STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION
101 W. WASHINGTON STREET, SUITE 1500 EAST
INDIANAPOLIS, INDIANA 46204-3407

http://www.in.gov/iurc
Office: (317) 232-2701
Facsimile: (317) 232-6758

August 15, 2014

Dear Members of the General Assembly:

The Indiana Utility Regulatory Commission ("Commission" or "IURC") hereby presents to the Indiana General Assembly, pursuant to the requirements in Ind. Code 8-1-8.5-9(j), the attached status report ("DSM Report") prepared at the Commission's direction by the Energy Center of Wisconsin ("ECW").

Senate Enrolled Act 340 became law in March 2014. In April 2014, the Commission retained the services of ECW to evaluate the data and prepare this report. ECW has been involved with the DSM docketed proceedings since 2006 and thus is thoroughly familiar with the energy efficiency and DSM programs previously approved by the Commission and offered by Indiana utilities.

The Commission hopes you find this DSM Report responsive to the statutorily-required considerations and informative on the costs and benefits of energy efficiency and DSM in Indiana. For more information on the DSM programs in Indiana and the related docketed proceedings, please visit our website at http://www.in.gov/iurc/2802.htm.

As always, we look forward to working with the General Assembly and are glad to provide additional information or further clarification if needed.

Sincerely,

Carol A. Stephan

Carol A. Stephan
Commission Chair
Indiana Utility Regulatory Commission
101 W. Washington St., Suite 1500E
Indianapolis, IN 46204
(317) 234-4715
cstephan@urc.in.gov

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Energy Center of Wisconsin

Indiana's Core and Core Plus Energy Efficiency Programs

Benefits, Costs and Savings

August 14, 2014

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Authors

Steve Kihm, Energy Center of Wisconsin

Melanie Lord, Energy Center of Wisconsin

749 University Row, Suite 320

Madison, WI 53705

608.210.7120

www.ecw.org

Project Manager

Steve Kihm

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INTRODUCTION

The Indiana Utility Regulatory Commission (Commission) opened an investigation into Indiana Demand Side Management (DSM) activities in 2004 (Cause No. 42693), and in 2006 directed Commission staff to assess the current state of DSM activities in the state through two phases. DSM in this context broadly refers to the implementation of activities designed to encourage consumers to reduce their electricity use. During the first phase, the Commission reviewed the status of current DSM efforts in Indiana, identified alternative models for DSM program administration and delivery, and developed recommendations for enhancing Indiana DSM efforts. Primary findings from Phase I were that, compared with other states, Indiana showed relatively low levels of energy savings, low levels of spending on DSM initiatives, and an inconsistent patchwork of program offerings. It is important to acknowledge that after the Phase I report was completed, a number of electric utilities in Indiana completed energy efficiency potential studies, and several utilities filed proposals for new DSM initiatives before the Commission. The Commission issued its Order in Phase I of Cause No. 42693 in April 2008, with the decision to commence a second phase of the proceeding.

Phase II of the proceeding considered approaches for addressing key issues discussed in the Phase I assessment, and pertained only to electricity and steam providers in Indiana. The goal of Phase II was to develop a path for improving existing approaches to electric DSM in Indiana. From November 2008 through February 2009, a series of three technical workshops were conducted with stakeholders to solicit feedback on how to address Indiana's relatively low level of DSM spending and relatively high energy consumption, as compared with other states; evaluate alternative mechanisms for addressing the inconsistent patchwork of DSM programs in Indiana; and consider the formation of an oversight board to oversee development of a more uniform statewide approach to electric DSM.

The Commission issued its order in Phase II of Cause No. 42693 in December 2009 and mandated electric utilities in Indiana to achieve significant energy savings. Key elements of the order included:

- Achievement of energy savings equal to 2% of electric sales by December 2019
- Development of a portfolio of uniform statewide DSM programs, known as the "Core" programs
- Requirement for the utilities to utilize a Third Party Administrator for the offering of the Core programs and an independent Evaluation, Measurement and Verification Administrator
- Establishment of the Demand Side Management Coordination Committee (DSMCC) to oversee implementation of the Core programs by the Third Party Administrator
- Allowance for utility-specific programs known as "Core Plus" programs

The decision to establish statewide energy efficiency programs was the result of:

a) The statutory requirement of IC 8-1-8.5, the certificate of need law, that enables Indiana's utilities to recover the costs of building electrical generating facilities and the ensuing requirements that utilities consider the availability and cost-effectiveness of alternative sources, including energy efficiency, to meet the state's energy needs;

b) The subsequent observation of variation and inconsistency among Indiana's electric utilities in implementing energy efficiency programs to reduce energy use and meet future energy needs; and

c) Subsequent findings from Commission investigations that significant reservoirs of untapped cost-effective energy efficiency potential existed throughout Indiana and that a uniform approach to providing energy efficiency programs would benefit Indiana by addressing its high energy

consumption, creating economic benefits through reduced electricity usage, providing equity and consistency in program offerings for customers, and addressing environmental issues.

In 2012, Indiana utilities began offering customers a portfolio of energy efficiency programs (Core) as one path to providing "least-cost" reliable and efficient electric service. These programs were funded from utility revenues and administered by GoodCents, a company that markets and implements energy efficiency programs for utilities, with oversight provided by the DSMCC. Savings from the programs were evaluated, measured, and verified by an independent contractor, TecMarket Works. Pursuant to SEA 340 all Core programs are scheduled to end December 31, 2014.

This report presents the benefits, costs and energy savings of the Core and Core Plus programs.

CORE PROGRAMS

Indiana's statewide Core programs consists of five programs serving residential, commercial and industrial (C&I), low income customers, and schools. The five Core programs are:

- ***Residential Home Energy Assessment*** (HEA): Free walk-through energy audit to analyze participant energy use; efficiency measures or upgrades recommended; low-cost, energy-saving measures installed (low-flow showerheads, CFL bulbs, hot water pipe wrap, and sink aerators).
- ***Residential Lighting***: The program works with retailers and manufacturers across the state to offer reduced prices at the point-of-sale on a variety of lighting products: CFLs, light-emitting diodes (LEDs), and lighting fixtures.
- ***Commercial and Industrial Prescriptive Rebate***: Rebates are available to facilities for installing energy-efficiency equipment and system improvements. Upgrades can include Lighting, Variable Frequency Drives (VFDs), HVAC, and efficient ENERGY STAR® commercial kitchen appliances.
- ***Residential Low-Income Weatherization***: Free walk-through home energy assessment that includes all HEA elements, plus full diagnostic testing (blower-door) of the home. Auditors recommend weatherization measures or upgrades, install low-cost, energy-saving measures (energy-efficient showerheads, CFL bulbs, sink aerators, pipe wrap, water heater tank wrap and air sealing). Eligible homes may also receive attic insulation through the program.
- ***Energy Efficient Schools***: This program has two components (1) Education teaches fifth-grade students about energy efficiency and how they can make an impact at school and home. Participating schools receive classroom curriculum and take-home efficiency kits; and (2) Schools Audit and Direct Install works with schools to assess all energy systems to determine if they operate efficiently. Assessment results guide schools to install appropriate upgrades and rebates available through the C&I program. The schools also receive a bundle of direct-install measures at no cost.

Six utilities participate in the Core programs:

- Duke Energy of Indiana, Inc. (Duke)
- Indiana Michigan Power Company (I&M)
- Indiana Municipal Power Agency[1]
- Indianapolis Power & Light Company (IPL)
- Northern Indiana Public Service Company (NIPSCO)
- Vectren Energy Delivery of Indiana, Inc. (Vectren)

[1] Indiana Municipal Power Agency discontinued its participation after two years, ending December 31, 2013.

CORE PROGRAM BENEFITS

The Core programs provided positive net benefits for the Hoosier state. In the aggregate, these programs returned as much as $3.00 in benefits for each dollar spent from 2012 through 2013. The Core program for commercial and industrial customers provided the most benefits—as much as $5.49 for each dollar spent.

The benefits of energy efficiency programs in Indiana are determined using four different cost-effectiveness tests:

- Total resource cost test (TRC)
- Participant cost test (PCT)
- Utility cost test (UCT)
- Ratepayer impact measure test (RIM)

Each of these tests is designed to compare costs and benefits from a different perspective. The TRC test helps determine whether energy efficiency is cost-effective overall; the PCT, UCT and RIM tests help to determine whether the program design and efficiency measures provided by the program is balanced from the perspectives of the participant, the utility and non-participants. Following is a summary of what each test is designed to do.

Table 1. Cost-effectiveness tests

Test	Approach	Question Answered
TRC	Compares program administrator and customer costs to utility resource savings	Will the total costs of energy in the utility service territory decrease?
PCT	Compares costs and benefits from the perspective of the customer installing the measure	Will the participant benefit over the measure life?
UCT	Compares program administrator costs to supply-side resource costs	Will utility bills increase?
RIM	Compares administrator costs and utility bill reductions to supply-side resources	Will utility rates increase?

The purpose of applying several different tests is to provide a more comprehensive analysis of cost-effectiveness than can be accomplished with just one of the tests. A benefit-cost ratio above 1.00 indicates that the program has positive net benefits; a benefit-cost ratio below 1.00 indicates that costs exceed benefits.

At the state level, the Core programs are cost-effective under three of the four tests (TRC, PCT, and UCT). As a rule, energy efficiency programs across the country, not just in Indiana, do not pass the RIM test because energy efficiency programs attempt to minimize bills, not rates (this is discussed in detail later in this report). Additionally, low-income programs are generally not held to the same cost-effectiveness standards since it is in the public interest to provide these programs.

Table 2 presents the results of the benefit-cost tests for each of the Core programs.

Table 2. Core program cost-effectiveness test results

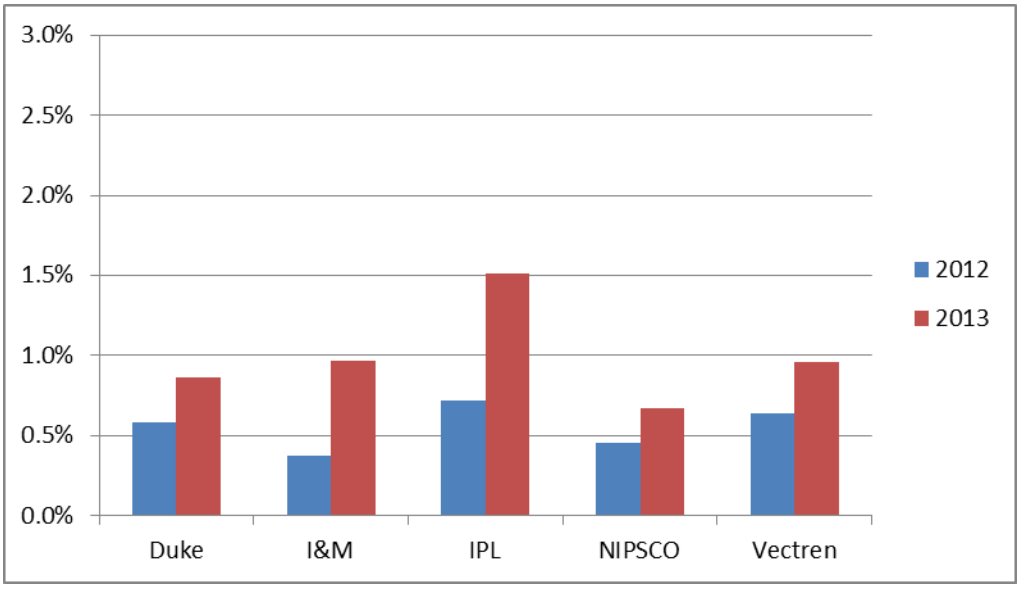
Core Program Cost-Effectiveness 2012 + 2013					
Test	**PCT**	**UCT**	**RIM**	**TRC**	**Benefit (based on TRC)**
Non-Residential Programs					
Commercial & Industrial Incentives	7.67	5	0.97	5.49	$5.49 for every $1.00 spent
School Building Assessments	NA	1.21	0.56	1.21	$1.21 for every $1.00 spent
Residential Programs					
Residential Lighting	5.02	3.24	0.81	3.03	$3.03 for every $1.00 spent
Low Income Weatherization	NA	0.88	0.49	0.88	Provides a public interest benefit
Home Energy Audit	NA	1.1	0.57	1.1	$1.10 for every $1.00 spent
School Energy Efficiency Kit	NA	2.42	0.81	2.42	$2.42 for every $1.00 spent
Total Portfolio	8.24	2.94	0.84	3.02	$3.02 for every $1.00 spent

CORE PROGRAM COSTS

Expenditures for the Core programs were $128,168,692 from 2012 through 2013, excluding money spent to brand the programs.

One means of understanding these expenditures is to compare them to the total revenues collected by the utilities. Figure 1 shows that spending on the Core programs falls between just above 0.3 percent to 1.5 percent of utility revenues.

Figure 1. Percent of spending on Core programs compared to total utility revenues for 2012 and 2013



Expenditures for 2012 and 2013 for each of the Core programs are shown in Table 3.

Table 3. Core program expenditures for 2012 and 2013

Program	2012 Expenditures	2013 Expenditures
Home Energy Assessment	$10,149,143	$25,174,399
Low-Income Weatherization	$5,875,819	$7,222,297
Energy Efficient Schools	$7,302,788	$8,283,575
Residential Lighting	$6,200,456	$7,763,131
Commercial and Industrial	$12,868,681	$37,328,403
Branding	$689,544	$344,778
	$43,086,431	$86,116,583

Costs for Core Program Administration and Evaluation

The costs to provide energy efficiency programs to Indiana electricity consumers include expenditures associated with the independent administrator that facilitates coordination among utilities to deliver the five Core programs statewide and costs to measure the effectiveness of the programs. The Commission considered several different models for administering and delivering the Core programs. A third-party administrator was chosen because it assured uniform and systematic implementation of the Core programs; coordinated utilization of technologies and research, market assessments, and potential studies; created administrative efficiencies; facilitated coordination and consistency across participating utilities and throughout the state; and provided an opportunity for non-jurisdictional utilities to participate. GoodCents was chosen through a competitive bidding process conducted by the DSMCC and approved by the Commission.

The main cost categories for the third-party administrator, GoodCents, are program start-up, branding and program incentives. Start-up costs generally include program design, program staffing, and developing relationships with businesses that will be integrated into the program—essentially any activity needed to get the program up and running. Branding costs cover activities to establish brand recognition among consumers in order to successfully market the programs and ensure participation. Costs for program incentives are payments offered as an inducement to consumers to participate in a program and generally are pass-through dollars and not part of the costs of administering an energy efficiency program.

Additionally, Indiana's investor-owned utilities pay for an independent contractor to evaluate the performance of the Core programs, measure the effectiveness of the programs, and verify the energy savings achieved. Like GoodCents, TecMarket Works was retained through a competitive bidding process as the evaluator for the Core programs and these costs are included in the costs to administer the programs.

Three of Indiana's investor-owned utilities separate out program incentive payments for the Core programs from the administrative costs they pay to GoodCents. The other two utilities include program incentives for the residential and school programs in the overall price they pay to GoodCents to administer those programs. Thus we were able to draw conclusions on program administration costs and trends from only three of the utilities since program incentives are pass-through dollars and not included in the overall cost to administer the Core programs. Program administrative costs for these three utilities range between 48 percent and 76 percent of the total costs paid to GoodCents and TecMarket Works.

For 2014 alone, the administration costs for these utilities dropped to between 45 percent and 68 percent of their total costs paid to GoodCents and TecMarket Works. Costs for administering energy efficiency

programs are higher in the beginning because of program start-up and branding costs. As programs mature the third-party administrator no longer incurs start-up costs and branding costs decline. Costs for evaluating and measuring the effectiveness of the Core programs amounts to 3 percent of their total costs (costs paid to GoodCents plus costs paid to TecMarket Works).

CORE PROGRAM ENERGY SAVINGS

Indiana's Core programs targeted electrical energy use. The savings from these programs are measured in terms of the amount of energy (kilowatt hours or kWh) that consumers do not use as a result of the program and the reduction in peak demand[2] (kilowatts or kW) that the utility no longer needs to meet in order to satisfy customer demand (the utility's capacity requirement).

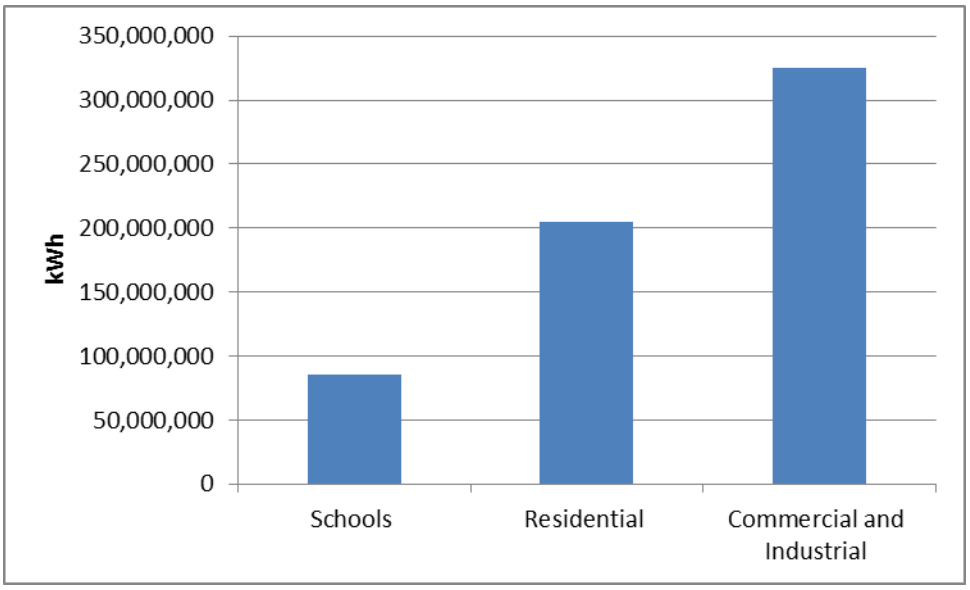
The Core programs achieved estimated energy consumption savings of 615,572,675 kWh and reduced demand by 139,337 kW from 2012 through 2013. These savings resulted from energy efficiency programs targeting residential (including low income), C&I customers, and schools.

The programs targeting C&I customers achieved estimated energy consumption savings of 325,512,974 kWh and demand savings of 101,074 kW from 2012 through 2013.

The programs targeting residential (including low income) customers achieved estimated energy consumption savings of 204,654,642 kWh and demand savings of 27,792 kW from 2012 through 2013.

The schools program achieved estimated energy consumption savings of 85,405,059 kWh and demand savings of 10,470 kW from 2012 through 2013.

Figure 2. Core Program energy consumption savings, 2012 - 2013



[2] Demand is the rate of using electricity. The rate at which some customers, particularly industrial and commercial customers, use electricity can vary dramatically. Some need large amounts of electricity once in a while–others use electricity at a constant rate. Since electricity cannot be stored, the utility needs to have enough capacity to meet the highest (peak) demand of their customers.

EFFICIENCY GAINS FROM FEDERALLY-FUNDED PROGRAMS

One of the Core programs, Residential Lighting, encourages homeowners to replace inefficient incandescent light bulbs with energy efficient compact fluorescent bulbs. Because of the Energy Independence and Security Act (EISA) passed in 2007, the Core program evaluator, TecMarket Works, had to account for the effects of this legislation on the supply of incandescent light bulbs available to Indiana consumers. EISA restricted retail sales of standard incandescent light bulbs to those incandescent bulbs remaining in the supply chain. No new standard incandescent bulbs can be manufactured, distributed or sold in the United States.

The energy savings baseline for the Core Residential Lighting program had to reflect the market and the available products. If standard incandescent light bulbs were no longer available, then savings from replacing an incandescent bulb with a more efficient CFL bulb could not be used to estimate program savings. As a result of research conducted by TecMarket Works, adjustments were made to the 2013 savings analysis for the Residential Lighting program. See Appendix A for a more detailed account of the research and the adjustments made to the savings estimate.

CORE PLUS PROGRAMS

In 2010, many of Indiana's investor-owned utilities began offering programs, or increased their offering of programs, to help their customers reduce energy use. The utilities continued to offer their own programs after the inception of the statewide Core programs in 2012. These Core Plus programs are meant to complement the Core programs, not overlap with them.

CORE PLUS PROGRAM BENEFITS

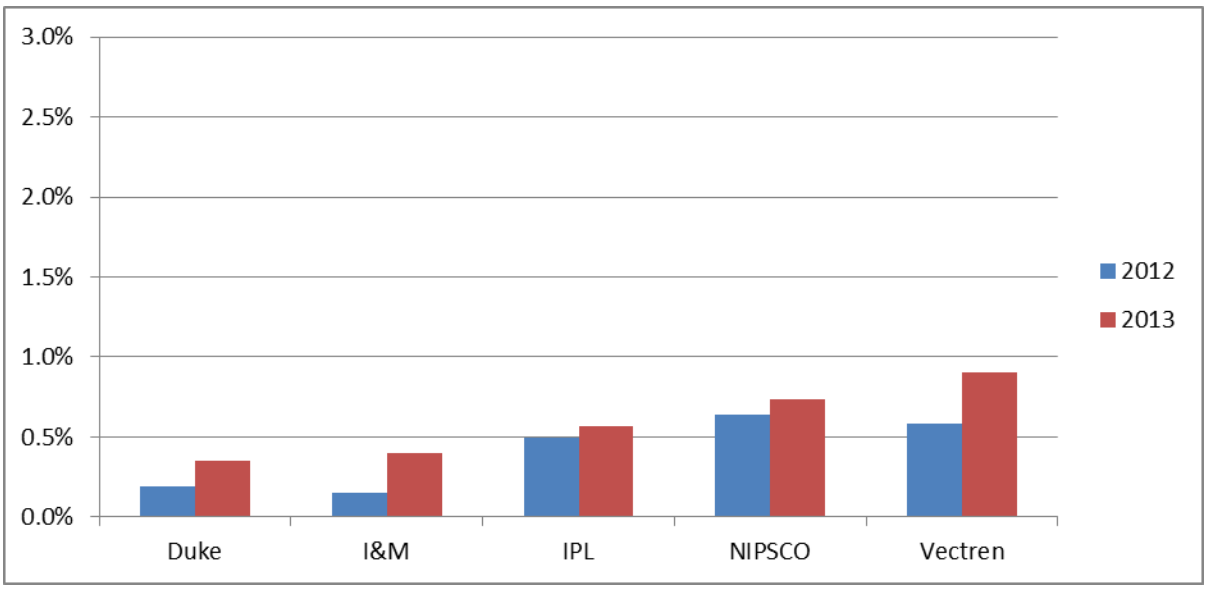
Program benefits for the Core Plus programs are reported by individual utilities for various years. While all programs generated net benefits at the portfolio level, some utilities were more successful than others. For example, NIPSCO in 2011 (latest data available for that utility) generated $1.03 of benefits for every dollar spent. Similarly, I&M in 2012 (2013 data not yet available) generated $1.07 of benefits for every dollar spent. In contrast, Vectren in 2013 generated $1.37 of benefits for every dollar spent. For the years 2012 and 2013, IPL generated $1.68 and $1.44 of benefits, respectively. For the combined years 2012 and 2013, each dollar Duke spent on its Core Plus program portfolio generated $2.09 of benefits.

CORE PLUS PROGRAM COSTS

Since 2010, Indiana's five investor-owned utilities have spent $161,561,886 on energy efficiency programs for their customers. For the years 2012 through 2013, spending on Core Plus programs was $71,148,142.

Figure 3 shows that spending on the Core Plus programs for 2012 and 2013 ranged between 0.15 percent and just under 1.00 percent of utility revenues.

Figure 3. Percent of spending on Core Plus programs compared to total utility revenues for 2012 and 2013



Expenditures for 2010 through 2014 year-to-date for the Core Plus programs for each of the utilities are shown in Table 4.

Table 4. Core Plus program expenditures

Utility	Program Expenditures				
	2010	2011	2012	2013	2014 Total YTD
Duke	$2,321,370	$2,414,769	$5,219,976	$10,200,907	$31,963,190
I&M	$338,226	$733,105	$3,147,257	$9,154,132	$5,896,710
IPL	$1,947,000	$3,377,000	$6,038,000	$7,154,000	$13,787,000
NIPSCO	$178,451	$3,955,858	$9,675,149	$11,505,721	$19,302,065
Vectren	$655,000	$1,419,000	$3,478,000	$5,575,000	$2,125,000
Total	**$5,440,047**	**$11,899,732**	**$27,558,382**	**$43,589,760**	**$73,073,965**

CORE PLUS PROGRAM SAVINGS

The Core Plus programs achieved estimated energy consumption savings of 730,370,000 kWh and demand savings of 210,895 kW from 2010 through 2013. For the years 2012 through 2013, the Core Plus programs achieved estimated energy consumption savings of 579,653,000 kWh and demand savings of 119,850 kW.[3]

Utilities are required to file annual program updates with the Commission on progress towards the energy savings targets and expenditures for their respective program portfolios. These updates include data on Core Plus programs for the years 2010, 2011, 2012, 2013 and 2014 (YTD). Table 5 shows energy consumption savings for each utility for their Core Plus programs.

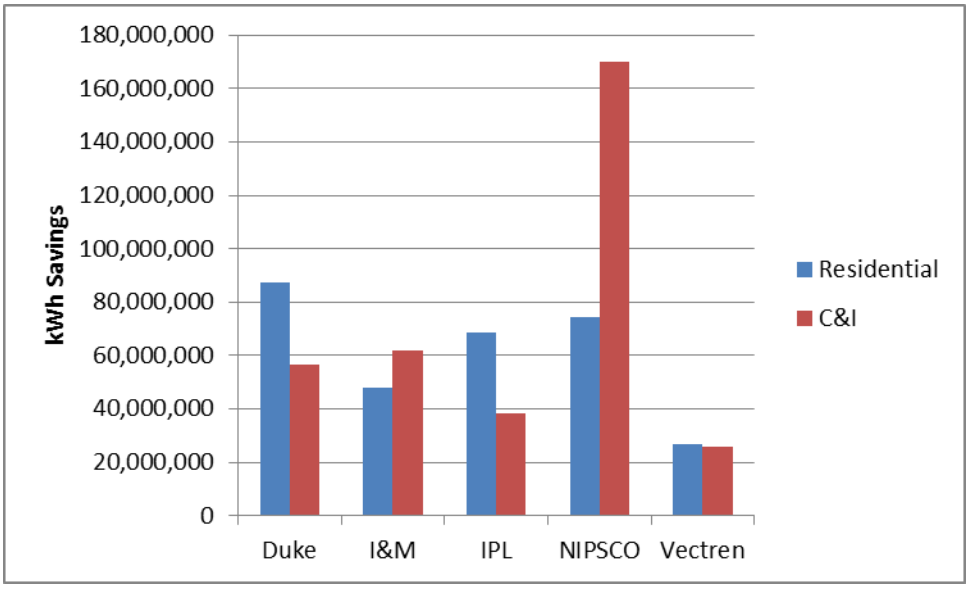
[3] Does not include 2012 kW for NIPSCO.

Table 5. Core Plus programs' statewide savings

Utility	Gross kWh Savings				
	2010	2011	2012	2013	2014 YTD[4]
Duke	5,288,000	3,648,000	53,318,000	81,720,000	15,888,000
I&M	4,003,000	3,475,000	12,876,000	89,718,000	Not reported
IPL	3,346,000	22,909,000	36,019,000	44,930,000	21,193,000
NIPSCO	2,414,000	34,495,000	59,504,000	157,468,000	26,074,000
Vectren	2,269,000	6,046,000	17,452,000	26,648,000	9,222,000
Total	**17,320,000**	**70,573,000**	**125,851,000**	**400,484,000**	**72,376,000**
				Total All Utilities 2010 – 2014 YTD	**686,604,000**

The Core Plus programs targeted C&I and residential customers. Estimated program savings for 2010 through 2013 by sector for each utility are shown in Figure 4.

Figure 4. Energy consumption savings by sector for each utility: 2010 - 2013



COST SHIFTS AMONG CUSTOMER CLASSES

Energy efficiency in Indiana is a demand side resource acquired by the utility and funded by its customers. Thus, the costs associated with providing programs to customers to help them reduce their energy consumption, are recovered by the utility through its periodic energy efficiency rate adjustment mechanism. Indiana law allows utilities to use rate adjustment mechanisms (which are separate from a utility's base rates) to adjust electric rates up or down depending on specific cost adjustments, such as energy efficiency charges. Each utility's cost assignment methodology allocates program costs to the relevant customer classes.

[4] Year to date for Duke ends March 31, 2014; May 31, 2014 for IPL and Vectren; April 30, 2014 for NIPSCO.

There are three general categories of customer classes benefiting from energy efficiency programs: residential, commercial, and industrial customers. In general, each customer category pays for the programs that benefit them. Depending on the utility, costs are assigned by individual rate schedule.[5]

For Vectren, energy efficiency rates are adjusted annually and adjustment requests by Vectren are filed under Cause No. 43405. Vectren's rate schedules include residential, electric water heating, small general service, demand general service, off season service, large power service and high load factor. The method by which program costs are allocated across customer classes was approved in Cause No. 43938. Program costs are allocated on the basis of estimated energy and demand savings to be realized from the programs. For example, energy related program costs are allocated only to the rate schedules to which energy savings programs are applicable. Demand related costs are allocated to all rate schedules.

For Duke, energy efficiency rates are adjusted annually and adjustment requests by Duke are filed under Cause No. 43955. Duke's rate schedules include residential (including farm service), commercial electric service, low load factor service, and high load factor service. The method by which costs associated with energy efficiency programs are allocated across customer classes was approved in Cause No. 43955. Rates are established for all customer classes by using the costs allocated to the class divided by kilowatt hour sales, resulting in one rate for residential customers covering the costs of residential energy efficiency programs and one rate for commercial and industrial (C&I) customers covering the costs of C&I programs.

For IPL, energy efficiency rates are adjusted semi-annually and adjustment requests are filed under Cause No. 43623. IPL's rate schedules include residential, small C&I, and large C&I. The method by which costs associated with energy efficiency programs are allocated across customer classes was approved in Cause No. 43623 Phase I. For all residential and some C&I programs the costs are directly assigned to the appropriate rate schedule. The remaining C&I programs are allocated between IPL's small C&I customers and large C&I customers based upon each of the class's share of the 12 monthly average system peak usage.

For NIPSCO, energy efficiency rates are adjusted semi-annually and adjustment requests by NIPSCO are filed under Cause No. 43618. In general, NIPSCO rate schedules include residential, residential with heat pump, commercial service, general service, metal melting service, off peak service and industrial service. The method by which costs associated with energy efficiency programs are allocated across customer classes was approved in Cause No. 43618. NIPSCO allocates energy efficiency program costs by program to the individual rate schedule based on the number of customers in each eligible schedule. For programs that are applicable to a specific rate schedule, NIPSCO assigns 100 percent of the costs to that specific rate schedule. For programs applicable to more than one rate schedule, NIPSCO bases the percentage of costs allocated to each rate schedule on the calculation of the number of customers in each schedule as a proportion of the total number of customers eligible for that program. For example, one C&I offering, the Custom Incentive Program, involves customers in several rate schedules. Therefore the costs are spread proportionately among those rate schedules.

For I&M, energy efficiency rates are adjusted annually and adjustment requests are filed under Cause No. 43827. I&M's rate schedules include residential, general service, large general service, industrial power, municipal and schools, water and sewage service, irrigation service and electric heating general. The method by which costs associated with energy efficiency programs are allocated across customer classes was approved in Cause No. 43827. Residential direct program costs are allocated to the residential class

[5] In general, a rate schedule is a statement of electric rates for a group of customers with specific characteristics. For example, the commercial customer class is broken into a number of rate schedules differentiated by the amount of energy consumed and peak demand. Each schedule also includes the terms and conditions governing electric service.

and C&I direct program costs are allocated to the C&I customer classes excluding non-metered customers. Indirect costs for the school energy education program are allocated entirely to the residential class. Seventy-five percent of all other indirect costs are allocated to the residential class with the remaining 25 percent of all indirect costs allocated to C&I customers.

IMPACT OF PROGRAM COSTS ON CUSTOMER RATES

As required by the 2009 DSM order, each investor owned utility filed a three year energy efficiency plan indicating its proposal for statewide Core and utility-led Core Plus programs intended to reach the annual savings targets over a three year period. Included in each plan are the energy savings forecasts and spending budgets for that three year period, associated with its share of the statewide Core and Core Plus programs. Prudently incurred costs are recovered by the utility through its periodic energy efficiency rate adjustment mechanism. Energy efficiency charges become effective for all customer bills rendered beginning with the utility's first billing cycle following a Commission order approving such charges.

C&I CUSTOMERS

For comparative purposes, data is presented from a sample of those customers at a single point in time because there is no typical commercial or industrial electricity customer. Based on the utility's service territory and the characteristics of its business customer base, rates are designed to serve a diverse set of energy needs. For example, an IPL customer classified as Industrial will have a very different rate design and consumption levels than a NIPSCO customer classified as Industrial.

The charts below show for each utility, a representative sample of a commercial customer and an industrial customer consuming a specified level of energy, the total bill amount for a specific time period and what portion (dollar amount and percent) is attributable to statewide Core programs and utility-led Core Plus programs.

For purposes of the charts in this section, note that negative charges such as the amount reflected in 2014 represents an over-collection by the utility. This occurs when estimated costs collected by the utility are greater than actual costs. Amounts representing an over-collection are netted against current cost amounts. If the net amount is negative, energy efficiency charges will decrease for applicable billing period.

Duke submitted data on bill impacts covering April 2012-January 2014. Duke files for energy efficiency rate adjustments annually. Accordingly, energy efficiency rates are effective for twelve months until new rates are approved.

Figure 5. Duke Commercial Customers Consuming 7,500 kWhs

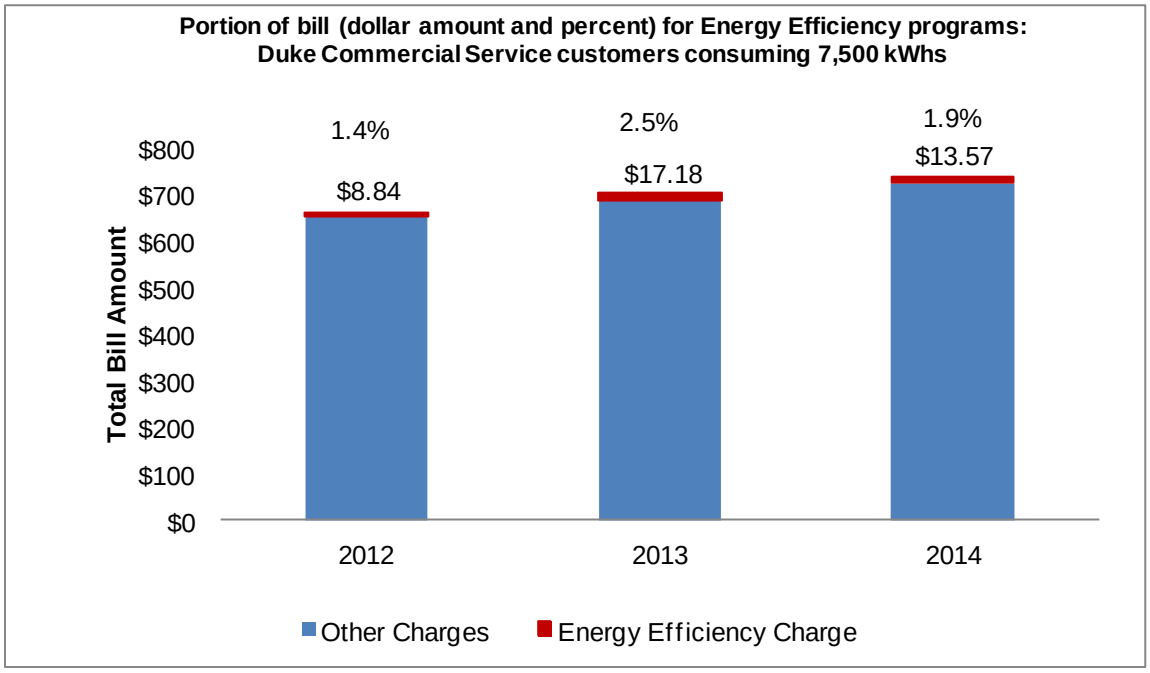
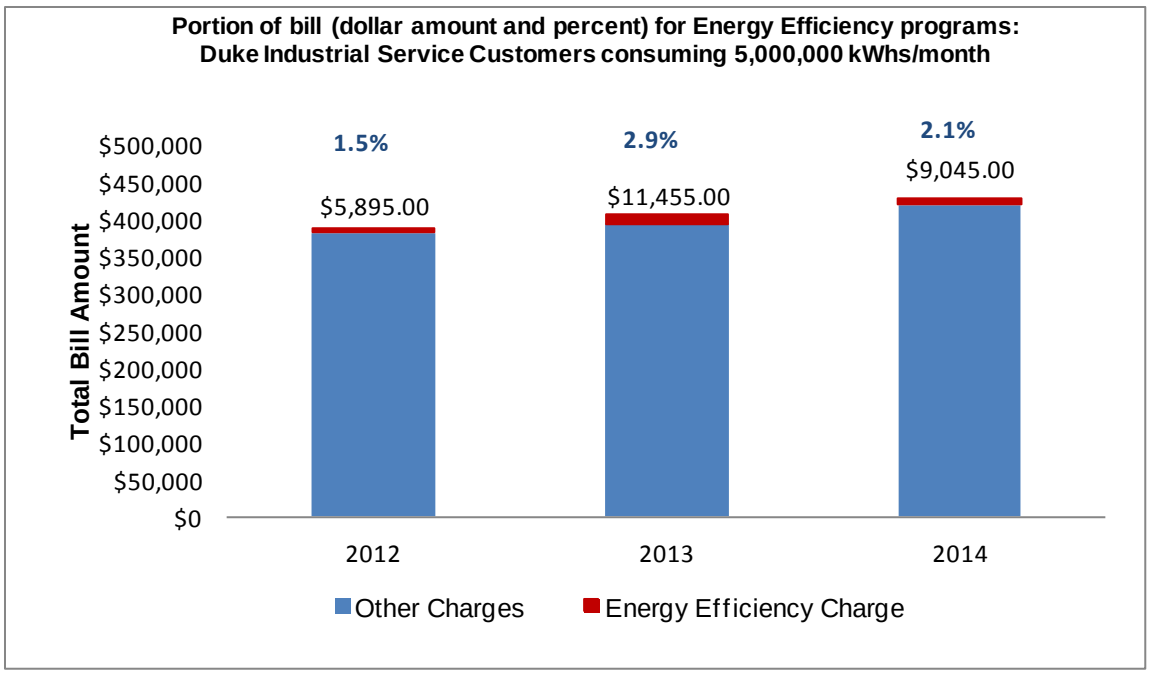


Figure 6. Duke Industrial Customers Consuming 5,000,000 kWhs



IPL submitted data on bill impacts covering July 2010-January 2014. IPL files for energy efficiency rate adjustments semi-annually. Accordingly, energy efficiency rates are effective for six months until new rates are approved.

Figure 7. IPL Customers Consuming 10,000 kWhs

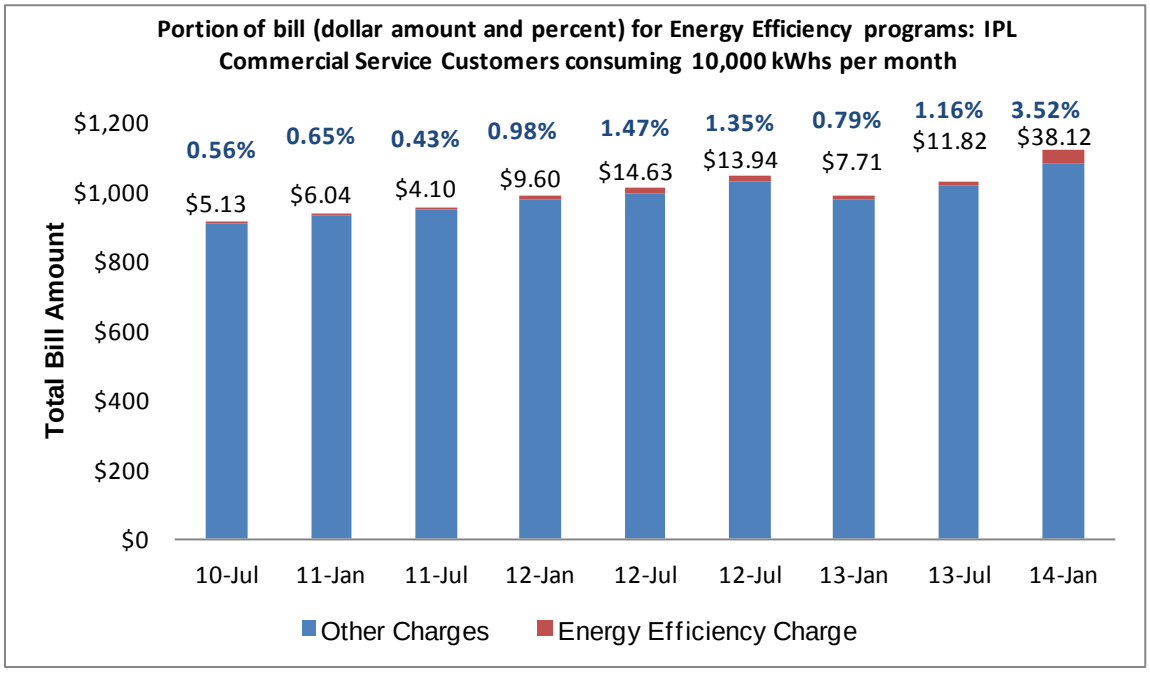
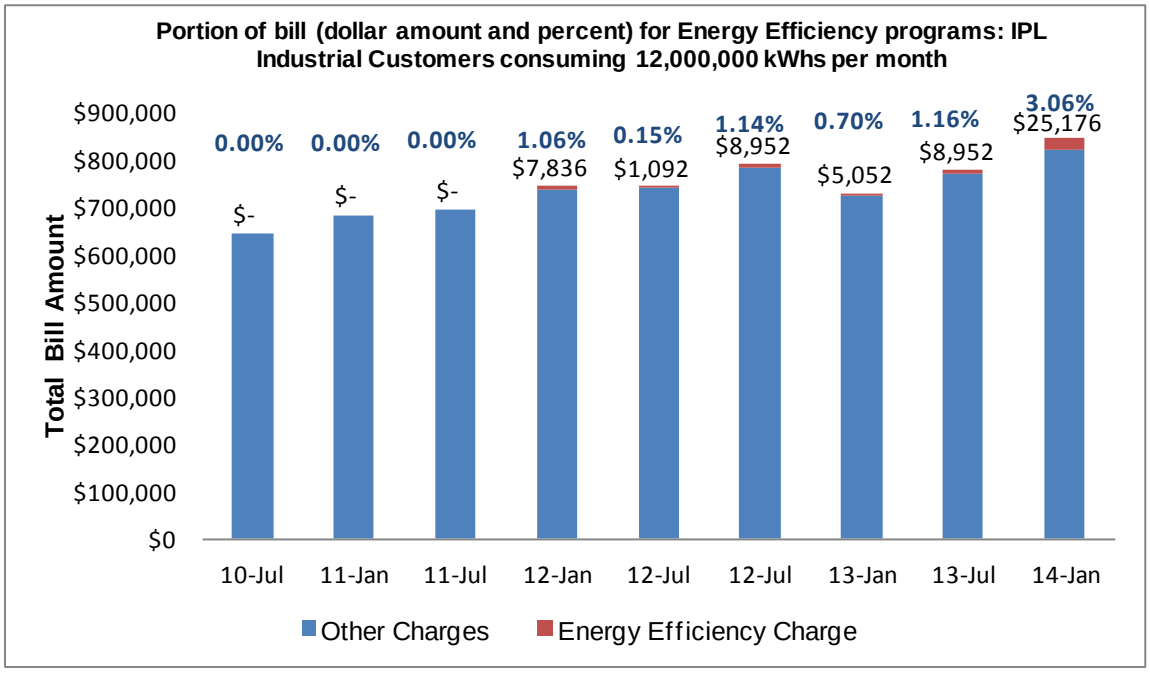


Figure 8. IPL Industrial Customers Consuming 12,000,000 kWhs



I&M submitted data covering November 2010-January 2014. I&M files for energy efficiency rate adjustments annually. Accordingly, energy efficiency rates are effective for twelve months until new rates are approved.

Figure 9. I&M Commercial Customers Consuming 2,500 kWhs

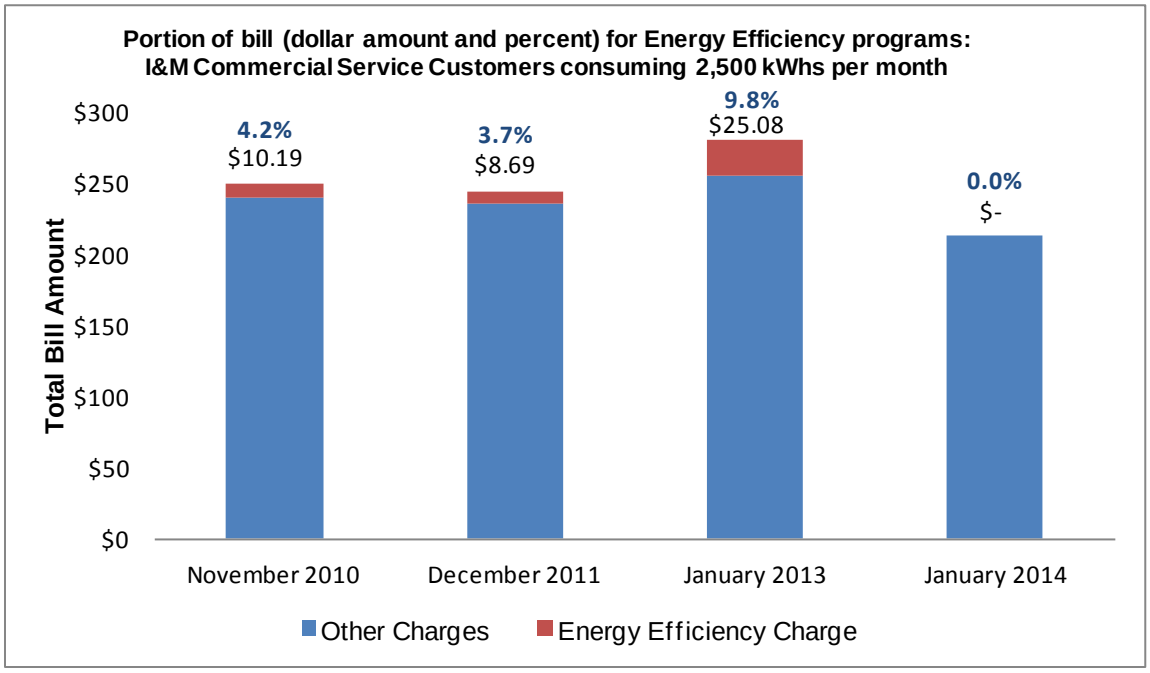
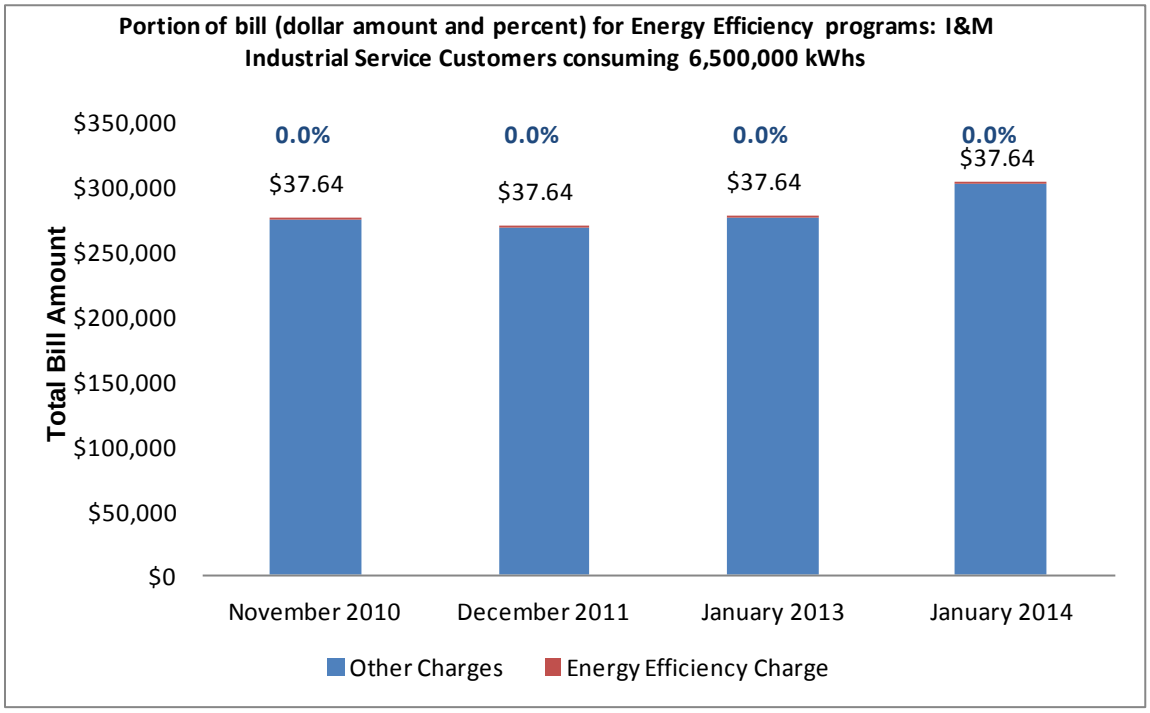


Figure 10. I&M Industrial Customers Consuming 6,500,000 kWhs



NIPSCO submitted data from October 2011-January 2013. NIPSCO files for energy efficiency rate adjustments semi-annually. Accordingly energy efficiency rates are effective for six months until new rates are approved.

Figure 11. NIPSCO Commercial Customers Consuming 10,000 kWhs

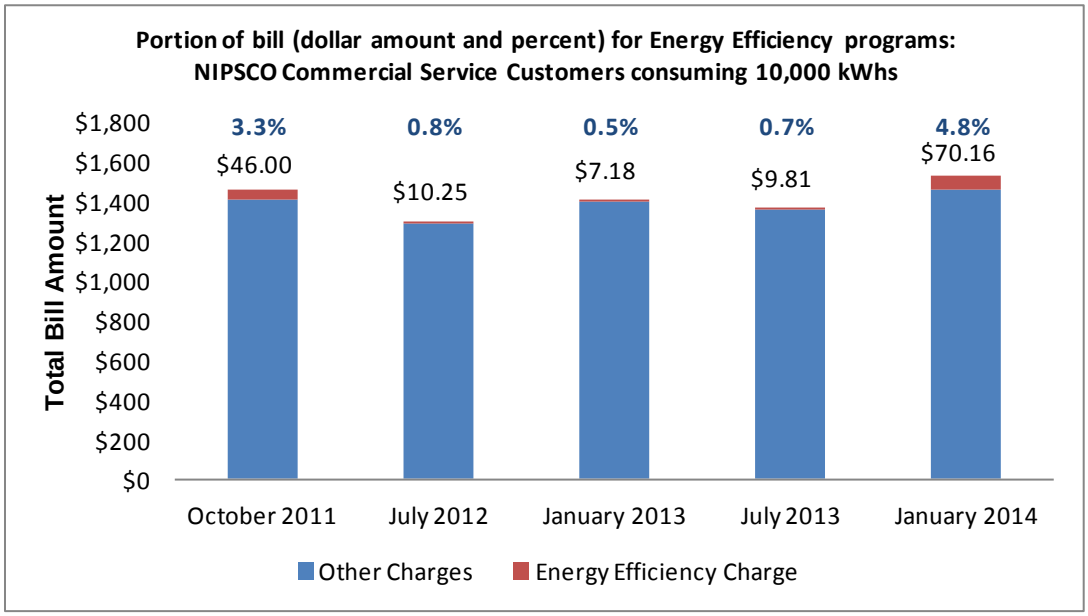
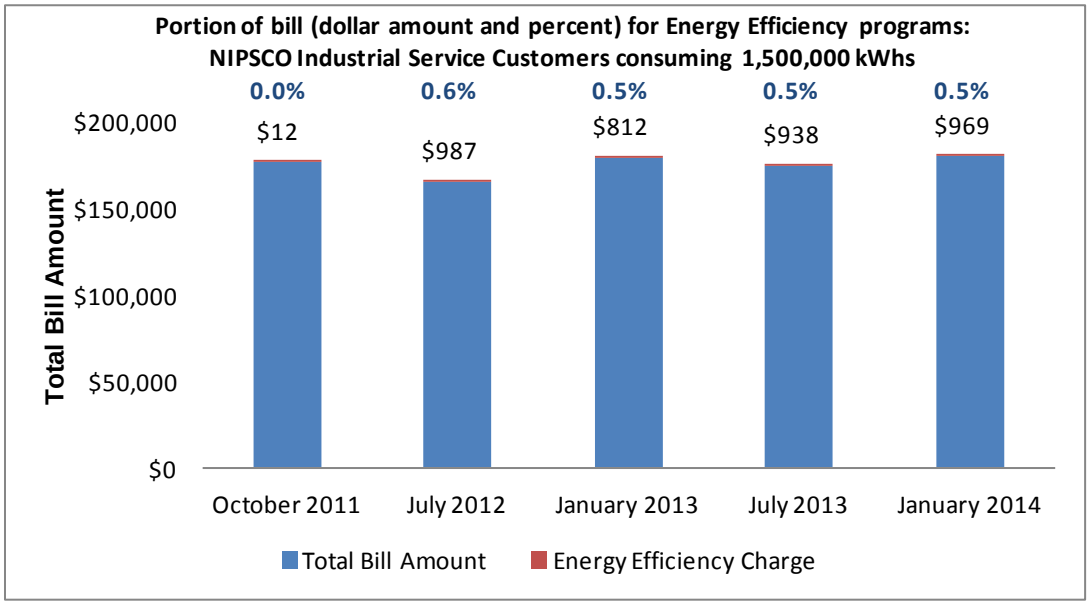


Figure 12. NIPSCO Industrial Customers Consuming 1,500,000 kWhs



Vectren submitted data covering the March 2010-September 2013. Vectren files for energy efficiency rate adjustments semi-annually. Accordingly energy efficiency rates are effective for 6 months until new rates are approved.

Figure 13. Vectren Commercial Customers Consuming 4,009 kWhs[6]

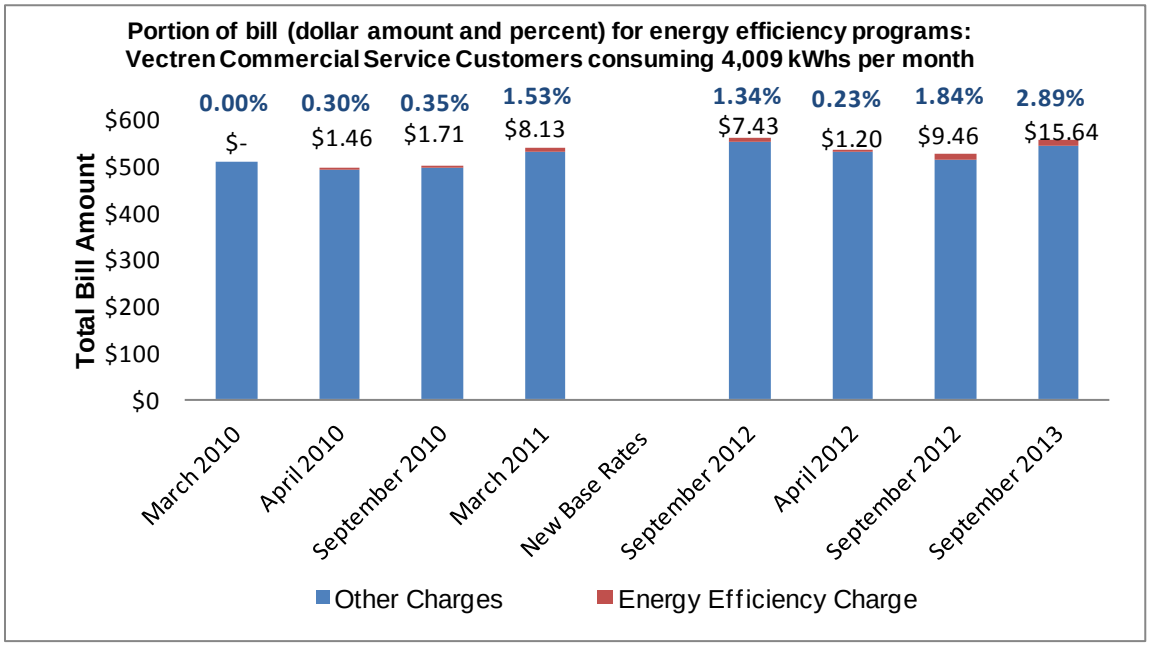
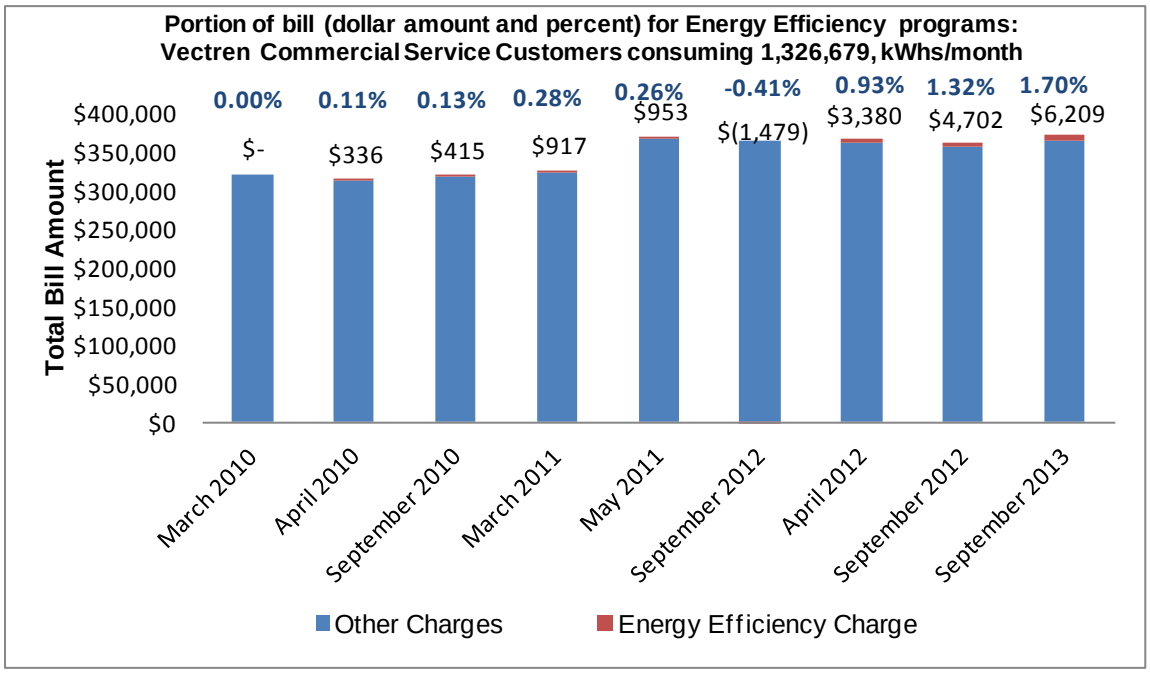


Figure 14. Vectren Industrial Customers Consuming 1,326,679 kWhs



[6] As part of its rate case, Vectren re-designed rates for this customer class. The gap between March 2011 and September 2012 indicates when new base rates took effect following the rate case Order, issued April 27, 2011 under Cause No. 43839.

RESIDENTIAL CUSTOMERS

Residential data is based on the typical usage level of 1,000 kWh's per month.

Figure 15. Duke Residential Customers

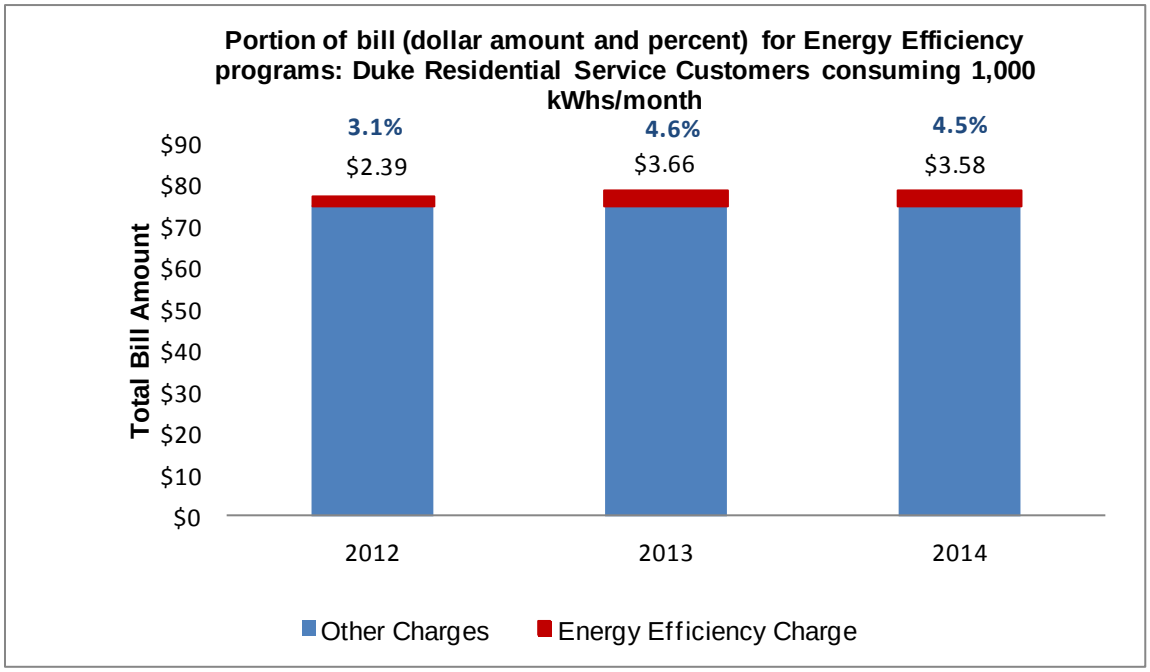


Figure 16. IPL Residential Customers

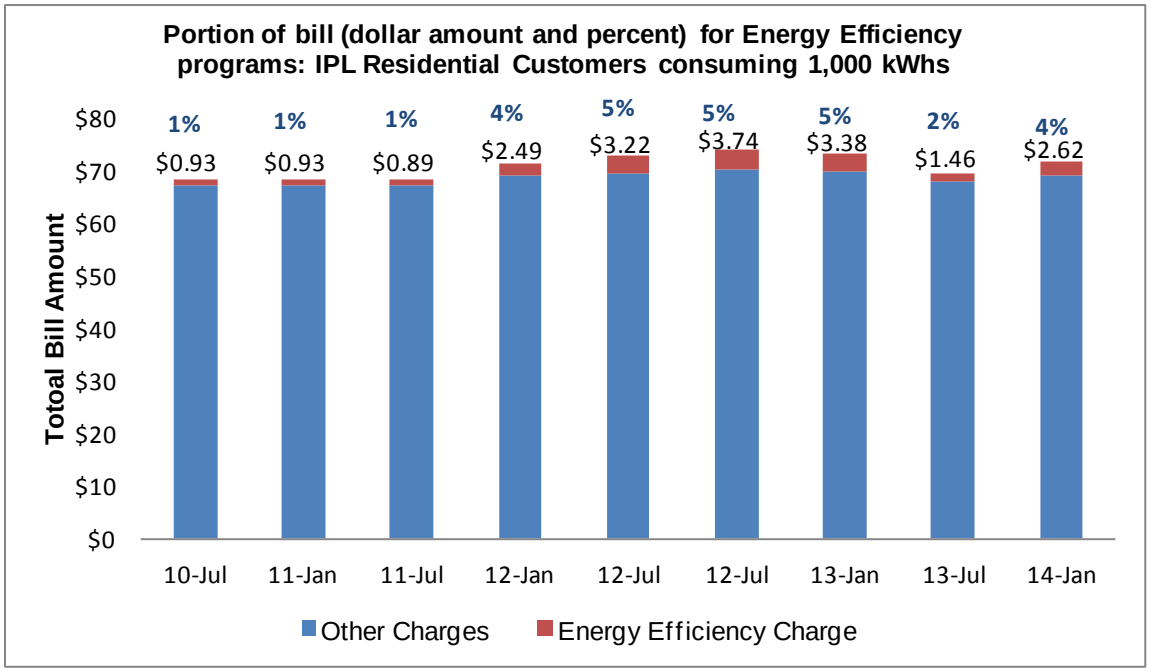


Figure 17. I&M Residential Customers

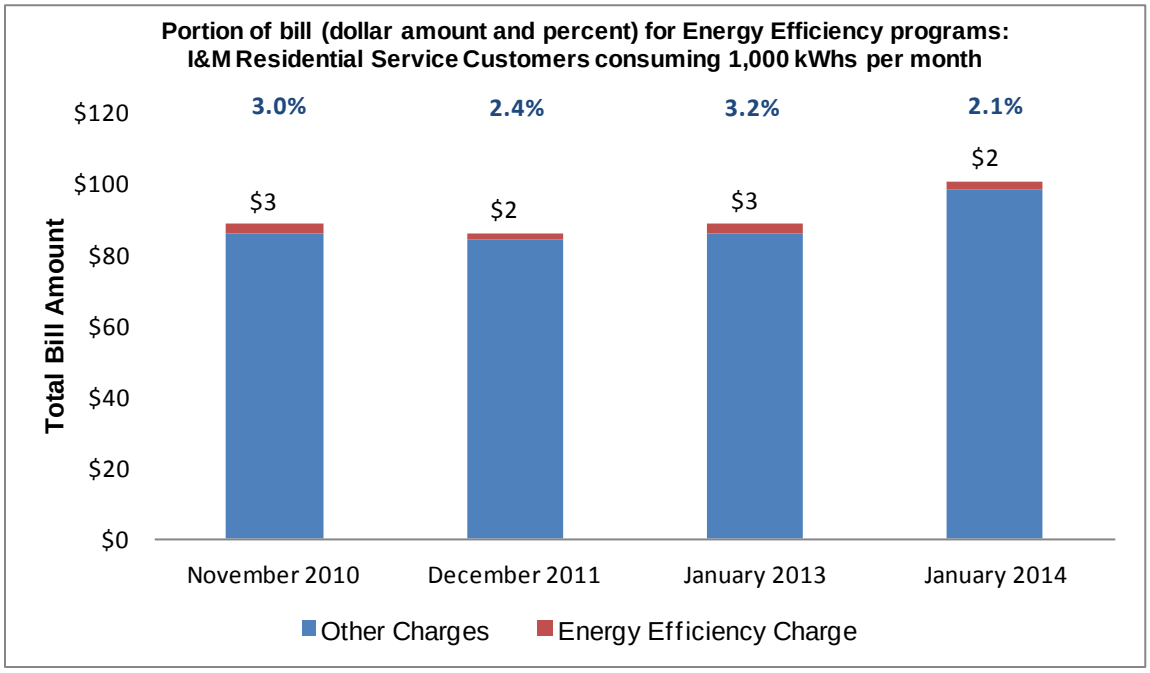


Figure 18. NIPSCO Residential Customers

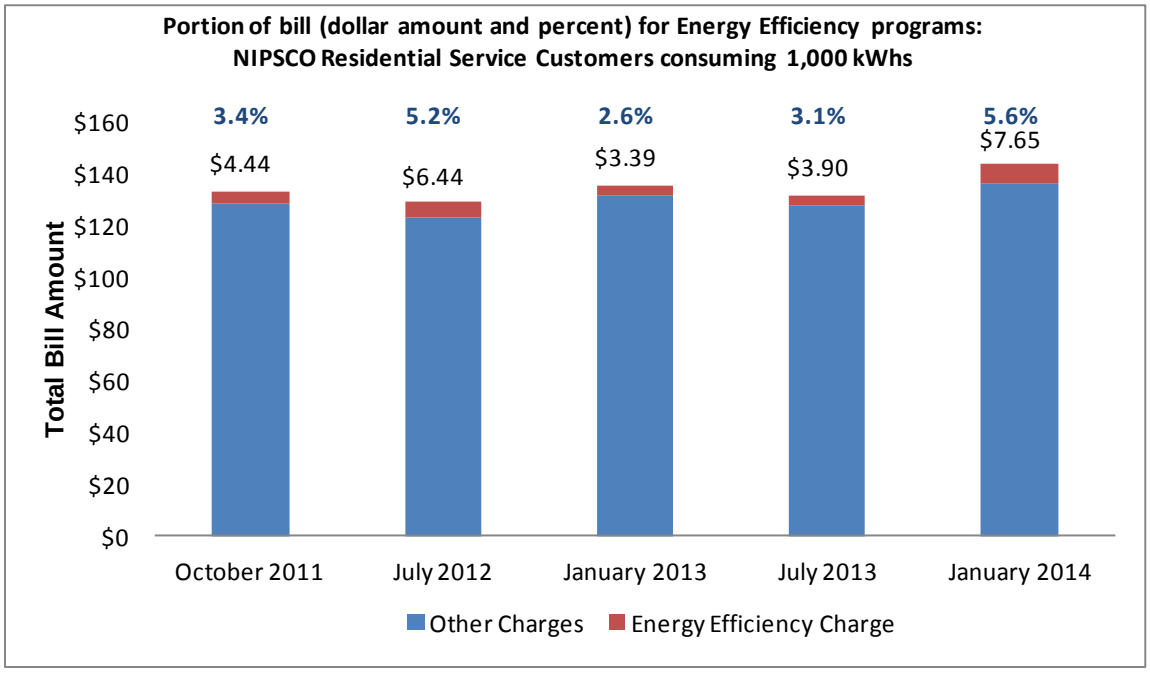
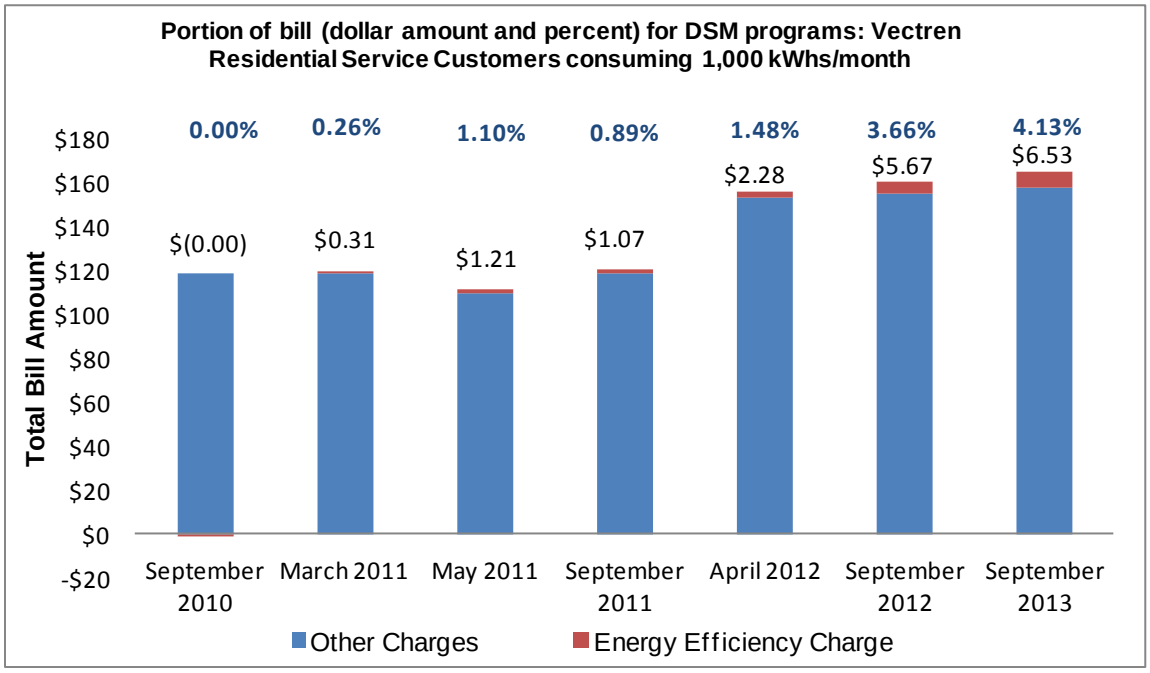


Figure 19. Vectren Residential Customers



PROJECTED COSTS AND BENEFITS OF CURRENT ENERGY EFFICIENCY PROGRAMS

Total costs for the Core and Core Plus programs combined are projected to increase from $200 million in 2015 to $549 million in 2019. Two cost forecasts are presented in the table below. The State Utility Forecasting group (SUFG) at Purdue University provided one forecast based on a combination of utility data provided to SUFG and costs estimated by SUFG. The second cost forecast was compiled from recent filings by five utilities of their DSM program plans and projections. The difference between the two forecasts reflects the uncertainty in predicting future costs and assumptions in the level of achievable DSM savings.

The projected impact of DSM programs to residential bills is expected to increase from $2.87 in 2015 to $3.99 in 2019. This range reflects the median of the five utilities that reported rate projections. In all but one case, the bill per 1000 kWh for commercial and industrial classes is lower than for each respective utility's residential class. The exception is IPL's small business class.

Core and Core Plus programs are expected to produce overall positive net benefits to Indiana through 2019. The table below shows the projected portfolio level TRC metric for the Core programs. On average from 2015 through 2019, Core programs are expected to return $1.65 in benefits for every $1.00 spent on the Core programs. Portfolio level data were not available for all utility Core Plus programs in aggregate, but the TRC is greater than 1.0 on average across utility specific Core Plus programs through 2019.

Table 6. Projected Indiana DSM costs, benefits and impact on customer rates.

	SUFG Forecast Costs	Utility Forecast Costs	Median Residential Rate Impact (per 1000 kWh)	CoreTRC
2015	$222,851,326	$199,023,779	$2.87	1.83
2016	$366,484,032	$231,019,967	$2.96	1.76
2017	$316,047,680	$263,379,287	$3.91	1.69
2018	$465,994,862	$289,746,330	$4.04	1.48
2019	$548,924,291	$307,404,256	$3.99	1.48

ALIGNING INTERESTS OF CUSTOMERS AND ELECTRICITY SUPPLIERS

Indiana's energy efficiency programs produced *overall* net benefits as this report documents. This does not mean that *every* Indiana electric utility customer who pays for the efficiency programs is a net beneficiary of those programs. Customers who participate in efficiency programs tend to benefit, largely in the form of lower utility bills; customers who do not participate often pay somewhat higher bills. We use some hypothetical examples to demonstrate this point.

At the margin, the utility bill is a function of the rate charge and the energy used.

$$\text{usage} \times \text{rate} = \text{bill}$$

If energy efficiency programs are successful, utility usage will decline. Since in the short term utility systems are heavily dominated by fixed costs (concrete, steel, poles and wires), which don't change when usage declines, efficiency programs tends to put upward pressure on rates. So if the ultimate policy objective is to keep utility *rates* low, energy efficiency programs run counter to it.

Energy efficiency programs create negative impacts only for one segment—those who don't participate in the programs. Usage essentially stays the same for the person who does not participate in an efficiency program. Assuming a utility's implementation of energy efficiency programs results in a 2 percent rate increase, the only change non-participating customers see is the 2 percent rate increase.

Non-Participating Customer

$$\text{usage(same)} \times \text{rate}(\uparrow 2\%) = \text{bill}(\uparrow 2\%)$$

While this may suggest that energy efficiency programs are not beneficial, such is not the case. Energy efficiency programs have been implemented across the country because they serve to minimize average electric bills over the long term. Although minimizing rates typically does not minimize utility *bills*, efficiency programs tend to lower a customer's usage more than they increase system rates. So if customer usage is cut by 10% and rates increase by 2%, the bill declines by 8%:

Participating Customer

$$\text{usage}(\downarrow 10\%) \times \text{rate}(\uparrow 2\%) = \text{bill}(\downarrow 8\%)$$

If utility programs are cost-effective, which the Indiana programs are, the average bill on the system (which includes those of both participating and non-participating customers) will also tend to decline. Say that over several years average usage of all customers might decline (relative to a baseline) by 5 percent. The rate increase is 2% as stated earlier.

Average Customer

$$\text{usage}(\downarrow 5\%) \times \text{rate}(\uparrow 2\%) = \text{bill}(\downarrow 3\%)$$

Thus, the bill, which is the product of the rate and the usage, goes down by 3 percent. So if the objective is to keep utility *bills* low, efficiency programs are essential.

This leads to the following scorecard for efficiency programs:

- Economic winners
    - Customers who participate in the programs
    - The average customer (which is the average result for all customers, both participating and non-participating)
- Economic losers
    - Customers who do not participate in the programs

There are two ways to try to help the economic losers. One could moderate efficiency spending to limit rate increases, but so doing would forego some bill savings that a full-fledged program could produce. Rate increases would be less, but bill savings would also be lower. A more productive approach may be to encourage as many customers as possible to participate in the programs, thereby minimizing the size of the group of customers who do not benefit through lower bills from the programs. This requires ensuring that a wide variety of efficiency options is available through the programs.

In any event, when looking at economic winners and economic losers, we have to remember that almost any action that a utility takes has differential impacts on customers. This is true for both supply-side and demand-side activities. We have shown how this occurs for demand-side resources. The impact on the supply-side is at the same time more subtle to detect and more significant in terms of the magnitude of the impact.

As demand grows, utilities tend to add new generation facilities. Since ratemaking is based on historical costs of building facilities, the cost of new plant (recorded in today's dollar) is often much more expensive than the original cost of the existing plant, which might for example have been built in the 1970s. Therefore, the addition of new plant can put substantial upward pressure on utility rates.

But the need for new plant may be due to the increased demand for only a handful of customers, and in some cases a single customer. If a new manufacturing plant locates in a utility service area, the utility may have to add capacity, which in turn increases rates. Capacity costs tend to be spread across all customers. The new customer gets service but some of the costs of expanding system capacity are likely to be allocated to the existing customers, those who did not need new capacity absent the arrival of the new manufacturer. While the community likely benefits economically from the arrival of the new facility, the existing ratepayers will see both higher rates and bills when the utility adds capacity to serve the customer. To identify winners and losers on the demand-side, but ignore them on the supply-side, raises equity concerns.

With respect to electricity suppliers, there are a variety of regulatory mechanisms that can be implemented for utilities to eliminate or significantly reduce utility disincentives to implement energy efficiency programs. For example, Indiana law, specifically I.C. 8-1-8.5 and 170 IAC 4-8, allows for the recovery of so-called "lost revenues" that enables a utility to recover fixed costs that might otherwise be removed when energy efficiency programs reduce energy sales. Revenue decoupling is another technique that breaks the link between electric sales and recovery of utility fixed costs, which removes the disincentive for utilities to promote energy efficiency. Decoupling has been used by Indiana gas utilities

but has not been approved by the Commission for use by Indiana electric utilities. There are also mechanisms that allow utilities to earn profits on efficiency activities and these are also permitted under Indiana law. The idea is to treat utility energy efficiency program costs on a more comparable basis for rate recovery to that of new generation or other supply-side resources built by Indiana utilities. Although a technical discussion of these items is beyond the scope of this report, the Commission is available to provide more information on these mechanisms.

The above discussion is primarily concerned with the equity and aligning of customer and utility interests in the short term. However, Indiana law currently provides the basis through which the interests of customers and utility shareholders are aligned over longer periods of time.

In order to bring new generation online, I.C. 8-1-8.5 requires all utilities to receive approval from the Commission through the certificate of need process. This process provides the Commission and interested parties with an opportunity to evaluate the merits of a project before it is undertaken. If the Commission approves the project, the utility is granted a Certificate of Public Convenience and Necessity (CPCN); only utilities that intend to own or lease a generation facility must seek a CPCN. In return for the upfront review and approval by the Commission, the utility receives some protection on cost recovery of construction costs.

Under I.C. 8-1-8.5-4, when determining whether a CPCN should be issued, the Commission is directed to take into account the utility's current and potential arrangement with other utilities for the interchange of power; the pooling of facilities; the purchase of power; joint ownership of facilities; and other methods for providing reliable, efficient and economical electric service, including the refurbishment of existing facilities, conservation, load management, and renewable energy sources. Conservation and load management translates into energy efficiency and demand response programs using more current industry terminology.

The Commission has found in CPCN cases that 'least-cost planning' is an essential component of the CPCN law. The Commission has also defined 'least-cost planning' as a 'planning approach' that will find the set of resource options most likely to provide utility services at the lowest cost once appropriate service and reliability levels are determined. It is important to note that a least cost plan is one that requires consideration of a range of alternatives to building new generation facilities and the development of these alternatives if the planning process shows these options are more cost-effective. It is through this planning process and CPCN review process that the Commission can determine whether the acquisition of energy efficiency resources is consistent with the long-term interests of electricity consumers and utility shareholders.

Least cost planning is also known as Integrated Resource Planning (IRP). To facilitate better integrated resource planning and, as a result, better long term resource investment decisions, the Commission developed in the mid-1990s an administrative rule, 170 IAC 4-7, to identify more detail as to what type of analyses should be in an IRP. Pursuant to 170 IAC 4-7-3, utilities are required to prepare and submit IRPs every two years.

APPENDIX A: NOTES ON IMPACT EVALUATION METHODOLOGY OF CORE PROGRAMS

The Core program administrator, GoodCents, tracks costs, estimated energy consumption savings (kWh) and estimated demand savings (kW). The Core program evaluator (TecMarket Works) analyzes that data, including statistical and engineering analysis of the potential savings of a given efficiency measure (based on predictions of typical use) in order to provide more accurate estimates of savings. Following are definitions of energy consumption and demand savings that are used to determine the final savings estimate.

Efficiency programs produce ex-ante and ex-post savings.

Ex-ante savings are: The potential energy savings for an energy efficient measure *before* it is installed based on predictions of typical operating conditions and baseline usage.[7]

Ex-post savings are: Estimates reported by an evaluator after the energy impact evaluation has been completed.[8]

For example, the ex-ante savings for a 25-watt CFL bulb might be assumed to be 73 kWh per year, based on the premise that it replaces a 75-watt incandescent bulb that is on four hours per day, 365 days per year.[9] But the evaluation might reveal that the typical bulb is on for only three hours per day, which reduces the savings to 55 kWh per year.[10]

Additionally, savings can be expressed on a gross or net basis.[11] Savings expressed on a gross basis include free riders who are defined as those consumers who would have reduced their energy use absent a utility-sponsored energy efficiency program, yet participated in a program and received an incentive for their action. Parsing out these consumers is part of the evaluation process to determine net savings or those savings clearly attributable to the program. This report presents estimated savings results for the Core program from the ex-post net savings (that do not include free riders) provided in the 2012 and 2013 Energizing Indiana Evaluation reports.

TREATMENT OF EFFICIENCY GAINS FROM FEDERALLY-FUNDED PROGRAMS

To determine whether standard incandescent bulbs could be used to estimate program savings, TecMarket Works conducted two waves of research across Indiana to determine the availability of incandescent bulbs. The research employed a mystery shopper approach. The mystery shopper called retail stores and asked if the store offered 100- and 75-watt bulbs for sale, how many they carried and questions regarding future availability. The first wave of research was conducted in January 2013 and indicated that standard incandescent bulbs were readily available in 2012. Thus the baseline savings estimate for the 2012 Core Residential Lighting program did not need to be adjusted.

[7] California Public Utilities Commission, Ex Ante Review Page: http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/exantereiew.htm
[8] Northeast Energy Efficiency Partnership, Glossary of Terms: http://neep.org/Assets/uploads/files/emv/emv-products/EMV_Glossary_Version_2.1.pdf
[9] (75 watts – 25 watts) x 4 hours per day x 365 days per year = 73,000 watts, or 73 kWh.
[10] (75 watts – 25 watts) x 3 hours per day x 365 days per year = 54,750 watts, or 55 kWh.
[11] 2013 Core Evaluation, p. 1.

The second wave of research was conducted in January 2014 and showed that the availability of 100- and 75-watt incandescent bulbs had eroded. As a result of this research, adjustments were made to the 2013 savings analysis.

Table 7 shows the baselines used to calibrate the energy-savings estimates of CFLs for 2013.

Table 7. Lighting Baseline Wattage Adjusted for EISA

100-Watt			75-Watt			60-Watt			40-Watt		
Year	Phase	Baseline (Watts)	Year	Phase	Baseline (Watts)	Year	Phase	Baseline (Watts)	Year	Phase	Baseline (Watts)
2012	0%	100	2012	0%	75	2012	0%	60	2012	0%	40
2013	55%	85	2013	0%	75	2013	0%	60	2013	0%	40

APPENDIX B: NOTES ON CORE PLUS PROGRAM BENEFITS, COSTS AND SAVINGS

Each of Indiana's five investor-owned utilities reports program savings and expenditures for their Core Plus programs in Compliance Scorecards filed with the Commission on July 1 each year. Due to variations in programs offered and reporting formats amongst the utilities, it is difficult to provide an aggregate view of the Core Plus programs. The utilities do not evaluate each of the programs in their Core Plus portfolio on a yearly basis so ex-post net savings and benefits (based on cost-effectiveness tests) are not consistently available for all years and all programs.

Following are energy consumption and demand savings for the Core Plus programs for each utility as reported in their compliance scorecards.

CORE PLUS PROGRAMS

Duke

Program	Gross kWh Savings				
	2010	2011	2012	2013	2014 thru 3/31
C&I Smart Saver	0	0	13,591,000	43,189,000	9,326,000
Agency Kit & CFL's	0	0	3,397,000	6,601,000	1,404,000
Fridge/Freezer Recycling	0	0	3,473,000	4,548,000	496,000
Home Energy Comparison Report	0	0	2,030,000	3,247,000	3,247,000
Tune and Seal	0	0	2,000	16,000	47,000
Property Manager CFL	0	0	1,892,000	2,999,000	291,000
Residential Smart Saver	4,778,000	3,054,000	4,140,000	5,301,000	1,082,000
Personalized Energy Report	0	0	18,097,000	15,817,000	-6,000
Online Audit w/ EE Kit	0	0	6,661,000	0	0
Energy Star New Construction	212,000	403,000	34,000	0	0
Refrigerator Replacement	297,000	191,000	0	0	0
Total Core Plus Programs By Year	5,288,000	3,648,000	53,318,000	81,720,000	15,888,000

I&M[12]

Program	Gross kWh Savings			
	2010	2011	2012	2013
Residential Appliance Recycling	4,003,000	3,021,000	2,388,000	3,964,000
Residential On-Line Audit	0	0	670,000	12,280,000

[12] Did not report 2014 YTD – only 2014 Forecast.

Program	Gross kWh Savings			
	2010	2011	2012	2013
Residential Home Energy Reporting	0	0	4,134,000	16,698,000
Residential New Construction	0	0	0	0
Residential Home Weatherization	0	454,000	17,000	51,000
Residential Peak Reduction	0	0	0	213,000
C&I Incentives	0	0	5,569,000	34,530,000
C&I Retro-Commissioning Lite	0	0	0	18,572,000
C&I HVAC Optimization	0	0	0	0
C&I Audit (Audit/SBDI 2014)	0	0	98,000	3,351,000
Renewables & Demonstrations	0	0	0	59,000
Total Core Plus Programs By Year	4,003,000	3,475,000	12,876,000	89,718,000

IPL

Program	Gross kWh Savings				
	2010	2011	2012	2013	YTD thru 5/31/14
Residential-Appliance Recycling	760,000	711,000	2,235,000	2,306,000	524,000
Residential-Room AC Pickup and Recycling	0	0	6,000	see note[13]	see note[11]
Residential-New Construction	136,000	433,000	210,000	62,000	0
Residential-Energy Assessment	2,394,000	1,080,000	646,000	667,000	407,000
Residential-Renewable Energy Incentives	7,000	17,000	14,000	52,000	6,000
Residential-AC Load Management	41,000	89,000	23,000	370,000	374,000
Residential-High Efficiency HVAC Incentives	0	0	724,000	1,396,000	0
Residential-Peer Comparison Reports	0	0	5,580,000	13,420,000	11,465,000
Residential-Multi-Family Direct Install	0	14,194,000	12,763,000	8,544,000	1,866,000
C&I Business Energy Incentives	0	6,353,000	13,806,000	18,093,000	6,530,000
C&I AC Load Management	1,000	4,000	6,000	2,000	2,000
C&I Renewable Energy Incentives	7,000	28,000	6,000	18,000	19,000
Total Core Plus Programs By Year	3,346,000	22,909,000	36,019,000	44,930,000	21,193,000

[13] Combined with Second Refrigerator Recycling Program and renamed Appliance Recycling Program.

NIPSCO

Program	Gross kWh Savings				
	2010	**2011**	**2012**	**2013**	**2014 through 4/30**
Energy Efficiency Rebate Program	NA	NA	518,000	1,577,000	746,000
Appliance Recycling	2,414,000	1,889,000	3,325,000	1,416,000	449,000
C&I Custom Electric Incentive Program	NA	14,965,000	27,781,000	124,242,000	17,344,000
Residential Home Energy Conservation Program	NA	14,461,000	20,270,000	22,168,000	5,800,000
Residential Home Weatherization Program	NA	35,000	38,000	121,000	39,000
Residential Multifamily Direct Install Program	NA	2,979,000	7,003,000	6,790,000	435,000
C&I New Construction Incentive Program	NA	NA	508,000	1,063,000	593,000
Residential New Construction Program	NA	166,000	61,000	91,000	464,000
Small Business Direct Install				N/A	38,000
Guest Room Energy Management				N/A	164,000
Total Core Plus Programs By Year	2,414,000	34,495,000	59,504,000	157,468,000	26,074,000

Vectren

Programs	Gross kWh Savings				
	2010	**2011**	**2012**	**2013**	**2014 through 5/31**
Residential Appliance Recycling	1,226,000	1,309,000	1,589,000	1,379,000	428,000
Residential New Construction	22,000	88,000	57,000	2,000	87,000
Residential HVAC	NA	72,000	876,000	1,088,000	362,000
Residential Behavioral Savings	NA	NA	4,778,000	9,933,000	4,522,000
Residential Multi Family	NA	1,249,000	1,748,000	1,089,000	237,000
Residential Direct Use	NA	NA	86,000	NA	NA
Commercial & Industrial Audit & Custom	1,021,000	2,459,000	7,418,000	9,244,000	1,323,000
Commercial & Industrial New Construction	NA	869,000	900,000	2,415,000	371,000
Small Business Direct Install	NA	NA	NA	1,498,000	1,891,000

Programs	Gross kWh Savings				
	2010	**2011**	**2012**	**2013**	**2014 through 5/31**
Total Core Plus Programs By Year	2,269,000	6,046,000	17,452,000	26,648,000	9,221,000