REPORT

Focus on Energy
Calendar Year 2012 Evaluation Report
Volume I

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Executive Summary

This document provides the evaluation findings and energy impacts achieved by Focus on Energy for calendar year 2012 (CY 2012). The Executive Summary reviews the primary cross-program findings and conclusions. The Evaluation Report summarizes findings for residential and nonresidential segments in Volume I and provides more detailed program specific evaluation results in Volume II. The Report Appendices contain additional detail on evaluation approaches; savings by county, political district, and utility territory; as well as supporting data and evaluation materials. The three report sections (Volume I, Volume II, and Appendices) are intended to be read together in order to provide comprehensive resolution on the Focus on Energy Portfolio.

The CY 2012 programs were cost effective, experienced growing participation, and achieved high degrees of customer satisfaction. The programs in whole made significant progress to meet quadrennial net, gross, annual, and lifecycle savings goals.

Summary of Findings

CY 2012 was the first year for new Focus on Energy programs, and because of this the Evaluation Report classifies savings into three categories:

- **New Program Savings** – defined as the savings achieved from projects approved and completed fully within CY 2012.
- **Carryover Savings** – defined as savings from projects approved by a previous Program Implementer, but completed in CY 2012 using incentive budget from a current program and the current program budget.
- **Legacy Savings** – defined as savings for projects that were approved in a previous program year but completed in CY 2012, without using budget from a current program.

For the new program savings, technical assumptions used in calculating savings, participation levels, unit quantities, and measure retention rates were all reviewed or measured in order to derive verified gross savings. Equivalent findings from previous evaluations were applied to the legacy and carryover measures in order to calculate verified gross savings for those projects. Finally net savings, or savings that are evaluated to be attributable to the programs exclusive of any naturally occurring adoption of the efficient technologies promoted by the programs, were calculated using a combination of primary research in 2012 and early 2013, stipulated net-to-gross ratios based upon previous Focus on Energy evaluations, or program planning assumptions.

The total residential and nonresidential savings are presented in this Executive Summary to the CY 2012 Evaluation Report. Additional resolution on the savings by each of the above categories can be found at the individual program level in Volume II of this Evaluation Report, or at the total residential or nonresidential segment level in the remainder of Volume I of this report.

In CY 2012, on an annual gross claimed basis (as reported prior to verification), the program tracking records for the Focus on Energy programs contain a total of 679,765,458 kWh savings and 26,291,339 therms savings. Table 1 lists first-year annual savings: gross claimed, verified gross, and verified net.

Table 1. CY 2012 First-Year Annual Savings By Segment [1]

		Nonresidential	Residential	Total[2]
Gross	kWh	457,394,392	222,371,065	679,765,458
	kW	64,498	30,920	95,418
	Therms	22,186,392	4,104,947	26,291,339
Verified Gross	kWh	448,373,929	201,523,864	649,897,793
	kW	65,522	28,697	94,219
	Therms	22,043,941	4,126,511	26,170,452
Verified Net	kWh	334,417,343	126,367,389	460,784,732
	kW	48,518	18,299	66,817
	Therms	13,203,348	3,273,440	16,476,788

[1] *Includes legacy and carryover program energy savings*

[2] *Totals may not match the sum of nonresidential and residential savings due to rounding*

Table 2 summarizes the first-year annual savings for CY 2011 and CY 2012. The verified gross electric, peak demand, and natural gas savings have all increased from CY 2011 to CY 2012.

Table 2. First-Year Annual Verified Gross Savings By Segment - CY 2011 And CY 2012 [1]

		Nonresidential	Residential	Total
CY 2011	kWh	346,712,215	93,887,306	440,599,521
	kW	57,747	19,327	77,074
	Therms	13,831,960	2,875,242	16,707,202
CY 2012	kWh	448,373,929	201,523,864	649,897,793
	kW	65,522	28,697	94,219
	Therms	22,043,941	4,126,511	26,170,452

[1] *Includes Renewables*

Table 3 presents the life-cycle savings achieved by Focus on Energy in CY 2012. Life-cycle savings represent the savings that will be achieved by the measures installed during CY 2012 over their effective useful lifetimes (EULs). Certain EULs were carried forward from the 2011 evaluation and were verified in program tracking records, and other measure-specific EULs have been adjusted per CY 2012 evaluation findings.

Table 3. Life-Cycle Savings By Segment, CY 2012 [1]

		Nonresidential	Residential	Total
Gross	kWh	5,505,953,792	1,711,773,194	7,217,726,986
	kW	64,498	30,920	95,418
	Therms	273,418,489	79,671,106	353,089,595
Verified Gross	kWh	5,390,366,110	1,578,656,352	6,969,022,462
	kW	65,522	28,697	94,219
	Therms	273,269,275	80,249,406	353,518,681
Verified Net	kWh	4,013,367,903	1,047,914,515	5,061,282,418
	kW	48,518	18,299	66,817
	Therms	163,421,705	64,997,767	228,419,472

[1] *Includes legacy programs and carryover energy savings*

Table 4 summarizes the findings of a benefit-cost analysis for Focus on Energy's 2012 calendar year. The residential and nonresidential segments and overall portfolio were cost effective.

Table 4. Cost-Effectiveness Results For CY 2012

	2012 Two Segments Inclusive of Renewables	2012 Two Segments and Renewables Separate
Nonresidential Segment	3.07	3.83
Residential Segment	2.41	2.69
Renewables	N/A	0.82
Total	2.89	2.89

Introduction

Focus on Energy is Wisconsin utilities' statewide energy-efficiency and renewable-resource program funded by the state's investor-owned energy utilities – as required under Wis. Stat. §196.374(2)(a) – and participating municipal and electric cooperative utilities. Focus on Energy was established in 2001. The Public Service Commission of Wisconsin (PSC) provides oversight of the Focus on Energy programs.

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 PSC is required to determine each program's appropriate goals, priorities, and measurable targets. In November 2011, the PSC contracted with a team of energy consulting and market research firms to evaluate the Focus programs during the quadrennial cycle (2011-2014). These firms, collectively referred to as the Evaluation Team (or the Team), are Cadmus; Nexant, Inc.; TecMarket Works; and St. Norbert College Strategic Research Institute.

Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy-efficiency and renewable energy projects. The information, resources, and financial incentives of Focus on Energy are used to implement energy projects that otherwise would not be completed or to complete projects ahead of schedule. Its efforts help 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.

In CY 2011 CB&I, formerly Shaw Environmental & Infrastructure Inc., was selected to be the Program Administrator for Wisconsin's Focus on Energy. As Program Administrator, CB&I is responsible for the design of the Focus on Energy portfolio of programs as well as for overall performance towards meeting energy saving goals. On a day-to-day basis, CB&I is responsible for overall contract management and coordination of individual program offerings, supporting customers and trade allies through a customer service center, coordinating with participating utilities, guiding umbrella marketing and communication activities and reporting to the Statewide Energy Efficiency and Renewable Administration (SEERA) and the PSC.

In 2012, Focus on Energy provided various energy-efficiency and renewable-resource options and incentives to customers via two overarching customer segment portfolios:

- Residential segment servicing the residential, including single-family and multifamily housing sectors; and
- Nonresidential segment servicing the commercial, industrial, schools, government and agricultural sectors.

CY 2011 was considered a transitional year for the Focus on Energy programs because of numerous and significant changes in program design, as was noted in the 2011 Evaluation Report. These transitional impacts carried forward into CY 2012. Whereas CY 2011 program management efforts were largely directed at designing the new programs, planning for the transition to the new programs and winding

down the old programs, the majority of the newly designed programs were actually launched at different points throughout 2012. The resulting full or partial first year participation in many of the new programs is not expected to be representative of levels of participants in the future years of each program. These differences can be attributed to factors such as pent-up demand for new program offerings, maturation of marketing and education about the new programs directed at both customers and trade allies, and continuous process improvements to the new programs.

The 2012 Evaluation

This evaluation investigated the performance of thirteen programs delivering energy savings during CY 2012. Several additional programs were launched late in the year and had not yet achieved measurable savings. Table 5 lists the Focus on Energy residential and nonresidential programs.

Table 5. Residential And Nonresidential Programs

Residential Segment	Nonresidential Segment
Appliance Recycling	Business Incentive
Assisted Home Performance with ENERGY STAR	Chain Stores & Franchises
Express Energy Efficiency	Design Assistance [1]
Home Heating Assistance	Large Energy Users
Home Performance with ENERGY STAR®	Retrocommissioning [2]
Multifamily Energy Savings	Small Energy Users
New Homes	The Renewable Energy Competitive Incentive [3]
Residential Lighting and Appliance	
Residential Rewards	

[1] The Design Assistance Program launched in January 2013.
[2] The Retrocommissioning Program launched late in CY 2012 and did not record energy savings prior to year-end.
[3] The 2012 Renewable Energy Competitive Incentive Program projects will be completed in future years.

Summary of Measures by Program

The Focus on Energy programs contain a variety of initiatives and incentives designed to promote lasting changes in Wisconsin's energy-efficiency and renewable energy markets. The Evaluation Team assessed the electric and gas savings that each measure in 2012 will achieve during the first year it is installed and operating as well as impacts occurring over each measures installed and operating lifetime. Reporting on both first-year annual and life-cycle savings ensures that the most accurate representation of the program's accomplishments is presented.

Table 6 lists all measure categories in the residential and nonresidential programs.

Table 6. CY 2012 Residential and Nonresidential Program Measure Categories

Residential Only	Residential & Nonresidential Segments	Nonresidential Only
Appliance Recycling	Boilers & Burners	Aeration System
Boiler Equipment	Bonus	Boiler
Buydown	Building Shell	Boiler Controls
Fixtures	CFL	Boiler Service
Furnace	Controls	Building Shell
Hot Water	Dishwasher	Compressed Air, Vacuum Pumps
LED Holiday Light	Domestic Hot Water	Compressor Equipment
	Energy Recovery	Compressor Service
	Fuel Conversion	Computer Technology/IT
	Hot Water	Custom
	HVAC	Food Service
	HVAC Controls	Greenhouse
	Laundry	High Intensity Discharge (HID)
	LED Lighting	Industrial - Custom
	Lighting	Industrial Ovens and Furnaces
	Lighting Controls	New Building Design
	Motors & Drives	Pools
	New Construction	Process Efficiency
	Refrigeration	Refrigeration Controls
	Renewable Energy	Scheduling
	T8/T5 Fluorescent Lighting	Waste Water Treatment
	Training & Special	
	Vending & Plug Loads	
	Whole Building	

Overview of Evaluation Activities

The Team's activities for the CY 2012 evaluation are listed in Table 7.

Table 7. CY 2012 Evaluation Activities

	Residential	Nonresidential	Total
On-Site Measurement and Verification	114	164	278
Project Audit and Verification Surveys	N/A	196	196
Participant Survey Completes	555	146	701
Partial and Nonparticipant Survey Completes	76	10	86
Stakeholder Interviews [1]	31	48	79
Trade Ally and Market Actor Interviews	68	105	173

[1] Values represent number of individuals interviewed.

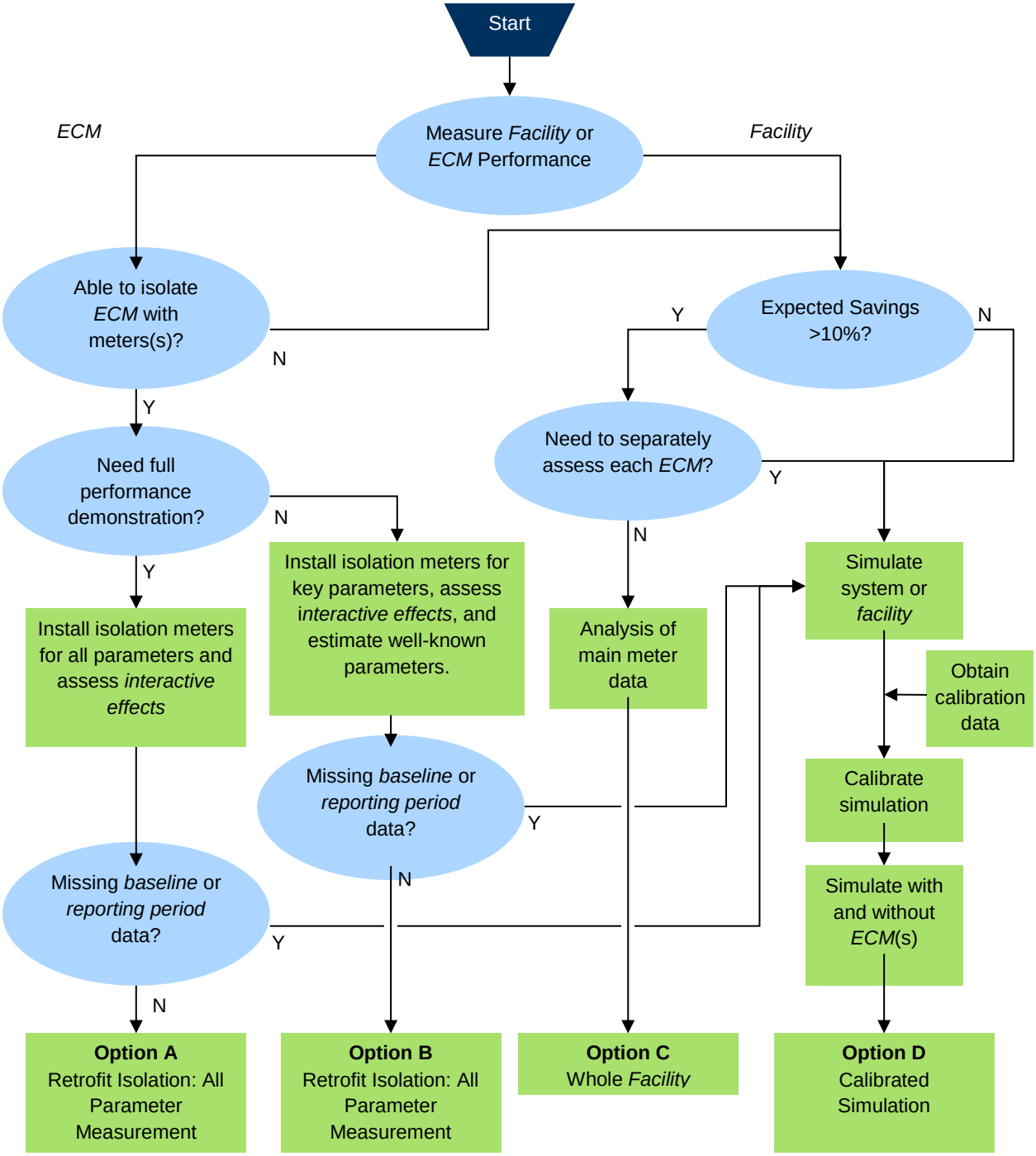
About Energy Savings Evaluations

Evaluating energy savings is challenging as it requires an estimation of "what did not happen," (that is, a baseline). The International Performance Measurement and Verification Protocol (IPMVP) is considered the gold standard of evaluation protocols, and its options regarding methodologies are these.

- **Option A, Retrofit Isolation: Key Parameter Measurement.** This method uses engineering calculations with partial site measurements to verify the savings resulting from specific measures.
- **Option B, Retrofit Isolation: All Parameter Measurement.** This method uses engineering calculations with on-going site measurements to verify the savings resulting from specific measures.
- **Option C, Whole Facility.** This method utilizes whole-facility energy usage information—typically focusing on a utility bill analysis—to evaluate savings.
- **Option D, Calibrated Simulation.** This method uses computer energy models to calculate savings as a function of the important independent variables. The models must contain verified inputs that accurately characterize the project and must be calibrated to match actual energy usage.

The flowchart shown in Figure 1 illustrates the Team's process for selecting the IPMVP option most appropriate to this evaluation. The Team selected Option B, Post-Measure Metering, as the methodology for estimating the savings of the Energy Conservation Measure.

Figure 1. Flowchart For Selecting IPMVP M&V Option [1]



[1] In this figure only, ECM is an acronym for Energy Conservation Measure.

Descriptions of Residential Programs

The Evaluation Team assessed eight Residential programs during the CY 2012 evaluation, the programs are described here. Table 6 (above) lists all Focus on Energy CY 2012 program measures.

Multifamily Energy Savings Program and Multifamily Direct Install Program

Program Dates: Launched April 1, 2012.

Program Purpose: The Multifamily Energy Savings Program and Multifamily Direct Install Program provide information, financial incentives, and implementation assistance for energy-efficiency projects to owners and managers of multifamily buildings and condominiums of four or more units. The Multifamily Direct Install Program provides free installation of free energy saving measures.

Target Audience: The target audiences are condominium and apartment associations, as well as multifamily building owners and managers.

Program Implementer: Franklin Energy Services, LLC is the Implementer for both Programs.

Process and Associated Measures: The Multifamily Energy Savings Program and Multifamily Direct Install Program are similar to the discontinued Apartment and Condo Efficiency Services Program. The Multifamily Energy Savings Program and Multifamily Direct Install Program, both which launched in April 2012, feature several design changes to mitigate barriers that were identified in the Apartment and Condo Efficiency Services Program and to achieve the following objectives:

- Lower non-incentive costs by recruiting Trade Allies to assist with market outreach;
- Use the direct-install path to guide participants to prescriptive and custom tracks;
- Reduce the number of audits that do not result in follow-up installations;
- Increase the amount of savings per building by introducing the custom track with increasing incentive amounts based on the savings achieved in the project.

The Multifamily Energy Savings Program offers two types of rewards:

- Prescriptive rebates for eligible measures; and
- Incentives for multi-tiered and performance-based custom projects.

The Multifamily Direct Install Program offers free direct-installations of compact fluorescent lamps (CFLs), pipe insulation, faucet aerators, and showerheads inside individual living units, with a walk-through assessment of the building.

The Programs' Implementer markets both Programs to building owners and managers, as well as Trade Allies and contractors that work with these customers, through regionally based Energy Advisors. The Programs' Implementer also processes customer applications, manages Program data, and educates Trade Allies in an effort to help cost-effectively promote the Programs.

Appliance Recycling Program

Program Dates: Launched January 1, 2012.

Program Purpose: The Appliance Recycling Program encourages households and multifamily building customers to turn in working refrigerators and freezers for recycling. By offering free pick-up and providing financial incentives, the Program is designed to encourage customers to: (1) discontinue using secondary refrigerators and freezers; (2) relinquish refrigerators and freezers previously in use as primary units when they are replaced; and (3) prevent the continued use of old refrigerators and freezers through a transfer (that is: resale or giving the unit away).

Target Audience: The target audience is Wisconsin residential electric customers. The Appliance Recycling Program allows participation for residential customers in multifamily residences or multifamily building owners and managers who are looking to upgrade multiple units. However, participation skews strongly to single-family residential customers.

Program Implementer: The Appliance Recycling Program Implementer is JACO Environmental (JACO).

Process and Associated Measures: Participants receive a $30 rebate for recycling working refrigerators or freezers. Customers interested in the Appliance Recycling Program are directed to call a designated toll-free number operated by the Implementer or visit the Focus on Energy Website to schedule a time to have their old, working refrigerator or freezer picked up from their home. Appliance Recycling Program Implementer representatives verify customer eligibility and arrange a pick-up time that works for the customer. A maximum of two pieces of equipment per customer address, per calendar year are eligible ($60 maximum incentive per customer). This maximum does not apply to multifamily buildings that are participating in the Program. The units must be 10 to 30 cubic feet.

After the appliance is picked-up, the Appliance Recycling Implementer crew delivers the units to the decommissioning facility located in Franklin, Wisconsin where the units are recycled.

Home Heating Assistance Program

Program Dates: Launched January 1, 2012. However, applications were accepted through March 31, 2013, for products installed on or before December 31, 2012.

Program Purpose: The Home Heating Assistance Program provides an opportunity for income –eligible residents to increase the energy efficiency, affordability, and comfort of their homes by upgrading their space heating equipment. The Program offers incentives for the purchase of high-efficiency home heating equipment to replace older and failed units.

Target Audience: The Home Heating Assistance Program's target audience is income-eligible owner-occupants of existing single-family residential buildings. Income eligibility is defined by a household's gross income falling between 60% and 80% of the state median income (SMI). The eligible income level targets customers who are unlikely to be able to participate in the Focus on Energy Residential Rewards Program and who do not qualify for Wisconsin's weatherization program, called Home Energy Plus.

Program Implementer: The Home Heating Assistance Program Implementer is Resource Solutions Group, Inc. (RSG).

Process and Associated Measures: The Home Heating Assistance Program provides financial incentives to customers of participating gas and electric utilities who purchased and installed new energy-efficient heating equipment. The primary outreach method to these customers is through Trade Allies who are educated about the Program offerings and can explain them to eligible customers. Incentives are only available for pre-qualified, installed above-code, energy-efficient equipment. Customers are required to submit an income eligibility application and they are notified within 24 hours of their eligibility. Ineligible customers are directed to the Wisconsin Home Energy Plus or the Focus on Energy Residential Rewards Program. Incentive applications, with supporting documentation, are reviewed and processed by the Home Heating Assistance Program Implementer.

Residential Lighting and Appliance Program

Program Dates: Launched January 1, 2012.

Program Purpose: Through the use of upstream incentives, markdowns, and coupon promotions for lighting and low-flow showerheads, the Residential Lighting and Appliance Program promotes the purchase and use of ENERGY STAR®-qualified lighting technologies, Water Sense® qualified showerheads, and the proper recycling of CFLs. The Residential Lighting and Appliance Program engages all levels of the market, including in-store lighting demonstrations, as to influence upstream and downstream market players in order to increase consumer demand and availability of qualifying energy efficient products.

Target Audience: The Residential Lighting and Appliance Program's target audience is residential customers. As an upstream program, it is difficult to limit participation in any single sector or population, as well as require that participants be customers of participating in Focus on Energy utilities. However, there are processes in place to restrict sales to ineligible customers.

Program Implementer: The Residential Lighting and Appliance Program Implementer is Applied Proactive Technologies, Inc. (APT).

Process and Associated Measures: Customers are targeted through retail sales channels including home improvement, hardware, discount, and grocery stores. The energy-saving measures promoted are CFLs, certain light-emitting diodes (LEDs- beginning Fall of 2012), and low-flow showerheads.

Home Performance with ENERGY STAR Program

Program Dates: Launched January 1, 2012.

Program Purpose: The goal of the Home Performance with ENERGY STAR Program is to reduce energy use (kWh and Therms) and peak demand (kW) through installation of energy-efficiency measures (envelope, lighting, and domestic hot water). The Program offers incentives to customers as well as direct-installation of energy-saving measures during a home energy assessment.

Target Audience: The target audience is homeowners of single-family (one- to three-unit) dwellings.

Program Implementer: The Home Performance with ENERGY STAR Program Implementer is Conservation Services Group (CSG).

Process and Associated Measures: This Home Performance with ENERGY STAR Program is contractor-oriented and can work in the following ways 1) One company performs all aspects of work; 2) One company acts as the general contractor but subcontracts out aspects of the work such as the energy assessment and/or the retrofit work. In both scenarios, the company, referred to as the Trade Ally, is responsible for managing the customer relationship, completion of the full project, communicating to the Program Implementer, and ensuring that all program requirements are met. The Home Performance with ENERGY STAR Program provides incentives of 33 % of eligible measure cost, up to $1,500, for energy-efficient improvements to a home's shell including air sealing and insulation (attic, exterior wall, sill box and interior foundation). Also included are direct-install measures such as CFLs, faucet aerators, and low-flow showerheads that are installed during the home energy assessment. Participants pay market rate for the assessment, a cost which is determined by each Trade Ally. Finally, projects that achieve energy savings of 15 % or 25 % over the home's modeled baseline energy usage are eligible for incentive bonuses of $200 and $700 respectively.

Assisted Home Performance with ENERGY STAR Program

Program Dates: Launched April 1, 2012.

Program Purpose: The Assisted Home Performance with ENERGY STAR Program provides income-eligible residents with the opportunity to increase the energy efficiency, durability, and comfort of their homes.

Target Audience: The target audience is income-eligible owner-occupants of 1 to 3 unit homes. Income-eligibility is defined by a household's gross income falling between 60% and 80% of the state median income (SMI).

Program Implementer: The Assisted Home Performance with ENERGY STAR Program Implementer is Conservation Services Group (CSG). Ineligible customers are directed to the Home Performance with ENERGY STAR Program.

Process and Associated Measures: A free home-energy assessment is provided by an Assisted Home Performance Program Trade Ally to identify energy-efficiency opportunities, and eligible customers can receive enhanced incentives that cover up to 75% of the cost of the improvement measures, up to $2,500.

To be eligible to participate in the Assisted Home Performance with ENERGY STAR Program, customers submit an Income Eligibility Application; the Implementer notifies customers within 24 hours of eligibility. Eligible customers then schedule a free energy assessment, an abbreviated version of the Home Performance with ENERGY STAR assessment. The homeowner is then given a list of

recommended upgrades. Upgrades are performed and the customer receives the incentive for measures installed.

The associated measures are air sealing, attic insulation, exterior wall insulation; along with free direct-installation measures including CFLs, faucet aerators, and low-flow showerheads.

New Homes Program

Program Dates: Launched July 1, 2012.

Program Purpose: Focus on Energy's New Homes Program provides information, implementation assistance and incentives for builders of new single (one- to three-unit) homes in Wisconsin.

Target Audience: The target audience is builders of new, single-family homes.

Program Implementer: The New Homes Program Implementer is the Wisconsin Energy Conservation Corporation (WECC).

Process and Associated Measures: The New Homes Program provides education and motivation leading to the building of new homes that are at least 10% more efficient than homes built to the Wisconsin Uniform Dwelling Code (UDC). Incentives are offered at four levels for homes that exceed the efficiency standards of the uniform dwelling code.

Higher tiers of efficiency require technology packages, which are home efficiency measures that are not covered in the building codes. These technology packages include: ENERGY STAR-Qualified Light Bulbs, ENERGY STAR-Qualified Light Fixtures, Energy Efficient Windows,R5 Exterior Insulation, Rim and Band Joist Insulation, Residential Water Heaters, Residential HVAC, and Renewable Energy Systems (solar PV, solar thermal, and geothermal).

Residential Rewards Program

Program Dates: Launched January 1, 2012. The Residential Rewards renewable component launched July 1, 2012.

Program Purpose: The Residential Rewards Program encourages single-family residential customers of participating utilities to install energy-efficient space and water heating equipment as well as renewable energy installations.

Target Audience: The Residential Rewards Program's target market is residential customers in one- to three-unit homes.

Program Implementer: The Residential Rewards Program Implementer is Resource Solutions Group, LLC (RSG).

Process and Associated Measures: The Program incentive amounts were selected to influence customers to purchase higher-efficiency or renewable equipment. To be eligible for the incentive, the

customers must select equipment from a prequalified list. The Residential Rewards Implementer markets the Program directly to homeowners, but the primary outreach method is through educating Trade Allies to market the Program to customers they are serving.

The qualifying measures are: furnaces, boilers, water heaters (tankless, storage, condensing, solar), solar electric (PV) and ground source heat pumps.

Express Energy Efficiency Program

Program Dates: Launched April 1, 2012.

Program Purpose: The Express Energy Efficiency Program provides immediate energy and cost savings to participating customers, as well as helps promote other Focus on Energy programs. The Express Energy Efficiency Program consists of direct-installation of free energy-saving measures and is offered location by location, for a limited time ranging from two to five months in each location. Over the three-year period from 2012 to 2014, the Express Energy Efficiency Program will be offered across most of the state.

Target Audience: The target audience is the owners of single-family residential dwellings with one to three units, as well as renters of single-family homes.

Program Implementer: The Express Energy Efficiency Program Implementer is Conservation Services Group (CSG).

Process and Associated Measures: The Program offers direct-installation of energy-efficiency measures including CFLs (limit 12), faucet aerators, low-flow showerheads, water heater pipe insulation, and temperature turn-downs on water heaters at no cost to the customer. Installers also provide literature and information on other Focus on Energy programs.

Descriptions of Nonresidential Programs

The Evaluation Team assessed four nonresidential Programs during the CY 2012 evaluation, described in this section. Table 6 (above) lists all measures in the residential and nonresidential programs.[1]

Business Incentive Program

Program Dates: Launched April 1, 2012

Program Purpose: The Business Incentive Program encourages energy efficiency by offering incentives for prescriptive and custom measures to nonresidential customers with electric demand up to 1000kW.

Target Audience: The Business Incentive Program targets nonresidential segments including agribusinesses (including farms and greenhouses); commercial spaces (including hotels and independent retailers, food sales, and food service establishments); small to medium sized industrial facilities, educational institutions (including K-12 schools, technical colleges, and University of Wisconsin two-year colleges); and municipal and county government facilities.

Program Implementer: The Program Implementer is Franklin Energy Services, LLC.

Process and Associated Measures: The Implementer staff reaches out to engage Trade Allies in the Program. The Trade Allies recruit eligible customers, identify energy-saving opportunities, and lead the customer through the incentive application process. All nonresidential measures and combined measures listed in Table 6 are associated with this Program. Customers may also propose additional efficiency projects through the custom incentive option.

Chain Stores & Franchises Program

Program Dates: Launched April 1, 2012.

Program Purpose: The Chain Stores & Franchises Program is designed to motivate decision-makers at chain stores and franchise operations, with a large presence in Wisconsin, to make energy efficiency changes across many locations at once.

Target Audience: The target audience is chain stores and franchise operations in retail, food service (restaurants), and food sales (grocery and convenience stores). To be eligible for the Program, a minimum of five locations in Wisconsin is required.

Program Implementer: The Program Implementer is Franklin Energy Services, LLC.

Process and Associated Measures: The Program Implementer staff assigns a dedicated Account Manager for specific chains and franchises; the Account Manager, or Energy Advisor, works with the appropriate decision authority at corporate, regional, or local facilities to identify opportunities to

[1] Legacy Program offerings were in place before April 1, 2012.

improve energy efficiency. The Energy Advisor provides customer service and technical knowledge; helps develop business cases to support projects, and may assist with marketing and messaging related to energy efficiency actions. All nonresidential measures and combined measures listed in Table 6 are associated with this Program. Customers may also propose additional energy efficiency projects through the custom incentive option.

Large Energy Users Program

Program Dates: Launched April 1, 2012.

Program Purpose: The Large Energy Users Program encourages the application of energy efficient technologies by offering incentives and services for large industrial, commercial, and institutional customers. These offerings include financial incentives for prescriptive and custom measures, no-cost access to energy experts, training and tools to identify and evaluate energy efficiency opportunities, resources to develop and benchmark energy management practices, and engineering review of proposed projects.

Target Audience: The Program is designed for large industrial, commercial and institutional business customers of participating Wisconsin electric and natural gas utilities that had a system-wide energy utility bill of at least $60,000 in one month of the preceding year and had energy usage at one contiguous facility of:

- Over 1,000 kilowatts of demand for any given month in the past year; or
- Over 100,000 Therms for any given month in the past year.

Program Implementer: The Program Implementer is SAIC.

Process and Associated Measures: The Program Energy Advisors work directly with large industrial, commercial and institutional business customers to identify and analyze opportunities for improving energy efficiency in their facilities and processes. They provide technical expertise as well as on-going education about large-scale energy efficiency measures and best practices. In addition, they help these customers develop energy teams and energy management plans, energy baselines and key performance indicators for facilities and end-uses, as well as assist with the development of custom incentive projects or hybrid projects with custom and prescriptive incentives. . All nonresidential measures and combined measures listed in Table 6 are associated with this program. Customers may also propose additional energy efficiency projects through the custom incentive option.

Small Business Program

Program Dates: Launched July 1, 2012.

Program Purpose: The Small Business Program is designed to encourage small business owners to install easy and affordable energy-efficiency upgrades. It provides free on-site energy assessments to help small business customers identify energy-efficiency improvements and includes an energy-efficiency package installed for free. A package of additional measures is offered at a discount.

Target Audience: The Small Business Program targets independently owned and operated for-profit business customers, as well as not-for-profit organizations with average monthly electric demand of less than 100 kW. Typical customers are independent grocers, convenience stores, gas stations, retail shops, locally owned restaurants, small hotels and motels, day care centers, doctor's offices, churches and community action agencies.

Program Implementer: The Program Implementer is Staples & Associates, Inc.

Process and Associated Measures: Registered Focus on Energy Trade Allies complete additional training in order to participate in this Program. Trade Allies recruit participants in their local communities. The Program Implementer and qualified Trade Allies conduct 30 to 45 minute energy assessments at customer facilities to identify energy-efficiency opportunities. After discussing the findings, the owner may elect to install the Free Energy Savings Package or purchase the Gold Energy Savings Package. The measures included in the Small Business Program packages are summarized in Table 8.

Table 8. Small Business Program Measure Packages

Free Energy Savings Package	Gold Energy Savings Package
CFLs, dimmable, non-dimmable, globe (unlimited)	Includes the Free Energy Savings Package
CFL reflectors (unlimited)	LED exit signs (up to 5) [1]
Vending machine controllers (unlimited)	42-watt CFLs (unlimited)
LED "Open" sign (one, replacing a neon sign)	De-lamping of redundant fixtures
Faucet aerators (unlimited)	4' T12 to T8 lighting retrofits (up to 80 lamps) [1]
Water-saving showerheads (unlimited)	Interior and exterior hard-wired fixtures (up to 5) [1]
Engine block heater timer (agricultural customers)	Wall box occupancy sensors (up to 5) [1]
	1" and 2" hot water pipe wrap

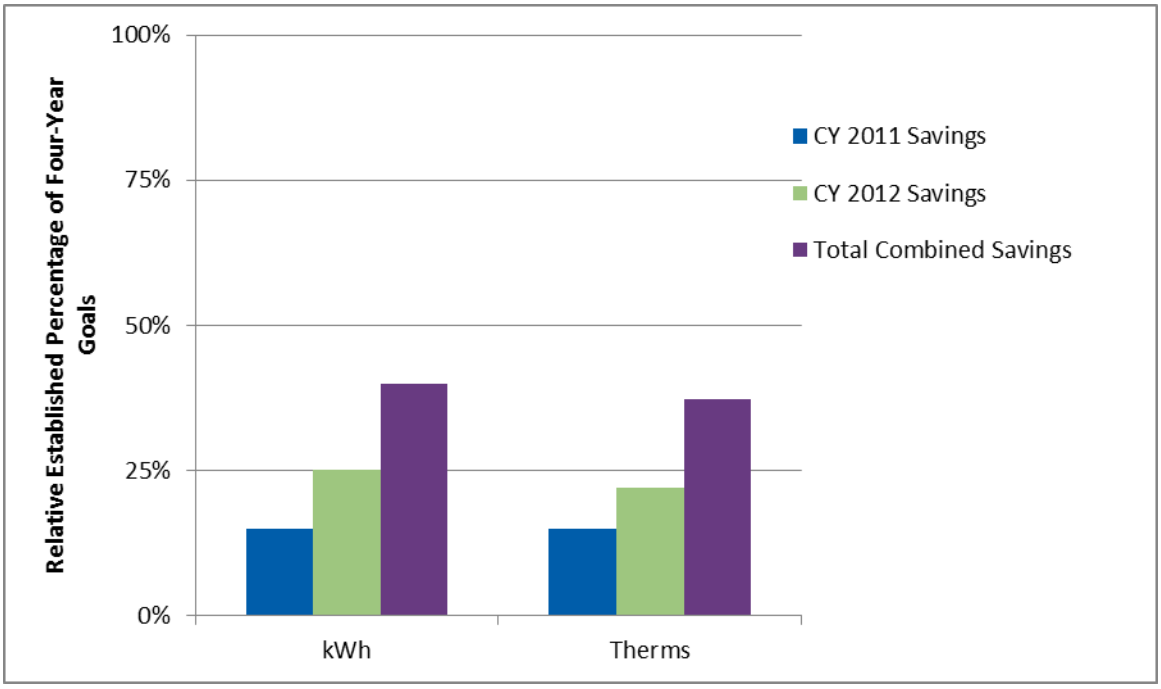
[1] Small business owners may purchase additional measures at discounted prices.

Evaluation Findings

In 2011, the Focus on Energy programs collectively achieved 268,965,045 kWh of net annual electricity savings and 11,251,429 Therms of net gas savings. In 2012 the net annual savings achieved were 460,784,732 kWh and 16,476,789 Therms, for a two-year total of 729,749,777 kWh and 27,728,218 Therms. Relative to the savings goals established in PSC—Docket-5-GF-191 of 1,816,320,000 kWh and 73,040,000 Therms, the total savings to date have reached 40% of the kWh savings goal and 38% of the therms savings goal for the four year quadrennial period (2011-2014).

The achievements of the program through CY 2012 relative to the goals established by the PSC are summarized in Figure 2. Although savings and progress toward goals are shown on an annual basis, the Commission established goals are for the full four-year (quadrennial) cycle. These achievements should be viewed with the perspective of the CY 2012 program transitions in mind. An assessment of whether or not the programs achieved the goals will be made at the conclusion of the quadrennial. The annual figures are presented in order to help the reader assess the pace of savings achievement and to develop his/her own assessment of whether the programs appear to be on a pace to achieve the goals.

Figure 2. Net Achievements Relative To The Commission Established Four-Year Goals



Program-specific savings achievements on both a net annual and a gross lifecycle basis are discussed in Volume II of this report. The individual program sections describe the approaches for calculating the savings values. The relative evaluation effort that was determined to be appropriate varies by program depending upon the level of participation and savings achieved or the information available.

Across all programs, the following standard approaches were applied when calculating verified and evaluated savings:

$$Verified\ Gross\ Lifecycle\ Savings\ = \sum(Verified\ Gross\ Savings \times EUL\ for\ each\ measure)$$

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

$$Evaluated\ Net\ Lifecycle\ Savings = \sum(Verified\ Gross\ Lifecycle\ Savings \times NTG\ for\ each\ measure)$$

Also across all programs, savings from projects completed in CY 2012 fall under one of three categories:

1. **New Program Savings** – defined as the savings achieved from projects approved and completed fully within CY 2012.
2. **Carryover Project/Savings** – defined as savings from projects approved by a previous Program Implementer, completed in CY 2012 using incentive budget from the current program budget.
3. **Legacy Projects/Savings** – defined as savings for projects that were approved in a previous program year but completed in CY 2012, without using budget from a current program. Budget was made available to cover incentive and administrative costs outside of the current program budget. Projects were developed under an incentive agreement associated with previous program designs.

The following 2011 programs are considered legacy from the standpoint of this report:

- Agricultural Program
- Commercial Program
- Industrial Program
- Non-Residential New Construction Program
- Schools and Government Program
- ACES-New Home Construction
- ACES-Whole Building Existing
- Appliance and Plug Load
- Efficient Heating and Cooling
- ENERGY STAR Lighting
- Targeted Home Performance

Summary of Findings by Program

This section provides a summary of the savings and participation achieved by program and by segment in CY 2012. Detailed discussions of approaches and findings by program are contained in Volume II of this report.

Table 9 summarizes the total participation, measured as number of customers participating in each Focus on Energy program in CY 2012. The Residential Lighting and Appliance Program experienced the highest participation of any Focus on Energy program.

Table 9. CY 2012 Total Participation By Program [1]

Segment	Program	Participation
Residential	Multifamily Energy Savings	333
Residential	Appliance Recycling [2]	12,295
Residential	Home Heating Assistance	199
Residential	Residential Lighting and Appliance	926,000
Residential	Home Performance with ENERGY STAR	2,790
Residential	Assisted Home Performance	45
Residential	New Homes	1,628
Residential	Residential Rewards	14,608
Residential	Express Energy Efficiency	9,855
Residential	Residential Legacy	43,506
Residential Subtotal		**1,011,259**
Nonresidential	Business Incentive	2,634
Nonresidential	Large Energy Users	192
Nonresidential	Chain Stores & Franchises	223
Nonresidential	Small Business	1,059
Nonresidential	Retrocommissioning	0
Nonresidential	The Renewable Energy Competitive Incentive [3]	0
Nonresidential	Nonresidential Legacy	2,296
Nonresidential Subtotal		**6,404**

[1] Includes legacy programs and carryover participation.
[2] From JACO's database.
[3] Legacy renewable measures applied to other Programs. No projects were completed in CY 2012 by the Renewable Energy Competitive Incentive Program.

Figure 3 through Figure 6 summarize the verified gross electric and verified gross gas energy savings by program for residential and nonresidential programs. The highlights of the results are these:

- 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 legacy programs provided the greatest amount of both electric and gas savings for the nonresidential 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.

Figure 3. CY 2012 Verified Gross Electric Energy Impacts By Program, Residential Segment

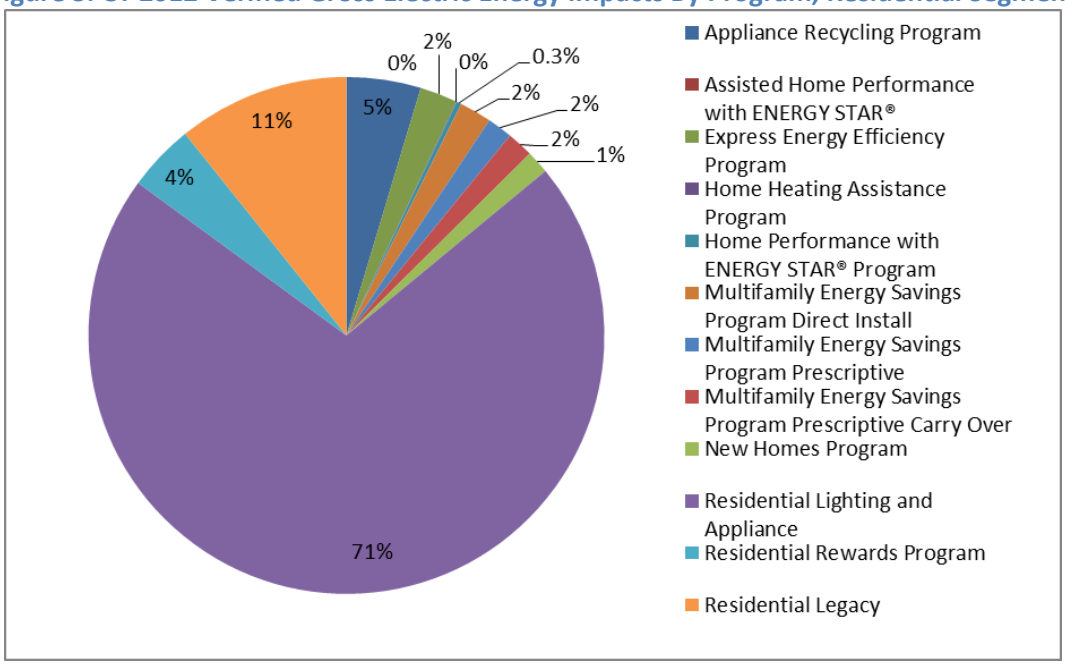


Figure 4. CY 2012 Verified Gross Gas Energy Impacts By Program, Residential Segment

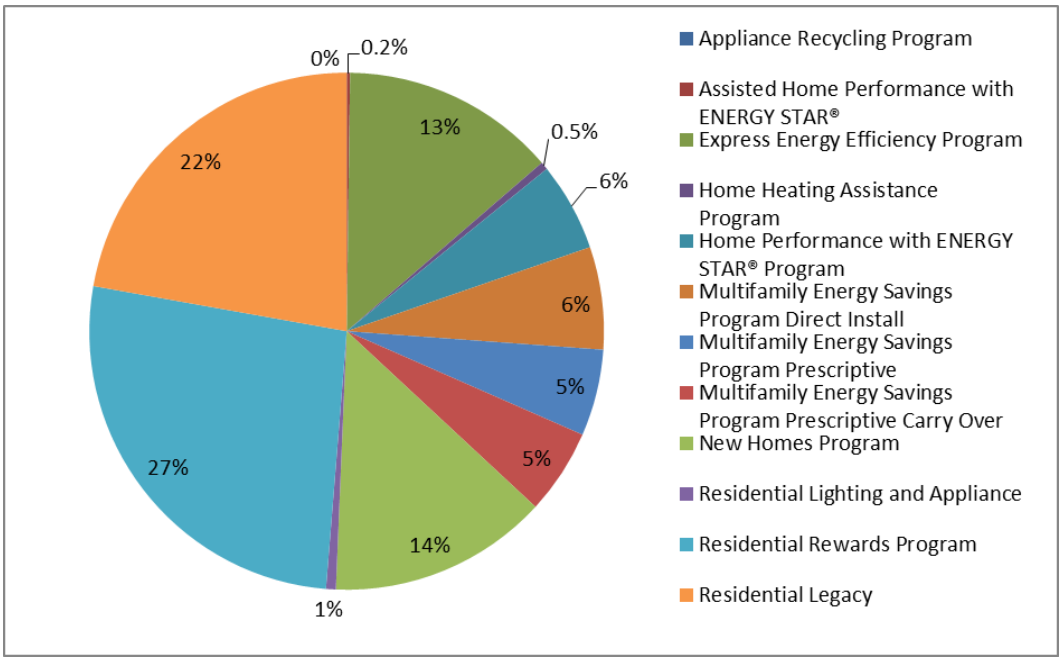


Figure 5. CY 2012 Verified Gross Electric Energy Impacts By Program, Nonresidential Segment

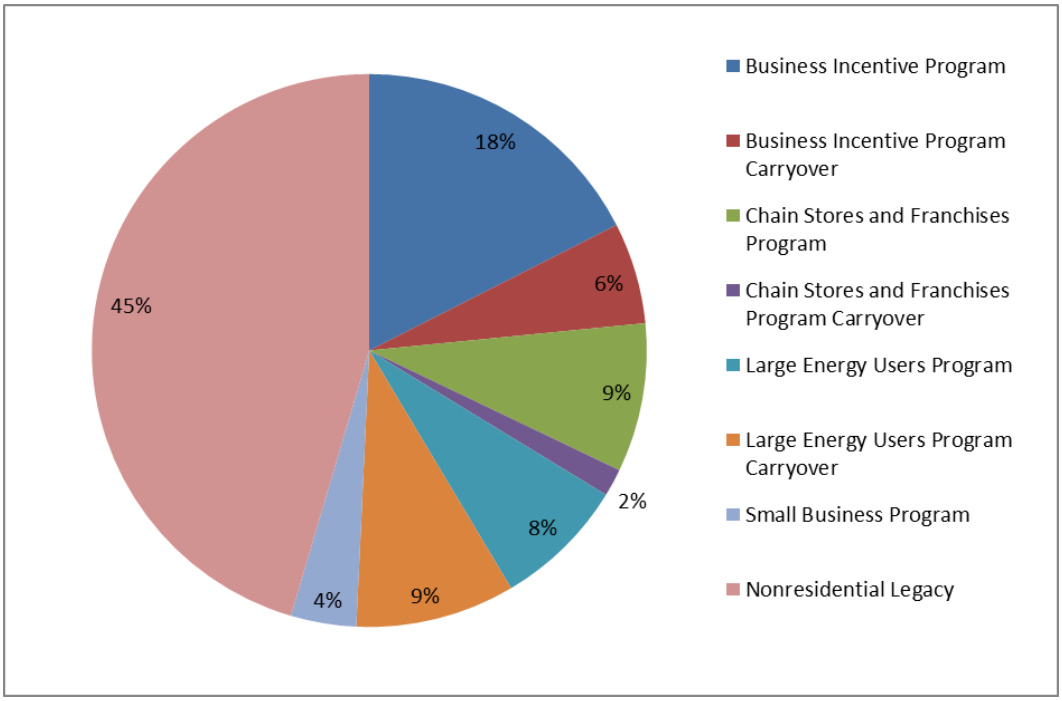


Figure 6. CY 2012 Verified Gross Gas Energy Impacts By Program, Nonresidential Segment

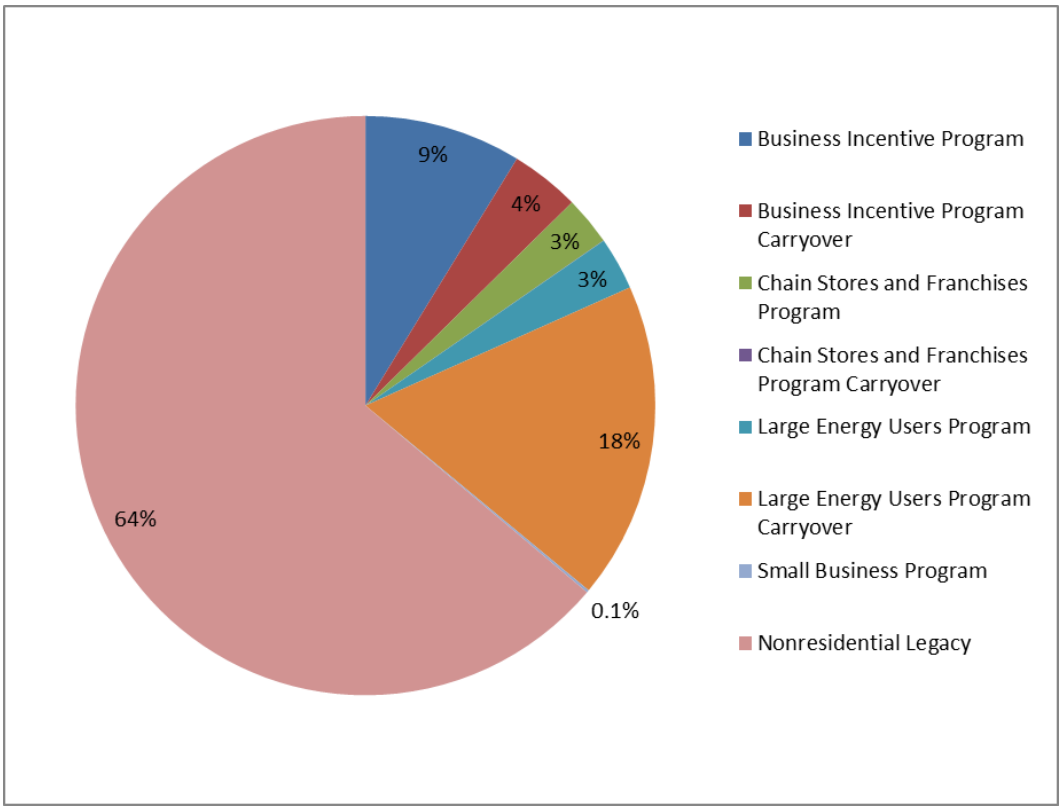


Table 10 summarizes the first-year annual gross, verified gross, and net electric, peak demand, and gas savings by program, segment, and portfolio.

Table 10. Summary Of First-Year Annual Savings By Program

	Program	Gross			Verified Gross			Verified Net		
		kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
Residential Programs	Appliance Recycling	14,139,982	2,228	-	9,378,857	1,404	-	4,877,006	730	-
	Assisted Home Performance with ENERGY STAR	25,324	7	8,346	24,565	7	8,715	24,565	7	8,715
	Express Energy Efficiency	4,944,651	427	603,179	4,723,787	388	556,774	4,015,219	330	473,258
	Home Heating Assistance	82,530	32	20,046	82,528	32	20,045	82,528	32	20,045
	Home Performance with ENERGY STAR	608,162	183	229,734	595,415	184	228,621	506,103	156	194,328
	Multifamily Direct Install	3,708,358	195	221,255	4,054,062	396	264,559	3,932,705	383	257,198
	Multifamily Energy Savings (New)	3,226,395	434	229,454	3,193,158	430	223,346	2,094,145	282	146,475
	Multifamily Energy Savings (Carryover)	3,302,147	755	217,451	3,321,305	742	220,048	1,856,492	414	123,640
	New Homes	2,920,383	677	568,854	2,920,383	677	568,854	2,482,326	575	483,526
	Residential Lighting and Appliance	159,456,944	19,396	21,686	143,086,607	17,404	25,375	85,125,081	10,354	13,956
	Residential Rewards	8,461,331	2,929	1,094,179	8,461,083	2,929	1,094,021	6,801,974	2,361	912,654
	Residential Legacy	*21,494,858*	*3,657*	*890,763*	*21,682,114*	*4,104*	*916,152*	*14,569,246*	*2,674*	*639,645*
	Residential Programs Total	**222,371,065**	**30,920**	**4,104,947**	**201,523,864**	**28,697**	**4,126,511**	**126,367,389**	**18,299**	**3,273,440**
Nonresidential Programs	Business Incentive (New)	75,871,878	10,734	1,955,080	78,474,381	10,738	1,929,451	69,571,251	9,696	1,556,436
	Business Incentive (Carryover)	34,117,040	5,128	667,175	26,547,630	5,317	853,620	22,110,542	4,551	595,837
	Chain Stores and Franchises (New)	39,655,387	5,405	602,212	39,034,912	5,094	598,899	33,395,793	4,386	432,195
	Chain Stores and Franchises (Carryover)	6,905,316	752	1,995	7,206,841	923	3,259	3,640,551	468	1,466
	Large Energy Users (New)	32,376,278	4,909	658,937	34,615,255	5,195	650,524	32,538,339	4,884	611,492
	Large Energy Users (Carryover)	40,853,546	4,301	3,227,596	41,666,968	4,045	3,902,390	28,805,666	2,621	2,508,427
	Small Business Program	16,860,104	3,687	31,657	17,078,556	3,281	31,292	13,642,762	2,628	21,904
	Nonresidential Legacy	*210,754,843*	*29,583*	*15,041,740*	*203,749,388*	*30,929*	*14,074,507*	*130,712,439*	*19,284*	*7,475,589*
	Nonresidential Programs Total	**457,394,392**	**64,498**	**22,186,392**	**448,373,929**	**65,522**	**22,043,941**	**334,417,343**	**48,518**	**13,203,348**
Grand Total		**679,765,457**	**95,418**	**26,291,339**	**649,897,793**	**94,219**	**26,170,452**	**460,784,732**	**66,817**	**16,476,788**

Summary of Findings by Measure Category

Table 11 summarizes CY 2012 residential energy and demand savings and incentive monies spent by measure category.

Table 11. Summary Of First-Year Annual Savings By Measure Category, Residential Segment [1]

Measure Category	Verified Gross							
	kWh	kWh %	kW	kW %	Therms	Therms %	Incentive Dollars	Incentive Dollars %
Appliance Recycling	9,380,220	4.7%	1,415	4.9%	-	0.0%	$402,690	2.5%
Boiler Equipment	(2,152)	(0.0%)	2	0.0%	187,744	4.5%	$126,557	0.8%
Boilers & Burners	-	0.0%	-	0.0%	244,063	5.9%	$320,246	2.0%
Bonus	-	0.0%	-	0.0%	-	0.0%	$69,328	0.4%
Building Shell	3,937,271	2.0%	1,229	4.3%	575,691	14.0%	$794,792	5.0%
Buydown[2]	143,107,396	71.0%	17,549	61.2%	25,756	0.6%	$5,150,039	32.3%
CFL[3]	13,497,139	6.7%	2,348	8.2%	-	0.0%	$294,290	1.8%
Controls	26,979	0.0%	-	0.0%	155	0.0%	$682	0.0%
Conversion[4]	237,507	0.1%	23	0.1%	(8,472)	(0.2%)	$29,550	0.2%
Conversion – Other[5]	2,624	0.0%	0	0.0%	-	0.0%	$250	0.0%
Dishwasher	154,102	0.1%	-	0.0%	8,688	0.2%	$26,390	0.2%
Domestic Hot Water	3,261,155	1.6%	(0)	0.0%	906,118	22.0%	$105,341	0.7%
Energy Recovery	182,443	0.1%	14	0.0%	18,094	0.4%	$13,163	0.1%
Energy Savings	1,636	0.0%	-	0.0%	280	0.0%	$0	0.0%
Fixtures	428,348	0.2%	17	0.1%	-	0.0%	$13,875	0.1%
Furnace	2,597,725	1.3%	597	2.1%	64,494	1.6%	$525,565	3.3%
Hot Water	1,242,389	0.6%	2	0.0%	127,441	3.1%	$110,516	0.7%
HVAC	8,221,530	4.1%	3,209	11.2%	1,148,048	27.8%	$3,953,707	24.8%
HVAC Controls	18,332	0.0%	-	0.0%	1,950	0.0%	$1,152	0.0%
Laundry	215,863	0.1%	-	0.0%	8,461	0.2%	$22,555	0.1%
LED Holiday Light	25,334	0.0%	3	0.0%	-	0.0%	$425	0.0%
LED Lighting	199,552	0.1%	28	0.1%	-	0.0%	$22,435	0.1%
Lighting	9,472,439	4.7%	963	3.4%	-	0.0%	$287,588	1.8%
Lighting Controls	380,256	0.2%	11	0.0%	-	0.0%	$12,376	0.1%
Motors & Drives	162,975	0.1%	111	0.4%	-	0.0%	$23,980	0.2%
New Construction	2,165,756	1.1%	559	1.9%	467,446	11.3%	$710,250	4.5%
Non Energy	-	0.0%	-	0.0%	-	0.0%	$3,028	0.0%

Measure Category	Verified Gross							
	kWh	kWh %	kW	kW %	Therms	Therms %	Incentive Dollars	Incentive Dollars %
Other	347,767	0.2%	64	0.2%	227,134	5.5%	$1,986,708	12.5%
Refrigeration	117,119	0.1%	22	0.1%	-	0.0%	$26,975	0.2%
Renewable Energy	1,201,398	0.6%	376	1.3%	12,739	0.3%	$643,904	4.0%
T8/T5 Fluorescent Lighting	127,045	0.1%	13	0.0%	-	0.0%	$4,771	0.0%
Training & Special	-	0.0%	-	0.0%	-	0.0%	$22,991	0.1%
Vending & Plug Loads	73,169	0.0%	6	0.0%	1,188	0.0%	$17,115	0.1%
Whole Building	740,550	0.4%	138	0.5%	109,494	2.7%	$206,800	1.3%

[1] Includes legacy programs and carryover.
[2] CFLs and Showerheads in the Residential Lighting and Appliances Program.
[3] Legacy program CFLs.
[4] Legacy Appliance and Plug Load Program.
[5] Legacy Appliance and Plug Load Program.

Table 12 lists CY 2012 nonresidential savings and incentive monies spent by measure category.

Table 12. Summary Of First year Annual Savings By Measure Category, Nonresidential Segment [1]

Measure Category	Verified Gross							
	kWh	kWh %	kW	kW %	Therms	Therms %	Incentive Dollars	Incentive Dollars %
Aeration[2]	10,017,713	2.2%	814.21	1.2%	-	0.0%	$660,103	2.1%
Agriculture	3,102,789	0.7%	3,471	5.3%	36,785	0.2%	$155,371	0.5%
Boiler	(46,657)	(0.0%)	(2)	(0.0%)	796,462	3.6%	$287,889	0.9%
Boiler Controls	21,709	0.0%	1	0.0%	237,581	1.1%	$83,400	0.3%
Boiler Equipment	1,728,478	0.4%	400	0.6%	3,676,906	16.7%	$284,405	0.9%
Boiler Service	7,151,847	1.6%	1,023	1.6%	2,455,407	11.1%	$381,892	1.2%
Boilers & Burners	2,714,225	0.6%	66	0.1%	715,188	3.2%	$418,058	1.3%
Bonus	-	0.0%	-	0.0%	-	0.0%	$376,663	1.2%
Building Shell	1,882,880	0.4%	1,097	1.7%	578,776	2.6%	$420,971	1.3%
CFL	1,512,704	0.3%	307	0.5%	-	-	$22,666	0.1%
Compressed Air, Vacuum Pumps	13,326,856	3.0%	2,865	4.4%	205,797	0.9%	$667,352	2.1%

Measure Category	Verified Gross							
	kWh	kWh %	kW	kW %	Therms	Therms %	Incentive Dollars	Incentive Dollars %
Compressor Equipment	8,347,302	1.9%	1,038	1.6%	-	-	$554,358	1.7%
Compressor Service	10,353,287	2.3%	1,385	2.1%	-	-	$405,591	1.3%
Controls	1,832	0.0%	9	0.0%	-	-	$1,386	0.0%
Conversion	9,190	0.0%	2	0.0%	(378)	(0.0%)	$566	0.0%
Design	-	-	-	-	-	-	$14,461	0.0%
Dishwasher	159,230	0.0%	17	0.0%	3,038	0.0%	$9,450	0.0%
Domestic Hot Water	4,944,696	1.1%	997	1.5%	440,610	2.0%	$16,548	0.1%
Energy Recovery	2,433,562	0.5%	279	0.4%	1,667,388	7.6%	$74,114	0.2%
Food Service	1,350,614	0.3%	170	0.3%	110,338	0.5%	$165,807	0.5%
Greenhouse	-	-	-	-	2,434	0.0%	$1,300	0.0%
High Intensity Discharge (HID)	1,150,446	0.3%	205	0.3%	-	-	$55,367	0.2%
Hot Water	1,119,941	0.2%	187	0.3%	92,326	0.4%	$99,674	0.3%
HVAC	32,444,941	7.2%	7,798	11.9%	4,075,708	18.5%	$4,279,837	13.3%
HVAC Controls	-	-	14	0.0%	616	0.0%	$2,012	0.0%
Industrial - Custom	52,578	0.0%	-	-	37,444	0.2%	$13,934	0.0%
Industrial Ovens and Furnaces	-	-	-	-	22,502	0.1%	$11,800	0.0%
IT	8,213,774	1.8%	566	0.9%	4,511	0.0%	$414,470	1.3%
Laundry	483,768	0.1%	65	0.1%	101,234	0.5%	$61,068	0.2%
LED Lighting	7,643,892	1.7%	892	1.4%	-	-	$390,071	1.2%
Lighting	103,110,130	23.0%	17,146	26.2%	-	-	$4,413,998	13.8%
Lighting Controls	5,485,216	1.2%	567	0.9%	-	-	$261,723	0.8%
Motors & Drives	43,580,275	9.7%	4,692	7.2%	(107)	(0.0%)	$1,833,622	5.7%
New Construction	652,078	0.1%	150	0.2%	92,955	0.4%	$114,132	0.4%
Non Energy	-	-	-	-	-	-	$67,029	0.2%
Other	(3,891,138)	(0.9%)	(3,969)	(6.1%)	(1,457)	0.0%	$2,508,580	7.8%
Pools	944,681	0.2%	142	0.2%	46,393	0.2%	$54,583	0.2%
Process	52,212,484	11.6%	4,994	7.6%	6,463,963	29.3%	$2,755,667	8.6%
Refrigeration	28,391,953	6.3%	3,503	5.3%	39,266	0.2%	$1,156,940	3.6%
Refrigeration Controls	3,549,325	0.8%	85	0.1%	-	-	$84,545	0.3%
Renewable Energy	34,108,257	7.6%	4,744	7.2%	28,548	0.1%	$4,474,319	13.9%
Scheduling	107,779	0.0%	6	0.0%	-	-	$3,450	0.0%

Measure Category	Verified Gross							
	kWh	kWh %	kW	kW %	Therms	Therms %	Incentive Dollars	Incentive Dollars %
T8/T5 Fluorescent Lighting	56,809,960	12.7%	9,179	14.0%	-	-	$3,212,087	10.0%
Training & Special	-	-	-	-	-	-	$488,763	1.5%
Vending & Plug Loads	529,542	0.1%	-	-	-	-	$8,105	0.0%
Waste Water Treatment	50,222	0.0%	8.42	0.0%	-	0.0%	$4,099	0.0%
Whole Building	2,611,564	0.6%	607	0.9%	113,708	0.5%	$329,099	1.0%

[1] Includes legacy programs and carryover.
[2] Wastewater treatment aeration.

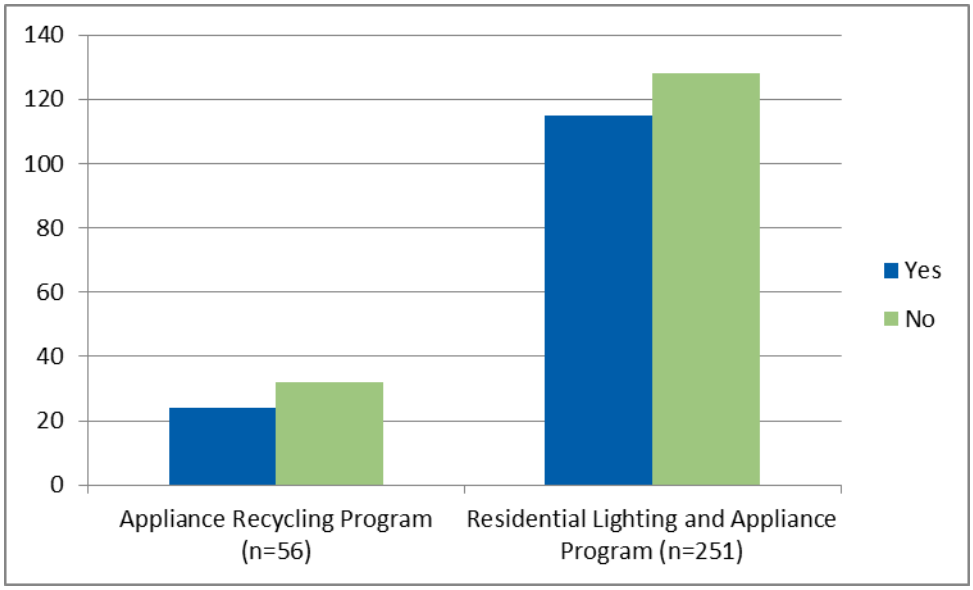
Residential Segment Level Findings

In less than a full year, the residential segment programs showed continuous improvement throughout their operations. Focus on Energy launched programs via new Implementers, established many new operational procedures, and re-engaged an active Trade Ally network to promote the new programs. For the 2012 evaluation, the Evaluation Team reviewed program documents, interviewed stakeholders, conducted engineering reviews and site visits, and surveyed some customers who participated in the programs. The residential program documents were satisfactory, but were missing some key information regarding program processes and staff roles. In this section, the Evaluation Team summarizes high-level process findings identified across the residential segment programs. Volume II provides detailed findings and recommendations from the 2012 evaluation's program-specific research.

Awareness of Focus on Energy

The Evaluation Team's Appliance Recycling Program and Retailer Lighting and Appliance surveys of Wisconsin residents contained questions about awareness of Focus on Energy. Both surveys asked respondents "Are you familiar with Focus on Energy?" Less than 50 percent of survey respondents indicated they were familiar with Focus on Energy as shown in Figure 7.

Figure 7. Familiarity With Focus On Energy

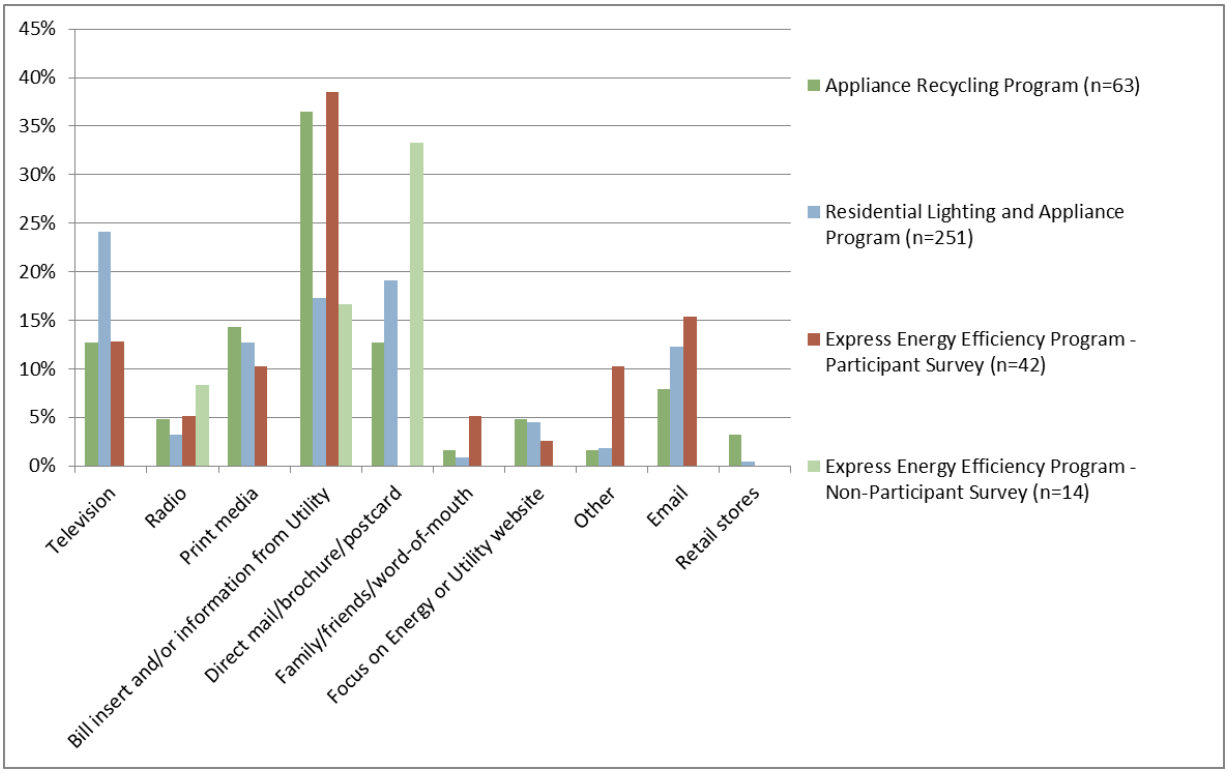


Source: Focus on Energy Residential Lighting RDD Survey and Appliance Recycling Nonparticipant Survey- Questions A1.

Outreach

To help identify the best methods for informing customers of Focus on Energy programs, the Evaluation Team included the following question in the Appliance Recycling, Retailer Lighting and Appliance, and Express Energy Efficiency Program surveys: "What is the best way for Focus on Energy to inform you about energy-efficiency programs?" The survey results for these three programs returned a range of results, however as shown in Figure 8, television, bill inserts/information from utility, email, print media, and direct mail/brochure/postcard were answers provided by the respondents as the best ways to inform customers.

Figure 8. Best Ways For Focus On Energy To Inform Residential Customers About Programs



Source: Focus on Energy Residential Lighting Customer Survey Question A14; Appliance Recycling Participant Survey Question B5; Express Energy Efficiency Participant Survey Question B8; Express Energy Efficiency Non-Participant Survey Question B4

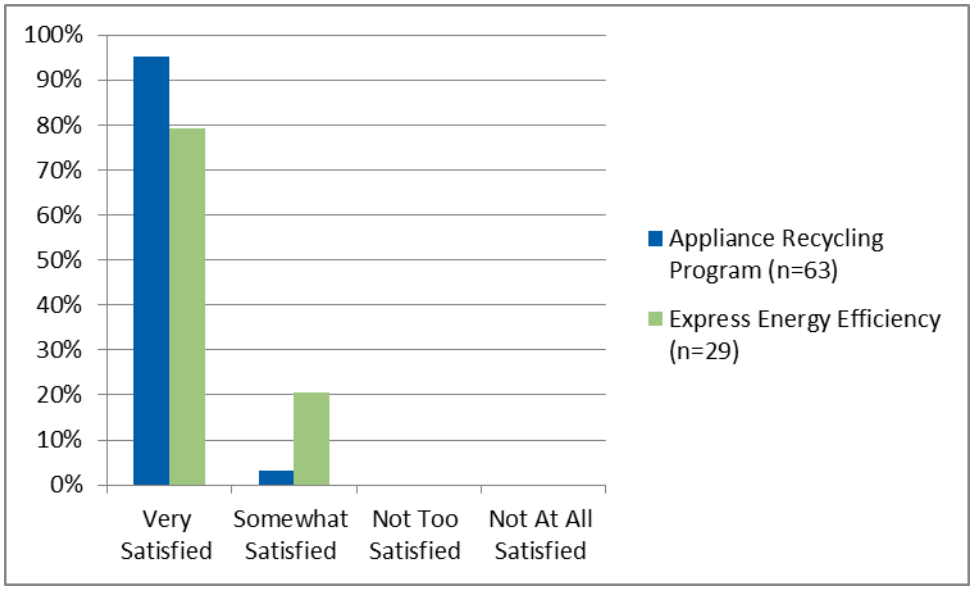
Trade Allies

Although there is a formal Trade Ally network established, the Evaluation Team found that Trade Allies experienced some difficulty enrolling as Focus on Energy Trade Allies: Trade Allies and Program Implementers reported the application process was sometimes tedious and in a few cases Trade Allies were asked to fill out multiple applications because of processing issues. Further program-specific details are provided in the following sections of this report. Focus on Energy has since launched a portfolio-wide Trade Ally outreach initiative, which intends to provide more effective support for and communication with Trade Allies and there is consideration to move applications online for easier entry and retrieval.

Satisfaction

The Residential Evaluation included only two participant surveys this year. These two surveys were for the Express Efficiency Program and Appliance Recycling Program and included the following question: "How satisfied are you with the Focus on Energy {corresponding program} Program overall?" As displayed in Figure 9 all respondents replied that they were either very satisfied or somewhat satisfied with the programs.

Figure 9. Residential Program-Specific Satisfaction



Nonresidential Segment Findings

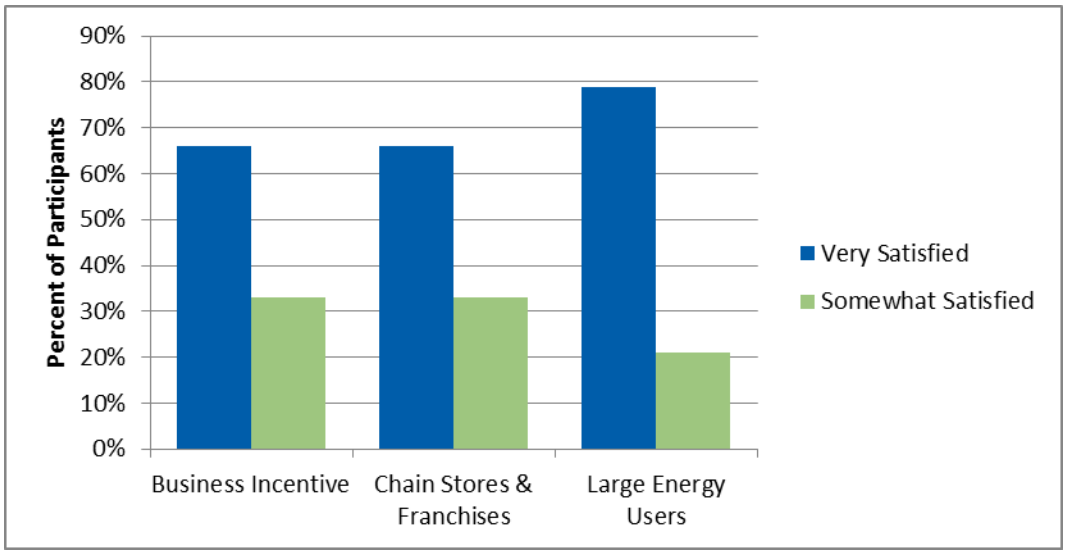
In less than a full year, the nonresidential programs showed continuous improvement throughout their operations. Focus on Energy launched programs via new Implementers, established many new operational procedures, and re-engaged an active Trade Ally network to promote the new nonresidential programs. For the 2012 evaluation, the Evaluation Team reviewed program documents, interviewed stakeholders, conducted engineering reviews and site inspections, and surveyed some customers and Trade Allies who participated in the programs. The program's operational documents appeared to meet or exceed industry standards for best practices in terms of transparency, comprehensiveness, and ease of use. In this section, the Evaluation Team summarizes high-level findings identified across the nonresidential programs. Volume II provides detailed findings and recommendations from the 2012 evaluation's program-specific research.

Customer Satisfaction

Surveyed participants rated their overall experience with the CY 2012 programs highly, particularly for the Large Energy Users Program where nearly 80% were "very satisfied" with their experience. The Programs received lower satisfaction ratings for the amount of time taken to process rebates, clarity of program requirements, and incentive amounts. In some cases, customers reported receiving payments

after more than four weeks of application processing.[2] Figure 10 provides nonresidential program-specific satisfaction.

Figure 10. Nonresidential Program-Specific Satisfaction [1]



[1] Small Business Program Participants were not surveyed for the CY 2012 Evaluation.

Communication with Nonresidential Stakeholders

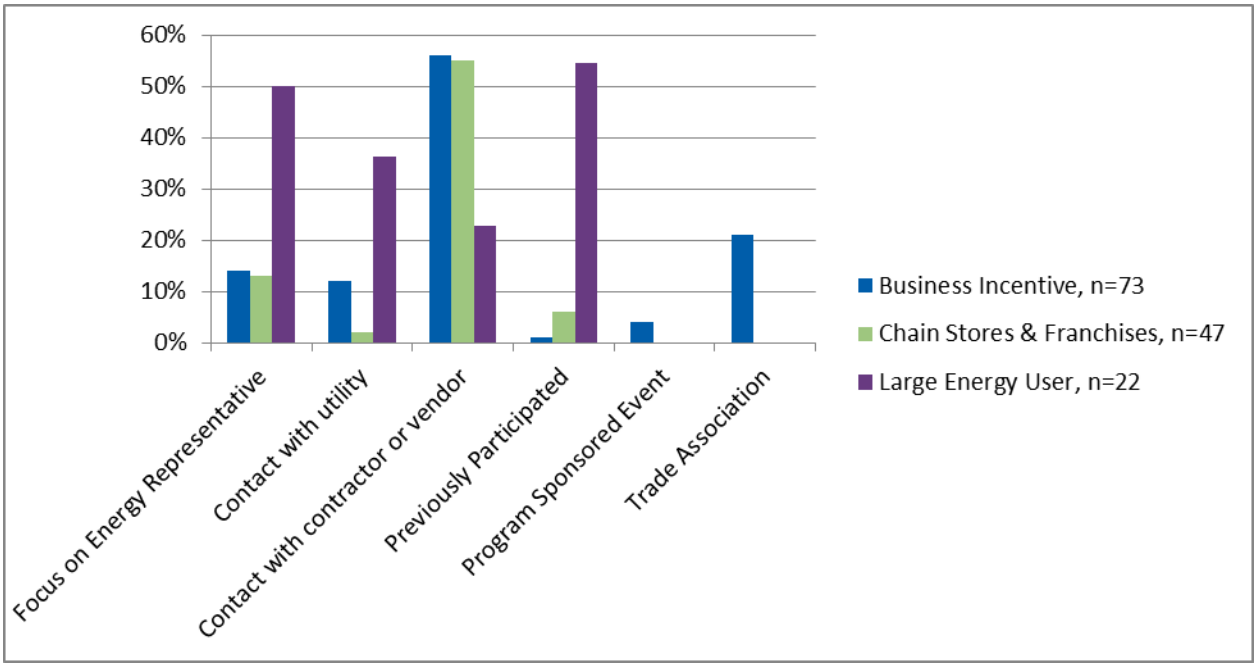
The utility Key Account Managers involved in the nonresidential programs reported they would like to be kept more informed about program changes and updated on their customer's project status throughout the enrollment and incentive application processes. According to the Program Administrator and Program Implementer, better information exchange and more integration with Energy Advisors has been under discussion at quarterly meetings occurring with the Key Account Managers. Such integration will keep Key Account Managers up to date on projects with their customers, leverage their good relationships with those customers for the Program's benefit, and bolster the reach of Energy Advisors.

Outreach to Customers

Although some of the participants were not aware of the recent transition (the transition was largely seamless for customers as reported by Trade Allies), many learned about Focus on Energy through direct contact with Focus on Energy representatives, their utility, or Trade Allies. Figure 11 shows the variations by Program.

[2] Volume II provides details of customer experience with incentive payment processing. The amount of time customers reported receiving incentive payments varied by nonresidential program.

Figure 11. How Customers Learned About Focus on Energy Programs [1]



[1] Respondents were allowed to submit more than one response.

When asked how participants would like to stay informed about the Nonresidential Programs in the future, customers expressed a clear desire for direct communication with Focus on Energy representatives, email updates, and program mailings.

Outreach to Trade Allies

During launch of the nonresidential programs in April 2012, the Program Administrator reported undertaking a significant outreach effort to re-register and inform the existing Trade Ally network about the new programs. Despite these efforts, during the Evaluation Team's interviews, a number of active Trade Allies reported that they had not yet re-registered either because they were not aware of the benefits, or believed their paperwork was current (erroneously).

Participating Trade Allies interviewed during the CY 2012 evaluation learned about Focus on Energy through the Focus on Energy Newsletter, Website, and direct contact with Focus on Energy Advisors. Many of the Trade Allies work on multiple programs, and expressed a high level of satisfaction with the program components.

Although the majority of the nonparticipating Trade Allies were familiar with Focus on Energy, many did not recollect receiving information about the recent business program changes. Those who were aware of Focus on Energy heard most often through direct contact with representatives. A majority of the nonparticipating Trade Allies expressed an interest in learning more about the Nonresidential Program incentives.

Cross-Program Summary: Trade Ally Network

Focus on Energy's Program Administrator maintains and coordinates the Focus on Energy Trade Ally network. The Program Administrator conducts outreach at the portfolio level, recruiting Trade Allies through the Focus on Energy Website, newsletters, emails, and training events. Over time, the list of network members had grown to several thousand and included contacts that were no longer active. During launch of the nonresidential programs in April 2012, the Program Administrator undertook significant outreach efforts to inform the existing Trade Ally network about the new programs, and launched a new initiative to re-register Trade Allies with the intention of promoting higher levels of engagement. Using communication through emails, newsletters, meetings, and the Website, the Administrator informed the Trade Allies about the benefits of re-registration. These benefits included participation bonuses and the opportunity to be listed on the Focus on Energy Website.

In addition to outreach efforts at the portfolio level, many of the Program Implementers reported conducting outreach targeted at Trade Allies who work on specific nonresidential programs. Results of the program-level research are discussed in the relevant program sections of the CY 2012 evaluation report.

As part of the CY 2012 evaluation, the Team reports on experiences and perceptions of participating and nonparticipating Trade Allies, and similarities and differences between these two groups. Research topics investigated for this cross-program research included:

- Program awareness levels and information sources;
- Information about outreach channels;
- Benefits and barriers to Trade Ally participation;
- Reasons for not participating more actively (nonparticipants);
- Perceptions about customer experiences;
- Information and perceptions about the potential market for Focus on Energy (market effects).

For the purpose of the 2012 evaluation research, the Team interviewed participating active Trade Allies who were either registered or not, and nonparticipating Trade Allies who were not actively involved in the nonresidential programs. The research provides feedback from 78 Trade Allies participating across all nonresidential programs and 27 nonparticipating, representing a variety of nonresidential service areas. Table 13 shows number of Trade Ally participants interviewed for each Nonresidential program.

Table 13. Participant Trade Ally Interviews

Program	Interviews Completed	Target Interviews
Business Incentive Program	33	30
Chain Stores and Franchises Program	14	15
Large Energy Users Program	16	15
Small Business Program	15	15
Total All Programs	**78**	**75**

The Evaluation Team sought to identify reasons why some participating Trade Allies chose not to re-register with Focus on Energy. Despite the Program Administrator's communication and outreach efforts, many of these Trade Allies believed their registration paperwork was current, and were not aware of the additional requirements or benefits to re-registration.

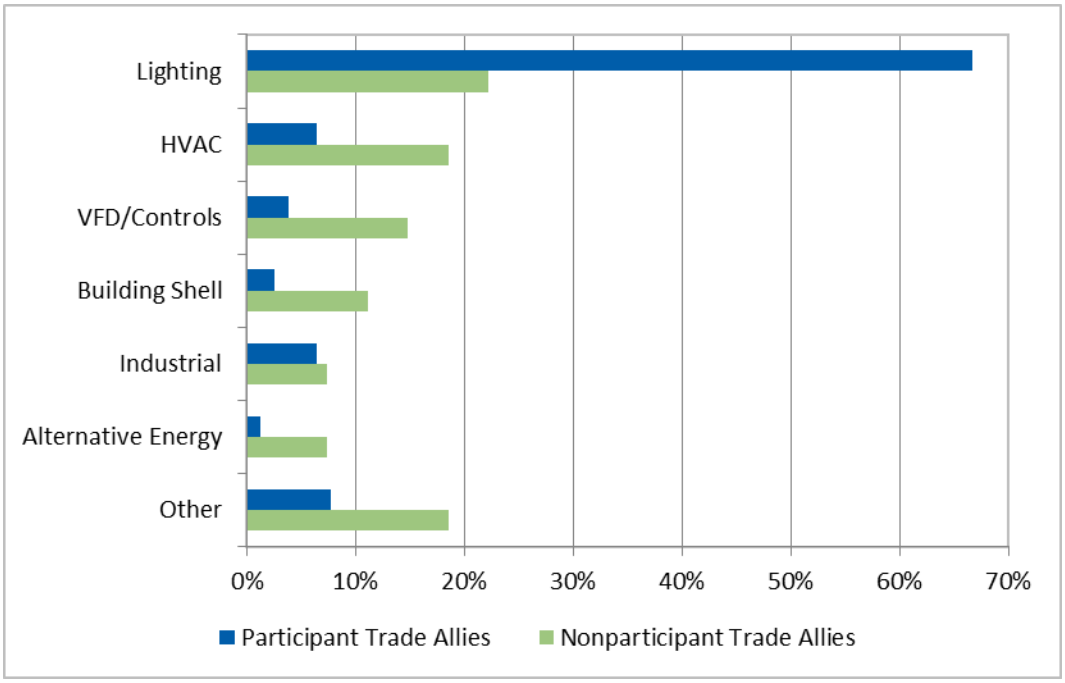
Trade Ally Profile

This section summarizes results of the participant and nonparticipant Trade Ally perceptions and experiences across the nonresidential programs, beginning with a short profile showing characteristics and areas of specialization.

Participant and nonparticipant Trade Allies interviewed for the 2012 research reported they specialized in installation and mechanical systems contracting, manufacturing, and wholesale or retail distribution.

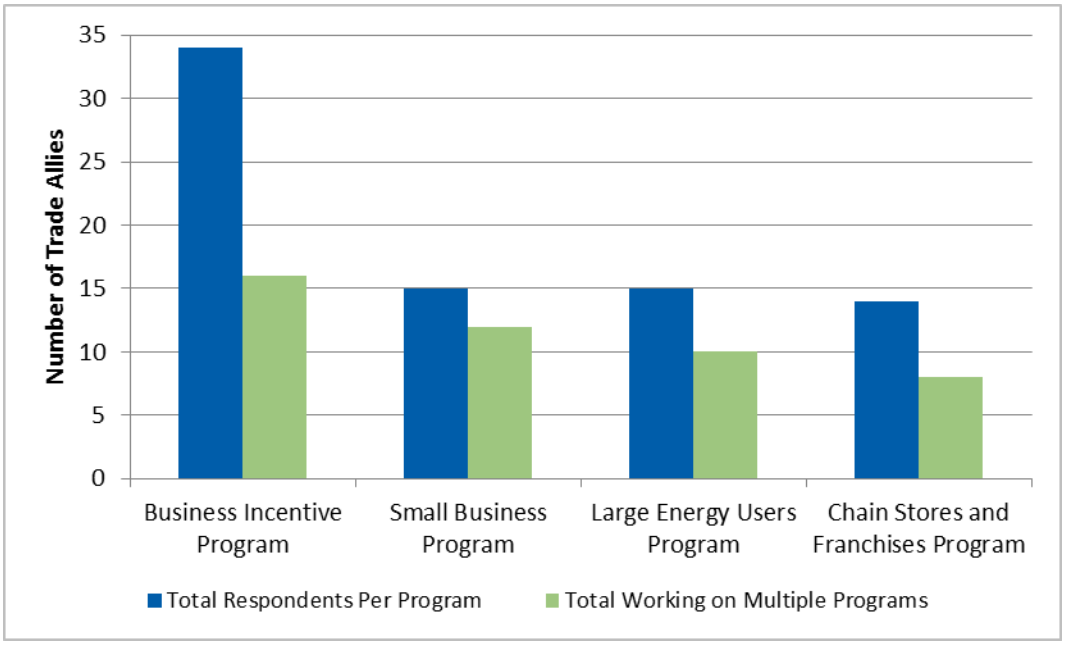
As show in Figure 12, many of the participating Trade Allies installed lighting equipment for Focus on Energy customers, as well as HVAC, Variable Frequency Drives (VFDs), and industrial measures such as food service equipment, air compressors, steam traps, and blowers. Nonparticipating Trade Ally interview respondents provided a variety of installation services to customers outside of the Focus on Energy nonresidential programs including HVAC, VFDs, controls, and building shell, and other services such as manufacturing, consulting, and energy auditing.

Figure 12. Participant and Nonparticipant Trade Ally Installation Services



All of the participating Trade Ally respondents said they worked on multiple programs. Figure 13 demonstrates the number of respondents who worked solely on each nonresidential program in comparison to those who worked on multiple programs.

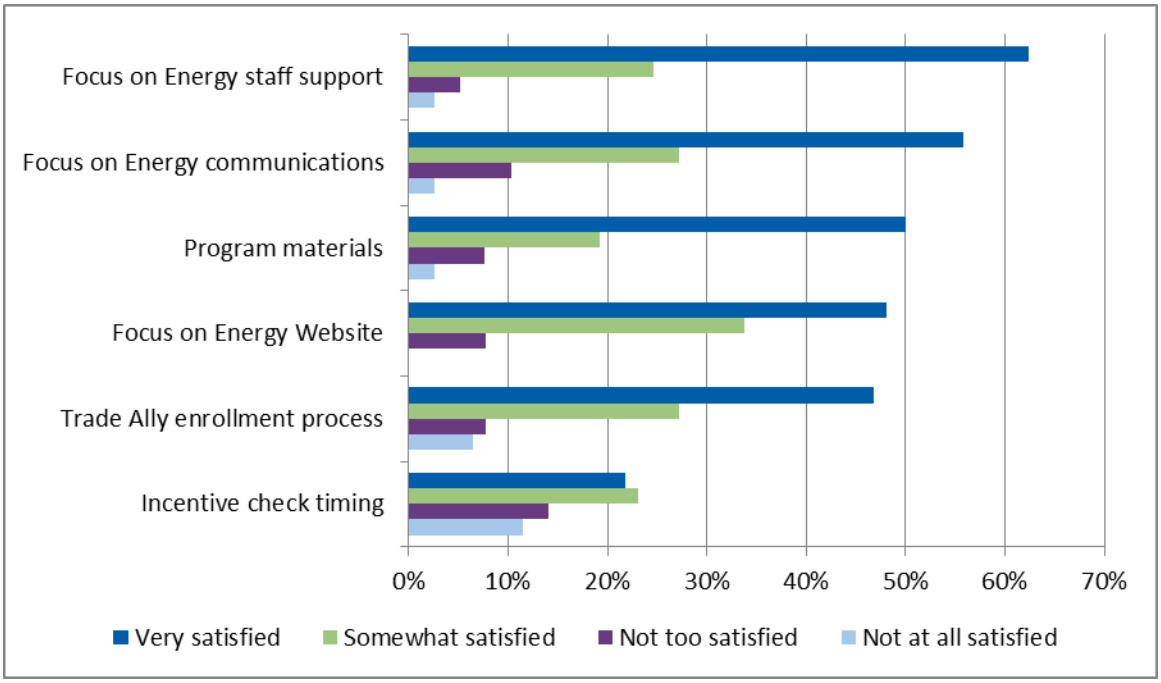
Figure 13. Participants Who Worked on Multiple Programs



Trade Ally Participant Satisfaction

Trade Allies reported a high level of satisfaction with several components across all programs. As shown in Figure 14, over 60% of all Trade Ally respondents said they were very satisfied with the support they received from Focus on Energy staff. Trade Allies also reported high satisfaction rankings with communications, program materials, and the Focus on Energy Website. Trade Allies were less satisfied with timing of the incentive payments. Reasons for dissatisfaction with timing of incentive payments vary by Program and are discussed in Volume II of this report.

Figure 14. Trade Ally Satisfaction



Trade Allies made these suggestions for improvements across all nonresidential Programs:

- Provide more timely and frequent communication about Program changes;
- Provide more clarity about which Energy Advisor to direct questions about Program requirements;
- Make the Website easier to navigate to find application forms;
- Streamline the Trade Ally enrollment process to reduce duplicate paper work;
- Provide more help identifying new project opportunities;
- Provide additional training sessions or more information on upcoming lighting requirements;
- Consider limiting the number of topics covered in each training session to avoid covering too numerous of topics in a short period of time.

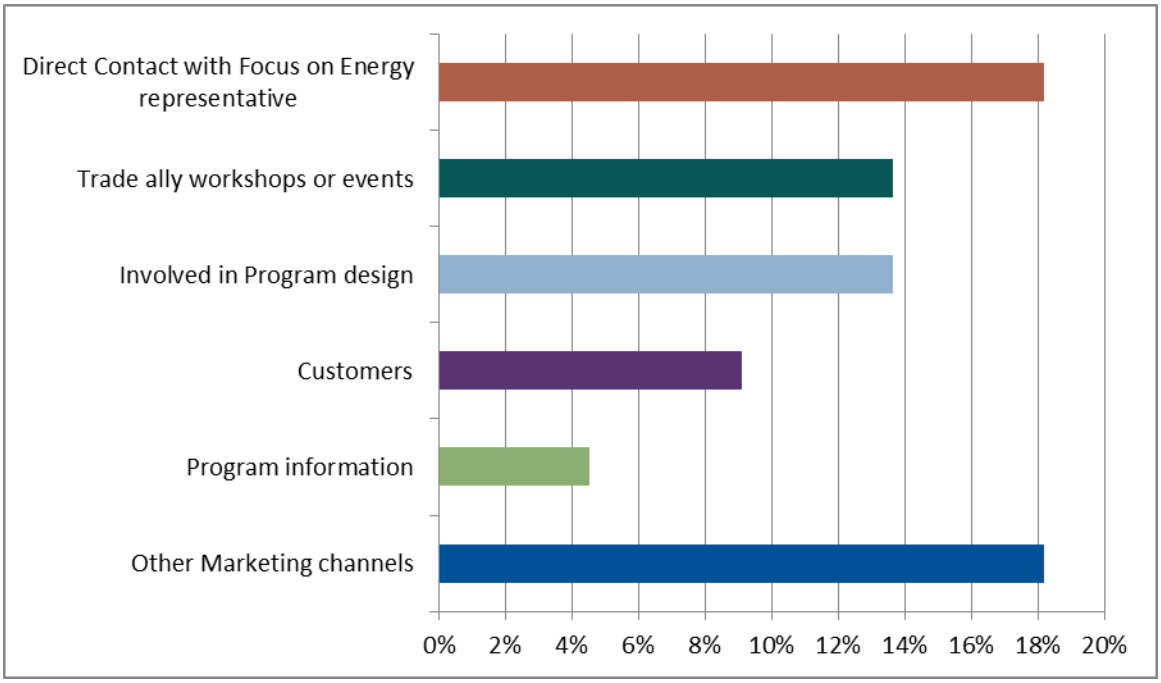
Program Awareness and Communication with Trade Allies

Interview feedback indicated that most of the nonparticipating Trade Allies had heard about Focus on Energy (81%). Out of 22 nonparticipant Trade Ally respondents who had heard about Focus on Energy, a majority (68%) said they had not received any information about the recent changes to the business programs.

As demonstrated in Figure 15, nonparticipating Trade Allies learned about Focus on Energy through direct contact with representatives, or through other marketing channels such as the newspaper,

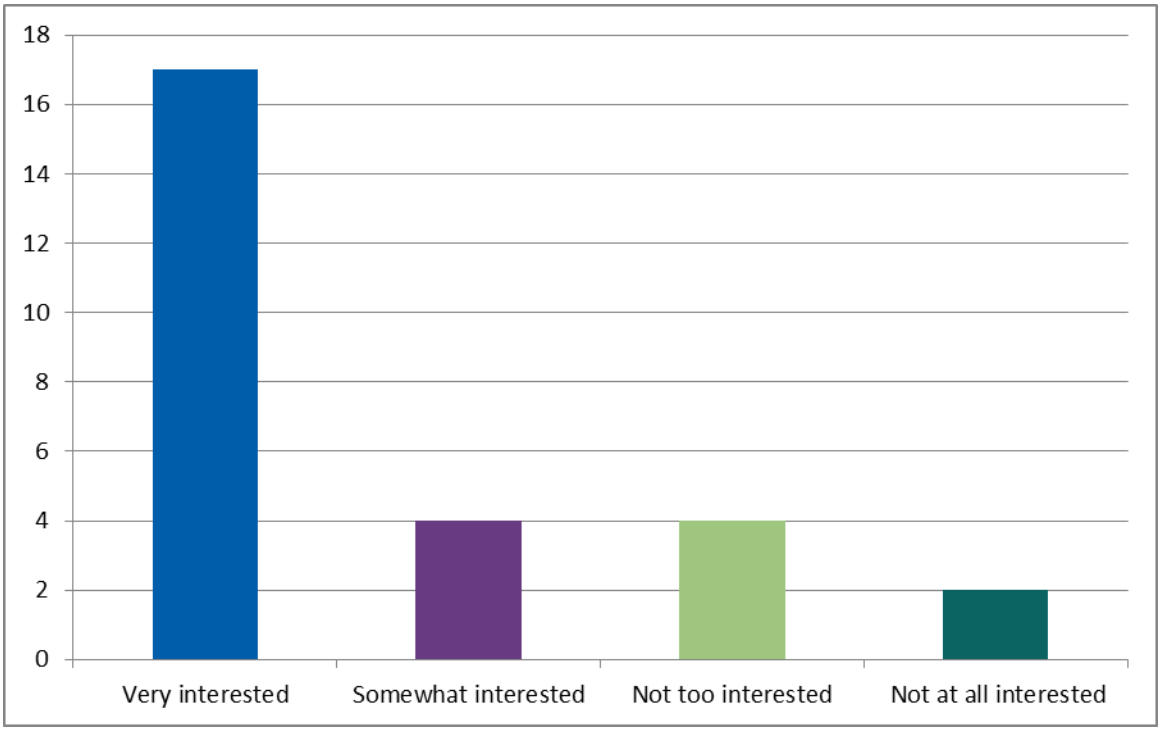
suppliers, trade shows, and conferences. A few of the nonparticipating Trade Allies had been involved in the early development of Focus on Energy (over 10 years ago).

Figure 15. How Nonparticipant Trade Allies Learned About Focus on Energy (N =22)



The Team asked nonparticipating Trade Allies – those who were aware of Focus on Energy and those who were not – whether they were interested in learning more or working with Focus on Energy. A majority of Trade Allies were very interested (Figure 16), responding the energy-efficiency incentives make their services more economical and helps to generate more business opportunities.

Figure 16. Nonparticipating Trade Allies Interested In Learning More About Focus on Energy

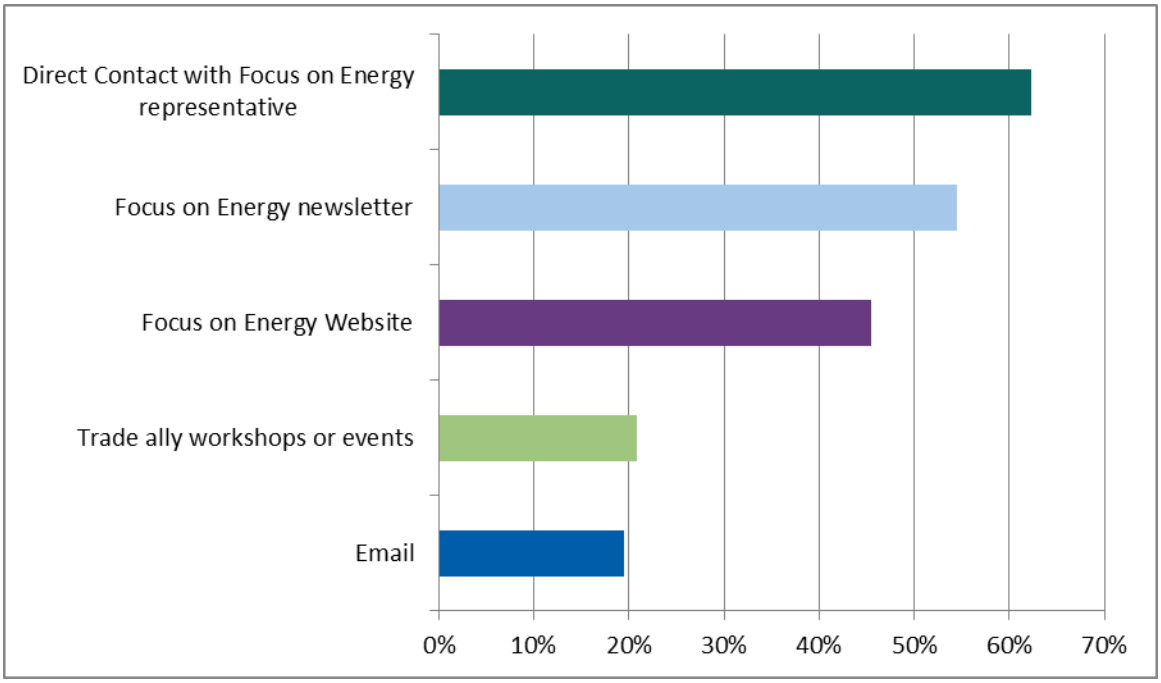


A few Trade Allies said they needed more information to determine their level of interest. Those who were not interested reported these reasons:

- Incentive levels are often low;
- Eligibility requirements are too strict;
- Website provides all the information they need at this time;
- No longer provide energy efficiency products or services in Wisconsin.

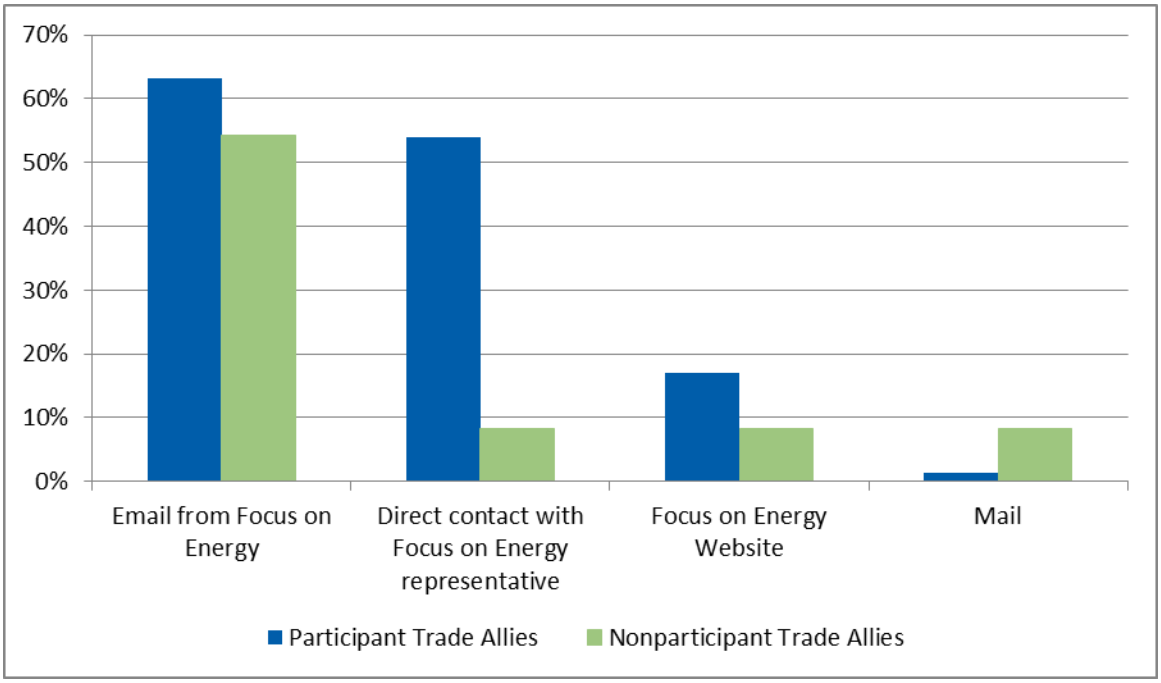
As shown in Figure 17, participating Trade Allies stayed informed about the Focus on Energy Programs through direct contact with representatives, the network newsletter, and Website.

Figure 17. How Participant Trade Allies Stay Informed About Program Offerings (n = 77)



Both participant and nonparticipant Trade Allies would like to receive information about Focus on Energy offerings through email (Figure 18). Participating Trade Allies in particular said they also preferred receiving information directly from Focus on Energy representatives.

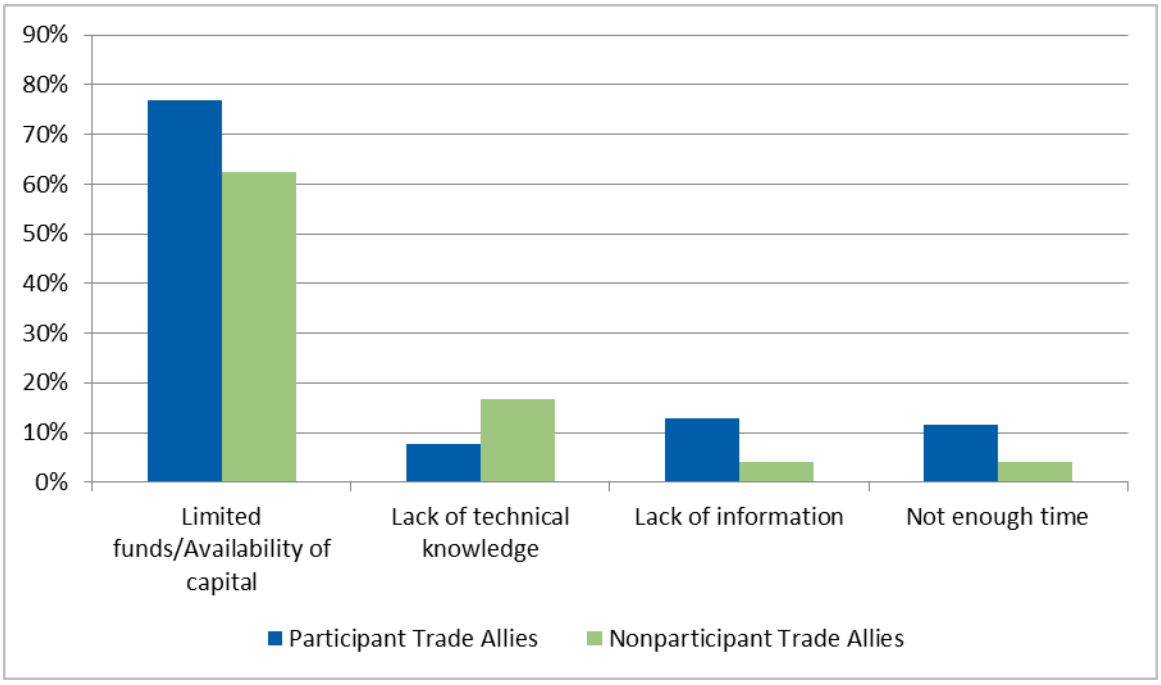
Figure 18. How Trade Allies Wish To Receive Program Information



Trade Ally Perceptions of Customer Barriers to Participation

As shown in Figure 19, the majority of participating and nonparticipating Trade Allies reported limited funds or availability of capital as the most significant obstacle preventing customers from installing high efficiency equipment.

Figure 19. Perceived Customer Participation Barriers



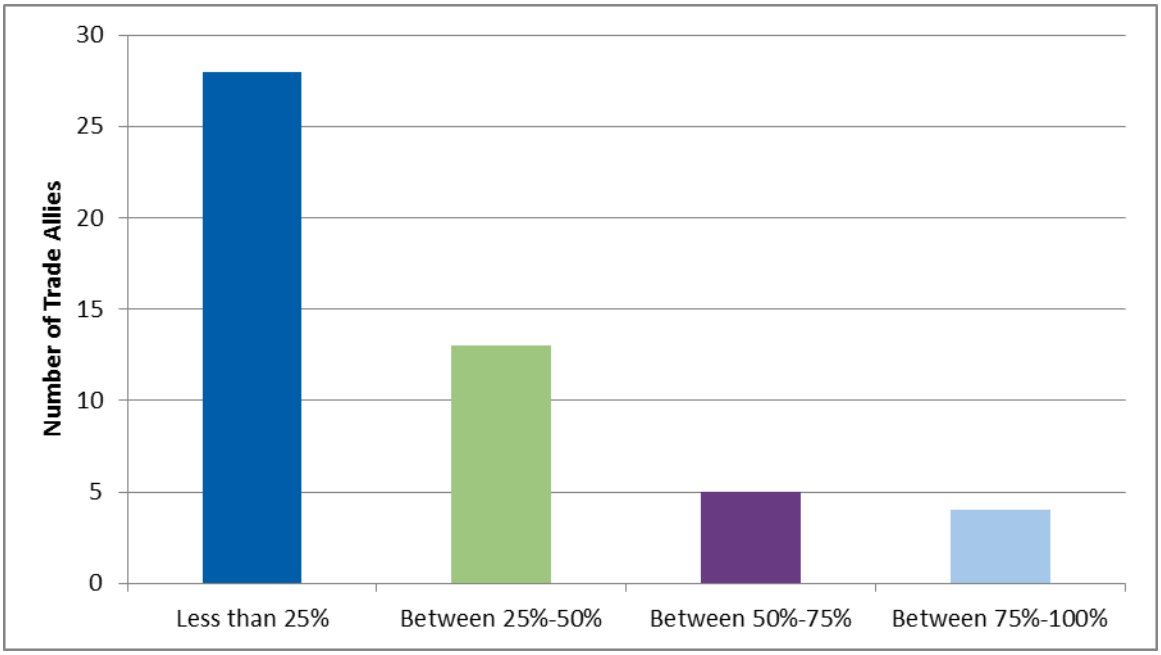
To help customers overcome obstacles to participation, Trade Allies suggested Focus on Energy offer the following:

- Additional customer education and marketing efforts to increase program awareness;
- Financing mechanisms to help offset the high up-front costs of making high-efficiency improvements;
- Higher incentive levels and more variety of equipment incentives;
- Simplified incentives and a simplified approval processes;
- More opportunities for Energy Advisors to accompany Trade Allies on sales calls;
- Assist with more technological advances in renewable energy, such as more efficient solar panels and wind systems, including storage capacity;
- Higher incentive levels dedicated to smaller projects.

Market Perceptions

As shown in Figure 20, nearly half of the participating Trade Ally respondents believed only a small portion of customers (less than 25%) would have installed equipment without the Focus on Energy Incentives.

Figure 20. Trade Ally Perceptions Of Customer Energy-Efficiency Purchases



Evaluation Outcomes and Recommendations

Outcomes: Although the majority of the nonparticipating Trade Allies were familiar with Focus on Energy, many did not recollect receiving information about the recent business program changes. Many of those who were aware of Focus on Energy had heard about it through direct contact with representatives, or through other marketing channels. A majority of the nonparticipating Trade Allies expressed an interest in learning more or working with Focus on Energy.

Participating Trade Ally respondents also learned about Focus on Energy through direct contact with representatives. These Trade Allies work on multiple programs, and expressed a high level of satisfaction with many of the program components.

Recommendations: The Evaluation Team recommends that Focus on Energy continue building a strong network across the nonresidential programs through regular meetings, forums, Webinars, emails, newsletters, and updates to the Website. Consider ways to strengthen communication and messaging about the nonresidential program changes and Trade Ally registration benefits.

Special Report: Changes in Lighting Standards

New federal regulations and lighting standards established by the Energy Independence and Security Act (EISA) passed in 2008 and the U.S. Department of Energy commercial lighting standard passed by Congress in 2007, call for a gradual phase-out of inefficient lighting products. Lighting program planners must consider these as important factors and existing program offerings may need modification to adjust for the EISA and DOE standards.

To understand the current status and perceptions in the market related to these lighting standard changes, the Evaluation Team added a focused set of research questions to this year's activities. These questions were integrated into planned data collection activities with the nonresidential programs' participating customers and Trade Allies. Understanding the impact levels that these changes will have, and how the lighting market is changing as a response to the changes, will prove critical for future program planning.

To assess customer perceptions of the changing lighting standards, the Team surveyed 30 business customers who installed lighting measures in 2012, and received incentives from the nonresidential programs. Most of these customers were Business Incentive Program participants (23 respondents), with a few from Chain Stores and Franchises (5 respondents), and two Large Energy Users Program respondents.

The customer lighting survey investigated four general research objectives:

- Assess commercial customer awareness of the new lighting standards;
- Investigate opportunities for energy savings by estimating the presence of T-12s;
- Ascertain how customers respond to the new standards, including plans to replace T-12s and to conduct other lighting projects in the next year;
- Confirm sources of information and key decision factors for lighting technology.

To assess participating Trade Ally perceptions of the new lighting standards, four supplemental questions were added to a larger interview guide designed to gather general program experiences. Lighting research questions targeted for the Trade Allies gathered information about the following:

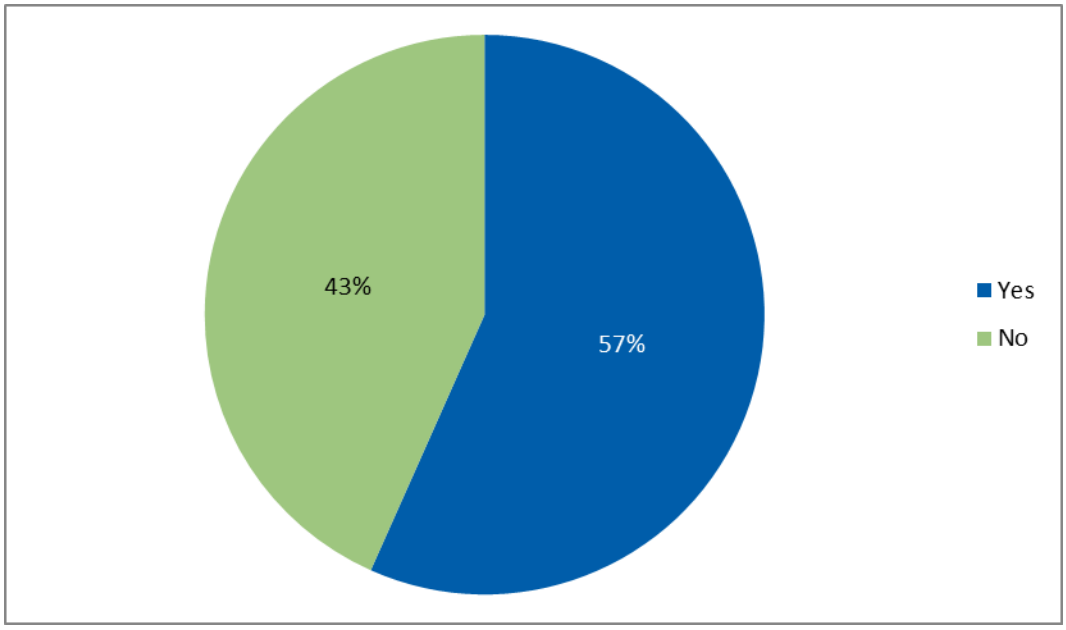
- How Trade Allies are talking about the standards with customers;
- Trade Ally awareness of lighting standards;
- How the changing standards affect Trade Ally business approach, products, or promotions;
- Whether Trade Allies would like additional training or information to explain the new lighting standards to customers.

Awareness of Lighting Standards

To determine level of awareness, the Team asked customers what they have heard about the new lighting standards. Familiarity with the standards varied. Over half of the respondents (17) were aware

of the EISA standards, in particular phase out of T-12s, incandescent lamps, or both. The other half (13) had limited or no knowledge of the lighting standards, see Figure 21.

Figure 21. Customer Awareness Of New Lighting Standards (n=30)



Trade Ally Perceptions about Customer Awareness

The Team asked Trade Allies who work on lighting projects whether they are talking to their customers about the new lighting standards. A majority confirmed they were, and had these observations:

- Not all customers are aware of new lighting requirements, and that traditional lighting is being phased out;
- Some are not ready to update lighting yet because they believe neither the incentives nor cost savings from more efficient lighting justify the costs of equipment replacements;
- Some still doubt that changes in the lighting standards will take effect;
- Others are waiting to upgrade lighting until old lighting has been completely phased out.

Impact of Standards on Nonresidential Customers

To understand how the lighting standards are impacting customer facilities, the Team gathered information about the proportion of T-12 fluorescent and incandescent reflector lamps currently installed or in storage. Of 30 customers surveyed, seven customers reported percentage of T-12s installed in their facilities, the proportion that were magnetic or electronic ballasts, and the percentage of T-12s that could be replaced by those in storage. As shown in Table 14, proportions of T-12s installed and in storage ranged widely between each of the seven respondents.

Table 14. Percentage of Facility Affected

Customer Respondent	T-12s in Facility (%)	Magnetic Ballasts (%)	Electronic Ballasts (%)	Replaceable by T-12s in Storage (%)
1	70		100	5
2	1	1		1
3	50		100	100
4	20		100	50
5	3	3		100
6	30	30		100
7	15	100		

Only four participants reported 5 to 10% of their facilities with incandescent reflector lamps, and one customer reported 1% of facility affected.

The Team asked customers the type of lighting upgrades planned for the coming year. Twelve respondents reported they had already upgraded their facilities in anticipation of the new lighting standards. Nine respondents said they planned to upgrade only as replacements are needed. A few customers were planning to install a variety of indoor or outdoor lighting in the coming year such as T-8s, High Intensity Discharge (HID) lighting, LEDS parking lights, and exit signs.

Impact of Standards on Trade Ally Business Practices

In response to new federal lighting requirements, Trade Allies reported that they have either changed their sales approach or changed their products being offered. In some cases, the new lighting standards have created challenges in meeting customer expectations.

Trade Allies provided the following examples of how they are responding to the new lighting standards in their business practices:

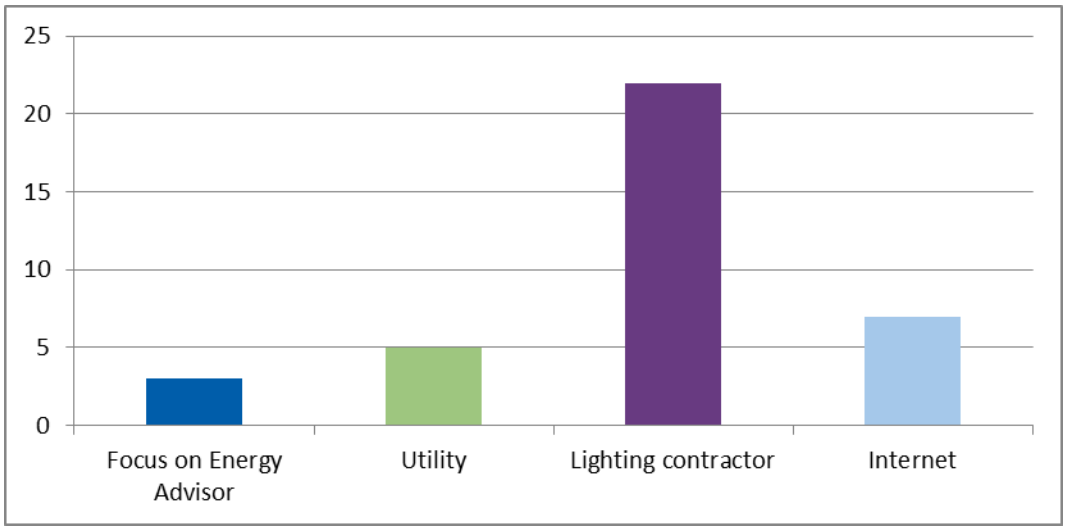
- Promoting the new technology (such as LEDs and T-12 replacements) before the old ones become obsolete;
- Using the new lighting standards as selling points to encourage lighting upgrades, and to take advantage of existing incentives;
- Encouraging customers to upgrade lighting while Focus on Energy is still offering incentives on replacement equipment;

- No longer marketing the lighting equipment being phased out, and only stock energy efficient lighting.

Customer Information Sources and Decision Factors

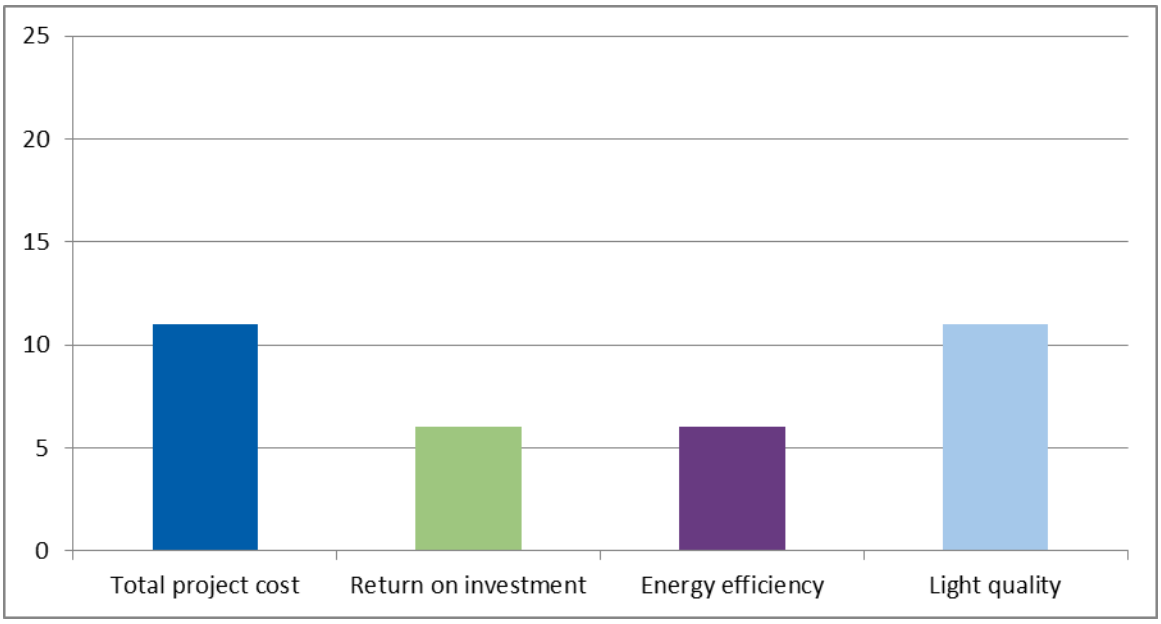
The Team asked customers where they usually get information about lighting technologies that could save energy and money for their businesses. As shown in Figure 22, more than half of the participants identified lighting contractors as a primary source of information. To a lesser extent, participants receive information about lighting technologies from the internet, the customer's utility, or a Focus on Energy Advisor.

Figure 22. Customer Sources Of Information About Lighting Technologies (n=30)



Customers identified light quality and total project cost as the most important factors they consider when purchasing lighting, see Figure 23. Customers also reported return on investment and energy efficiency as import factors to consider when purchasing lighting.

Figure 23. Important Factors For Customers When Purchasing Lighting. (n=30)



Trade Ally Requests for More Information

A little less than half of the Trade Allies who work on lighting projects asked for more training on the new lighting standards. They suggested the following:

- A Webinar would help explain the standards in more detail;
- A short flyer or a fact sheet to give to customers explaining the new lighting standards in plain language;
- Information about the phase out timeline would help customers understand how long they have until they will have to upgrade their lighting;
- Additional marketing such as radio or newspaper ads describing the changes would help educate business customers, and would add credibility to changes described by Trade Allies.

Evaluation Outcomes and Recommendations

Outcomes: While over half of the customers were aware of the new lighting standards, a large group was not very familiar. Trade Allies confirmed that roughly half of their customers have very little knowledge of the new lighting standards.

- Although many customers are proactively replacing T-12s to in response to new federal lighting requirements, an equal number of customers do not have a sense of urgency with regard to replacing affected lighting equipment.

- Customers report that lighting contractors are the main source of information about lighting technologies. The internet, Focus on Energy Advisors, and customer utilities also play an important role in keeping customers informed.

Recommendation: Expand efforts to educate customers and Trade Allies about the new lighting standards and how these changes may impact the availability of lighting technologies and incentives in the near future.

- Target new and existing outreach channels to circulate special lighting reports and updates featured on customer and Trade Ally Websites, emails, and newsletters. Consider developing Webinars and fact sheets targeted at customer or Trade Ally events.
- To motivate contractors, and accelerate customer action, Focus on Energy may consider creating a lighting contractor partnership program, with incentives paid to contractors (or rebates paid directly to contractors) for encouraging customers to update lighting fixtures while current lighting incentives remain available.

SPECTRUM Findings

In the CY 2011 evaluation, the Evaluation Team recognized the need to transition to a single central tracking database for all programs in the Focus on Energy portfolio. This activity was already in progress prior to the start of the evaluation year and the first release of the centralized database occurred on December 1, 2011. The new comprehensive system, known as the State Program for Energy Conservation Tracking and Utility Management (SPECTRUM), supports application approval and payment processes as well as many user query and reporting needs.

In its first year of use, the SPECTRUM team successfully addressed many early issues. However, during the 2012 evaluation, the Evaluation Team identified a number of concerns in interviews with program stakeholders and in the acquisition and processing of data to support the evaluation work. These findings have been provided to the PSC directly as a separate memo which is attached to this report in Appendix O. The primary findings detailed in that memo include:

- Core customer management/relations functionality is not yet operational.
- The amount of data that staff could extract at one time is extremely limited. It is not possible to download a complete set of evaluation data, or even a complete year of a single program's data for large programs.
- SPECTRUM was not designed to provide access to entire program datasets. A multistep process is required to extract data and save it in an MS Excel format. The process can take up to an hour and a half for one data set. This step has to be repeated many times.
- An option to extract data in *.csv format rather than Excel is much faster, but is not available since the SPECTRUM output file is not RFC 4180 compliant (this prevents Excel from assigning data fields containing quote marks properly).
- The ability to create custom report views is limited. Several weeks have been required to develop new custom report views with the fiscal agent.
- The Advanced Query Find Query tool also has severe limitations in usability, particularly for evaluation needs.
- Multiple programs are still maintaining parallel tracking databases because the needed functionality is not present in SPECTRUM.
- Program data for some residential programs is not available yet in SPECTRUM.
- Critical variables used in program evaluation are missing data or in some cases do not have a field for entry in the database.

Program user concerns are discussed by program in Volume II of this report. Primary challenges reported include:

- Large amounts of data must be entered manually; high-volume programs cannot upload batches of data and complex measure data in applications must be manually entered.

- Energy Advisors and utility Key Account Managers are not able to track the progress of customer applications due to transfer of "ownership" in SPECTRUM at different stages.
- Customer Relationship Management (CRM) functionality has not been enabled. Users who need this function have created alternative systems and tools, which may make conversion to SPECTRUM CRM challenging later.

While there are definitely areas for continued improvement with SPECTRUM, the Evaluation Team also acknowledges that the adoption and roll-out of a new portfolio-wide tracking system is an enormous undertaking. Great strides have been made, and the team involved deserves significant praises for the many successes to date, as well as for the proactive process that is in place to identify problems with, and improve upon the current functionality.

Evaluation Outcomes and Recommendations

Outcomes: It should be possible to upload and extract complex data from SPECTRUM much more quickly. The Microsoft Dynamics CRM tool offers the ability to manage massive amounts of data, but large extracts are not possible using the report tools. The Evaluation Team is spending time and effort assembling extracts that should be spent validating and analyzing data. Similarly, Program Administrator and Program Implementer staff report struggling to obtain the information they need, in a timely manner, to make decisions related to program design.

Recommendation: License an appropriate tool to upload and extract large volumes of data. Explore use of an Application Programming Interface (API) or other solutions. A number of tools are available to transfer data into or out of Microsoft Dynamics CRM at low cost relative to the man-hours spent entering data and accessing and manipulating data.

Outcomes: Incomplete data fields make it difficult and costly to evaluate program results. Manual retrieval of individual application forms or contact information for participants is highly inefficient and costly for the sample sizes and number of program participants. Increased online application processing made possible with the new Focus on Energy Website should improve population of SPECTRUM fields where they exist. However, participants can still submit applications in hard-copy or PDF form and the custom program applications will not be available online at this time. In addition, SPECTRUM does not include all of the variables needed for evaluation.

Recommendation: Conduct a measure-level review of critical data needed for program analysis and evaluation to ensure it is collected, populated and accessible in SPECTRUM.

Outcomes: Tracking data for all programs is not yet available in SPECTRUM.

Recommendation: Complete the integration of program data.

Additional opportunities and recommendations are detailed in Appendix O and in individual program chapters of Volume II

Benefit/Cost Findings

As part of the 2012 evaluation activities, the Evaluation Team has reviewed the cost effectiveness of the programs. This section of the annual report presents the findings of a benefit cost analysis for Focus on Energy's 2012 program year. The 2012 benefit cost analysis used a similar, though revised, approach as compared to the 2011 program year report. The new approach uses many of the previously applied input assumptions. In the current quadrennial cycle the Program Administrator has, with PSC 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 same calculator is being used for evaluation.

The benefit cost (B/C) test, also known as a cost-effectiveness test, is used to compare the benefits of a demand side management program with the costs of the program. There are several tests used for evaluating energy efficiency cost-effectiveness. The benefit cost test approved for Focus on Energy use is based upon the total resource cost (TRC) test; a commonly administered test in the energy industry that counts the avoided cost of supplying the displaced energy against the program implementation and participant costs. The TRC test used in this evaluation is typically applied to define what is cost-effective from a regulatory perspective. The goal of a TRC test is to help answer whether energy efficiency is cost-effective overall. The TRC test measures the net costs of an energy efficiency program as a resource option based on the total program costs, both to the participants and Focus on Energy. The TRC test provides a measure of the net direct economic impact on a population- i.e. a utility service territory, county, or political districts.

The TRC is essentially the ratio of program benefits to program costs. A value greater than one translates into a program or portfolio of programs that is cost effective (net benefits are positive- TRC benefits minus costs), whereas a value less than one is not cost effective (net benefits are negative). From a TRC perspective, a conservation measure or practice "fails" if net benefits are negative, meaning the costs of achieving the savings outweigh the value of the savings achieved. The equation used for the TRC is as follows:

$$\begin{aligned} TRC \ = [&Value\ of\ Net\ Saved\ Energy\ (Avoided\ costs) \\ &+ Value\ of\ Avoided\ Emissions] \ / \ [Program\ Costs\ (exclusive\ of\ incentives) \\ &+ \ (Incremental\ Measure\ Cost\ *\ Net - to - Gross\ Ratio)] \end{aligned}$$

A more detailed discussion of the inputs to the TRC ratio is presented below and in Appendix H.

Value of Net Saved Energy

The value of energy saved, or displaced, can be defined as 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 an electric or gas utility for additional energy and capacity required if the utility would generate or purchase from another source rather than pay for the efficient measure that offsets this demand.

The source for electric energy avoided costs included in the 2012 evaluation comes from the avoided cost model annualized forecast model as developed by Cadmus. This forecast relied on the Midwest Independent Transmission System Operator, Inc. (MISO) forecast of Locational Marginal Pricing (LMP) for the years 2016, 2021, and 2026. The non-electric energy avoided costs were established by the Commission on January 13th, 2012 in Order 5-GF-191 (PSC REF#:158228). The verified gross energy savings are decreased by the conventional attribution factor of net-to-gross to derive net savings. Net savings are then increased by the line loss factor of eight percent to account for distribution losses. Table 15 shows the 2011 and 2012 avoided cost assumptions used for the cost effectiveness tests.

Table 15. Avoided Cost Comparison Between 2011 And 2012 Evaluation Reports [1]

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

[1] The value listed for electric energy of $0.041 per kWh as presented here and in the CY 2011 Evaluation Report represents a single value. In modeling the cost effectiveness a time series of values was used. Similarly the CY 2012 cost effectiveness used a times series that grows from 0.0379 to 0.0561 over 15 years in the forecast model.

Emissions Benefits

Emissions benefits are included in the TRC calculation. The emissions benefits require three key parameters: lifecycle net energy savings, emissions factors, and the value of the reduced 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 (for electric it is tons/MWH and for gas it is tons/MThm). The product of the emissions factor and the net lifecycle 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 electric emissions factors were revised from the 2011 Evaluation Report in accordance with the forecasted 2012 estimates derived from the report ***Focus on Energy Evaluation Emission Factors Update***.[3] The gas emissions factors remained constant from the 2011 evaluation report. The emissions factors and allowance prices are shown in Table 16 below.

[3] PA Consulting Group, December 22, 2009

Table 16. Emissions Factors And Allowance Price

Service Fuel Type	CO_2	NOX	SO_2
Electric Emissions Factor (Tons/ MWh)	0.83	0.0012	0.0008
Gas Emissions Factor (Tons / MThm)	5.85		
Allowance Price ($/Ton)	$30	$4.10	$1.08

The 2012 nitrogen oxides (NOx) and sulfur dioxides (SO_2) emissions allowance prices were collected from the Energy Information Administration (EIA)[4]. Due to the continued decline in and uncertainty surrounding forecasted NOx and SO_2 allowance prices the forecasted values remained constant at 2012 values. The CO_2 emissions price was derived from the PSC's order in docket 5-GF-191, Electronic Regulatory Filing System reference number 137513 that states "A levelized carbon value of $30 per ton shall be used in the benefit/cost modeling of energy-efficiency programs."

Table 17 shows total program level emissions benefits.

Table 17. Program Emissions Benefits

	Nonresidential	Residential	Total
2012 Emissions Benefits	$110,122,130	$30,961,768	$141,083,899
2011 Emissions Benefits	$84,075,436	$19,667,147	$103,742,582

Program Costs

The program costs represent all costs associated with running the efficiency and renewables programs (including administration and delivery costs). Incentive costs are not included as program costs as they are deemed transfer payments to the customer. The 2012 program costs were provided to Cadmus from the fiscal agent WIPFLI.

Table 18 shows the 2012 and 2011 program and incentive cost values used for the cost-effectiveness tests.

Table 18. Program Cost Comparison Between 2011 And 2012 Evaluation Reports

	Nonresidential		Residential	
	2012 Report	2011 Report	2012 Report	2011 Report
Incentive Costs	$31,233,437	$32,490,795	$17,540,611	$14,252,876
Admin Costs	$3,752,393	$3,760,910	$4,216,256	$2,622,411
Delivery Costs	$15,322,583	$15,357,361	$9,614,943	$5,980,265
Total Non-Incentive Program Costs	$19,074,976	$19,118,271	$13,831,199	$8,602,676

[4] http://www.eia.gov/todayinenergy/detail.cfm?id=4830

Incremental Costs

The gross incremental costs are the additional costs incurred by participants as a result of purchasing efficient equipment over and above a baseline non-qualified product. Gross incremental cost values used in this evaluation were derived from two primary sources: the Focus on Energy Benefit-Cost Analysis CY09 Evaluation Report (with the notable exception of renewable-based measures) and the program planning cost effectiveness calculators. The same CY2011 incremental cost logic was applied to all CY2012 legacy and carryover-based program measures while all new CY2012 program measures were mapped to program planning measures and received incremental cost estimates from these calculators.

Similar to the 2011 evaluation effort, the renewable energy projects received actual project cost values from the program tracking databases. 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 free-ridership. The values for attribution factors for all legacy and carry over program measures, namely the net to gross ratios, were derived from the 2010 evaluation and carried forward to the 2012 evaluation on a measure by measure basis. New CY2012 program measures received net to gross ratios according to reviews performed by the Evaluation Team.

Table 19 shows the 2012 and 2011 total measure net incremental costs used for the cost-effectiveness tests.

Table 19. Net Incremental Measure Cost Comparison Between 2011 And 2012 Evaluation Reports

	Nonresidential		Residential	
	2012 Report	2011 Report	2012 Report	2011 Report
Incremental Costs (in thousand $)	$137,324,482	$104,914,159	$44,069,866	$41,291,783

Table 20 summarizes the findings of a benefit cost analysis for Focus on Energy's 2012 year by segment with renewable measures incorporated into each sector.

Table 20. CY 2012 Costs, Benefits, And TRC Ratio By Sector (With Renewables Incorporated)

	Residential	Nonresidential	Total
Incentive Costs [1]	$17,540,611	$31,233,437	$48,774,048
Admin Costs	$4,216,256	$3,752,393	$7,968,649
Delivery Costs	$9,614,943	$15,322,583	$24,937,526
Incremental Measure Costs	$44,069,866	$137,324,482	$181,394,348
Total Non-Incentive Costs	**$57,901,065**	**$156,399,457**	**$214,300,523**
Electric Benefits	$62,982,556	$231,487,510	$294,470,066
Gas Benefits	$45,814,017	$138,965,812	$184,779,829
Emissions Benefits	$30,961,768.92	$110,122,130.32	$141,083,899
Total TRC Benefits	**$139,758,343**	**$480,575,452**	**$620,333,795**
TRC Benefits Minus Costs	**$81,857,277**	**$324,175,995**	**$406,033,272**
TRC Ratio [2]	**2.41**	**3.07**	**2.89**

[1] Incentive costs are not included in TRC calculation.
[2] TRC Ratio equals total TRC benefits divided by non-incentive costs.

Table 21 summarizes the same benefit cost analysis but provides independent resolution of the renewable measures outside of their respective segment.

Table 21. CY 2012 Costs, Benefits, And TRC Ratio By Sector (With Renewables Independent)

	Residential	Nonresidential	Renewables	Total
Incentive Costs [1]	$15,775,767	$28,090,892	$4,907,389	$48,774,048
Admin Costs	$3,792,038	$3,374,847	$801,763.59	$7,968,649
Delivery Costs	$8,647,538	$13,780,905	$2,509,082.93	$24,937,526
Incremental Measure Costs	$38,764,692	$98,249,403	$44,357,850	$181,371,944
Total Non-Incentive Costs	**$51,204,268**	**$115,405,154**	**$47,668,696**	**$214,278,119**
Electric Benefits	$61,608,536	$203,458,650	$28,298,913	$293,366,099
Gas Benefits	$45,627,166	$138,716,232	$437,000	$184,780,398
Emissions Benefits	$30,541,571	$100,147,118	$10,398,860	$141,087,550
Total TRC Benefits	**$137,777,274**	**$442,322,000**	**$39,134,773**	**$619,234,048**
TRC Benefits Minus Costs	**$86,573,006**	**$326,916,846**	**($8,533,923)**	**$404,955,929**
TRC Ratio [2]	**2.69**	**3.83**	**0.82**	**2.89**

[1] Incentive costs are not included in TRC calculation.
[2] TRC Ratio equals total TRC benefits divided by non-incentive costs.

Table 22, shows the 2012 cost-effectiveness results and the cost-effectiveness results reported for program year 2011 since the program's inception through December 31, 2012.

Table 22. Cost-Effectiveness Results

	2012 Two Segments Inclusive of Renewables	2012 Two Segments and Renewables Separate	2011 Two Segments Inclusive of Renewables	2011 Two Segments and Renewables Separate
Nonresidential	3.07	3.83	2.71	3.41
Residential	2.41	2.69	1.84	2.26
Renewables	N/A	0.82	N/A	0.52
Total	2.89	2.89	2.46	2.46

For additional details on the processes used for calculating the cost effectiveness of the Focus on Energy portfolio, please refer to the Benefit-cost Analysis: CY09 report available on the focusonenergy.com Website,[5] as well as Appendix H and Appendix I.

[5] Focus on Energy Benefit-Cost Analysis CY09 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/bcanalysiscy09_evaluationreport.pdf