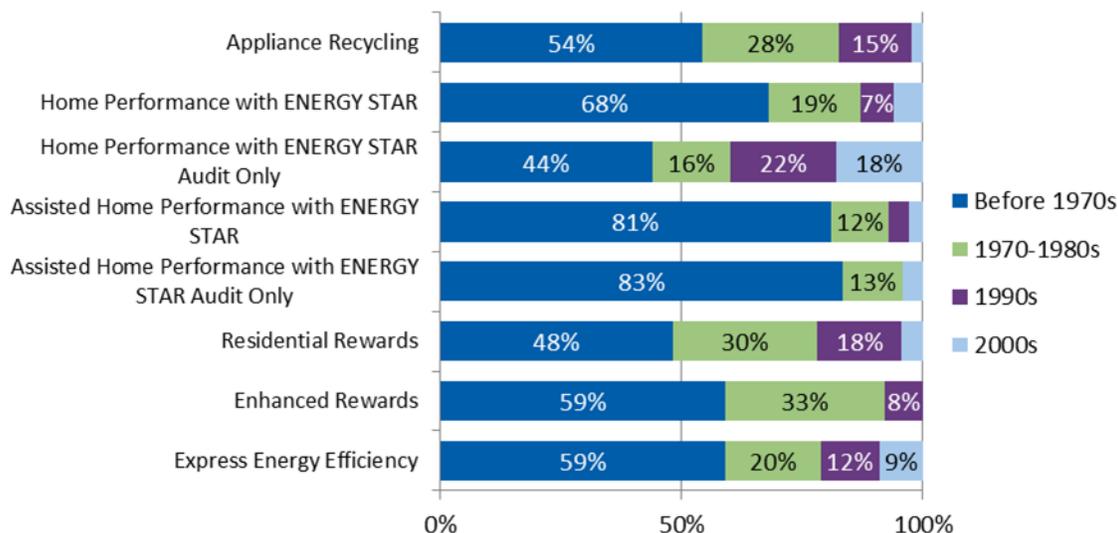
Though participant characteristics varied among residential programs, the majority of participants shared some common demographic characteristics. For example, they tended to live in homes built prior to 1970 and own their own home. Homeownership is typically expected among participants in many energy-efficiency programs, and older homes are often targeted for weatherization retrofits such as those incented through the Home Performance with ENERGY STAR Program.

The common characteristics of program participants differed very little from Wisconsin averages, as recorded in the U.S. Census 2012 American Community Survey:

- 63% of Wisconsin homes were built in 1980 or earlier
- Homeownership rate was 69%

As shown in Figure 13, the most common category of home vintage for all programs was “Before 1970s,” and participants in the Assisted Home Performance with ENERGY STAR Program (which targets income-restricted customers) had more pre-1970 homes. In the Home Performance with ENERGY STAR Program (targeting standard-income customers), participants who pursued energy-saving upgrades tended to live in older homes than participants who received only an audit. However, the same difference did not appear in the Assisted Home Performance with ENERGY STAR Program. This finding could indicate that home vintage was more influential on participation decisions among standard-income participants than it was on income-restricted participants.

Figure 13. Participant Home Vintage by Program

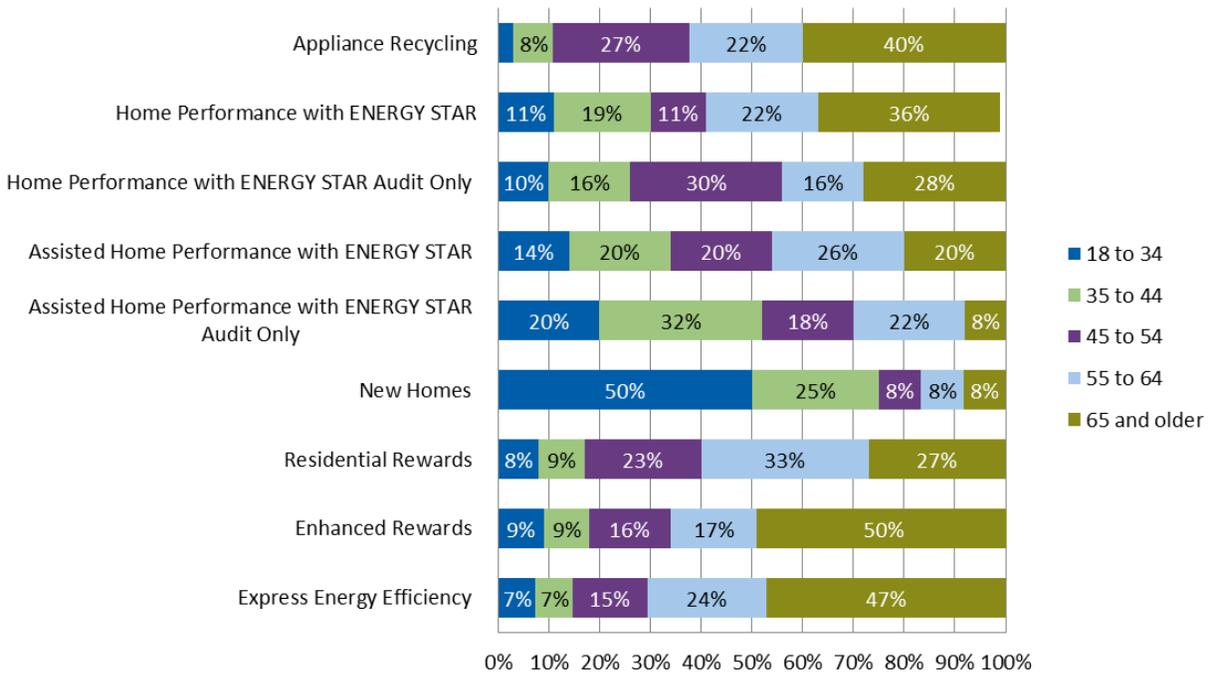


Source: Wisconsin Focus on Energy Program Phone Surveys; “About when was your home first built?” (Appliance Recycling n=127; Home Performance with ENERGY STAR n=72; Home Performance with Energy Star Audit-Only. n=50; Assisted Home Performance with ENERGY STAR n=67; Assisted Home Performance with ENERGY STAR Audit-Only n=48; Residential Rewards n=137; Enhanced Rewards and Express Energy Efficiency n=70)

As shown in Figure 14, the majority of participants in five of the 10 residential programs were over the age of 55. However, on average, surveyed participants were younger in the New Homes Program and the Assisted Home Performance with ENERGY STAR Program (especially those who received an audit only). Although the survey sample size was too small to be statistically representative, 75% of surveyed homeowners participating in the New Homes Program were under the age of 45. In the Assisted Home Performance with ENERGY STAR Program, 52% of audit-only participants were under the age of 45. This indicates that the target market for these programs may be younger than for some other programs.

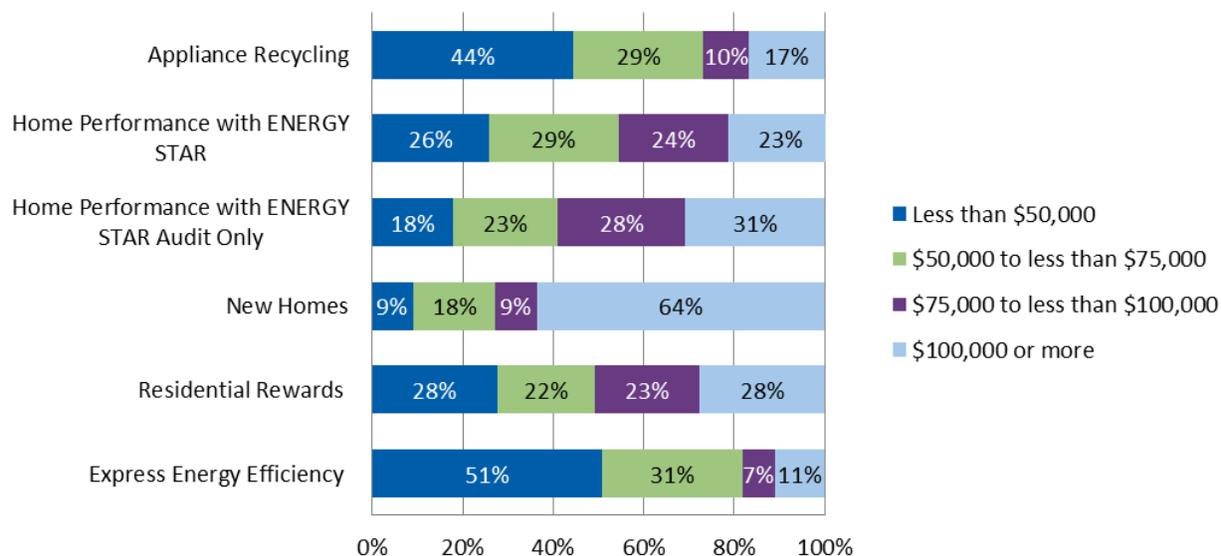
Figure 15 shows participant feedback on annual household income. Reported income levels varied substantially between programs, although due to small sample sizes the differences are not statistically significant. The large portion of New Homes Program participants reporting a high income level may indicate that participating homes are likely to be costly. The large portion of Express Energy Efficiency Program participants reporting an income level below \$50,000 may indicate that this Program is effectively reaching moderate-income customers who may not have the financial resources to make larger energy-efficiency investments.

**Figure 14. Participant Age by Program**



Source: Wisconsin Focus on Energy Program Phone Surveys; “Which of the following categories best represents your age?” (Appliance Recycling n=130; Home Performance with ENERGY STAR n=72; Home Performance with Energy Star Audit-Only n=50; Assisted Home Performance with ENERGY STAR n=70; Assisted Home Performance with ENERGY STAR Audit-Only n=50; Residential Rewards n=137; Enhanced Rewards and Express Energy Efficiency n=70)

Figure 15. Participant Household Income by Program



Source: Wisconsin Focus on Energy Program Phone Surveys; “Which of the following categories best describes your total household income in 2012 before taxes?” (Appliance Recycling n=131; Home Performance with ENERGY STAR n=66; Home Performance with ENERGY STAR Audit Only n=51; New Homes n=11; Residential Rewards n=140; Express Energy Efficiency n=70)

### Nonresidential Segment Level Findings

For the CY 2013 nonresidential program evaluation, the Evaluation Team collected information and perspectives from customers, Program Implementers, the Program Administrator, Trade Allies, and other market actors (building design teams, energy management teams, and National Rebate Administrators).

The Evaluation Team also conducted engineering reviews, site inspections, and analyses of data from the Program Administrator’s database (SPECTRUM) and project documentation. This section, summarizes high-level findings across the seven nonresidential programs.

Over 9,800 nonresidential customers in Wisconsin realized the benefits of energy-efficient and renewable technologies in CY 2013, reducing annual electricity requirements by 321,538,168 kWh and natural gas requirements by 14,064,701 therms. These organizations completed over 14,500 projects, installing over 68,000 energy-efficiency measures across a wide range of technologies. In addition, nearly 1,200 customers initiated projects during CY 2013 that they will complete in the next year.

Participants across the nonresidential programs reported that reducing their energy bills was a key benefit, but many also described additional benefits, such as:

- Increased occupant comfort
- Improved controls and processes
- Better maintenance reliability
- Higher quality products
- Reduced noise
- Increased production
- Positive patient outcomes
- Improved competitiveness
- Great public relations
- Contributions to green initiatives or helping the environment

**What Program Participants Said...**

**Large Energy Users Participant**

*—“We reduced costs and gained operational flexibility.”*

**Small Business Participant**

*—“We’re using less energy and the lighting is brighter.”*

**Renewable Energy Competitive Incentive Participant**

*—“The tenant is happy that they can market the fact they are in a building using sustainable energy.”*

Focus on Energy offers seven nonresidential programs. Three “core” programs offer a portfolio of incentives to the general business population, while four other programs provide more tailored support for specific audiences and technologies. The core programs are the Business Incentive, Chain Stores and Franchises, and Large Energy Users Programs. All three programs offer the same incentives, while following slightly different operating models to effectively reach the target business population.

Focus on Energy’s other four nonresidential programs are the Small Business, Design Assistance, Retrocommissioning, and Renewable Energy Competitive Incentive Programs. The Small Business Program employs offerings and outreach practices specifically intended to appeal to the hard-to-reach small business segment. Design Assistance targets owners and developers of new buildings, who may not be standard utility customers. The Retrocommissioning and Renewable Energy Competitive Incentive Programs encourage specific energy-saving practices and technologies.

**Cross-Program Participation**

The Evaluation Team reviewed annual cross-program participation. In CY 2013, 51 participants, 1% of the total, participated in two or more nonresidential programs. Cross-participation from Business Incentive with Chain Stores and Franchises (14 participants) and Large Energy Users (20 participants) may indicate some program territory infringement, misreporting, or participants with complex operating structures because the programs are designed to be mutually exclusive. The possibility of these situations and the low number of participants shows that this is a nuanced situation which merits continued research.

**Table 17. Nonresidential Cross-Program Participation in CY 2013**

Program Name	Business Incentive	Chain Stores and Franchises	Large Energy Users	Small Business	Retrocommissioning	Design Assistance	Renewable Energy Competitive Incentive
Business Incentive	-	14	20	0	7	1	3
Chain Stores and Franchises	14	-	0	0	0	0	0
Large Energy Users	20	0	-	0	3	1	2
Small Business	0	0	0	-	0	0	0
Retrocommissioning	7	0	3	0	-	0	0
Design Assistance	1	0	1	0	0	-	0
Renewable Energy Competitive Incentive	3	0	2	0	0	0	-

As shown in Table 18, there were over 1,400 active projects in the pipeline for the nonresidential programs at the end of CY 2013.

**Table 18. Number of Active Projects in the Pipeline (End of CY 2013)**

Program Name	Initiated in CY 2012	Initiated in CY 2013
Business Incentive	64	561
Chain Stores and Franchises	3	158
Design Assistance	N/A	37
Large Energy Users	143	348
Retrocommissioning	N/A	39
Small Business	6	10
The Renewable Energy Competitive Incentive	5	43

Source: Extract from SPECTRUM on January 7, 2014.

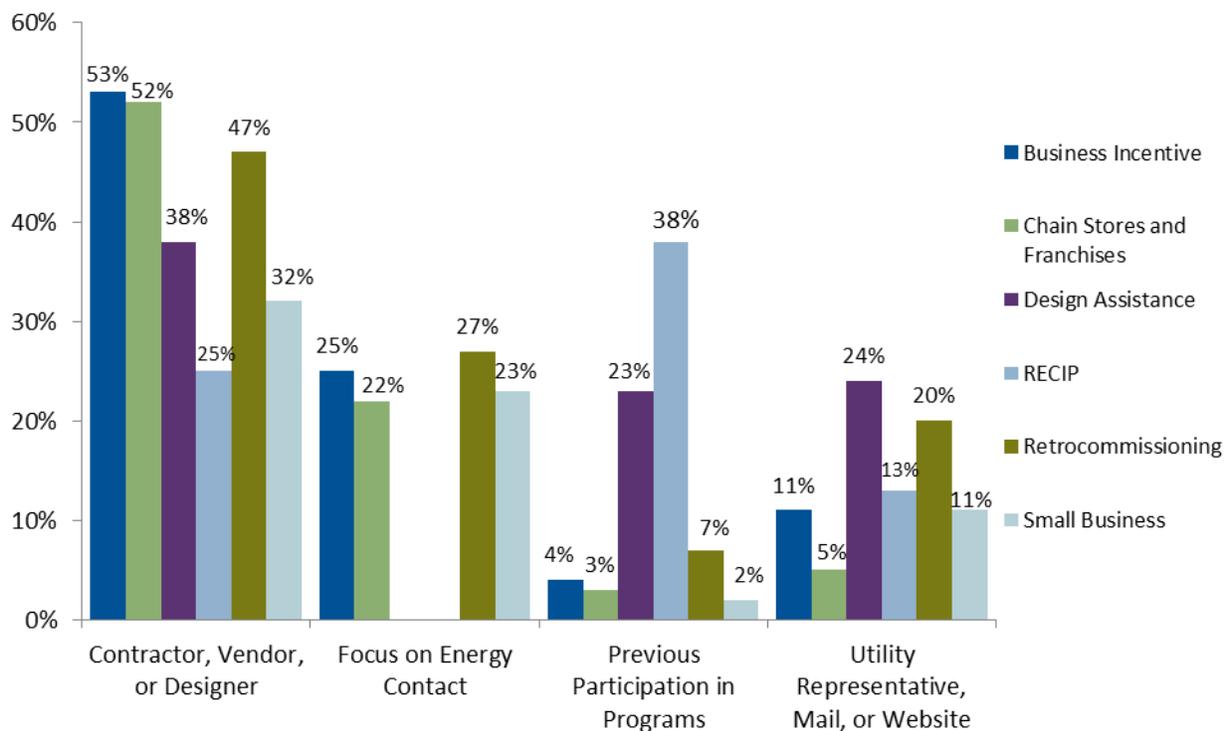
**Awareness of Focus on Energy**

The Program Administrator designed the programs to encourage Trade Allies to engage directly with customers and to receive program incentives directly. Trade Allies can offer customers an immediate discount on their invoices.

A small portion of nonresidential customers may not be aware they are participating in a Focus on Energy program. When the Evaluation Team asked participants if they were aware of the Focus on Energy incentives prior to the survey call or asked who provided an incentive for the project, more than 90% of participants were aware of the Focus on Energy contribution.

When the participants were asked how they learned about the incentives available for their project, respondents most frequently said the contractor or vendor (or design team for new construction), as shown in Figure 16.

**Figure 16. How Nonresidential Participants Learned about Incentives**



Source: CY 2013 Participant Surveys; "How did you learn about the Program?" (Business Incentive n=194; Chain Stores and Franchises n=58; Design Assistance n=8; the Renewable Energy Competitive Incentive n=8; Retrocommissioning n=15; Small Business n=65)

## Outreach

Nonresidential participants learned of the Focus on Energy programs through a variety of channels, as shown in Table 19. Participants in the Business Incentive, Small Business, Chain Stores and Franchises, and Retrocommissioning Programs cited contractors or vendors as the primary way in which they heard about a Focus on Energy program, which is consistent with the programs' use of Trade Allies as primary program marketers.

Focus on Energy staff also played an influential role, constituting the top communication channel for Design Assistance Program participants and the second most-cited channel for Chain Stores and Franchises and Large Energy Users Program participants.

Among Retrocommissioning Program respondents, Express Building Tune-Up Program respondents more frequently heard about the Program from a Trade Ally (five of six) than the core path respondents (two of seven) did.

**Table 19. Top Communication Channels for Nonresidential Program Participants**

Surveyed Population	Top Communication Channel	Percentage of Respondents
Business Incentive Program (n=194)	Contractor/Vendor	53%
Large Energy Users (n=58)	Previous participation in Focus on Energy Program	48%
Renewable Energy Competitive Incentive (n=7)	Previous participation in Focus on Energy Program	43%
Small Business (n=63)	Contractor/Vendor	34%
Chain Stores and Franchises (n=60)	Contractor/Vendor	50%
Design Assistance (n=14)	Direct outreach from Focus on Energy	64%
Retrocommissioning (n=13)	Contractor/Vendor	54%

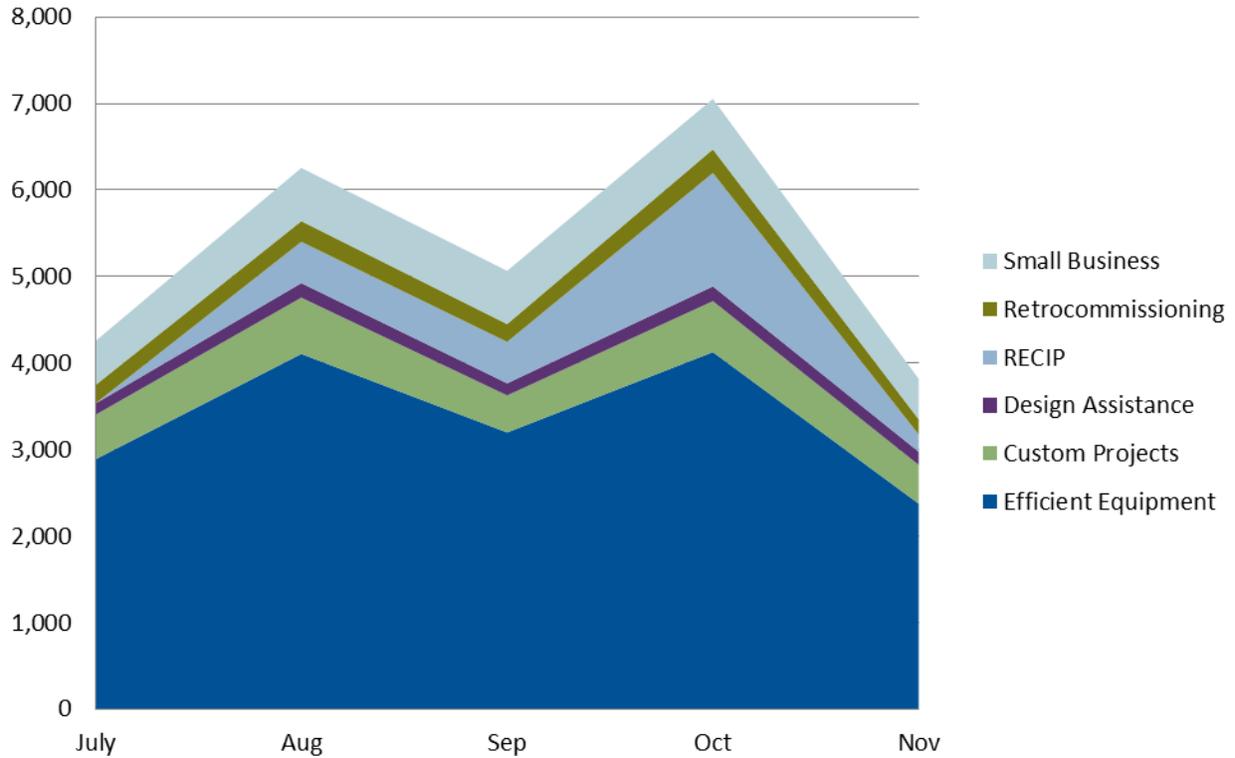
Source: Wisconsin Focus on Energy Program Phone Surveys; "Where did you most recently hear about the Focus on Energy [Program Name] Program?"

***Response to the New Focus on Energy Website***

In March 2013, the Program Administrator launched a new website designed for easier navigation and more online functionality, particularly for project application forms. Since July 2013, the Program Administrator has tracked and reported the total site visits to specific program pages. Figure 17 shows the number of visits through November 2013. Approximately two-thirds of the web traffic visits the Efficient Equipment pages, which provide information on the Business Incentive, Large Energy Users, and Chain Stores and Franchises Programs.

The data also showed an increase in web traffic during periods such as the special offers that were launched in August, during the October Energy Awareness Month campaign, and during the approaching proposal deadline for the Renewable Energy Competitive Incentive Program.

Figure 17. Total Views of Nonresidential Program Pages by Month in CY 2013



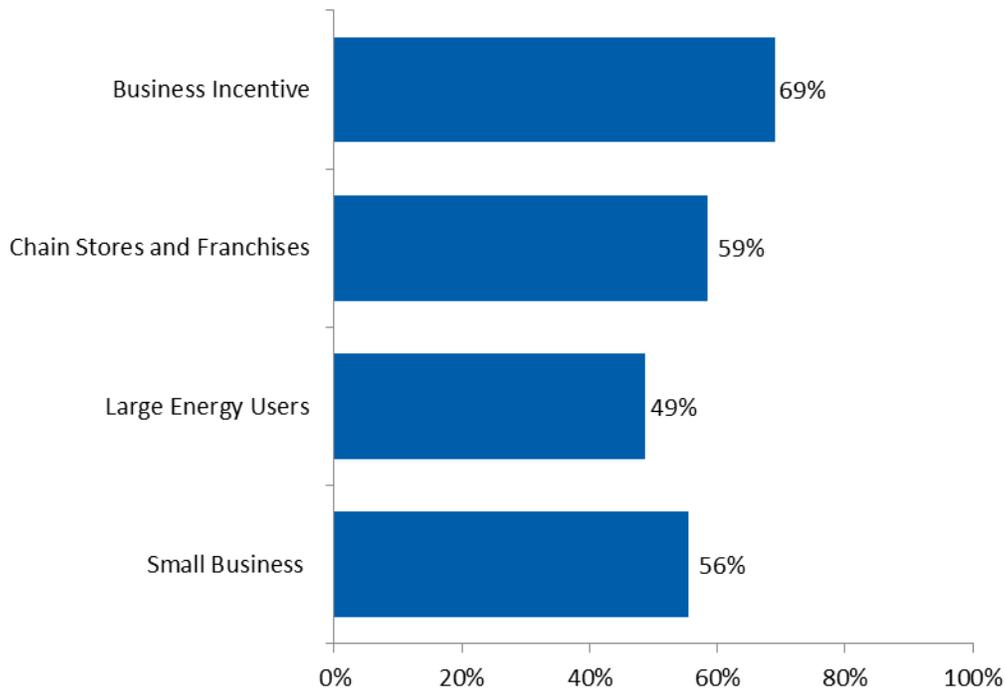
Source: CY 2013 Nonresidential Portfolio Monthly Performance Reports.

The Evaluation Team asked customers participating in the nonresidential programs how satisfied they were with the Focus on Energy website.<sup>4</sup> Across the programs, 77% to 93% of program participants responded they were “very satisfied” overall with the particular program.

<sup>4</sup> The Evaluation Team conducted the participant surveys in multiple waves, by program, between September and December 2013.

With respect to the Focus on Energy website, 49% to 69% of participants said they were “very satisfied” (see Figure 18). The Evaluation Team also found that more than 50% of the participants surveyed in three of the four programs responded “don’t know” or refused to provide a satisfaction rating, which may indicate low use of the website.

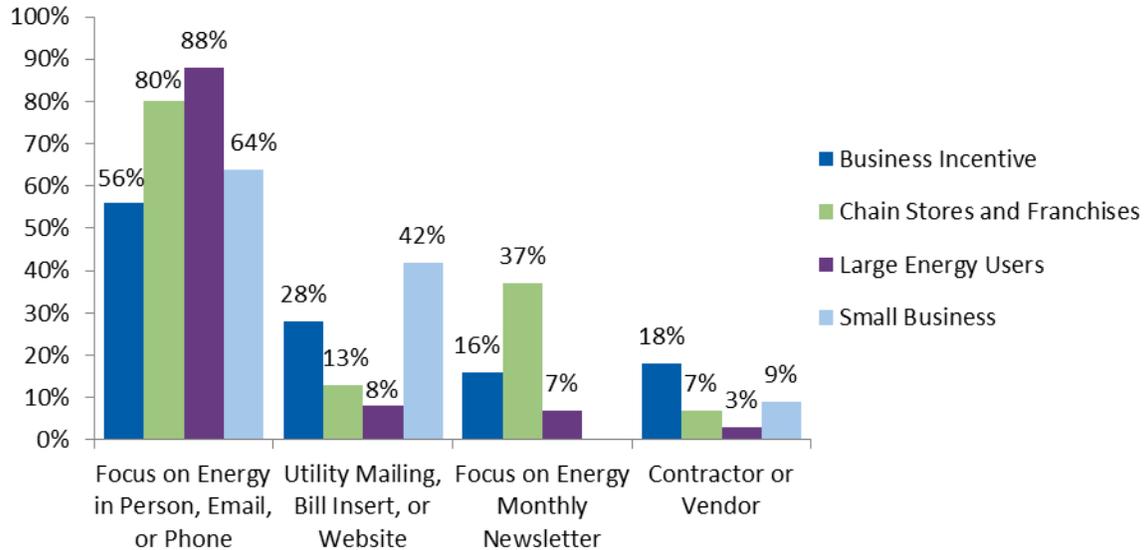
**Figure 18. Percentage of Participants “Very Satisfied” with the Focus on Energy Website**



Source: CY 2013 Participant Surveys; “How satisfied were you with the Program's website?” (Business Incentive n=67; Chain Stores and Franchises n=59; Large Energy Users n=60; Small Business n=69) – These values do not include the 50% of the participants surveyed that answered “don’t know” or refused to provide a satisfaction rating.

When asked how they would like to stay informed about opportunities to save energy and money in the future, participants overwhelmingly preferred direct communication from Focus on Energy. Although 53% of the Business Incentive Program participants said they learned about the incentives through a contractor or vendor, only 18% rated Trade Allies as a preferred source for future information (see Figure 19). However, contractors and vendors were key to the outreach and delivery strategies for both programs, and customers indicated that Trade Allies played an important role in their participation and decision-making process.

**Figure 19. How Participants Prefer to Stay Informed about Opportunities to Save Energy and Money**

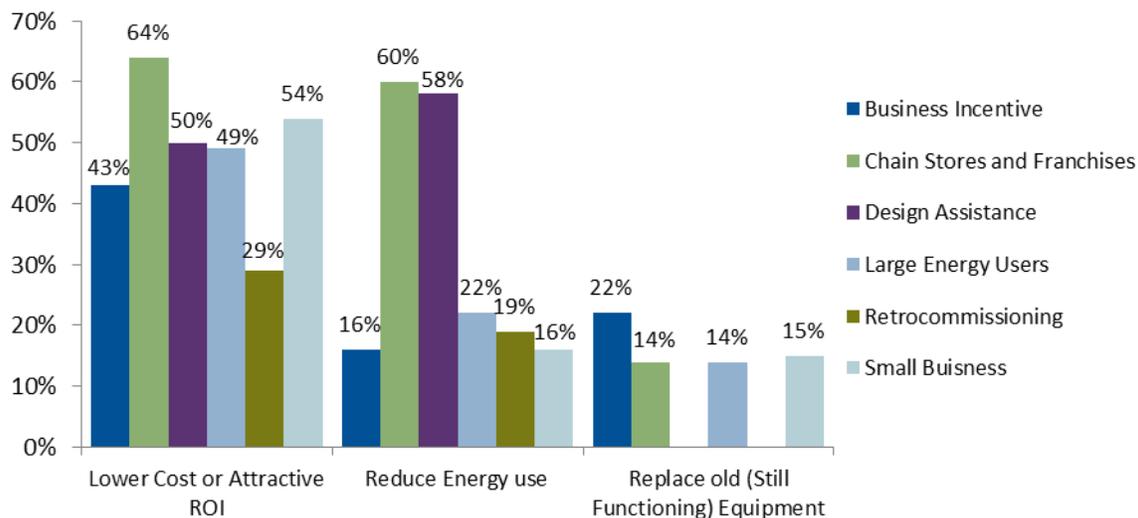


Source: CY 2013 Participant Surveys; "What are the best ways to inform you about opportunities to save money and energy?" (Business Incentive n=208; Chain Stores and Franchises n=60; Large Energy Users n=60; Small Business n=67)

**Participation Decisions**

Across the nonresidential programs, the majority of participants identified lower costs or return on investment as the most important factors in their decisions to install more energy-efficient equipment (see Figure 20). For all programs, participants reported high initial costs as the biggest challenge to making investments in energy-efficient improvements.

**Figure 20. Most Important Factors in Energy-Efficient Purchase Decisions**



Source: CY 2013 Participant Surveys; "What was the most important factor in your decision to make energy-efficiency upgrades through the Program?" (Business Incentive n=209; Chain Stores and Franchises n=50; Design Assistance n=12; Large Energy Users n=59; Retrocommissioning n=21; Small Business n=68)

The majority of the Business Incentive Program participants (70%) and Large Energy Users Program participants (67%) reported receiving on-site assessments to help them identify energy-efficiency improvements, compared to only 28% of the customers participating in the Chain Stores and Franchises Program. For the Business Incentive Program, more participants in the custom path had an on-site assessment (87%) than participants in the prescriptive path (64%). In the Large Energy Users Program, there was no significant difference based on the project path; however, Energy Advisors (rather than Trade Allies) conducted 54% of the Large Energy Users Program assessments.

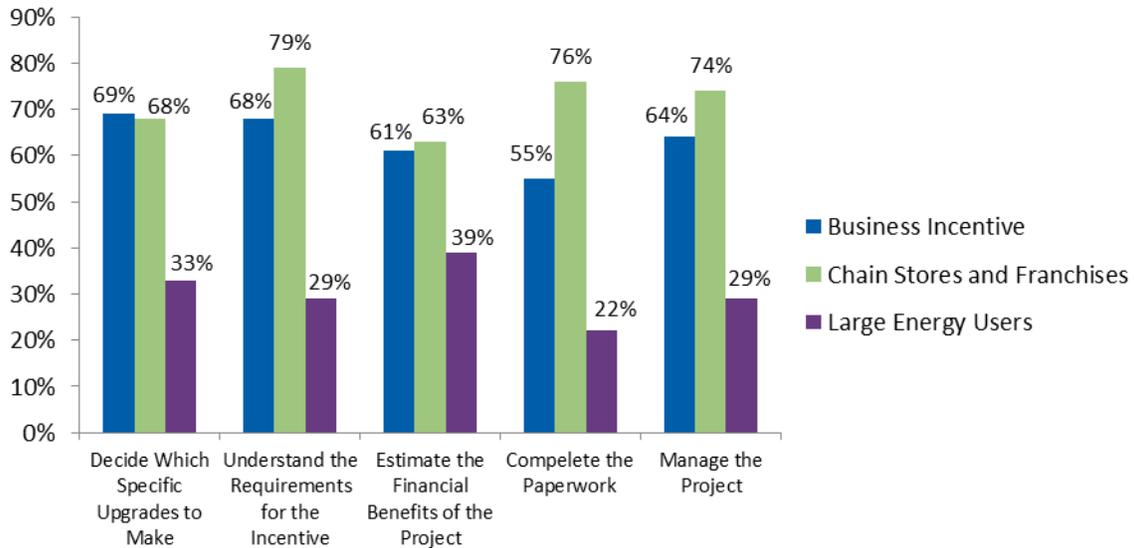
Most participants in the nonresidential programs selected a prescriptive option, with 71% of all project applications falling into the prescriptive category. One quarter of nonresidential project applications were a hybrid of custom and prescriptive, and 4% were custom.

### Trade Allies

The Trade Ally role varies across the nonresidential programs. Most of the programs—particularly the Business Incentive and Small Business Programs—relied heavily on Trade Allies to engage customers. The Chain Stores and Franchises Program used a managed account approach to develop relationships with customers, Trade Allies, and National Rebate Administrators.

The Large Energy Users Program also recruited the assistance of Trade Allies; however, compared to the Business Incentive and Chain Stores and Franchises Programs, fewer customers said the Trade Allies were “very important” in helping them with their projects (see Figure 21). Instead, Large Energy Users Program participants used Energy Advisors and utility Key Account Managers for technical assistance.

Figure 21. Contractor Was “Very Important” in Helping Customers



Source: CY 2013 Participant Surveys; "How important a role did your contractor play in the following areas...?" (Business Incentive n=180; Chain Stores and Franchises n=38; Large Energy Users n=51)

The nonresidential programs provide marketing materials, cooperative advertising opportunities, and energy-savings analysis tools to encourage the Trade Allies to work directly with customers. Focus on Energy paid nonresidential program incentives directly to Trade Allies for 46% of the projects completed, and nonresidential programs comprised approximately 55% of the total incentives paid in CY 2013.

Trade Allies mentioned several ways in which Focus on Energy could help them increase the number of customers in the nonresidential programs:

- Improve program credibility with customers
- More utility involvement in recruitment efforts
- Communicate program changes promptly
- Operate the program consistently for the entire year
- Provide a better recycling option for replaced lamps
- Improve program training for new Energy Advisors
- Simplify application process

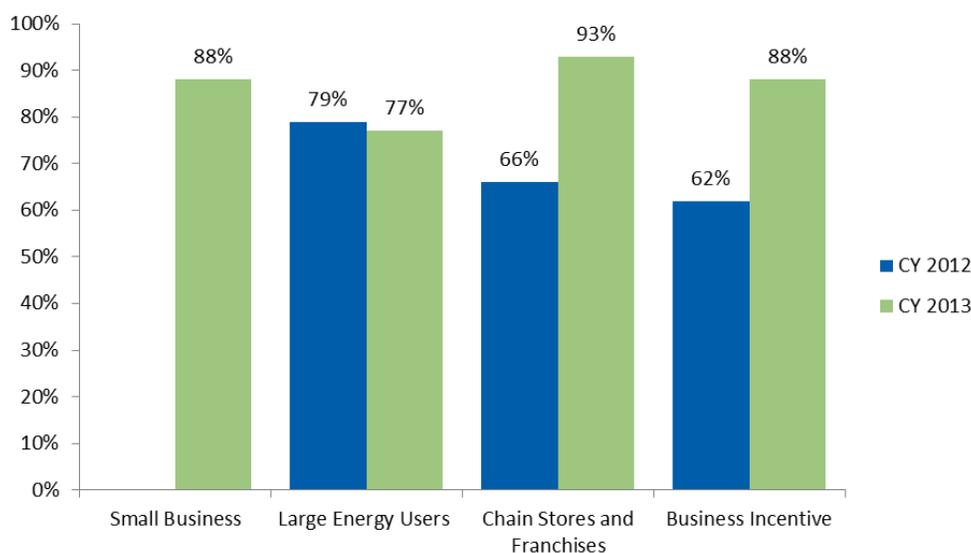
Most Trade Allies across the nonresidential programs expressed satisfaction with various aspects of the programs. However, more Renewable Energy Competitive Incentive Program Trade Allies expressed low satisfaction than other Trade Allies for the other programs. These Trade Allies noted concerns about complicated proposal requirements, short proposal development timelines, funding uncertainty, and lack of transparency around incentive allocation.

Business Incentive Program Trade Allies in the custom group were less satisfied than those in the prescriptive group. The Custom group Trade Allies expressed dissatisfaction with training they received, marketing materials, and the timeliness of incentive payments.

**Participant Satisfaction**

When asked how satisfied they were with their overall experience with the project, most participants rated their overall experience highly; however, many were less satisfied with particular aspects of their project or program experience. Figure 22 compares the percentage of participants who responded they were “very satisfied” with their overall project experience in CY 2013 with the percentage of participants who were “very satisfied” with their overall program experience in CY 2012.<sup>5</sup>

**Figure 22. Overall Satisfaction of Participants**



Source: CY 2013 Participant Surveys; "How satisfied were you with the overall experience with the project?"  
 (Small Business 2013 n=69; Large Energy Users 2012 n=19, 2013 n=60;  
 Chain Stores and Franchises 2012 n=50, 2013 n=60; Business Incentive 2012 n=74, 2013 n=192)  
 (Small Business Program participants were not surveyed for CY 2012)

In the smaller niche programs, participants and partial participants also rated their program experience highly.<sup>6</sup> Ten of 12 Retrocommissioning Program participants and all seven Renewable Energy Competitive Incentive Program participants said they were “very satisfied” with their overall experience.

<sup>5</sup> In the CY 2012 survey, participants were asked to rate their overall experience with the program. The Evaluation Team changed the wording to “overall experience with the project” in CY 2013 to address situations where the customer may not have known they were in a program.

<sup>6</sup> Partial participants are participants who initiated the process with a program, possibly through a facility audit or customer event but did not complete facility upgrades.

Only a few Design Assistance Program participants had completed projects, but those who had done so rated their satisfaction highly.

Though overall satisfaction for the nonresidential programs was high, fewer participants said they were “very satisfied” with specific elements of the programs (see Table 20).

In CY 2013, more participants reported they were “very satisfied” with the clarity of program requirements, selection of equipment, and the time it took to receive incentive payments in the Business Incentive and Chain Stores and Franchises Programs than in CY 2012 (see Table 21). In contrast, fewer Large Energy Users Program participants reported they were “very satisfied” with these program elements in CY 2013 than in CY 2012.

**Table 20. Core Program Participants Who Were “Very Satisfied” with Program Elements**

Program Element	Business Incentive Program	Chain Stores and Franchises	Large Energy Users
Clarity of the eligibility requirements	53%	64%	48%
Selection of equipment	74%	69%	37%
Amount of the incentive	58%	58%	40%
Application process	69%	58%	38%
Custom project preapproval <sup>1</sup>	64%	48%	43%
Time it took to receive the incentive	69%	72%	29%

<sup>1</sup>The Evaluation Team asked only participants who completed custom projects to rate satisfaction with the preapproval process.

**Table 21. Comparison of “Very Satisfied” Responses in CY 2012 and CY 2013**

Program Element	Business Incentive Program		Chain Stores and Franchises		Large Energy Users	
	CY 2012	CY 2013	CY 2012	CY 2013	CY 2012	CY 2013
Clarity of the eligibility requirements	43%	53%	44%	64%	74%	48%
Selection of equipment	57%	74%	47%	69%	68%	37%
Time it took to receive the incentive	51%	69%	61%	72%	68%	29%

Surveyed participants in these three programs who were less than “very satisfied” gave the following reasons for their rating:

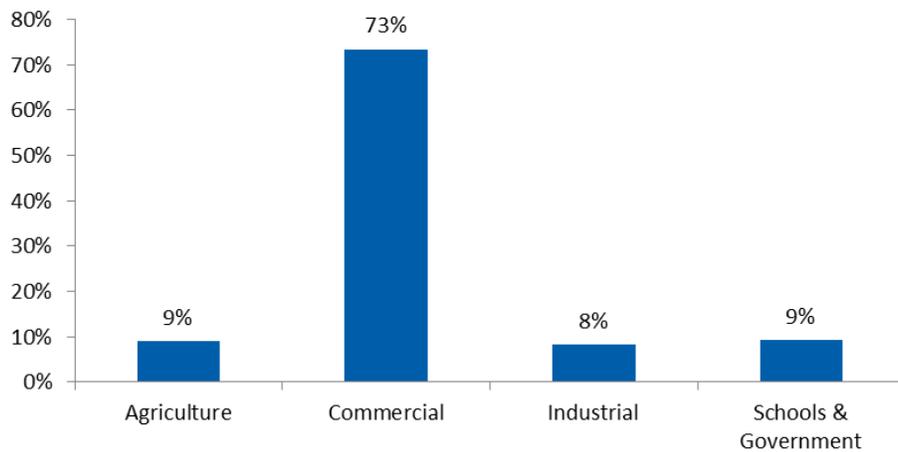
- “I think the paperwork is confusing. It's hard to navigate through the paperwork to find out what the incentive is and how to apply for it. The whole process I think was confusing.”
- “Just some of the lingo. It's written in lawyer terms. You really had to read it carefully to clarify it.”
- “We never really got a true clear picture on what is actually eligible, what isn't, and what is [eligible] on this project.”

- “I didn't understand what the preapproval process was with not being through it before, and it took months and months and back and forth with communication before they approved it. The whole process took maybe six months.”

## Business Demographics

Nonresidential participants represented a wide range of industry sectors, but the majority of participants were commercial businesses (73%). Nine percent of participants represented the agricultural sector, 9% represented the schools and government sector, and 8% represented the industrial sector (Figure 23).

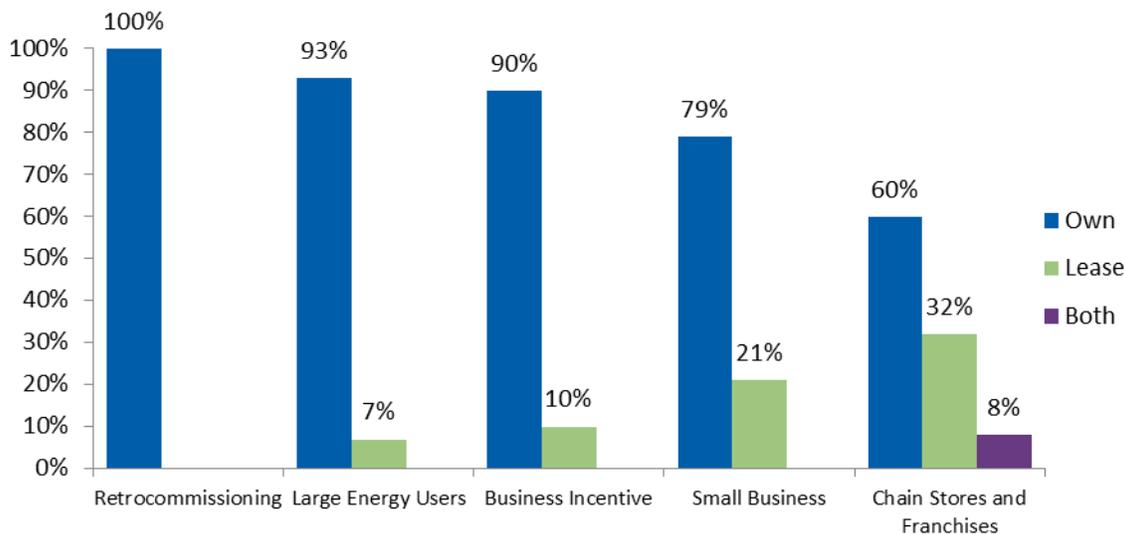
**Figure 23. Participant Industry Sectors**



Source: CY 2013 SPECTRUM database

A majority of participants owned their facilities, as opposed to renting. As Figure 24 shows, over 90% of participants in the Retrocommissioning, Business Incentive, and Large Energy Users Programs owned their facilities. Seventy-nine percent of Small Business Program participants were owners, and 60% of Chain Stores and Franchises Program participants owned their facilities.

Figure 24. Owned Versus Leased Space in Nonresidential Programs



Source: CY 2013 Participant Surveys, "Do you own or lease your facility?" (Retrocommissioning n=12; Small Business n=69; Large Energy Users n=60; Chain Stores and Franchises n=60; Business Incentive n=210)

### Consumer Awareness Survey

This section summarizes key findings, conclusions, and recommendations from the consumer awareness survey.<sup>7</sup> To establish an updated baseline of general awareness and understanding of Focus on Energy’s marketing efforts, the Evaluation Team completed 601 consumer awareness surveys between October 22, 2013, and November 13, 2013, in four representative regions of Wisconsin defined by the Program Administrator. Seventy percent of the survey sample was randomly selected from landline digit-dial records and 30% from cell-phone records. The Evaluation Team weighted all results reported here to adjust for response bias so the results are representative of households in Wisconsin.

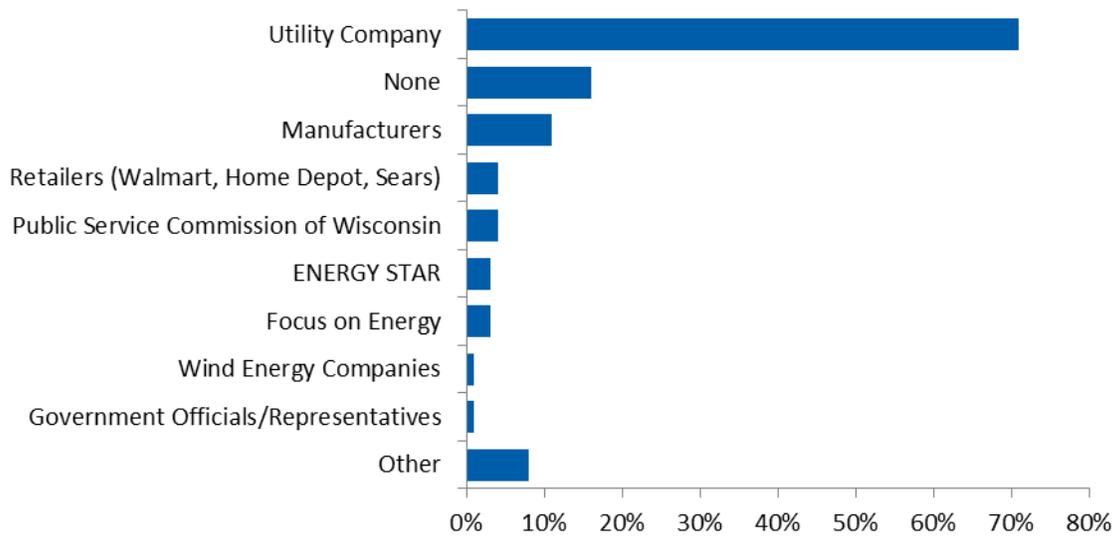
#### General Awareness

The Evaluation Team asked respondents what companies or types of companies they were aware of that promote energy efficiency. “Utility” was the top answer, accounting for 53% of the responses. Only 2% of the respondents said Focus on Energy and 25% of the respondents said “don’t know.” Overall, 12% of respondents said they did not know of any company that promoted energy efficiency.

Figure 25 shows the percentage of responses by company or type of company respondents named.

<sup>7</sup> The Evaluation Team previously reported these results to Focus on Energy in a memo dated January 20, 2014.

**Figure 25. Companies that Promote Energy Efficiency in Wisconsin**



Source: CY 2013 General Awareness Survey; “What companies or types of company are you aware of that promote energy efficiency in Wisconsin?” (n=451; multiple responses allowed)

### Focus on Energy Awareness

Almost half of all respondents said they were aware of Focus on Energy (47%). This rate of awareness may have increased since CY 2011, when it was 36%, according to the Midwest Energy Survey 2011.<sup>8</sup> However, these results are not directly comparable since both survey efforts approached awareness slightly differently since they were designed for different purposes.<sup>9</sup>

### Program Awareness

The Evaluation Team asked respondents who were aware of Focus on Energy to name any of its programs, incentives, or projects. Almost half of the respondents (44%) did not know of a program, incentive, or project. Respondents who were familiar with Focus on Energy programs most frequently named:

- Lighting and Appliances (22%)
- Appliance Recycling (16%)
- Home Performance with ENERGY STAR (16%)

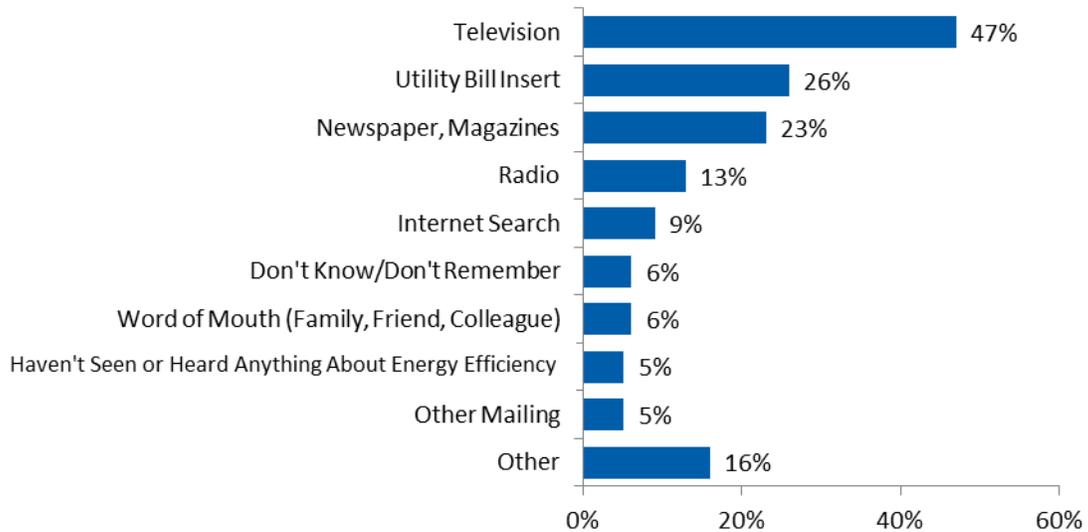
<sup>8</sup> The Energy Center of Wisconsin’s Midwest Energy Survey 2011, p. 28.

<sup>9</sup> The results of the Consumer Awareness Survey are also not directly comparable to the results of the Residential Lighting and Appliances Survey due to differences in survey design.

**Communication Channels**

Respondents reported that they had seen or heard about energy efficiency from a variety of sources. The most common source was television (47%). Other top sources included utility bill inserts (26%) and newspapers and magazines (23%). Figure 26 shows the percentage of responses for each communication channel.

**Figure 26. General Awareness Communication Channels**



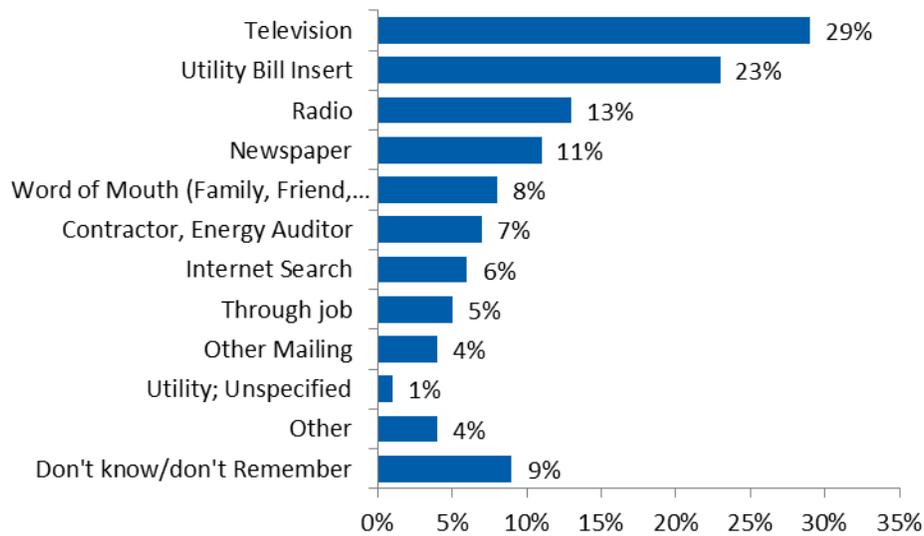
Source: CY 2013 General Awareness Survey; “Where have you seen or heard about energy efficiency?” (n=601; multiple responses allowed)

**Focus on Energy Communication Channels**

In general, respondents learned about Focus on Energy in similar ways to how they learned about energy efficiency. When asked how they first heard about Focus on Energy, 29% of the respondents said television, 23% said utility bill inserts, 13% said radio, and 11% said newspapers (see Figure 27). In CY 2011, respondents cited these top sources for information about Focus on Energy: TV (20%), radio (17%), and utility bill insert (16%).<sup>10</sup>

<sup>10</sup> The Energy Center of Wisconsin’s Midwest Energy Survey 2011, p. 28.

**Figure 27. Focus on Energy Communication Channels**



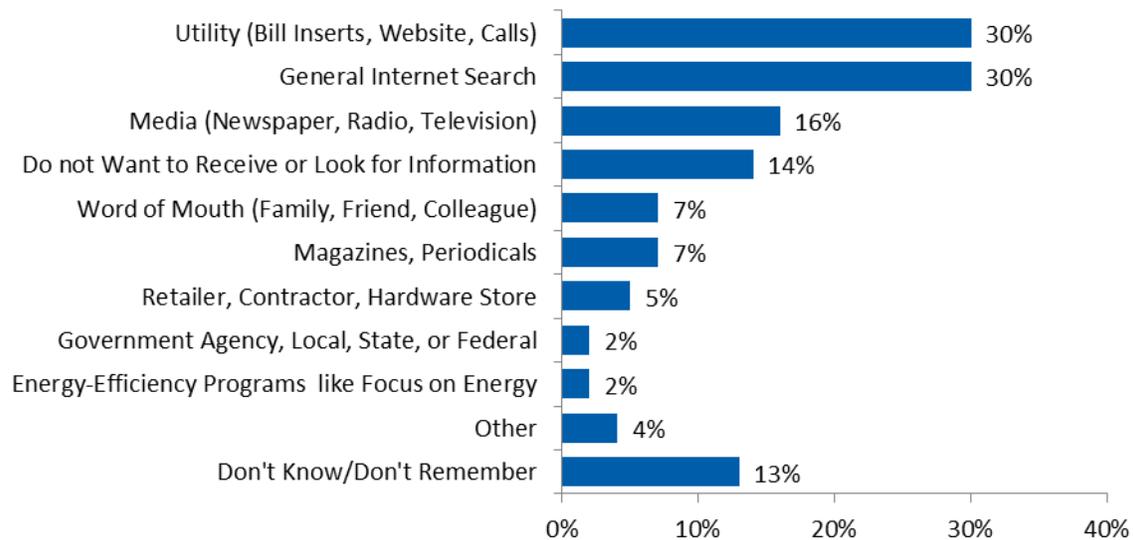
Source: CY 2013 General Awareness Survey; “How did you first hear about Focus on Energy?”  
(n=282; multiple responses allowed)

**Preferred Communication Channels for Information on Energy Efficiency**

The Evaluation Team asked respondents where they look for information about energy-efficiency programs and for ways to save energy in their homes. As shown in Figure 28, the most common responses were:

- Utility (30%)
  - Bill insert (15%)
  - Website (11%)
  - Unspecified (3%)
  - Phone call (1%)
- General internet search (30%)
- Media: TV, radio, or newspapers (16%)

**Figure 28. Information Sought About Energy-Efficiency Programs**



Source: CY 2013 General Awareness Survey; “Where do you look for information about energy-efficiency programs and ways to save energy in your home?” (n=601; multiple responses allowed)

When asked where they look for information about energy-efficiency programs, respondents’ answers differed between demographic groups. The most common responses by age and/or income were:

- Internet: Preferred by 87% of the respondents between 18 and 24 years of age and by respondents with incomes between \$75,000 and \$100,000.
- Media (TV, newspaper, radio): Preferred by respondents 65 years or older. This group used media sources more frequently than other groups (almost one-third).
- Utility bill inserts: Favored by respondents 45 years or older.
- Utility websites: Favored by respondents 25 to 35 years of age.

### Attitudes toward Energy Efficiency

#### Attitudes about Issues

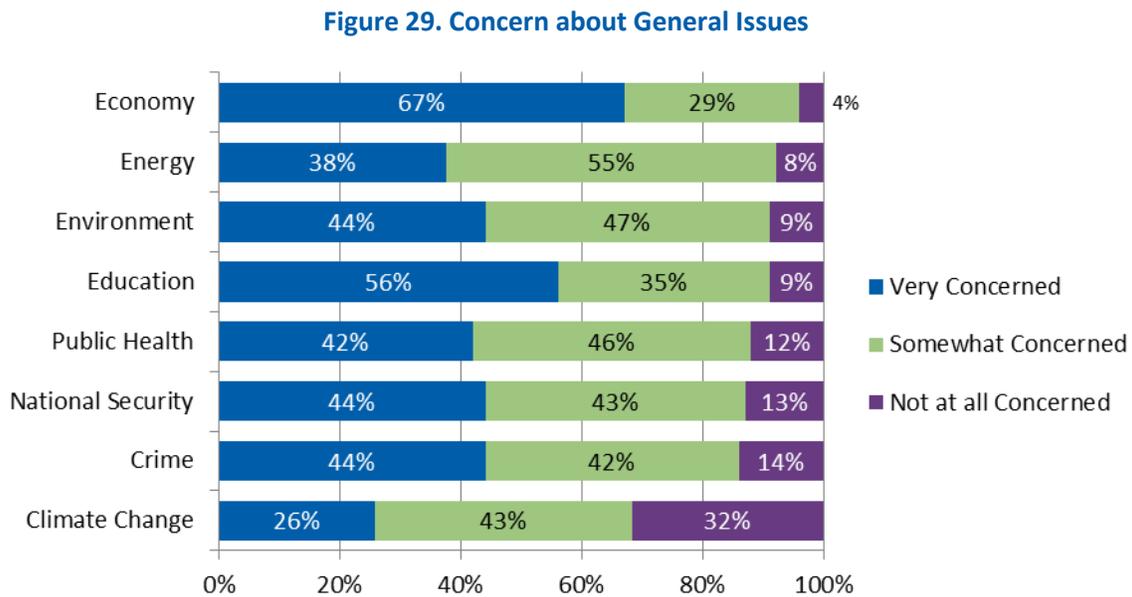
When asked about their concern regarding various general issues, respondents ranked the economy as the top concern (67% said “very concerned”), which was followed by education (56% said “very concerned”). Respondents were least concerned about climate change (32% said “not at all concerned”).

According to the Midwest Energy Survey results, survey respondents have ranked the economy as their top concern since CY 2009.<sup>11</sup> In CY 2011, the Midwest Energy Survey results were similar to the

<sup>11</sup> The Energy Center of Wisconsin’s Midwest Energy Survey 2011, p. 7.

Evaluation Team’s survey results, with 35% of the respondents saying they were “very concerned” about energy and fewer respondents (33%) reporting they were “very concerned” about the environment.<sup>12</sup>

Figure 29 shows the respondents’ answers for each issue in CY 2013.



Source: CY 2013 General Awareness Survey; “Please indicate whether you are not at all concerned, somewhat concerned, or very concerned about each issue.” (Economy n=599; Energy n=599; Environment n=600; Education n=599; Public Health n=600; National Security n=596; Crime n=599; climate Change n=596)

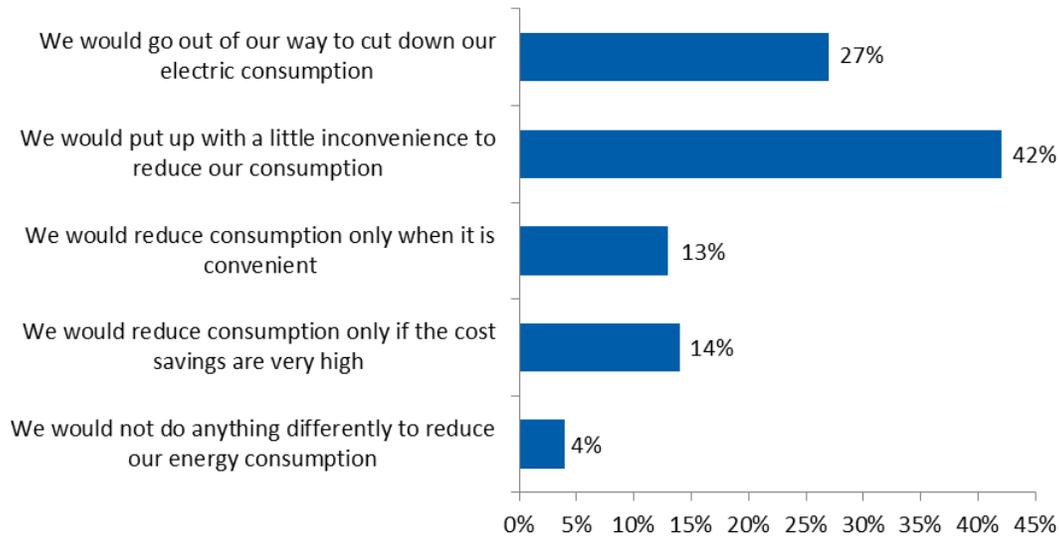
### Willingness to Save Energy

In CY 2013, over a quarter of respondents said they were willing to go out of their way to reduce energy consumption (27%), compared to 13% in CY 2011.<sup>13</sup> In CY 2013, almost half of the respondents said they would put up with a little inconvenience to reduce consumption (42%). Figure 30 shows a breakdown of all of the responses to this question.

<sup>12</sup> The Energy Center of Wisconsin’s, Midwest Energy Survey 2011, p. 8.

<sup>13</sup> The Energy Center of Wisconsin’s Midwest Energy Survey 2011, p. 22.

**Figure 30. Willingness to Reduce Energy Consumption**

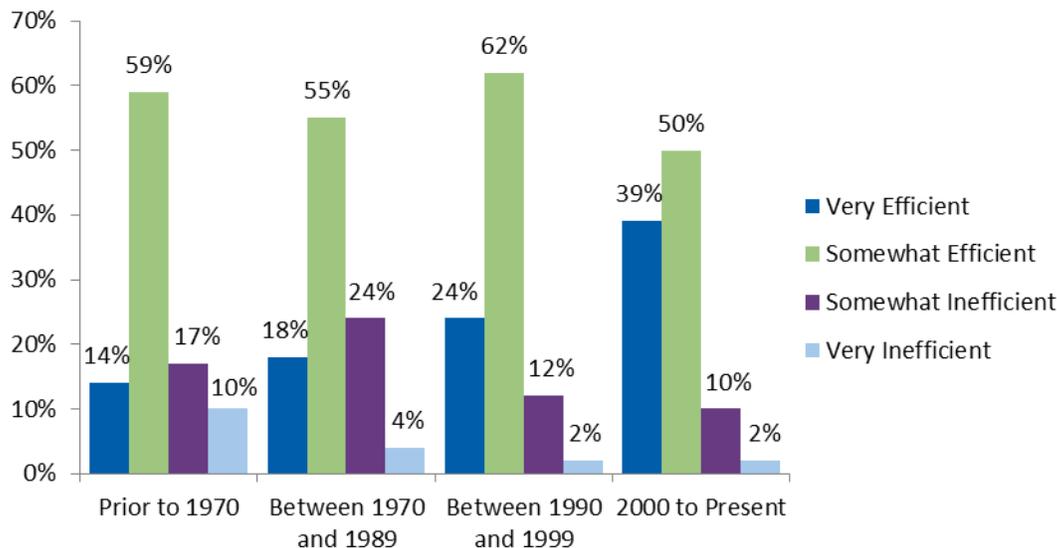


Source: General Awareness Survey; “Which of the following best describes how far your household is willing to go to save energy if it means saving some money too?” (n=581)

**Efficiency of Home**

Over one-fifth of respondents said that their homes were “very efficient” (21%) and over half said that their homes were “somewhat efficient” (56%). This percentage was equally as high among respondents with homes more than forty years old. Almost three-quarters of respondents with homes built prior to 1970 said their homes are “very efficient” or “somewhat efficient” (73%). Figure 31 shows a comparison of the reported efficiency of the respondents’ homes by the vintage of the homes.

Figure 31. Home Efficiency by Vintage of Home



Source: CY 2013 General Awareness Survey; “How energy-efficient would you say your home is currently?” and “In approximately what year was your home built?” (n=543)

**Ease of Reducing Energy**

Over two-thirds of respondents said that reducing energy in their homes was “very easy” (11%) or “easy if they make minor adjustments” (58%). In CY 2011, survey results showed that a total of 58% of respondents said that reducing energy was “very easy” or “easy if they make minor adjustments.”<sup>14</sup>

**Interest in Reducing Energy**

Overall, in CY 2013, 42% of respondents were “very interested” in reducing energy use in their homes and 43% of respondents were “somewhat interested.” There was no statistically significant difference in the respondents’ interest in reducing energy and age group, except that respondents over 65 years of age said they were “not at all interested” more frequently (10%) than other groups.

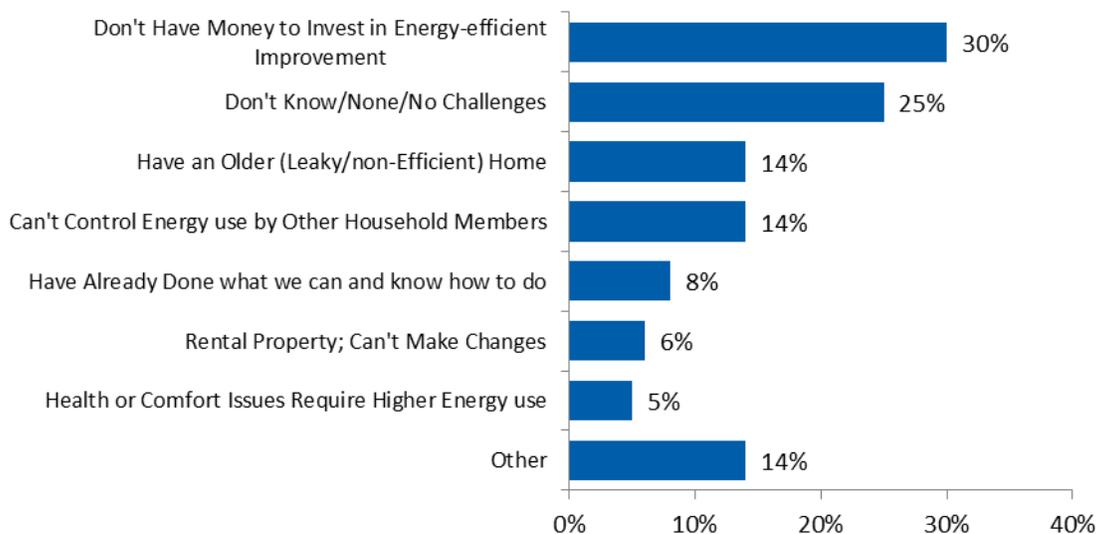
Many respondents who were “very interested” or “somewhat interested” in reducing energy use were willing to make changes. Of respondents who said they were “very interested” in reducing energy, 44% were “willing to go out of their way to reduce energy consumption” and more than one-third were “willing to put up with a little inconvenience” to reduce consumption (34%).

<sup>14</sup> The Energy Center of Wisconsin’s Midwest Energy Survey 2011, p. 20.

**Barriers**

The Evaluation Team asked respondents to name the top barriers to saving energy in their homes. Respondents said the top barrier to saving energy in the home was not having enough money to invest in energy-efficient improvements (30%). One-quarter of respondents said there were no barriers to saving energy in their homes (25%). Figure 32 lists all the barriers the respondents identified.

**Figure 32. Barriers to Saving Energy in Homes**



Source: CY 2013 General Awareness Survey; “What challenges, if any, make saving energy difficult in your home?” (n=601; multiple responses allowed)

**Motivators**

The Evaluation Team asked respondents which marketing messages would motivate them to make energy-efficiency upgrades. The Evaluation Team also asked respondents if they had installed energy-efficiency equipment in the past year and whether equipment failure had prompted them to think about energy-efficient equipment when replacing or upgrading equipment.

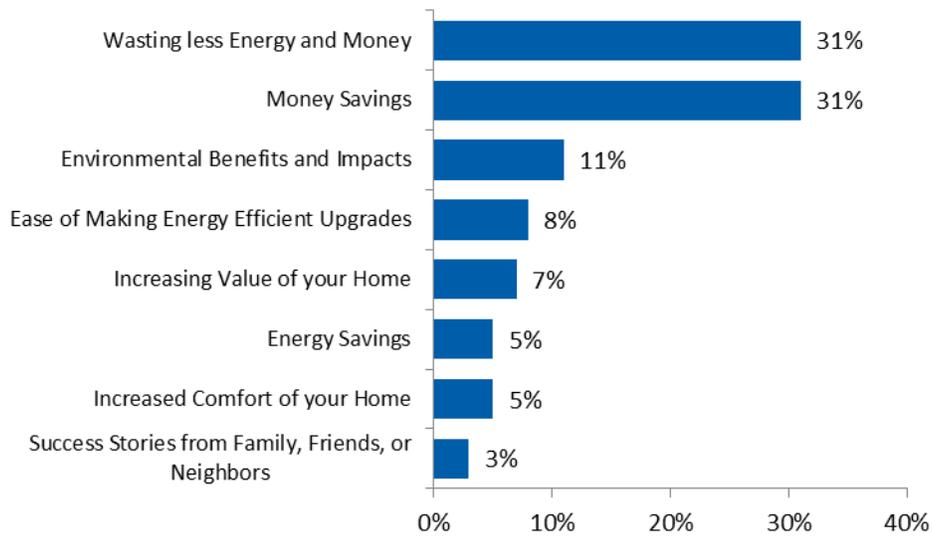
**Equipment Failure is a Motivator**

Over half of respondents indicated that that equipment failure led them to think about energy efficiency when replacing or upgrading equipment (59%).

**Motivating Messages**

Respondents listened to eight messages about energy efficiency and identified the one that would motivate them the most to make energy-efficiency upgrades in their homes. The messages the respondents identified as the most motivating were “wasting less energy and money” and “money savings.” Respondents with older homes who said their homes were “very efficient” selected the message “money savings” most frequently (35%), followed by “wasting less energy and money” (21%).

**Figure 33. Most Motivating Energy-Efficiency Messages**



Source: CY 2013 General Awareness Survey; “Which of the following messages would motivate you the most to make energy-efficiency upgrades in your home?” (n=563; multiple responses allowed)

### **Cost-Effectiveness Findings**

As part of the CY 2013 evaluation activities, the Evaluation Team reviewed the cost-effectiveness of the Focus on Energy programs. This section presents the findings of a benefit/cost analysis for Focus on Energy portfolio in CY 2013. In the current quadrennial cycle, the Program Administrator has, with Public Service Commission approval, elected to use a cost-effectiveness calculator for program planning purposes.

Consistency between planning and evaluation approaches is critical for an effective understanding of program performance relative to expectations. As a result, the Evaluation Team used the same calculator for its analysis.

There are several tests used for evaluating the cost-effectiveness of energy-efficiency and renewable-energy measures. The benefit/cost test, approved for Focus on Energy, is based upon the total resource cost (TRC) test, a commonly administered test in the energy industry. The modified TRC test is required by PSC Order, docket 5-GF-191 (PSC REF#:158228) for this evaluation. The test counts the avoided cost of supplying the displaced energy against the program implementation and participant costs. The purpose of the test is to determine whether the costs incurred by residents, businesses, and Focus on Energy for operating a program are outweighed by the benefits received by residents, businesses, and Focus on Energy.

The TRC test essentially determines the ratio of program benefits to program costs. A value greater than one translates into a program or a portfolio of programs that is cost-effective (net benefits are positive and determined by subtracting the costs from the TRC benefits). The equation used for the TRC test is:

**TRC Test Equation:**

$$TRC\ B/C = \frac{[Value\ of\ Net\ Saved\ Energy\ (Avoided\ Costs) + Value\ of\ Net\ Avoided\ Emissions]}{[Program\ Administrative\ Costs + (Incremental\ Measure\ Cost * NTG\ Ratio)]}$$

The following section and Appendix I and Appendix J provide a more detailed discussion of the inputs to the TRC test.

**Value of Net Saved Energy**

The value of energy saved, or displaced, equals the net energy saved multiplied by the utility-avoided cost of the saved energy. In the case of energy-efficiency and renewable-resource programs, avoided cost is the incremental (or marginal) cost to a utility for additional energy and capacity required if the utility has to generate or purchase from another source rather than pay for the efficient measure that offsets this demand.

To calculate electric energy avoided costs in the CY 2013 evaluation, the Evaluation Team used an avoided cost model/annualized forecast model. The forecast relied on the Midcontinent Independent Transmission System Operator, Inc.’s (MISO’s) forecast of Locational Marginal Pricing (LMP) for the years 2016, 2021, and 2026. The PSC established the nonelectric energy avoided costs in a January 13, 2012 PSC Order, docket 5-GF-191 (PSC REF#:158228).

To derive net savings, the Evaluation Team decreased the verified gross energy savings by the conventional attribution factor of the NTG ratio. The Evaluation Team then increased the net savings by the line loss factor of 8% to account for distribution losses. Table 22 shows the avoided cost assumptions used for the cost-effectiveness tests in CY 2013, CY 2012, and CY 2011.

**Table 22. Avoided Cost Comparison Between Evaluations<sup>1</sup>**

Avoided Cost	CY 2013	CY 2012	CY 2011
Electric Energy (\$/kWh)	0.0414 to 0.0561	0.0379 to 0.0561	0.041
Electric Capacity (\$/kW year)	114.3	114.3	114.3
Gas (\$/therms)	1.005	1.005	1.005
Avoided Cost Inflation	0%	0%	0%
Real Discount Rate	2%	2%	2%
Line Loss	8%	8%	8%

<sup>1</sup>The value listed here for electric energy of \$0.041 per kWh and in the CY 2011 Evaluation Report represents a single value. In modeling the cost-effectiveness, the Evaluation Team used a time series of values. Similarly, the CY 2012 and CY 2013 cost-effectiveness analyses used a time series that grows from 0.0379 to 0.0561 over 15 years in the forecast model.

## Emissions Benefits

The emissions benefits require three key parameters: (1) life-cycle net energy savings, (2) emissions factors, and (3) the dollar value of the displaced emissions. Emissions factors are simply the rate the criteria pollutants are emitted per unit of energy and are most often expressed in tons of pollutant per energy unit—electric is in tons/megawatt hour (MWh) and gas is in tons/mega therm (MThm). The product of the emissions factor and the net life-cycle energy savings is the total weight of air pollutant displaced by the program. The product of the total tonnage of pollutant displaced and the dollar value of the displaced emissions per ton is therefore the avoided emissions benefit.

The Evaluation Team revised the electric emissions factors from the CY 2011 evaluation report in accordance with the forecasted CY 2012 estimates in the report, *Focus on Energy Evaluation Emission Factors Update*.<sup>15</sup> The gas emissions factors remained constant from the CY 2011 evaluation report. Table 23 lists the emissions factors and allowance prices.

**Table 23. Emissions Factors and Allowance Price**

Service Fuel Type	CO <sub>2</sub>	NOX	SO <sub>2</sub>
Electric Emissions Factor (Tons / MWh)	0.8300	0.0012	0.0008
Gas Emissions Factor (Tons / MThm)	5.85	N/A	N/A
Allowance Price (\$/Ton)	\$30	\$4.10	\$1.08

The Evaluation Team obtained the CY 2013 nitrogen oxides (NOx) and sulfur dioxides (SO<sub>2</sub>) emissions allowance prices from the Energy Information Administration (EIA).<sup>16</sup> The Evaluation Team used the CO<sub>2</sub> emissions price the PSC established under Order, docket 5-GF-191 (PSC REF#:158228), which states, “A levelized carbon value of \$30 per ton shall be used in the benefit/cost modeling of energy-efficiency programs.”

Table 24 lists the emissions benefits for all programs by segment.

**Table 24. Total Program Emissions Benefits by Segment**

Program Year	Residential	Nonresidential	Total
CY 2013 Emissions Benefits	\$64,154,495	\$111,096,441	\$175,250,937
CY 2012 Emissions Benefits	\$30,961,768	\$110,122,130	\$141,083,899
CY 2011 Emissions Benefits	\$19,667,147	\$84,075,436	\$103,742,582

<sup>15</sup> PA Consulting Group, December 22, 2009.

<sup>16</sup> More information available online at: <http://www.eia.gov/todayinenergy/detail.cfm?id=4830>.

**Program Costs**

The program costs represent all costs associated with running the efficiency and renewable programs (including administration and delivery costs). The Evaluation Team did not include incentive costs as program costs as they are deemed transfer payments to the customer.<sup>17</sup> The fiscal agent, Wipfli, provided the CY 2013 program costs used in this evaluation.

Table 25 shows the CY 2013, CY 2012, and CY 2011 program and incentive cost values used for the cost-effectiveness tests.

**Table 25. Sector Cost Comparison Between Evaluations**

Costs	CY 2013	CY 2012	CY 2011
<b>Residential</b>			
Incentive Costs	\$28,493,177	\$17,540,611	\$14,252,876
Administrative Costs	\$4,839,300	\$4,216,256	\$2,622,411
Delivery Costs	\$11,035,762	\$9,614,943	\$5,980,265
<b>Total Residential Non-Incentive Program Costs</b>	<b>\$15,875,062</b>	<b>\$13,831,199</b>	<b>\$8,602,676</b>
<b>Nonresidential</b>			
Incentive Costs	\$36,376,259	\$31,233,437	\$32,490,795
Administrative Costs	\$4,458,325	\$3,752,393	\$3,760,910
Delivery Costs	\$18,205,197	\$15,322,583	\$15,357,361
<b>Total Nonresidential Non-Incentive Program Costs</b>	<b>\$22,663,522</b>	<b>\$19,074,976</b>	<b>\$19,118,271</b>
<b>Total for Residential and Nonresidential Sectors</b>			
Incentive Costs	\$64,869,436	\$48,774,048	\$46,743,671
Administrative Costs	\$9,297,625	\$7,968,649	\$6,383,321
Delivery Costs	\$29,240,959	\$24,937,526	\$21,337,626
<b>Total for Residential and Nonresidential Sectors Non-Incentive Program Costs</b>	<b>\$38,538,584</b>	<b>\$32,906,175</b>	<b>\$27,720,947</b>

**Incremental Costs**

The gross incremental costs are the additional costs incurred as a result of purchasing efficient equipment over and above a baseline nonqualified product. The Evaluation Team derived the gross incremental cost values used in this evaluation from two primary sources: the Focus on Energy Benefit/Cost Analysis CY 2009 Evaluation Report (with the notable exception of renewable-based measures) and the program planning cost-effectiveness calculators. The Evaluation Team applied the same CY 2011 incremental cost logic to all CY 2012 legacy and carryover-based program measures and mapped all new CY 2012 program measures to program planning measures, which then received incremental cost estimates using the cost-effectiveness calculators.

<sup>17</sup> The Evaluation Team included the incentive costs as part of the incremental cost but did not add them as a program cost.

Similar to the CY 2011 evaluation effort, the Evaluation Team used actual project cost values from the program tracking databases for the renewable energy projects. The gross incremental costs, similar to the energy savings values used in the cost-effectiveness tests, required the application of attribution factors to account for freeridership.

The Evaluation Team derived the values for attribution factors for all legacy and carryover program measures, namely the NTG ratios, from the CY 2010 evaluation and carried these forward to the CY 2013 evaluation on a measure-by-measure basis. New CY 2013 program measures received NTG ratios according to the Evaluation Team’s reviews.

Table 26 shows the CY 2013, CY 2012, and CY 2011 total measure net incremental costs used for the cost-effectiveness tests. The TRC test does not include incentive costs.

**Table 26. Net Incremental Measure Cost Comparison**

Costs	Residential			Nonresidential		
	CY 2013	CY 2012	CY 2011	CY 2013	CY 2012	CY 2011
Incremental Costs	\$62,287,090	\$44,069,866	\$41,291,783	\$115,237,111	\$137,324,482	\$104,914,159

Table 27 lists CY 2013 incentive costs by sector, with renewables incorporated.

**Table 27. CY 2013 Incentive Costs by Sector (with Renewables Incorporated)**

Costs	Residential	Nonresidential	Total
Incentive Costs	\$28,493,177	\$36,376,259	\$64,869,436

Table 28 lists the findings of a benefit/cost analysis for Focus on Energy’s CY 2013 program cycle by sector, with renewable measures incorporated into each sector.

**Table 28. CY 2013 Costs, Benefits, and TRC Ratio by Sector (with Renewables Incorporated)**

	Residential	Nonresidential	Total
Administrative Costs	\$4,839,300	\$4,458,325	\$9,297,625
Delivery Costs	\$11,035,762	\$18,205,197	\$29,240,959
Incremental Measure Costs	\$62,287,090	\$115,237,111	\$177,524,202
<b>Total Non-Incentive Costs</b>	<b>\$78,162,152</b>	<b>\$137,900,633</b>	<b>\$216,062,785</b>
Electric Benefits	\$138,628,872	\$226,680,256	\$365,309,128
Gas Benefits	\$48,950,495	\$146,420,786	\$195,371,281
Emissions Benefits	\$64,154,495	\$111,096,441	\$175,250,937
<b>Total TRC Benefits</b>	<b>\$251,733,863</b>	<b>\$484,197,483</b>	<b>\$735,931,346</b>
<b>TRC Benefits Minus Costs</b>	<b>\$173,571,711</b>	<b>\$346,296,850</b>	<b>\$519,868,561</b>
<b>TRC Ratio<sup>1</sup></b>	<b>3.22</b>	<b>3.51</b>	<b>3.41</b>

<sup>1</sup>The TRC ratio equals total TRC benefits divided by non-incentive costs.

Table 29 lists the CY 2013 and CY 2012 cost-effectiveness results.

**Table 29. Cost-Effectiveness Results for Focus on Energy Portfolio**

Calendar Year	Residential	Nonresidential	Renewables	Total
CY 2013: With Renewables	3.22	3.51	N/A	<b>3.41</b>
CY 2013: Renewables Separate	3.27	3.80	0.97	<b>3.41</b>
<b>CY 2012: With Renewables</b>	<b>2.41</b>	<b>3.07</b>	<b>N/A</b>	<b>2.89</b>
<b>CY 2012: Renewables Separate</b>	<b>2.69</b>	<b>3.83</b>	<b>0.82</b>	<b>2.89</b>

For additional details on the processes used for calculating the cost-effectiveness of the Focus on Energy portfolio, please refer to Appendix I and Appendix J; as well as the Benefit/Cost Analysis CY 2009 Evaluation Report.<sup>18</sup>

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<sup>18</sup> Focus on Energy Benefit/Cost Analysis CY 2009 Evaluation Report. Submitted by PA Consulting Group and KEMA, Inc. Submitted to Public Service Commission of Wisconsin. Final: November 24, 2009.  
[http://www.focusonenergy.com/files/Document\\_Management\\_System/Evaluation/bcanalysicy09\\_evaluationreport.pdf](http://www.focusonenergy.com/files/Document_Management_System/Evaluation/bcanalysicy09_evaluationreport.pdf)

## ***Outcomes and Recommendations***

Based on the Evaluation Team's segment- and portfolio-level findings, this section presents high-level outcomes and recommendations.

### **Outcome 1. Awareness of Focus on Energy is low.**

The Evaluation Team found several indicators that awareness of Focus on Energy remains low; two general population surveys conducted in CY 2013 found that a majority of residents were not familiar with Focus on Energy. Further, via the Evaluation Team's CY 2013 consumer awareness survey, respondents said they were most likely to hear about energy-efficiency programs through their utilities.

**Recommendation 1.** Consider creating marketing, media, and messaging strategies designed to build brand awareness. Low awareness indicates a need for Focus on Energy to raise its profile among customers as a leader and trusted go-to resource for energy-efficiency information in the state.

Approaches could include:

- Pursuing co-branding and co-marketing opportunities with utilities to increase Focus on Energy's presence in utility communications.
- Including the utility communications channel as an important part of the marketing strategy. Use the channel to disseminate important information and build consumer awareness and familiarity with Focus on Energy and its program offerings.

### **Outcome 2. Customers do not know where to find energy-efficiency information.**

A significant gap exists between where customers report that they look for energy-efficiency information and where customers currently receive this information. For example, 30% of respondents said they seek energy-efficiency information through general internet searches; however, most respondents reported that they received information about energy efficiency through television and bill inserts. Therefore, there is a substantial opportunity to engage customers online.

**Recommendation 2.** Develop a comprehensive online marketing strategy that places the Focus on Energy brand and program offerings at online touch points where customers are actively seeking energy-efficiency information, ensuring that all online marketing drives users to the Focus on Energy website. By doing this, Focus on Energy can position itself as the trusted statewide resource for energy efficiency, drive traffic to the redesigned website, and ultimately build greater brand awareness and familiarity with customers.

The online strategy could include the following tactics:

- Search engine marketing (sometimes referred to as paid search)
- Online banner or display advertising
- Search engine optimization
- Social media (blogs, customer online reviews, etc.)

**Outcome 3. Customers need more information about what defines an energy-efficient home.**

In CY 2013, more residential respondents reported it was easier to reduce energy use than the respondents surveyed in CY 2011 (69% in CY 2013 compared to 58% in CY 2011). However, customers may not be fully aware of or understand what constitutes a highly energy-efficient home, as many respondents with homes more than 40 years old believed their homes were either “very” or “somewhat” energy efficient.

**Recommendation 3.** Develop marketing messages and consumer education content that help customers see and understand the opportunities for reducing energy use in their homes. Create messaging that tells customers how they can achieve potential energy and money savings through upgrades or through messaging that warns customers of potential energy and money waste in older, less efficient homes. Whenever possible, target messaging to address barriers and leverage motivators of discrete demographic segments, using the preferred communications channels for each segment.

**Outcome 4. Nonresidential programs are not reaching customers in leased facilities effectively.**

Although customers in leased spaces offer significant potential for savings, the nonresidential programs have had limited success in reaching them. The Chain Stores and Franchises Program reached the greatest percentage of tenants in CY 2013: 40% of customer survey respondents said they leased at least some of their facilities. (60% of the Chain Stores and Franchises Program direct-install recipients leased their spaces.) Twenty percent of the Small Business Program survey respondents reported occupying leased spaces, compared to 9% for the Business Incentive Program and 7% for the Large Energy User Program.

The optimal proportion of renters in each program will vary. The Chain Stores and Franchises Program, for example, should anticipate a higher penetration rate with renters because of the traditional structure of retail leases. (Retail leases usually give tenants greater control of their space than office and industrial leases and are more likely to assign the tenant responsibility for utility costs.) Small businesses are less likely to be able to afford to purchase a building, in comparison to the general business population, and therefore are more likely to lease space. Large energy users, on the other hand, may be less likely to lease than the general business population, given the nature of their facilities.

**Recommendation 4.** Identify strategies to better reach businesses who lease their facilities. Potential approaches to consider include:

- Study ownership profiles of each program’s intended audience and consider setting performance metrics by program for achieving savings and/or attracting participants in leased spaces.
- Enhance and/or expand direct install initiatives.
- Conduct outreach to tenant influencers, such as real estate brokers and industry associations (for example, CoreNet), to help tenants understand the value of making efficiency upgrades in leased spaces.

- Help tenants obtain approval from their landlords for energy-efficient retrofits, such as by creating a landlord education and approval package that emphasizes the increased value of energy-efficient buildings.
- Offer incentives for energy efficiency among tenants who cannot retrofit their spaces, such as rebates for energy-efficient office equipment (such as computers and printers) and behavior change (such as turning off unused lights, shutting down computers at the end of the day).

**Outcome 5. Communicate program-specific annual targets more timely and with external transparency.**

Program-specific annual targets are set in contracts between the Program Administrator and Program Implementers, and these are revised as needed to balance resources within the portfolio. Appropriate changes to targets, such as shifting from therms to kWh or allocating additional funds to programs where demand exceeds projections, can allow the portfolio to function in the most effective way. Communicating targets and any necessary changes in a timely manner would enhance external transparency of the targets and the process.

**Recommendation 5.** In order to increase transparency and accountability, the Program Administrator, Program Implementers, and Public Service Commission should work together to establish and publish benchmarks for annual progress toward the quadrennial targets. These actions would increase transparency regarding expenditures of ratepayer funds without limiting the Program Administrator’s ability to manage portfolio resources effectively.

This could be achieved through several possible channels:

- The Program Administrator could establish and communicate publically program-specific targets for each Calendar Year and update them if changes are made. These could be expressed in number of participants or savings. Consider using SPECTRUM’s goal-tracking functionality and ensure that it is set up to track changes over time in a user-friendly and streamlined fashion.
- Establish targets for each program based on a percentage range of the overall portfolio savings target; for example, assign a program responsibility for 6 to 8% of the overall portfolio savings target. This approach could allow for flexibility to allocate resources across the portfolio to the most cost-effective programs and strategies.

**Outcome 6. Improve documentation of adjustment measures.**

Documentation of adjustment measures shows room for improvement. Tracking data in SPECTRUM for most CY 2013 programs included adjustment measures. These are generic records in the tracking database used to make adjustments to previously recorded measure information. The Program Administrator, with oversight from the Wisconsin Public Service Commission, used adjustment measures to correct several types of errors in data tracking:

- Data input errors
- Incorrect measure savings values in SPECTRUM

- Application processing errors
- Batch upload errors

The Evaluation Team understands that the adjustment measures were used correctly, and adjustments had an appropriate level of oversight from the Public Service Commission. However, for the purposes of the CY 2013 evaluation, documentation was not adequate. There was no transparent system documenting the specific purpose of each change, so the Evaluation Team lacked enough information to fully incorporate adjustment measures in to the impact analysis.

For example, some adjustment measures included savings adjustments related to multiple measures. Because there was no documentation of the measures and quantities included in the adjustment, the Evaluation Team was unable to adjust total program EULs in order to appropriately calculate life-cycle savings. This also impacted the ability to properly weight NTG savings by measure when using the standard market practice (SMP) approach to calculating net savings.

Improvements to the process in CY 2014 will consequently improve the final accuracy of the evaluated net savings achieved during the entire 2011-2014 quadrennium.

**Recommendation 6.** The Public Service Commission and the Program Administrator should collaborate to establish a transparent process for documenting the details of each adjustment measure.<sup>19</sup> The Evaluation Team understands the Public Service Commission has already begun implementing a process in which adjustments will be more transparent to the Evaluation Team.

**Outcome 7. Some program data in SPECTRUM has quality problems that can affect savings values.**

The program data the Evaluation Team extracted from SPECTRUM exhibited data quality problems. In some cases, the problems appeared to be data entry errors, which often results in abnormal savings values. In other cases, equipment specifications in SPECTRUM differed from equipment descriptions in project application documents or verified in place.

At least three potential causes may be responsible for these data quality problems. First, the Program Implementer must enter data manually into SPECTRUM because data cannot be imported from the Implementers' systems or from project applications, which can lead to data entry errors. Second, shifting to life-cycle savings calculations before the necessary systems and tools were complete likely increased SPECTRUM users' workload and caused confusion. Finally, although the Program Administrator and Program Implementer have quality assurance/quality control (QA/QC) procedures in place, these procedures did not identify or address the problematic data. Discrepancies were adjusted for in the Evaluation Team's gross values, and these differences do not affect program realization rates. In order to provide transparency, Table 30 lists the differences between the Evaluation Team's database and SPECTRUM (the values in the Evaluation Team's database have been subtracted from SPECTRUM).

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<sup>19</sup> The Evaluation Team understands that such a process is currently under development as of early April 2014.

**Table 30. Evaluated Database Reconciliation to CY 2013 SPECTRUM Database**

Program Name	Gross Annual			Gross Life-Cycle	
	kWh	kW	Therm	kWh	Therm
<b>Residential Programs</b>					
Appliance Recycling Program	256,788	17	-	2,054,304	-
Assisted Home Performance with ENERGY STAR®	-	-	-	287	2,000,000
Express Energy Efficiency Program	-3,669	-	-211	-408,663	52,288
Enhanced Rewards	-	-	-	-	-1,100
Home Performance with ENERGY STAR® Program	-	-	-	-	-
Multifamily Energy Savings Program	-	-	-	-	-
Direct Install	-	-	-	-	-
Prescriptive	-	-	-1,086	-	-4,696
New Homes Program	-	2	-	3,399,440	131,655
Residential Lighting and Appliance	-	1,041	-	-26	100
Residential Rewards	-	-	-	-	1,817
<b>Residential Total</b>	<b>253,119</b>	<b>1,060</b>	<b>-1,297</b>	<b>5,045,342</b>	<b>2,180,064</b>

Program Name	Gross Annual			Gross Life-Cycle	
	kWh	kW	Therm	kWh	Therm
<b>Nonresidential Programs</b>					
Business Incentive Program (no Renewable Energy Competitive Incentive Program)	-	-	-	-2,398,811	531,445
Chain Stores and Franchises Program	-	-	-	-	-
Large Energy Users Program (no Renewable Energy Competitive Incentive Program)	-	-	-	515,640	-1,242,000
Small Business Program	1	4	-	22,343,883	0
Retrocommissioning Program	-1	-	-	1,095,445	-468
Design Assistance Program	-	-	-	-	-
Renewable Energy Competitive Incentive Program					
Renewable Energy Competitive Incentive Program/Business Incentive Program	-	-	-	-7	-42,919
Renewable Energy Competitive Incentive Program/Large Energy Users Program	-	-	-	-1,153,679	-
<b>Nonresidential Total</b>	<b>-1</b>	<b>4</b>	<b>1</b>	<b>20,402,471</b>	<b>-753,941</b>
<b>Grand Total All Programs</b>	<b>253,119</b>	<b>1,064</b>	<b>-1,296</b>	<b>25,447,813</b>	<b>1,426,122</b>

**Recommendation 7.** In order to decrease data quality problems, the Evaluation Team suggests increasing the QA/QC effort throughout the calendar year. Regularly check for life-cycle and Expected Useful Life errors. A possible approach would be to create certain metrics that would make error detection easier, such as life-cycle kWh per incentive dollar. As well as, buffer against potential for manual data entry errors by investing in Information Technology upgrades to allow direct data entry by customers and Trade Allies, as well as direct uploads from Implementers' databases. Continue ongoing QC monitoring to ensure further data entry errors do not persist.