

Connecticut General Statutes-Section 16-245m(d)

2016-2018 Electric and Natural Gas Conservation & Load Management Plan

Submitted by:

Eversource Energy
The United Illuminating Company
Connecticut Natural Gas Corporation and
The Southern Connecticut Gas Company

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CHAPTER ONE: OVERVIEW (ELECTRIC AND NATURAL GAS)

INTRODUCTION

In accordance with Connecticut General Statutes § 16-245m and § 16-32f, The Connecticut Light and Power Company (“CL&P”) doing business as Eversource Energy (“Eversource”) and The United Illuminating Company (“UI”) (collectively, the “Electric Companies”), and The Connecticut Natural Gas Corporation (“CNG”), The Southern Connecticut Gas Company (“SCG”), and Yankee Gas Services Company (“Yankee Gas”) doing business as Eversource Energy, (collectively the “Natural Gas Companies”) hereby submit this multi-year comprehensive Conservation & Load Management Plan (“2016-2018 Plan”) for the implementation of cost-effective electric and natural gas energy-efficiency programs and market transformation initiatives. The execution of the 2016-2018 Plan will provide environmental and economic benefits to Connecticut by reducing carbon emissions by 459,174 tons per year, and will create a net economic lifetime benefit of \$1.39 billion dollars.

Table 1-1: 2016-2018 Plan Savings and Benefits*

Year	Budgets			Annual Savings						
	Electric (\$000)	Natural Gas (\$000)	TOTAL (\$000)	Electric (MWh)	Peak (MW)**	Natural Gas (Mcf)	Oil (gallons)	Propane (gallons)	CO ₂ Emissions (tons)	Lifetime Benefit (\$000)
2016	\$192,704	\$47,667	\$240,370	392,029	147	6,585	1,278,134	166,185	143,703	\$679,702
2017	\$205,970	\$54,907	\$260,877	416,741	150	7,664	1,421,767	182,785	155,401	\$735,794
2018	\$203,879	\$58,958	\$262,837	433,775	155	8,405	1,432,367	178,298	160,070	\$736,134
TOTAL	\$602,553	\$161,531	\$764,084	1,242,545	262	22,654	4,132,268	527,269	459,174	\$2,151,630

*\$1.39 Billion Net Economic Benefit (Lifetime Benefit minus Program Cost) and 2.8 Benefit-Cost Ratio (Benefits divided by Program Cost).

** Savings includes 95 MW from ISO New England Demand Response. This amount is only counted once in the total.

The Electric and Natural Gas Companies (collectively the “Companies”) moved to a three-year planning cycle beginning with the 2013-2015 Plan. In September 2015, the Companies received approval of the 2016-2018 Plan from the Connecticut Energy Efficiency Board. Throughout the development of the 2016-2018 Plan, the Companies worked collaboratively with the Energy Efficiency Board and its consultants to develop a comprehensive and cost-effective portfolio that reflects the board’s current priorities, and addresses the diverse needs and priorities of electric,

natural gas, fuel oil¹, and propane customers in Connecticut. The 2016-2018 Plan builds upon the continued success and momentum of the 2013–2015 Plan that the Companies, as administrators, are currently executing, and on the Companies’ expertise in delivering nationally recognized energy-efficiency programs for over 20 years.

LEGISLATIVE HISTORY

In 1998, the Connecticut General Assembly passed restructuring legislation, Public Act 98-28, *An Act Concerning Electric Restructuring* that created the Conservation & Load Management Fund (now in 2015 called the “Connecticut Energy Efficiency Fund”), which was funded solely then by Connecticut’s electric residential and commercial customers. The primary objectives of the Connecticut Energy Efficiency Fund were established with Public Act 98-28: (1) to advance energy efficiency, (2) to mitigate the negative environmental impacts of energy generation, and (3) to promote economic development through increased energy reliability, lower energy bills, and enhanced energy security. Public Act 98-28 also established the Energy Conservation Management Board (now in 2015 called the “Energy Efficiency Board”) to advise Connecticut’s Electric Companies in the development of comprehensive annual plans to implement cost-effective energy-efficiency and load management programs.

In 2005, *An Act Concerning Energy Independence*, Public Act 05-01, established energy-efficiency programs and funding mechanisms for the Natural Gas Companies and for the Connecticut Municipal Electrical Energy Cooperative. The role of the Energy Efficiency Board expanded to provide advice to both the Electric Companies and Natural Gas Companies in developing comprehensive energy-efficiency programs for electric and natural gas customers. In 2007, *An Act Concerning Electricity and Energy Efficiency*, Public Act 07-242, was passed and called for the Companies to pursue “all cost-effective energy efficiency,” and envisioned efficiency as the centerpiece of statewide energy policy.

Public Act 05-01, Section 5(d)(2) codified the establishment of a joint committee of the Energy Efficiency Board and the Renewable Energy Investments Advisory Committee (now in 2015 the “Connecticut Green Bank Board”). Pursuant to Public Act 05-01, section 16-245, the Joint Working Committee must coordinate the programs and activities funded by the Renewable Energy Investment Fund (in 2015 now called the “Connecticut Green Bank”) with the programs administered by the Companies, and overseen by the Energy Efficiency Board, to reduce the long-term cost, environmental impacts, and security risks of energy in the state. For additional

¹ The Companies continue to receive Regional Greenhouse Gas Initiative (“RGGI”) funding which is sufficient to fund fuel oil and propane measures for residential customers.

information regarding the work of the Joint Working Committee, please see Appendix C: Financing.

In 2011, Public Act 11-80, *An Act Concerning the Establishment of the Department of Energy Environmental Protection and Planning for Connecticut's Energy Future*, was passed by the Connecticut General Assembly. This landmark legislation laid the groundwork for pursuing all cost-effective energy efficiency and created the DEEP. Pursuant to Section 51 of Public Act 11-80, the DEEP, in consultation with the Connecticut Energy Advisory Board, must prepare a Comprehensive Energy Strategy for Connecticut every three years, with the first issued in 2012. Public Act 11-80 also set ambitious energy-saving targets for the state, including the reduction of energy use by state buildings by 10 percent by 2013, and requiring the Companies to achieve weatherization of 80 percent of Connecticut's residential homes by 2030.

In 2013, Public Act 13-298, *An Act Concerning Implementation of Connecticut's Comprehensive Strategy and Various Revisions to the Energy Statutes*, provided the framework for increased conservation spending in Connecticut for electric and natural gas energy-efficiency programs. Public Act 13-298 modifies how the Companies develop their energy-efficiency plans, requiring them to develop a combined plan every three years, beginning on November 1, 2015. The legislation also made organizational changes to the Energy Efficiency Board. Additionally, Public Act 13-298 required the Energy Efficiency Board and the Clean Energy Finance and Investment Authority (in 2015 now called the "Connecticut Green Bank") to finance residential energy-efficiency and renewable energy measures using private capital (with customers repaying loans on their electric and/or natural gas bills).

The 2016-2018 Plan addresses the overarching objectives envisioned in Public Act 98-28, Public Act 05-01, Public Act 07-242, Public Act 11-80, Public Act 13-298, past DEEP decisions, compliance items, current energy price forecasts, current programmatic results and trends, evaluation results, and market trends. The 2016-2018 Plan achieves these objectives by building upon the energy-efficiency programs that have helped small and large businesses, limited-income customers, homeowners and renters, and state and local governments, manage their energy usage and costs for decades.

STATE POLICY PRIORITIES

The Companies have worked collaboratively with the Energy Efficiency Board and the DEEP to ensure that the 2016-2018 Plan addresses Public Act 11-80, Public Act 13-298, other state policy priorities, Energy Efficiency Board priorities, as well as federal policy priorities and initiatives. This includes the Companies implementing all cost-effective energy-efficiency measures across all

customer sectors: “Resource needs shall first be met through all available energy-efficiency and demand reduction resources that are cost-effective, reliable, and feasible.”² The 2016-2018 Plan includes critical components that will continue to support state policy priorities, including the following:

- **Comprehensive Energy Strategy.** On February 19, 2013, the DEEP released the first ever Comprehensive Energy Strategy for the state of Connecticut. The Comprehensive Energy Strategy is an assessment and strategic plan for all commercial, industrial, and residential energy issues, including: electricity supply (including all renewables), energy efficiency, industrial energy needs, natural gas, and transportation. The Comprehensive Energy Strategy is a blueprint for the DEEP, the Connecticut Energy Advisory Board, the Energy Efficiency Board, the Companies, and myriad stakeholders to provide cheaper, cleaner, and more reliable energy for Connecticut’s future.

In 2012, the DEEP issued the first Comprehensive Energy Strategy for Connecticut, as called for in Connecticut Public Act 11-80. Section 51 of Act 11-80 requires that the DEEP, in consultation with the Connecticut Energy Advisory Board, prepare a Comprehensive Energy Strategy for Connecticut every three years. In particular, and as reflected in the 2016-2018 Plan, the Comprehensive Energy Strategy calls for more comprehensive, deeper energy-efficiency gains across all customer sectors through benchmarking, establishing and increasing efficiency standards for buildings, leveraging private capital through innovative financing mechanisms, and reinvigorating and broadening the Home Energy SolutionsSM program for increased energy savings.

- **Integrated Resource Plan.** On March 15, 2015, pursuant to Connecticut General Statute Section 16a-3a, the DEEP released its biennial Integrated Resource Plan (“2015 IRP”). The 2015 IRP is a comprehensive assessment of Connecticut’s electricity needs over the next decade. Based on the 2015 IRP, increased energy-efficiency investments resulting from the enactment of Public Act 11-80 are expected to nearly eliminate growth in electricity consumption in Connecticut, and reduce peak demand growth to approximately 0.5 percent per year.

In the 2015 IRP, the DEEP made three major recommendations including: (1) that energy-efficiency program designs should deliver greater energy savings at lower costs, (2) that programs should continue to focus on cost-effective measures that save energy and reduce

² Department of Energy and Environmental Protection. PowerPoint Presentation to Energy Efficiency Board. *Connecticut’s Energy Efficiency Goals*. June 10, 2015.

peak demand, and (3) that programs should continue to invest in efficiency measures in state buildings. These three recommendations are prominent priorities reflected within the 2016-2018 Plan.

- Winter Peak.** During the 2013-2015 Plan, natural gas-fired electrical generation in the New England region increased significantly to the point where natural gas is the marginal fuel for over 90 percent of generation hours. In recent winters, electricity markets have experienced some volatility with unprecedented price spikes correlated to cold weather and the high demand for natural gas (both for energy generation and for heating buildings). In particular, the winter of 2013-2014 saw a price peak of \$1,200/MWh (megawatt-hours). While the winter of 2014-2015 exhibited lower levels of volatility and price spikes, forecasts predict that winter electricity prices will not stabilize until the completion of several large natural gas pipeline expansions projects.

As a result of high winter peak demand, the Companies have proactively designed energy-efficiency and demand response programs in the 2016-2018 Plan to provide relief to customers by focusing on electric measures with high-load factors and natural gas energy-efficiency measures. Promotional activities and program enhancements will be used to advance high-efficiency technologies and behaviors for commercial and industrial, municipal, residential, and state buildings. The Companies' 2016-2018 Plan programs are designed to reduce natural gas and electricity consumption during critical winter peak periods.

- Climate Change Action Plan and Reducing Greenhouse Gas Emissions.** In 2015, per Public Act 04-252, *An Act Concerning Climate Change*, the Governor's Steering Committee on Climate Change completed development of the Connecticut Climate Change Action Plan 2005 ("2005 Climate Plan").³ This was a major milestone in the state's drive to reduce greenhouse gas emissions and achieve the regional goals set by the New England Governors/Eastern Canadian Premiers. The 2005 Climate Plan contained 55 recommendations that focused on five areas, most notably for the Companies and Energy Efficiency Board were: (1) efficiency in residential, commercial, and industrial buildings, and (2) education and outreach. The 2005 Climate Plan focused on upgrading building codes (residential and commercial), using energy-efficient materials and design concepts in the construction of new state buildings and schools, and creating an energy benchmarking, measurement, and tracking program for municipal buildings.

³ Governor's Steering Committee on Climate Change. *Connecticut Climate Change Action Plan 2005*. January 2005.

In 2008, the Connecticut General Assembly passed Public Act 08-98, *An Act Concerning Global Warming Solutions*. Act 08-98 committed the state to reducing its greenhouse gas emissions to 10 percent below 1990 levels by 2020, and then to 80 percent below 2001 levels by 2050. On April 22, 2015, Governor Dannel P. Malloy announced the creation of the Governor’s Council on Climate Change, and that Connecticut has “already reached a reduction [of greenhouse gas emissions] to 1990 levels.”

The Companies’ 2016-2018 Plan programs are designed to reduce greenhouse gas emissions and help the state meet its climate change goals. In 2016-2018, the Companies will continue to push for the highest standard of building codes (see Chapter Three: Residential Programs and Chapter Four: Commercial & Industrial Programs). The Companies will also continue to support the Lead by Example program, a performance contract initiative for state buildings (see Chapter Four: Commercial & Industrial Programs).

The Companies will also promote the Clean Energy Communities program’s vision of achieving 20 percent energy reductions in Connecticut’s 169 municipalities by 2018 (for municipal and board of education buildings). This vision is supported technically through the Clean Energy Communities program’s energy benchmarking initiatives and technical support for Connecticut municipalities, and through programmatic and public relations support for the grassroots organizations, such as clean energy task forces/commissions (see Chapter Five: Education & Outreach Programs).

2016-2018 PLAN PRIORITIES

The 2016-2018 Plan covers years 17, 18, and 19 of electric conservation programs since the passage of the state’s restructuring legislation (Public Act 98-28), and years 10, 11, and 12 of natural gas conservation programs since the passage of Connecticut’s energy independence legislation (Public Act 05-01). Since the passage of both of these landmark Public Acts, both Connecticut’s electric and natural gas conservation programs have continued to embrace leading-edge program designs, and have been leaders in the region and nation for design and implementation of successful energy-efficiency programs.

The consistent track record of Connecticut’s successful energy-efficiency and demand response programs is a direct result of the effort and commitment by the Companies, the Energy Efficiency Board, and the DEEP. In particular, energy-efficiency and demand response programs in Connecticut have reflected continuous innovation and improvement to meet the needs of customers, and the dynamic changes in the energy-efficiency marketplace. Indeed, the 2016-2018 Plan’s energy-efficiency programs look much different than their predecessor programs

from 20 years ago; reflecting the latest priorities, trends, and technologies to effectively deliver cost-effective programs and effect changes in the energy-efficiency industry.

The following 2016-2018 Plan priorities were developed in collaboration with the Energy Efficiency Board and the DEEP, and their execution will allow Connecticut to maintain its leading-edge status and demonstrate its commitment to continuous improvement through 2018 and beyond. These priorities include:

- **Priority 1: Continuity and Momentum.**

During the 2013-2015 Plan, the Companies increased spending and savings in alignment with Public Act 11-80 and with the Comprehensive Energy Strategy. The 2016-2018 Plan reflects continuing the momentum of increasing energy savings and spending on electric and natural gas energy-efficiency programs. In response to the energy-efficiency marketplace's continuous evolution, the Companies have designed flexible program infrastructures that will progress along with new building energy codes, increased customer demands, emerging technologies, increased trade ally participation, and new federal standards.

- **Priority 2: Commitment to Continuous Improvement.**

The Companies are committed to maintaining the state's national status as an energy-efficiency leader by systematically analyzing and improving program offerings. The Companies participate on a number of local, state, and national boards and organizations to study best practices, learn about new methods, and to stay up-to-date on emerging technologies that could drive energy savings.

The Companies' energy-efficiency programs undergo evaluations on a regular basis by independent third-party evaluators. The Companies review the results and recommendations of these process and impact evaluations, and integrate the "lessons learned" into Connecticut's programs going forward. Additionally, the Companies review other state's evaluations of energy-efficiency programs, including: California, Massachusetts, New York, Oregon, Rhode Island, and Vermont. The programs in these states are very similar in design to Connecticut's programs. Evaluating other prominent programs also offers the Companies and the Energy Efficiency Board ideas for continuous improvement in implementing cost-effective, energy-efficiency programs in Connecticut.

- **Priority 3: Scaling and Broadening the Reach of Programs to Provide Services to New or Underserved Markets.**

During the 2013-2015 Plan, the Companies invested extensive time and efforts in marketing strategies designed to identify the needs of various customer segments (both residential and commercial) and to design services that specifically targeted those segments. The Companies made considerable progress in customer segmentation during the 2013-2015 Plan, and in 2016-2018, the Companies plan to continue to identify new customer segments that have been underserved, and to reach out to previously-reached customer segments to take advantage of deeper energy-efficiency measures.

More details regarding the Companies' specific market segmentation efforts and the services designed to meet those market segments' needs can be found in the overview sections of Chapter Three: Residential Programs and Chapter Four: Commercial & Industrial Programs.

- **Priority 4: Delivering Comprehensive and Deeper Savings for Residential and Commercial & Industrial Customers.**

In accordance with Public Act 11-80, the Companies will continue to develop goals and targets which stretch energy and monetary savings per customer, and move beyond single measure projects to large, comprehensive energy-saving projects; thereby delivering all cost-effective energy efficiency to Connecticut's customers.

- **Priority 5: Tailoring Program Offerings to Enhance Customer Engagement and Increase Program Effectiveness.**

During the 2016-2018 Plan, the Companies will utilize advanced data analytics and digital marketing efforts to provide concierge service and tailored program offerings to increase program comprehensiveness and energy savings per customer. The Companies' Customer Engagement Platforms (detailed further in Chapter Six) are the pivotal engagement tools that will help the Companies tailor customized solutions for customers and increase customer engagement.

- **Priority 6: Stretching and Expanding the Impact of Funds from Residential and Commercial & Industrial Customers.**

The Companies will continue to maximize the dollars received from customers for all programs (residential and commercial and industrial), including the Companies' energy-efficiency programs and the Connecticut Green Bank's financing programs. The Companies continuously explore opportunities to leverage Energy Efficiency Fund dollars to stretch and expand the impact of Connecticut's energy-efficiency programs.

In 2016-2018, the Companies will also take advantage of cost-effective methods to reach customers, including their customer engagement and digital marketing tools, as noted above in Priority Five, to leverage customer funds and achieve cost-effective energy savings. The Companies will also continue to convey the “value of participation” to customers to show that the energy and non-energy benefits of participating in energy-efficiency programs are of significant value to all customer segments. For more information regarding non-energy benefits, please see Chapter Seven: Benefit-Cost Screening.

- **Priority 7: Making Improvements and Revisions to the Home Energy Solutions Program.**

Starting in 2016, the Companies will build off the strong foundation they have established for the Home Energy Solutions program, and open up the program to all qualified contractors, which will ensure a high-quality customer experience, continuity of energy savings, identification and implementation of follow-on measures beyond the initial visit, and consistent customer messaging. In the 2016-2018 Plan, a key priority is to deliver, demonstrate, and communicate to customers the value of the Home Energy Solutions program (both energy and non-energy benefits). To improve the delivery of the program and deliver more comprehensive measures, the Companies will focus on educating customers about the value of home performance.

The Companies will also focus on improving the performance of the Home Energy Solutions program, which hinges on the performance of the contractors. Stringent contractor qualifications will continue to be enforced, with all contractors being required to meet the program’s minimum qualifications to be able to participate; thereby encouraging market growth and further expanding the geographical reach of the program. This should help broaden the program’s reach to customers who have not yet taken advantage of the program in the past.

- **Priority 8: Reinforcing the Connection of Energy Efficiency to Renewables.**

The Companies will continue to integrate energy-efficiency and renewable offerings to meet Public Act 98-28’s objective of “mitigating the negative environmental impacts of energy generation.” The Companies will meet this objective by working with the Connecticut Green Bank to promote the connection of energy efficiency to renewables.

- **Priority 9: Mainstreaming Efficiency and Continued Shift Toward Changing the Energy-Efficiency Marketplace.**

The Companies will continue to encourage energy efficiency to occur naturally through supply channels by using strategies such as upstream offerings, code initiatives, creative financing offerings, and by expanding trade ally participation.

The Energy Efficiency Board and the Connecticut Green Bank have a shared goal to implement state energy policy throughout all market segments and populations of Connecticut with continuous innovation toward greater leveraging of customer funds and a uniformly positive customer experience. Key priorities to achieve these shared goals were developed in fall of 2015, in conjunction with the Joint Working Committee created pursuant to Public Act 05-01. These key priorities can be found in Appendix C: Financing.

- **Priority 10: Researching New and Emerging Demand Response and Energy-Efficiency Technology Applications.**

Public Act 98-28 required the Companies to implement both energy-efficiency programs *and load management programs*. During the 2016-2018 Plan period, the Companies intend to achieve demand reductions (both winter and summer) through Energy Efficiency Fund programs and through innovative demand response strategies and pilot programs.

Demand reductions help reduce energy prices and price spikes during summer and winter peak demand. They help defer utility investments in the distribution, generation, and transmission of electricity and increase the resiliency of the electrical grid. Demand reductions also help achieve one of the objectives of the Energy Efficiency Fund, “to mitigate the negative environmental impacts of energy generation,” as they deliver significant environmental and emission reduction benefits.

In an effort to continuously advance the programs, the Companies and the Energy Efficiency Board research new and emerging technology applications (both residential and commercial), and assess their potential for inclusion in the Companies’ energy-efficiency and demand response program portfolios. During the 2016-2018 Plan, the Companies will implement two demand response programs to enhance the energy savings and peak demand reductions for the Residential Program Portfolio. Additionally, the Companies will investigate implementing a demand response pilot for the 2016-2018 Commercial & Industrial Program Portfolio.

For more detailed information regarding the research by the Companies and the Energy Efficiency Board into demand response and emerging technologies for both the Residential Program and Commercial & Industrial Program Portfolios, see Chapter Eight: Demand Response and Emerging Technologies.

- **Priority 11: Shifting the Market toward Zero Net Energy Buildings.**

During the 2016-2018 Plan, a key priority of the Energy Efficiency Board and the Companies is to move all buildings, both residential and commercial, toward becoming Zero Net Energy buildings. The Residential New Construction program's 2016-2018 efforts will focus on creating a clearer path for the residential new construction market to move toward affordable Zero Net Energy Homes. The Energy Conscious Blueprint program (the Commercial & Industrial Programs' new construction solution) will begin to explore transitioning programmatic efforts toward Zero Net Energy buildings.

- **Priority 12: Delivering Training and Education Programs.**

The Companies will continue to educate the public, K-12 students, and Connecticut's workforce about energy-saving technologies, different sources of energy (fossil and renewable) and their economic and environmental costs and benefits, and the award-winning Energize ConnecticutSM programs. The Companies will also continue to work collaboratively with third-parties across the state, including the Institute for Sustainable Energy. For more information regarding this third party's proposed plans, please see Appendix F: Institute for Sustainable Energy's Proposed 2016-2018 Work Plan.

HISTORICAL AND 2016-2018 PLAN HIGHLIGHTS

Awards and Recognitions

Since the 1990's, the Companies and the Energy Efficiency Board have been recognized as national leaders in the design and delivery of cost-effective and innovative energy-efficiency programs. The state's energy-efficiency programs (and other state energy policies and programs) have been perennial top-ten performers in the American Council for an Energy Efficient Economy's ("ACEEE") State Energy Efficiency Scorecard, including first place recognition in 2006.

Additionally, individual Connecticut programs have been recognized by the ACEEE as among the best energy-efficiency programs in North America. Every five years, the ACEEE recognizes the energy-efficiency industry's top performing programs and Connecticut's programs are

consistently recognized. In the 2013 ACEEE Review⁴, the Companies' Small Business Energy Advantage program was once again named one of three "Exemplary" small business programs nationally; as it was previously in 2003 and 2008. In the 2003 and 2008 ACEEE Reviews, the Companies' Energy Conscious Blueprint program and other Retrofit programs for commercial and industrial customers were recognized by the ACEEE as "Exemplary," and both continue to be emulated national models today. Additionally, the Companies' Residential Program portfolio has also been recognized by the ACEEE with both the Home Energy Solutions and Residential New Construction programs earning "Exemplary" recognition in the 2013 ACEEE Review.

It is not just the recognition that Connecticut has outstanding energy-saving programs that is worthy of note; it is the *persistence* of that recognition over time. As the ACEEE noted in its 2013 Review:

"...the leading customer energy-efficiency programs...have continued to evolve in response to sometimes dizzying numbers of changes in technologies, energy markets, economic conditions, and policies...programs with the most staying power [have] the ability to adapt and tune their core offerings to maintain and grow cost-effective savings."⁵

The fact that the Companies' programs have led their peers in 15 years of periodic program reviews is a testament of the Companies' commitment to a culture of continuous improvement. However, the Companies recognize that modifications to the Companies' marketing and programmatic approaches are necessary to keep pace in today's dynamic energy-efficiency marketplace.

During the implementation of the 2013-2015 Plan, the Energy Efficiency Board and the Companies received numerous awards and recognition, including the following awards:

- **2013 ENERGY STAR® Partner of the Year in Energy-Efficiency Program Delivery.** The U.S. Environmental Protection Agency ("US EPA") recognized the Connecticut Energy Efficiency Fund and the Companies as a 2013 ENERGY STAR Partner of the Year;
- **2013 ENERGY STAR Sustained Excellence Award.** The US EPA recognized the Northeast Energy Efficiency Partnerships' ("NEEP") Northeast Retail Products Initiative, including the Companies and the Energy Efficiency Board, with the 2013 ENERGY STAR Sustained Excellence Award for Excellence in ENERGY STAR Retail Products Promotion;

⁴ "Leaders of the Pack: ACEEE's Third National Review of Exemplary Energy Efficiency Programs," June, 2013, p. 1.

⁵ See 4 Id. at iii.

- **2013 ACEEE Certificate of Recognition for Exemplary Programs.** The ACEEE recognized the Residential New Construction program as Exemplary;
- **2013 ACEEE Certificate of Recognition for Exemplary Programs.** The ACEEE recognized the Home Energy Solutions program as Exemplary;
- **2013 ACEEE Certificate of Recognition for Exemplary Programs.** The ACEEE recognized the Small Business Energy Advantage program as Exemplary;
- **2013 ENERGY STAR-Certified Homes Leadership in Housing Award.** The US EPA recognized the Energy Efficiency Board, Eversource, and United Illuminating for the Residential New Construction program’s achievement of reaching the threshold of 300 ENERGY STAR-certified homes in a calendar year, and for increasing builder, contractor, and homeowner awareness of the ENERGY STAR brand;
- **2013 Connecticut Quality Improvement Award (“CQIA”) Silver Innovation Prize.** The CQIA Silver Innovation Prize was awarded for the Connecticut Energy Efficiency Fund’s Comprehensive Initiative for Commercial and Industrial customers;
- **2013 NEEP Business Leader Champion.** Covidien, a United Illuminating customer, was nominated for the NEEP Business Leader Award and was chosen as the State champion;
- **2014 ENERGY STAR Partner of the Year for Sustained Excellence.** The US EPA recognized NEEP’s Northeast Retail Products Initiative with the 2014 ENERGY STAR Sustained Excellence Award for excellence in ENERGY STAR Retail Products Promotion;
- **2014 ENERGY STAR Award for Excellence.** The US EPA recognized United Illuminating and the Energy Efficiency Board for Excellence in ENERGY STAR Promotion through the Retail Products program at the SmartLiving™ Center;
- **2014 ENERGY STAR Award for Excellence.** The US EPA recognized the Connecticut Energy Efficiency Fund for its continued enhancement and expansion of the Home Performance with ENERGY STAR program;
- **2014 NEEP Business Leader State Champion.** The Connecticut Children’s Medical Center, an Eversource customer, was nominated for the NEEP Business Leader Award and was chosen as the State champion;

- **2015 NEEP Business Leader State Champion.** Aptar-Stratford, a United Illuminating customer, was nominated for the NEEP Business Leader Award and was chosen as the State champion;
- **2015 ENERGY STAR Partner of the Year Award for Sustained Excellence.** The US EPA recognized NEEP’s Northeast Retail Products Initiative with the 2015 ENERGY STAR Sustained Excellence Award for Excellence in ENERGY STAR Retail Products Promotion; and the
- **2015 ENERGY STAR Award for Excellence.** The US EPA recognized United Illuminating and the Energy Efficiency Board for the Great Light Bulb Exchange Initiative.

2016-2018 Plan Highlights

In addition to the above-referenced awards and recognitions, the Companies have continued to develop innovative approaches to delivering cost-effective, energy-efficiency programs and for enhancing the customer experience. The 2016-2018 Plan builds upon the momentum of the 2013-2015 Plan by continuing efforts to improve upon the existing energy-saving programs, including the following:

- **Upstream and Midstream Initiatives.** Prior to 2015, the Companies had demonstrated the effectiveness of upstream offerings by transitioning most of their residential lighting offerings (through the Retail Products program) to an upstream model. This model clearly effected a shift in the residential lighting marketplace’s practices. The model helped change the stocking practices of retailers, offered customers the ability to have discounted energy-efficiency lighting products readily available on store shelves, and lowered processing costs (per unit redemption) which contributed to streamlining the rebate process and improving customer engagement. As a result, the Retail Products program was able to deliver a higher number of products, all while increasing the cost-effectiveness of the program by streamlining the delivery model and “buying down” the cost of products at the wholesale (upstream) level.

Beginning in 2015, the Companies began efforts to continue their successful upstream and midstream models, and expanded them to residential HVAC and domestic hot water equipment, as well as commercial HVAC and lighting products. The 2016-2018 Plan will continue to leverage these strategies by investigating the feasibility of transitioning additional “paper” rebates to more streamlined upstream and midstream models.

- **Customer Segmentation.** A key component of the 2016-2018 Plan is a concerted effort by the Companies to better understand their customers through data analysis and to strategically design messaging and offerings to customers through data-driven analytics. For their Residential Program Portfolio, the Companies currently use data analytics to identify key attributes of customers which allows them to directly engage with targeted customers. In advance of the 2016-2018 Plan, Eversource has developed a residential segmentation model to help differentiate customers based on the energy savings potential within their homes, as well as the customer's propensity to participate in energy-efficiency programs.

For their Commercial and Industrial Program Portfolio, the Companies are building upon the segmentation work conducted during the 2013-2015 Plan, and will continue to develop customer-centric offerings and make those available to key customer segments. Some of the new activities include: assigning top quartile customers to energy-efficiency account executives and developing program offerings specific to targeted segments. See Chapter Four: Commercial & Industrial Programs for more information regarding the Companies' increased market segmentation efforts.

- **Customer Engagement Tools.** Each of the Companies, Eversource and UIL Holdings Corporation ("UIL"), have developed digital Customer Engagement Platforms, powerful data analytic tools that allow customers to be engaged, resulting in an empowering energy savings experience. Each of the Companies' Customer Engagement Platforms allows customers to download their electric usage data (through the U.S. Department of Energy's ("DOE") Green Button) and to manually input other fuel use information, such as natural gas, oil, and propane usage. The Companies' Customer Engagement Platforms utilize this energy data to analyze and recommend targeted energy-saving opportunities to customers. For a more details regarding these data analytic tools, see Chapter Six: Customer Engagement Platforms.
- **Strategic Energy Management and Business and Energy Sustainability.** Strategic Energy Management is a process by which Commercial and Industrial customers engage in a continuous improvement process to reduce energy use over time. Additionally, Strategic Energy Management benefits include: increased process reliability and enhanced product quality. Strategic Energy Management is characterized by systematic performance measurement and reassessment of goals and metrics. Strategic Energy Management provides customers with the tools to transform business practices and operations to achieve holistic improvements in efficiency, and creates a mechanism for end users to identify and plan for energy-efficiency improvements in facilities. For more detailed information regarding Strategic Energy Management, see Chapter Four: Commercial & Industrial Programs.

- **Home Energy Solutions Program Enhancements.** The Home Energy Solutions (“HES”) program is Connecticut’s flagship residential energy-efficiency program. The program began in 2006 as a duct sealing pilot program, and has evolved overtime to become a nationally-recognized program which serves market-rate (the core HES program) and limited-income customers (the HES-Income Eligible program), and offers deeper energy measures (HES-Home Performance with ENERGY STAR). In 2016, the Companies will begin to shift the current market-rate HES program to a managed offering open to more contractors. Both the HES and HES-Income Eligible programs will be the primary vehicles to move the state toward the goal of Public Act 11-80 of weatherizing 80 percent of Connecticut homes by 2030. See Chapter Three: Residential Programs for more detailed information regarding the evolution of the HES program and 2016-2018 programmatic changes.
- **Lighting Technologies.** The lighting market is currently undergoing a paradigm shift toward solid state lighting—light-emitting diodes (“LEDs”)— the impact of energy-efficiency programs, the U.S. Energy and Independence and Security Act of 2007 (“EISA”), and due to changes in federal lighting standards brought about by rapid technology developments. In recent years, the quality, availability, and consumer acceptance of residential and commercial LED products has increased in conjunction with decreased pricing. However, there is concern and evidence that absent program intervention, the residential and commercial lighting markets could back-slide toward less-efficient halogen products. The Companies are closely monitoring this dynamic marketplace and will continue to respond by refining lighting offerings as needed. Throughout the 2016-2018 Plan, the Companies’ programs will continue to support LED technologies, though the level and type of support may vary over the three-year period as market conditions warrant.
- **Behavior-Based Programs.** The Companies are engaged in active residential behavior-based programs to add significant energy savings to their Residential Program Portfolio. Historically, energy-efficiency programs have relied upon incentives to motivate customers. Behavior-based programs rely upon a combination of social sciences and data analytics to motivate customers to conserve energy by providing “neighborhood” comparisons and “call to action” tips on measures and programs to empower customers to save energy. The Companies’ behavior-based programs rely upon a combination of strategically-timed paper and/or electronic reports to customers. While behavior-based programs are a relatively new component of energy-efficiency program portfolios nationally, they have a proven track record of two percent electric savings on average for Connecticut customers and have documented natural gas savings in other states (up to one percent natural gas savings on average).

- **Education and Outreach.** The Companies will continue to build upon their successful education and community outreach by reorganizing these programs into a comprehensive platform addressing K-12 student education, workforce education, and community education. The primary components of the Companies' educational and outreach platform include: the Clean Energy Communities program (outreach), K-12 Education program, the Energize Connecticut Center, and workforce development trainings and initiatives. The overarching goal of the Companies' Education and Outreach platform is to develop a cross-societal, sustainability ethic that enables communities to strive toward energy-efficiency and sustainability goals.
- **Independent Financial and Operational Audits of Connecticut Energy Efficiency Fund Programs.** At the beginning of 2016, an independent financial audit of the Connecticut Energy Efficiency Fund will be performed, with subsequent audits to be conducted every two years thereafter. As Connecticut's electric and natural gas customers contribute over \$200 million per year into the Connecticut Energy Efficiency Fund, these financial audits will ensure customers and regulators that the Companies collect, manage, and spend customer funds efficiently. In addition, an independent operational audit of Connecticut Energy Efficiency Fund programs will be performed in 2016 and every five years thereafter.

FINANCING

The key objective of the Companies' and Connecticut Green Bank's financing programs is to provide attractive financing options to customers, while maximizing cost-effective energy efficiency and achieving more and deeper energy savings. Current financing options include referrals to third-party lenders, subsidized low-interest third-party loans, and subsidized low-interest and/or interest-free, on-bill repayment mechanisms funded by a combination of the Electric Companies (i.e., Small Business Energy Advantage and Municipal Loan programs), the Energize CT Residential Heating Loan, Connecticut Energy Efficiency Fund (Residential HES Financing), and local credit unions (Residential Smart-E Loan) so that customers may easily implement cost-effective, energy-efficiency projects.

As the demand for energy-efficiency implementation increases, the Companies will continue to integrate their efforts with those of the Department of Energy and Environmental Protection, the Energy Efficiency Board, the Connecticut Green Bank, and other private funding sources. During the summer of 2015, a Joint Working Committee comprised of members from the Companies, the Department of Energy and Environmental Protection, the Energy Efficiency Board and its consultants, and the Connecticut Green Bank, identified gaps and opportunities for

financing and subsequently developed goals and objectives in a variety of areas, including: the Small Business Energy Advantage program, single-family homes, the Multi-Family Initiative, Commercial Property Assessed Clean Energy (“C-PACE”), and Lead by Example which are further detailed in Appendix C: Financing. The Companies expect that the Connecticut Green Bank can identify and will secure the least cost sources of capital in order to provide sustainable and attractive customer financing options.

ENERGY SAVINGS

Since 2000, the Companies’ energy-efficiency and load management programs have achieved 4,667 annual gigawatt-hour (“GWh”) and 54,923 lifetime GWh savings. Additionally, the Companies have achieved 2,274 million cubic feet of natural gas (“MMcf”) annually and 33,876 lifetime MMcf savings. Over the next three years, the 2016-2018 Plan will achieve 1,242 annual GWh savings and 2,265 MMcf savings, enough to power 147,000 homes for one year.

Table 1-2: 2016-2018 Plan Savings and Benefits*

Year	Budgets			Annual Savings						
	Electric (\$000)	Natural Gas (\$000)	TOTAL (\$000)	Electric (MWh)	Peak (MW)**	Natural Gas (Mcf)	Oil (gallons)	Propane (gallons)	CO ₂ Emissions (tons)	Lifetime Benefit (\$000)
2016	\$192,704	\$47,667	\$240,370	392,029	147	6,585	1,278,134	166,185	143,703	679,702
2017	\$205,970	\$54,907	\$260,877	416,741	150	7,664	1,421,767	182,785	155,401	735,794
2018	\$203,879	\$58,958	\$262,837	433,775	155	8,405	1,432,367	178,298	160,070	736,134
TOTAL	\$602,553	\$161,531	\$764,084	1,242,545	262	22,654	4,132,268	527,269	459,174	\$2,151,630

*\$1.39 Billion Net Economic Benefit (Lifetime Benefit minus Program Cost) and 2.8 Benefit-Cost Ratio (Benefits divided by Program Cost).

** Savings includes 95 MW from ISO New England Demand Response. This amount is only counted once in the total.

Figure 1-1 illustrates the Companies’ projected electric savings (in gigawatt-hours: GWh), and how energy efficiency will help to flatten electricity consumption in Connecticut. The RSP15 data (blue line) shows what the electric consumption is forecast to be without the projected impacts of energy-efficiency efforts in Connecticut. The RSP15-FCM-EEF (red line) and the RSP15-FCM (black line) data reflect the projected impacts of energy-efficiency efforts.

Figure 1-1: Projected Electric Savings (2015-2024)⁶

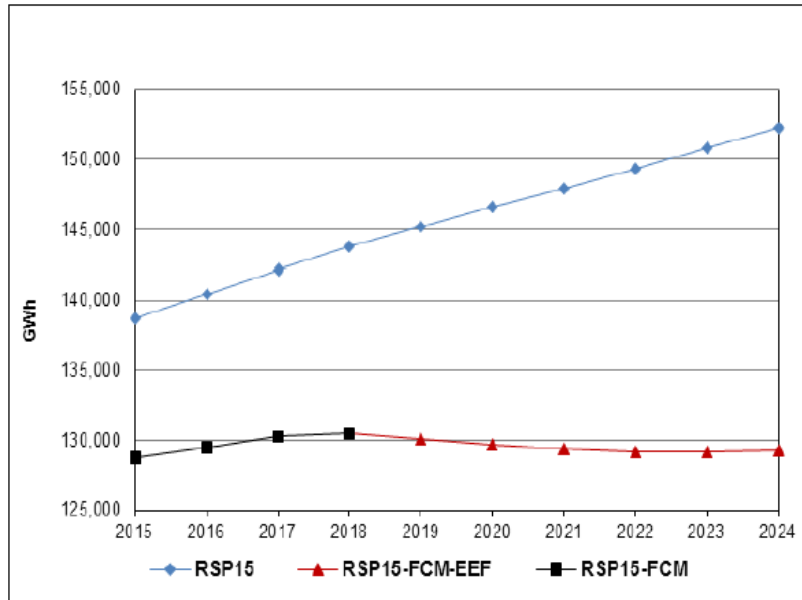


Table 1-3 provides a summary of the projected annual savings from the Electric Companies’ energy-efficiency programs in the 2016-2018 Plan and percentage of electric sales.

Table 1-3: Electric Companies—Summary of Annual Savings and Percentage of Sales

Company	2016			2017			2018			2016-2018		
	GWh Sales	Annual Savings (GWhs)	% of Sales	GWh Sales	Annual Savings (GWhs)	% of Sales	GWh Sales	Annual Savings (GWhs)	% of Sales	GWh Sales	Annual Savings (GWhs)	% of Sales
Eversource (CT) Electric	22,246	314.0	1.41%	22,268	331.8	1.49%	21,947	350.5	1.60%	66,461	996.3	1.50%
United Illuminating	5,293	78.0	1.47%	5,221	84.8	1.62%	5,182	83.2	1.61%	15,696	246.0	1.57%
TOTAL	27,539	392.0	1.42%	27,489	416.6	1.52%	27,129	433.7	1.60%	82,157	1,242.3	1.51%

Table 1-4 provides a summary of the projected annual savings from the Natural Gas Companies’ energy-efficiency programs in the 2016-2018 Plan and percentage of natural gas sales.

⁶ ISO New England Energy Efficiency Forecast for 2019 to 2024. May 1, 2015. <http://www.iso-ne.com/static-assets/documents/2015/05/eef-report-2019-2024.pdf>.

Table 1-4: Natural Gas Companies—Summary of Annual Savings and Percentage of Sales

Company	2016			2017			2018			2016-2018		
	MMCF Sales	Annual Savings (MMCF)	% of Sales	MMCF Sales	Annual Savings (MMCF)	% of Sales	MMCF Sales	Annual Savings (MMCF)	% of Sales	MMCF Sales	Annual Savings (MMCF)	% of Sales
Eversource (CT) Natural Gas	49,510	281.7	0.57%	55,249	341.2	0.62%	61,411	396.4	0.65%	166,170	1,019.3	0.61%
Southern Connecticut Gas	30,070	144.1	0.48%	31,546	186.4	0.59%	33,017	195.7	0.59%	94,633	526.2	0.56%
Connecticut Natural Gas	35,765	232.6	0.65%	37,414	238.8	0.64%	39,025	248.4	0.64%	112,204	719.8	0.64%
TOTAL	115,345	658.4	0.57%	124,209	766.4	0.62%	133,453	840.5	0.63%	373,007	2,265.3	0.61%

FUNDING SOURCES (CURRENT, FUTURE, AND POTENTIAL)

The primary funding sources for the 2016-2018 Plan continues to be the three-mill charge and the electric three-mill Conservation Adjustment Mechanism (“CAM”) less gross receipts tax (“GRT”) assessed on customers’ electric bills, along with the contributions from natural gas customers (on firm rates) through the natural gas CAM. Additional funding sources come from the Regional Greenhouse Gas Initiative (“RGGI”) and the Independent System Operator-New England’s (“ISO New England”) Forward Capacity Market. Both Tables 1-5 and 1-6 summarize estimated statewide funding for electric and natural gas energy-efficiency programs for the 2016–2018 Plan.

Table 1-5: Electric Program Funding Sources*

	2016 ES CT Electric Revenues	2016 UI Revenues	2016 Combined Total	2017 ES CT Electric Revenues	2017 UI Revenues	2017 Combined Total	2018 ES CT Electric Revenues	2018 UI Revenues	2018 Combined Total
Collections (Mill Rate)	\$66.7	\$15.9	\$82.6	\$66.8	\$15.7	\$82.5	\$65.8	\$15.5	\$81.4
ISO New England	\$9.7	\$2.7	\$12.4	\$20.2	\$5.2	\$25.4	\$20.4	\$4.5	\$24.9
RGGI	\$16.7	\$4.2	\$20.8	\$17.1	\$4.3	\$21.4	\$17.5	\$4.4	\$21.9
CAM (Net of Gross Receipts Tax)	\$62.0	\$14.8	\$76.9	\$62.1	\$14.6	\$76.7	\$61.2	\$14.5	\$75.7
TOTAL (Energy Efficiency Revenues)	\$155.1	\$37.6	\$192.7	\$166.2	\$39.8	\$206.0	\$164.9	\$39.0	\$203.9

* In millions.

Table 1-6: Natural Gas Program Funding Sources*

Natural Gas Energy Efficiency Revenues	2016 Conservation Adjustment Mechanism	2017 Conservation Adjustment Mechanism	2018 Conservation Adjustment Mechanism
Eversource CT Gas Revenues	\$20.4	\$24.2	\$26.9
Connecticut Natural Gas Revenues	\$15.9	\$16.6	\$17.3
Southern Connecticut Gas Revenues	\$11.4	\$14.1	\$14.7
Total Energy-Efficiency Revenues	\$47.7	\$54.9	\$59.0

* In millions.

COMMUNICATIONS—CHANGING THE “RULES OF ENGAGEMENT”

Customer engagement is a theme that was introduced in the 2013-2015 Plan, and is now embedded into how the Companies design and implement energy-efficiency services and solutions. Whether it’s through the Companies’ new Customer Engagement Platforms that enable customers to understand how they use energy and empower them to take action, to communicating to customers the energy savings and non-energy benefits (i.e., comfort, health and safety, and increased home values), to communicating to the energy-efficiency sales teams that facilitate long-term strategic planning with customers, or the Clean Energy Communities program, engagement is the critical element that drives participation and energy savings.

Effective communications bridges the “how” of energy efficiency (i.e., programs, technology, behavior, and financing) to the “why” (i.e., reduced costs, increased comfort, reliability, environmental benefits, productivity, competitiveness, and energy security). Communications is the backdrop or soundtrack that connects the energy solution to the customer (i.e., putting high-performance insulation in my home will help my family be more comfortable this winter and help us save money on our energy bills). The Companies have always focused on communications, both the messaging and mediums to deliver those messages, but the ability to differentiate the Companies’ solutions, target the correct market segment, and *create an ongoing dialogue* has significantly changed over the past three years.

The ongoing dialogue is informed heavily by the Companies’ segmentation analysis. This analysis has revealed how the Companies’ customers are using energy (i.e., through examination of housing stock, fuel sources, equipment age and type, hours of operation) and why they are using energy (i.e., business type, manufacturing needs, multifamily, or institutional requirements). Understanding how customers use energy allows the Companies to target customers, enabling

the Companies to better control where the resources are spent (i.e., distressed communities, electric customers, and/or natural gas customers).

Chief among the targeting tools are the new Customer Engagement Platforms that elicit user feedback and allow the Companies to respond, and newer digital advertising techniques such as re-marketing and social media which also figure significantly into targeted campaigns. Knowing why customers use energy enables the Companies to create messaging that is relevant. For example, understanding the specialized air handling needs of laboratories creates an opportunity for case studies and customized presentations that are more effective than a generalized “save money and energy” advertisement.

The audience for energy-efficiency communications is wide and includes essentially most residents and businesses in Connecticut. This includes the customers of the Companies, but it also includes national stakeholders, a design and build trade ally community that extends beyond Connecticut, and a huge network of various associations that have an interest in saving energy, money, the environment, or all of the above. There is no single strategy, or discrete campaign, or preferred medium to penetrate, motivate, and activate this broad audience.

The marketing communications efforts for energy efficiency in Connecticut rely on a very diverse mix of push and pull tactics that result in a multi-touch, multi-dimensional customer experience. The mix includes the broad overlay of the Energize Connecticut brand as a unifying, rallying call – a pull strategy that builds demand by encouraging customers to seek out information and take action. The Companies focus on actionable marketing tactics that promote the available solutions. It is important to recognize that the statewide marketing activities happen in parallel with the Companies’ solutions marketing. The Companies use pull marketing tactics – including broadcast, print and digital advertising, direct response, public relations, and social media – but the Companies also use push techniques – creating demand through upstream promotions, and direct or personal selling. Together, the statewide campaigns and the program campaigns provide a comprehensive, multi-touch customer experience.

STATEWIDE MARKETING AND ENERGIZE CONNECTICUT

In 2016, Energize Connecticut, as a brand, will begin its fourth full year in the market. While relatively young in comparison to other statewide smart energy brands (i.e., Energy Trust of Oregon, created in 2002); Energize Connecticut is rapidly maturing. Brand familiarity has been as high as 24 percent – outstripping the familiarity of its public-facing precursor, the Connecticut Energy Efficiency Fund.

In 2013, the mission was to *transition* from the Energy Efficiency Fund brand to the Energize Connecticut brand. In 2014, the objective was a full-fledged *launch* of the brand, and in 2015 the emphasis was on building brand equity with additional messaging that tied into the *brand promise*. In other words, associating the brand with the value and benefits that come from smart energy choices. The statewide marketing efforts during the 2013-2015 Plan timeframe fell into four main categories: (1) communications, (2) EnergizeCT.com, (3) research, and (4) the development of the Customer Engagement Platforms.

The creation of Energize Connecticut was based on significant market research efforts and research continues to be an important element of the marketing communications strategy. The market research provides insight on many important topics, including:

- Awareness and familiarity of the brand, Energize Connecticut;
- Awareness of associated brands;
- Understanding of what smart energy resources are available in Connecticut;
- Motivators and barriers to participation;
- How customers receive information; and
- Understanding and resonance of the brand promise, as expressed through the messaging.

In addition to gauging the awareness and familiarity of the brand, the research also shows that customers strongly identify the Companies as partners of Energize Connecticut, and that the Companies are a strong source of “trustworthy” smart energy information. Saving money continues to be the primary motivation for taking action, but environmental concerns are also significant. Research has also revealed that customers are not fully aware of financing and rebate opportunities associated with the residential retrofit programs (i.e., Home Energy Solutions). While it is reasonable to assume that similar challenges exist with small business customers who share many residential attributes, commercial and industrial market research will be added to the research effort at various points during the 2016-2018 Plan to determine the awareness of small business customers and learn more about their perceptions of the brand and the available resources.

Table 1-7: 2013-2015 Research Key Takeaways

	Familiarity	Awareness	Motivators/Barriers	Messaging
2013	Baseline set	Baseline set No awareness of Energize Connecticut brand	Saving money is the number one motivator for both energy-efficiency and renewable energy program participation	The internet is the most commonly used source for energy information
2014	Familiarity of energy-efficiency and renewable energy programs trends upwards Familiarity of Energize Connecticut as a provider of energy-efficiency and renewable energy programs has grown year over year based on pre- to post-campaign surveys	Awareness of Energize Connecticut as a provider of energy-efficiency and renewable energy programs grows year over year based on pre- to post-campaign surveys Utilities continue to be a primary trusted source for energy information	Saving money/Reducing utility bills continues to be the number one motivator Customers have a one-and-done perception of their relationship with Energize Connecticut Focus groups showed ambiguity around financing	Surveys and focus groups reveal that social media is an effective medium through which customers obtain energy information The internet continues to be the most commonly used and preferred source for energy information Renters perceive programs are for homeowners only
2015	2015 results from surveys and focus groups will be finalized in December 2015. The Companies will file those results with the 2016 Plan Update.			

The Companies will continue to focus statewide marketing in 2016-2018 on continuing to build familiarity and awareness, and communicating the brand promise to everyone who lives and works in Connecticut. The statewide media campaigns pull customers to the web site and the WISE-USE information telephone number. These campaigns provide high-level “air coverage” on a consistent basis that supports the targeted, solution-specific and segment-specific marketing promotional campaigns executed by the Companies.

EnergizeCT.com delivers on the brand promise by providing easy access to vital information. Maintenance and enhancements to the site will continue to be a major focus of the statewide marketing efforts in 2016-2018. Market research, as noted previously, falls under the statewide marketing budget and will continue to be utilized in the 2016-2018 Plan period.

The efforts around the Companies' Customer Engagement Platforms will shift away from the statewide marketing category and will become a prominent element of the Companies' solution marketing strategy. A description of the Companies' Customer Engagement Platform's promotional strategies can be found in Chapter Three: Residential Programs and Chapter Four: Commercial & Industrial Programs.

While statewide branding efforts and enhancements to EnergizeCT.com are critical to achieving the ongoing sustained growth of customer investment and participation in energy efficiency, they must be scaled to meet the current need at any given season. Consistent, frequent messaging, and an objective to increase awareness and familiarity with the brand and build traffic to the web site, must be tempered with the reality of the 2016-2018 Plan budget. That budget is funded by customers for the express purpose of enabling them to benefit from energy-efficiency measures. Therefore, promotion of the Energize Connecticut brand and energy-efficiency measures must be commensurate with participation levels. The Companies' marketing teams will be mindful of the available program implementation budgets before executing planned statewide or solution-specific campaigns.

The 2016 Statewide Marketing Tactical Plan is included in the 2016-2018 Plan as Appendix B. Statewide marketing tactical plans for 2017 and 2018 will be included in their respective Annual Plan Updates. All tactical planning is subject to change, based on changing needs and priorities.

CONNECTICUT STATEWIDE ENERGY EFFICIENCY DASHBOARD

The Connecticut Statewide Energy Efficiency Dashboard ("Dashboard") is made up of a Statewide Dashboard and the Clean Energy Communities Dashboard. The Dashboard provides customers with data (updated monthly) on program performance, and metrics for the electric and natural gas energy-efficiency programs and initiatives. The Dashboard provides regulators, legislators, advisors, and the general public, a snapshot of how well the programs are performing by utilizing user-friendly graphs to portray program performance by company and sector, including expenditures and savings against budgets goals. The Dashboard was developed in 2013, and has undergone various refinements since that time. Additional information can be found in Appendix A: Statewide Dashboard.

PERFORMANCE MANAGEMENT INCENTIVES

The Companies earn a performance target incentive which is tied to managing Connecticut's energy-efficiency program budgets to achieve energy savings and net economic benefits, as well as other program specific-oriented metrics. Performance target incentives are generally based

on a percentage of energy-efficiency program costs; and this percentage varies depending on if targets and/or goals are met or exceeded. Most performance target incentives are tiered, and utilities have a range of different earnings potential based as a function of the percentage of targets reached. A 2012 Institute for Electric Efficiency report reveals that 23 states currently utilize a performance incentive mechanism, with six additional states currently awaiting approval.⁷

The performance management incentive serves as a great motivator and drives increased performance by the Companies resulting in increased customer net benefits. As a 2012 Regulatory Assistance Project study⁸ noted, the primary reasons for offering performance incentives are to ensure that: (1) regulated energy providers obtain similar financial rewards for investments in energy efficiency and for investments in energy supply resources, (2) energy providers will embrace a strong commitment to energy-efficiency goals, and (3) the performance of energy providers in energy-efficiency program delivery is maximized.

The performance management incentive is a relatively small portion of the net customer benefits, and incentivizes the Companies to achieve all cost-effective energy efficiency. Several studies have noted the positive benefits of financial incentives for utilities to promote cost-effective energy-efficiency programs, including that: “incentives make an energy-efficiency manager squarely responsible for developing the best program designs, partnerships, and marketing strategies.”⁹

During the 2013-2015 Plan, the Companies’ performance management incentives were based on a decreasing target level performance of 5 percent (2013), 4.5 percent (2014), and 4 percent (2015), as the budgets were expanding over these years. However, for the 2016-2018 Plan, the program budgets will remain relatively stable and the performance goals continue to be aggressive; thus making the targets harder to achieve due to lower avoided costs and decreasing opportunities in residential and commercial lighting. Therefore, the Companies are proposing a base/target 4.5 percent performance management incentive at 100 percent of goal for 2016, 2017, and 2018.

⁷ Institute for Electric Efficiency. *State Electric Efficiency Regulatory Frameworks*. The Edison Foundation, July 2012, p. 12.

⁸ Swanson, Sam. The Regulatory Assistance Project, *Regulatory Mechanisms to Enable Energy Provider Delivered Energy Efficiency*. March 2012.

⁹ Shirley, Wayne and Lisa Schwartz. The Regulatory Assistance Project, PowerPoint: *Energy-Efficiency Incentives for Utilities: A Review of Approaches So Far*. October 6, 2009.

In a recent ACEEE study, researchers studied performance management incentive mechanisms operating in 18 states (including Connecticut) and calculated that maximum available incentives range from 4.4 percent to 12 percent of program costs; with an average of 6 percent of program spending.¹⁰ The sliding scale of 2 to 8 percent performance management incentive (based on increasing performance) will still apply. The threshold for earning the minimum performance management incentive (2 percent) is the achievement of 75 percent of the performance goals. If the Companies achieve 135 percent of the performance goals, they will earn the maximum performance management incentive of 8 percent.

¹⁰ Hayes, Sara, Steven Nadel, Martin Kushler, and Dan York. *Carrots for Utilities: Providing Financial Returns for Utility Investments in Energy Efficiency*. American Council for an Energy Efficiency Economy, Report Number U111, January 2011, p. 11.

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CHAPTER TWO: BUDGET AND SAVINGS TABLES

COMBINED ELECTRIC BUDGET AND SAVINGS TABLES

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Table A2 – Combined Revenues Eversource CT Electric and UI Budgets (2015-2018)

Table A2
2015 - 2018
Eversource CT Electric/UI EE Revenues

ES CT Electric/UI EE REVENUES	2015			2016		
	Eversource CT Electric Revenues	2015 UI Revenues	2015 Eversource CT Electric/UI Total	Eversource CT Electric Revenues	2016 UI Revenues	2016 Eversource CT Electric/UI Total
Collections (Mill Rate)	\$ 66,402,134	\$ 15,978,000	\$ 82,380,134	\$ 66,737,325	\$ 15,879,000	\$ 82,616,325
ISO-NE Forward Capacity Market Revenues	\$ 12,000,000	\$ 2,800,000	\$ 14,800,000	\$ 9,700,000	\$ 2,700,000	\$ 12,400,000
RGGI*	\$ 10,837,793	\$ 2,407,573	\$ 13,245,366	\$ 16,665,314	\$ 4,166,329	\$ 20,831,643
CAM (Net of Gross Receipts Tax)	\$ 61,775,893	\$ 14,922,948	\$ 76,698,840	\$ 62,025,269	\$ 14,830,484	\$ 76,855,753
Prior Period Carry Over/(Under Recovery)	\$ 3,000,428	\$ (3,837,354)	\$ (836,926)	\$ -	\$ -	\$ -
Estimated Interest Due to Company	\$ -	\$ (457,867)	\$ (457,867)	\$ -	\$ -	\$ -
Total - EE Revenues	\$ 154,016,248	\$ 31,813,299	\$ 185,829,547	\$ 155,127,908	\$ 37,575,813	\$ 192,703,721

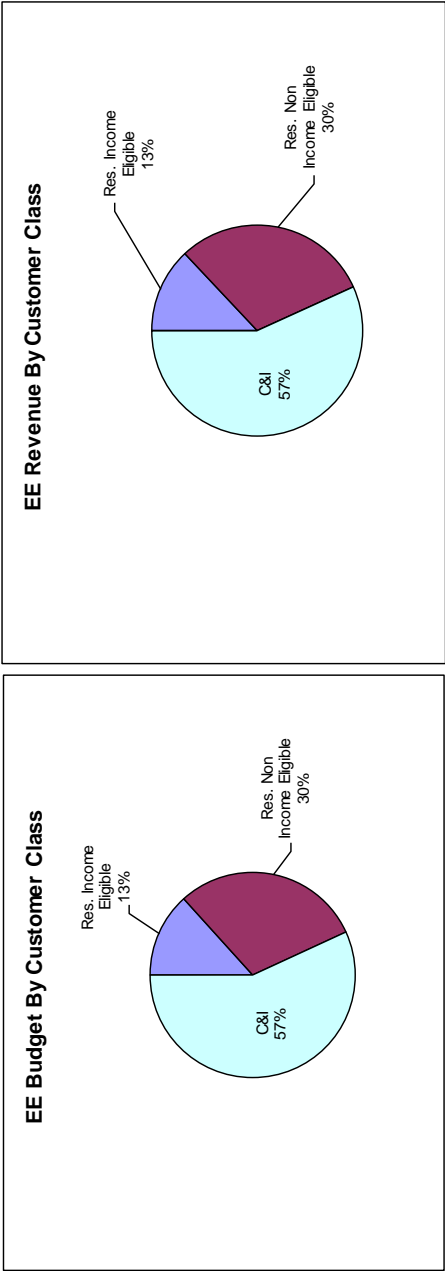
ES CT Electric/UI EE REVENUES	2017			2018		
	Eversource CT Electric Revenues	2017 UI Revenues	2017 Eversource CT Electric/UI Total	Eversource CT Electric Revenues	2018 UI Revenues	2018 Eversource CT Electric/UI Total
Collections (Mill Rate)	\$ 66,803,683	\$ 15,663,000	\$ 82,466,683	\$ 65,841,383	\$ 15,546,000	\$ 81,387,383
ISO-NE Forward Capacity Market Revenues	\$ 20,198,851	\$ 5,200,000	\$ 25,398,851	\$ 20,356,957	\$ 4,500,000	\$ 24,856,957
RGGI*	\$ 17,111,017	\$ 4,277,754	\$ 21,388,771	\$ 17,538,450	\$ 4,384,613	\$ 21,923,063
CAM (Net of Gross Receipts Tax)	\$ 62,086,942	\$ 14,628,747	\$ 76,715,689	\$ 61,192,586	\$ 14,519,472	\$ 75,712,058
Total - EE Revenues	\$ 166,200,493	\$ 39,769,501	\$ 205,969,994	\$ 164,929,376	\$ 38,950,085	\$ 203,879,461

*RGGI Budget is based on Public Act 13-247, revenues provided by DEEP on September 15, 2015

2016 Revenues are net of ISO-NE Annual Reconfiguration Auction. The EE Clearing prices are: FCA-6 -\$3.434/kW-month, FCA-7 -\$3.15/kW-month, FCA-8 -\$7.03/kW-month. 2018 Assumes Demand Response Portfolio is Retired as of June 2018.

Table A1 – Joint Pie 2016

Statewide (Eversource CT Electric and UI) 2016 EE Budget and Parity Analysis
Table A1 Pie Chart

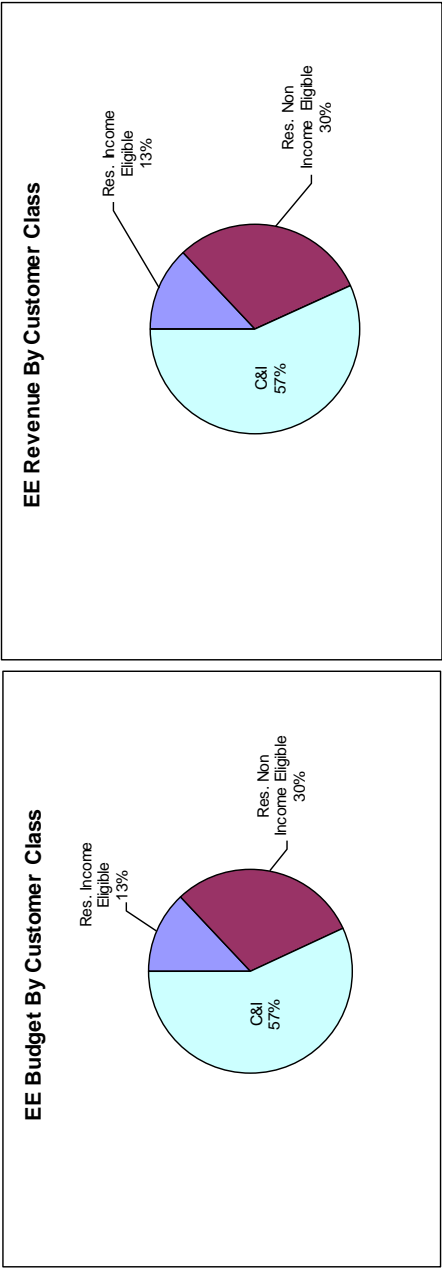


Customer Class	Budget (\$,000)	% of Total Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Income Eligible	\$23,295,199	12%	13%	13%	0%
Res. Non Income Eligible	\$52,308,490	27%	30%	30%	0%
Residential Subtotal	\$75,603,689	39%	43%	43%	0%
C&I	\$99,703,546	52%	57%	57%	0%
C&I Subtotal	\$99,703,546	52%	57%	57%	0%
Residential and C&I Subtotal	\$175,307,235	91%	100%	100%	0%
Other Expenditures					
Other Expenditures	\$17,396,486	9%			
Other Expenditures Subtotal	\$17,396,486	9%			
EE TOTAL	\$192,703,721	100%			
Eversource CT Electric	\$155,127,908	81%			
UI	\$37,575,813	19%			

Totals may vary due to rounding

Table A1 – Joint Pie 2017

Statewide (Eversource CT Electric and UI) 2017 EE Budget and Parity Analysis
Table A1 Pie Chart

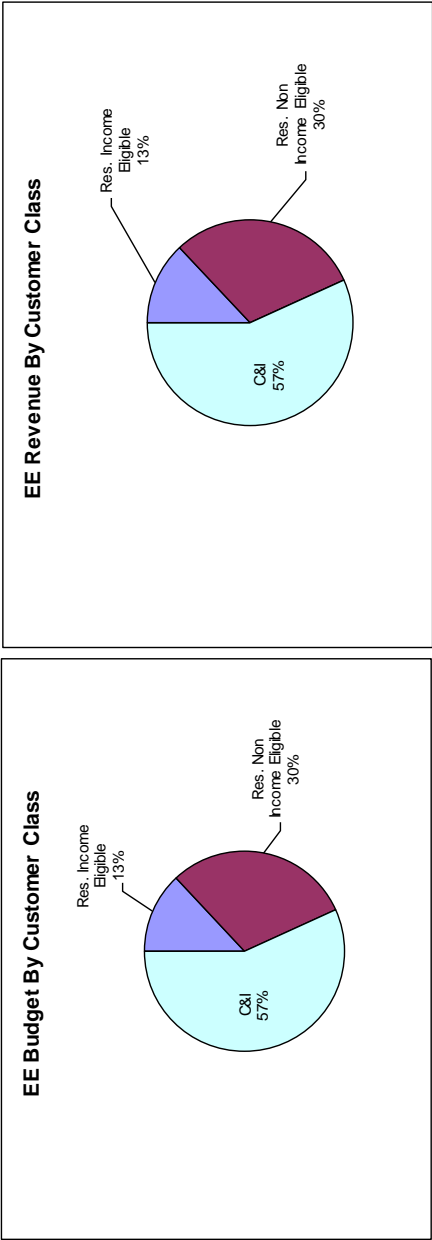


Customer Class	Budget (\$,000)	% of Total Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Income Eligible	\$24,377,194	12%	13%	13%	0%
Res. Non Income Eligible	\$56,530,105	27%	30%	30%	0%
Residential Subtotal	\$80,907,299	39%	43%	43%	0%
C&I	\$106,918,092	52%	57%	57%	0%
C&I Subtotal	\$106,918,092	52%	57%	57%	0%
Residential and C&I Subtotal	\$187,825,391	91%	100%	100%	0%
Other Expenditures					
Other Expenditures	\$18,144,603	9%			
Other Expenditures Subtotal	\$18,144,603	9%			
EE TOTAL	\$205,969,994	100%			
Eversource CT Electric	\$166,200,493	81%			
UI	\$39,769,501	19%			

Totals may vary due to rounding

Table A1 – Joint Pie 2018

Statewide (ES CT Electric and UI) 2018 EE Budget and Parity Analysis
Table A1 Pie Chart



Customer Class	Budget (\$,000)	% of Total Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Income Eligible	\$24,211,175	12%	13%	13%	0%
Res. Non Income Eligible	\$55,997,197	27%	30%	30%	0%
Residential Subtotal	\$80,208,372	39%	43%	43%	0%
C&I	\$105,439,667	52%	57%	57%	0%
C&I Subtotal	\$105,439,667	52%	57%	57%	0%
Residential and C&I Subtotal	\$185,648,039	91%	100%	100%	0%
Other Expenditures					
Other Expenditures	\$18,231,423	9%			
Other Expenditures Subtotal	\$18,231,423	9%			
EE TOTAL					
Eversource CT Electric	\$203,879,462	100%			
UI	\$164,929,376	81%			
	\$38,950,085	19%			

Totals may vary due to rounding

Table B4 –2016 Total Resource Costs and Benefits

Program	2016 Combined Statewide Costs & Benefits (Eversource & UI)																	
	Costs				Electric Savings			Natural Gas Savings			Delivered Fuel Savings			Total Annual Emissions Reduction (tons CO2)		Total Resource Benefit		
	Electric Cost	Gas Cost	Oil & Propane Cost	Customer Cost	Total Resource Cost	Annual (MWh)	Lifetime (MWh)	Peak Impact (kW)	Annual (cfc)	Lifetime (cfc)	Peak Impact (cfc)	Annual Oil (Gal)	Lifetime Oil (Gal)	Annual Propane (Gal)	Lifetime Propane (Gal)		Annual MMBtu	
Residential																		
Residential Retail Products	\$ 17,074,217	\$ -	\$ -	\$ 14,181,282	\$ 31,255,499	83,731	732,932	9,769	-	-	-	-	-	-	-	285,774	24,525	\$101,008,482
Home Energy Solutions	\$ 11,468,747	\$ 8,195,631	\$ 9,986,400	\$ 4,284,480	\$ 33,935,258	18,461	202,024	3,248	949,785	17,389,442	12,203	949,867	18,596,914	103,048	2,044,848	301,887	16,920	\$70,920,634
HES - HVAC	\$ 2,867,839	\$ 4,848,017	\$ -	\$ 8,062,167	\$ 15,778,023	4,802	72,595	367	643,556	12,763,074	6,168	-	-	-	-	82,612	2,775	\$27,704,038
HES - Income Eligible	\$ 12,655,187	\$ 11,286,834	\$ 8,754,985	\$ 253,733	\$ 32,950,739	12,859	130,672	999	1,002,940	20,275,384	12,761	328,268	6,468,035	10,901	-	193,613	9,172	\$37,753,338
New Construction	\$ 2,368,646	\$ 2,549,233	\$ 542,999	\$ 7,049,651	\$ 12,510,529	2,301	36,190	886	334,767	7,820,103	2,881	-	-	-	-	47,073	1,828	\$24,595,440
Behavior	\$ 3,540,257	\$ 213,196	\$ -	\$ -	\$ 3,753,453	22,224	56,589	4,066	85,000	314,500	0	-	-	-	-	84,597	6,501	\$8,805,225
Subtotal Residential	\$ 49,974,892	\$ 27,092,912	\$ 19,284,384	\$ 33,831,314	\$ 130,183,502	144,378	1,231,003	19,336	3,016,048	58,562,503	34,014	1,278,134	25,064,949	166,185	3,350,756	995,557	61,722	\$270,787,157
Commercial & Industrial																		
Energy Conscious Blueprint	\$ 17,177,378	\$ 7,247,983	\$ -	\$ 12,282,601	\$ 36,707,962	48,098	735,671	7,774	1,164,391	18,283,938	9,255	-	-	-	-	283,973	16,681	\$105,472,726
Energy Opportunities	\$ 43,643,897	\$ 4,302,114	\$ -	\$ 65,768,533	\$ 113,714,564	122,215	1,435,888	16,323	1,308,680	14,757,108	8,420	-	-	-	-	551,782	41,309	\$192,589,181
Small Business	\$ 21,365,882	\$ 777,003	\$ -	\$ 24,254,274	\$ 46,397,159	43,012	529,480	5,117	183,117	2,516,682	1,535	-	-	-	-	165,643	12,590	\$60,010,392
BES (O&M, RCX, SEM, PRIME)	\$ 7,400,015	\$ 1,521,129	\$ -	\$ 10,658,573	\$ 19,579,717	34,326	246,445	3,090	912,529	5,178,389	5,399	-	-	-	-	211,055	11,401	\$43,247,690
Subtotal C&I	\$ 89,587,171	\$ 13,848,229	\$ -	\$ 112,964,001	\$ 216,399,401	247,651	2,947,484	32,303	3,568,718	40,736,117	24,608	-	-	-	-	1,212,453	81,982	\$401,319,990
ISO Load Response Program	\$ 3,946,000	\$ -	\$ -	\$ -	\$ 3,946,000	-	-	95,000	-	-	-	-	-	-	-	-	-	\$7,594,713
Other	\$ 29,911,274	\$ 6,725,462	\$ -	\$ -	\$ 36,636,736	-	-	-	-	-	-	-	-	-	-	-	-	\$43,362,202
Total	\$ 173,419,337	\$ 47,666,603	\$ 19,284,384	\$ 146,795,315	\$ 550,528,903	392,029	4,178,487	146,640	6,584,766	99,298,620	58,622	1,278,134	25,064,949	166,185	3,350,756	1,437,039	143,703	\$679,701,860

Table B4 –2017 Total Resource Costs and Benefits

Table B-4 2017 Combined Statewide Costs & Benefits (Eversource & UI)																	
Program	Costs				Electric Savings			Natural Gas Savings			Delivered Fuel Savings			Total Annual Emissions Reduction (tons CO2)		Total Resource Benefit	
	Electric Cost	Gas Cost	Oil & Propane Cost	Customer Cost	Total Resource Cost	Annual (MWh)	Lifetime (MWh)	Peak Impact (kW)	Annual (ccf)	Lifetime (ccf)	Peak Impact (ccf)	Annual Oil (Gal)	Lifetime Oil (Gal)	Annual Propane (Gal)	Lifetime Propane (Gal)		Annual MMBtu
Residential																	
Residential Retail Products	\$ 18,547,613	\$ -	\$ -	\$ 15,293,864	\$ 33,841,476	77,814	660,459	9,972	-	-	-	-	-	-	-	265,581	\$95,123,744
Home Energy Solutions	\$ 12,528,011	\$ 9,685,488	\$ 11,076,069	\$ 3,933,446	\$ 37,223,014	20,131	211,738	3,535	1,123,754	20,756,092	12,427	1,069,845	21,088,876	119,478	2,389,631	343,629	\$81,664,759
HES - HVAC	\$ 3,415,816	\$ 5,289,206	\$ -	\$ 11,888,325	\$ 20,594,347	5,763	89,810	591	749,907	14,822,064	7,633	-	-	-	-	96,834	\$30,455,343
HES - Income Eligible	\$ 13,147,744	\$ 13,749,863	\$ 9,361,020	\$ 134,536	\$ 36,393,164	13,966	138,799	1,108	1,219,993	24,942,613	13,251	351,922	6,897,565	11,082	-	223,025	\$42,370,993
New Construction	\$ 2,446,110	\$ 2,549,233	\$ 555,571	\$ 6,934,134	\$ 12,485,048	2,301	36,182	886	309,276	7,228,980	2,651	-	-	52,225	1,305,627	44,447	\$26,161,515
Behavior	\$ 3,484,931	\$ 281,131	\$ -	\$ (281,131)	\$ 3,484,931	23,178	59,006	4,283	90,667	258,400	0	-	-	-	-	88,436	\$8,801,102
Subtotal Residential	\$ 53,570,225	\$ 31,554,921	\$ 20,992,660	\$ 37,904,174	\$ 144,021,981	143,153	1,195,994	20,374	3,493,597	68,008,148	35,963	1,421,767	27,986,441	182,785	3,695,258	1,061,951	\$284,577,457
Commercial & Industrial																	
Energy Conscious Blueprint	\$ 19,432,523	\$ 8,670,540	\$ -	\$ 15,714,391	\$ 43,817,455	53,835	822,308	8,537	1,368,647	21,496,543	11,777	-	-	-	-	324,572	\$117,491,258
Energy Opportunities	\$ 47,780,734	\$ 5,098,124	\$ -	\$ 74,018,660	\$ 126,897,518	132,248	1,551,441	17,643	1,529,372	17,302,991	10,410	-	-	-	-	608,734	\$206,273,081
Small Business	\$ 22,360,885	\$ 822,292	\$ -	\$ 29,618,113	\$ 52,801,289	45,707	564,730	5,449	199,718	2,727,854	1,652	-	-	-	-	176,548	\$62,386,391
BES (O&M, RCx, SEM, PRIME)	\$ 8,230,076	\$ 1,714,355	\$ -	\$ 13,216,122	\$ 23,160,552	41,799	288,057	3,397	1,072,923	6,020,078	6,260	-	-	-	-	253,063	\$49,206,797
Subtotal C&I	\$ 97,804,217	\$ 16,305,311	\$ -	\$ 132,567,286	\$ 246,676,814	273,588	3,226,536	35,026	4,170,660	47,547,467	30,099	-	-	-	-	1,362,916	\$435,357,526
ISO Load Response Program	\$ 3,194,750	\$ -	\$ -	\$ -	\$ 3,194,750	-	-	95,000	-	-	-	-	-	-	-	-	\$15,858,717
Other	\$ 30,408,141	\$ 57,046,721	\$ -	\$ -	\$ 87,454,862	416,741	4,422,550	150,400	7,664,257	115,555,615	66,060	1,421,767	27,986,441	182,785	3,695,258	2,424,868	\$735,793,700
Total	\$ 184,977,334	\$ 54,906,953	\$ 20,992,660	\$ 170,471,460	\$ 393,893,545	416,741	4,422,550	150,400	7,664,257	115,555,615	66,060	1,421,767	27,986,441	182,785	3,695,258	2,424,868	\$735,793,700

Table B4 –2018 Total Resource Costs and Benefits

Table B-4 2018 Combined Statewide Costs & Benefits (Eversource & UI)																	
Program	Costs				Electric Savings			Natural Gas Savings			Delivered Fuel Savings			Total Annual Emissions Reduction (tons CO2)		Total Resource Benefit	
	Electric Cost	Gas Cost	Oil & Propane Cost	Total Resource Cost	Annual (MWh)	Lifetime (MWh)	Peak Impact (kW)	Annual (ccf)	Lifetime (ccf)	Peak Impact (ccf)	Annual (Oil (Gal))	Lifetime (Oil (Gal))	Annual (Propane (Gal))	Lifetime (Propane (Gal))	Annual (MMBtu)		Total
Residential																	
Residential Retail Products	\$ 18,363,696	\$ -	\$ -	\$ 14,933,261	\$ 33,296,957	67,274	539,024	8,964	-	-	-	-	-	-	229,606	19,698	\$80,715,925
Home Energy Solutions	\$ 12,753,118	\$ 9,980,595	\$ 10,673,902	\$ 4,453,712	\$ 37,861,327	19,772	198,500	3,494	1,218,770	22,262,428	13,998	1,065,334	21,057,894	115,166	2,315,997	351,161	\$81,849,160
HES - HVAC	\$ 3,397,969	\$ 5,439,336	\$ -	\$ 12,192,242	\$ 21,029,547	5,797	90,052	591	779,059	15,399,310	6,864	-	-	-	99,949	3,343	\$31,716,967
HES - Income Eligible	\$ 13,459,631	\$ 14,417,695	\$ 8,928,473	\$ 101,436	\$ 36,907,236	14,025	136,996	1,117	1,287,939	26,351,848	14,009	367,033	7,238,438	1,091	232,296	10,982	\$45,132,682
New Construction	\$ 2,386,856	\$ 2,549,233	\$ 566,579	\$ 6,933,885	\$ 12,436,553	2,300	36,175	886	309,188	7,226,945	2,650	-	-	52,214	1,305,346	44,435	\$26,275,487
Behavior	\$ 3,333,734	\$ 482,987	\$ -	\$ (482,987)	\$ 3,333,734	44,102	126,883	8,754	246,500	702,525	0	-	-	-	175,885	13,995	\$9,530,229
Subtotal Residential	\$ 53,695,004	\$ 32,869,847	\$ 20,168,954	\$ 38,131,549	\$ 144,865,354	153,269	1,127,630	23,806	3,841,457	71,943,055	37,518	1,432,367	28,296,332	178,298	3,621,343	1,133,333	\$275,220,445
Commercial & Industrial																	
Energy Conscious Blueprint	\$ 19,264,562	\$ 10,224,937	\$ -	\$ 26,382,703	\$ 55,872,202	52,017	794,373	8,193	1,601,545	25,081,914	13,559	-	-	-	342,334	19,359	\$117,036,802
Energy Opportunities	\$ 47,947,919	\$ 5,791,479	\$ -	\$ 73,339,955	\$ 127,079,353	129,889	1,526,748	17,562	1,681,291	19,074,276	11,770	-	-	-	616,317	45,667	\$204,443,382
Small Business	\$ 22,279,309	\$ 999,457	\$ -	\$ 29,368,701	\$ 52,647,468	45,694	564,119	5,539	236,799	3,187,799	1,919	-	-	-	180,319	13,326	\$64,446,426
BES (O&M, RCx, SEM, PRIME)	\$ 8,334,002	\$ 1,821,294	\$ -	\$ 11,327,060	\$ 21,482,356	52,906	363,525	4,458	1,044,066	5,909,703	6,347	-	-	-	288,001	12,165	\$56,820,304
Subtotal C&I	\$ 97,825,793	\$ 18,837,167	\$ -	\$ 140,418,420	\$ 257,081,379	280,506	3,248,765	35,751	4,563,701	53,253,692	33,594	-	-	-	1,426,971	90,517	\$442,746,914
ISO Load Response Program	\$ 1,694,750	\$ -	\$ -	\$ -	\$ 1,694,750	-	-	95,000	-	-	-	-	-	-	-	-	\$18,166,764
Other	\$ 30,494,960	\$ 7,250,625	\$ -	\$ -	\$ 37,745,585	433,775	4,376,395	154,557	8,405,158	125,196,747	71,113	1,432,367	28,296,332	178,298	3,621,343	2,560,304	\$160,070
Total	\$ 183,710,507	\$ 58,957,639	\$ 20,168,954	\$ 178,549,969	\$ 403,641,483	433,775	4,376,395	154,557	8,405,158	125,196,747	71,113	1,432,367	28,296,332	178,298	3,621,343	2,560,304	\$736,134,127

EVERSOURCE ELECTRIC BUDGET AND SAVINGS TABLES

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Table A – Eversource CT Electric Budget (2015-2018)
Table A

EVERSOURCE CT ELECTRIC 2015-2018 EE Budget

EVERSOURCE CT ELECTRIC EE BUDGET	2015 ES CT Electric DEEP Approved Budget 03/20/15	2016 ES CT Electric Proposed Budget 10/01/15	2017 ES CT Electric Proposed Budget 10/01/15	2018 ES CT Electric Proposed Budget 10/01/15
RESIDENTIAL				
Residential Retail Products	\$ 12,368,931	\$ 13,622,165	\$ 14,831,269	\$ 14,749,957
Total - Consumer Products	\$ 12,368,931	\$ 13,622,165	\$ 14,831,269	\$ 14,749,957
Residential New Construction	\$ 2,370,504	\$ 2,411,645	\$ 2,501,681	\$ 2,453,435
Home Energy Solutions - Core Services*	\$ 20,276,439	\$ 17,965,248	\$ 19,790,039	\$ 19,623,984
Home Energy Solutions - HVAC, Water Heaters**	\$ -	\$ 2,000,000	\$ 2,500,000	\$ 2,500,000
HES Income Eligible	\$ 17,365,620	\$ 17,459,712	\$ 18,271,090	\$ 18,212,224
Residential Behavior	\$ 2,700,000	\$ 3,000,000	\$ 3,000,000	\$ 3,000,000
Subtotal Residential	\$ 55,081,494	\$ 56,458,769	\$ 60,894,078	\$ 60,539,599
COMMERCIAL & INDUSTRIAL				
C&I LOST OPPORTUNITY				
Energy Conscious Blueprint	\$ 11,637,117	\$ 12,569,504	\$ 14,728,819	\$ 14,741,400
Total - Lost Opportunity	\$ 11,637,117	\$ 12,569,504	\$ 14,728,819	\$ 14,741,400
C&I LARGE RETROFIT				
Energy Opportunities	\$ 35,559,267	\$ 36,141,903	\$ 39,920,025	\$ 40,302,812
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 4,915,157	\$ 5,649,490	\$ 5,817,445	\$ 5,873,161
PRIME	\$ 666,801	\$ -	\$ -	\$ -
Total - C&I Large Retrofit	\$ 41,141,225	\$ 41,791,392	\$ 45,737,470	\$ 46,175,973
Small Business	\$ 17,385,278	\$ 16,729,867	\$ 17,394,717	\$ 17,440,258
Subtotal C&I	\$ 70,163,620	\$ 71,090,763	\$ 77,861,006	\$ 78,357,631
OTHER - EDUCATION				
Educate the Public	\$ 1,934,526	\$ 1,824,646	\$ 1,824,646	\$ 1,824,646
Customer Engagement	\$ 1,968,000	\$ 1,968,000	\$ 1,968,000	\$ 1,968,000
Educate the Students	\$ 479,126	\$ 412,236	\$ 412,236	\$ 412,236
Educate the Workforce	\$ -	\$ 357,662	\$ 357,662	\$ 357,662
Subtotal Education	\$ 4,381,652	\$ 4,562,544	\$ 4,562,544	\$ 4,562,544
OTHER - PROGRAMS/REQUIREMENTS				
Residential Loan Program (Includes ECLF and OBR)***	\$ 2,053,121	\$ 1,453,121	\$ 1,453,121	\$ 1,453,121
C&I Financing Support	\$ -	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000
Research, Development & Demonstration	\$ 442,308	\$ 442,000	\$ 442,000	\$ 442,000
Institute for Sustainable Energy (ECSU) (moved to Educate the Workforce)	\$ 396,800	\$ -	\$ -	\$ -
ESPC Project Manager - Lead By Example (removed for 2016 - 2018)	\$ 96,000	\$ -	\$ -	\$ -
C&I Loan Program	\$ 1,087,227	\$ -	\$ -	\$ -
EE Loan Defaults	\$ 125,000	\$ -	\$ -	\$ -
C&I Self-Funding	\$ 4,000,000	\$ -	\$ -	\$ -
Subtotal Programs/Requirements	\$ 8,200,456	\$ 5,395,121	\$ 5,395,121	\$ 5,395,121
OTHER - LOAD MANAGEMENT				
ISO Load Response & Pilot Demand Program	\$ 3,850,000	\$ 3,946,000	\$ 3,194,750	\$ 1,694,750
Subtotal Load Management	\$ 3,850,000	\$ 3,946,000	\$ 3,194,750	\$ 1,694,750
OTHER - ADMINISTRATIVE & PLANNING				
Administration	\$ 907,271	\$ 907,271	\$ 907,271	\$ 907,271
Marketing Plan	\$ 726,667	\$ 778,154	\$ 778,154	\$ 778,154
Planning	\$ 703,170	\$ 703,170	\$ 703,170	\$ 703,170
Evaluation Measurement and Verification	\$ 2,240,000	\$ 2,560,000	\$ 2,688,000	\$ 2,816,000
Evaluation Administrator	\$ 160,000	\$ 281,600	\$ 295,680	\$ 309,760
Information Technology	\$ 1,338,112	\$ 1,338,112	\$ 1,338,112	\$ 1,338,112
Energy Efficiency Board Consultants	\$ 360,108	\$ 360,108	\$ 360,108	\$ 360,108
Audits - Financial and Operational	\$ -	\$ 98,000	\$ 98,000	\$ 98,000
Performance Management Incentive (PMI)	\$ 5,903,698	\$ 6,648,296	\$ 7,124,499	\$ 7,069,156
Subtotal Admin/Planning Expenditures	\$ 12,339,026	\$ 13,674,711	\$ 14,292,994	\$ 14,379,731
PROGRAM SUBTOTALS				
Residential	\$ 61,221,270	\$ 61,529,756	\$ 65,965,065	\$ 65,610,586
C&I	\$ 80,343,510	\$ 80,259,595	\$ 86,278,587	\$ 85,275,212
Other	\$ 12,451,467	\$ 13,338,557	\$ 13,956,840	\$ 14,043,578
TOTAL C&LM BUDGET	\$ 154,016,248	\$ 155,127,908	\$ 166,200,493	\$ 164,929,376
TOTAL	\$ 154,016,248	\$ 155,127,908	\$ 166,200,493	\$ 164,929,376

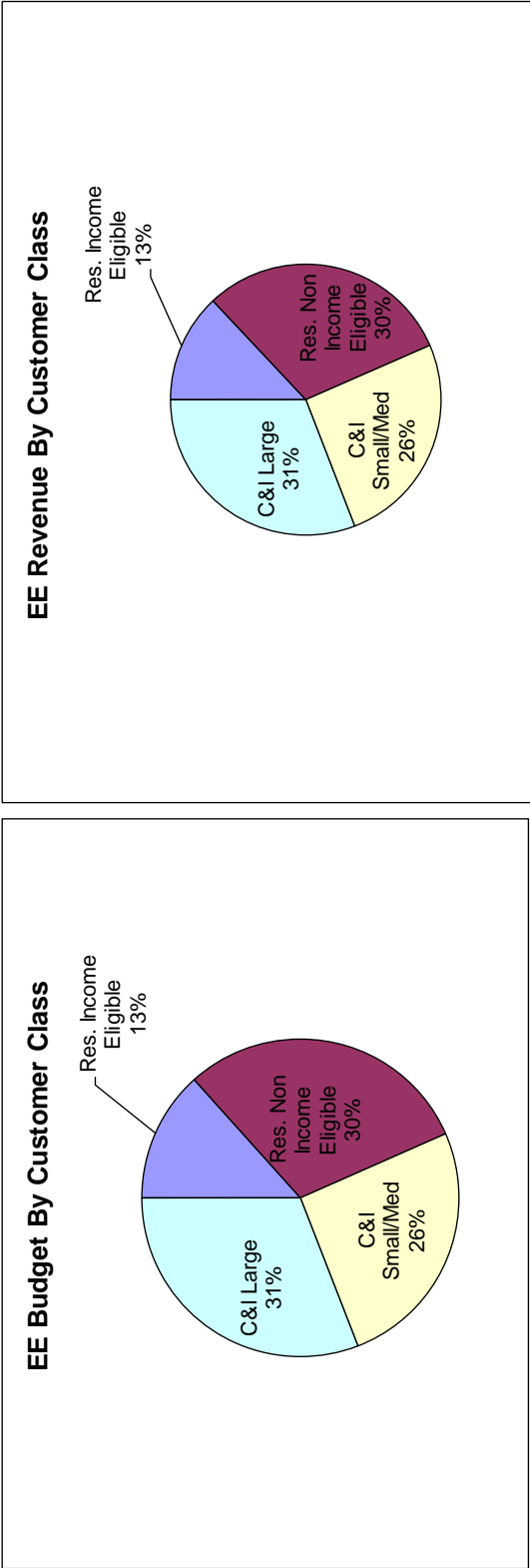
* Home Energy Solutions - HVAC, Duct Sealing, Lighting, Core Services (Single Family, Multi Family, Home Performance) 2016 - 2018

** Home Energy Solutions - HVAC, Water Heaters 2016 - 2018

*** Residential Loan Program budget includes \$40,000 for Eversource CT Electric for administrative costs to service Green Bank's On Bill Repayment 2016 & 2018 Financial Audits (every two years) and 2017 Management Audit (every five years)

Table A – Pie - Eversource CT Electric 2016

Eversource CT Electric 2016 EE Budget and Parity Analysis
Table A Pie Chart

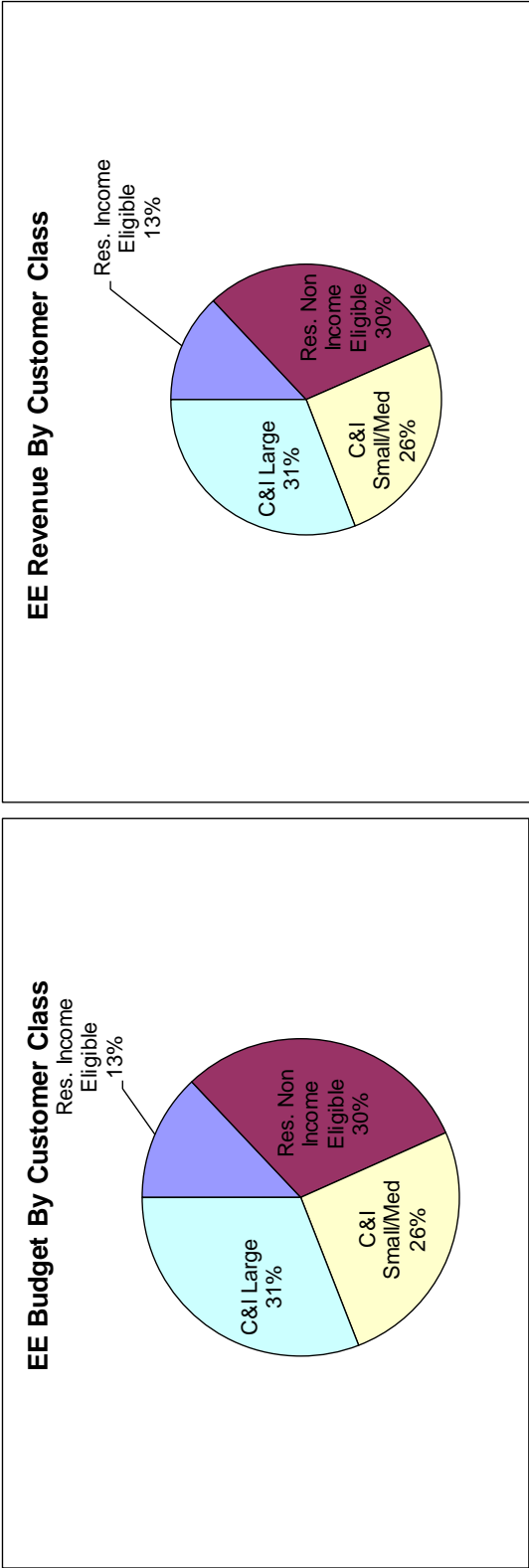


Customer Class	Budget	% of Total Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Income Eligible	\$18,915,402	12%	13%	13%	0%
Res. Non Income Eligible	\$42,614,354	27%	30%	30%	0%
Residential Subtotal	\$61,529,756	40%	43%	43%	0%
C&I Small/Med	\$36,437,856	23%	26%	26%	0%
C&I Large	\$43,821,739	28%	31%	31%	0%
C&I Subtotal	\$80,259,595	52%	57%	57%	0%
Residential and C&I Subtotal	\$141,789,351	91%	100%	100%	0%
<i>Other Expenditures</i>					
Other Expenditures	\$13,338,557	9%			
Other Expenditures Subtotal	\$13,338,557	9%			
EE TOTAL	\$155,127,908	100%			

Note - Municipalities and state facilities are eligible to participate in C&I Program offerings as applicable.

Table A – Pie - Eversource CT Electric 2017

Eversource CT Electric 2017 EE Budget and Parity Analysis
Table A Pie Chart

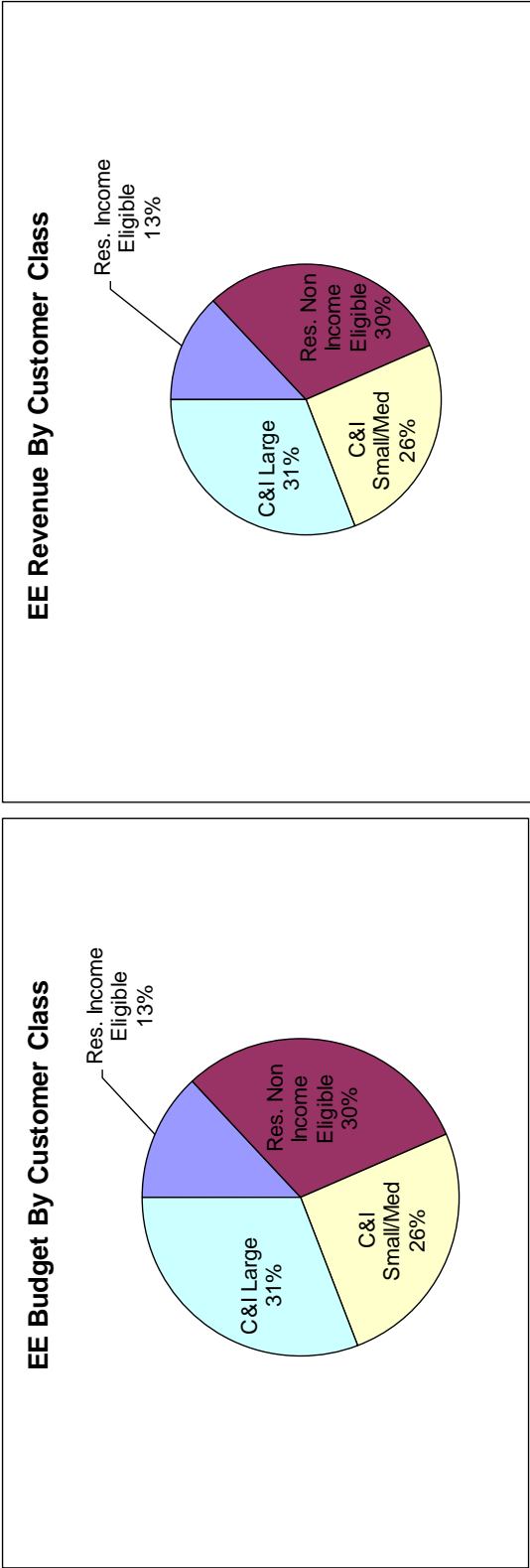


Customer Class	Budget	% of Total Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Income Eligible	\$19,726,780	12%	13%	13%	0%
Res. Non Income Eligible	\$46,238,285	28%	30%	30%	0%
Residential Subtotal	\$65,965,065	40%	43%	43%	0%
C&I Small/Med	\$39,170,479	24%	26%	26%	0%
C&I Large	\$47,108,109	28%	31%	31%	0%
C&I Subtotal	\$86,278,587	52%	57%	57%	0%
Residential and C&I Subtotal	\$152,243,653	92%	100%	100%	0%
<i>Other Expenditures</i>					
Other Expenditures	\$13,956,840	8%			
Other Expenditures Subtotal	\$13,956,840	8%			
EE TOTAL	\$166,200,493	100%			

Note - Municipalities and state facilities are eligible to participate in C&I Program offerings as applicable.

Table A – Pie - Eversource CT Electric 2018

Eversource CT Electric 2018 EE Budget and Parity Analysis
Table A Pie Chart



Customer Class	Budget	% of Total Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Income Eligible	\$19,667,914	12%	13%	13%	0%
Res. Non Income Eligible	\$45,942,672	28%	30%	30%	0%
Residential Subtotal	\$65,610,586	40%	43%	43%	0%
C&I Small/Med	\$38,714,946	23%	26%	26%	0%
C&I Large	\$46,560,266	28%	31%	31%	0%
C&I Subtotal	\$85,275,212	52%	57%	57%	0%
Residential and C&I Subtotal	\$150,885,799	91%	100%	100%	0%
<i>Other Expenditures</i>					
Other Expenditures	\$14,043,578	9%			
Other Expenditures Subtotal	\$14,043,578	9%			
EE TOTAL	\$164,929,376	100%			

Note - Municipalities and state facilities are eligible to participate in C&I Program offerings as applicable.

Table B1 – Eversource CT Electric – Costs and Benefits 2016

Program		Costs		Benefits		Benefit Cost Ratios			Electric Savings				Electric Cost Rates				Oil/Propane Savings				MMBtu Savings & Cost				
		Utility Cost	Modified Utility Cost	Total Resource Cost	Utility Benefit	Modified Utility Benefit	Total Resource Benefit	Utility B/C Ratio	Modified Utility B/C Ratio	Total B/C Ratio	Annualized Savings (MMWh)	Lifetime Savings (MMWh)	Peak kW Impact (Yr/E)	Electric Demand Cost \$/kW	Electric Demand Cost \$/kW-yr	Electric Cost Rate \$/kWh	Electric Cost Rate Annualize \$/kWh	Annual Savings (Gal)	Lifetime Savings (Gal)	Propane Savings (Gal)	Annual MMBtu	Lifetime MMBtu	Utility Cost per MMBtu	Utility Cost per Annual Lifetime MMBtu	
Residential																									
Residential Retail Products		\$13,622,165	\$13,622,165	\$24,792,006	\$51,489,640	\$82,271,005	3.78	3.78	3.32	67,192	587,271	8,313	\$1,639	\$187	\$0.20	\$0.023	0	0	0	229,325	2,004,356	\$59.40	\$6.80		
Home Energy Solutions		\$9,467,560	\$17,965,248	\$19,090,656	\$51,721,547	\$62,298,317	1.81	2.88	3.26	15,345	174,086	2,563	\$3,693	\$326	\$0.62	\$0.054	796,241	15,789,440	97,345	1,938,762	171,695	2,961,060	\$55.14	\$3.20	
HE5 - HVAC		\$2,000,000	\$2,000,000	\$6,679,885	\$3,982,333	\$5,794,248	1.99	0.87	0.87	3,498	51,056	252	\$7,950	\$545	\$0.57	\$0.039	0	0	0	0	11,940	174,254	\$167.50	\$11.48	
HE5 - Income Eligible		\$10,728,336	\$17,659,712	\$17,713,445	\$8,853,029	\$16,873,190	0.83	0.97	1.29	11,016	111,416	799	\$13,423	\$1,327	\$0.97	\$0.096	216,831	3,918,009	0	0	67,669	923,653	\$158.54	\$11.62	
New Construction		\$1,868,646	\$2,411,645	\$4,773,062	\$1,198,174	\$4,758,944	1.71	1.97	1.35	1,896	31,096	810	\$2,306	\$141	\$0.99	\$0.060	0	0	52,296	1,305,908	11,243	225,401	\$8.29	\$8.29	
Behavior		\$3,000,000	\$3,000,000	\$3,000,000	\$4,961,321	\$7,132,861	1.65	1.65	2.38	17,811	45,116	4,066	\$738	\$291	\$0.17	\$0.066	0	0	0	0	60,789	153,980	\$49.35	\$19.48	
Subtotal Residential		\$40,686,706	\$56,628,769	\$76,049,054	\$89,622,827	\$133,786,974	2.16	2.37	2.46	116,759	1,000,041	16,804	\$2,421	\$283	\$0.365	\$0.041	1,013,072	19,707,449	149,581	3,246,670	552,662	6,442,703	\$73.62	\$6.32	
Commercial & Industrial																									
Energy Conscious Blueprint		\$12,569,504	\$12,569,504	\$15,215,965	\$48,836,441	\$67,756,407	3.89	3.89	4.45	35,480	539,055	5,796	\$2,169	\$143	\$0.354	\$0.0238	0	0	0	0	121,004	1,889,794	\$103.80	\$6.88	
Energy Opportunities		\$36,141,903	\$36,141,903	\$82,573,339	\$105,606,686	\$150,763,958	2.92	2.92	1.63	102,466	1,186,360	14,053	\$2,372	\$222	\$0.353	\$0.0304	0	0	0	0	349,786	4,055,672	\$103.33	\$8.97	
Small Business		\$16,729,867	\$16,729,867	\$34,004,804	\$34,004,804	\$48,513,081	2.03	2.03	1.51	33,364	406,949	3,995	\$4,187	\$348	\$0.501	\$0.0411	0	0	0	0	113,672	1,388,915	\$166.52	\$12.05	
BES (OBM, RCX, SEM, PRIME)		\$5,669,490	\$5,669,490	\$14,545,872	\$15,771,314	\$27,954,766	2.79	2.79	1.92	25,314	187,470	2,858	\$1,977	\$273	\$0.218	\$0.0301	0	0	0	0	88,446	639,834	\$63.88	\$8.83	
Subtotal C&I		\$71,090,763	\$71,090,763	\$154,936,654	\$204,256,246	\$294,988,252	2.87	2.87	1.91	197,245	2,321,833	26,702	\$2,662	\$226	\$0.360	\$0.0306	0	0	0	0	673,198	7,924,416	\$105.60	\$8.97	
Load Management																									
ISO Load Response Program		\$3,946,000	\$3,946,000	\$3,946,000	\$7,594,713	\$7,594,713	1.92	1.92	1.92	0	0	95,000	\$42	\$0	NA	NA	0	0	0	0	0	0	0	NA	NA
Subtotal Load Management		\$3,946,000	\$3,946,000	\$3,946,000	\$7,594,713	\$7,594,713	1.92	1.92	1.92	0	0	95,000	\$42	\$0	NA	NA	0	0	0	0	0	0	0	NA	NA
Subtotal Other		\$23,632,376	\$23,632,376	\$23,632,376	\$304,473,886	\$345,637,933	2.16	2.23	1.90	314,004	3,321,874	138,507	\$1,006	\$95	\$0.444	\$0.042	1,013,072	19,707,449	149,581	3,246,670	1,225,860	14,367,119	\$113.68	\$9.76	
Total C&I M Budget		\$139,355,845	\$155,127,948	\$268,134,084	\$304,473,886	\$488,416,344	2.16	2.23	1.90	314,004	3,321,874	138,507	\$1,006	\$95	\$0.444	\$0.042	1,013,072	19,707,449	149,581	3,246,670	1,225,860	14,367,119	\$113.68	\$9.76	

Table B1 – Eversource CT Electric – Costs and Benefits 2017

Program	Costs		Benefits		Benefit Cost Ratios		Electric Savings		Electric Cost Rates			Oil/Propane Savings			MMBtu Savings & Cost					
	Utility Cost	Modified Utility Cost	Modified Utility Benefit	Total Resource Benefit	Utility B/C Ratio	Modified B/C Ratio	Total Resource B/C Ratio	Annualized Savings (MWh)	Peak kW Impact (Yr)	Electric Demand Cost \$/kW	Electric Demand Cost \$/kW-yr	Electric Cost Rate \$/Wh Annualize	Annual Oil Savings (Gal)	Lifetime Oil Savings (Gal)	Annual Propane Savings (Gal)	Lifetime Propane Savings (Gal)	Annual MMBtu Savings	Lifetime MMBtu Savings	Utility Cost per Annual MMBtu	Utility Cost per Lifetime MMBtu
Residential																				
Residential Retail Products	\$14,831,769	\$14,831,769	\$44,985,514	\$76,018,862	3.03	3.03	2.84	63,030	536,435	8,019	\$1,850	\$218	\$0.239	\$0.038	0	0	214,675	1,796,721	\$70.07	\$8.25
Home Energy Solutions	\$30,203,681	\$3,790,039	\$17,967,862	\$59,455,298	1.76	3.00	3.41	17,239	184,547	2,887	\$3,536	\$330	\$0.392	\$0.025	912,818	18,221,377	136,679	3,362,615	\$32.18	\$3.04
HES - HVAC	\$2,300,000	\$2,300,000	\$5,278,492	\$7,622,513	2.11	2.11	0.73	4,407	66,678	400	\$6,246	\$413	\$0.367	\$0.037	0	0	15,089	227,571	\$166.23	\$10.99
HES - Income Eligible	\$11,031,321	\$8,271,090	\$9,088,609	\$16,141,062	0.82	0.99	1.33	11,907	117,821	887	\$12,444	\$1,262	\$0.326	\$0.094	235,199	4,244,025	73,257	983,362	\$150.58	\$11.15
New Construction	\$1,946,110	\$2,301,681	\$3,151,669	\$4,766,697	1.62	1.91	1.33	1,896	31,089	810	\$2,402	\$146	\$1.027	\$0.063	0	0	11,280	225,350	\$173.14	\$8.64
Behavior	\$3,000,000	\$3,000,000	\$4,905,739	\$7,215,179	1.64	1.64	2.41	18,758	47,514	4,283	\$701	\$277	\$0.160	\$0.063	0	0	64,021	162,165	\$46.86	\$18.50
Subtotal Residential	\$43,318,381	\$60,894,078	\$85,378,595	\$137,533,801	1.96	2.26	2.29	116,236	973,683	17,266	\$2,518	\$300	\$0.374	\$0.046	1,148,017	22,465,402	570,912	6,763,795	\$76.23	\$6.43
Commercial & Industrial																				
Energy Conscious Blueprint	\$14,728,819	\$14,728,819	\$55,877,562	\$77,774,665	3.79	3.79	4.34	41,138	625,255	6,738	\$2,186	\$144	\$0.358	\$0.0236	0	0	140,404	2,133,995	\$104.90	\$6.90
Energy Opportunities	\$39,920,025	\$39,920,025	\$112,790,832	\$161,904,834	2.83	2.83	1.57	111,423	1,291,574	15,287	\$2,611	\$225	\$0.358	\$0.0309	0	0	380,286	4,408,508	\$104.97	\$9.05
Small Business	\$17,394,717	\$17,394,717	\$35,317,468	\$50,614,095	2.03	2.03	1.49	35,266	430,134	4,227	\$4,115	\$337	\$0.493	\$0.0404	0	0	120,362	1,468,048	\$144.52	\$11.85
BES (O&M, RCX, SEM, PRIME)	\$5,817,445	\$5,817,445	\$15,573,337	\$29,634,079	2.85	2.85	1.97	27,855	203,180	3,057	\$1,903	\$261	\$0.209	\$0.0286	0	0	95,070	693,453	\$61.19	\$8.39
Subtotal C&I	\$77,861,006	\$77,861,006	\$220,559,200	\$319,927,673	2.83	2.83	1.88	215,682	2,550,443	29,309	\$2,657	\$325	\$0.361	\$0.0305	0	0	736,121	8,705,003	\$105.77	\$8.94
Lead Management	\$3,194,750	\$3,194,750	\$15,858,717	\$15,858,717	4.96	4.96	4.96	0	0	95,000	\$34	\$0	NA	NA	0	0	0	0	NA	NA
ISO Lead Response Program	\$3,194,750	\$3,194,750	\$15,858,717	\$15,858,717	4.96	4.96	4.96	0	0	95,000	\$34	\$0	NA	NA	0	0	0	0	NA	NA
Subtotal Other	\$34,350,659	\$34,350,659	\$158,858,717	\$158,858,717	2.16	2.25	1.88	331,907	3,524,226	141,995	\$1,051	\$99	\$0.448	\$0.042	1,148,017	22,465,402	164,402	3,557,187	\$113.86	\$9.63
Total C&I Budget	\$148,824,795	\$166,280,493	\$321,796,502	\$379,951,719	2.16	2.25	1.88	331,907	3,524,226	141,995	\$1,051	\$99	\$0.448	\$0.042	1,148,017	22,465,402	164,402	3,557,187	\$113.86	\$9.63

Table B1 – Eversource CT Electric – Costs and Benefits 2018

Program	Eversource Electric 2018												MMBtu Savings & Cost													
	Costs			Benefits			Benefit Cost Ratios			Electric Savings			Electric Cost Rates			Oil/Propane Savings			MMBtu Savings & Cost							
	Utility Cost	Modified Utility Cost	Total Resource Cost	Utility Benefit	Modified Utility Benefit	Total Resource Benefit	B/C Ratio	Utility B/C Ratio	Modified B/C Ratio	Total Resource B/C Ratio	Annualized Savings (MMWh)	Lifetime Savings (MMWh)	Peak KW Impact (T/YE)	Electric Demand Cost (\$/KW-yr)	Electric Demand Cost (\$/KW)	Electric Cost Rate (\$/KWh Annualize)	Electric Cost Rate (\$/KWh)	Annual Oil Savings (Gal)	Lifetime Oil Savings (Gal)	Annual Propane Savings (Gal)	Lifetime Propane Savings (Gal)	Annual MMBtu	Lifetime MMBtu	Utility Cost per MMBtu	Utility Cost per Lifetime MMBtu	
Residential																										
Residential Retail Products	\$14,749,957	\$14,749,957	\$26,632,364	\$35,974,011	\$35,974,011	\$65,149,382	2.44	2.44	2.45	53,967	432,452	7,316	\$2,016	\$2,016	\$0.273	\$0.034	0	0	0	0	184,188	1,475,959	\$80.08	\$9.99		
Home Energy Solutions	\$10,995,761	\$19,623,984	\$20,824,638	\$16,076,261	\$38,412,317	\$70,913,639	1.55	2.98	3.41	16,552	166,735	2,779	\$3,740	\$3,740	\$0.628	\$0.062	893,887	17,956,355	110,390	2,231,801	190,547	3,261,124	\$54.56	\$3.19		
HES - HVAC	\$2,500,000	\$2,500,000	\$10,376,108	\$5,169,922	\$5,169,922	\$7,813,312	2.07	2.07	0.72	4,406	66,661	399	\$6,763	\$414	\$0.577	\$0.038	0	0	0	0	15,036	227,513	\$166.27	\$10.99		
HES - Income Eligible	\$11,946,184	\$18,212,224	\$18,485,911	\$8,654,387	\$18,999,620	\$25,801,421	0.76	1.04	1.40	11,921	115,229	887	\$12,295	\$1,324	\$0.952	\$0.098	255,862	4,685,373	0	0	76,104	1,045,090	\$149.09	\$18.88		
New Construction Behavior	\$1,886,856	\$2,453,435	\$4,814,355	\$3,106,392	\$4,769,766	\$6,518,806	1.65	1.94	1.35	1,895	31,882	800	\$2,330	\$142	\$0.996	\$0.061	0	0	52,214	1,305,346	11,237	225,299	\$167.91	\$8.37		
Subtotal Residential	\$43,878,758	\$60,539,599	\$84,133,376	\$79,539,180	\$133,877,884	\$191,915,474	1.81	2.21	2.28	127,083	924,064	20,945	\$2,095	\$117	\$0.278	\$0.027	1,149,249	23,640,728	162,604	3,537,147	130,861	381,987	\$22.93	\$7.85		
Commercial & Industrial																										
Energy Conscious Blue print	\$14,741,400	\$14,741,400	\$17,912,852	\$53,854,015	\$53,854,015	\$75,265,026	3.65	3.65	4.20	40,245	612,040	6,619	\$2,227	\$146	\$0.366	\$0.0241	0	0	0	0	137,355	2,088,893	\$107.32	\$7.06		
Energy Opportunities	\$40,302,812	\$40,302,812	\$103,716,186	\$109,735,193	\$109,735,193	\$158,586,442	2.72	2.72	1.53	110,828	1,286,232	15,159	\$2,659	\$229	\$0.364	\$0.0313	0	0	0	0	378,256	4,389,911	\$106.55	\$9.18		
Small Business	\$17,440,258	\$17,440,258	\$34,272,225	\$35,127,292	\$35,127,292	\$50,661,113	2.01	2.01	1.48	35,862	437,409	4,298	\$4,058	\$333	\$0.486	\$0.0399	0	0	0	0	122,387	1,492,877	\$142.49	\$11.68		
BES (OBM, RCX, SEM, PRIME)	\$5,873,161	\$5,873,161	\$15,216,228	\$21,398,349	\$21,398,349	\$37,795,331	3.64	3.64	2.48	36,531	271,773	4,104	\$1,431	\$192	\$0.161	\$0.0216	0	0	0	0	124,679	927,561	\$47.11	\$6.33		
Subtotal C&I	\$78,357,631	\$78,357,631	\$171,117,491	\$220,114,849	\$220,114,849	\$322,307,912	2.81	2.81	1.88	223,465	2,607,455	30,178	\$2,896	\$223	\$0.351	\$0.0301	0	0	0	0	762,687	8,893,242	\$102.74	\$8.82		
Load Management																										
ISO Load Response Program	\$1,694,750	\$1,694,750	\$1,694,750	\$18,166,764	\$18,166,764	\$18,166,764	10.72	10.72	10.72	0	0	95,000	\$18	\$0	NA	NA	0	0	0	0	0	0	0	0	NA	NA
Subtotal Load Management	\$1,694,750	\$1,694,750	\$1,694,750	\$18,166,764	\$18,166,764	\$18,166,764	10.72	10.72	10.72	0	0	95,000	\$18	\$0	NA	NA	0	0	0	0	0	0	0	0	NA	NA
Subtotal Other	\$24,337,396	\$24,337,396	\$24,337,396	\$317,820,793	\$317,820,793	\$532,390,150	2.14	2.36	1.89	350,548	3,531,519	146,124	\$1,015	\$101	\$0.423	\$0.042	1,149,249	23,640,728	162,604	3,537,147	1,370,660	15,516,165	\$108.17	\$9.56		
Total C&I/M Budget	\$148,268,534	\$164,929,376	\$281,283,013	\$317,820,793	\$317,820,793	\$532,390,150	2.14	2.36	1.89	350,548	3,531,519	146,124	\$1,015	\$101	\$0.423	\$0.042	1,149,249	23,640,728	162,604	3,537,147	1,370,660	15,516,165	\$108.17	\$9.56		

Table B2 – Eversource CT Electric – Resource Summary 2016

Resource Summary B-2												
2016 Electric	Company	Sector	Program	Total Program Cost (\$)	Program Incentive (\$)	Oil/Propane Cost (\$)	Customer Cost (\$)	Measure Quantity	Measure Life	Total Annual Net/MWh	Total Lifetime Net/MWh	Net Summer Net Winter kW
	Residential											
	Eversource Electric	Residential	Retail Products	13,622,165	11,088,991	0	11,169,841	2,684,941	9	67,192	587,271	8,313
	Eversource Electric	Residential	Home Energy Solutions (HES)	17,965,248	6,792,560	8,497,687	1,125,408	17,320	11	15,345	174,086	2,563
	Eversource Electric	Residential	HES - HVAC	2,000,000	1,459,000	0	4,679,885	6,311	15	3,498	51,056	252
	Eversource Electric	Residential	HES - Income Eligible	17,459,712	8,381,481	6,731,376	253,733	16,088	10	11,016	111,416	799
	Eversource Electric	Residential	New Construction	2,411,645	1,667,646	542,999	2,361,417	1,852	16	1,896	31,096	810
	Eversource Electric	Residential	Behavior	3,000,000	0	0	0	417,200	3	17,811	45,116	4,066
			Subtotal Residential	56,458,769	29,389,678	15,772,063	19,590,285	3,143,712	9	116,759	1,000,041	16,804
	Commercial & Industrial											
	Eversource Electric	C&I	Energy Conscious Blueprint	12,569,504	10,585,847	0	2,646,462	401	15	35,480	539,055	5,796
	Eversource Electric	C&I	Energy Opportunities	36,141,903	32,466,903	0	56,431,490	1,408	12	102,486	1,188,360	14,053
	Eversource Electric	C&I	Small Business	16,729,867	12,513,944	0	15,441,557	1,701	12	33,364	406,949	3,995
	Eversource Electric	C&I	Business and Energy Sustainability	5,649,490	4,560,490	0	8,896,383	242	7	25,914	187,470	2,858
			Subtotal C&I	71,090,763	60,127,183	0	83,415,891	3,752	12	197,245	2,321,883	26,702
			Subtotal Load Response	3,946,000	3,309,000	0	0	220	0	0	0	95,000
			Subtotal Other	23,632,376								
			Total Budget	155,127,908	92,825,861	15,772,063	103,006,176	3,147,684	11	314,004	3,321,874	138,507

Resource Summary B-2															
2016 Electric	Company	Sector	Program	Gas (ccf)	Lifetime Gas (ccf)	Net Peak Day Gas (ccf)	Oil (Gallons)	Lifetime Oil (Gallons)	Propane (Gallons)	Lifetime Propane (Gallons)	Annual Gallons of Water (000)	Annual Tons of CO2	Annual Tons of NOx	Annual Tons of SOx	
	Residential														
	Eversource Electric	Residential	Retail Products	0	0	0	0	0	0	0	0	24,525	12,095	10,751	
	Eversource Electric	Residential	Home Energy Solutions (HES)	0	0	0	796,241	15,789,440	97,345	1,938,762	22,184	15,010	10,401	57,737	
	Eversource Electric	Residential	HES - HVAC	0	0	0	0	0	0	0	0	1,277	0.630	0.560	
	Eversource Electric	Residential	HES - Income Eligible	0	0	0	216,831	3,918,009	0	0	15,444	6,415	3,891	16,816	
	Eversource Electric	Residential	New Construction	0	0	0	0	0	52,236	1,305,908	926	1,024	0.680	0.306	
	Eversource Electric	Residential	Behavior	0	0	0	0	0	0	0	0	6,501	3,206	2,850	
			Subtotal Residential	0	0	0	1,013,072	19,707,449	149,581	3,244,670	38,555	54,751	30,902	89,019	
	Commercial & Industrial														
	Eversource Electric	C&I	Energy Conscious Blueprint	0	0	0	0	0	0	0	0	12,950	6,386	5,677	
	Eversource Electric	C&I	Energy Opportunities	0	0	0	0	0	0	0	0	37,408	18,448	16,398	
	Eversource Electric	C&I	Small Business	0	0	0	0	0	0	0	0	12,178	6,006	5,338	
	Eversource Electric	C&I	Business and Energy Sustainability	0	0	0	0	0	0	0	0	9,459	4,665	4,146	
			Subtotal C&I	0	0	0	0	0	0	0	0	71,995	35,504	31,559	
			Subtotal Load Response	0	0	0	0	0	0	0	0	0	0.000	0.000	
			Subtotal Other	0	0	0	1,013,072	19,707,449	149,581	3,244,670	38,555	126,745	66,406	120,578	
			Total Budget	0	0	0	1,013,072	19,707,449	149,581	3,244,670	38,555	126,745	66,406	120,578	

Table B2 – Eversource CT Electric – Resource Summary 2017

Resource Summary B-2													
2017 Electric	Resource Summary B-2												
Company	Sector	Program	Total Program Cost (\$)	Program Incentive (\$)	Oil/Propane Cost (\$)	Customer Cost (\$)	Measure Quantity	Measure Life	Total Annual Net MWh	Total Lifetime Net MWh	Net Summer kW	Net Winter kW	
Residential													
Eversource Electric	Residential	Retail Products	14,831,269	11,961,755	0	11,961,755	2,631,667	8	62,020	526,435	8,019	12,334	
Eversource Electric	Residential	Home Energy Solutions (HES)	19,790,039	7,583,681	9,580,358	1,257,314	20,340	11	17,239	184,547	2,887	6,664	
Eversource Electric	Residential	HES - HVAC	2,500,000	1,956,000	0	7,901,904	8,755	15	4,407	66,678	400	686	
Eversource Electric	Residential	HES - Income Eligible	18,271,090	8,643,338	7,239,769	273,536	17,366	10	11,907	117,421	887	1,004	
Eversource Electric	Residential	New Construction	2,501,681	1,741,960	555,571	2,361,169	1,851	16	1,896	31,089	810	908	
Eversource Electric	Residential	Behavior	3,000,000	0	0	0	426,700	3	18,758	47,514	4,283	4,283	
Subtotal Residential			60,894,078	31,886,734	17,375,698	23,755,679	3,106,679	8	116,226	973,683	17,286	25,878	
Commercial & Industrial													
Eversource Electric	C&I	Energy Conscious Blueprint	14,728,819	12,759,232	0	3,189,808	465	15	41,138	625,255	6,738	7,282	
Eversource Electric	C&I	Energy Opportunities	39,920,025	36,223,025	0	62,960,094	1,531	12	111,423	1,291,974	15,287	19,504	
Eversource Electric	C&I	Small Business	17,394,717	13,384,556	0	16,515,848	1,797	12	35,266	430,134	4,227	4,781	
Eversource Electric	C&I	Business and Energy Sustainability	5,817,445	4,717,445	0	9,243,428	258	7	27,855	203,180	3,057	2,353	
Subtotal C&I			77,861,006	67,084,258	0	91,909,178	4,051	12	215,682	2,550,543	29,309	33,919	
Subtotal Load Response			3,194,750	2,671,750	0	0	220	0	0	0	95,000	95,000	
Subtotal Other			24,250,659										
Total Budget			166,200,493	101,642,742	17,375,698	115,664,857	3,110,950	11	331,907	3,524,226	141,595	154,798	
Resource Summary B-2													
2017 Electric	Resource Summary B-2												
Company	Sector	Program	Gas (ccf)	Lifetime Gas (ccf)	Net Peak Day Gas (ccf)	Oil (Gallons)	Lifetime Oil (Gallons)	Propane (Gallons)	Lifetime Propane (Gallons)	Annual Gallons Water (000)	Annual Tons of CO2	Annual Tons of Nox	Annual Tons of Sox
Residential													
Eversource Electric	Residential	Retail Products	0	0	0	0	0	0	0	0	22,637	11.164	9.923
Eversource Electric	Residential	Home Energy Solutions (HES)	0	0	0	912,818	18,221,377	112,177	2,251,560	24,785	17,082	11.864	66.134
Eversource Electric	Residential	HES - HVAC	0	0	0	0	0	0	0	0	1,608	0.793	0.705
Eversource Electric	Residential	HES - Income Eligible	0	0	0	235,199	4,244,025	0	0	16,671	6,943	4.213	18.233
Eversource Electric	Residential	New Construction	0	0	0	0	0	52,225	1,305,627	926	1,023	0.680	0.306
Eversource Electric	Residential	Behavior	0	0	0	0	0	0	0	0	6,847	3.376	3.001
Subtotal Residential			0	0	0	1,148,017	22,465,402	164,402	3,557,187	42,382	56,140	32.090	98.303
Commercial & Industrial													
Eversource Electric	C&I	Energy Conscious Blueprint	0	0	0	0	0	0	0	0	15,015	7.405	6.582
Eversource Electric	C&I	Energy Opportunities	0	0	0	0	0	0	0	0	40,669	20.056	17.828
Eversource Electric	C&I	Small Business	0	0	0	0	0	0	0	0	12,872	6.348	5.642
Eversource Electric	C&I	Business and Energy Sustainability	0	0	0	0	0	0	0	0	10,167	5.014	4.457
Subtotal C&I			0	0	0	0	0	0	0	0	78,724	38.823	34.509
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0.000	0.000
Subtotal Other													
Total Budget			0	0	0	1,148,017	22,465,402	164,402	3,557,187	42,382	134,864	70.913	132.812

Table B2 – Eversource CT Electric – Resource Summary 2018

Resource Summary B-2												
Company	Sector	Program	Total Program Cost (\$)	Program Incentive (\$)	Oil/Propane Cost (\$)	Customer Cost (\$)	Measure Quantity	Measure Life	Total Annual Net MWh	Total Lifetime Net MWh	Net Summer kW	Net Winter kW
2018 Electric												
Residential												
Eversource Electric	Residential	Retail Products	14,749,957	11,882,408	0	11,882,408	2,435,933	8	53,967	432,452	7,316	11,253
Eversource Electric	Residential	Home Energy Solutions (HES)	19,623,984	7,714,761	9,228,223	1,200,654	20,684	10	16,552	166,735	2,779	6,363
Eversource Electric	Residential	HES - HVAC	2,500,000	1,953,000	0	7,876,108	8,743	15	4,406	66,661	399	686
Eversource Electric	Residential	HES - Income Eligible	18,212,224	8,919,355	6,866,040	273,687	17,381	10	11,921	115,229	887	1,034
Eversource Electric	Residential	New Construction	2,453,435	1,679,556	566,579	2,360,920	1,851	16	1,895	31,082	810	908
Eversource Electric	Residential	Behavior	3,000,000	0	0	0	427,300	3	38,342	111,907	8,754	8,754
Subtotal Residential			60,539,599	32,149,079	16,660,842	23,593,776	2,911,892	7	127,083	924,064	20,945	28,998
Commercial & Industrial												
Eversource Electric	C&I	Energy Conscious Blueprint	14,741,400	12,685,811	0	3,171,453	454	15	40,245	612,040	6,619	7,168
Eversource Electric	C&I	Energy Opportunities	40,302,812	36,483,812	0	63,413,374	1,523	12	110,828	1,286,232	15,159	19,455
Eversource Electric	C&I	Small Business	17,440,258	13,640,741	0	16,831,967	1,828	12	35,862	437,409	4,298	4,862
Eversource Electric	C&I	Business and Energy Sustainability	5,873,161	4,761,161	0	9,343,067	320	7	36,531	271,773	4,104	2,906
Subtotal C&I			78,357,631	67,571,525	0	92,759,860	4,125	12	223,465	2,607,455	30,179	34,390
Subtotal Load Response			1,694,750	1,477,750	0	0	220	0	0	0	95,000	95,000
Subtotal Other			24,337,396	101,198,354	16,660,842	116,353,637	2,916,237	10	350,548	3,531,519	146,124	158,388
Total Budget			164,929,376	101,198,354	16,660,842	116,353,637	2,916,237	10	350,548	3,531,519	146,124	158,388

Resource Summary B-2													
Company	Sector	Program	Gas (ccf)	Lifetime Gas (ccf)	Net Peak Day Gas (ccf)	Oil (Gallons)	Lifetime Oil (Gallons)	Propane (Gallons)	Lifetime Propane (Gallons)	Annual Gallons Water (000)	Annual Tons of CO2	Annual Tons of NOx	Annual Tons of SOx
2018 Electric													
Residential													
Eversource Electric	Residential	Retail Products	0	0	0	0	0	0	0	0	19,698	9,714	8,635
Eversource Electric	Residential	Home Energy Solutions (HES)	0	0	0	893,887	17,955,355	110,390	2,231,801	23,668	16,611	11,562	64,710
Eversource Electric	Residential	HES - HVAC	0	0	0	0	0	0	0	0	1,608	0.793	0.705
Eversource Electric	Residential	HES - Income Eligible	0	0	0	255,362	4,685,373	0	0	16,686	7,171	4,393	19,635
Eversource Electric	Residential	New Construction	0	0	0	0	0	52,214	1,305,346	925	1,023	0.680	0.306
Eversource Electric	Residential	Behavior	0	0	0	0	0	0	0	0	13,995	6,902	6,135
Subtotal Residential			0	0	0	1,149,249	22,640,728	162,604	3,537,147	41,279	60,105	34,043	100,125
Commercial & Industrial													
Eversource Electric	C&I	Energy Conscious Blueprint	0	0	0	0	0	0	0	0	14,689	7,244	6,439
Eversource Electric	C&I	Energy Opportunities	0	0	0	0	0	0	0	0	40,452	19,949	17,732
Eversource Electric	C&I	Small Business	0	0	0	0	0	0	0	0	13,090	6,455	5,738
Eversource Electric	C&I	Business and Energy Sustainability	0	0	0	0	0	0	0	0	13,334	6,576	5,845
Subtotal C&I			0	0	0	0	0	0	0	0	81,565	40,224	35,754
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0.000	0.000
Subtotal Other			0	0	0	1,149,249	22,640,728	162,604	3,537,147	41,279	141,670	74,267	135,880
Total Budget			0	0	0	1,149,249	22,640,728	162,604	3,537,147	41,279	141,670	74,267	135,880

Table B3 – Eversource CT Electric – Benefit Summary 2016

2016 Electric		Benefits Summary B-3																			
		Electric Benefits																			
Company	Sector	Program	Winter Peak Energy (U,M,T) Note 1	Winter Off Peak Energy (U,M,T)	Summer Peak Energy (U,M,T)	Summer Off Peak Energy (U,M,T)	Capacity (U,M,T)	Distribution (U,M,T)	Transmission (U,M,T)	Winter Peak DRPE (U,M,T)	Winter Off Peak DRPE (U,M,T)	Summer Peak DRPE (U,M,T)	Summer Off Peak DRPE (U,M,T)	Winter Peak ROP (U,M,T)	Winter Off Peak ROP (U,M,T)	Summer Peak ROP (U,M,T)	Summer Off Peak ROP (U,M,T)	Capacity DRPE (U,M,T)	Winter Electric Cross Fuel DRPE (U,M,T)	Summer Electric Cross Fuel DRPE (U,M,T)	
Residential																					
Eversource Electric	Residential	Retail Products	12,072,798	14,922,737	3,596,583	5,851,021	7,096,789	2,377,164	108,762	337,714	597,507	41,854	275,694	298,328	533,017	38,880	148,226	0	2,490,660	701,905	
Eversource Electric	Residential	Home Energy Solutions (HES)	4,056,413	3,866,333	1,215,375	1,561,976	4,001,935	1,114,839	51,007	84,450	126,913	10,596	59,378	74,601	113,215	9,844	31,924	0	590,592	167,037	
Eversource Electric	Residential	HES - HVAC	1,770,442	896,759	241,134	271,247	387,198	108,317	4,956	31,232	22,680	1,534	7,546	27,589	20,232	1,425	4,057	0	162,526	23,460	
Eversource Electric	Residential	HES - Income Eligible	2,883,824	2,339,472	781,509	909,238	787,822	250,386	11,456	63,136	87,773	8,015	41,268	55,773	78,299	7,446	22,188	0	410,718	114,705	
Eversource Electric	Residential	New Construction	777,300	467,920	415,746	242,712	864,129	266,474	12,192	11,335	11,263	2,421	6,640	10,013	10,047	2,249	3,570	0	67,130	27,031	
Eversource Electric	Residential	Behavior	1,068,442	997,310	570,205	444,407	466,583	376,221	17,213	70,162	93,257	18,820	61,385	61,979	83,192	17,483	33,003	0	408,333	173,325	
		Subtotal Residential	22,629,220	23,492,531	6,820,552	9,280,602	13,604,456	4,493,401	205,585	598,090	939,393	83,242	451,911	528,285	838,002	77,328	242,969	0	4,129,958	1,207,463	
Commercial & Industrial																					
Eversource Electric	C&I	Energy Conscious Blueprint	15,995,996	4,639,474	10,226,774	2,530,299	9,945,676	2,681,743	122,697	270,421	112,684	66,207	67,444	238,883	100,522	61,502	36,261	0	1,203,769	536,088	
Eversource Electric	C&I	Energy Opportunities	35,930,355	7,856,942	25,038,437	6,152,464	17,788,538	5,222,115	238,936	754,235	239,414	218,630	216,702	666,271	213,573	203,096	116,510	0	3,088,214	1,682,265	
Eversource Electric	C&I	Small Business	12,632,870	2,883,585	7,194,417	2,168,582	5,122,592	1,498,499	68,560	263,790	85,234	61,368	73,851	233,025	76,034	57,008	39,706	0	1,085,068	497,615	
Eversource Electric	C&I	Business and Energy Sustainability	2,990,261	1,176,670	6,197,488	1,170,243	1,885,459	693,060	31,709	111,106	54,391	83,556	64,598	98,148	48,520	77,619	34,731	0	478,011	575,745	
		Subtotal C&I	67,549,483	16,556,670	48,637,116	12,021,588	34,742,264	10,095,417	461,893	1,391,552	491,722	423,761	422,595	1,236,328	438,649	399,225	227,207	0	5,955,063	3,291,713	
		Subtotal Load Response	0	0	0	0	3,981,395	3,455,232	158,086	0	0	0	0	0	0	0	0	0	0	0	
		Subtotal Other Total Budget	90,178,702	40,049,201	55,457,669	21,302,190	52,328,115	18,044,050	825,564	1,997,582	1,431,116	513,003	874,505	1,764,613	1,276,651	476,552	470,176	0	9,985,020	4,499,176	

Table B3 – Eversource CT Electric – Benefit Summary 2016 (cont)

		Benefits Summary B-3															
Company	Sector	Program	Electric Benefits				Non Gas Fossil Fuel Benefits						Non Energy Benefits (NEB) (T)	Utility Benefit (\$ U)	Modified Utility Benefit (\$ M&U)	Total Resource Benefit (\$ M, U & T)	
			Winter Peak Emissions (T)	Winter Off Peak Emissions (T)	Summer Peak Emissions (T)	Summer Off Peak Emissions (T)	Res Oil (M, T)	Res Propane (M, T)	C&I Oil (wood) (M, T)	Other (T)	Other (pellets) (T)	Non Gas Fossil Fuels Emissions (T)					Water (T)
Residential																	
Eversource Electric	Residential	Retail Products	7,211,757	9,495,324	2,569,653	4,906,920	0	0	0	0	0	0	0	0	51,489,640	51,489,640	82,271,005
Eversource Electric	Residential	Home Energy Solutions (HES)	2,250,763	2,359,256	785,323	1,230,278	32,142,199	2,440,917	0	0	0	0	0	0	17,138,430	17,138,430	62,298,317
Eversource Electric	Residential	HES - HVAC	956,513	517,226	142,773	195,403	0	0	0	0	0	0	0	0	3,982,333	3,982,333	5,794,248
Eversource Electric	Residential	HES - Income Eligible	1,550,546	1,400,786	516,715	721,801	8,020,160	0	0	0	0	0	0	0	8,853,029	16,873,190	22,914,543
Eversource Electric	Residential	New Construction	368,512	243,964	215,089	157,839	0	1,560,770	0	0	0	0	0	0	3,198,174	4,758,944	6,442,405
Eversource Electric	Residential	Behavior	642,633	635,065	456,591	437,251	0	0	0	0	0	0	0	0	4,961,321	4,961,321	7,132,861
Subtotal Residential			12,980,725	14,651,621	4,686,143	7,649,492	40,162,360	4,001,687	0	0	0	0	0	0	89,622,927	133,786,974	186,853,379
Commercial & Industrial																	
Eversource Electric	C&I	Energy Conscious Blueprint	8,702,555	2,694,434	6,239,002	1,830,018	0	0	0	0	0	0	0	0	48,836,441	48,836,441	67,736,407
Eversource Electric	C&I	Energy Opportunities	20,823,731	4,865,799	17,069,257	4,908,355	0	0	0	0	0	0	0	0	105,606,686	105,606,686	150,763,998
Eversource Electric	C&I	Small Business	7,314,886	1,774,907	4,879,327	1,714,372	0	0	0	0	0	0	0	0	34,041,804	34,041,804	48,513,081
Eversource Electric	C&I	Business and Energy Sustainability	1,853,365	769,827	4,648,447	1,031,544	0	0	0	0	0	0	0	0	15,771,314	15,771,314	27,954,766
Subtotal C&I			38,694,537	10,104,966	32,836,033	9,484,290	0	0	0	0	0	0	0	0	204,256,246	204,256,246	294,968,252
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0	0	0	7,594,713	7,594,713	7,594,713
Subtotal Other			51,675,262	24,756,588	37,522,177	17,133,782	40,162,360	4,001,687	0	0	0	0	0	0	301,473,886	345,637,933	489,416,344
Total Budget			51,675,262	24,756,588	37,522,177	17,133,782	40,162,360	4,001,687	0	0	0	0	0	0	301,473,886	345,637,933	489,416,344

Table B3 – Eversource CT Electric – Benefit Summary 2017

Company	Sector	Program	Electric Benefits																		
			Winter Peak Energy (U,M,T)	Winter Off Peak Energy (U,M,T)	Summer Peak Energy (U,M,T)	Summer Off Peak Energy (U,M,T)	Capacity (U,M,T)	Distribution (U,M,T)	Transmission (U,M,T)	Winter Peak DRIPE (U,M,T)	Winter Off Peak DRIPE (U,M,T)	Summer Peak DRIPE (U,M,T)	Summer Off Peak DRIPE (U,M,T)	Winter Peak ROP (U,M,T)	Winter Off Peak ROP (U,M,T)	Summer Peak ROP (U,M,T)	Summer Off Peak ROP (U,M,T)	Capacity DRIPE (U,M,T)	Winter Electric Cross Fuel DRIPE (U,M,T)	Summer Electric Cross Fuel DRIPE (U,M,T)	
			Note 1																		
2017 Electric																					
Eversource Electric Residential	Residential	Retail Products	10,847,498	13,426,227	3,218,659	5,239,375	6,607,085	2,246,652	102,790	311,721	388,342	20,349	143,226	368,300	225,584	75,706	37,706	0	1,375,254	402,089	
Eversource Electric Residential	Residential	Home Energy Solutions (HES)	4,346,890	4,077,437	1,315,625	1,644,578	4,363,117	1,224,141	56,008	94,824	87,375	6,296	37,555	112,035	58,256	23,424	9,887	0	394,365	116,110	
Eversource Electric Residential	Residential	HES - HVAC	2,248,829	1,141,422	380,616	367,393	676,966	184,961	8,462	38,463	17,169	1,223	5,531	45,444	11,447	4,550	1,456	0	123,297	21,262	
Eversource Electric Residential	Residential	HES - Income Eligible	3,043,739	2,470,209	825,323	958,128	858,706	274,562	12,562	68,033	58,336	4,555	25,166	80,381	38,895	16,945	6,625	0	268,862	77,581	
Eversource Electric Residential	Residential	New Construction	777,117	467,810	415,645	242,655	863,869	266,393	12,188	11,333	6,908	1,275	3,736	13,390	4,606	4,743	984	0	41,237	17,380	
Eversource Electric Residential	Residential	Behavior	1,125,242	1,050,329	600,517	468,032	491,387	396,221	18,128	73,892	69,071	12,277	43,319	94,680	46,006	41,077	11,404	0	254,224	109,934	
		Subtotal Residential	22,389,356	22,633,433	6,756,386	8,920,160	13,861,130	4,592,931	210,139	598,265	577,200	45,975	258,532	714,229	384,794	166,446	68,063	0	2,457,240	744,306	
		Commercial & Industrial																			
Eversource Electric C&I	C&I	Energy Conscious Blueprint	18,533,572	5,394,830	11,863,967	2,932,837	11,566,379	3,118,524	142,681	313,285	80,383	40,430	43,984	370,148	53,594	150,413	11,580	0	857,814	403,142	
Eversource Electric C&I	C&I	Energy Opportunities	39,081,969	8,540,703	27,188,529	6,688,534	19,351,678	5,680,933	259,918	820,386	159,655	125,114	132,382	969,290	106,448	465,468	34,904	0	2,029,785	1,154,935	
Eversource Electric C&I	C&I	Small Business	13,363,542	3,039,848	7,604,798	2,288,481	5,418,895	1,585,199	72,527	279,066	55,138	34,162	43,871	329,717	36,762	127,096	11,550	0	693,818	332,998	
Eversource Electric C&I	C&I	Business and Energy Sustainability	3,162,905	1,278,765	6,765,214	1,276,008	2,044,232	747,307	34,191	116,511	35,942	47,778	39,333	137,658	23,964	177,753	10,355	0	294,808	380,612	
		Subtotal C&I	74,141,988	18,254,146	53,422,508	13,185,860	39,381,185	11,131,962	509,317	1,529,248	331,118	247,484	259,770	1,806,813	220,768	920,730	68,389	0	3,876,226	2,271,688	
		Subtotal Load Response	0	0	0	0	12,177,469	3,520,190	161,058	0	0	0	0	0	0	0	0	0	0	0	
		Subtotal Other	96,531,344	40,887,580	60,178,894	22,106,020	64,419,783	19,245,084	880,514	2,127,513	908,318	293,459	518,302	2,521,043	605,562	1,087,176	136,451	0	6,333,466	3,015,993	
		Total Budget																			

Table B3 – Eversource CT Electric – Benefit Summary 2017 (cont)

2017 Electric		Benefits Summary B-3														Total Resource Benefit (\$ M, U & T)					
		Electric Benefits				Non Gas Fossil Fuel Benefits						Non Energy Benefits (NEB) (T)	Utility Benefit (\$ U)	Modified Utility Benefit (\$ M&U)							
		Winter Peak Emissions (T)	Winter Off Peak Emissions (T)	Summer Peak Emissions (T)	Summer Off Peak Emissions (T)	Res Oil (M, T)	Propane (M, T)	C&I Oil (wood) (M, T)	Other (T)	Other (pellets) (T)	Non Gas Fossil Fuels Emissions (T)				Water (T)						
Company	Sector	Program	Residential																		
Eversource Electric	Residential	Retail Products	6,590,744	8,677,048	2,349,046	4,484,379	0	0	0	0	0	0	0	0	0	0	0	8,931,131	44,986,514	44,986,514	76,018,862
Eversource Electric	Residential	Home Energy Solutions (HES)	2,419,170	2,502,400	850,853	1,309,158	38,553,423	2,933,912	0	0	0	0	0	0	0	0	0	-881,562	17,967,962	59,455,298	71,840,481
Eversource Electric	Residential	HES - HVAC	1,206,164	653,613	222,621	261,624	0	0	0	0	0	0	0	0	0	0	0	0	5,278,492	5,278,492	7,622,513
Eversource Electric	Residential	HES - Income Eligible	1,646,073	1,489,732	549,977	768,292	9,052,452	0	0	0	0	0	0	0	0	0	0	181,138	9,088,609	18,141,062	24,730,167
Eversource Electric	Residential	New Construction	369,902	244,993	215,941	158,517	0	1,615,428	0	0	0	0	0	0	0	0	0	314,702	3,151,269	4,766,697	6,481,225
Eversource Electric	Residential	Behavior	683,442	675,394	485,586	465,018	0	0	0	0	0	0	0	0	0	0	0	0	4,905,739	4,905,739	7,215,179
Subtotal Residential			12,915,494	14,243,180	4,674,023	7,446,988	47,605,876	4,549,341	0	0	0	0	0	0	0	0	0	8,545,409	85,378,585	137,533,801	193,908,427
Commercial & Industrial																					
Eversource Electric	C&I	Energy Conscious Blueprint	10,067,189	3,127,983	7,227,699	2,118,073	0	0	0	0	0	0	0	0	0	0	0	-643,840	55,877,562	55,877,562	77,774,665
Eversource Electric	C&I	Energy Opportunities	22,657,661	5,291,679	18,559,624	5,338,776	0	0	0	0	0	0	0	0	0	0	0	-2,733,739	112,790,832	112,790,832	161,904,834
Eversource Electric	C&I	Small Business	7,740,217	1,871,471	5,159,263	1,809,638	0	0	0	0	0	0	0	0	0	0	0	-1,283,962	35,317,468	35,317,468	50,614,095
Eversource Electric	C&I	Business and Energy Sustainability	1,973,188	840,487	5,096,334	1,129,150	0	0	0	0	0	0	0	0	0	0	0	4,021,583	16,573,337	16,573,337	29,634,079
Subtotal C&I			42,438,255	11,131,620	36,042,919	10,995,637	0	0	0	0	0	0	0	0	0	0	0	-639,958	220,559,200	220,559,200	319,927,673
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,858,717	15,858,717	15,858,717	15,858,717
Subtotal Other			55,383,749	25,374,800	40,716,942	17,842,625	47,605,876	4,549,341	0	0	0	0	0	0	0	0	0	7,905,451	321,796,502	373,951,719	529,694,818
Total Budget			110,737,548	50,753,600	117,486,813	46,687,927	99,817,628	9,098,682	0	0	0	0	0	0	0	0	0	15,874,368	1,173,913,914	1,173,913,914	1,679,927,717

Table B3 – Eversource CT Electric – Benefit Summary 2018

2018 Electric		Benefits Summary B-3																			
		Electric Benefits																			
Company	Sector	Program	Winter Peak Energy (U,M,T)	Winter Off Peak Energy (U,M,T)	Summer Peak Energy (U,M,T)	Summer Off Peak Energy (U,M,T)	Capacity (U,M,T)	Distribution (U,M,T)	Transmission (U,M,T)	Winter Peak DRPE (U,M,T)	Winter Off Peak DRPE (U,M,T)	Summer Peak DRPE (U,M,T)	Summer Off Peak DRPE (U,M,T)	Winter Peak ROP (U,M,T)	Winter Off Peak ROP (U,M,T)	Summer Peak ROP (U,M,T)	Summer Off Peak ROP (U,M,T)	Capacity DRPE (U,M,T)	Winter Electric Cross Fuel DRPE (U,M,T)	Summer Electric Cross Fuel DRPE (U,M,T)	
Residential																					
Eversource Electric	Residential	Retail Products	8,962,222	8,322,523	5,279,796	4,295,431	5,576,876	1,953,549	89,380	271,243	78,196	0	0	169,086	52,601	46,504	0	0	0	591,531	285,072
Eversource Electric	Residential	Home Energy Solutions (HES)	3,972,387	3,658,492	1,213,324	1,474,356	4,061,340	1,147,340	52,494	91,004	29,660	0	0	56,730	19,952	7,994	0	0	0	221,724	69,462
Eversource Electric	Residential	HES - HVAC	2,248,774	1,141,372	379,929	367,181	674,679	184,356	8,435	38,462	6,076	0	0	23,976	4,087	1,608	0	0	0	76,637	14,352
Eversource Electric	Residential	HES - Income Eligible	2,999,436	2,421,697	812,217	937,152	842,716	271,117	12,404	68,062	20,683	0	0	42,428	13,913	6,002	0	0	0	158,356	48,203
Eversource Electric	Residential	New Construction	776,935	467,699	415,545	242,597	863,609	266,313	12,185	11,330	2,444	0	0	7,063	1,644	1,678	0	0	0	25,707	11,603
Eversource Electric	Residential	Behavior	2,599,146	2,424,424	1,406,410	1,108,615	1,213,665	926,997	42,413	157,849	55,557	0	0	120,132	37,372	33,040	0	0	0	298,006	134,621
Subtotal Residential			21,558,900	18,436,206	9,507,222	8,425,332	13,232,885	4,749,672	217,310	637,950	192,616	0	0	419,416	129,570	96,826	0	0	0	1,371,952	563,313
Commercial & Industrial																					
Eversource Electric	C&I	Energy Conscious Blueprint	18,111,330	5,301,019	11,615,975	2,867,726	11,367,404	3,064,541	140,211	306,094	27,951	0	0	190,812	18,802	52,084	0	0	0	523,512	266,554
Eversource Electric	C&I	Energy Opportunities	38,842,754	8,502,880	27,088,258	6,657,534	19,197,280	5,634,830	257,809	814,928	56,235	0	0	508,008	37,828	164,082	0	0	0	1,224,406	748,363
Eversource Electric	C&I	Small Business	13,589,560	3,091,261	7,733,418	2,327,086	5,510,545	1,612,009	73,754	283,785	19,844	0	0	176,905	13,349	45,741	0	0	0	428,786	221,149
Eversource Electric	C&I	Business and Energy Sustainability	3,721,944	1,560,779	9,631,547	1,695,342	2,857,997	1,025,082	47,038	134,280	15,469	0	0	83,707	10,406	88,302	0	0	0	197,696	325,759
Subtotal C&I			74,265,589	18,455,939	56,069,197	13,547,768	36,933,226	11,339,462	518,811	1,530,087	119,499	0	0	959,432	80,385	350,209	0	0	0	2,374,399	1,561,825
Subtotal Load Response			0	0	0	0	14,416,308	3,586,370	164,086	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Other			95,824,489	36,892,145	65,576,419	21,973,120	66,582,419	19,675,504	900,207	2,177,037	312,115	0	0	1,378,847	209,955	447,035	0	0	0	3,746,361	2,125,138
Total Budget			95,824,489	36,892,145	65,576,419	21,973,120	66,582,419	19,675,504	900,207	2,177,037	312,115	0	0	1,378,847	209,955	447,035	0	0	0	3,746,361	2,125,138

Table B3 – Eversource CT Electric – Benefit Summary 2018 (cont)

		Benefits Summary B-3																	
Company	Sector	Program	Electric Benefits				Non Gas Fossil Fuel Benefits						Non Energy Benefits (NEB) (T)	Utility Benefit (\$ U)	Modified Utility Benefit (\$ M&U)	Total Resource Benefit (\$ M, U & T)			
			Winter Peak Emissions (T)	Winter Off Peak Emissions (T)	Summer Peak Emissions (T)	Summer Off Peak Emissions (T)	Res Oil (M, T)	Propane (M, T)	C&I Oil (wood) (T)	Other (pellets) (T)	Non Gas Fossil Fuels Emissions (T)	Water (T)							
Residential																			
Eversource Electric Residential		Retail Products	5,529,482	5,464,366	3,928,700	3,762,291	0	0	0	0	0	0	0	0	0	10,490,333	35,974,011	35,974,011	65,149,382
Eversource Electric Residential		Home Energy Solutions (HES)	2,211,633	2,252,494	784,508	1,182,722	39,344,273	2,991,784	0	0	0	0	0	0	0	1,849,797	15,076,261	58,412,317	70,913,639
Eversource Electric Residential		HES - HVAC	1,206,082	653,558	222,265	261,484	0	0	0	0	0	0	0	0	0	0	5,169,922	5,169,922	7,513,312
Eversource Electric Residential		HES - Income Eligible	1,627,993	1,468,278	543,795	757,290	10,339,233	0	0	0	0	0	0	0	0	214,649	8,654,387	18,993,620	25,801,421
Eversource Electric Residential		New Construction	371,181	245,902	216,710	159,113	0	1,663,414	0	0	0	0	0	0	0	314,618	3,106,352	4,769,766	6,518,806
Eversource Electric Residential		Behavior	1,615,998	1,596,967	1,148,167	1,099,534	0	0	0	0	0	0	0	0	0	0	10,558,247	10,558,247	16,018,913
		Subtotal Residential	12,562,369	11,681,565	6,844,145	7,222,435	49,683,506	4,655,198	0	0	0	0	0	0	0	10,446,244	79,539,180	133,877,884	191,915,474
Commercial & Industrial																			
Eversource Electric C&I		Energy Conscious Blueprint	9,820,876	3,068,290	7,065,308	2,067,674	0	0	0	0	0	0	0	0	0	-611,137	53,854,015	53,854,015	75,265,026
Eversource Electric C&I		Energy Opportunities	22,488,280	5,261,980	18,470,598	5,307,970	0	0	0	0	0	0	0	0	0	-2,677,579	109,735,193	109,735,193	158,586,442
Eversource Electric C&I		Small Business	7,861,179	1,900,483	5,240,032	1,837,804	0	0	0	0	0	0	0	0	0	-1,305,678	35,127,292	35,127,292	50,661,113
Eversource Electric C&I		Business and Energy Sustainability	2,332,593	1,030,965	7,269,493	1,504,945	0	0	0	0	0	0	0	0	0	4,258,985	21,398,349	21,398,349	37,795,331
		Subtotal C&I	42,502,928	11,261,719	38,045,431	10,718,393	0	0	0	0	0	0	0	0	0	-335,408	220,114,849	220,114,849	322,307,912
		Subtotal Load Response	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18,166,764	18,166,764	18,166,764
		Subtotal Other	55,065,297	22,943,283	44,889,576	17,940,827	49,683,506	4,655,198	0	0	0	0	0	0	0	10,110,886	317,820,793	372,159,496	532,390,150
		Total Budget																	

Table C – Eversource CT Electric 2016

Table C Eversource CT Electric 2016 EE Budget Details										
Eversource CT Electric EE BUDGET (\$000)	Labor		Materials & Supplies		Contractor Labor	Incentives	Marketing	Other**	Administrative Expenses	TOTAL
RESIDENTIAL										
Residential Retail Products	\$ 120	\$ 1	\$ 1,350	\$ -	\$ 11,089	\$ 1,012	\$ 40	\$ 10	\$ 13,622	
Total - Consumer Products	\$ 120	\$ 1	\$ 1,350	\$ -	\$ 11,089	\$ 1,012	\$ 40	\$ 10	\$ 13,622	
Residential New Construction	\$ 105	\$ 1	\$ 20	\$ -	\$ 2,211	\$ 47	\$ 18	\$ 10	\$ 2,412	
Home Energy Solutions - Core Services	\$ 1,400	\$ 4	\$ 811	\$ -	\$ 15,290	\$ 400	\$ 20	\$ 40	\$ 17,965	
Home Energy Solutions - HVAC, Water Heaters	\$ 100	\$ 1	\$ 300	\$ -	\$ 1,459	\$ 100	\$ 20	\$ 20	\$ 2,000	
HES Income Eligible	\$ 1,300	\$ 5	\$ 380	\$ -	\$ 15,113	\$ 556	\$ 46	\$ 60	\$ 17,460	
Residential Behavior	\$ 50	\$ -	\$ 2,835	\$ -	\$ -	\$ 100	\$ 10	\$ 5	\$ 3,000	
Subtotal Residential	\$ 3,075	\$ 12	\$ 5,696	\$ -	\$ 45,162	\$ 2,215	\$ 154	\$ 145	\$ 56,459	
COMMERCIAL & INDUSTRIAL										
C & I/LOST OPPORTUNITY										
Energy Conscious Blueprint	\$ 1,200	\$ 4	\$ 470	\$ -	\$ 10,586	\$ 230	\$ 30	\$ 50	\$ 12,570	
Total - Lost Opportunity	\$ 1,200	\$ 4	\$ 470	\$ -	\$ 10,586	\$ 230	\$ 30	\$ 50	\$ 12,570	
C & I/LARGE RETROFIT										
Energy Opportunities	\$ 2,400	\$ 5	\$ 500	\$ -	\$ 32,467	\$ 470	\$ 100	\$ 200	\$ 36,142	
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 380	\$ 2	\$ 615	\$ -	\$ 4,560	\$ 75	\$ 6	\$ 11	\$ 5,649	
Total - C&I/Large Retrofit	\$ 2,780	\$ 7	\$ 1,115	\$ -	\$ 37,027	\$ 545	\$ 106	\$ 211	\$ 41,791	
Small Business	\$ 1,300	\$ 5	\$ 131	\$ -	\$ 12,514	\$ 250	\$ 30	\$ 2,500	\$ 16,730	
Subtotal C&I	\$ 5,280	\$ 16	\$ 1,716	\$ -	\$ 60,127	\$ 1,025	\$ 166	\$ 2,761	\$ 71,091	
OTHER - EDUCATION										
Educate the Public	\$ 320	\$ 24	\$ 1,244	\$ -	\$ -	\$ 135	\$ 81	\$ 21	\$ 1,825	
Customer Engagement	\$ 50	\$ -	\$ 1,918	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,968	
Educate the Students	\$ 60	\$ 5	\$ 293	\$ -	\$ -	\$ 50	\$ 1	\$ 3	\$ 412	
Educate the Workforce	\$ -	\$ -	\$ 358	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 358	
Subtotal Education	\$ 430	\$ 29	\$ 3,813	\$ -	\$ -	\$ 185	\$ 82	\$ 24	\$ 4,563	
OTHER - PROGRAMS/REQUIREMENTS										
Residential Loan Program (includes ECLF and OBR)	\$ -	\$ -	\$ 1,453	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,453	
C&I Financing Support	\$ -	\$ -	\$ 3,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,500	
Research, Development & Demonstration	\$ 150	\$ 1	\$ 162	\$ -	\$ -	\$ -	\$ 109	\$ 20	\$ 442	
Subtotal Programs/Requirements	\$ 150	\$ 1	\$ 5,115	\$ -	\$ -	\$ -	\$ 109	\$ 20	\$ 5,295	
OTHER - LOAD MANAGEMENT										
ISO Load Response Program	\$ 200	\$ 1	\$ 420	\$ -	\$ 3,309	\$ 10	\$ 2	\$ 4	\$ 3,946	
Subtotal Load Management	\$ 200	\$ 1	\$ 420	\$ -	\$ 3,309	\$ 10	\$ 2	\$ 4	\$ 3,946	
OTHER - ADMINISTRATIVE & PLANNING										
Administration	\$ 787	\$ 4	\$ 46	\$ -	\$ -	\$ -	\$ 20	\$ 50	\$ 907	
Marketing Plan	\$ 100	\$ -	\$ -	\$ -	\$ -	\$ 676	\$ 1	\$ 1	\$ 778	
Planning	\$ 500	\$ 1	\$ 180	\$ -	\$ -	\$ -	\$ 10	\$ 12	\$ 703	
Evaluation Measurement and Verification	\$ 202	\$ 1	\$ 2,355	\$ -	\$ -	\$ -	\$ 1	\$ 1	\$ 2,560	
Evaluation Administrator	\$ -	\$ -	\$ 282	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 282	
Information Technology	\$ 324	\$ -	\$ 964	\$ -	\$ -	\$ -	\$ -	\$ 50	\$ 1,338	
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 360	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 360	
Audits - Financial and Operational	\$ -	\$ -	\$ 98	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 98	
Performance Management Incentive (PMI)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,648	\$ -	\$ 6,648	
Subtotal Admin/Planning Expenditures	\$ 1,913	\$ 6	\$ 4,285	\$ -	\$ -	\$ 676	\$ 6,680	\$ 114	\$ 13,675	
PROGRAM SUBTOTALS										
Residential	\$ 3,403	\$ 28	\$ 9,719	\$ -	\$ 45,162	\$ 2,864	\$ 196	\$ 159	\$ 61,530	
C&I	\$ 5,682	\$ 30	\$ 6,879	\$ -	\$ 63,436	\$ 1,248	\$ 209	\$ 2,776	\$ 80,260	
Other*	\$ 1,963	\$ 7	\$ 4,447	\$ -	\$ -	\$ -	\$ 6,788	\$ 133	\$ 13,539	
TOTAL C&I/M BUDGET	\$ 11,048	\$ 65	\$ 21,045	\$ -	\$ 108,597	\$ 4,111	\$ 7,193	\$ 3,068	\$ 155,128	

* Other - includes RD&D, Admin, Planning & Evaluation, and IT

Table C – Eversource CT Electric 2017

Table C
Eversource CT Electric 2017 EE Budget Details

Eversource CT Electric EE BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Contractor Labor	Incentives	Marketing	Other**	Administrative Expenses	TOTAL
RESIDENTIAL									
Residential Retail Products	\$ 124	\$ 1	\$ 1,600	\$ -	\$ 11,962	\$ 1,095	\$ 40	\$ 10	\$ 14,831
Total - Consumer Products	\$ 124	\$ 1	\$ 1,600	\$ -	\$ 11,962	\$ 1,095	\$ 40	\$ 10	\$ 14,831
Residential New Construction	\$ 108	\$ 1	\$ 20	\$ -	\$ 2,298	\$ 47	\$ 18	\$ 10	\$ 2,502
Home Energy Solutions - Core Services	\$ 1,445	\$ 4	\$ 737	\$ -	\$ 17,164	\$ 400	\$ 20	\$ 20	\$ 19,790
Home Energy Solutions - HVAC, Water Heaters	\$ 103	\$ 1	\$ 300	\$ -	\$ 1,956	\$ 100	\$ 20	\$ 20	\$ 2,500
HES Income Eligible	\$ 1,339	\$ 5	\$ 380	\$ -	\$ 15,883	\$ 556	\$ 48	\$ 60	\$ 18,271
Residential Behavior	\$ 52	\$ -	\$ 2,834	\$ -	\$ -	\$ 100	\$ 10	\$ 5	\$ 3,000
Subtotal Residential	\$ 3,170	\$ 12	\$ 5,871	\$ -	\$ 49,262	\$ 2,298	\$ 156	\$ 125	\$ 60,894
COMMERCIAL & INDUSTRIAL									
C & I LOST OPPORTUNITY									
Energy Conscious Blueprint	\$ 1,236	\$ 4	\$ 420	\$ -	\$ 12,759	\$ 230	\$ 30	\$ 50	\$ 14,729
Total - Lost Opportunity	\$ 1,236	\$ 4	\$ 420	\$ -	\$ 12,759	\$ 230	\$ 30	\$ 50	\$ 14,729
C & I LARGE RETROFIT									
Energy Opportunities	\$ 2,472	\$ 5	\$ 450	\$ -	\$ 36,223	\$ 470	\$ 100	\$ 200	\$ 39,920
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 391	\$ 2	\$ 615	\$ -	\$ 4,717	\$ 75	\$ 6	\$ 11	\$ 5,817
Total - C&I Large Retrofit	\$ 2,863	\$ 7	\$ 1,065	\$ -	\$ 40,940	\$ 545	\$ 106	\$ 211	\$ 45,737
Small Business	\$ 1,339	\$ 5	\$ 136	\$ -	\$ 13,384	\$ 250	\$ 30	\$ 2,250	\$ 17,395
Subtotal C&I	\$ 5,438	\$ 16	\$ 1,621	\$ -	\$ 67,084	\$ 1,025	\$ 166	\$ 2,511	\$ 77,861
OTHER - EDUCATION									
Educate the Public	\$ 330	\$ 25	\$ 1,233	\$ -	\$ -	\$ 135	\$ 81	\$ 21	\$ 1,825
Customer Engagement	\$ 52	\$ -	\$ 1,917	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,968
Educate the Students	\$ 62	\$ 5	\$ 291	\$ -	\$ -	\$ 50	\$ 1	\$ 3	\$ 412
Educate the Workforce	\$ -	\$ -	\$ 358	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 358
Subtotal Education	\$ 443	\$ 30	\$ 3,799	\$ -	\$ -	\$ 185	\$ 82	\$ 24	\$ 4,563
OTHER - PROGRAMS/REQUIREMENTS									
Residential Loan Program (includes ECLF and OBR)	\$ -	\$ -	\$ 1,453	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,453
C&I Financing Support	\$ -	\$ -	\$ 3,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,500
Research, Development & Demonstration	\$ 160	\$ 2	\$ 175	\$ -	\$ -	\$ -	\$ 100	\$ 5	\$ 442
Subtotal Programs/Requirements	\$ 160	\$ 2	\$ 5,128	\$ -	\$ -	\$ -	\$ 100	\$ 5	\$ 5,395
OTHER - LOAD MANAGEMENT									
ISO Load Response Program	\$ 206	\$ 1	\$ 300	\$ -	\$ 2,672	\$ 10	\$ 2	\$ 4	\$ 3,195
Subtotal Load Management	\$ 206	\$ 1	\$ 300	\$ -	\$ 2,672	\$ 10	\$ 2	\$ 4	\$ 3,195
OTHER - ADMINISTRATIVE & PLANNING									
Administration	\$ 787	\$ 4	\$ 46	\$ -	\$ -	\$ -	\$ 20	\$ 50	\$ 907
Marketing Plan	\$ 103	\$ -	\$ -	\$ -	\$ -	\$ 673	\$ 1	\$ 1	\$ 778
Planning	\$ 515	\$ 1	\$ 165	\$ -	\$ -	\$ -	\$ 10	\$ 12	\$ 703
Evaluation Measurement and Verification	\$ 202	\$ 1	\$ 2,483	\$ -	\$ -	\$ -	\$ 1	\$ 1	\$ 2,688
Evaluation Administrator	\$ -	\$ -	\$ 296	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 296
Information Technology	\$ 334	\$ -	\$ 954	\$ -	\$ -	\$ -	\$ -	\$ 50	\$ 1,338
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 360	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 360
Audits - Financial and Operational	\$ -	\$ -	\$ 98	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 98
Performance Management Incentive (PMI)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,124	\$ -	\$ 7,124
Subtotal Admin/Planning Expenditures	\$ 1,941	\$ 6	\$ 4,403	\$ -	\$ -	\$ 673	\$ 7,156	\$ 114	\$ 14,293
PROGRAMS SUBTOTALS									
Residential	\$ 3,508	\$ 29	\$ 9,885	\$ -	\$ 49,262	\$ 2,944	\$ 198	\$ 139	\$ 65,965
C&I	\$ 5,852	\$ 31	\$ 6,658	\$ -	\$ 69,755	\$ 1,247	\$ 209	\$ 2,526	\$ 86,279
Other*	\$ 1,997	\$ 8	\$ 4,578	\$ -	\$ -	\$ -	\$ 7,255	\$ 118	\$ 13,957
TOTAL C&I MBUDGET	\$ 11,358	\$ 67	\$ 21,121	\$ -	\$ 119,018	\$ 4,191	\$ 7,662	\$ 2,783	\$ 166,200

* Other -includes RD&D, Admin, Planning & Evaluation, and IT

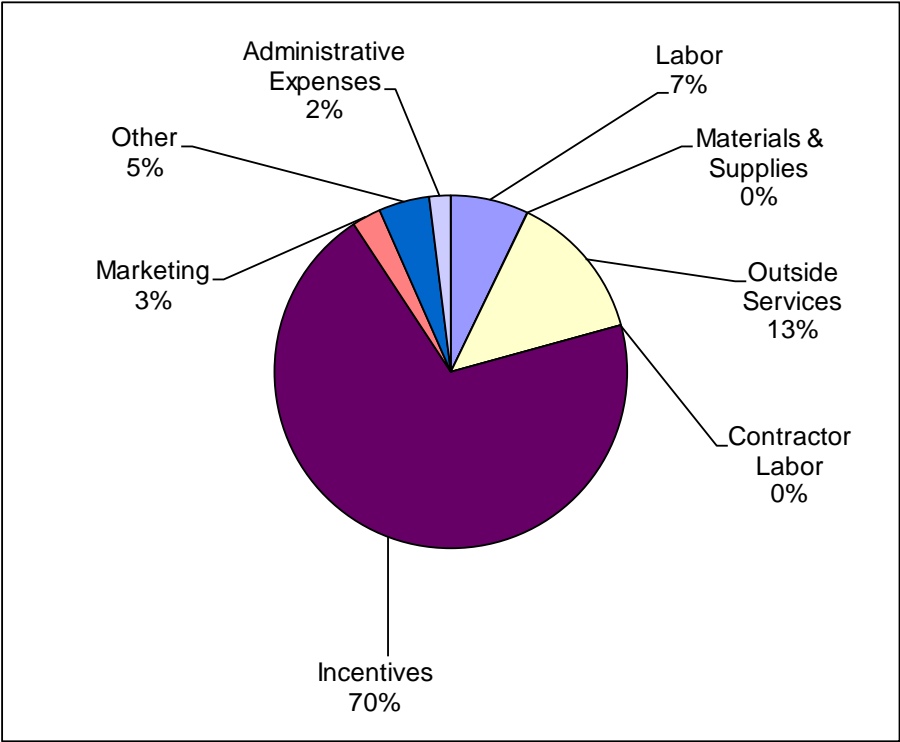
Table C – Eversource CT Electric 2018

Table C									
Eversource CT Electric 2018 EE Budget Details									
Eversource CT Electric EE BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Contractor Labor	Incentives	Marketing	Other**	Administrative Expenses	TOTAL
Residential Retail Products	\$ 127	\$ 1	\$ 1,600	\$ -	\$ 11,882	\$ 1,089	\$ 40	\$ 10	\$ 14,750
Total - Consumer Products	\$ 127	\$ 1	\$ 1,600	\$ -	\$ 11,882	\$ 1,089	\$ 40	\$ 10	\$ 14,750
Residential New Construction	\$ 111	\$ 1	\$ 20	\$ -	\$ 2,246	\$ 47	\$ 18	\$ 10	\$ 2,453
Home Energy Solutions - Core Services	\$ 1,484	\$ 4	\$ 733	\$ -	\$ 16,943	\$ 400	\$ 20	\$ 40	\$ 19,624
Home Energy Solutions - HVAC, Water Heaters	\$ 106	\$ 1	\$ 300	\$ -	\$ 1,953	\$ 100	\$ 20	\$ 20	\$ 2,500
HES Income Eligible	\$ 1,378	\$ 5	\$ 380	\$ -	\$ 15,785	\$ 556	\$ 48	\$ 60	\$ 18,212
Residential Behavior	\$ 53	\$ -	\$ 2,832	\$ -	\$ -	\$ 100	\$ 10	\$ 5	\$ 3,000
Subtotal Residential	\$ 3,260	\$ 12	\$ 5,865	\$ -	\$ 48,810	\$ 2,292	\$ 156	\$ 145	\$ 60,540
COMMERCIAL & INDUSTRIAL									
C & I LOST OPPORTUNITY									
Energy Conscious Blueprint	\$ 1,272	\$ 4	\$ 470	\$ -	\$ 12,685	\$ 230	\$ 30	\$ 50	\$ 14,741
Total - Lost Opportunity	\$ 1,272	\$ 4	\$ 470	\$ -	\$ 12,685	\$ 230	\$ 30	\$ 50	\$ 14,741
C & I LARGE RETROFIT									
Energy Opportunities	\$ 2,544	\$ 5	\$ 500	\$ -	\$ 36,484	\$ 470	\$ 100	\$ 200	\$ 40,303
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 403	\$ 2	\$ 615	\$ -	\$ 4,761	\$ 75	\$ 6	\$ 11	\$ 5,873
Total - C&I Large Retrofit	\$ 2,947	\$ 7	\$ 1,115	\$ -	\$ 41,245	\$ 545	\$ 106	\$ 211	\$ 46,176
Small Business	\$ 1,378	\$ 5	\$ 137	\$ -	\$ 13,641	\$ 250	\$ 30	\$ 2,000	\$ 17,440
Subtotal C&I	\$ 5,597	\$ 16	\$ 1,722	\$ -	\$ 67,571	\$ 1,025	\$ 166	\$ 2,261	\$ 78,358
OTHER - EDUCATION									
Educate the Public	\$ 339	\$ 25	\$ 1,223	\$ -	\$ -	\$ 135	\$ 81	\$ 21	\$ 1,825
Customer Engagement	\$ 53	\$ -	\$ 1,915	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,968
Educate the Students	\$ 64	\$ 5	\$ 290	\$ -	\$ -	\$ 50	\$ 1	\$ 3	\$ 412
Educate the Workforce	\$ -	\$ -	\$ 358	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 358
Subtotal Education	\$ 456	\$ 30	\$ 3,786	\$ -	\$ -	\$ 185	\$ 82	\$ 24	\$ 4,563
OTHER - PROGRAMS/REQUIREMENTS									
Residential Loan Program (includes ECLF and OBR)	\$ -	\$ -	\$ 1,453	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,453
C&I Financing Support	\$ -	\$ -	\$ 3,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,500
Research, Development & Demonstration	\$ 160	\$ 2	\$ 175	\$ -	\$ -	\$ -	\$ 100	\$ 5	\$ 442
Subtotal Programs/Requirements	\$ 160	\$ 2	\$ 5,128	\$ -	\$ -	\$ -	\$ 100	\$ 5	\$ 5,395
OTHER - LOAD MANAGEMENT									
ISO Load Response Program	\$ 100	\$ 1	\$ 100	\$ -	\$ 1,478	\$ 10	\$ 2	\$ 4	\$ 1,695
Subtotal Load Management	\$ 100	\$ 1	\$ 100	\$ -	\$ 1,478	\$ 10	\$ 2	\$ 4	\$ 1,695
OTHER - ADMINISTRATIVE & PLANNING									
Administration	\$ 787	\$ 4	\$ 46	\$ -	\$ -	\$ -	\$ 20	\$ 50	\$ 907
Marketing Plan	\$ 106	\$ -	\$ -	\$ -	\$ -	\$ 670	\$ 1	\$ 1	\$ 778
Planning	\$ 530	\$ 1	\$ 150	\$ -	\$ -	\$ -	\$ 10	\$ 12	\$ 703
Evaluation Measurement and Verification	\$ 208	\$ 1	\$ 2,605	\$ -	\$ -	\$ -	\$ 1	\$ 1	\$ 2,816
Evaluation Administrator	\$ -	\$ -	\$ 310	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 310
Information Technology	\$ 343	\$ -	\$ 945	\$ -	\$ -	\$ -	\$ -	\$ 50	\$ 1,338
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 360	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 360
Audits - Financial and Operational	\$ -	\$ -	\$ 98	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 98
Performance Management Incentive (PMI)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,069	\$ -	\$ 7,069
Subtotal Admin/Planning Expenditures	\$ 1,974	\$ 6	\$ 4,514	\$ -	\$ -	\$ 670	\$ 7,101	\$ 114	\$ 14,380
PROGRAM SUB-TOTALS									
Residential	\$ 3,607	\$ 29	\$ 9,872	\$ -	\$ 48,810	\$ 2,936	\$ 198	\$ 159	\$ 65,611
C&I	\$ 5,911	\$ 31	\$ 6,553	\$ -	\$ 69,049	\$ 1,247	\$ 209	\$ 2,276	\$ 85,275
Other*	\$ 2,028	\$ 8	\$ 4,689	\$ -	\$ -	\$ -	\$ 7,200	\$ 118	\$ 14,044
TOTAL C&I M BUDGET	\$ 11,546	\$ 67	\$ 21,115	\$ -	\$ 117,859	\$ 4,183	\$ 7,607	\$ 2,553	\$ 164,929

* Other - includes RD&D, Admin, Planning & Evaluation, and IT

Table C – Pie - Eversource CT Electric 2016

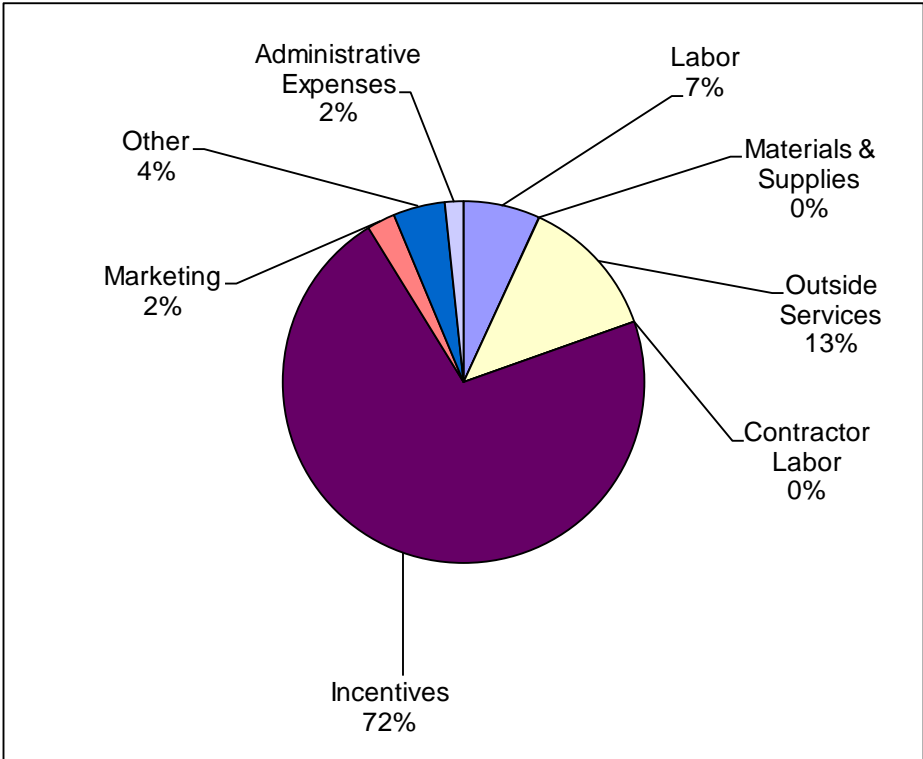
**EVERSOURCE CT ELECTRIC
2016 ENERGY EFFICIENCY
EE Budget By Expense Class
Table C Pie Chart**



<u>Expense Classes</u>	<u>Budget</u>	<u>% of Budget</u>
Labor	\$ 11,048	7%
Materials & Supplies	\$ 65	0%
Outside Services	\$ 21,045	14%
Contractor Labor	\$ -	0%
Incentives	\$ 108,597	70%
Marketing	\$ 4,111	3%
Other	\$ 7,193	5%
Administrative Expenses	\$ 3,068	2%
Total	\$ 155,128	100%

Table C – Pie - Eversource CT Electric 2017

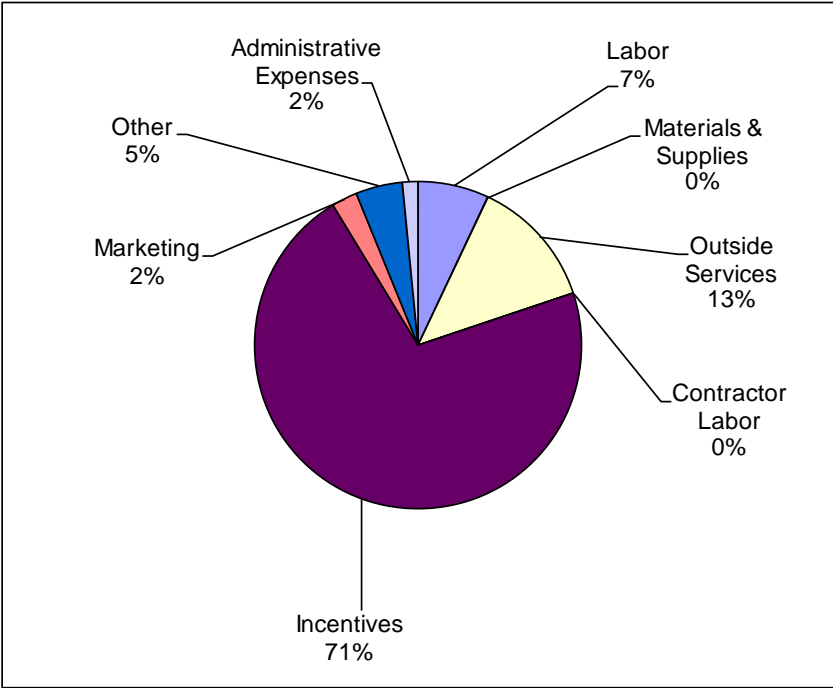
**EVERSOURCE CT ELECTRIC
2017 ENERGY EFFICIENCY
EE Budget By Expense Class
Table C Pie Chart**



<u>Expense Classes</u>	<u>Budget</u>	<u>% of Budget</u>
Labor	\$ 11,358	7%
Materials & Supplies	\$ 67	0%
Outside Services	\$ 21,121	13%
Contractor Labor	\$ -	0%
Incentives	\$ 119,018	72%
Marketing	\$ 4,191	3%
Other	\$ 7,662	5%
Administrative Expenses	\$ 2,783	2%
Total	\$ 166,200	100%

Table C – Pie - Eversource CT Electric 2018

**EVERSOURCE CT ELECTRIC
2018 ENERGY EFFICIENCY
EE Budget By Expense Class
Table C Pie Chart**



<u>Expense Classes</u>	<u>Budget</u>	<u>% of Budget</u>
Labor	\$ 11,546	7%
Materials & Supplies	\$ 67	0%
Outside Services	\$ 21,115	13%
Contractor Labor	\$ -	0%
Incentives	\$ 117,859	71%
Marketing	\$ 4,183	3%
Other	\$ 7,607	5%
Administrative Expenses	\$ 2,553	2%
Total	\$ 164,929	100%

Table D1 - Eversource CT Electric Historical and Projected kW (2009-2018)

	2009 Actual	2010 Actual	2011 Actual	2012 Actual	Load Savings kW				2017 Goal	2018 Goal
					2013 Actual	2014 Actual	2015 Goal	2016 Goal		
RESIDENTIAL										
Residential Retail Products	4,024	14,589	11,778	6,355	5,600	5,710	6,300	8,313	8,019	7,316
Total - Consumer Products	4,024	14,589	11,778	6,355	5,600	5,710	6,300	8,313	8,019	7,316
Residential New Construction	256	339	564	574	562	977	768	810	810	810
Home Energy Solutions (HVAC, Duct Sealing, Lighting) (Core Services only 2016-2018)	2,220	5,054	2,521	2,626	2,852	4,061	2,107	2,563	2,887	2,779
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	-	-	-	-	-	-	-	252	400	399
HES Income Eligible	1,172	1,146	996	749	610	1,002	1,020	799	887	887
Residential Behavior	-	-	-	-	-	7,473	10,696	4,066	4,283	8,754
Subtotal RESIDENTIAL	7,671	21,128	15,859	10,304	9,623	19,222	20,892	16,804	17,286	20,945
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	5,331	4,039	4,103	7,705	6,523	7,793	4,760	5,796	6,738	6,619
Total - Lost Opportunity	5,331	4,039	4,103	7,705	6,523	7,793	4,760	5,796	6,738	6,619
C&I LARGE RETROFIT										
Energy Opportunities	6,017	8,693	8,761	10,669	7,843	10,798	14,111	14,053	15,287	15,159
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	376	531	145	977	789	1,269	2,300	2,858	3,057	4,104
PRIME (2009-2015)	-	-	-	-	-	-	-	-	-	-
Total - C&I Large Retrofit	6,393	9,224	8,906	11,646	8,632	12,067	16,411	16,911	18,345	19,262
Small Business	4,987	5,244	4,759	3,692	2,943	3,169	5,109	3,995	4,227	4,298
Subtotal C&I	16,712	18,507	17,768	23,043	18,099	23,029	26,279	26,702	29,309	30,179
OTHER - EDUCATION										
Educate the Public	-	-	-	-	-	-	-	-	-	-
Customer Engagement	-	-	-	-	-	-	-	-	-	-
Educate the Students	-	-	-	-	-	-	-	-	-	-
Educate the Workforce	-	-	-	-	-	-	-	-	-	-
SmartLiving Center® - Museum Partnerships	-	-	-	-	-	-	-	-	-	-
Science Center	-	-	-	-	-	-	-	-	-	-
EE Smarts/K-12 Education	-	-	-	-	-	-	-	-	-	-
Clean Energy Communities / Behavior Pilot	-	-	-	-	-	-	-	-	-	-
Subtotal Education	-	-	-	-	-	-	-	-	-	-
OTHER - PROGRAMS/REQUIREMENTS										
Residential Loan Program (includes ECLF and OBR)	-	-	-	-	-	-	-	-	-	-
C&I Financing Support (2016-2018)	-	-	-	-	-	-	-	-	-	-
Research, Development & Demonstration	-	-	-	-	-	-	-	-	-	-
Institute for Sustainable Energy (IE/SU) (moved to Educate the Workforce)	-	-	-	-	-	-	-	-	-	-
ESPC Project Manager - Lead By Example	-	-	-	-	-	-	-	-	-	-
C&I Loan Program	-	-	-	-	-	-	-	-	-	-
EE Loan Defaults	-	-	-	-	-	-	-	-	-	-
C&I Self Funding	-	-	-	-	-	-	-	-	-	-
Other Funding Requests	-	-	-	-	-	-	-	-	-	-
Subtotal Other Programs/Requirements	-	-	-	-	-	-	-	-	-	-
OTHER - LOAD MANAGEMENT										
ISO Load Response Program	13,296	118,432	92,474	91,403	95,642	88,627	95,000	95,000	95,000	95,000
Subtotal Load Management	13,296	118,432	92,474	91,403	95,642	88,627	95,000	95,000	95,000	95,000
OTHER - ADMINISTRATIVE & PLANNING										
Administration	-	-	-	-	-	-	-	-	-	-
Marketing Plan	-	-	-	-	-	-	-	-	-	-
Planning	-	-	-	-	-	-	-	-	-	-
Evaluation Measurement and Verification	-	-	-	-	-	-	-	-	-	-
Evaluation Administrator	-	-	-	-	-	-	-	-	-	-
Information Technology	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Board Consultants	-	-	-	-	-	-	-	-	-	-
Audits - Financial and Operational	-	-	-	-	-	-	-	-	-	-
Performance Management Incentive (PMI)	-	-	-	-	-	-	-	-	-	-
Admin/Planning Expenditures	-	-	-	-	-	-	-	-	-	-
PROGRAM SUB-TOTALS										
Residential	7,671	21,128	15,859	10,304	9,623	19,222	20,892	16,804	17,286	20,945
C&I	30,088	136,939	110,242	114,446	113,741	111,656	121,279	121,702	124,309	125,179
Other	-	-	-	-	-	-	-	-	-	-
TOTAL (includes ISO Load Response)	37,679	158,067	126,101	124,750	123,363	130,878	142,171	138,507	141,595	146,124
TOTAL (excludes ISO Load Response)	24,383	39,635	33,627	33,347	27,721	42,251	47,171	43,507	46,595	51,124

Table D2 - Eversource CT Electric Historical and Projected Annual kWh (2009-2018)

	Annual Savings kWh (000's)									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Actual	Actual	Actual	Actual	Actual	Actual	Goal	Goal	Goal	Goal
RESIDENTIAL										
Residential Retail Products	42,424	153,834	133,555	71,370	62,949	64,213	51,420	67,192	62,020	53,967
Total - Consumer Products	42,424	153,834	133,555	71,370	62,949	64,213	51,420	67,192	62,020	53,967
Residential New Construction	845	1,581	2,581	1,625	1,896	2,828	2,255	1,896	1,896	1,895
Home Energy Solutions (HVAC, Duct Sealing, Lighting) (Core Services only 2016-2018)	6,595	22,724	16,190	15,494	16,559	24,010	17,760	15,345	17,239	16,552
Home Energy Solutions - HVAC, Water Heaters (2016-2018)								3,498	4,407	4,406
HES Income Eligible	12,135	12,538	18,173	11,099	8,187	11,137	13,087	11,016	11,907	11,921
Residential Behavior	-	-	-	-	-	28,928	44,935	17,811	18,758	38,342
Subtotal RESIDENTIAL	61,999	190,678	170,500	99,588	89,592	131,116	129,457	116,759	116,226	127,083
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	23,225	21,451	21,890	33,973	38,741	43,422	27,423	35,480	41,138	40,245
Total - Lost Opportunity	23,225	21,451	21,890	33,973	38,741	43,422	27,423	35,480	41,138	40,245
C&I LARGE RETROFIT										
Energy Opportunities	48,645	62,208	62,521	73,331	56,899	82,319	95,489	102,486	111,423	110,828
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	3,117	3,872	2,888	11,137	4,325	11,141	23,705	25,914	27,855	36,531
PRIME (2009-2015)	1,233	2,147	3,364	2,344	1,948	1,671	2,776	-	-	-
Total - C&I Large Retrofit	52,995	68,227	68,773	86,812	63,172	95,132	121,971	128,401	139,278	147,359
Small Business	23,250	30,392	29,681	28,943	26,801	32,546	38,285	33,364	35,266	35,862
Subtotal C&I	99,470	120,071	120,344	149,728	128,713	171,100	187,679	197,245	215,682	223,465
OTHER - EDUCATION										
Educate the Public	-	-	-	-	-	-	-	-	-	-
Customer Engagement	-	-	-	-	-	-	-	-	-	-
Educate the Students	-	-	-	-	-	-	-	-	-	-
Educate the Workforce	-	-	-	-	-	-	-	-	-	-
SmartLiving Center® - Museum Partnerships	-	-	-	-	-	-	-	-	-	-
Science Center	-	-	-	-	-	-	-	-	-	-
EE Smarts/K-12 Education	-	-	-	-	-	-	-	-	-	-
Clean Energy Communities / Behavior Pilot	-	-	-	-	-	-	-	-	-	-
Subtotal Education	-	-	-	-	-	-	-	-	-	-
OTHER - PROGRAMS/REQUIREMENTS										
Residential Loan Program (includes ECLF and OBR)	-	-	-	-	-	-	-	-	-	-
C&I Financing Support (2016-2018)	-	-	-	-	-	-	-	-	-	-
Research, Development & Demonstration	-	-	-	-	-	-	-	-	-	-
Institute for Sustainable Energy (ICESU) (moved to Educate the Workforce)	-	-	-	-	-	-	-	-	-	-
ESPC Project Manager - Lead By Example	-	-	-	-	-	-	-	-	-	-
C&I Loan Program	-	-	-	-	-	-	-	-	-	-
EE Loan Defaults	-	-	-	-	-	-	-	-	-	-
C&I Self Funding	-	-	-	-	-	-	-	-	-	-
Other Funding Requests	-	-	-	-	-	-	-	-	-	-
Subtotal Other Programs/Requirements	-	-	-	-	-	-	-	-	-	-
OTHER - LOAD MANAGEMENT										
ISO Load Response Program	-	-	-	-	-	-	-	-	-	-
Subtotal Load Management	-	-	-	-	-	-	-	-	-	-
OTHER - ADMINISTRATIVE & PLANNING										
Administration	-	-	-	-	-	-	-	-	-	-
Marketing Plan	-	-	-	-	-	-	-	-	-	-
Planning	-	-	-	-	-	-	-	-	-	-
Evaluation Measurement and Verification	-	-	-	-	-	-	-	-	-	-
Evaluation Administrator	-	-	-	-	-	-	-	-	-	-
Information Technology	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Board Consultants	-	-	-	-	-	-	-	-	-	-
Audits - Financial and Operational	-	-	-	-	-	-	-	-	-	-
Performance Management Incentive (PMI)	-	-	-	-	-	-	-	-	-	-
Admin/Planning Expenditures	-	-	-	-	-	-	-	-	-	-
PROGRAM SUB-TOTALS										
Residential	61,999	190,678	170,500	99,588	89,592	131,116	129,457	116,759	116,226	127,083
C&I	99,470	120,071	120,344	149,728	128,713	171,100	187,679	197,245	215,682	223,465
Other	-	-	-	-	-	-	-	-	-	-
TOTAL (includes ISO Load Response)	161,468	310,748	290,844	249,316	218,305	302,216	317,136	314,004	331,907	350,548
TOTAL (excludes ISO Load Response)	161,468	310,748	290,844	249,316	218,305	302,216	317,136	314,004	331,907	350,548

Table D3 - Eversource CT Electric Historical and Projected Lifetime kWh (2009-2018)

Table D3
Eversource CT Electric Historical and Projected Lifetime kWh

	Lifetime Savings kWh (000's)											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
RESIDENTIAL												
Residential Retail Products	240,352	730,452	530,264	369,780	398,800	565,647	524,925	587,271	526,435	432,452		
Total - Consumer Products	240,352	730,452	530,264	369,780	398,800	565,647	524,925	587,271	526,435	432,452		
Residential New Construction	12,656	25,469	43,198	28,472	31,175	43,056	44,262	31,096	31,089	31,082		
Home Energy Solutions (HVAC, Duct Sealing, Lighting) (Core Services only 2016-2018)	85,041	264,136	158,652	146,476	171,660	284,193	182,675	174,086	184,547	166,735		
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	-	-	-	-	-	-	-	-	-	-		
HES Income Eligible	111,730	104,256	173,726	159,905	113,222	150,365	142,828	111,416	117,421	115,229		
Residential Behavior	-	-	-	-	-	57,856	89,870	45,116	47,514	111,907		
Subtotal Residential	449,778	1,124,313	905,840	704,633	714,857	1,011,316	984,560	1,000,041	973,683	924,064		
COMMERCIAL & INDUSTRIAL												
C&I LOST OPPORTUNITY												
Energy Conscious Blueprint	382,538	330,357	330,506	509,148	596,826	667,358	417,476	539,055	625,255	612,040		
Total - Lost Opportunity	382,538	330,357	330,506	509,148	596,826	667,358	417,476	539,055	625,255	612,040		
C&I LARGE RETROFIT												
Energy Opportunities	587,275	769,087	750,126	863,093	672,470	953,547	1,128,766	1,188,360	1,291,974	1,286,232		
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	28,640	32,401	25,754	94,042	36,510	83,564	151,575	187,470	203,180	271,773		
PRIME (2009-2015)	6,166	10,734	16,819	11,711	9,739	8,355	13,880	-	-	-		
Total - C&I Large Retrofit	622,081	812,223	792,699	968,846	718,720	1,045,466	1,294,222	1,375,829	1,495,154	1,558,005		
Small Business	275,112	376,215	368,832	353,696	325,004	396,812	475,337	406,949	430,134	437,409		
Subtotal C&I	1,279,730	1,518,795	1,492,037	1,831,690	1,640,549	2,109,636	2,187,036	2,321,833	2,550,543	2,607,455		
OTHER - EDUCATION												
Educate the Public	-	-	-	-	-	-	-	-	-	-	-	-
Customer Engagement	-	-	-	-	-	-	-	-	-	-	-	-
Educate the Students	-	-	-	-	-	-	-	-	-	-	-	-
Educate the Workforce	-	-	-	-	-	-	-	-	-	-	-	-
SmartLiving Center@ - Museum Partnerships	-	-	-	-	-	-	-	-	-	-	-	-
Science Center	-	-	-	-	-	-	-	-	-	-	-	-
EE Smarts/K-12 Education	-	-	-	-	-	-	-	-	-	-	-	-
Clean Energy Communities / Behavior Pilot	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal Education	-	-	-	-	-	-	-	-	-	-	-	-
OTHER - PROGRAMS/REQUIREMENTS												
Residential Loan Program (includes ECLF and OBR)	-	-	-	-	-	-	-	-	-	-	-	-
C&I Financing Support (2016-2018)	-	-	-	-	-	-	-	-	-	-	-	-
Research, Development & Demonstration	-	-	-	-	-	-	-	-	-	-	-	-
Institute for Sustainable Energy (IECSI) (moved to Educate the Workforce)	-	-	-	-	-	-	-	-	-	-	-	-
ESPC Project Manager - Lead By Example	-	-	-	-	-	-	-	-	-	-	-	-
C&I Loan Program	-	-	-	-	-	-	-	-	-	-	-	-
EE Loan Defaults	-	-	-	-	-	-	-	-	-	-	-	-
C&I Self Funding	-	-	-	-	-	-	-	-	-	-	-	-
Other Funding Requests	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal Other Programs/Requirements	-	-	-	-	-	-	-	-	-	-	-	-
OTHER - LOAD MANAGEMENT												
ISO Load Response Program	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal Load Management	-	-	-	-	-	-	-	-	-	-	-	-
OTHER - ADMINISTRATIVE & PLANNING												
Administration	-	-	-	-	-	-	-	-	-	-	-	-
Marketing Plan	-	-	-	-	-	-	-	-	-	-	-	-
Planning	-	-	-	-	-	-	-	-	-	-	-	-
Evaluation Measurement and Verification	-	-	-	-	-	-	-	-	-	-	-	-
Evaluation Administrator	-	-	-	-	-	-	-	-	-	-	-	-
Information Technology	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Board Consultants	-	-	-	-	-	-	-	-	-	-	-	-
Audits - Financial and Operational	-	-	-	-	-	-	-	-	-	-	-	-
Performance Management Incentive (PMI)	-	-	-	-	-	-	-	-	-	-	-	-
Admin/Planning Expenditures	-	-	-	-	-	-	-	-	-	-	-	-
PROGRAM SUB-TOTALS												
Residential	449,778	1,124,313	905,840	704,633	714,857	1,011,316	984,560	1,000,041	973,683	924,064		
C&I	1,279,730	1,518,795	1,492,037	1,831,690	1,640,549	2,109,636	2,187,036	2,321,833	2,550,543	2,607,455		
Other	-	-	-	-	-	-	-	-	-	-		
TOTAL (includes ISO Load Response)	1,729,508	2,643,108	2,397,877	2,536,323	2,355,406	3,210,953	3,171,596	3,321,874	3,524,226	3,531,519		
TOTAL (excludes ISO Load Response)	1,729,508	2,643,108	2,397,877	2,536,323	2,355,406	3,210,953	3,171,596	3,321,874	3,524,226	3,531,519		

Table D6 - Eversource CT Electric Historical and Cost per Projected Annual kWh (2009-2018)

	Cost per Annual Savings kWh									
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
Residential Retail Products	\$ 0.076	\$ 0.080	\$ 0.058	\$ 0.096	\$ 0.103	\$ 0.180	\$ 0.241	\$ 0.203	\$ 0.239	\$ 0.273
Total - Consumer Products	\$ 0.076	\$ 0.080	\$ 0.058	\$ 0.096	\$ 0.103	\$ 0.180	\$ 0.241	\$ 0.203	\$ 0.239	\$ 0.273
Residential New Construction	\$ 0.585	\$ 0.654	\$ 0.635	\$ 0.824	\$ 0.756	\$ 1.272	\$ 1.051	\$ 1.272	\$ 1.320	\$ 1.294
Home Energy Solutions (HVAC, Duct Sealing, Lighting) (Core Services only 2016-2018)	\$ 1.205	\$ 0.986	\$ 0.925	\$ 0.937	\$ 0.969	\$ 0.928	\$ 1.142	\$ 1.171	\$ 1.148	\$ 1.186
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
HES Income Eligible	\$ 0.639	\$ 0.747	\$ 0.710	\$ 1.094	\$ 1.172	\$ 1.570	\$ 1.327	\$ 1.585	\$ 1.567	\$ 1.528
Residential Behavior	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.093	\$ 0.060	\$ 0.168	\$ 0.160	\$ 0.078
Subtotal Residential	\$ 0.313	\$ 0.237	\$ 0.219	\$ 0.350	\$ 0.375	\$ 0.424	\$ 0.425	\$ 0.484	\$ 0.524	\$ 0.476
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	\$ 0.291	\$ 0.374	\$ 0.384	\$ 0.250	\$ 0.257	\$ 0.320	\$ 0.424	\$ 0.354	\$ 0.358	\$ 0.366
Total - Lost Opportunity	\$ 0.291	\$ 0.374	\$ 0.384	\$ 0.250	\$ 0.257	\$ 0.320	\$ 0.424	\$ 0.354	\$ 0.358	\$ 0.366
C&I LARGE RETROFIT										
Energy Opportunities	\$ 0.210	\$ 0.287	\$ 0.379	\$ 0.255	\$ 0.368	\$ 0.355	\$ 0.372	\$ 0.353	\$ 0.358	\$ 0.364
Business & Energy Sustainability (O&M, RetroC, BSC, PRIME)	\$ 0.353	\$ 0.348	\$ 0.907	\$ 0.152	\$ 0.381	\$ 0.217	\$ 0.207	\$ 0.218	\$ 0.209	\$ 0.161
PRIME (2009-2015)	\$ 0.320	\$ 0.222	\$ 0.145	\$ 0.231	\$ 0.246	\$ 0.285	\$ 0.240	\$ -	\$ -	\$ -
Total - C&I Large Retrofit	\$ 0.221	\$ 0.289	\$ 0.390	\$ 0.241	\$ 0.365	\$ 0.338	\$ 0.337	\$ 0.325	\$ 0.328	\$ 0.313
Small Business	\$ 0.210	\$ 0.398	\$ 0.402	\$ 0.408	\$ 0.497	\$ 0.492	\$ 0.454	\$ 0.501	\$ 0.493	\$ 0.486
Subtotal C&I	\$ 0.235	\$ 0.332	\$ 0.392	\$ 0.276	\$ 0.360	\$ 0.362	\$ 0.374	\$ 0.360	\$ 0.361	\$ 0.351
OTHER EDUCATION										
Educate the Public	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Customer Engagement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Educate the Students	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Educate the Workforce	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SmartLiving Center@ - Museum Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Science Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE-Smarts/K-12 Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Clean Energy Communities / Behavior Pilot	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER PROGRAMS/REQUIREMENTS										
Residential Loan Program (includes ECLF and OBR)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Financing Support (2016-2018)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Research, Development & Demonstration	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Institute for Sustainable Energy (IESU) (moved to Educate the Workforce)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ESPC Project Manager - Lead By Example	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Loan Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Loan Defaults	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Self Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Funding Requests	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Other Programs/Requirements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER - LOAD MANAGEMENT										
ISO Load Response Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Load Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER - ADMINISTRATIVE & PLANNING										
Administration	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Marketing Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Planning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaluation Measurement and Verification	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaluation Administrator	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Information Technology	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Efficiency Board Consultants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Audits - Financial and Operational	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Performance Management Incentive (PMI)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Admin/Planning Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PROGRAM SUB-TOTALS										
Residential	\$ 0.321	\$ 0.341	\$ 0.242	\$ 0.426	\$ 0.395	\$ 0.467	\$ 0.473	\$ 0.527	\$ 0.568	\$ 0.516
C&I	\$ 0.238	\$ 0.360	\$ 0.435	\$ 0.308	\$ 0.397	\$ 0.415	\$ 0.428	\$ 0.407	\$ 0.400	\$ 0.382
Other	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL (includes ISO Load Response)	\$ 0.311	\$ 0.385	\$ 0.351	\$ 0.414	\$ 0.462	\$ 0.480	\$ 0.486	\$ 0.494	\$ 0.501	\$ 0.470
TOTAL (excludes ISO Load Response)	\$ 0.311	\$ 0.376	\$ 0.333	\$ 0.399	\$ 0.444	\$ 0.468	\$ 0.474	\$ 0.481	\$ 0.491	\$ 0.466

Table D7 - Eversource CT Electric Historical and Cost per Projected Lifetime kWh (2009-2018)

	Cost per Lifetime Savings kWh									
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
Residential Retail Products	\$ 0.013	\$ 0.017	\$ 0.015	\$ 0.019	\$ 0.016	\$ 0.020	\$ 0.024	\$ 0.023	\$ 0.028	\$ 0.034
Total - Consumer Products	\$ 0.013	\$ 0.017	\$ 0.015	\$ 0.019	\$ 0.016	\$ 0.020	\$ 0.024	\$ 0.023	\$ 0.028	\$ 0.034
Residential New Construction	\$ 0.039	\$ 0.041	\$ 0.038	\$ 0.047	\$ 0.046	\$ 0.037	\$ 0.054	\$ 0.078	\$ 0.080	\$ 0.079
Home Energy Solutions (HVAC, Duct Sealing, Lighting) / (Cons. Services only 2016-2018)	\$ 0.093	\$ 0.085	\$ 0.094	\$ 0.099	\$ 0.093	\$ 0.078	\$ 0.111	\$ 0.103	\$ 0.107	\$ 0.118
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.039	\$ 0.037	\$ 0.038
HES Income Eligible	\$ 0.069	\$ 0.090	\$ 0.074	\$ 0.076	\$ 0.085	\$ 0.116	\$ 0.122	\$ 0.157	\$ 0.156	\$ 0.158
Residential Behavior	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.047	\$ 0.066	\$ 0.063	\$ 0.027
Subtotal RESIDENTIAL	\$ 0.043	\$ 0.040	\$ 0.041	\$ 0.049	\$ 0.047	\$ 0.051	\$ 0.056	\$ 0.056	\$ 0.063	\$ 0.066
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	\$ 0.018	\$ 0.024	\$ 0.025	\$ 0.017	\$ 0.017	\$ 0.021	\$ 0.028	\$ 0.023	\$ 0.024	\$ 0.024
Total - Lost Opportunity	\$ 0.018	\$ 0.024	\$ 0.025	\$ 0.017	\$ 0.017	\$ 0.021	\$ 0.028	\$ 0.023	\$ 0.024	\$ 0.024
C&I LARGE RETROFIT										
Energy Opportunities	\$ 0.017	\$ 0.023	\$ 0.032	\$ 0.022	\$ 0.031	\$ 0.031	\$ 0.032	\$ 0.030	\$ 0.031	\$ 0.031
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 0.038	\$ 0.042	\$ 0.102	\$ 0.018	\$ 0.045	\$ 0.029	\$ 0.032	\$ 0.030	\$ 0.029	\$ 0.022
PRIME (2009-2015)	\$ 0.064	\$ 0.044	\$ 0.029	\$ 0.046	\$ 0.049	\$ 0.057	\$ 0.048	\$ -	\$ -	\$ -
Total - C&I Large Retrofit	\$ 0.019	\$ 0.024	\$ 0.034	\$ 0.022	\$ 0.032	\$ 0.031	\$ 0.032	\$ 0.030	\$ 0.031	\$ 0.030
Small Business	\$ 0.018	\$ 0.032	\$ 0.033	\$ 0.033	\$ 0.041	\$ 0.040	\$ 0.037	\$ 0.041	\$ 0.040	\$ 0.040
Subtotal C&I	\$ 0.018	\$ 0.026	\$ 0.032	\$ 0.023	\$ 0.028	\$ 0.029	\$ 0.032	\$ 0.031	\$ 0.031	\$ 0.030
OTHER - EDUCATION										
Educate the Public	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Customer Engagement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Educate the Students	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Educate the Workforce	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SmartLiving Center@ - Museum Partnerships	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Science Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Smarts/K-12 Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Clean Energy Communities / BehaviorPilot	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Education	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER - PROGRAMS/REQUIREMENTS										
Residential Loan Program (includes ECLF and OBR)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Financing Support (2016-2018)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Research, Development & Demonstration	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Institute for Sustainable Energy (ICESU) (moved to Educate the Workforce)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ESPC Project Manager - Lead By Example	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Loan Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Loan Defaults	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C&I Self Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Funding Requests	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Other Programs/Requirements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER - LOAD MANAGEMENT										
ISO Load Response Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Load Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OTHER - ADMINISTRATIVE & PLANNING										
Administration	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Marketing Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Planning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaluation Measurement and Verification	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Evaluation Administrator	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Information Technology	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Efficiency Board Consultants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Audits - Financial and Operational	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Performance Management Incentive (PMI)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Admin/Planning Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PROGRAM SUB-TOTALS										
Residential	\$ 0.044	\$ 0.038	\$ 0.045	\$ 0.060	\$ 0.050	\$ 0.056	\$ 0.062	\$ 0.062	\$ 0.068	\$ 0.071
C&I	\$ 0.018	\$ 0.028	\$ 0.035	\$ 0.025	\$ 0.031	\$ 0.034	\$ 0.037	\$ 0.035	\$ 0.034	\$ 0.033
Other	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL (includes ISO Load Response)	\$ 0.029	\$ 0.045	\$ 0.043	\$ 0.041	\$ 0.043	\$ 0.045	\$ 0.049	\$ 0.047	\$ 0.047	\$ 0.047
TOTAL (excludes ISO Load Response)	\$ 0.029	\$ 0.044	\$ 0.040	\$ 0.039	\$ 0.041	\$ 0.044	\$ 0.047	\$ 0.046	\$ 0.046	\$ 0.046

Eversource CT Electric Performance Incentive 2016

EVERSOURCE CT ELECTRIC

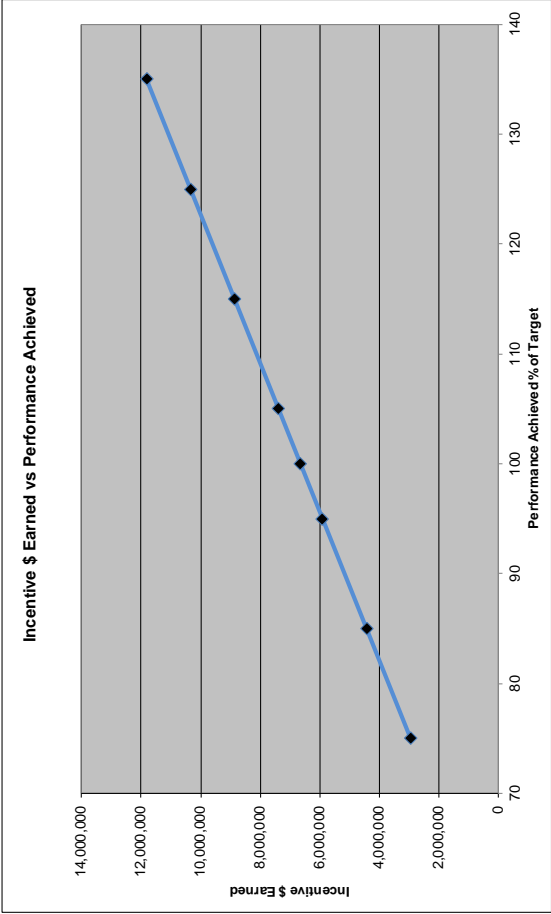
2016 Management Incentive Performance Indicators and Incentive Matrix

Eversource CT Electric and the EEB recognize that having clear indicators and metrics of performance are helpful in delivering quality programs to Connecticut consumers. The following is a table of performance and incentive metrics developed by the utilities with input from the EEB, the Board consultants and the Department. These performance and incentive metrics apply to the programs delineated in this Plan. The projected Eversource CT Performance Incentive is **\$6,648,296** and is based on achieving **100%** of all performance targets and earning an incentive of **4.5%** of the total C&LM program budget of **\$147,739,904** (exclusive of Energy Efficiency Board costs, Evaluation Consultant costs, Management incentives and Audit costs). The actual earned amount will be calculated on a sliding scale based on the percent of goal achieved and the actual total expenditures, based on the following performance range:

-Performance Incentive Illustration-		
<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
<u>Minimum</u>	<u>Incentive</u>	
75	2%	\$2,954,798
85	3%	\$4,432,197
95	4%	\$5,909,596
100	4.5%	\$6,648,296
105	5%	\$7,386,995
115	6%	\$8,864,394
125	7%	\$10,341,793
135	8%	\$11,819,192
Maximum		

Incentive Basis Budget \$147,739,904

Goals will be prorated based on actual over/under spend of budget in the event actual spending is over/under 5% or more of budget.



Eversource CT Electric Performance Incentive 2016 (cont.)

SECTOR Program	Performance Indicators				Incentive Metrics				
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive	
RESIDENTIAL	\$56,459	Retail Products	587,270,905	8,313	56.8%	Sum of Electric System Benefit from Residential programs	Electric System Benefit from Residential programs \$89,622,927	0.1950	\$1,296,418
		Home Energy Solutions (HES)	174,086,015	2,563	17.0%				
		HES - HVAC	51,056,108	252	4.4%				
		HES - Income Eligible	111,416,328	799	9.8%				
		New Construction	31,096,425	810	3.5%				
		Behavior	45,115,618	4,066	8.5%				
		Total	1,000,041,399	16,804					
		Savings Rate	\$ 0.07132 / kWh	\$1,089 / kW					
		Savings	\$ 71,319,485	\$ 18,303,442					
		(1) percent of target goal							
Net Electric System Benefit - Res.						\$33,164,157	0.1950	\$1,296,418	
Home Energy Solutions	\$19,965	Electric Savings LTKWh :	\$51,056,108		Energy Savings included in appropriate sector level metric				
		Demand Savings kw :	\$252		Increase HES savings Per Home	Achieve MMBTU in HES per Single family home savings across all fuels	0.0225	\$149,587	
		MMBTU per single family home for Core Service that have air sealing completed (i.e., non-barriered homes) – based on 2015 actuals adjusted to 2016 CT PSD plus 2.0%.			% of homes with Add-Ons	(24.5%) of the homes with add-on measures	0.0225	\$149,587	

HES- Percentage of Unique Single Family Homes that received core services for HES that get at least one add-on measure (i.e., insulation, Water Heaters, HVAC, Appliances, windows). The CT Energy Efficiency Dashboard will be used for comparison for the period of January 1 to September 30 - 2016.

Eversource CT Electric Performance Incentive 2016 (cont.)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL								
\$2,412 Residential New Construction	Electric Savings LTKWh : Demand Savings kW :	174,086,015 2,563			Energy Savings included in appropriate sector level metric Remodeling Initiative	Develop Plan by October 1, 2016	0.0050	\$33,241
\$17,460 HES Income Eligible	RNC - By October 1, 2016, the companies working with the EEB Consultants, will develop a clear, comprehensive plan for additions, renovation, and retrofit tracts to improve participation. (Draft by June 30, complete by October, 1, 2016). Implement Plan in 2017. Electric Savings LTKWh : Demand Savings kW :	31,086,425 810			Energy savings included in appropriate sector level metric Expend 2016 HES-IE Budget	This is a penalty metric - 5% ES- 67,669 Annual MMBTU savings	0.0200	\$132,966
\$13,622 Retail Products	Electric Savings LTKWh : Demand Savings kW : Retail Products -Number of LED Products	587,270,905 8,313			Energy savings included in appropriate sector level metric Number of LED Products	Number of LED Products (ES- 1,743K)	0.0200	\$132,966

Eversource CT Electric Performance Incentive 2016 (cont.)

SECTOR Program	Performance Indicators				Incentive Metrics				
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive	
COMMERCIAL & INDUSTRIAL (C&I)	\$71,091	Energy Conscious Blueprint	539,054,882	5,796	22.9%	Total Electric System Benefit from C&I programs	Electric System Benefit from C&I programs	0.2100	\$1,396,142
		Energy Opportunities	1,188,359,820	14,053	51.5%				
		Small Business	406,948,529	3,985	17.0%		\$204,256,246		
		Business and Energy Sustainability	187,469,668	2,858	8.7%				
		Total	2,321,832,899	26,702					
		Savings Rate	\$ 0.068 / kWh	\$ 1.696 / kW					
		Savings	\$ 158,956,672	\$ 45,299,573					
		(1) percent of target goal							
Net Electric System Benefit- C&I		Electric System Benefit less Program Costs			\$133,165,483		\$133,165,483	0.2100	\$1,396,142
Energy Opportunities	\$36,142	Develop and implement comprehensive offerings specific to manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measure and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).					20% of all signed projects.	0.0300	\$199,449

Eversource CT Electric Performance Incentive 2016 (cont.)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C&I)								
	\$12,570							
Energy Conscious Blueprint				Number of new construction /major renovation projects that are more efficient than the State Energy Code and are: 35% > than ASHRAE 90.1-2007, or 25% > ASHRAE 90.1-2010, or utilize Whole Building Performance, or Near Net Zero Energy Projects Move towards Net Zero Energy project which shall include renewable energy technologies such as, but not limited to, Solar PV, Solar Thermal, Fuel Cells, CHP, and Wind	50% of signed projects (under current state code)	0.0200		\$132,966
	\$16,730		406,948,529 3,995	Electric Saving LTKWh : Demand Saving kW :	Energy savings included in appropriate sector level metric	15% all signed projects	0.0300	\$199,449
Small Business				Develop and implement comprehensive offerings specific to Retail and a minimum of 3 targeted segments (e.g. Medical offices , Restaurants and Commercial services) . Offerings will consist of a tailored combination of measure and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).				
	\$5,649			SEM(*) signed Customer agreements may include, but not be limited to, BSC Agreements (**), Retro-Commissioning engineering study agreements, multi-year MOU's with Customers (which will outline a strategic plan for reducing consumption by a specific percentage each year along with tools and resources to be utilized such as metering, trending & reporting, Energy Star Benchmarking, Focused Study agreements, PRIME kaizen events, etc.), Clean Energy Community MOU's, packaged SEM and Customer Engagement tools and resources which already exist in the marketplace.(*)SEM= "Strategic Energy Management Minimum Elements," CEE, Feb 2014. (**) BSC = Business Sustainability Challenge	50 Customers	0.0200		\$132,966
Total of Incentives							1.00000	\$6,648,296

Eversource CT Electric Performance Incentive 2017

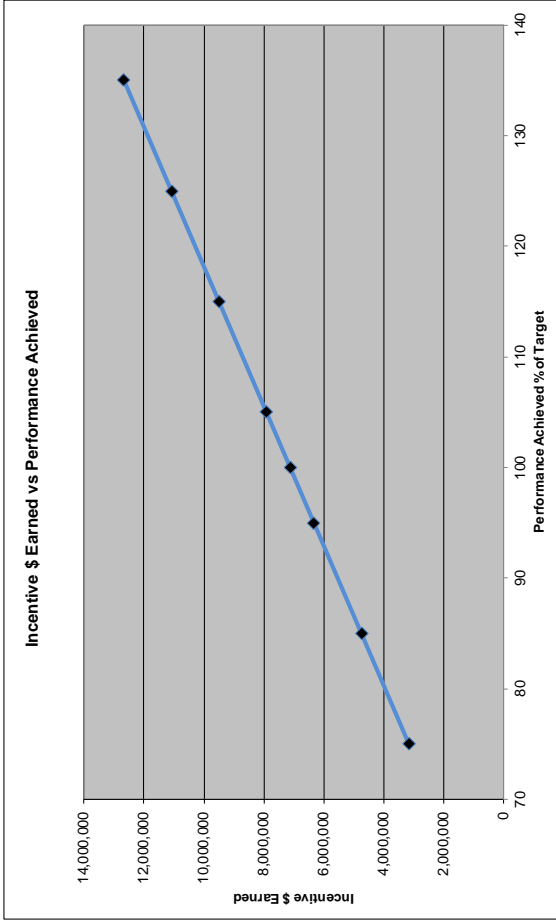
EVERSOURCE CT ELECTRIC

2017 Management Incentive Performance Indicators and Incentive Matrix

Eversource CT Electric and the EEB recognize that having clear indicators and metrics of performance are helpful in delivering quality programs to Connecticut consumers. The following is a table of performance and incentive metrics developed by the utilities with input from the EEB, the Board consultants and the Department. These performance and incentive metrics apply to the programs delineated in this Plan. The projected Eversource CT Performance Incentive is **\$7,124,499** and is based on achieving **100%** of all performance targets and earning an incentive of **4.5%** of the total C&LM program budget of **\$158,322,206** as shown on Table A (exclusive of Energy Efficiency Board costs, Evaluation Consultant costs, Management incentives and Audit costs). The actual earned amount will be calculated on a sliding scale based on the percent of goal achieved and the actual total expenditures, based on the following performance range:

-Performance Incentive Illustration-		
<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2%	\$3,166,444
85	3%	\$4,749,666
95	4%	\$6,332,888
100	4.5%	\$7,124,499
105	5%	\$7,916,110
115	6%	\$9,499,332
125	7%	\$11,082,554
135	8%	\$12,665,776
Maximum		

Incentive Basis Budget \$158,322,206
 Goals will be prorated based on actual over/under spend of budget in the event actual spending is over/under 5% or more of budget.



Eversource CT Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators					Incentive Metrics		
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL								
	\$60,894							
Residential Programs (Sector Level) Sector Budget								
		Retail Products	526,434,657	8,019	52.4%	Sum of Electric System Benefit from Residential programs	0.1950	\$1,389,277
		Home Energy Solutions (HES)	184,546,555	2,887	18.5%			
		HES - HVAC	66,677,807	400	5.9%			
		HES - Income Eligible	117,420,961	887	10.5%			
		New Construction	31,089,048	810	3.5%			
		Behavior	47,514,019	4,283	9.2%			
		Total	973,683,048	17,286				
		Savings Rate	\$ 0.06852 / kWh	\$1,080 / kW				
		Savings	\$ 66,714,385	\$ 18,664,200				
		(1) percent of target goal						
Net Electric System Benefit - Res.		Electric System Benefit less Program Costs		\$24,484,506.26		\$24,484,506	0.1950	\$1,389,277
	\$22,290	Electric Savings LTKWh :	66,677,807		Energy Savings included in appropriate sector level metric			
		Demand Savings kw :	400					
Home Energy Solutions		MMBTU per single family home for Core Service that have air sealing completed (i.e., non-barriered homes) – based on 2016 actuals adjusted to 2017 CT PSD plus 2.0%			Increase HES savings Per Home	Achieve MMBTU in HES per Single family home savings across all fuels	0.0225	\$160,301
		HES- Percentage of Unique Single Family Homes that received core services for HES that get at least one add-on measure (i.e., insulation, Water Heaters, HVAC, Appliances, windows). The CT Energy Efficiency Dashboard will be used for comparison for the period of January 1 to September 30 - 2017.			% of homes with Add-Ons	(25.5%) of the homes with add-on measures	0.0225	\$160,301

Eversource CT Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL								
Residential New Construction	\$2,502	Electric Savings LTKWh : Demand Savings kw :	184,546,555 2,887		Energy Savings included in appropriate sector level metric Remodeling Initiative			
HES Income Eligible	\$18,271	Electric Savings LTKWh : Demand Savings kW :	31,089,048 810	Expend the HES-IE Budget - Full Penalty is 5% times HES-IE Budgeted Spending. Expend 95% spending avoids the penalty. The penalty is on a sliding scale from 85% to 95%. Above 85% spending, the penalty is scaled with a 10% reduction in the penalty for each one percentage point increase in budget spend above 85%. HES-IE - Annual MMBTU for electric, oil and propane measures	Energy savings included in appropriate sector level metric Expend 2016 HES-IE Budget	This is a penalty metric - 5% ES- 73,257 Annual MMBTU savings	0.0225	\$160,301
Retail Products	\$14,831	Electric Savings LTKWh : Demand Savings kW :	526,434,657 8,019	Retail Products -Number of LED Products	Energy savings included in appropriate sector level metric Number of LED Products	Number of LED Products (ES- 2,038K)	0.0225	\$160,301

Eversource CT Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators					Incentive Metrics				
	Program Name	LT-kWh	kW	% (1)		Incentive Metric	Target Goal	Weight	Incentive	
COMMERCIAL & INDUSTRIAL (C&I)	\$77,861	Energy Conscious Blueprint	625,254,917	6,738	24.2%		Total Electric System Benefit from C&I programs	Electric System Benefit from C&I programs	0.2100	\$1,496,145
		Energy Opportunities	1,291,974,114	15,287	51.0%					
		Small Business	430,134,116	4,227	16.3%					\$220,559,200
		Business and Energy Sustainability	203,179,798	3,057	8.5%					
		Total	2,550,542,945	29,309						
		Savings Rate	\$ 0.067 / kWh	\$ 1,707 / kW						
		Savings	\$ 170,536,736	\$ 50,022,464						
		(1) percent of target goal								
Net Electric System Benefit- C&I		Electric System Benefit less Program Costs		\$142,698,194.78			\$142,698,195	0.2100	\$1,496,145	
Energy Opportunities	\$39,920	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measure and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).						25% of all signed projects.	0.0300	\$213,735

Eversource CT Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C&I)								
	\$14,729							
Energy Conscious Blueprint						40% of signed projects	0.0200	\$142,490
	\$17,395		430,134,116		Energy savings included in appropriate sector level metric			
			4,227					
Small Business						20% all signed projects	0.0300	\$213,735
	\$5,817							
Strategic Energy Management						75 Customers	0.0200	\$142,490
Total of Incentives							1.00000	\$7,124,499

Eversource CT Electric Performance Incentive 2018

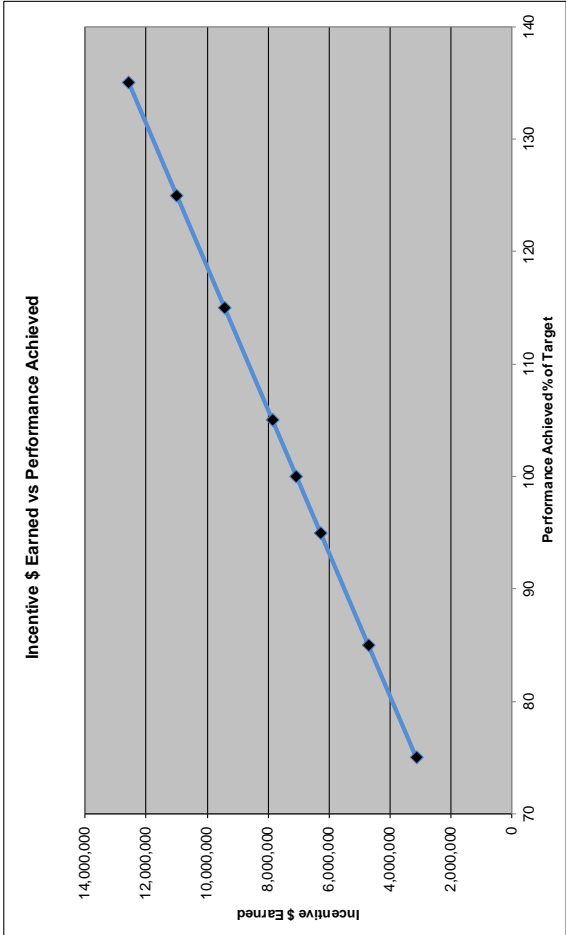
EVERSOURCE CT ELECTRIC

2018 Management Incentive Performance Indicators and Incentive Matrix

Eversource CT Electric and the EEB recognize that having clear indicators and metrics of performance are helpful in delivering quality programs to Connecticut consumers. The following is a table of performance and incentive metrics developed by the utilities with input from the EEB, the Board consultants and the Department. These performance and incentive metrics apply to the programs delineated in this Plan. The projected Eversource CT Performance Incentive is **\$7,069,156** and is based on achieving **100%** of all performance targets and earning an incentive of **4.5%** of the total C&LM program budget of **\$157,092,352** as shown on Table A (exclusive of Energy Efficiency Board costs, Evaluation Consultant costs, Management Incentives and Audit costs). The actual earned amount will be calculated on a sliding scale based on the percent of goal achieved and the actual total expenditures, based on the following performance range:

-Performance Incentive Illustration-		
<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
<u>Minimum</u>	<u>Incentive</u>	
75	2%	\$3,141,847
85	3%	\$4,712,771
95	4%	\$6,283,694
100	4.5%	\$7,069,156
105	5%	\$7,854,618
115	6%	\$9,425,541
125	7%	\$10,996,465
135	8%	\$12,567,388
Maximum		

Incentive Basis Budget \$157,092,352
 Goals will be prorated based on actual over/under spend of budget in the event actual spending is over/under 5% or more of budget.



Eversource CT Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL								
	\$60,540							
Residential Programs (Sector Level) Sector Budget					Sum of Electric System Benefit from Residential programs	Electric System Benefit from Residential programs \$79,539,180	0.1950	\$1,378,485
		Retail Products	432,451,960	7,316	44.1%			
		Home Energy Solutions (HES)	166,734,671	2,779	17.0%			
		HES - HVAC	66,660,803	399	6.0%			
		HES - Income Eligible	115,228,691	887	10.6%			
		New Construction	31,081,671	810	3.5%			
		Behavior	111,906,673	8,754	18.9%			
		Total	924,064,469	20,945				
		Savings Rate	\$ 0.06638 / kWh	\$869 / kW				
		Savings	\$ 61,339,313	\$ 18,199,867				
		(1) percent of target goal						
Net Electric System Benefit - Res.		Electric System Benefit less Program Costs		\$18,998,580.91		\$18,999,581	0.1950	\$1,378,485
	\$22,124	Electric Savings LTKWh :	66,660,803		Energy Savings included in appropriate sector level metric			
		Demand Savings kw :	399		Increase HES savings Per Home	Achieve MMBTU in HES per Single family home savings across all fuels	0.0225	\$159,056
Home Energy Solutions		MMBTU per single family home for Core Service that have air sealing completed (i.e., non-barriered homes) – based on 2017 actuals adjusted to 2018 CT PSD plus 2.0%.			% of homes with Add-Ons	(26.5%) of the homes with add-on measures	0.0225	\$159,056
		HES - Percentage of Unique Single Family Homes that received core services for HES that get at least one add-on measure (i.e., insulation, Water Heaters, HVAC, Appliances, windows). The CT Energy Efficiency Dashboard will be used for comparison for the period of January 1 to September 30 - 2018.						

Eversource CT Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	L T-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL								
Residential New Construction	\$2,453	Electric Savings LTKWh : Demand Savings kW :	166,734,671 2,779		Energy Savings included in appropriate sector level metric Remodeling Initiative			
HES Income Eligible	\$18,212	Electric Savings LTKWh : Demand Savings kW :	31,081,671 810		Energy savings included in appropriate sector level metric			
		Expand the HES-IE Budget - Full Penalty is 5% times HES-IE Budgeted Spending. Expending 95% spending avoids the penalty. The penalty is on a sliding scale from 85% to 95%. Above 85% spending, the penalty is scaled with a 10% reduction in the penalty for each one percentage point increase in budget spend above 85%.			Expend 2016 HES-IE Budget	This is a penalty metric - 5%	0.0225	\$159,056
		HES-IE - Annual MMBTU for electric, oil and propane measures				ES- 67,104 Annual MMBTU savings		
Retail Products	\$14,750	Electric Savings LTKWh : Demand Savings kW :	432,451,960 7,316		Energy savings included in appropriate sector level metric	Number of LED Products (ES-2,190 K)	0.0225	\$159,056
		Retail Products -Number of LED Products						

Eversource CT Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators					Incentive Metrics		
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C&I)	\$78,358	Energy Conscious Blueprint	612,040,102	6,619	23.1%	Total Electric System Benefit from C&I programs	0.2100	\$1,484,523
		Energy Opportunities	1,286,232,398	15,159	49.5%			
		Small Business	437,408,976	4,298	16.2%			
		Business and Energy Sustainability	271,773,049	4,104	11.2%			
		Total	2,607,454,525	30,179				
		Savings Rate	\$ 0.06494 / kWh	\$ 1,683 / kW				
		Savings	\$ 169,323,349	\$ 50,791,499				
		(1) percent of target goal						
Net Electric System Benefit- C&I		Electric System Benefit less Program Costs			\$141,757,218.25		0.2100	\$1,484,523
Energy Opportunities	\$40,303	Develop and implement comprehensive offerings specific to manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measure and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).				30% of all signed projects.	0.0300	\$212,075

Eversource CT Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators				Incentive Metrics			
	Program Name	LT-kWh	kW	% (1)	Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C&I)								
	\$14,741							
Energy Conscious Blueprint				Number of new construction /major renovation projects that are more efficient than the State Energy Code and are: 30% > ASHRAE 90.1-2010, or utilize Whole Building Performance, or Near Net Zero Energy Projects Move towards Net Zero Energy project which shall include renewable energy technologies such as, but not limited to, Solar PV, Solar Thermal, Fuel Cells, CHP, and Wind		50% of signed projects	0.0200	\$141,383
	\$17,440		437,408,976 Demand Saving kW : 4,298		Energy savings included in appropriate sector level metric			
Small Business				Develop and implement comprehensive offerings specific to Retail and a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial services). Offerings will consist of a tailored combination of measure and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		25% of signed projects	0.0300	\$212,075
	\$5,873			SEM(*) signed Customer agreements may include, but not be limited to, BSC Agreements (*), Retro-Commissioning engineering study agreements, multi-year MOU's with Customers (which will outline a strategic plan for reducing consumption by a specific percentage each year along with tools and resources to be utilized such as metering, trending & reporting, Energy Star Benchmarking, Focused Study agreements, PRIME kaizen events, etc.), Clean Energy Community MOUs, packaged SEM and Customer Engagement tools and resources which already exist in the marketplace. (*) SEM= "Strategic Energy Management Minimum Elements", CEE, Feb 2014. (**) BSC = Business Sustainability Challenge		100 Customers	0.0200	\$141,383
Total of Incentives							1.00000	\$7,069,156

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UNITED ILLUMINATING ELECTRIC BUDGET AND SAVINGS TABLES

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Table A – UI Electric Budget (2016-2018)

Table A
UI 2016 - 2018 Proposed EE Budgets

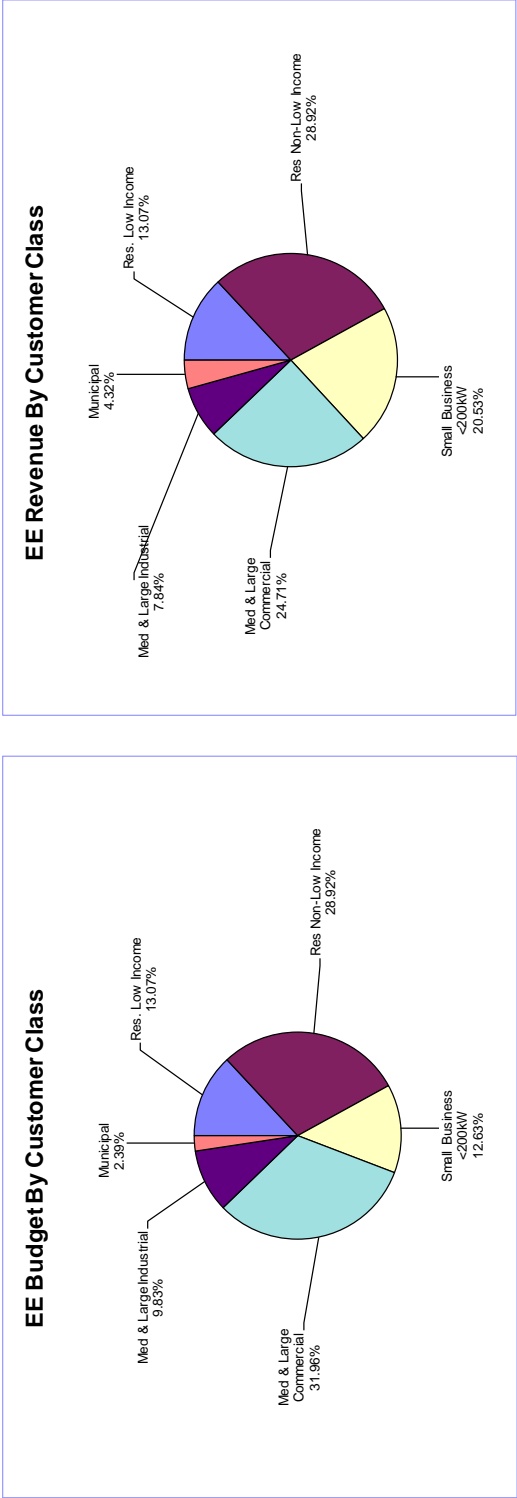
UI EE BUDGET	2016 UI PROPOSED BUDGET	2017 UI PROPOSED BUDGET	2018 UI PROPOSED BUDGET
RESIDENTIAL			
Residential Retail Products	3,452,052	3,716,344	3,613,739
Total - Consumer Products	\$ 3,452,052	\$ 3,716,344	\$ 3,613,739
Residential New Construction	\$ 500,000	\$ 500,000	\$ 500,000
Home Energy Solutions (HES)	\$ 3,489,899	\$ 3,814,041	\$ 3,803,036
HVAC / Water Heaters	\$ 867,839	\$ 915,817	\$ 897,969
HES Income Eligible	\$ 3,950,460	\$ 4,237,675	\$ 4,175,881
Residential Behavior	\$ 540,257	\$ 484,931	\$ 333,734
Subtotal RESIDENTIAL	\$ 12,800,507	\$ 13,668,807	\$ 13,324,359
COMMERCIAL & INDUSTRIAL			
C&I LOST OPPORTUNITY			
Energy Conscious Blueprint	\$ 4,607,874	\$ 4,703,704	\$ 4,523,163
Total - Lost Opportunity	\$ 4,607,874	\$ 4,703,704	\$ 4,523,163
C&I LARGE RETROFIT			
Energy Opportunities	\$ 7,501,994	\$ 7,860,710	\$ 7,645,108
Business & Energy Sustainability (O&M, RetroCx, BSC,PRIME)	\$ 1,750,525	\$ 2,412,631	\$ 2,460,841
Total - C&I Large Retrofit	\$ 9,252,519	\$ 10,273,340	\$ 10,105,949
Small Business	\$ 4,636,016	\$ 4,966,167	\$ 4,839,051
Subtotal C&I	\$ 18,496,409	\$ 19,943,212	\$ 19,468,162
OTHER - EDUCATION			
Educate the Public	\$ 456,162	\$ 456,162	\$ 456,162
Customer Engagement	\$ 475,000	\$ 475,000	\$ 475,000
Educate the Students	\$ 103,059	\$ 103,059	\$ 103,059
Educate the Workforce	\$ 89,416	\$ 89,416	\$ 89,416
Subtotal Education	\$ 1,123,637	\$ 1,123,637	\$ 1,123,637
OTHER - PROGRAMS/REQUIREMENTS			
Financing Support - Residential	\$ 382,560	\$ 382,560	\$ 382,560
Financing Support - C&I	\$ 74,234	\$ 74,234	\$ 74,234
Research, Development & Demonstration	\$ 232,692	\$ 232,692	\$ 232,692
Subtotal Programs/Requirements	\$ 689,486	\$ 689,486	\$ 689,486
OTHER - LOAD MANAGEMENT			
Demand Response Pilot	\$ 446,000	\$ 194,750	\$ 194,750
Subtotal Load Management	\$ 446,000	\$ 194,750	\$ 194,750
OTHER - ADMINISTRATIVE & PLANNING			
Administration	\$ 540,241	\$ 540,241	\$ 540,241
Marketing Plan	\$ 194,538	\$ 194,538	\$ 194,538
Planning	\$ 256,830	\$ 256,830	\$ 256,830
Evaluation Measurement and Verification	\$ 640,000	\$ 672,000	\$ 704,000
Evaluation Administrator	\$ 70,400	\$ 73,920	\$ 77,440
Information Technology	\$ 450,000	\$ 450,000	\$ 450,000
Energy Efficiency Board Consultants	\$ 240,072	\$ 240,072	\$ 240,072
Audits - Financial and Operational	\$ 24,000	\$ 24,000	\$ 24,000
Performance Management Incentive	\$ 1,603,694	\$ 1,698,008	\$ 1,662,570
Admin/Planning Expenditures	\$ 4,019,775	\$ 4,149,609	\$ 4,149,691
PROGRAM SUB-TOTALS			
Residential	\$ 14,073,933	\$ 14,942,234	\$ 14,597,785
C&I	\$ 19,443,951	\$ 20,639,504	\$ 20,164,455
Other*	\$ 4,057,929	\$ 4,187,763	\$ 4,187,845
TOTAL EE BUDGET	\$ 37,575,813	\$ 39,769,501	\$ 38,950,085

Totals may vary due to rounding

*Residential Loan Program budget includes \$50,000 for administrative costs to service Green Bank's On Bill Repayment (OBR)

Table A – Pie - UI Electric 2016

**THE UNITED ILLUMINATING COMPANY
2016 ENERGY EFFICIENCY BUDGET PIES
TABLE A**

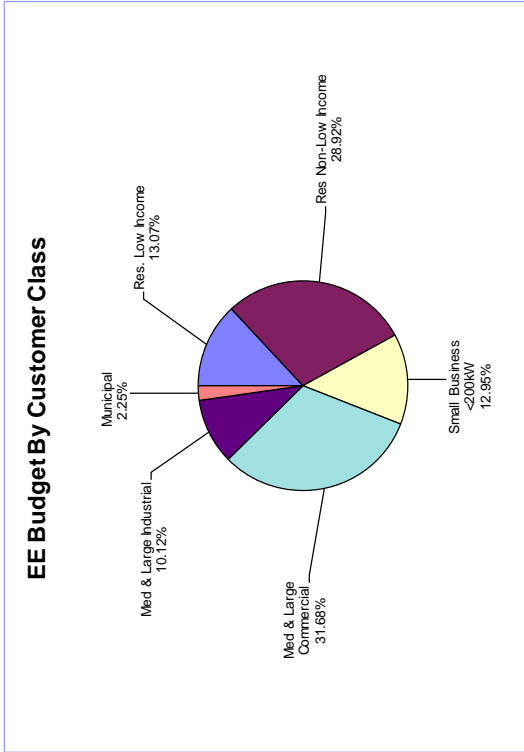
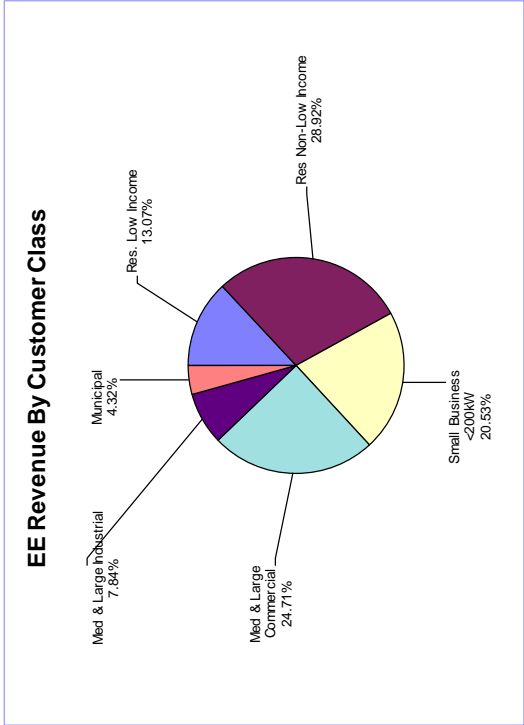


Customer Class	Budget	% of Total C&LM Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Low Income	\$ 4,379,797	11.66%	13.07%	13.07%	0.00%
Res Non-Low Income	\$ 9,694,137	25.80%	28.92%	28.92%	0.00%
Residential Sub-total	\$ 14,073,933	37.45%	41.99%	41.99%	0.00%
Small Business <200kW	\$ 4,636,016	12.34%	13.83%	21.14%	-7.31%
Med & Large Commercial	\$ 10,712,894	28.51%	31.96%	24.71%	7.25%
Med & Large Industrial	\$ 3,295,042	8.77%	9.83%	7.84%	1.99%
Municipal	\$ 800,000	2.13%	2.39%	4.32%	-1.93%
C & I Sub-total	\$ 19,443,951	51.75%	58.01%	58.01%	0.00%
Sub-total for Residential and C&I	\$ 33,517,884	89.20%	100.00%	100.00%	0.00%
Other Expenditures	\$ 4,057,929	10.80%			
Other Expenditures Sub-total	\$ 4,057,929	10.80%			
GRAND TOTAL *	\$ 37,575,813	100%			

Totals may vary due to rounding

Table A – Pie - UI Electric 2017

**THE UNITED ILLUMINATING COMPANY
2017 ENERGY EFFICIENCY BUDGET PIES
TABLE A**

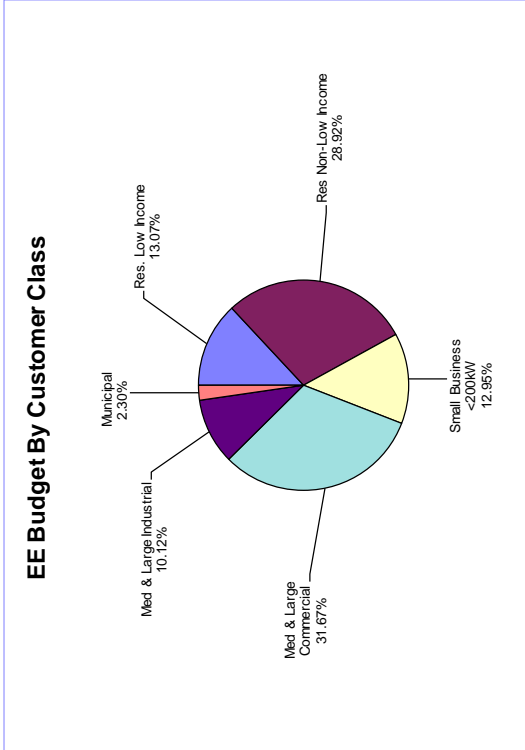
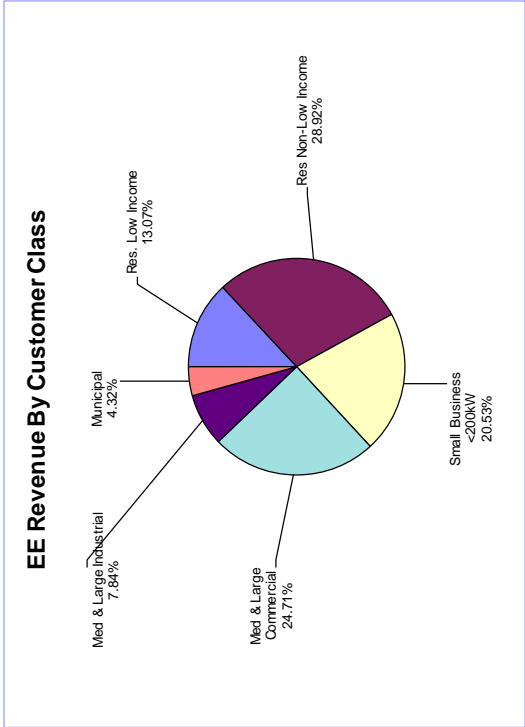


Customer Class	Budget	% of Total C&LM Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Low Income	\$ 4,650,414	11.69%	13.07%	13.07%	0.00%
Res Non-Low Income	\$ 10,291,820	25.88%	28.92%	28.92%	0.00%
Residential Sub-total	\$ 14,942,234	37.57%	41.99%	41.99%	0.00%
Small Business <200kW	\$ 4,966,167	12.49%	13.96%	21.14%	-7.18%
Med & Large Commercial	\$ 11,272,972	28.35%	31.68%	24.71%	6.97%
Med & Large Industrial	\$ 3,600,364	9.05%	10.12%	7.84%	2.28%
Municipal	\$ 800,000	2.01%	2.25%	4.32%	-2.07%
C & I Sub-total	\$ 20,639,504	51.90%	58.01%	58.01%	0.00%
Sub-total for Residential and C&I	\$ 35,581,738	89.47%	100.00%	100.00%	0.00%
Other Expenditures	\$ 4,187,763	10.53%			
Other Expenditures Sub-total	\$ 4,187,763	10.53%			
GRAND TOTAL *	\$ 39,769,501	100%			

Totals may vary due to rounding

Table A – Pie - UI Electric 2018

**THE UNITED ILLUMINATING COMPANY
2018 ENERGY EFFICIENCY BUDGET PIES
TABLE A**



Customer Class	Budget	% of Total C&I Budget	% of Residential & C&I Budget	% of Residential & C&I Revenue	Difference
Res. Low Income	\$ 4,543,261	11.66%	13.07%	13.07%	0.00%
Res Non-Low Income	\$ 10,054,525	25.81%	28.92%	28.92%	0.00%
Residential Sub-total	\$ 14,597,785	37.48%	41.99%	41.99%	0.00%
Small Business <200kW	\$ 4,839,051	12.42%	13.92%	21.14%	-7.22%
Med & Large Commercial	\$ 11,008,281	28.26%	31.67%	24.71%	6.96%
Med & Large Industrial	\$ 3,517,122	9.03%	10.12%	7.84%	2.28%
Municipal	\$ 800,000	2.05%	2.30%	4.32%	-2.02%
C & I Sub-total	\$ 20,164,455	51.77%	58.01%	58.01%	0.00%
Sub-total for Residential and C&I	\$ 34,762,240	89.25%	100.00%	100.00%	0.00%
Other Expenditures	\$ 4,187,845	10.75%			
Other Expenditures Sub-total	\$ 4,187,845	10.75%			
GRAND TOTAL *	\$ 38,950,085	100%			

Totals may vary due to rounding

Table B – UI Electric 2016 (cont)

THE UNITED ILLUMINATING COMPANY
 2016 ENERGY EFFICIENCY
 COMPARISON OF UI ENERGY EFFICIENCY PROGRAMS
 INCLUDES DRIPE AND CO.*

TABLE B

Program	Demand Cost \$/kW	Demand Cost \$/kW yr	Utility Cost Rate \$/kWh Annualized	Utility Cost Rate \$/kWh Lifetime	Annualized Savings Oil (Gallons)	Lifetime Savings Oil (Gallons)	Annualized Savings Propane (Gallons)	Lifetime Savings Propane (Gallons)	Annualized MMBTU (Electric, Oil, Propane)	Lifetime MMBTU (Electric, Oil, Propane)	Cost per Annual MMBTU	Cost per Lifetime MMBTU
Residential Retail Products												
TOTAL - CONSUMER PRODUCTS	\$ 2,371	\$ 269	\$ 0.2087	\$ 0.024	-	-	-	-	56,449	497,142	\$ 61.2	\$ 6.94
Residential New Construction	\$ 6,589	\$ 524	\$ 1.2343	\$ 0.098	-	-	-	-	1,383	17,384	\$ 381.7	\$ 28.76
Home Energy Solutions	\$ 2,923	\$ 326	\$ 0.6424	\$ 0.072	153,626	2,807,474	5,703	106,086	32,459	494,410	\$ 107.5	\$ 7.06
HVAC / Water Heaters	\$ 7,508	\$ 455	\$ 0.6656	\$ 0.040	-	-	-	-	4,450	73,513	\$ 195.0	\$ 11.81
HES Income Eligible	\$ 9,649	\$ 924	\$ 1.0454	\$ 0.100	111,437	2,550,027	10,901	-	22,741	419,383	\$ 173.7	\$ 9.42
Residential Behavior									15,062	39,160	\$ 35.9	\$ 13.80
SUB-TOTAL RESIDENTIAL	\$ 3,669	\$ 439	\$ 0.3363	\$ 0.040	265,063	5,357,501	16,604	106,086	132,544	1,540,992	\$ 96.6	\$ 8.31
Energy Conscious Blueprint (a)	\$ 2,329	\$ 149	\$ 0.3652	\$ 0.023	-	-	-	-	43,063	671,050	\$ 107.0	\$ 6.87
TOTAL - LOST OPPORTUNITY	\$ 2,329	\$ 149	\$ 0.3652	\$ 0.023	-	-	-	-	43,063	671,050	\$ 107.0	\$ 6.87
Energy Opportunities	\$ 3,306	\$ 263	\$ 0.3803	\$ 0.030	-	-	-	-	67,333	844,815	\$ 111.4	\$ 8.88
Business & Energy Sustainability (O&M, RetroC&I, BSC, PRIME)	\$ 7,542	\$ 1,076	\$ 0.2081	\$ 0.030	-	-	-	-	28,710	201,284	\$ 61.0	\$ 8.70
TOTAL - C&I / LARGE RETROFIT	\$ 3,699	\$ 340	\$ 0.3288	\$ 0.030	-	-	-	-	96,043	1,046,098	\$ 96.3	\$ 8.64
Small Business	\$ 4,135	\$ 326	\$ 0.4805	\$ 0.038	-	-	-	-	32,928	418,200	\$ 140.8	\$ 11.09
SUB-TOTAL C&I	\$ 3,302	\$ 266	\$ 0.3670	\$ 0.030	-	-	-	-	172,034	2,135,348	\$ 107.5	\$ 8.66
Educate the Public												
Customer Engagement												
Educate the Students												
Educate the Workforce												
SUB-TOTAL EDUCATION												
Financing Support - Residential												
Financing Support - C&I												
Research, Development & Demonstration												
SUB-TOTAL PROGRAMS/REQUIREMENTS												
Demand Response Pilot												
SUB-TOTAL LOAD MANAGEMENT												
Administration												
Marketing Plan												
Planning												
Evaluation Measurement and Verification												
Evaluation Administrator												
Information Technology												
Energy Efficiency Board Consultants												
Audits - Financial and Operational												
Performance Management Incentive												
SUB-TOTAL ADMIN & PLANNING												
PROGRAM SUB-TOTALS	\$ 4,172	\$ 499	\$ 0.3824	\$ 0.046	265,063	5,357,501	16,604	106,086	132,544	1,540,992	\$ 106.2	\$ 9.13
RESIDENTIAL	\$ 3,671	\$ 280	\$ 0.3858	\$ 0.031	0	0	0	0	172,034	2,135,348	\$ 113.0	\$ 9.11
COMMERCIAL & INDUSTRIAL												
OTHER**												
TOTAL EE BUDGET	\$ 4,134	\$ 377	\$ 0.4366	\$ 0.040	265,063	5,357,501	16,604	106,086	304,577	3,676,340	\$ 123.4	\$ 10.22

Notes:
 (a) Energy Blueprint includes Motors and Cool Choice
 * Other - Education is primarily allocated to Residential Programs

Table B – UI Electric 2017

THE UNITED ILLUMINATING COMPANY
2017 ENERGY EFFICIENCY
COMPARISON OF UI ENERGY EFFICIENCY PROGRAMS
INCLUDES DRIPE AND CO²
TABLE B

Table with columns: Program, Program Costs, ** Utility Costs, ** Customer Cost, Total Resource Cost, Program Benefit (Electric, Oil & Propane), Total Resource Benefit, Program BC Ratio, Total Resource B/C Ratio, Goals# Units, Units of Measure (Bulbs, Fixtures), Annualized Savings kWh, Lifetime Savings kWh, Load Savings kW.

Notes:
(a) Energy Blueprint includes Motors and Cool Choice
* Other - Education is primarily allocated to Residential Programs

Table B – UI Electric 2017 (cont)

THE UNITED ILLUMINATING COMPANY
 2017 ENERGY EFFICIENCY
 COMPARISON OF UI ENERGY EFFICIENCY PROGRAMS
 INCLUDES DRIPE AND CO²

TABLE B

Program	Demand Cost \$/KW	Demand Cost \$/KW yr	Utility Cost Rate \$/KWh Annualized	Utility Cost Rate \$/KWh Lifetime	Annualized Savings Oil (Gallons)	Lifetime Savings Oil (Gallons)	Annualized Savings Propane (Gallons)	Lifetime Savings Propane (Gallons)	Annualized MMBTU (Electric, Oil, Propane)	Lifetime MMBTU (Electric, Oil, Propane)	Cost per Annual MMBTU	Cost per Lifetime MMBTU
Residential Retail Products												
TOTAL - CONSUMER PRODUCTS	\$ 1,902	\$ 224	\$ 0.2353	\$ 0.0228	-	-	-	-	53,906	457,427	\$ 68.9	\$ 8.12
Residential New Construction	\$ 6,589	\$ 524	\$ 1.2343	\$ 0.0988	-	-	-	-	1,383	17,384	\$ 361.7	\$ 28.76
Home Energy Solutions	\$ 3,581	\$ 381	\$ 0.8017	\$ 0.085	157,027	2,867,499	7,302	138,071	32,315	503,106	\$ 118.0	\$ 7.58
HVAC /Water Heaters	\$ 4,809	\$ 282	\$ 0.6752	\$ 0.040	-	-	-	-	4,628	78,950	\$ 197.8	\$ 11.60
HES Income Eligible	\$ 9,539	\$ 919	\$ 1.0275	\$ 0.099	116,723	2,653,540	11,082	-	24,230	440,982	\$ 174.9	\$ 9.61
Residential Behavior	\$ -	\$ -	\$ 0.1097	\$ 0.042	-	-	-	-	15,085	39,222	\$ 32.1	\$ 12.36
SUB-TOTAL RESIDENTIAL	\$ 3,254	\$ 394	\$ 0.3733	\$ 0.045	273,751	5,521,039	18,384	138,071	131,548	1,537,070	\$ 103.9	\$ 8.89
Energy Conscious Blueprint (a)	\$ 2,615	\$ 168	\$ 0.3705	\$ 0.024	-	-	-	-	43,335	672,541	\$ 108.5	\$ 6.99
TOTAL - LOST OPPORTUNITY	\$ 2,615	\$ 168	\$ 0.3705	\$ 0.024	-	-	-	-	43,335	672,541	\$ 108.5	\$ 6.99
Energy Opportunities	\$ 3,337	\$ 268	\$ 0.3775	\$ 0.030	-	-	-	-	71,075	885,561	\$ 110.6	\$ 8.88
Business & Energy Sustainability (C&M, RetroCx, BSC, PRIME)	\$ 7,098	\$ 1,166	\$ 0.1730	\$ 0.028	-	-	-	-	47,589	289,686	\$ 50.7	\$ 8.33
TOTAL - C&I/LARGE RETROFIT	\$ 3,811	\$ 385	\$ 0.2955	\$ 0.030	-	-	-	-	118,664	1,175,247	\$ 86.6	\$ 8.74
Small Business	\$ 4,064	\$ 315	\$ 0.4756	\$ 0.037	-	-	-	-	35,635	459,376	\$ 139.4	\$ 10.81
SUB-TOTAL C&I	\$ 3,489	\$ 299	\$ 0.3444	\$ 0.030	-	-	-	-	197,634	2,307,163	\$ 100.9	\$ 8.64
Educate the Public												
Customer Engagement												
Educate the Students												
Educate the Workforce												
SUB-TOTAL EDUCATION												
Financing Support - Residential												
Financing Support - C&I												
Research, Development & Demonstration												
SUB-TOTAL PROGRAMS/REQUIREMENTS												
Demand Response Pilot												
SUB-TOTAL LOAD MANAGEMENT												
Administration												
Marketing Plan												
Planning												
Evaluation Measurement and Verification												
Evaluation Administrator												
Information Technology												
Energy Efficiency Board Consultants												
Audits - Financial and Operational												
Performance Management Incentive												
SUB-TOTAL ADMIN & PLANNING												
PROGRAM SUB-TOTALS	\$ 3,666	\$ 444	\$ 0.4206	\$ 0.051	273,751	5,521,039	18,384	138,071	131,548	1,537,070	\$ 113.6	\$ 9.72
RESIDENTIAL	\$ 3,511	\$ 309	\$ 0.3564	\$ 0.031	0	0	0	0	197,634	2,307,163	\$ 104.4	\$ 8.95
COMMERCIAL & INDUSTRIAL												
OTHER **												
TOTAL EE BUDGET	\$ 4,084	\$ 386	\$ 0.4262	\$ 0.040	273,751	5,521,039	18,384	138,071	329,183	3,844,234	\$ 120.8	\$ 10.35

Notes:
 (a) Energy Blueprint includes Motors and Cool Choice
 * Other - Education is primarily allocated to Residential Programs

Table B – UI Electric 2018

THE UNITED ILLUMINATING COMPANY
 2018 ENERGY EFFICIENCY
 COMPARISON OF UI ENERGY EFFICIENCY PROGRAMS
 INCLUDES DRIPE AND CO²

TABLE B

Program	Program Costs	** Utility Costs	** Customer Cost	Total Resource Cost	Program Benefit (Electric, Oil & Propane)	Total Resource Benefit	Program B/C Ratio	Total Resource B/C Ratio	Goals/# Units	Units of Measure	Annualized Savings kWh	Lifetime Savings kWh	Load Savings kW
Residential Retail Products	\$ 3,613,739	\$ 3,613,739	\$ 3,050,853	\$ 6,664,592	\$ 9,382,031	\$ 15,566,543	2.60	2.34	601,615	Bulbs, Fixtures	13,307,449	106,572,194	1,648.2
TOTAL - CONSUMER PRODUCTS	\$ 3,613,739	\$ 3,613,739	\$ 3,050,853	\$ 6,664,592	\$ 9,382,031	\$ 15,566,543	2.60	2.34	601,615	Bulbs, Fixtures	13,307,449	106,572,194	1,648.2
Residential New Construction	\$ 500,000	\$ 500,000	\$ 3,316,197	\$ 3,816,197	\$ 547,065	\$ 702,619	1.09	0.18	480	No. of Units	405,084	5,093,320	75.9
Home Energy Solutions	\$ 3,803,036	\$ 2,357,357	\$ 804,901	\$ 4,607,937	\$ 10,555,667	\$ 12,274,811	2.78	2.66	4,254	No. of Progs.	3,219,622	31,765,193	714.4
HVAC / Water Heaters	\$ 897,969	\$ 897,969	\$ (51,439)	\$ 846,529	\$ 2,070,430	\$ 2,963,430	2.31	3.50	4,465	No. of Progs.	1,391,158	23,391,333	191.9
HES Income Eligible	\$ 4,175,881	\$ 2,113,448	\$ (172,250)	\$ 4,003,630	\$ 1,773,492	\$ 8,393,158	0.42	2.10	2,781	Customers	2,103,307	21,767,758	230.2
Residential Behavior	\$ 333,734	\$ 333,734	\$ -	\$ 333,734	\$ 1,244,148	\$ 1,721,742	3.73	5.16	90,000	Customers	5,760,000	14,976,000	-
SUB-TOTAL RESIDENTIAL	\$ 13,324,359	\$ 9,816,246	\$ 6,948,262	\$ 20,272,620	\$ 25,572,833	\$ 41,822,301	1.92	2.05			26,186,619	203,565,799	2,860.7
Energy Conscious Blueprint (a)	\$ 4,523,163	\$ 4,523,163	\$ 13,965,142	\$ 18,488,305	\$ 14,742,424	\$ 21,874,111	3.26	1.18	515	Projects	11,772,694	182,332,679	1,573.8
TOTAL - LOST OPPORTUNITY	\$ 4,523,163	\$ 4,523,163	\$ 13,965,142	\$ 18,488,305	\$ 14,742,424	\$ 21,874,111	3.26	1.18	515	Projects	11,772,694	182,332,679	1,573.8
Energy Opportunities	\$ 7,645,108	\$ 7,645,108	\$ 6,883,317	\$ 13,528,425	\$ 20,027,437	\$ 29,654,562	2.62	2.19	2,189	Projects	19,061,242	240,515,692	2,403.3
Business & Energy Sustainability (O&M, RetroCx, BSC PRIME)	\$ 2,460,841	\$ 2,460,841	\$ 564,879	\$ 3,025,720	\$ 7,270,058	\$ 7,790,841	2.95	2.57	2,399	Projects	16,374,963	91,751,857	354.1
TOTAL - C&LARGE RETROFIT	\$ 10,105,949	\$ 10,105,949	\$ 6,448,196	\$ 16,554,145	\$ 27,297,495	\$ 37,445,403	2.70	2.26	4,588		35,436,224	332,267,549	2,757.4
Small Business	\$ 4,839,051	\$ 4,839,051	\$ 10,766,348	\$ 15,605,399	\$ 11,540,988	\$ 15,806,399	2.38	1.00	756	Projects	9,831,465	126,709,960	1,240.6
SUB-TOTAL C&I	\$ 19,468,162	\$ 19,468,162	\$ 31,779,686	\$ 50,647,849	\$ 53,580,907	\$ 74,924,913	2.75	1.48	5,859	Projects	57,040,383	641,310,188	5,571.8
Educate the Public	\$ 456,162	\$ 456,162	\$ -	\$ -	\$ -	\$ -							
Customer Engagement	\$ 475,000	\$ 475,000	\$ -	\$ -	\$ -	\$ -							
Educate the Students	\$ 103,059	\$ 103,059	\$ -	\$ -	\$ -	\$ -							
Educate the Workforce	\$ 89,416	\$ 89,416	\$ -	\$ -	\$ -	\$ -							
SUB-TOTAL EDUCATION	\$ 1,123,637	\$ 1,123,637	\$ -	\$ -	\$ -	\$ -							
Financing Support - Residential	\$ 382,560	\$ 382,560	\$ -	\$ -	\$ -	\$ -							
Financing Support - C&I	\$ 74,234	\$ 74,234	\$ -	\$ -	\$ -	\$ -							
Research, Development & Demonstration	\$ 232,692	\$ 232,692	\$ -	\$ -	\$ -	\$ -							
SUB-TOTAL PROGRAMS/REQUIREMENTS	\$ 689,486	\$ 689,486	\$ -	\$ -	\$ -	\$ -							
Demand Response Pilot	\$ 194,750	\$ 194,750	\$ -	\$ -	\$ -	\$ -							
SUB-TOTAL LOAD MANAGEMENT	\$ 194,750	\$ 194,750	\$ -	\$ -	\$ -	\$ -							
Administration	\$ 540,241	\$ 540,241	\$ -	\$ -	\$ -	\$ -							
Marketing Plan	\$ 194,538	\$ 194,538	\$ -	\$ -	\$ -	\$ -							
Planning	\$ 256,830	\$ 256,830	\$ -	\$ -	\$ -	\$ -							
Evaluation Measurement and Verification	\$ 704,000	\$ 704,000	\$ -	\$ -	\$ -	\$ -							
Evaluation Administrator	\$ 77,440	\$ 77,440	\$ -	\$ -	\$ -	\$ -							
Information Technology	\$ 450,000	\$ 450,000	\$ -	\$ -	\$ -	\$ -							
Energy Efficiency Board Consultants	\$ 240,072	\$ 240,072	\$ -	\$ -	\$ -	\$ -							
Audits - Financial and Operational	\$ 24,000	\$ 24,000	\$ -	\$ -	\$ -	\$ -							
Performance Management Incentive	\$ 1,662,570	\$ 1,662,570	\$ -	\$ -	\$ -	\$ -							
SUB-TOTAL ADMIN & PLANNING	\$ 4,149,691	\$ 4,149,691	\$ -	\$ -	\$ -	\$ -							
PROGRAM SUB-TOTALS	\$ 14,597,785	\$ 11,089,673	\$ 6,948,262	\$ 20,272,620	\$ 25,572,833	\$ 41,822,301	1.75	2.05			26,186,619	203,565,799	2,860.7
COMMERCIAL & INDUSTRIAL	\$ 20,164,455	\$ 20,164,455	\$ 31,179,686	\$ 50,647,849	\$ 53,580,907	\$ 74,924,913	2.66	1.48			57,040,383	641,310,188	5,571.8
OTHER**	\$ 4,187,845	\$ 4,187,845	\$ -	\$ -	\$ -	\$ -							
TOTAL EE BUDGET	\$ 38,950,085	\$ 35,441,973	\$ 38,127,948	\$ 70,920,469	\$ 79,153,740	\$ 116,547,215	2.03	1.64			83,227,001	844,875,986	8,432.4

Notes:
 (a) Energy Blueprint includes Motors and Cool Choice
 * Other - Education is primarily allocated to Residential Programs

Table B – UI Electric 2018 (cont)

THE UNITED ILLUMINATING COMPANY
 2018 ENERGY EFFICIENCY
 COMPARISON OF UI ENERGY EFFICIENCY PROGRAMS \$
 INCLUDES DRPE AND CO²

TABLE B

Program	Load Savings kW	Demand Cost \$/kW	Demand Cost \$/kW yr	Utility Cost Rate \$/kWh Annualized	Utility Cost Rate \$/kWh Lifetime	Annualized Savings Oil (Gallons)	Lifetime Savings Oil (Gallons)	Annualized Savings Propane (Gallons)	Lifetime Savings Propane (Gallons)	Annualized MMBTU (Electric, Oil, Propane)	Lifetime MMBTU (Electric, Oil, Propane)	Cost per Annual MMBTU	Cost per Lifetime MMBTU
Residential Retail Products	1,648.2	\$ 2,193	\$ 274	\$ 0.2716	\$ 0.034	-	-	-	-	45,418	363,731	\$ 79.6	\$ 9.94
TOTAL - CONSUMER PRODUCTS	1,648.2	\$ 2,193	\$ 274	\$ 0.2716	\$ 0.034	-	-	-	-	45,418	363,731	\$ 79.6	\$ 9.94
Residential New Construction	75.9	\$ 6,589	\$ 524	\$ 1.2343	\$ 0.098	-	-	-	-	1,383	17,384	\$ 361.7	\$ 28.76
Home Energy Solutions	714.4	\$ 3,300	\$ 334	\$ 0.7322	\$ 0.074	171,447	3,102,539	4,777	84,196	35,203	546,395	\$ 108.0	\$ 6.96
HVAC / Water Heaters	191.9	\$ 4,679	\$ 278	\$ 0.6455	\$ 0.038	-	-	-	-	4,748	79,835	\$ 189.1	\$ 11.25
HES Income Eligible	230.2	\$ 9,180	\$ 887	\$ 1.0048	\$ 0.097	111,671	2,553,065	10,918	-	23,663	428,378	\$ 176.5	\$ 9.75
Residential Behavior	-	-	-	\$ 0.0579	\$ 0.022	-	-	-	-	19,659	51,113	\$ 17.0	\$ 6.53
SUB-TOTAL RESIDENTIAL	2,860.7	\$ 3,431	\$ 441	\$ 0.3749	\$ 0.046	283,118	5,655,604	15,695	84,196	130,074	1,486,635	\$ 102.4	\$ 8.96
Energy Conscious Blueprint (a)	1,573.8	\$ 2,874	\$ 186	\$ 0.3842	\$ 0.025	-	-	-	-	40,180	622,301	\$ 112.6	\$ 7.27
TOTAL - LOST OPPORTUNITY	1,573.8	\$ 2,874	\$ 186	\$ 0.3842	\$ 0.025	-	-	-	-	40,180	622,301	\$ 112.6	\$ 7.27
Energy Opportunities	2,403.3	\$ 3,181	\$ 252	\$ 0.4011	\$ 0.032	-	-	-	-	65,056	820,880	\$ 117.5	\$ 9.31
Business & Energy Sustainability (O&M, RetroC& BSC, PRIME)	354.1	\$ 6,951	\$ 1,240	\$ 0.1503	\$ 0.027	-	-	-	-	55,888	313,149	\$ 44.0	\$ 7.86
TOTAL - C&I LARGE RETROFIT	2,757.4	\$ 3,865	\$ 391	\$ 0.2852	\$ 0.030	-	-	-	-	120,944	1,134,029	\$ 83.6	\$ 8.91
Small Business	1,240.6	\$ 3,901	\$ 303	\$ 0.4922	\$ 0.038	-	-	-	-	33,555	432,461	\$ 144.2	\$ 11.19
SUB-TOTAL C&I	5,571.8	\$ 3,494	\$ 311	\$ 0.3413	\$ 0.030	-	-	-	-	194,679	2,188,792	\$ 100.0	\$ 8.89
Educate the Public	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer Engagement	-	-	-	-	-	-	-	-	-	-	-	-	-
Educate the Students	-	-	-	-	-	-	-	-	-	-	-	-	-
Educate the Workforce	-	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL EDUCATION	-	-	-	-	-	-	-	-	-	-	-	-	-
Financing Support - Residential	-	-	-	-	-	-	-	-	-	-	-	-	-
Financing Support - C&I	-	-	-	-	-	-	-	-	-	-	-	-	-
Research, Development & Demonstration	-	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL PROGRAMS/REQUIREMENTS	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response Pilot	-	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL LOAD MANAGEMENT	-	-	-	-	-	-	-	-	-	-	-	-	-
Administration	-	-	-	-	-	-	-	-	-	-	-	-	-
Marketing Plan	-	-	-	-	-	-	-	-	-	-	-	-	-
Planning	-	-	-	-	-	-	-	-	-	-	-	-	-
Evaluation Measurement and Verification	-	-	-	-	-	-	-	-	-	-	-	-	-
Evaluation Administrator	-	-	-	-	-	-	-	-	-	-	-	-	-
Information Technology	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Board Consultants	-	-	-	-	-	-	-	-	-	-	-	-	-
Audits - Financial and Operational	-	-	-	-	-	-	-	-	-	-	-	-	-
Performance Management Incentive	-	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL ADMIN & PLANNING	-	-	-	-	-	-	-	-	-	-	-	-	-
PROGRAM SUB-TOTALS	2,860.7	\$ 3,877	\$ 499	\$ 0.4235	\$ 0.054	283,118	5,655,604	15,695	84,196	130,074	1,486,635	\$ 112.2	\$ 9.82
RESIDENTIAL	5,571.8	\$ 3,619	\$ 322	\$ 0.3535	\$ 0.031	0	0	0	0	194,679	2,188,792	\$ 103.6	\$ 9.21
COMMERCIAL & INDUSTRIAL	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER **	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL EE BUDGET	8,432.4	\$ 4,180	\$ 412	\$ 0.4258	\$ 0.042	283,118	5,655,604	15,695	84,196	324,753	3,675,627	\$ 119.9	\$ 10.60

Notes:
 (a) Energy Blueprint includes Motors and Cool Choice
 * Other - Education is primarily allocated to Residential Programs

Table C – UI Electric 2016

THE UNITED ILLUMINATING COMPANY
2016 ENERGY EFFICIENCY
TABLE C

PROGRAM NAME	UI Labor	Materials & Supplies	Outside Services	Contractor Labor	Incentives	Marketing	Other (b)	Administrative Expenses	TOTAL
Residential Retail Products	\$ 140,486	\$ 5,000	\$ 300,000	\$ -	\$ 2,768,566	\$ 230,000	\$ 5,000	\$ 3,000	\$ 3,452,052
TOTAL - CONSUMER PRODUCTS	\$ 140,486	\$ 5,000	\$ 300,000	\$ -	\$ 2,768,566	\$ 230,000	\$ 5,000	\$ 3,000	\$ 3,452,052
Residential New Construction	\$ 24,742	\$ 1,500	\$ 5,000	\$ -	\$ 458,258	\$ 5,000	\$ 3,000	\$ 2,500	\$ 500,000
Home Energy Solutions	\$ 220,892	\$ 13,000	\$ 305,861	\$ -	\$ 2,876,090	\$ 53,056	\$ 5,000	\$ 16,000	\$ 3,489,899
HVAC/ Water Heaters	\$ 24,500	\$ 2,000	\$ 90,000	\$ -	\$ 718,339	\$ 30,000	\$ -	\$ 3,000	\$ 867,839
HES Income Eligible	\$ 306,517	\$ 20,000	\$ 75,000	\$ -	\$ 3,526,443	\$ 10,000	\$ 4,000	\$ 8,500	\$ 3,950,460
Residential Behavior	\$ 17,497	\$ 117,075	\$ 390,197	\$ -	\$ -	\$ 13,125	\$ 1,313	\$ 1,050	\$ 540,257
SUB-TOTAL RESIDENTIAL	\$ 734,634	\$ 158,575	\$ 1,166,058	\$ -	\$ 10,347,696	\$ 341,181	\$ 18,313	\$ 34,050	\$ 12,800,507
Energy Conscious Blueprint (a)	\$ 502,305	\$ 9,876	\$ 493,787	\$ 83,000	\$ 3,444,713	\$ 14,814	\$ 10,000	\$ 49,379	\$ 4,607,874
TOTAL - LOST OPPORTUNITY	\$ 502,305	\$ 9,876	\$ 493,787	\$ 83,000	\$ 3,444,713	\$ 14,814	\$ 10,000	\$ 49,379	\$ 4,607,874
Energy Opportunities	\$ 536,259	\$ 7,135	\$ 891,849	\$ 110,000	\$ 5,528,010	\$ 39,241	\$ 5,000	\$ 384,500	\$ 7,501,994
Business & Energy Sustainability (O&M, RetroCx, BSC,PRIME)	\$ 153,120	\$ 7,753	\$ 395,384	\$ 18,000	\$ 1,149,010	\$ 7,753	\$ 4,000	\$ 15,505	\$ 1,750,525
TOTAL - C&I LARGE RETROFIT	\$ 689,379	\$ 14,888	\$ 1,287,233	\$ 128,000	\$ 6,677,020	\$ 46,994	\$ 9,000	\$ 400,005	\$ 9,252,519
Small Business	\$ 351,946	\$ 23,180	\$ 324,521	\$ 89,000	\$ 3,308,509	\$ 46,360	\$ 2,500	\$ 490,000	\$ 4,636,016
SUB-TOTAL C&I	\$ 1,543,630	\$ 47,944	\$ 2,105,541	\$ 300,000	\$ 13,430,242	\$ 108,168	\$ 21,500	\$ 939,384	\$ 18,496,409
Educate the Public	\$ 98,800	\$ 7,808	\$ 39,925	\$ 54,380	\$ -	\$ 44,761	\$ 196,038	\$ 14,450	\$ 456,162
Customer Engagement	\$ -	\$ -	\$ 475,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 475,000
Educate the Students	\$ 23,713	\$ 2,205	\$ 35,102	\$ -	\$ 20,000	\$ 12,639	\$ 7,400	\$ 2,000	\$ 103,059
Educate the Workforce	\$ 13,613	\$ 1,266	\$ 50,082	\$ -	\$ -	\$ 7,256	\$ 15,200	\$ 2,000	\$ 89,416
SUB-TOTAL EDUCATION	\$ 136,125	\$ 11,279	\$ 600,109	\$ 54,380	\$ 20,000	\$ 64,656	\$ 218,638	\$ 18,450	\$ 1,123,637
Financing Support - Residential	\$ 30,451	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 352,109	\$ -	\$ 382,560
Financing Support - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74,234	\$ -	\$ 74,234
Research, Development & Demonstration	\$ -	\$ -	\$ 232,692	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 232,692
SUB-TOTAL PROGRAMS/REQUIREMENTS	\$ 30,451	\$ -	\$ 232,692	\$ -	\$ -	\$ -	\$ 426,343	\$ -	\$ 689,486
Demand Response Pilot	\$ 50,000	\$ -	\$ 326,250	\$ -	\$ 37,500	\$ 18,750	\$ 7,500	\$ 6,000	\$ 446,000
SUB-TOTAL LOAD MANAGEMENT	\$ 50,000	\$ -	\$ 326,250	\$ -	\$ 37,500	\$ 18,750	\$ 7,500	\$ 6,000	\$ 446,000
Administration	\$ 439,918	\$ 20,000	\$ 75,323	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 540,241
Marketing Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 194,538	\$ -	\$ -	\$ 194,538
Planning	\$ 251,830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 256,830
Evaluation Measurement and Verification	\$ 79,119	\$ -	\$ 560,881	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 640,000
Evaluation Administrator	\$ -	\$ -	\$ 70,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 70,400
Information Technology	\$ 26,643	\$ 153,000	\$ 267,757	\$ -	\$ -	\$ -	\$ -	\$ 2,600	\$ 450,000
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 240,072	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 240,072
Audits - Financial and Operational	\$ -	\$ -	\$ 24,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,603,694	\$ -	\$ 1,603,694
SUB-TOTAL ADMIN & PLANNING	\$ 797,510	\$ 173,000	\$ 1,238,433	\$ -	\$ -	\$ 194,538	\$ 1,603,694	\$ 12,600	\$ 4,019,775
PROGRAM SUB-TOTALS									
RESIDENTIAL	\$ 840,261	\$ 164,876	\$ 1,619,143	\$ 27,190	\$ 10,363,696	\$ 532,931	\$ 481,961	\$ 43,875	\$ 14,073,934
COMMERCIAL & INDUSTRIAL	\$ 1,654,579	\$ 52,922	\$ 2,578,815	\$ 327,190	\$ 13,471,742	\$ 194,362	\$ 210,333	\$ 954,009	\$ 19,443,951
OTHER	\$ 797,510	\$ 173,000	\$ 1,471,125	\$ -	\$ -	\$ -	\$ 1,603,694	\$ 12,600	\$ 4,057,929
TOTAL EE BUDGET	\$ 3,292,350	\$ 390,798	\$ 5,669,083	\$ 354,380	\$ 23,835,438	\$ 727,293	\$ 2,295,988	\$ 1,010,484	\$ 37,575,814

Notes:
 (a) Energy Blueprint includes Motors and Cool Choice
 (b) Other expenses include:
 Performance Management Fee
 Smart Living Center Lease
 Smart Living Center Utilities
 ECSU
 Energy Conservation Loan Fund
 Neighborhood Housing Services
 C&I Loan Defaults
 NEEP Participation
 Dues
 Postage
 Telephone Expense

Totals may vary due to rounding

Table C – UI Electric 2017

THE UNITED ILLUMINATING COMPANY
2017 ENERGY EFFICIENCY
TABLE C

PROGRAM NAME	UI Labor	Materials & Supplies	Outside Services	Contractor Labor	Incentives	Marketing	Other (b)	Administrative Expenses	TOTAL
Residential Retail Products	\$ 140,486	\$ 5,000	\$ 300,000	\$ -	\$ 3,032,858	\$ 230,000	\$ 5,000	\$ 3,000	\$ 3,716,344
TOTAL - CONSUMER PRODUCTS	\$ 140,486	\$ 5,000	\$ 300,000	\$ -	\$ 3,032,858	\$ 230,000	\$ 5,000	\$ 3,000	\$ 3,716,344
Residential New Construction	\$ 24,742	\$ 1,500	\$ 5,000	\$ -	\$ 458,258	\$ 5,000	\$ 3,000	\$ 2,500	\$ 500,000
Home Energy Solutions	\$ 220,892	\$ 13,000	\$ 305,861	\$ -	\$ 3,200,232	\$ 53,056	\$ 5,000	\$ 16,000	\$ 3,814,041
HVAC/ Water Heaters	\$ 24,500	\$ 2,000	\$ 90,000	\$ -	\$ 766,317	\$ 30,000	\$ -	\$ 3,000	\$ 915,817
HES Income Eligible	\$ 306,517	\$ 20,000	\$ 75,000	\$ -	\$ 3,813,658	\$ 10,000	\$ 4,000	\$ 8,500	\$ 4,237,675
Residential Behavior	\$ 17,497	\$ 117,075	\$ 334,871	\$ -	\$ -	\$ 13,125	\$ 1,313	\$ 1,050	\$ 484,931
SUB-TOTAL RESIDENTIAL	\$ 734,634	\$ 158,575	\$ 1,110,732	\$ -	\$ 11,271,323	\$ 341,181	\$ 18,313	\$ 34,050	\$ 13,668,808
Energy Conscious Blueprint (a)	\$ 502,305	\$ 4,000	\$ 250,000	\$ 10,000	\$ 3,825,399	\$ 42,000	\$ 10,000	\$ 60,000	\$ 4,703,704
TOTAL - LOST OPPORTUNITY	\$ 502,305	\$ 4,000	\$ 250,000	\$ 10,000	\$ 3,825,399	\$ 42,000	\$ 10,000	\$ 60,000	\$ 4,703,704
Energy Opportunities	\$ 536,259	\$ 6,000	\$ 380,861	\$ 10,000	\$ 6,493,090	\$ 45,000	\$ 5,000	\$ 384,500	\$ 7,860,710
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 153,120	\$ 1,320	\$ 620,195	\$ -	\$ 1,603,671	\$ 17,825	\$ 4,000	\$ 12,500	\$ 2,412,631
TOTAL - C&I LARGE RETROFIT	\$ 689,379	\$ 7,320	\$ 1,001,056	\$ 10,000	\$ 8,096,761	\$ 62,825	\$ 9,000	\$ 397,000	\$ 10,273,341
Small Business	\$ 351,946	\$ 2,000	\$ 325,000	\$ 25,000	\$ 3,732,721	\$ 37,000	\$ 2,500	\$ 490,000	\$ 4,966,167
SUB-TOTAL C&I	\$ 1,543,630	\$ 13,320	\$ 1,576,056	\$ 45,000	\$ 15,654,881	\$ 141,825	\$ 21,500	\$ 947,000	\$ 19,943,212
Educate the Public	\$ 98,800	\$ 7,808	\$ 39,925	\$ 54,380	\$ -	\$ 44,761	\$ 196,038	\$ 14,450	\$ 456,162
Customer Engagement	\$ -	\$ -	\$ 475,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 475,000
Educate the Students	\$ 23,713	\$ 2,205	\$ 35,102	\$ -	\$ 20,000	\$ 12,639	\$ 7,400	\$ 2,000	\$ 103,059
Educate the Workforce	\$ 13,613	\$ 1,266	\$ 50,082	\$ -	\$ -	\$ 7,256	\$ 15,200	\$ 2,000	\$ 89,416
SUB-TOTAL EDUCATION	\$ 136,125	\$ 11,279	\$ 600,109	\$ 54,380	\$ 20,000	\$ 64,656	\$ 218,638	\$ 18,450	\$ 1,123,637
Financing Support - Residential	\$ 30,451	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 352,109	\$ -	\$ 382,560
Financing Support - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74,234	\$ -	\$ 74,234
Research, Development & Demonstration	\$ -	\$ -	\$ 232,692	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 232,692
SUB-TOTAL PROGRAMS/REQUIREMENTS	\$ 30,451	\$ -	\$ 232,692	\$ -	\$ -	\$ -	\$ 426,343	\$ -	\$ 689,486
Demand Response Pilot	\$ 30,000	\$ -	\$ 98,750	\$ -	\$ 37,500	\$ 15,000	\$ 7,500	\$ 6,000	\$ 194,750
SUB-TOTAL LOAD MANAGEMENT	\$ 30,000	\$ -	\$ 98,750	\$ -	\$ 37,500	\$ 15,000	\$ 7,500	\$ 6,000	\$ 194,750
Administration	\$ 439,918	\$ 20,000	\$ 75,323	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 540,241
Marketing Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 194,538	\$ -	\$ -	\$ 194,538
Planning	\$ 251,830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 256,830
Evaluation Measurement and Verification	\$ 79,119	\$ -	\$ 592,881	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 672,000
Evaluation Administrator	\$ -	\$ -	\$ 73,920	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 73,920
Information Technology	\$ 26,643	\$ 153,000	\$ 267,757	\$ -	\$ -	\$ -	\$ -	\$ 2,600	\$ 450,000
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 240,072	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 240,072
Audits - Financial and Operational	\$ -	\$ -	\$ 24,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,698,008	\$ -	\$ 1,698,008
SUB-TOTAL ADMIN & PLANNING	\$ 797,510	\$ 173,000	\$ 1,273,953	\$ -	\$ -	\$ 194,538	\$ 1,698,008	\$ 12,600	\$ 4,149,609
PROGRAM SUB-TOTALS									
RESIDENTIAL	\$ 840,261	\$ 164,876	\$ 1,563,817	\$ 27,190	\$ 11,287,323	\$ 532,931	\$ 481,961	\$ 43,875	\$ 14,942,235
COMMERCIAL & INDUSTRIAL	\$ 1,634,579	\$ 18,298	\$ 1,821,830	\$ 72,190	\$ 15,696,381	\$ 224,269	\$ 210,333	\$ 961,625	\$ 20,639,504
OTHER	\$ 797,510	\$ 173,000	\$ 1,506,645	\$ -	\$ -	\$ -	\$ 1,698,008	\$ 12,600	\$ 4,187,763
TOTAL EE BUDGET	\$ 3,272,350	\$ 356,174	\$ 4,892,292	\$ 99,380	\$ 26,983,704	\$ 757,200	\$ 2,390,302	\$ 1,018,100	\$ 39,769,502

Notes:
(a) Energy Blueprint includes Motors and Cool Choice
(b) Other expenses include:
Performance Management Fee
Smart Living Center Lease
Smart Living Center Utilities
ECSU
Energy Conservation Loan Fund
Neighborhood Housing Services
C&I/M Loan Defaults
NEEP Participation
Dues
Postage
Telephone Expense

Totals may vary due to rounding

Table C – UI Electric 2018

THE UNITED ILLUMINATING COMPANY
2018 ENERGY EFFICIENCY
TABLE C

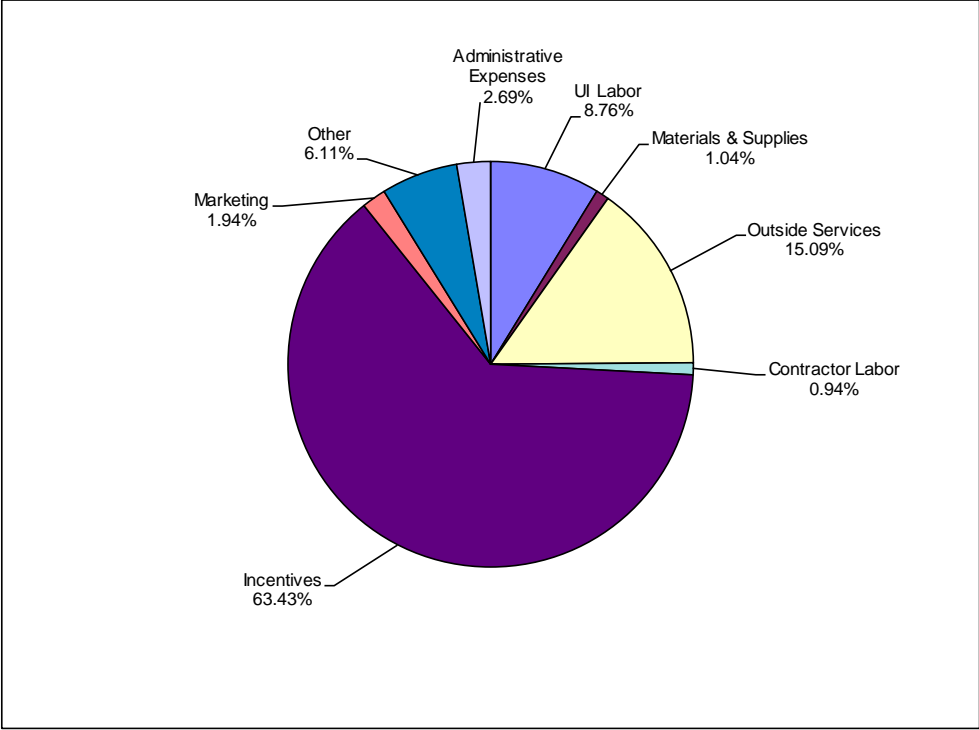
PROGRAM NAME	UI Labor	Materials & Supplies	Outside Services	Contractor Labor	Incentives	Marketing	Other (b)	Administrative Expenses	TOTAL
Residential Retail Products	\$ 140,486	\$ 5,000	\$ 300,000	\$ -	\$ 2,930,253	\$ 230,000	\$ 5,000	\$ 3,000	\$ 3,613,739
TOTAL - CONSUMER PRODUCTS	\$ 140,486	\$ 5,000	\$ 300,000	\$ -	\$ 2,930,253	\$ 230,000	\$ 5,000	\$ 3,000	\$ 3,613,739
Residential New Construction	\$ 24,742	\$ 1,500	\$ 5,000	\$ -	\$ 458,258	\$ 5,000	\$ 3,000	\$ 2,500	\$ 500,000
Home Energy Solutions	\$ 220,892	\$ 13,000	\$ 305,861	\$ -	\$ 3,189,227	\$ 53,056	\$ 5,000	\$ 16,000	\$ 3,803,036
HVAC/ Water Heaters	\$ 24,500	\$ 2,000	\$ 90,000	\$ -	\$ 748,469	\$ 30,000	\$ -	\$ 3,000	\$ 897,969
HES Income Eligible	\$ 306,517	\$ 20,000	\$ 75,000	\$ -	\$ 3,751,864	\$ 10,000	\$ 4,000	\$ 8,500	\$ 4,175,881
Residential Behavior	\$ 17,497	\$ 117,075	\$ 183,674	\$ -	\$ -	\$ 13,125	\$ 1,313	\$ 1,050	\$ 333,734
SUB-TOTAL RESIDENTIAL	\$ 734,634	\$ 158,575	\$ 959,535	\$ -	\$ 11,078,071	\$ 341,181	\$ 18,313	\$ 34,050	\$ 13,324,359
Energy Conscious Blueprint (a)	\$ 502,305	\$ 4,000	\$ 250,000	\$ 10,000	\$ 3,644,858	\$ 42,000	\$ 10,000	\$ 60,000	\$ 4,523,163
TOTAL - LOST OPPORTUNITY	\$ 502,305	\$ 4,000	\$ 250,000	\$ 10,000	\$ 3,644,858	\$ 42,000	\$ 10,000	\$ 60,000	\$ 4,523,163
Energy Opportunities	\$ 536,259	\$ 6,000	\$ 380,860	\$ 10,000	\$ 6,277,489	\$ 45,000	\$ 5,000	\$ 384,500	\$ 7,645,108
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 153,120	\$ 1,320	\$ 620,195	\$ -	\$ 1,651,881	\$ 17,825	\$ 4,000	\$ 12,500	\$ 2,460,841
TOTAL - C&I LARGE RETROFIT	\$ 689,379	\$ 7,320	\$ 1,001,055	\$ 10,000	\$ 7,929,370	\$ 62,825	\$ 9,000	\$ 397,000	\$ 10,105,949
Small Business	\$ 351,946	\$ 2,000	\$ 325,000	\$ 25,000	\$ 3,605,605	\$ 37,000	\$ 2,500	\$ 490,000	\$ 4,839,051
SUB-TOTAL C&I	\$ 1,543,630	\$ 13,320	\$ 1,576,055	\$ 45,000	\$ 15,179,833	\$ 141,825	\$ 21,500	\$ 947,000	\$ 19,468,163
Educate the Public	\$ 98,800	\$ 7,808	\$ 39,925	\$ 54,380	\$ -	\$ 44,761	\$ 196,038	\$ 14,450	\$ 456,162
Customer Engagement	\$ -	\$ -	\$ 475,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 475,000
Educate the Students	\$ 23,713	\$ 2,205	\$ 35,102	\$ -	\$ 20,000	\$ 12,639	\$ 7,400	\$ 2,000	\$ 103,059
Educate the Workforce	\$ 13,613	\$ 1,266	\$ 50,082	\$ -	\$ -	\$ 7,256	\$ 15,200	\$ 2,000	\$ 89,416
SUB-TOTAL EDUCATION	\$ 136,125	\$ 11,279	\$ 600,109	\$ 54,380	\$ 20,000	\$ 64,656	\$ 218,638	\$ 18,450	\$ 1,123,637
Financing Support - Residential	\$ 30,451	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 352,109	\$ -	\$ 382,560
Financing Support - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74,234	\$ -	\$ 74,234
Research, Development & Demonstration	\$ -	\$ -	\$ 232,692	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 232,692
SUB-TOTAL PROGRAMS/REQUIREMENTS	\$ 30,451	\$ -	\$ 232,692	\$ -	\$ -	\$ -	\$ 426,343	\$ -	\$ 689,486
Demand Response Pilot	\$ 30,000	\$ -	\$ 98,750	\$ -	\$ 37,500	\$ 15,000	\$ 7,500	\$ 6,000	\$ 194,750
SUB-TOTAL LOAD MANAGEMENT	\$ 30,000	\$ -	\$ 98,750	\$ -	\$ 37,500	\$ 15,000	\$ 7,500	\$ 6,000	\$ 194,750
Administration	\$ 439,918	\$ 20,000	\$ 75,323	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 540,241
Marketing Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 194,538	\$ -	\$ -	\$ 194,538
Planning	\$ 251,830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 256,830
Evaluation Measurement and Verification	\$ 79,119	\$ -	\$ 624,881	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 704,000
Evaluation Administrator	\$ -	\$ -	\$ 77,440	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 77,440
Information Technology	\$ 26,643	\$ 153,000	\$ 267,757	\$ -	\$ -	\$ -	\$ -	\$ 2,600	\$ 450,000
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 240,072	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 240,072
Audits - Financial and Operational	\$ -	\$ -	\$ 24,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,662,570	\$ -	\$ 1,662,570
SUB-TOTAL ADMIN & PLANNING	\$ 797,510	\$ 173,000	\$ 1,309,473	\$ -	\$ -	\$ 194,538	\$ 1,662,570	\$ 12,600	\$ 4,149,691
PROGRAM SUB-TOTALS									
RESIDENTIAL	\$ 840,261	\$ 164,876	\$ 1,412,620	\$ 27,190	\$ 11,094,071	\$ 532,931	\$ 481,961	\$ 43,875	\$ 14,597,786
COMMERCIAL & INDUSTRIAL	\$ 1,634,579	\$ 18,298	\$ 1,821,829	\$ 72,190	\$ 15,221,333	\$ 224,269	\$ 210,333	\$ 961,625	\$ 20,164,455
OTHER	\$ 797,510	\$ 173,000	\$ 1,542,165	\$ -	\$ -	\$ -	\$ 1,662,570	\$ 12,600	\$ 4,187,845
TOTAL EE BUDGET	\$ 3,272,350	\$ 356,174	\$ 4,776,614	\$ 99,380	\$ 26,315,404	\$ 757,200	\$ 2,354,864	\$ 1,018,100	\$ 38,950,086

Notes:
(a) Energy Blueprint includes Motors and Cool Choice
(b) Other expenses include:
Performance Management Fee
Smart Living Center Lease
Smart Living Center Utilities
ECSU
Energy Conservation Loan Fund
Neighborhood Housing Services
C&I Loan Defaults
NEEP Participation
Dues
Postage
Telephone Expense

Totals may vary due to rounding

Table C – Pie - UI Electric 2016

**THE UNITED ILLUMINATING COMPANY
2016 ENERGY EFFICIENCY
EE BUDGET BY EXPENSE CLASS**

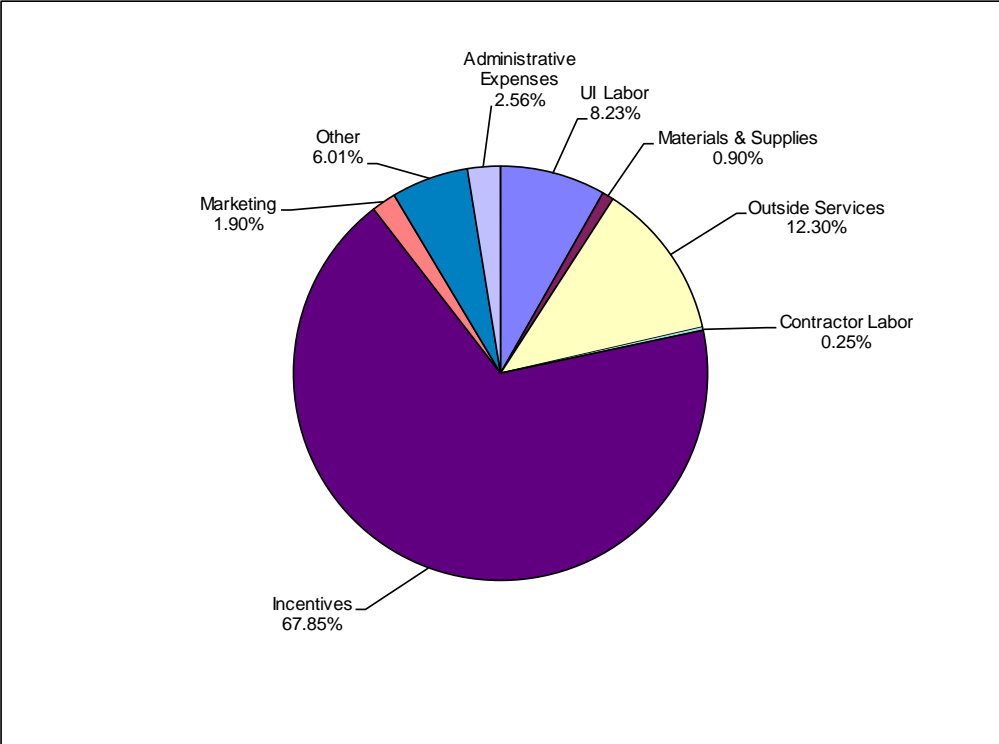


<u>Expense Classes</u>	<u>Budget</u>	<u>% of Budget</u>
UI Labor	\$ 3,292,350	8.76%
Materials & Supplies	\$ 390,798	1.04%
Outside Services	\$ 5,669,083	15.09%
Contractor Labor	\$ 354,380	0.94%
Incentives	\$ 23,835,438	63.43%
Marketing	\$ 727,293	1.94%
Other	\$ 2,295,988	6.11%
Administrative Expenses	\$ 1,010,484	2.69%
Total	\$ 37,575,814	100.00%

Totals may vary due to rounding

Table C – Pie - UI Electric 2017

**THE UNITED ILLUMINATING COMPANY
2017 ENERGY EFFICIENCY
EE BUDGET BY EXPENSE CLASS**

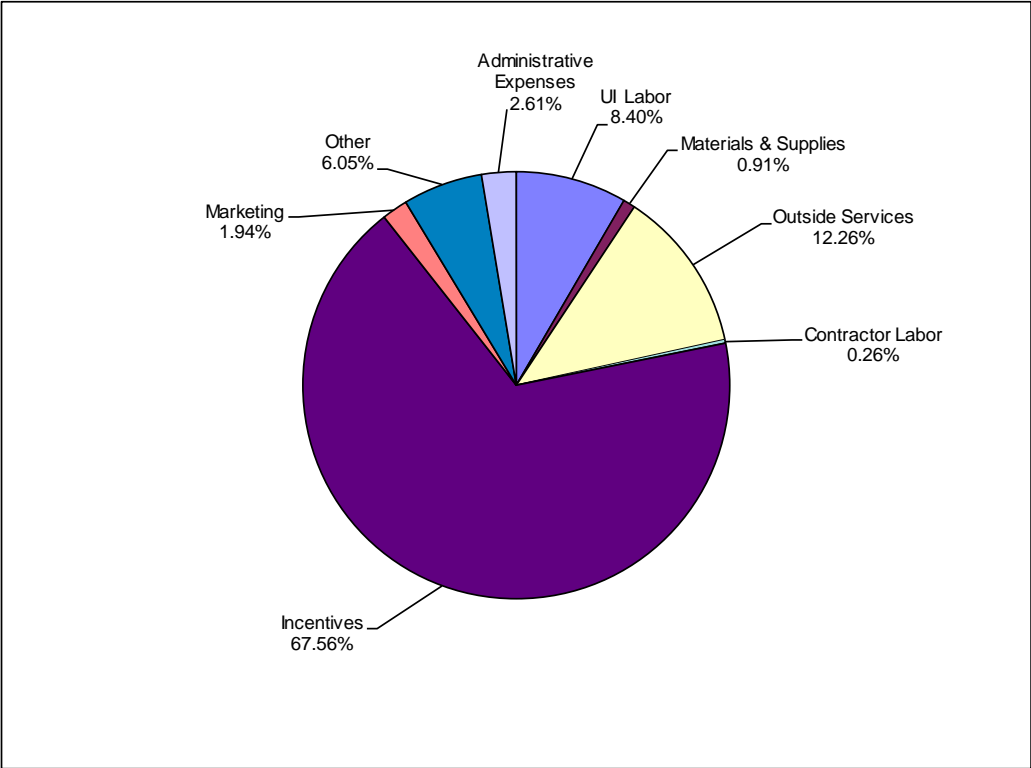


<u>Expense Classes</u>	<u>Budget</u>	<u>% of Budget</u>
UI Labor	\$ 3,272,350	8.23%
Materials & Supplies	\$ 356,174	0.90%
Outside Services	\$ 4,892,292	12.30%
Contractor Labor	\$ 99,380	0.25%
Incentives	\$ 26,983,704	67.85%
Marketing	\$ 757,200	1.90%
Other	\$ 2,390,302	6.01%
Administrative Expenses	\$ 1,018,100	2.56%
Total	\$ 39,769,502	100.00%

Totals may vary due to rounding

Table C – Pie - UI Electric 2018

**THE UNITED ILLUMINATING COMPANY
2018 ENERGY EFFICIENCY
EE BUDGET BY EXPENSE CLASS**



<u>Expense Classes</u>	<u>Budget</u>	<u>% of Budget</u>
UI Labor	\$ 3,272,350	8.40%
Materials & Supplies	\$ 356,174	0.91%
Outside Services	\$ 4,776,614	12.26%
Contractor Labor	\$ 99,380	0.26%
Incentives	\$ 26,315,404	67.56%
Marketing	\$ 757,200	1.94%
Other	\$ 2,354,864	6.05%
Administrative Expenses	\$ 1,018,100	2.61%
Total	\$ 38,950,086	100.00%

Totals may vary due to rounding

Table D2 - UI Electric Historical and Projected Program Ratios (2009-2018) (cont)

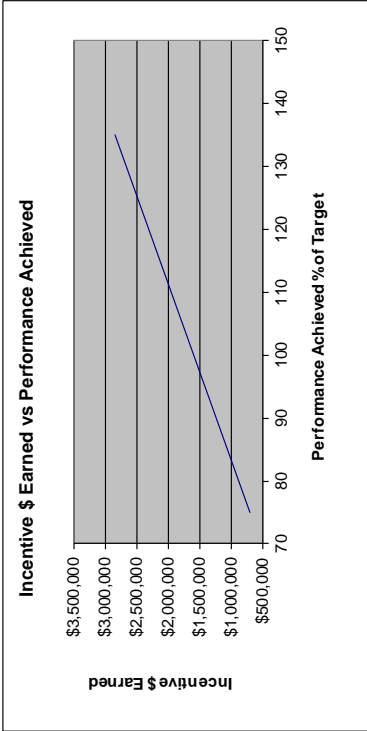
Table D2
UI Historical and Projected Program Ratios

	\$/kW									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Actual	Actual	Actual	Actual	Actual	Actual	Goal	Goal	Goal	Goal
RESIDENTIAL										
Residential Retail Products	\$ 1,133	\$ 641	\$ 657	\$ 1,196	\$ 1,120	\$ 2,049	\$ 1,839	\$ 2,371	\$ 1,902	\$ 2,193
Appliance Retirement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total - Consumer Products	\$ 1,133	\$ 641	\$ 657	\$ 1,196	\$ 1,120	\$ 2,049	\$ 1,839	\$ 2,371	\$ 1,902	\$ 2,193
Residential New Construction	\$ 6,387	\$ 3,385	\$ 495	\$ 9,846	\$ 3,638	\$ 1,977	\$ 2,013	\$ 6,589	\$ 6,589	\$ 6,589
Home Energy Solutions	\$ 3,140	\$ 2,658	\$ 4,350	\$ 5,539	\$ 5,349	\$ 5,863	\$ 6,325	\$ 5,098	\$ 5,892	\$ 5,323
HVAC/ Water Heaters										
HES Income Eligible	\$ 12,448	\$ 9,185	\$ 11,814	\$ 14,564	\$ 10,097	\$ 14,541	\$ 14,868	\$ 19,782	\$ 19,100	\$ 18,139
Residential Behavior	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 474	\$ 0	\$ 0	\$ 0
Subtotal RESIDENTIAL	\$ 3,261	\$ 1,683	\$ 1,749	\$ 3,036	\$ 3,406	\$ 4,142	\$ 2,805	\$ 5,298	\$ 4,716	\$ 4,993
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Blueprint / Energy Conscious Construction	\$ 1,655	\$ 3,965	\$ 2,811	\$ 1,419	\$ 1,660	\$ 2,946	\$ 2,199	\$ 2,329	\$ 2,615	\$ 2,874
Total - Lost Opportunity	\$ 1,655	\$ 3,965	\$ 2,811	\$ 1,419	\$ 1,660	\$ 2,946	\$ 2,199	\$ 2,329	\$ 2,615	\$ 2,874
C&I LARGE RETROFIT										
C&I RFP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Energy Opportunities	\$ 1,609	\$ 2,104	\$ 2,670	\$ 1,831	\$ 3,543	\$ 3,345	\$ 2,552	\$ 3,306	\$ 3,337	\$ 3,181
Business & Energy Sustainability (O&M, RetroCx, BSC, PRIME)	\$ 4,926	\$ -	\$ 3,618	\$ 22,909	\$ 17,900	\$ 7,022	\$ 1,867	\$ 7,542	\$ 7,098	\$ 6,951
Municipal Energy & Schools	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total - C&I Large Retrofit	\$ 1,638	\$ 2,185	\$ 2,687	\$ 1,956	\$ 3,785	\$ 3,496	\$ 2,354	\$ 3,699	\$ 3,811	\$ 3,665
Small Business	\$ 1,379	\$ 2,536	\$ 1,818	\$ 3,238	\$ 4,152	\$ 4,349	\$ 2,706	\$ 4,135	\$ 4,064	\$ 3,901
Subtotal C&I	\$ 1,588	\$ 2,763	\$ 2,535	\$ 2,008	\$ 2,967	\$ 3,439	\$ 2,391	\$ 3,302	\$ 3,489	\$ 3,494
OTHER - LOAD MANAGEMENT										
PROGRAM SUB-TOTALS										
Residential	\$ 3,261	\$ 1,683	\$ 1,749	\$ 3,036	\$ 3,406	\$ 4,142	\$ 2,805	\$ 5,298	\$ 4,716	\$ 4,993
C&I	\$ 1,588	\$ 2,763	\$ 2,535	\$ 2,008	\$ 2,967	\$ 3,439	\$ 2,391	\$ 3,302	\$ 3,489	\$ 3,494
TOTAL	\$ 2,016	\$ 2,180	\$ 2,083	\$ 2,415	\$ 3,183	\$ 3,737	\$ 2,544	\$ 3,904	\$ 3,902	\$ 3,979

UI Electric Performance Incentive 2016

**THE UNITED ILLUMINATING COMPANY
2016 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2016 Incentive Matrix with Performance Indicators. The weights applied to each of the individual and sector level metrics were developed in collaboration with Energy Efficiency Board Consultants. The Utility Performance Incentive is \$1,603,694. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including EEB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



Performance %	Pretax Incentive	Pre-tax Incentive
75	2.0%	\$712,753
85	3.0%	\$1,069,129
95	4.0%	\$1,425,506
100	4.5%	\$1,603,694
105	5.0%	\$1,781,882
115	6.0%	\$2,138,259
125	7.0%	\$2,494,635
135	8.0%	\$2,851,012

Total Original Budget* \$35,637,647

*Does not include Incentive, ECMB costs and Audit

UI Electric Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics			
			Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL All Residential Programs (Sector Level) Sector Budget	\$ 12,800,507	Residential Products & Services Lifetime kWh	145,661,390	Electric System Benefit from all Res programs Total Electric System Benefit: \$19,856,855	0.195	\$312,720
		Residential Products & Services kW	1,456			
		Homes Lifetime kWh	5,093,320			
		Homes kW	76			
		Home Energy Solutions Lifetime kWh	27,938,099			
		Home Energy Solutions kW	685			
		HVAC/Water Heaters Lifetime kWh	21,539,174			
		HVAC/Water Heaters kW	116			
		HES Income Eligible Lifetime kWh	19,255,657			
		HES Income Eligible kW	200			
		Residential Behavior Lifetime kWh	11,473,800			
		Residential Behavior kW	0			
		Total Residential Lifetime kWh	230,961,440			
		Total Residential kW	2,532			
		Present Value of Res Lifetime kWh	\$0.0716			
	Present Value of Res Lifetime kW @ Customer Meter	\$1,314.89				
	Total Res Lifetime kWh @ Present Value Factor	\$16,527,803				
	Total Res kW @ Present Value Factor	\$3,329,052				
	Total Electric System Benefit	\$19,856,855				
	The Net Electric System Benefit from all Res programs	\$7,056,348				
All Residential Programs (Sector Level)		Total Net Electric System Benefit	\$7,056,348		0.195	\$312,720

UI Electric Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics			
			Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL						
Residential New Construction	\$ 500,000	RNC - By October 1, 2016, the companies working with the EEB Consultants, will develop a clear, comprehensive plan for additions, revovation, and retrofit tracts to improve participation. (Draft by June 30, complete by October, 1, 2016). Implement Plan in 2017.	Energy savings included in appropriate sector level metric	Develop Plan by October 1, 2016	0.005	\$8,018
HES	\$ 3,489,899	MMBTU per single family home for Core Service that have air sealing completed (i.e., non-barriered homes) – based on 2015 actuals adjusted to 2016 CT PSD plus 2.0%. HES- Percentage of Unique Single Family Homes that received core services for HES that get at least one add-on measure (i.e., insulation, Water Heaters, HVAC, Appliances, Windows). The CT Energy Efficiency Dashboard will be used for comparison for the period of January 1 to September 30, 2016.	Energy savings included in appropriate sector level metric Increase HES savings Per Home % of homes with Add-Ons	Achieve MMBTU in HES per Single family home savings across all fuels (23.5%) of the homes with add on measures	0.0225 0.0225	\$36,083 \$36,083
HES - Income Eligible	\$ 3,950,460	Expend the HES-IE Budget - Full Penalty is 5% times HES-IE Budgeted Spending. Expend 95% spending avoids the penalty. The penalty is on sliding scale from 85% to 95%. Above 85% spending, the penalty is scaled with a 10% reduction in the penalty for each one percent increase in budget spend above 85%. Annual MMBTU for electric, oil and propane measures	Energy savings included in appropriate sector level metric Expend 2016 HES-IE Budget Annual MMBTU	This is a penalty metric - 5% 22,741 MMBTU	0.02	\$32,074
Retail Products	\$ 3,452,052	Number of LED Products	Number of LED Products	435,832	0.02	\$32,074

UI Electric Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics			
			Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C/I) All C/I Programs (Sector Level) Sector Budget	\$ 18,496,409	Energy Blueprint Lifetime kWh	Total Electric System Benefit from all C&I programs.	Electric System Benefit from all C&I programs	0.21	\$336,776
		Energy Blueprint kW				
		Energy Opportunities Lifetime kWh		Total Electric System Benefit:		
		Energy Opportunities kW		\$49,996,344		
		B&ES (RetroCx, BOC, RFP, PRIME)				
		B&ES kW				
		Small Business Lifetime kWh				
		Small Business kW				
		Total C&I Lifetime kWh				
		Total C&I kW				
		Present Value of C&I Lifetime kWh				
		Present Value of C&I Lifetime kW @ Customer Meter				
		Total C&I Lifetime kWh @ Present Value Factor				
	Total C&I kW @ Present Value Factor					
	The Net Electric System Benefit from all C&I programs:					
	Total Net Electric System Benefit from all C&I programs.			Total Program Benefit from all C&I programs.	0.21	\$336,776

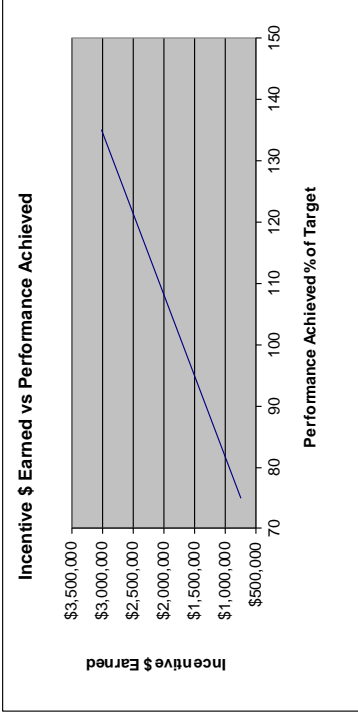
UI Electric Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics		
		Incentive Metric	Target Goal	Weight
COMMERCIAL & INDUSTRIAL (C/I) Small Business				
\$ 4,636,016	Develop and implement comprehensive offerings specific to Retail and a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial services). Offerings will consist of a tailored combination of measure and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		15% of signed projects	0.03
\$ 4,607,874	Number of new construction/major renovation projects that are more efficient than the State Energy Code and are: 35% > than ASHRAE 90.1-2007, or 25% > ASHRAE 90.1-2010, or utilize Whole Building Performance, or Net Zero Energy Projects Move towards Net Zero Energy projects which shall include renewable energy technologies such as, but not limited to, Solar PV, Solar Thermal, Fuel Cells, CHP, and Wind.		50% of signed projects (under current state code)	0.02
\$ 7,501,994	Develop and implement comprehensive offerings specific to manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measure and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		20% of all signed projects.	0.03
Strategic Energy Management	SEM ^(*) signed Customer agreements may include, but not be limited to, BSC Agreements (**), Retro-Commissioning engineering study agreements, multi-year MOU's with Customers (which will outline a strategic plan for reducing consumption by a specific percentage each year along with tools and resources to be utilized such as metering, trending & reporting, Energy Star Benchmarking, Focused Study agreements, PRIME kaizen events, etc.), Clean Energy Community MOU's, packaged SEM and Customer Engagement tools and resources which already exist in the marketplace. (*SEM= "Strategic Energy Management Minimum Elements," CEE, Feb 2014. (**) BSC = Business Sustainability Challenge		12 Customers	0.02
All C&I Programs	Electric Savings	Electric Savings include in appropriate sector level metric		
Total Incentive \$ Residential and C&I				1.0000
				\$1,603,694

UI Electric Performance Incentive 2017

**THE UNITED ILLUMINATING COMPANY
2017 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2017 Incentive Matrix with Performance Indicators. The weights applied to each of the individual and sector level metrics were developed in collaboration with Energy Efficiency Board Consultants. The Utility Performance Incentive is \$1,698,008. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including EEB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$754,670
85	3.0%	\$1,132,005
95	4.0%	\$1,509,340
100	4.5%	\$1,698,008
105	5.0%	\$1,886,675
115	6.0%	\$2,264,010
125	7.0%	\$2,641,345
135	8.0%	\$3,018,680

Total Original Budget* \$37,733,501

*Does not include Incentive, ECMB costs and Audit

UI Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	
RESIDENTIAL All Residential Programs (Sector Level) Sector Budget	Residential Products & Services Lifetime kWh	134,024,781	Electric System Benefit from all Res programs Total Electric System Benefit: \$20,140,886	0.195	\$331,111
	Residential Products & Services kW	1,953			
	Homes Lifetime kWh	5,093,320			
	Homes kW	76			
	Home Energy Solutions Lifetime kWh	27,190,971			
	Home Energy Solutions kW	647			
	HVAC/Water Heaters Lifetime kWh	23,132,190			
	HVAC/Water Heaters kW	190			
	HES Income Eligible Lifetime kWh	21,377,766			
	HES Income Eligible kW	222			
	Residential Behavior Lifetime kWh	11,492,000			
	Residential Behavior kW	0			
	Total Residential Lifetime kWh	222,311,028			
	Total Residential kW	3,089			
	Present Value of Res Lifetime kWh	\$0.0694			
	Present Value of Res Lifetime kW @ Customer Meter	\$1,523.94			
	Total Res Lifetime kWh @ Present Value Factor	\$15,433,519			
Total Res kW @ Present Value Factor	\$4,707,367				
Total Electric System Benefit	\$20,140,886				
The Net Electric System Benefit from all Res programs	\$6,472,079				
All Residential Programs (Sector Level)	Total Net Electric System Benefit	\$6,472,079	\$6,472,079	0.195	\$331,111

UI Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators			Incentive Metrics		
	Incentive Metric	Target Goal	Weight	Incentive		
RESIDENTIAL						
Residential New Construction	\$ 500,000			Energy savings included in appropriate sector level metric		
HES	\$ 3,814,041	MMBTU per single family home for Core Service that have received core services for HES that get at least one add-on measure (i.e., insulation, Water Heaters, HVAC, Appliances, Windows). The CT Energy Efficiency Dashboard will be used for comparison for the period of January 1 to September 30 - 2017.		Energy savings included in appropriate sector level metric		
				Increase HES savings Per Home	Achieve MMBTU in HES per Single family home savings across all fuels	0.0225
				% of homes with Add-Ons	(24.5%) of the homes with add on measures	0.0225
HES - Income Eligible	\$ 4,237,675			Energy savings included in appropriate sector level metric		
				Expend 2017 HES-IE Budget	This is a penalty metric - 5%	
				Annual MMBTU	24,230 MMBTU	0.0225
Retail Products	\$ 3,716,344			Number of LED Products	518,788	0.0225
						\$38,205

UI Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics		
	Incentive Metric	Target Goal	Weight	Incentive	
COMMERCIAL & INDUSTRIAL (C/I) All C/I Programs (Sector Level) Sector Budget	\$ 19,943,212				
	Energy Blueprint Lifetime kWh	197,062,827	Total Electric System Benefit from all C&I programs. Total Electric System Benefit: \$55,871,923	0.21	\$356,582
	Energy Blueprint kW	1,799			
	Energy Opportunities Lifetime kWh	259,466,953			
	Energy Opportunities kW	2,356			
	B&ES (RetroCx, BOC, RFP, PRIME)	84,877,186			
	B&ES kW	340			
	Small Business Lifetime kWh	134,595,817			
	Small Business kW	1,222			
	Total C&I Lifetime kWh	675,992,783			
	Total C&I kW	5,716			
	Present Value of C&I Lifetime kWh	\$0.0665			
	Present Value of C&I Lifetime kW @ Customer Meter	\$1,908.70			
Total C&I kWh @ Present Value Factor	\$44,960,988				
Total C&I kW @ Present Value Factor	\$10,910,936				
Total Electric System Benefit	\$55,871,923				
The Net Electric System Benefit from all C&I programs:	\$35,928,712				
Total Net Electric System Benefit from all C&I programs.	\$35,928,712	Total Program Benefit from all C&I programs.	0.21	\$356,582	
All C/I Programs (Sector Level) Sector Budget					

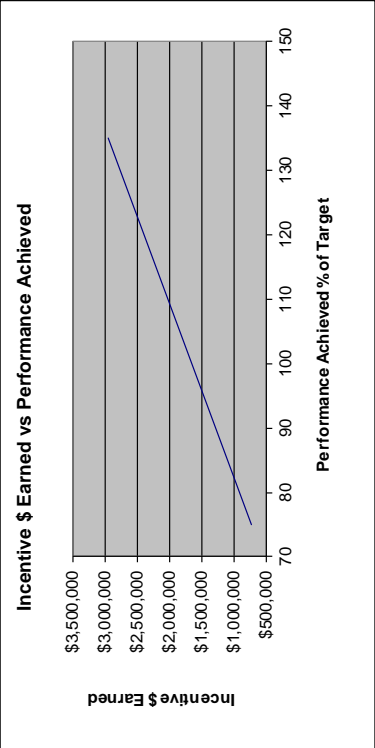
UI Electric Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			Incentive
		Incentive Metric	Target Goal	Weight	
COMMERCIAL & INDUSTRIAL (C/I) Small Business \$ 4,966,167	Develop and implement comprehensive offerings specific to Retail and a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial services). Offerings will consist of a tailored combination of measure and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		20% of signed projects	0.03	\$50,940
Energy Conscious Blueprint \$ 4,703,704	Number of new construction /major renovation projects that are more efficient than the State Energy Code and are: 30% > ASHRAE 90.1-2010, or utilize Whole Building Performance, or Net Zero Energy Projects Move towards Net Zero Energy projects which shall include renewable energy technologies such as; but not limited to, Solar PV, Solar Thermal, Fuel Cells, CHP, and Wind.		40% of signed projects	0.02	\$33,960
Energy Opportunities \$ 7,860,710	Develop and implement comprehensive offerings specific to manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measure and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		25% of all signed projects.	0.03	\$50,940
Strategic Energy Management	SEM(*) signed Customer agreements may include, but not be limited to, BSC Agreements (**), Retro-Commissioning engineering study agreements, multi-year MOU's with Customers (which will outline a strategic plan for reducing consumption by a specific percentage each year along with tools and resources to be utilized such as metering, trending & reporting, Energy Star Benchmarking, Focused Study agreements, PRIME kaizen events, etc.), Clean Energy Community MOU's, packaged SEM and Customer Engagement tools and resources which already exist in the marketplace.(*)SEM= "Strategic Energy Management Minimum Elements," CEE, Feb 2014. (***) BSC = Business Sustainability Challenge		15 Customers	0.02	\$33,960
All C&I Programs	Electric Savings	Electric Savings include in appropriate sector level metric			
Total Incentive \$ Residential and C&I				1.0000	\$1,698,008

UI Electric Performance Incentive 2018

**THE UNITED ILLUMINATING COMPANY
2018 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2018 Incentive Matrix with Performance Indicators. The weights applied to each of the individual and sector level metrics were developed in collaboration with Energy Efficiency Board Consultants. The Utility Performance Incentive is \$1,662,570. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including EEB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pretax Incentive</u>
75	2.0%	\$738,920
85	3.0%	\$1,108,380
95	4.0%	\$1,477,840
100	4.5%	\$1,662,570
105	5.0%	\$1,847,300
115	6.0%	\$2,216,760
125	7.0%	\$2,586,220
135	8.0%	\$2,955,680

Total Original Budget* \$36,946,003

*Does not include Incentive, ECMB costs and Audit

UI Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics				
			Incentive Metric	Target Goal	Weight	Incentive	
All Residential Programs (Sector Level) Sector Budget	\$	13,324,359					
		RESIDENTIAL					
		Residential Products & Services Lifetime kWh	106,572,194	Total Electric System Benefit from all Res programs	Electric System Benefit from all Res programs	0.195	\$324,201
		Residential Products & Services kW	1,648		Total Electric System Benefit: \$18,780,016		
		Homes Lifetime kWh	5,093,320				
		Homes kW	76				
		Home Energy Solutions Lifetime kWh	31,765,193				
		Home Energy Solutions kW	714				
		HVAC/Water Heaters Lifetime kWh	23,391,333				
		HVAC/Water Heaters kW	192				
		HES Income Eligible Lifetime kWh	21,767,758				
		HES Income Eligible kW	230				
		Residential Behavior Lifetime kWh	14,976,000				
		Residential Behavior kW	0				
Total Residential Lifetime kWh	203,565,799						
Total Residential kW	2,861						
Present Value of Res Lifetime kWh	\$0.0685						
Present Value of Res Lifetime kW @ Customer Meter	\$1,691.72						
Total Res Lifetime kWh @ Present Value Factor	\$13,940,558						
Total Res kW @ Present Value Factor	\$4,839,459						
Total Electric System Benefit	\$18,780,016						
The Net Electric System Benefit from all Res programs	\$5,455,657						
All Residential Programs (Sector Level)			\$5,455,657	0.195	\$324,201		

UI Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics			
			Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL						
Residential New Construction	\$ 500,000		Energy savings included in appropriate sector level metric			
HES	\$ 3,803,036	MMBTU per single family home for Core Service that have air sealing completed (i.e., non-barriered homes) – based on 2017 actuals adjusted to 2018 CT PSD plus 2.0%. HES- Percentage of Unique Single Family Homes that received core services for HES that get at least one add-on measure (i.e., insulation, Water Heaters, HVAC, Appliances, Windows). The CT Energy Efficiency Dashboard will be used for comparison for the period of January 1 to September 30 - 2018.	Energy savings included in appropriate sector level metric	Achieve MMBTU in HES per Single family home savings across all fuels	0.0225	\$37,408
HES - Income Eligible	\$ 4,175,881	Expend the HES-IE Budget - Full Penalty is 5% times HES-IE Budgeted Spending. Expend 95% spending avoids the penalty. The penalty is on sliding scale from 85% to 95%. Above 85% spending, the penalty is scaled with a 10% reduction in the penalty for each one percent increase in budget spend above 85%. Annual MMBTU for electric, oil and propane measures	Energy savings included in appropriate sector level metric	This is a penalty metric - 5%	0.0225	\$37,408
Retail Products	\$ 3,613,739	Number of LED Products	Annual MMBTU	23,663 MMBTU	0.0225	\$37,408
			Number of LED Products	541,177	0.0225	\$37,408

UI Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics			
			Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C/I)						
All C/I Programs (Sector Level) Sector Budget	\$ 19,468,162	Energy Blueprint Lifetime kWh Energy Blueprint kW Energy Opportunities Lifetime kWh Energy Opportunities kW B&ES (RetroCx, BOC, RFP, PRIME) B&ES kW Small Business Lifetime kWh Small Business kW Total C&I Lifetime kWh Total C&I kW Present Value of C&I Lifetime kWh Present Value of C&I Lifetime kW @ Customer Meter Total C&I Lifetime kWh @ Present Value Factor Total C&I kW @ Present Value Factor Total Electric System Benefit The Net Electric System Benefit from all C&I programs:	Total Electric System Benefit from all C&I programs.	Electric System Benefit from all C&I programs Total Electric System Benefit: \$52,602,370	0.21	\$349,140
All C/I Programs (Sector Level) Sector Budget		Total Net Electric System Benefit from all C&I programs:	Total Program Benefit from all C&I programs:		0.21	\$349,140

UI Electric Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	
COMMERCIAL & INDUSTRIAL (C/I) Small Business \$ 4,839,051	Develop and implement comprehensive offerings specific to Retail and a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial services). Offerings will consist of a tailored combination of measure and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		25% of signed projects	0.03	\$49,877
Energy Conscious Blueprint \$ 4,523,163	Number of new construction /major renovation projects that are more efficient than the State Energy Code and are: 30% >ASHRAE 90.1-2010, or utilize Whole Building Performance, or Net Zero Energy Projects Move towards Net Zero Energy projects which shall include renewable energy technologies such as, but not limited to, Solar PV, Solar Thermal, Fuel Cells, CHP, and Wind.		50% of signed projects	0.02	\$33,251
Energy Opportunities \$ 7,645,108	Develop and implement comprehensive offerings specific to manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measure and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		30% of all signed projects.	0.03	\$49,877
Strategic Energy Management	SEM(*) signed Customer agreements may include, but not be limited to, BSC Agreements (**), Retro-Commissioning engineering study agreements, multi-year MOU's with Customers (which will outline a strategic plan for reducing consumption by a specific percentage each year along with tools and resources to be utilized such as metering, trending & reporting, Energy Star Benchmarking, Focused Study agreements, PRIME kaizen events, etc.), Clean Energy Community MOU's, packaged SEM and Customer Engagement tools and resources which already exist in the marketplace.(*)SEM= "Strategic Energy Management Minimum Elements," CEE, Feb 2014. (***) BSC = Business Sustainability Challenge		20 Customers	0.02	\$33,251
All C&I Programs	Electric Savings	Electric Savings include in appropriate sector level metric			
Total Incentive \$ Residential and C&I				1.0000	\$1,662,570

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COMBINED GAS BUDGET AND SAVINGS TABLES

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Table A2 – Combined Revenues Eversource CT Gas, CNG and SCG (2015-2018)

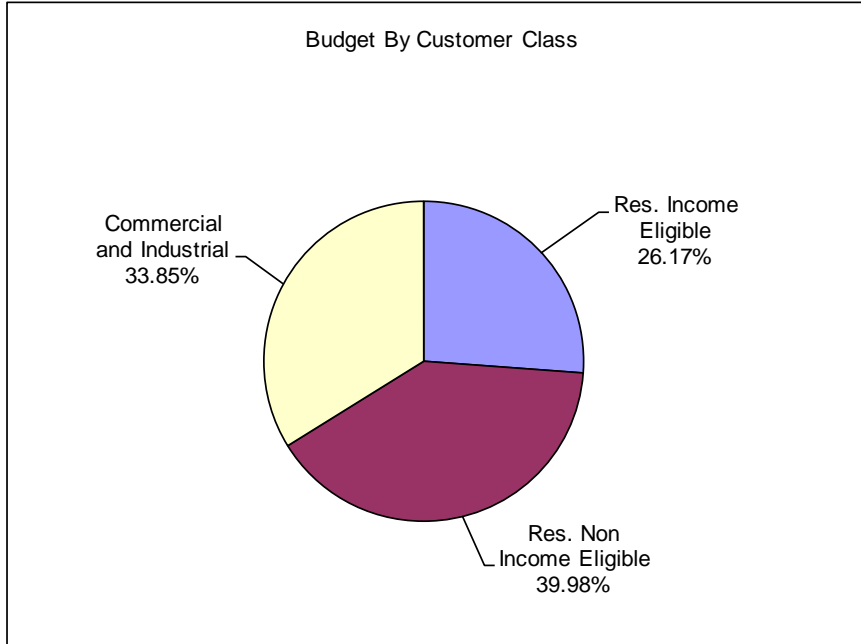
Table A2
EVERSOURCE CT GAS, CNG & SCG
2015 - 2018 Natural Gas Revenues

	2015	2015	2015	2015	2015	2015	2015	2016	2016	2016	2016	2016
	Eversource CT Gas Revenues	CNG Revenues	SCG Revenues	Combined Eversource CT Gas/CNG/SCG Total	Eversource CT Gas Revenues	CNG Revenues	SCG Revenues	Eversource CT Gas Revenues	CNG Revenues	SCG Revenues	Combined Eversource CT Gas/CNG/SCG Total	2018
												Combined Eversource CT Gas/CNG/SCG Total
Natural Gas EE Revenues												
Conservation Adjustment Mechanism (CAM)	\$ 18,814,374	\$ 16,087,727	\$ 8,368,552	\$ 43,270,652	\$ 20,352,003	\$ 15,910,651	\$ 11,403,949	\$ 20,352,003	\$ 15,910,651	\$ 11,403,949	\$ 47,666,603	\$ 58,957,639
Total Revenues	\$ 18,814,374	\$ 16,087,727	\$ 8,368,552	\$ 43,270,652	\$ 20,352,003	\$ 15,910,651	\$ 11,403,949	\$ 20,352,003	\$ 15,910,651	\$ 11,403,949	\$ 47,666,603	\$ 58,957,639
Natural Gas EE Revenues												
Conservation Adjustment Mechanism (CAM)	\$ 24,220,932	\$ 16,632,894	\$ 14,053,127	\$ 54,906,953	\$ 26,916,239	\$ 17,339,128	\$ 14,702,272	\$ 26,916,239	\$ 17,339,128	\$ 14,702,272	\$ 58,957,639	\$ 58,957,639
Total Revenues	\$ 24,220,932	\$ 16,632,894	\$ 14,053,127	\$ 54,906,953	\$ 26,916,239	\$ 17,339,128	\$ 14,702,272	\$ 26,916,239	\$ 17,339,128	\$ 14,702,272	\$ 58,957,639	\$ 58,957,639

All Figures are net of GET and LBR. Eversource assumes decoupling in 2017 and 2018. SCG assumes decoupling in 2017 and 2018. CNG is already decoupled.

Table A1 – Joint Pie 2016

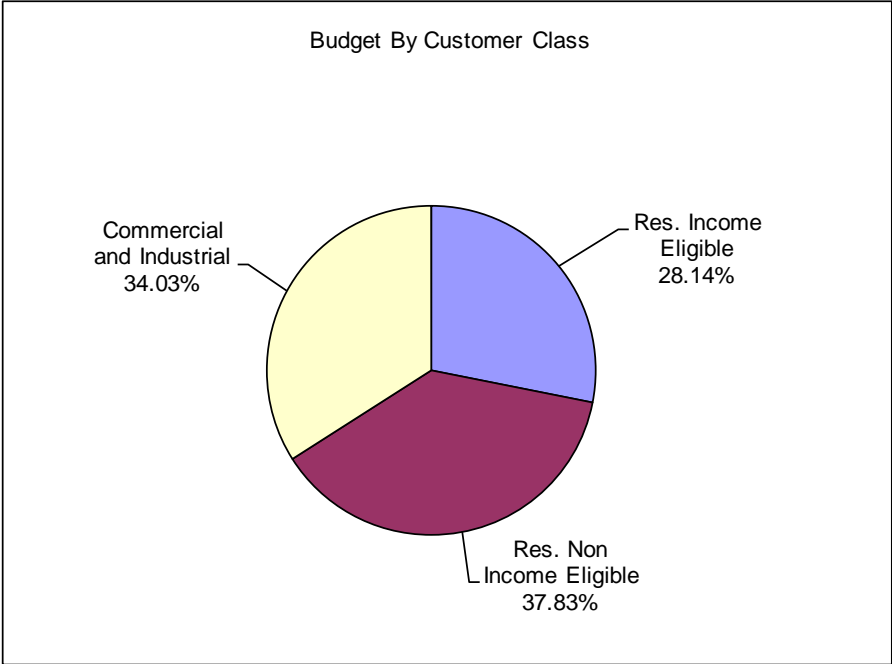
**Statewide 2016 Update Budget Analysis
Table A1 Pie Chart**



Customer Class	Budget (\$,000)	% of Total Budget	% of Residential & C&I Budget
Res. Income Eligible	\$11,359,376	23.83%	26.17%
Res. Non Income Eligible	\$17,355,385	36.41%	39.98%
Residential Subtotal	\$28,714,761	60.24%	66.15%
Commercial and Industrial	\$14,690,833	30.82%	33.85%
C&I Subtotal	\$14,690,833	30.82%	33.85%
Residential and C&I Subtotal	\$43,405,594	91.06%	100.00%
Other Expenditures			
Other Expenditures	\$4,261,009	8.94%	
Other Expenditures Subtotal	\$4,261,009	8.94%	
TOTAL	\$47,666,603	100.00%	
ES CT Gas	\$20,352,003	42.70%	
CNG	\$15,910,651	33.38%	
SCG	\$11,403,949	23.92%	

Table A1 – Joint Pie 2017

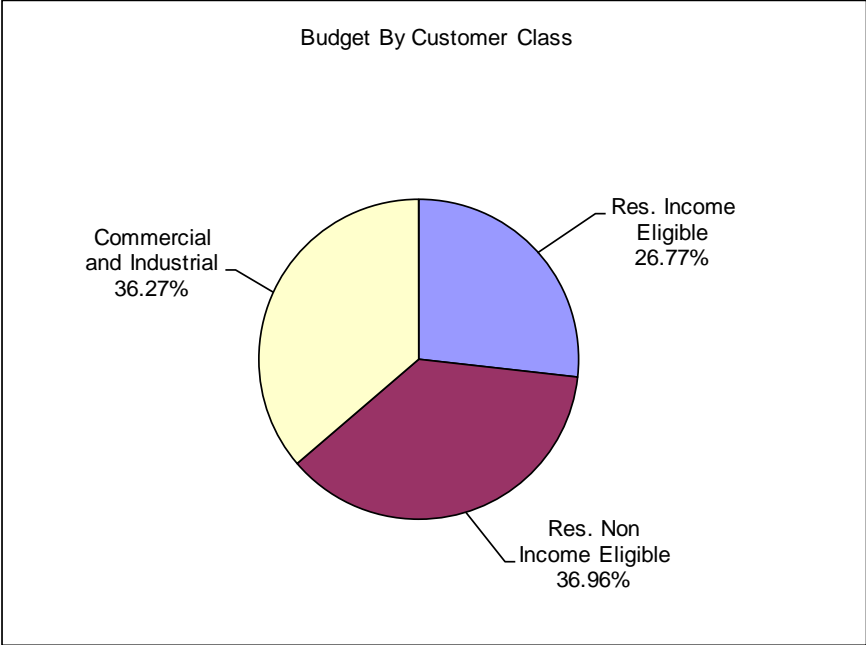
**Statewide 2017 Update Budget Analysis
Table A1 Pie Chart**



Customer Class	Budget (\$,000)	% of Total Budget	% of Residential & C&I Budget
Res. Income Eligible	\$14,151,506	25.77%	28.14%
Res. Non Income Eligible	\$19,025,264	34.65%	37.83%
Residential Subtotal	\$33,176,770	60.42%	65.97%
Commercial and Industrial	\$17,113,179	31.17%	34.03%
C&I Subtotal	\$17,113,179	31.17%	34.03%
Residential and C&I Subtotal	\$50,289,949	91.59%	100.00%
Other Expenditures			
Other Expenditures	\$4,617,004	8.41%	
Other Expenditures Subtotal	\$4,617,004	8.41%	
TOTAL	\$54,906,953	100.00%	
ES CT Gas	\$24,220,932	44.11%	
CNG	\$16,632,894	30.29%	
SCG	\$14,053,127	25.59%	

Table A1 – Joint Pie 2018

**Statewide 2018 Update Budget Analysis
Table A1 Pie Chart**



Customer Class	Budget (\$,000)	% of Total Budget	% of Residential & C&I Budget
Res. Income Eligible	\$14,490,236	24.58%	26.77%
Res. Non Income Eligible	\$20,001,459	33.93%	36.96%
Residential Subtotal	\$34,491,695	58.50%	63.73%
Commercial and Industrial	\$19,630,297	33.30%	36.27%
C&I Subtotal	\$19,630,297	33.30%	36.27%
Residential and C&I Subtotal	\$54,121,992	91.80%	100.00%
Other Expenditures			
Other Expenditures	\$4,835,646	8.20%	
Other Expenditures Subtotal	\$4,835,646	8.20%	
TOTAL	\$58,957,639	100.00%	
ES CT Gas	\$26,916,239	45.65%	
CNG	\$17,339,128	29.41%	
SCG	\$14,702,272	24.94%	

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EVERSOURCE CT GAS BUDGET AND SAVINGS TABLES

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Table A – Eversource CT Gas Budget (2015-2018)

Table A
Eversource CT Gas Service Company
2015-2018 Natural Gas Conservation Budget

Eversource CT Gas EE Budget	2015 Eversource CT Gas DEEP Approved Budget 03/20/15	2016 Eversource CT Gas Proposed Budget 10/01/15	2017 Eversource CT Gas Proposed Budget 10/01/15	2018 Eversource CT Gas Proposed Budget 10/01/15
RESIDENTIAL				
Residential New Construction	\$ 974,297	\$ 1,200,000	\$ 1,200,000	\$ 1,200,000
Home Energy Solutions - Core Services*	\$ 5,383,157	\$ 2,983,508	\$ 3,883,236	\$ 4,060,836
Home Energy Solutions - HVAC, Water Heaters**	\$ 344,092	\$ 1,856,494	\$ 1,856,494	\$ 1,856,494
HES Income Eligible	\$ 3,215,847	\$ 5,022,474	\$ 6,516,414	\$ 6,826,414
Subtotal Residential	\$ 9,917,393	\$ 11,062,476	\$ 13,456,144	\$ 13,943,744
COMMERCIAL & INDUSTRIAL				
C&I LOST OPPORTUNITY				
Energy Conscious Blueprint	\$ 3,546,292	\$ 3,674,105	\$ 4,313,105	\$ 5,633,105
Total - Lost Opportunity	\$ 3,546,292	\$ 3,674,105	\$ 4,313,105	\$ 5,633,105
C&I LARGE RETROFIT				
Energy Opportunities	\$ 2,051,277	\$ 2,201,952	\$ 2,836,199	\$ 3,407,841
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 566,704	\$ 587,129	\$ 618,531	\$ 668,531
Total - C&I Large Retrofit	\$ 2,617,981	\$ 2,789,081	\$ 3,454,730	\$ 4,076,372
Small Business	\$ 266,392	\$ 275,993	\$ 300,000	\$ 450,000
Subtotal C&I	\$ 6,430,665	\$ 6,739,179	\$ 8,067,835	\$ 10,159,477
OTHER - EDUCATION				
Educate the Public	\$ 225,333	\$ 190,067	\$ 190,067	\$ 190,067
Customer Engagement	\$ 282,000	\$ 282,000	\$ 282,000	\$ 282,000
Educate the Students	\$ 66,667	\$ 42,941	\$ 42,941	\$ 42,941
Educate the Workforce	\$ -	\$ 37,256	\$ 37,256	\$ 37,256
Subtotal Education	\$ 574,000	\$ 552,264	\$ 552,264	\$ 552,264
OTHER - PROGRAMS/REQUIREMENTS				
Residential Loan Program (includes ECLF and OBR)	\$ 145,083	\$ 145,083	\$ 145,083	\$ 145,083
C&I Financing Support (2016-2018)	\$ -	\$ 160,820	\$ 126,084	\$ 111,346
Research, Development and Demonstration	\$ 72,000	\$ 50,000	\$ 50,000	\$ 50,000
Institute for Sustainable Energy (moved to Educate the Workforce)	\$ 41,333	\$ -	\$ -	\$ -
ESPC Project Manager - Lead By Example	\$ 9,600	\$ -	\$ -	\$ -
C&I Loan Program	\$ 109,000	\$ -	\$ -	\$ -
EE Loan Defaults	\$ 86,333	\$ -	\$ -	\$ -
Subtotal Programs/Requirements	\$ 463,349	\$ 355,903	\$ 321,167	\$ 306,429
OTHER - ADMINISTRATIVE & PLANNING				
Administration	\$ 119,220	\$ 119,220	\$ 119,220	\$ 119,220
Marketing Plan	\$ 75,333	\$ 81,058	\$ 81,058	\$ 81,058
Planning	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000
Evaluation Measurement and Verification	\$ 233,333	\$ 266,667	\$ 280,000	\$ 293,333
Evaluation Administrator	\$ 16,667	\$ 29,333	\$ 30,800	\$ 32,267
Information Technology	\$ 133,333	\$ 133,333	\$ 133,333	\$ 133,333
Energy Efficiency Board Consultants	\$ 50,015	\$ 50,015	\$ 50,015	\$ 50,015
Audits - Financial and Operational	\$ -	\$ 10,000	\$ 10,000	\$ 10,000
Performance Management Incentive (PMI)	\$ 721,065	\$ 872,555	\$ 1,039,096	\$ 1,155,099
Subtotal Other - Administrative & Planning	\$ 1,428,966	\$ 1,642,181	\$ 1,823,522	\$ 1,954,325
PROGRAM SUBTOTALS				
Residential	\$ 10,581,942	\$ 11,646,019	\$ 14,039,687	\$ 14,527,287
C&I	\$ 6,765,465	\$ 7,094,860	\$ 8,388,780	\$ 10,465,684
Other	\$ 1,466,967	\$ 1,611,123	\$ 1,792,464	\$ 1,923,267
TOTAL	\$ 18,814,374	\$ 20,352,003	\$ 24,220,932	\$ 26,916,239

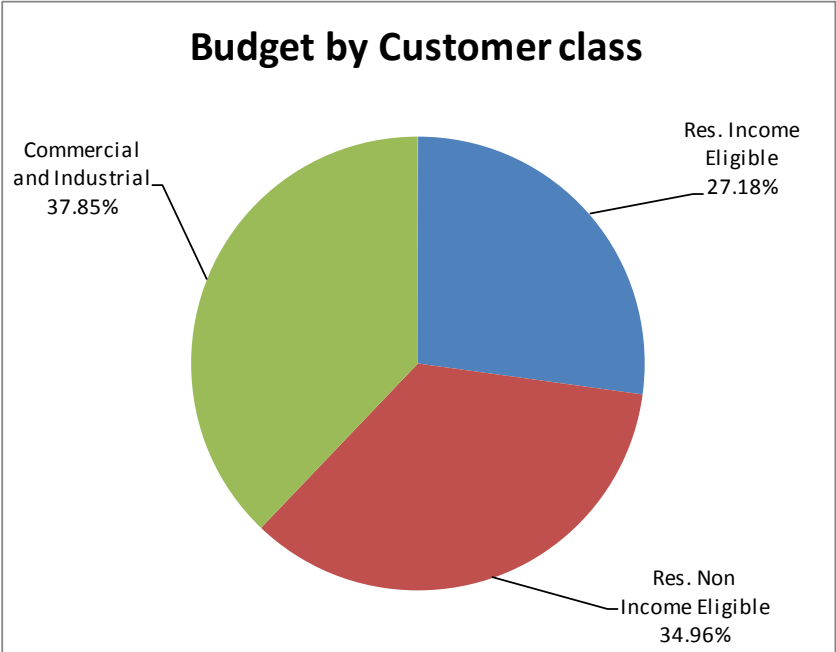
* Home Energy Solutions - HVAC, Duct Sealing, Lighting, Core Services (Single-Family, Multi-Family, Home Performance) 2016 - 2018

** Home Energy Solutions - HVAC, Water Heaters 2016-2018

2016 & 2018 Financial Audits (every two years) and 2017 Management Audit (every five years)

Table A – Pie - Eversource CT Gas 2016

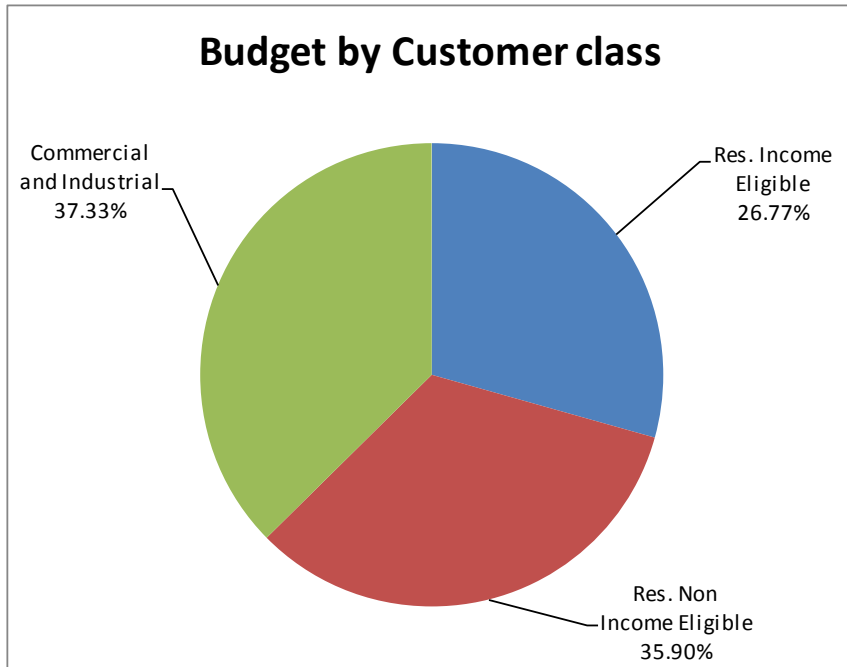
Eversource CT Gas 2016 Budget Analysis



Customer Class	Budget	% of Total Budget	% of Residential & C&I Budget
Res. Income Eligible	\$5,095,015	25.03%	27.19%
Res. Non Income Eligible	\$6,551,004	32.19%	34.96%
Residential Subtotal	\$11,646,019	57.22%	62.14%
Commercial and Industrial	\$7,094,860	34.86%	37.86%
C&I Subtotal	\$7,094,860	34.86%	37.86%
Residential and C&I Subtotal	\$18,740,880	92.08%	100.00%
Other Expenditures			
Other Expenditures	\$1,611,123	7.92%	
Other Expenditures Subtotal	\$1,611,123	7.92%	
TOTAL	\$20,352,003	100.00%	

Table A – Pie - Eversource CT Gas 2017

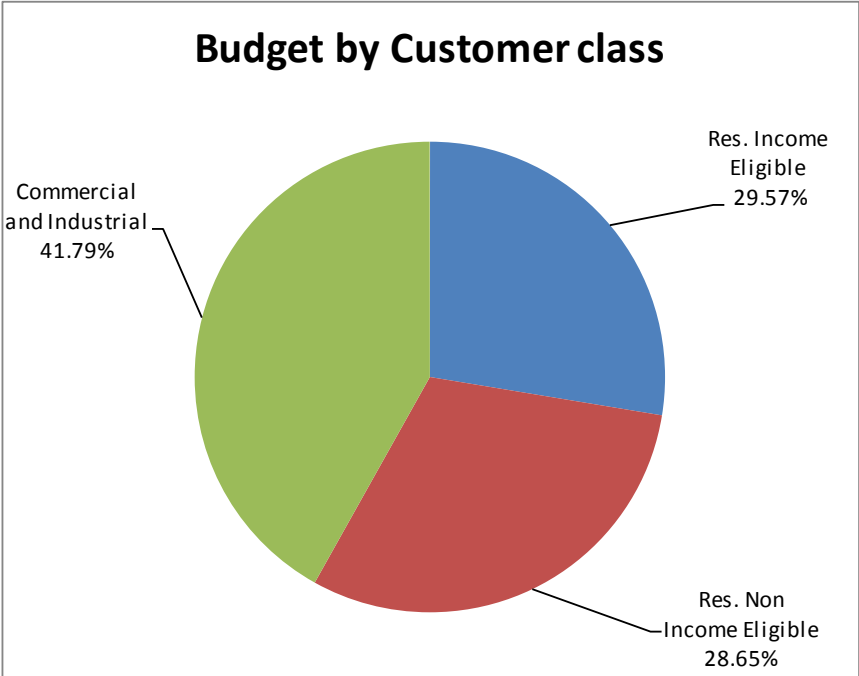
Eversource CT Gas 2017 Budget Analysis



Customer Class	Budget	% of Total Budget	% of Residential & C&I Budget
Res. Income Eligible	\$6,588,955	27.20%	29.38%
Res. Non Income Eligible	\$7,450,732	30.76%	33.22%
Residential Subtotal	\$14,039,687	57.97%	62.60%
Commercial and Industrial	\$8,388,780	34.63%	37.40%
C&I Subtotal	\$8,388,780	34.63%	37.40%
Residential and C&I Subtotal	\$22,428,468	92.60%	100.00%
Other Expenditures			
Other Expenditures	\$1,792,464	7.40%	
Other Expenditures Subtotal	\$1,792,464	7.40%	
TOTAL	\$24,220,932	100.00%	

Table A – Pie - Eversource CT Gas 2018

Eversource CT Gas 2018 Budget Analysis



Customer Class	Budget	% of Total Budget	% of Residential & C&I Budget
Res. Income Eligible	\$6,898,955	25.63%	27.60%
Res. Non Income Eligible	\$7,628,332	28.34%	30.52%
Residential Subtotal	\$14,527,287	53.97%	58.13%
Commercial and Industrial	\$10,465,684	38.88%	41.87%
C&I Subtotal	\$10,465,684	38.88%	41.87%
Residential and C&I Subtotal	\$24,992,972	92.85%	100.00%
Other Expenditures			
Other Expenditures	\$1,923,267	7.15%	
Other Expenditures Subtotal	\$1,923,267	7.15%	
TOTAL	\$26,916,239	100.00%	

Table B1 – Eversource CT Gas 2016

Table B-1, Gas Eversource Gas 2016													
Program	Costs		Benefits		Benefit Cost Ratios		Gas Savings		Gas Cost Rates		MMBtu Savings & Cost		
	Utility Cost	Total Resource Cost	Utility Benefit	Total Resource Benefit	Utility B/C Ratio	Total Resource B/C Ratio	Annualized Savings (ccf)	Lifetime Savings (ccf)	Peak Savings (ccf)	Gas Cost Rate \$ per ccf Annual Lifetime	Gas Cost Rate \$ per ccf Peak	Annual Lifetime MMBtu	Utility Cost per Annual Lifetime MMBtu
Residential													
Home Energy Solutions	\$2,983,508	\$3,117,432	\$4,186,726	\$5,032,572	1.40	1.61	317,366	6,128,550	1,332	\$9.40	\$0.49	32,657	\$91.36
HES - HVAC	\$1,856,494	\$5,717,012	\$3,375,132	\$3,870,466	1.82	0.68	248,874	4,949,644	2,133	\$7.46	\$0.38	25,609	\$72.49
HES - Income Eligible	\$5,022,474	\$5,022,474	\$6,039,018	\$7,182,975	1.20	1.43	458,132	8,798,658	4,255	\$10.96	\$0.57	47,142	\$106.54
New Construction	\$1,200,000	\$1,774,950	\$2,013,857	\$2,450,154	1.68	1.38	133,611	3,120,334	1,017	\$8.98	\$1.180	13,749	\$87.28
Subtotal Residential	\$11,062,476	\$15,631,868	\$15,614,733	\$18,536,168	1.41	1.19	1,157,983	22,997,187	8,737	\$9.55	\$0.48	119,156	\$92.84
Commercial & Industrial													
Energy Conscious Blueprint	\$3,674,105	\$5,024,446	\$7,031,837	\$7,852,420	1.91	1.56	619,752	9,509,891	3,730	\$5.93	\$0.39	63,772	\$57.61
Energy Opportunities	\$2,201,952	\$5,400,667	\$6,039,686	\$6,572,203	2.74	1.22	648,109	7,515,612	4,398	\$3.40	\$0.29	66,690	\$33.02
Small Business	\$275,993	\$543,437	\$677,324	\$740,606	2.45	1.36	68,527	849,992	493	\$4.03	\$0.32	7,051	\$39.14
BES (O&M, RCx, SEM)	\$587,129	\$1,260,233	\$2,135,353	\$2,250,481	3.64	1.79	322,736	2,160,347	1,188	\$1.82	\$0.27	33,209	\$17.68
Subtotal C&I	\$6,739,179	\$12,228,783	\$15,884,200	\$17,415,710	2.36	1.42	1,659,123	20,035,842	9,810	\$4.06	\$0.34	170,724	\$39.47
Subtotal Other	\$2,550,348	\$2,550,348											
Total C&IM Budget	\$20,352,003	\$30,410,998	\$31,498,933	\$35,951,878	1.55	1.18	2,817,106	43,033,029	18,547	\$7.22	\$0.47	289,880	\$70.21

Table B1 – Eversource CT Gas 2017

Table B-1, Gas Eversource Gas 2017															
Program	Costs		Benefits		Benefit Cost Ratios		Gas Savings		Gas Cost Rates		MMBtu Savings & Cost				
	Utility Cost	Total Resource Cost	Utility Benefit	Total Resource Benefit	Utility B/C Ratio	Total Resource B/C Ratio	Annualized Savings (ccf)	Lifetime Savings (ccf)	Peak Savings (ccf)	Gas Cost Rate \$ per ccf Annual Lifetime	Gas Cost Rate \$ per ccf Peak	Annual MMBtu	Lifetime MMBtu	Utility Cost per MMBtu	Cost per Lifetime MMBtu
Residential															
Home Energy Solutions	\$3,883,236	\$4,032,857	\$5,389,979	\$6,585,928	1.39	1.63	434,345	8,355,389	1,488	\$8.94	\$0.46	44,694	859,769	\$86.88	\$4.52
HES - HVAC	\$1,856,494	\$5,944,477	\$3,672,190	\$4,315,687	1.98	0.73	288,186	5,680,179	2,250	\$6.44	\$0.33	29,654	584,490	\$62.60	\$3.18
HES - Income Eligible	\$6,516,414	\$6,516,414	\$7,407,230	\$9,055,658	1.14	1.39	596,450	11,416,325	5,534	\$10.93	\$0.57	61,375	1,174,740	\$106.17	\$5.55
New Construction	\$1,200,000	\$1,774,575	\$1,923,934	\$2,384,734	1.60	1.34	133,523	3,118,299	1,016	\$8.99	\$0.38	13,740	320,873	\$87.34	\$3.74
Subtotal Residential	\$13,456,144	\$18,268,323	\$18,393,334	\$22,341,908	1.37	1.22	1,452,504	28,570,193	10,288	\$9.26	\$0.47	149,463	2,939,873	\$90.03	\$4.58
Commercial & Industrial															
Energy Conscious Blueprint	\$4,313,105	\$5,914,903	\$7,604,562	\$8,689,180	1.76	1.47	721,594	11,072,637	4,343	\$5.98	\$0.39	74,252	1,139,374	\$58.09	\$3.79
Energy Opportunities	\$2,836,199	\$7,007,575	\$6,994,995	\$7,775,544	2.47	1.11	830,245	9,623,237	5,623	\$3.42	\$0.29	85,432	990,231	\$33.20	\$2.86
Small Business	\$300,000	\$599,676	\$679,012	\$758,339	2.26	1.26	75,369	934,857	543	\$3.98	\$0.32	7,755	96,197	\$38.68	\$3.12
BES (O&M, RCx, SEM)	\$618,531	\$1,329,203	\$1,872,083	\$2,009,733	3.03	1.51	331,869	2,228,017	1,235	\$1.86	\$0.28	34,149	229,263	\$18.11	\$2.70
Subtotal C&I	\$8,067,835	\$14,851,358	\$17,150,652	\$19,232,796	2.13	1.30	1,959,077	23,858,748	11,743	\$4.12	\$0.34	201,589	2,455,065	\$40.02	\$3.29
Subtotal Other	\$2,696,953	\$2,696,953													
Total C&IM Budget	\$24,220,932	\$35,816,633	\$35,543,985	\$41,574,704	1.47	1.16	3,411,581	52,428,941	22,031	\$7.10	\$0.46	351,052	5,394,938	\$69.00	\$4.49

Table B1 – Eversource CT Gas 2018

Table B-1, Gas Eversource Gas 2018														
Program	Costs		Benefits		Benefit Cost Ratios		Gas Savings			Gas Cost Rates		MMBtu Savings & Cost		
	Utility Cost	Total Resource Cost	Utility Benefit	Total Resource Benefit	Utility B/C Ratio	Total Resource B/C Ratio	Annualized Savings (ccf)	Lifetime Savings (ccf)	Peak Savings (ccf)	Gas Cost Rate \$ per ccf Annual Lifetime	Gas Cost Rate \$ per ccf Annual Lifetime	Annual MMBtu	Lifetime MMBtu	Utility Cost per Annual Lifetime
Residential														
Home Energy Solutions	\$4,060,836	\$4,203,715	\$6,191,943	\$7,678,100	1.52	1.83	514,652	9,856,849	1,421	\$7.89	\$0.41	\$2,857	52,958	\$1,014,270
HES - HVAC	\$1,856,494	\$5,944,477	\$3,583,707	\$4,315,313	1.93	0.73	288,186	5,680,179	2,250	\$6.44	\$0.33	\$825	29,654	\$584,490
HES - Income Eligible	\$6,826,414	\$6,826,414	\$7,669,010	\$9,609,192	1.12	1.41	633,186	12,133,146	5,878	\$10.78	\$0.56	\$1,161	65,155	\$1,248,501
New Construction	\$1,200,000	\$1,774,200	\$1,889,777	\$2,408,120	1.57	1.36	133,436	3,116,264	1,016	\$8.99	\$0.39	\$1,182	13,731	\$320,664
Subtotal Residential	\$13,943,744	\$18,748,805	\$19,334,437	\$24,010,726	1.39	1.28	1,569,460	30,786,438	10,565	\$8.88	\$0.45	\$1,320	161,497	\$3,167,924
Commercial & Industrial														
Energy Conscious Blueprint	\$5,633,105	\$7,757,336	\$9,538,785	\$11,143,044	1.69	1.44	939,287	14,413,054	5,653	\$6.00	\$0.39	\$997	96,653	\$1,483,103
Energy Opportunities	\$3,407,841	\$8,460,421	\$7,856,403	\$8,916,136	2.31	1.05	987,480	11,442,988	6,680	\$3.45	\$0.30	\$510	101,612	\$1,177,483
Small Business	\$450,000	\$960,674	\$962,439	\$1,097,266	2.14	1.14	112,450	1,394,802	810	\$4.00	\$0.32	\$556	11,571	\$143,525
BES (O&M, RCx, SEM)	\$668,531	\$1,443,522	\$1,801,511	\$1,973,276	2.69	1.37	355,226	2,384,827	1,321	\$1.88	\$0.28	\$506	36,553	\$245,399
Subtotal C&I	\$10,159,477	\$18,621,952	\$20,159,137	\$23,129,723	1.98	1.24	2,394,443	29,635,671	14,464	\$4.24	\$0.34	\$702	246,388	\$3,049,511
Subtotal Other	\$2,813,018	\$2,813,018												
Total C&I/M Budget	\$26,916,239	\$40,183,776	\$39,493,575	\$47,140,448	1.47	1.17	3,963,902	60,422,109	25,029	\$6.79	\$0.45	\$1,075	407,886	\$6,217,435
														\$65.99
														\$41.23
														\$3.33

Table B2 – Eversource CT Gas Resource Summary 2016

Resource Summary B-2																	
2016 Gas	Company	Sector	Program	Total Program Cost (\$)	Program Incentive (\$)	Oil/Propane Cost (\$)	Customer Cost (\$)	Measure Quantity	Measure Life	Gas (ccf)	Lifetime Gas (ccf)	Net Peak Day Gas (ccf)	Annual Gallons Water (000)	Annual Tons of CO2	Annual Tons of NOx	Annual Tons of SOx	
	Residential																
Eversource Gas	Residential	Home Energy Solutions (HES)		2,983,508	2,306,008	0	133,924	3,199	19	317,366	6,128,550	1,332	3,115	1,910	0.002	9.80E-06	
Eversource Gas	Residential	HES - HVAC		1,856,494	1,796,910	0	3,860,518	3,587	20	248,874	4,949,644	2,133	0	1,498	0.001	7.68E-06	
Eversource Gas	Residential	HES - Income Eligible		5,022,474	4,825,687	0	0	4,741	19	458,132	8,798,658	4,255	4,551	2,758	0.002	1.41E-05	
Eversource Gas	Residential	New Construction		1,200,000	1,149,900	0	574,950	757	23	133,611	3,120,334	1,017	379	804	0.001	4.12E-06	
	Subtotal Residential			11,062,476	10,078,505	0	4,569,392	12,284	20	1,157,983	22,997,187	8,737	8,045	6,971	0.006	3.57E-05	
	Commercial & Industrial																
Eversource Gas	C&I	Energy Conscious Blueprint		3,674,105	3,399,708	0	1,350,341	218	15	619,752	9,509,891	3,730	0	3,731	0.003	1.91E-05	
Eversource Gas	C&I	Energy Opportunities		2,201,952	1,878,546	0	3,198,715	68	12	648,109	7,515,612	4,398	0	3,901	0.003	2.00E-05	
Eversource Gas	C&I	Small Business		275,993	188,531	0	267,444	73	12	68,527	849,992	493	0	413	0.000	2.12E-06	
Eversource Gas	C&I	Business and Energy Sustainability		587,129	513,629	0	673,104	21	7	322,736	2,160,347	1,188	0	1,943	0.002	9.96E-06	
	Subtotal C&I			6,739,179	5,980,415	0	5,489,603	380	12	1,659,123	20,035,842	9,810	0	9,987	0.008	5.12E-05	
	Subtotal Load Response																
					0	0	0	0	0	0	0	0	0	0	0.000	0.000	
	Subtotal Other																
					2,550,348												
	Total Budget				20,352,003	16,058,920	0	10,058,995	12,664	15	2,817,106	43,033,029	18,547	8,045	16,958	0.014	8.70E-05

Table B2 – Eversource CT Gas Resource Summary 2017

Resource Summary B-2																	
2017 Gas	Company	Sector	Program	Total Program Cost (\$)	Program Incentive (\$)	Oil/Propane Cost (\$)	Customer Cost (\$)	Measure Quantity	Measure Life	Gas (ccf)	Lifetime Gas (ccf)	Net Peak Day Gas (ccf)	Annual Gallons Water (000)	Annual Tons of CO2	Annual Tons of NOx	Annual Tons of SOx	
	Residential																
	Eversource Gas	Residential	Home Energy Solutions (HES)	3,883,236	3,194,936	0	149,621	4,564	19	434,345	8,355,389	1,488	3,480	2,615	0.002	1.34E-05	
	Eversource Gas	Residential	HES - HVAC	1,856,494	1,796,460	0	4,087,983	3,723	20	288,186	5,680,179	2,250	0	1,735	0.001	8.90E-06	
	Eversource Gas	Residential	HES - Income Eligible	6,516,414	6,414,251	0	0	6,297	19	596,450	11,416,325	5,534	6,045	3,590	0.003	1.84E-05	
	Eversource Gas	Residential	New Construction	1,200,000	1,149,150	0	574,575	757	23	133,523	3,118,299	1,016	227	804	0.001	4.12E-06	
			Subtotal Residential	13,456,144	12,554,797	0	4,812,179	15,340	20	1,452,504	28,570,193	10,288	9,752	8,744	0.007	4.48E-05	
	Commercial & Industrial																
	Eversource Gas	C&I	Energy Conscious Blueprint	4,313,105	4,032,795	0	1,601,798	254	15	721,594	11,072,637	4,343	0	4,344	0.003	2.23E-05	
	Eversource Gas	C&I	Energy Opportunities	2,836,199	2,504,485	0	4,171,376	87	12	830,245	9,623,237	5,623	0	4,998	0.004	2.56E-05	
	Eversource Gas	C&I	Small Business	300,000	211,252	0	299,676	80	12	75,369	934,857	543	0	454	0.000	2.33E-06	
	Eversource Gas	C&I	Business and Energy Sustainability	618,531	545,831	0	710,672	22	7	331,869	2,228,017	1,235	0	1,998	0.002	1.02E-05	
			Subtotal C&I	8,067,835	7,294,363	0	6,783,523	443	12	1,959,077	23,858,748	11,743	0	11,793	0.009	6.05E-05	
			Subtotal Load Response	0	0	0	0	0	0	0	0	0	0	0	0.000	0.000	
			Subtotal Other	2,596,953													
			Total Budget	24,220,932	19,849,160	0	11,595,701	15,783	15	3,411,581	52,428,941	22,031	9,752	20,537	0.016	1.05E-04	

Table B2 – Eversource CT Gas Resource Summary 2018

Resource Summary B-2															
2018 Gas															
Company	Sector	Program	Total Program Cost (\$)	Program Incentive (\$)	Oil/Propane Cost (\$)	Customer Cost (\$)	Measure Quantity	Measure Life	Gas (ccf)	Lifetime Gas (ccf)	Net Peak Day Gas (ccf)	Annual Gallons Water (000)	Annual Tons of CO2	Annual Tons of NOx	Annual Tons of SOx
Residential															
Eversource Gas	Residential	Home Energy Solutions (HES)	4,060,836	3,836,175	0	1,42,879	5,619	19	514,652	9,856,849	1,421	3,323	3,098	0.002	1.59E-05
Eversource Gas	Residential	HES - HVAC	1,856,494	1,796,460	0	4,087,983	3,723	20	288,186	5,680,179	2,250	0	1,735	0.001	8.90E-06
Eversource Gas	Residential	HES - Income Eligible	6,826,414	6,732,003	0	0	6,609	19	633,186	12,133,146	5,878	6,345	3,812	0.003	1.95E-05
Eversource Gas	Residential	New Construction	1,200,000	1,148,400	0	574,200	756	23	133,436	3,116,264	1,016	227	803	0.001	4.12E-06
		Subtotal Residential	13,943,744	13,513,038	0	4,805,061	16,707	20	1,569,460	30,786,438	10,565	9,895	9,448	0.008	4.84E-05
Commercial & Industrial															
Eversource Gas	C&I	Energy Conscious Blueprint	5,633,105	5,348,106	0	2,124,231	331	15	939,287	14,413,054	5,653	0	5,654	0.005	2.90E-05
Eversource Gas	C&I	Energy Opportunities	3,407,841	3,067,815	0	5,052,580	104	12	987,480	11,442,988	6,680	0	5,944	0.005	3.05E-05
Eversource Gas	C&I	Small Business	450,000	359,992	0	510,674	120	12	112,450	1,394,802	810	0	677	0.001	3.47E-06
Eversource Gas	C&I	Business and Energy Sustainability	668,531	595,231	0	774,991	23	7	355,226	2,384,827	1,321	0	2,138	0.002	1.10E-05
		Subtotal C&I	10,159,477	9,371,144	0	8,462,475	578	12	2,394,443	29,635,671	14,464	0	14,414	0.012	7.39E-05
		Subtotal Load Response	0	0	0	0	0	0	0	0	0	0	0	0.000	0.000
		Subtotal Other	2,813,018												
		Total Budget	26,916,239	22,884,182	0	13,267,536	17,285	15	3,963,902	60,422,109	25,029	9,895	23,861	0.019	1.22E-04

Table B3 – Eversource CT Gas Benefits Summary 2016

Benefits Summary B-3														
Natural Gas Benefits														
2016 Gas	Company	Sector	Program	Hot Water Gas (U, M, T)	Heating Gas (U, M, T)	C&I Gas Non-Heating (U, M, T)	Gas CT DRIPE (U, M, T)	Gas ROP DRIPE (U, M, T)	CF Res Gas Non Heating (U, M, T)	CF Res Hot Water (U, M, T)	CF Res Heating (U, M, T)	Res All (U, M, T)	CF C&I Gas Non Heating (U, M, T)	CF C&I Heating (U, M, T)
Residential														
	Eversource Gas	Residential	Home Energy Solutions (HES)	0	3,166,737	0	27,595	88,273	0	0	226,715	0	0	0
	Eversource Gas	Residential	HES - HVAC	324,471	2,241,652	0	22,355	71,511	0	24,780	154,562	0	0	0
	Eversource Gas	Residential	HES - Income Eligible	96,291	4,470,589	0	39,643	126,811	0	23,007	304,403	0	0	0
	Eversource Gas	Residential	New Construction	445,943	1,120,662	0	13,339	42,668	0	32,898	65,239	0	0	0
			Subtotal Residential	866,705	10,999,640	0	102,932	329,262	0	80,685	750,918	0	0	0
Commercial & Industrial														
	Eversource Gas	C&I	Energy Conscious Blueprint	0	0	1,343,154	46,739	149,511	0	0	0	0	122,710	339,202
	Eversource Gas	C&I	Energy Opportunities	0	0	558,368	38,961	124,629	0	0	0	0	76,196	391,703
	Eversource Gas	C&I	Small Business	0	0	261,578	4,347	13,906	0	0	0	0	29,055	22,004
	Eversource Gas	C&I	Business and Energy Sustainability	0	0	165,834	12,017	38,441	0	0	0	0	41,092	183,656
			Subtotal C&I	0	0	2,328,934	102,065	326,488	0	0	0	0	269,054	936,564
			Subtotal Load Response	0	0	0	0	0	0	0	0	0	0	0
			Subtotal Other											
			Total Budget	866,705	10,999,640	2,328,934	204,997	655,750	0	80,685	750,918	0	269,054	936,564

Table B3 – Eversource CT Gas Benefits Summary 2016 (cont)

Benefits Summary B-3																									
Natural Gas Benefits																									
Company	Sector	Program	Hot Water Gas (U, M, T)		Heating Gas (U, M, T)		CF C&I Heating (U, M, T)		CF C&I All Heating (U, M, T)		CF ROP Res Hot Water (U, M, T)		CF ROP Res Heating (U, M, T)		CF ROP Non Heating (U, M, T)		CF ROP C&I Heating (U, M, T)		C&I Gas Emissions (T)	Water (T)	Non Energy Benefits (NEB) (T)	Utility Benefit (\$ U)	Modified Utility Benefit (\$ M&U)	Total Resource Benefit (\$ M, U & T)	
			(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)	(U, M, T)							
Residential																									
Eversource Gas	Residential	Home Energy Solutions (HES)	0	3,166,737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	603,294	242,552	0	4,186,726	4,186,726	5,032,572	
Eversource Gas	Residential	HES- HVAC	324,471	2,241,652	0	0	0	0	0	0	74,011	461,791	0	0	0	0	0	0	495,334	0	0	3,375,132	3,375,132	3,870,466	
Eversource Gas	Residential	HES - Income Eligible	96,291	4,470,589	0	0	0	0	0	68,814	909,460	0	0	0	0	0	0	0	895,556	248,402	0	6,039,018	6,039,018	7,182,975	
Eversource Gas	Residential	New Construction	445,543	1,120,662	0	0	0	0	0	98,250	194,859	0	0	0	0	0	0	0	371,469	64,828	0	2,013,857	2,013,857	2,450,154	
Subtotal Residential			866,705	10,999,640	0	0	0	0	0	241,075	2,243,516	0	0	0	0	0	0	2,365,653	555,782	0	15,614,733	15,614,733	18,536,168		
Commercial & Industrial																									
Eversource Gas	C&I	Energy Conscious Blueprint	0	0	339,202	0	0	0	0	0	0	0	0	0	0	0	0	0	820,583	0	0	7,031,837	7,031,837	7,852,420	
Eversource Gas	C&I	Energy Opportunities	0	0	391,703	0	0	0	0	0	0	0	0	0	0	0	0	0	532,518	0	0	6,039,686	6,039,686	6,572,208	
Eversource Gas	C&I	Small Business	0	0	22,004	0	0	0	0	0	0	0	0	0	0	0	0	0	63,282	0	0	677,324	677,324	740,606	
Eversource Gas	C&I	Business and Energy Sustainability	0	0	183,656	0	0	0	0	0	0	0	0	0	0	0	0	0	115,128	0	0	2,135,353	2,135,353	2,250,481	
Subtotal C&I			0	0	996,564	0	0	0	0	0	0	0	0	0	0	0	0	1,531,510	0	0	15,894,200	15,894,200	17,415,710		
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Subtotal Other			866,705	10,999,640	996,564	0	0	0	0	241,075	2,243,516	0	0	0	0	0	0	3,897,163	555,782	0	31,498,933	31,498,933	35,951,878		
Total Budget			866,705	10,999,640	996,564	0	0	0	0	241,075	2,243,516	0	0	0	0	0	0	3,897,163	555,782	0	31,498,933	31,498,933	35,951,878		

Table B3 – Eversource CT Gas Benefits Summary 2017

2017 Gas		Benefits Summary B-3												
		Natural Gas Benefits												
Company	Sector	Program	Hot Water Gas (U, M, T)	Heating Gas (U, M, T)	C&I Gas Non-Heating (U, M, T)	C&I Gas Heating (U, M, T)	Gas CT DRIPE (U, M, T)	Gas ROP DRIPE (U, M, T)	CF Res Gas Non Heating (U, M, T)	CF Res Hot Water Heating (U, M, T)	CF Res All Heating (U, M, T)	CF C&I Gas Non Heating (U, M, T)	CF C&I Heating (U, M, T)	
														Residential
Eversource Gas	Residential	Home Energy Solutions (HES)	0	4,503,822	0	0	38,334	122,623	0	0	183,075	0	0	
Eversource Gas	Residential	HES - HVAC	605,783	2,466,394	0	0	26,182	83,751	0	27,324	96,406	0	0	
Eversource Gas	Residential	HES - Income Eligible	135,715	6,054,572	0	0	52,437	167,737	0	17,329	234,306	0	0	
Eversource Gas	Residential	New Construction	465,586	1,167,911	0	0	13,581	43,442	0	19,930	39,011	0	0	
Subtotal Residential			1,207,084	14,192,700	0	0	130,533	417,553	0	64,583	552,798	0	0	
Commercial & Industrial														
Eversource Gas	C&I	Energy Conscious Blueprint	0	0	1,635,307	4,451,600	55,443	177,353	0	0	0	88,829	235,560	
Eversource Gas	C&I	Energy Opportunities	0	0	766,807	4,612,387	50,824	162,576	0	0	0	59,814	294,124	
Eversource Gas	C&I	Small Business	0	0	301,507	223,348	4,871	15,582	0	0	0	19,508	14,243	
Eversource Gas	C&I	Business and Energy Sustainability	0	0	171,335	1,121,619	12,623	40,379	0	0	0	23,082	109,657	
Subtotal C&I			0	0	2,874,955	10,408,954	123,761	395,890	0	0	0	191,233	653,584	
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0	0	
Subtotal Other			1,207,084	14,192,700	2,874,955	10,408,954	254,294	813,443	0	64,583	552,798	0	191,233	
Total Budget			1,207,084	14,192,700	2,874,955	10,408,954	254,294	813,443	0	64,583	552,798	0	191,233	

Table B3 – Eversource CT Gas Benefits Summary 2017 (cont)

Benefits Summary B-3																					
Natural Gas Benefits																					
Company	Sector	Program	Hot Water Gas (U, M, T)	Heating Gas (U, M, T)	CF C&I Heating (U, M, T)	CF C&I All Heating (U, M, T)	CF Non Heating (U, M, T)	CF ROP Res Hot Water (U, M, T)	Residential			CF ROP Heating (U, M, T)	CF ROP Heating All (U, M, T)	CF ROP Heating (U, M, T)	CF ROP Heating All (U, M, T)	Gas Emissions (T)	Water (T)	Non Energy Benefits (NEB) (T)	Utility Benefit (\$ U)	Modified Utility Benefit (\$ M&U)	Total Resource Benefit (\$ M, U & T)
									CF ROP Heating (U, M, T)	CF ROP Heating (U, M, T)	CF ROP Heating (U, M, T)										
Eversource Gas	Residential	Home Energy Solutions (HES)	0	4,503,822	0	0	0	0	542,124	0	0	0	0	924,868	270,981	0	5,389,979	5,389,979	6,585,828		
Eversource Gas	Residential	HES- HVAC	605,783	2,466,394	0	0	0	80,891	285,460	0	0	0	0	643,497	0	0	3,672,190	3,672,190	4,315,687		
Eversource Gas	Residential	HES - Income Eligible	135,715	6,054,572	0	0	0	51,362	693,772	0	0	0	0	1,318,480	329,948	0	7,407,230	7,407,230	9,055,658		
Eversource Gas	Residential	New Construction	465,586	1,167,911	0	0	0	58,995	115,479	0	0	0	0	421,929	38,871	0	1,923,934	1,923,934	2,384,734		
		Subtotal Residential	1,207,084	14,192,700	0	0	0	191,248	1,636,835	0	0	0	0	3,308,774	639,800	0	18,393,334	18,393,334	22,341,908		
Commercial & Industrial																					
Eversource Gas	C&I	Energy Conscious Blueprint	0	235,560	0	0	0	0	0	0	0	0	0	262,908	697,561	0	7,604,562	7,604,562	8,689,180		
Eversource Gas	C&I	Energy Opportunities	0	294,124	0	0	0	0	0	0	0	0	0	177,184	871,279	0	6,994,995	6,994,995	7,775,544		
Eversource Gas	C&I	Small Business	0	14,243	0	0	0	0	0	0	0	0	0	57,764	42,190	0	679,012	679,012	758,339		
Eversource Gas	C&I	Business and Energy Sustainability	0	109,657	0	0	0	0	0	0	0	0	0	68,412	324,976	0	1,872,083	1,872,083	2,009,733		
		Subtotal C&I	0	653,584	0	0	0	0	0	0	0	0	0	566,267	1,936,007	0	17,150,652	17,150,652	19,232,796		
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Subtotal Other			1,207,084	14,192,700	653,584	0	0	191,248	1,636,835	0	0	0	0	566,267	1,936,007	0	35,543,985	35,543,985	41,574,704		
Total Budget			1,207,084	14,192,700	653,584	0	0	191,248	1,636,835	0	0	0	0	566,267	1,936,007	0	35,543,985	35,543,985	41,574,704		

Table B3 – Eversource CT Gas Benefits Summary 2018

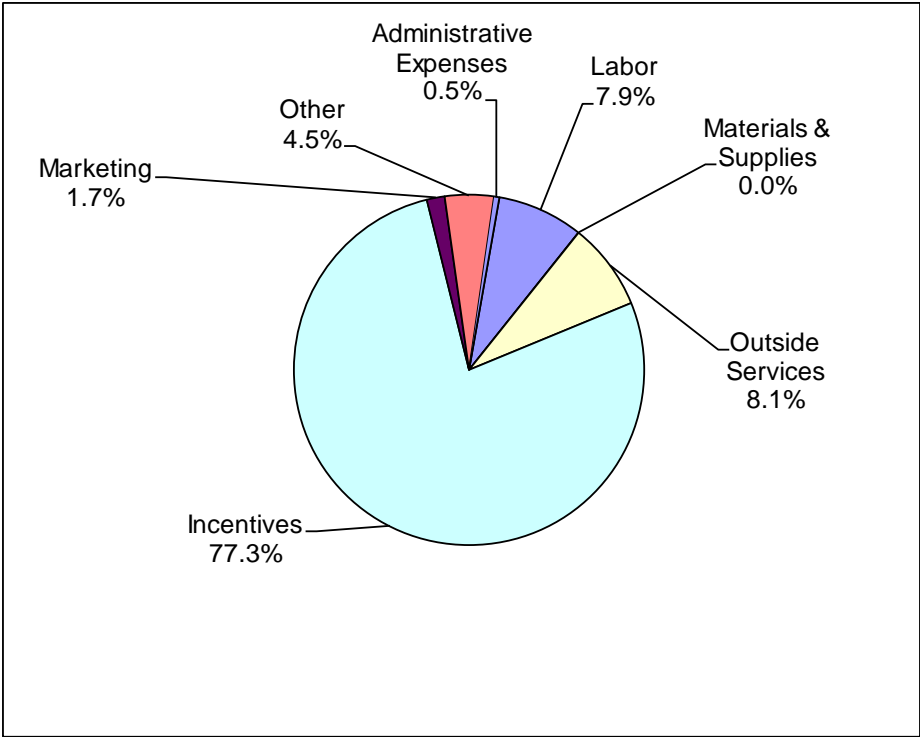
Benefits Summary B-3														
Natural Gas Benefits														
Company	Sector	Program	Hot Water Gas (U, M, T)	Heating Gas (U, M, T)	C&I Gas Non-Heating (U, M, T)	C&I Gas Heating (U, M, T)	Gas CT DRIPE (U, M, T)	Gas ROP DRIPE (U, M, T)	CF Res Gas Non Heating (U, M, T)	CF Res Hot Water (U, M, T)	CF Res Heating (U, M, T)	Res All (U, M, T)	CF C&I Gas Non Heating (U, M, T)	CF C&I Heating (U, M, T)
Residential														
Eversource Gas	Residential	Home Energy Solutions (HES)	0	5,498,935	0	0	46,092	147,439	0	0	126,271	0	0	0
Eversource Gas	Residential	HES - HVAC	627,988	2,555,020	0	0	26,674	85,325	0	16,533	56,461	0	0	0
Eversource Gas	Residential	HES - Income Eligible	147,011	6,667,378	0	0	56,768	181,590	0	9,827	145,972	0	0	0
Eversource Gas	Residential	New Construction	482,452	1,209,230	0	0	13,827	44,230	0	12,149	23,267	0	0	0
Subtotal Residential			1,257,451	15,930,563	0	0	143,360	458,584	0	38,509	351,971	0	0	0
Commercial & Industrial														
Eversource Gas	C&I	Energy Conscious Blueprint	0	0	2,206,557	6,013,348	73,526	235,197	0	0	0	0	73,432	181,971
Eversource Gas	C&I	Energy Opportunities	0	0	953,632	5,672,948	61,570	196,952	0	0	0	0	43,093	202,358
Eversource Gas	C&I	Small Business	0	0	466,268	345,314	7,404	23,685	0	0	0	0	17,956	12,318
Eversource Gas	C&I	Business and Energy Sustainability	0	0	189,279	1,242,628	13,766	44,033	0	0	0	0	13,803	64,949
Subtotal C&I			0	0	3,815,737	13,274,238	156,266	499,868	0	0	0	0	148,283	461,595
Subtotal Load Response			0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Other			1,257,451	15,930,563	3,815,737	13,274,238	299,627	958,452	0	38,509	351,971	0	148,283	461,595
Total Budget			1,257,451	15,930,563	3,815,737	13,274,238	299,627	958,452	0	38,509	351,971	0	148,283	461,595

Table B3 – Eversource CT Gas Benefits Summary 2018 (cont)

Benefits Summary B-3																		
Natural Gas Benefits																		
Company	Sector	Program	Hot Water Gas (U, M, T)	Heating Gas (U, M, T)	CF C&I Heating (U, M, T)	CF C&I Heating (U, M, T)	CF Res Non Heating (U, M, T)	CF Res Hot Water (U, M, T)	CF Res Heating (U, M, T)	Res All Heating (U, M, T)	CF Non Heating (U, M, T)	CF C&I Heating (U, M, T)	CF C&I Heating (U, M, T)	Non Energy Benefits (NEB) (T)	Utility Benefit (\$ U)	Modified Utility Benefit (\$ M&U)	Total Resource Benefit (\$ M, U & T)	
																		CF Res Heating (U, M, T)
Residential																		
Eversource Gas	Residential	Home Energy Solutions (HES)	0	5,498,935	0	0	0	0	373,206	0	0	0	0	0	0	6,191,943	6,191,943	7,678,100
Eversource Gas	Residential	HES - HVAC	627,988	2,555,020	0	0	0	48,848	166,858	0	0	0	0	0	0	3,583,707	3,583,707	4,315,313
Eversource Gas	Residential	HES - Income Eligible	147,011	6,667,378	0	0	0	29,087	431,377	0	0	0	0	0	0	7,669,010	7,669,010	9,609,192
Eversource Gas	Residential	New Construction	482,452	1,209,230	0	0	0	35,889	68,734	0	0	0	0	0	0	1,889,777	1,889,777	2,408,120
		Subtotal Residential	1,257,451	15,990,563	0	0	0	113,824	1,040,175	0	0	0	0	0	19,334,437	19,334,437	24,010,726	
Commercial & Industrial																		
Eversource Gas	C&I	Energy Conscious Blueprint	0	0	0	0	0	0	0	0	0	0	0	0	0	9,538,785	9,538,785	11,143,044
Eversource Gas	C&I	Energy Opportunities	0	0	0	0	0	0	0	0	0	0	0	0	0	7,856,403	7,856,403	8,916,136
Eversource Gas	C&I	Small Business	0	0	0	0	0	0	0	0	0	0	0	0	0	962,439	962,439	1,097,266
Eversource Gas	C&I	Business and Energy Sustainability	0	0	0	0	0	0	0	0	0	0	0	0	0	1,801,511	1,801,511	1,973,276
		Subtotal C&I	0	0	0	0	0	0	0	0	0	0	0	0	20,159,137	20,159,137	23,129,723	
		Subtotal Load Response	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Subtotal Other	1,257,451	15,990,563	0	0	0	113,824	1,040,175	0	0	0	0	0	39,493,575	39,493,575	47,140,448	
		Total Budget	1,257,451	15,990,563	0	0	0	113,824	1,040,175	0	0	0	0	0	79,002,965	79,002,965	97,269,917	

Table C – Pie - Eversource CT Gas 2016

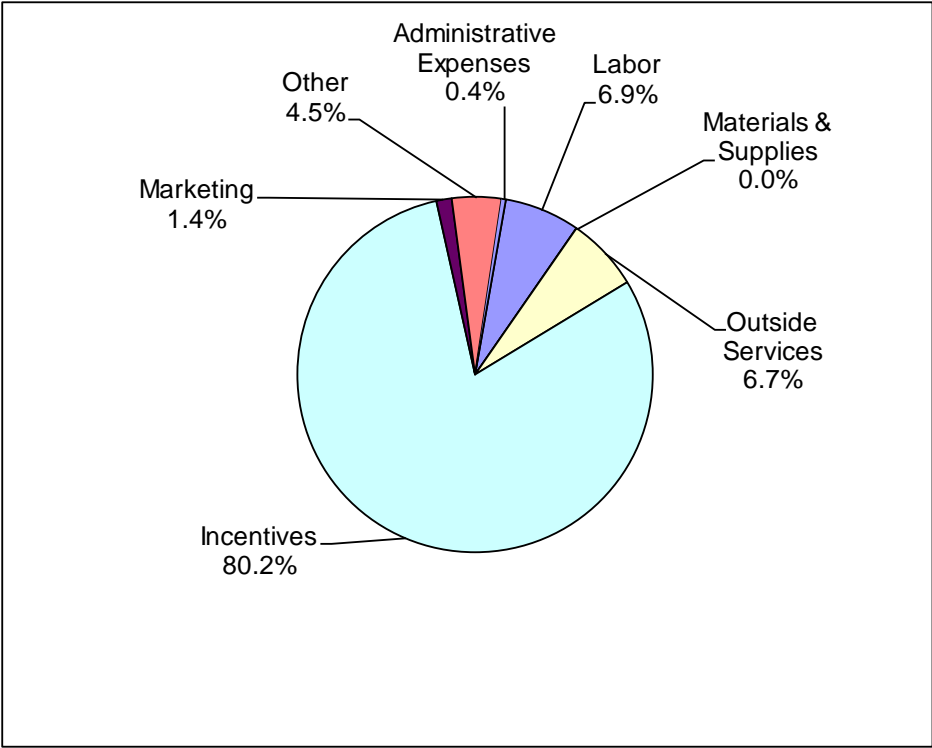
**EVERSOURCE CT ELECTRIC
2016 Gas Conservation
Budget By Expense Class**



Expense Classes	Budget	% of Budget
Labor	\$ 1,612,571	7.9%
Materials & Supplies	\$ 4,684	0.0%
Outside Services	\$ 1,640,315	8.1%
Incentives	\$ 15,738,971	77.3%
Marketing	\$ 337,058	1.7%
Other	\$ 919,255	4.5%
Administrative Expenses	\$ 99,149	<u>0.5%</u>
Total	\$ 20,352,003	100.0%

Table C – Pie - Eversource CT Gas 2017

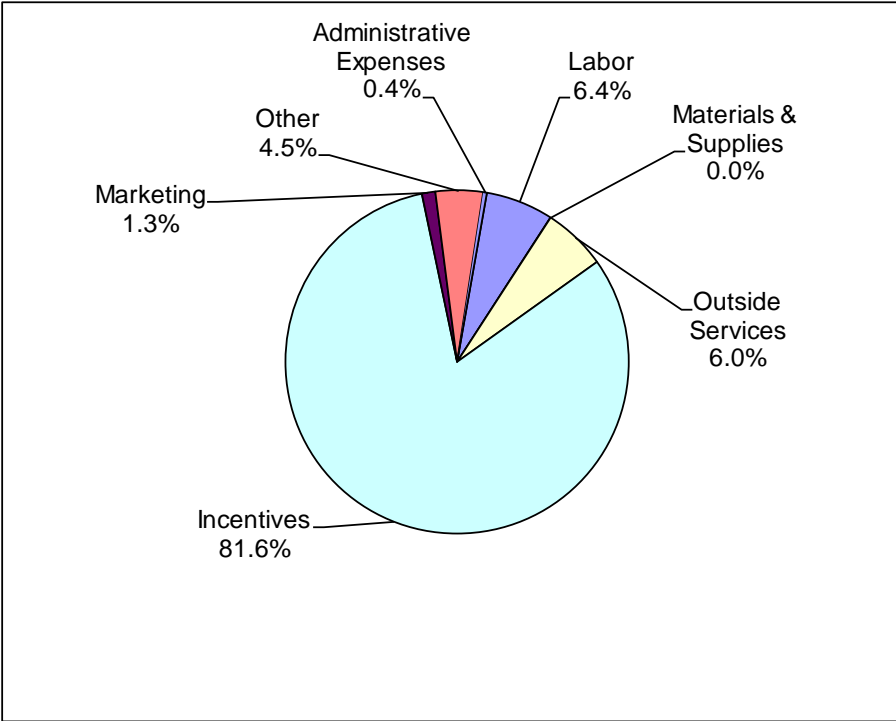
**EVERSOURCE CT ELECTRIC
2017 Gas Conservation
Budget By Expense Class**



Expense Classes	Budget	% of Budget
Labor	\$ 1,662,298	6.9%
Materials & Supplies	\$ 4,684	0.0%
Outside Services	\$ 1,615,099	6.7%
Incentives	\$ 19,418,815	80.2%
Marketing	\$ 337,058	1.4%
Other	\$ 1,085,796	4.5%
Administrative Expenses	\$ 97,182	<u>0.4%</u>
Total	\$ 24,220,932	100.0%

Table C – Pie - Eversource CT Gas 2018

**EVERSOURCE CT ELECTRIC
2018 Gas Conservation
Budget By Expense Class**



Expense Classes	Budget	% of Budget
Labor	\$ 1,711,575	6.4%
Materials & Supplies	\$ 4,684	0.0%
Outside Services	\$ 1,609,881	6.0%
Incentives	\$ 21,956,027	81.6%
Marketing	\$ 337,058	1.3%
Other	\$ 1,201,799	4.5%
Administrative Expenses	\$ 95,215	<u>0.4%</u>
Total	\$ 26,916,239	100.0%

Table D1 - Eversource CT Gas - Annual Savings (CCF) (2009-2018)

Table D1
Eversource CT Gas - Annual Savings (CCF)
Natural Gas Conservation Plan Actual/Budget

	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Budget	2016 Budget	2017 Budget	2018 Budget
Natural Gas EE Actual/Budget										
RESIDENTIAL										
Residential New Construction	31,287	41,981	47,744	38,642	53,957	89,997	118,172	133,811	133,523	133,436
Home Energy Solutions - Core Services (2016-2018)	55,728	222,581	172,026	282,453	238,395	303,919	640,369	317,366	434,345	514,652
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	-	-	-	-	-	-	-	248,874	288,186	288,186
Insulation Rebate	-	-	-	-	17,015	45,588	-	-	-	-
HES Early Retirement Furnace Rebate	-	-	-	-	7,132	48,552	-	-	-	-
Res High/Eff Natural Gas Furnace Replace Rebate	-	-	-	-	41,477	133,167	-	-	-	-
Window Rebate	-	-	-	-	2,516	5,078	-	-	-	-
Home Energy Solution (HES) - Total	55,728	222,581	172,026	282,453	306,535	536,304	640,369	566,240	722,531	802,838
HES Income Eligible	195,280	194,946	359,607	248,413	415,930	593,667	293,092	458,132	596,450	633,186
Water Heating	18,422	10,883	7,168	6,129	2,812	49,272	56,300	-	-	-
Subtotal Residential	300,717	470,401	586,545	575,637	779,234	1,269,239	1,107,934	1,157,983	1,452,504	1,569,460
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy/Conscious Blueprint	112,046	287,670	359,929	327,306	259,919	505,346	581,627	619,752	721,594	939,287
Total - Lost Opportunity	112,046	287,670	359,929	327,306	259,919	505,346	581,627	619,752	721,594	939,287
C&I LARGE RETROFIT										
Energy Opportunities	639,931	205,653	404,921	255,394	481,474	614,294	460,271	648,109	830,245	987,480
Business & Energy Sustainability (O&M, RetroCx, BSC)	6,683	66,979	15,429	52,488	53,261	164,777	230,624	322,736	331,869	355,228
Total - C&I Large Retrofit	646,614	272,632	420,350	307,882	534,735	779,072	690,894	970,845	1,162,114	1,342,706
Small Business	-	-	-	23,405	72,422	57,987	63,569	68,527	75,369	112,450
Subtotal C&I	758,660	560,302	780,279	658,593	867,076	1,342,405	1,336,091	1,659,123	1,959,077	2,394,443
PROGRAM SUBTOTALS										
Residential	300,717	470,401	586,545	575,637	779,234	1,269,239	1,107,934	1,157,983	1,452,504	1,569,460
C&I	758,660	560,302	780,279	658,593	867,076	1,342,405	1,336,091	1,659,123	1,959,077	2,394,443
Other	-	-	-	-	-	-	-	-	-	-
TOTAL	1,059,377	1,030,703	1,366,824	1,234,230	1,646,309	2,611,644	2,444,025	2,817,106	3,411,581	3,963,902

Table D2 - Eversource CT Gas - Lifetime Savings (CCF) (2009-2018)

Table D2
Eversource CT Gas - Lifetime Savings (CCF)
Natural Gas Conservation Plan Actual/Budget

Natural Gas EE Actual/Budget	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Budget	2016 Budget	2017 Budget	2018 Budget
RESIDENTIAL										
Residential New Construction	782,194	1,049,784	1,193,609	952,273	1,171,781	2,045,134	2,954,306	3,120,334	3,118,299	3,116,264
Home Energy Solutions - Core Services (2016-2018)	1,172,933	4,769,051	3,118,836	4,870,250	4,136,193	5,536,786	12,758,484	6,128,550	8,355,989	9,856,849
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	-	-	-	-	-	-	-	4,949,644	5,680,179	5,680,179
Insulation Rebate	-	-	-	-	425,386	1,139,707	-	-	-	-
HES Early Retirement Furnace Rebate	-	-	-	-	35,662	940,461	-	-	-	-
Res High Eff Natural Gas Furnace Replace Rebate	-	-	-	-	829,533	2,615,788	-	-	-	-
Window Rebate	-	-	-	-	52,674	101,568	-	-	-	-
Home Energy Solution (HES) - Total	1,172,933	4,769,051	3,118,836	4,870,250	5,479,448	10,334,310	12,758,484	11,078,195	14,035,568	15,537,028
HES Income Eligible	3,534,308	2,616,614	6,081,081	3,750,072	6,590,419	11,276,075	5,802,476	8,798,658	11,416,325	12,133,146
Water Heating	368,448	217,664	143,360	84,305	56,244	944,742	1,054,373	-	-	-
Subtotal Residential	5,857,883	8,652,113	10,536,886	9,656,900	13,297,892	24,600,260	22,569,639	22,997,187	28,570,193	30,786,438
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	1,770,613	4,371,511	5,637,483	5,074,442	4,012,514	7,665,291	8,933,764	9,509,891	11,072,637	14,413,054
Total - Lost Opportunity	1,770,613	4,371,511	5,637,483	5,074,442	4,012,514	7,665,291	8,933,764	9,509,891	11,072,637	14,413,054
C&I LARGE RETROFIT										
Energy Opportunities	9,216,030	2,347,874	4,168,922	3,017,300	5,870,925	7,136,800	5,181,622	7,515,612	9,623,237	11,442,988
Business & Energy Sustainability (O&M, RetroCx, BSC)	68,830	669,798	77,145	369,200	398,693	958,524	1,534,542	2,160,347	2,228,017	2,384,827
Total - C&I Large Retrofit	9,282,860	3,017,672	4,246,067	3,386,500	6,269,618	8,095,324	6,716,164	9,675,959	11,851,254	13,827,815
Small Business	-	-	-	290,172	835,602	683,561	715,603	849,992	934,857	1,394,802
Subtotal C&I	11,053,473	7,389,183	9,883,550	8,751,114	11,117,734	16,454,196	16,365,530	20,035,842	23,858,748	29,635,671
PROGRAM SUB TOTALS										
Residential	5,857,883	8,652,113	10,536,886	9,656,900	13,297,892	24,600,260	22,569,639	22,997,187	28,570,193	30,786,438
C&I	11,053,473	7,389,183	9,883,550	8,751,114	11,117,734	16,454,196	16,365,530	20,035,842	23,858,748	29,635,671
Other	-	-	-	-	-	-	-	-	-	-
TOTAL	16,911,356	16,041,296	20,420,436	18,408,014	24,415,626	41,054,456	38,935,169	43,033,029	52,428,941	60,422,109

Table D3 - Eversource CT Gas – Cost per Annual Savings (ccf) (2009-2018)

Table D3
Eversource CT Gas - Cost per Annual Savings (CCF)
Natural Gas Conservation Plan Actual/Budget

Natural Gas EE Actual/Budget	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Budget	2016 Budget	2017 Budget	2018 Budget
RESIDENTIAL										
Residential New Construction	\$ 10,053	\$ 10,476	\$ 16,119	\$ 6,933	\$ 3,589	\$ 7,532	\$ 8,245	\$ 8,981	\$ 8,987	\$ 8,993
Home Energy Solutions - Core Services (2016-2018)	\$ 9,254	\$ 5,892	\$ 6,959	\$ 5,798	\$ 5,626	\$ 8,378	\$ 8,406	\$ 5,269	\$ 5,374	\$ 5,058
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Insulation Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
HES Early Retirement Furnace Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Res High Eff Natural Gas Furnace Replace Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Window Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Home Energy Solution (HES) - Total	\$ 9,254	\$ 5,892	\$ 6,959	\$ 5,798	\$ 5,626	\$ 8,378	\$ 8,406	\$ 8,548	\$ 7,944	\$ 7,371
HES Income Eligible	\$ 4,874	\$ 5,412	\$ 5,268	\$ 6,779	\$ 7,546	\$ 9,458	\$ 10,972	\$ 10,963	\$ 10,925	\$ 10,781
Water Heating	\$ 5,650	\$ 5,591	\$ 6,968	\$ 9,089	\$ 14,605	\$ 6,680	\$ 6,112	\$ -	\$ -	\$ -
Subtotal Residential	\$ 6,272	\$ 6,095	\$ 6,668	\$ 6,332	\$ 6,542	\$ 8,757	\$ 8,951	\$ 9,553	\$ 9,264	\$ 8,884
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	\$ 7,180	\$ 3,481	\$ 5,597	\$ 3,811	\$ 4,432	\$ 6,005	\$ 6,097	\$ 5,928	\$ 5,977	\$ 5,997
Total - Lost Opportunity	\$ 7,180	\$ 3,481	\$ 5,597	\$ 3,811	\$ 4,432	\$ 6,005	\$ 6,097	\$ 5,928	\$ 5,977	\$ 5,997
C&I LARGE RETROFIT										
Energy Opportunities	\$ 1,633	\$ 2,392	\$ 3,951	\$ 4,437	\$ 1,808	\$ 3,343	\$ 4,457	\$ 3,398	\$ 3,416	\$ 3,451
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 2,676	\$ 1,841	\$ 1,651	\$ 1,055	\$ 1,775	\$ 1,815	\$ 2,457	\$ 1,819	\$ 1,864	\$ 1,882
Total - C&I Large Retrofit	\$ 1,644	\$ 2,257	\$ 3,866	\$ 3,861	\$ 1,805	\$ 3,020	\$ 3,789	\$ 2,873	\$ 2,973	\$ 3,036
Small Business	\$ -	\$ -	\$ -	\$ 2,805	\$ 5,839	\$ 3,768	\$ 4,191	\$ 4,027	\$ 3,980	\$ 4,002
Subtotal C&I	\$ 2,462	\$ 2,886	\$ 4,665	\$ 3,799	\$ 2,929	\$ 4,176	\$ 4,813	\$ 4,062	\$ 4,118	\$ 4,243
PROGRAM SUBTOTALS										
Residential	\$ 6,272	\$ 6,095	\$ 6,668	\$ 6,332	\$ 6,542	\$ 8,757	\$ 8,951	\$ 9,553	\$ 9,264	\$ 8,884
C&I	\$ 2,462	\$ 2,886	\$ 4,665	\$ 3,799	\$ 2,929	\$ 4,176	\$ 4,813	\$ 4,062	\$ 4,118	\$ 4,243
Other	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ 8,734	\$ 8,981	\$ 11,332	\$ 10,131	\$ 9,471	\$ 12,933	\$ 13,764	\$ 13,615	\$ 13,382	\$ 13,127

Table D4 - Eversource CT Gas - Cost per Lifetime Savings (ccf) (2009-2018)

Table D4
Eversource CT Gas - Cost per Lifetime Savings (CCF)
Natural Gas Conservation Plan Actual/Budget

Natural Gas EE Actual/Budget	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Budget	2016 Budget	2017 Budget	2018 Budget
RESIDENTIAL										
Residential New Construction	\$ 0.402	\$ 0.419	\$ 0.645	\$ 0.281	\$ 0.165	\$ 0.331	\$ 0.330	\$ 0.385	\$ 0.385	\$ 0.385
Home Energy Solutions - Core Services (2016-2018)	\$ 0.440	\$ 0.275	\$ 0.384	\$ 0.336	\$ 0.315	\$ 0.435	\$ 0.422	\$ 0.269	\$ 0.277	\$ 0.261
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Insulation Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
HES Early Retirement Furnace Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Res High Eff Natural Gas Furnace Replace Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Window Rebate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Home Energy Solution (HES) - Total	\$ 0.440	\$ 0.275	\$ 0.384	\$ 0.336	\$ 0.315	\$ 0.435	\$ 0.422	\$ 0.437	\$ 0.409	\$ 0.381
HES Income Eligible	\$ 0.269	\$ 0.403	\$ 0.312	\$ 0.449	\$ 0.476	\$ 0.498	\$ 0.554	\$ 0.571	\$ 0.571	\$ 0.563
Water Heating	\$ 0.283	\$ 0.280	\$ 0.348	\$ 0.661	\$ 0.730	\$ 0.348	\$ 0.326	\$ -	\$ -	\$ -
Subtotal Residential	\$ 0.322	\$ 0.331	\$ 0.371	\$ 0.377	\$ 0.383	\$ 0.452	\$ 0.439	\$ 0.481	\$ 0.471	\$ 0.453
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	\$ 0.454	\$ 0.229	\$ 0.357	\$ 0.246	\$ 0.287	\$ 0.396	\$ 0.397	\$ 0.386	\$ 0.390	\$ 0.391
Total - Lost Opportunity	\$ 0.454	\$ 0.229	\$ 0.357	\$ 0.246	\$ 0.287	\$ 0.396	\$ 0.397	\$ 0.386	\$ 0.390	\$ 0.391
C&I LARGE RETROFIT										
Energy Opportunities	\$ 0.113	\$ 0.210	\$ 0.384	\$ 0.376	\$ 0.148	\$ 0.288	\$ 0.396	\$ 0.293	\$ 0.295	\$ 0.492
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 0.268	\$ 0.184	\$ 0.330	\$ 0.150	\$ 0.237	\$ 0.312	\$ 0.369	\$ 0.272	\$ 0.278	\$ 0.280
Total - C&I Large Retrofit	\$ 0.115	\$ 0.204	\$ 0.383	\$ 0.351	\$ 0.154	\$ 0.291	\$ 0.390	\$ 0.288	\$ 0.292	\$ 0.295
Small Business	\$ -	\$ -	\$ -	\$ 0.226	\$ 0.506	\$ 0.315	\$ 0.372	\$ 0.325	\$ 0.321	\$ 0.323
Subtotal C&I	\$ 0.169	\$ 0.219	\$ 0.368	\$ 0.286	\$ 0.228	\$ 0.341	\$ 0.393	\$ 0.336	\$ 0.338	\$ 0.343
PROGRAM SUBTOTALS										
Residential	\$ 0.322	\$ 0.331	\$ 0.371	\$ 0.377	\$ 0.383	\$ 0.452	\$ 0.439	\$ 0.481	\$ 0.471	\$ 0.453
C&I	\$ 0.169	\$ 0.219	\$ 0.368	\$ 0.286	\$ 0.228	\$ 0.341	\$ 0.393	\$ 0.336	\$ 0.338	\$ 0.343
Other	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ 0.491	\$ 0.550	\$ 0.739	\$ 0.663	\$ 0.612	\$ 0.793	\$ 0.832	\$ 0.817	\$ 0.809	\$ 0.796

Table D5 - Eversource CT Gas - Units (2009-2018)

Table D5
Eversource CT Gas - Units
Natural Gas Conservation Plan Actual/Budget

Natural Gas EE Actual/Budget	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Budget	2016 Budget	2017 Budget	2018 Budget
RESIDENTIAL										
Residential New Construction	326	206	235	356	634	792	724	757	757	756
Home Energy Solutions - Core Services (2016-2018)	798	2,768	1,811	3,918	2,869	3,048	3,876	3,199	4,564	5,619
Home Energy Solutions - HVAC, Water Heaters (2016-2018)	-	-	-	-	-	-	-	3,587	3,723	3,723
Insulation Rebate	-	-	-	-	140	333	772	233	304	332
HES Early Retirement Furnace Rebate	-	-	-	-	34	394	1,828	-	-	-
Res High Eff Natural Gas Furnace Replace Rebate	-	-	-	-	247	1,334	713	-	-	-
Window Rebate	-	-	-	-	217	529	126	143	159	152
Home Energy Solution (HES) - Total	798	2,768	1,811	3,918	3,507	5,638	7,315	6,786	8,286	9,342
HES Income Eligible	1,932	2,497	2,347	1,579	2,052	4,070	2,633	4,741	6,297	6,609
Water Heating	303	179	128	112	54	752	1,160	-	-	-
Subtotal Residential	3,359	5,650	4,521	5,965	6,247	11,252	11,832	12,284	15,340	16,707
COMMERCIAL & INDUSTRIAL										
C&I LOST OPPORTUNITY										
Energy Conscious Blueprint	30	64	85	92	136	153	91	218	254	331
Total - Lost Opportunity	30	64	85	92	136	153	91	218	254	331
C&I LARGE RETROFIT										
Energy Opportunities	18	28	42	50	42	42	39	68	87	104
Business & Energy Sustainability (O&M, RetroCx, BSC)	1	3	1	5	4	4	18	21	22	23
Total - C&I Large Retrofit	19	31	43	55	46	63	57	89	109	127
Small Business	-	-	-	20	50	62	16	73	80	120
Subtotal C&I	49	95	128	167	232	278	164	380	443	578
PROGRAM SUBTOTALS										
Residential	3,359	5,650	4,521	5,965	6,247	11,252	11,832	12,284	15,340	16,707
C&I	49	95	128	167	232	278	164	380	443	578
Other	-	-	-	-	-	-	-	-	-	-
TOTAL	3,408	5,745	4,649	6,132	6,479	11,530	11,996	12,664	15,783	17,285

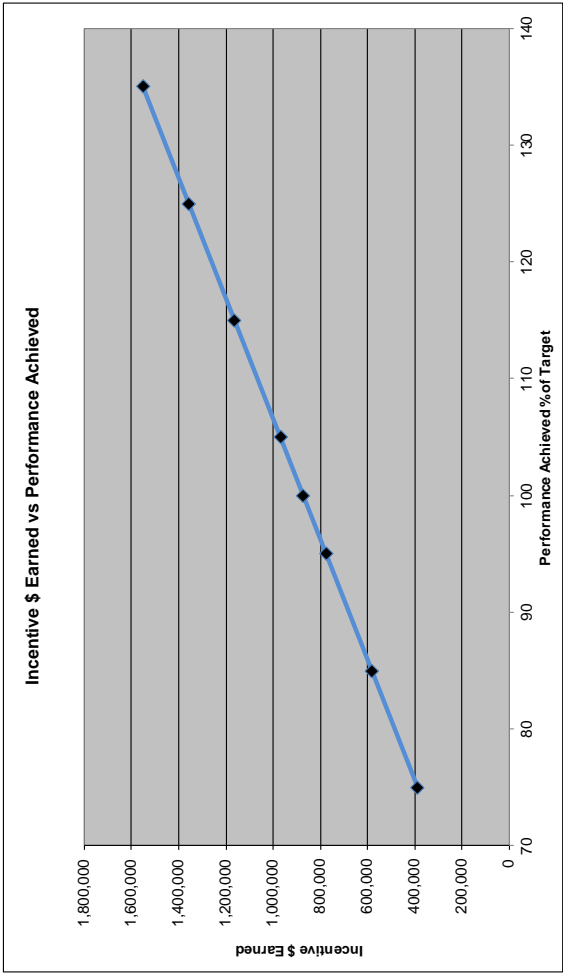
Eversource CT Gas Performance Incentive 2016

Eversource CT Gas Company
2016 Management Incentive Performance Indicators and Incentive Matrix

Eversource CT Gas and the EEB recognize that having clear indicators and metrics of performance are helpful in delivering quality programs to Connecticut consumers. The following is a table of performance and incentive metrics developed by the utilities with input from the EEB, the Board consultants and the Department. These performance and incentive metrics apply to the programs delineated in this Plan. The projected Eversource CT Gas Performance Incentive is **\$872,555** and is based on achieving **100%** of all performance targets and earning an incentive of **4.5%** of the total EE program budget of **\$19,390,100** as shown on Table A (exclusive of Energy Efficiency Board costs, Evaluation Consultant costs, Management incentives and Audit costs). The actual earned amount will be calculated on a sliding scale based on the percent of goal achieved and the actual total expenditures, based on the following performance range:

-Performance Incentive Illustration-		
<u>Performance %</u>	<u>Pre-tax Incentive</u>	<u>Pre-tax Incentive</u>
Minimum		
75	2%	\$387,802
85	3%	\$581,703
95	4%	\$775,604
100	4.5%	\$872,555
105	5%	\$969,505
115	6%	\$1,163,406
125	7%	\$1,357,307
135	8%	\$1,551,208
Maximum		
Incentive Basis Budget		\$19,390,100

Goals will be prorated based on actual over/under spend of budget in the event actual spending is over/under 5% or more of budget.



Eversource CT Gas Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators			Incentive Metrics				
	Program Name	LT-CCF	% (1)	Incentive Metric	Target Goal	Weight	Incentive	
RESIDENTIAL	\$11,062,476							
	Residential Programs (Sector Level) Sector Budget	HES Income Eligible Home Energy Solutions (HES) HES - HVAC Residential New Construction Total	8,798,658 6,128,550 4,949,644 3,120,334 22,997,187	38.26% 26.65% 21.52% 13.57%	Sum of Gas System Benefit from Residential programs	Gas System Benefit from Residential programs	0.1950	\$170,148
		Savings Rate Savings	\$0.6790 / CCF \$15,614,733					
	Net Residential Gas Benefit:	Net Residential Gas Benefit:	\$4,552,257			\$4,552,257	0.1950	\$170,148
	Home Energy Solutions	Achieve CCF savings per single family home - based on 2015 actuals adjusted to 2016 CT PSD plus 2.0%.			CCF/home	Achieve CCF savings / single family home.	0.0600	\$52,353
HES Income Eligible		Annual CCF savings		Annual CCF Savings	458,132	0.0300	\$26,176.64	

Eversource CT Gas Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics			
	Program Name	LT-CCF	Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C&I)			% (1)			
C&I Programs (Sector Level) Sector Budget	Energy Conscious Blueprint	9,509,891	47.46%	Total Gas System Benefit from C&I programs	0.2100	\$183,236
	Energy Opportunities	7,515,612	37.51%			
	Business & Energy Sustainability (O&M, RetroCx, BSC)	2,160,347	10.78%			
	Small Business	849,992	4.24%			
	Total	20,035,842				
	Savings Rate	\$0.7928	/ CCF			
	Savings	\$15,884,200				
Net C&I Gas System Benefit:			(1) percent of target goal			
	Net C&I Gas System Benefit:	\$9,145,021		\$9,145,021	0.2100	\$183,236
Small Business	\$275,993		Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	12% of signed projects	0.0500	\$43,628
Energy Conscious Blueprint /Energy Opportunities			Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	15% of signed projects	0.0500	\$43,628
Total Incentive \$ Residential and C&I					1.00000	\$872,555

Eversource CT Gas Performance Incentive 2017

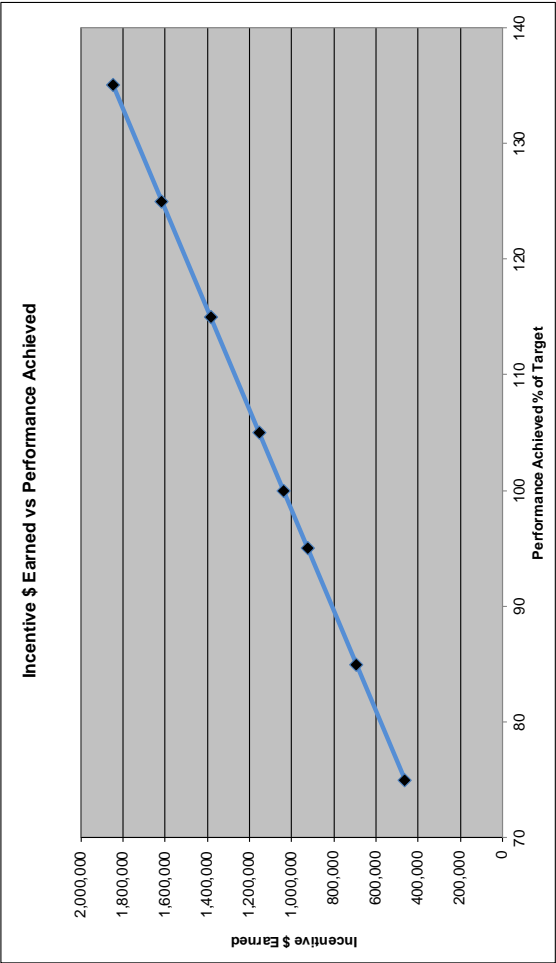
Eversource CT Gas Company

2017 Management Incentive Performance Indicators and Incentive Matrix

Eversource CT Gas and the EEB recognize that having clear indicators and metrics of performance are helpful in delivering quality programs to Connecticut consumers. The following is a table of performance and incentive metrics developed by the utilities with input from the EEB, the Board consultants and the Department. These performance and incentive metrics apply to the programs delineated in this Plan. The projected Eversource CT Gas Performance Incentive is \$1,039,096 and is based on achieving 100% of all performance targets and earning an incentive of 4.5% of the total EE program budget of \$23,091,021 as shown on Table A (exclusive of Energy Efficiency Board costs, Evaluation Consultant costs, Management incentives and Audit costs). The actual earned amount will be calculated on a sliding scale based on the percent of goal achieved and the actual total expenditures, based on the following performance range:

Performance % Minimum	-Performance Incentive Illustration- Pretax Incentive	Pre-tax Incentive
75	2%	\$461,820
85	3%	\$692,731
95	4%	\$923,641
100	4.5%	\$1,039,096
105	5%	\$1,154,551
115	6%	\$1,385,461
125	7%	\$1,616,371
135	8%	\$1,847,282
Maximum		

Incentive Basis Budget \$23,091,021
 Goals will be prorated based on actual over/under spend of budget in the event actual spending is over/under 5% or more of budget.



Eversource CT Gas Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators			Incentive Metrics			
	Program Name	LT-CCF	% (1)	Incentive Metric	Target Goal	Weight	Incentive
RESIDENTIAL Residential Programs (Sector Level) Sector Budget	\$13,456,144						
		HES Income Eligible	11,416,325	39.96%	Sum of Gas System Benefit from Residential programs	0.1950	\$202,624
		Home Energy Solutions (HES)	8,355,389	29.25%			
		HES - HVAC	5,680,179	19.88%			
		Residential New Construction	3,118,299	10.91%			
		Total	28,570,193				
		Savings Rate	\$0.6438	/ CCF			
		Savings	\$18,393,334	(1) percent of target goal			
		Net Residential Gas Benefit :	\$4,937,190				
		Achieve CCF savings per single family home - based on 2016 actuals adjusted to 2017 CT PSD plus 2.0%.					
	Annual CCF savings						
Net Residential Gas Benefit :					\$4,937,190	0.1950	\$202,624
Home Energy Solutions	\$5,739,730			CCF/home	Achieve CCF savings / single family home.	0.0600	\$62,346
HES Income Eligible	\$6,516,414			Annual CCF Savings	596,450	0.0300	\$31,172.88

Eversource CT Gas Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics				
	Program Name	LT-CCF	Incentive Metric	Target Goal	Weight	Incentive	
COMMERCIAL & INDUSTRIAL (C&I)			% (1)				
		Energy Conscious Blueprint	11,072,637	Total Gas System Benefit from C&I programs	Gas System Benefit from C&I programs	0.2100	\$218,210
	C&I Programs (Sector Level) Sector Budget	Energy Opportunities	9,623,237	46.41%	\$17,150,651		
		Business & Energy Sustainability (O&M, RetroCx, BSC)	2,228,017	40.33%			
		Small Business	934,857	9.34%			
		Total	23,858,748	3.92%			
		Savings Rate	\$0.7188 / CCF				
		Savings	\$17,150,651				
		(1) percent of target goal					
	Net C&I Gas System Benefit:	Net C&I Gas System Benefit:	\$9,082,816		\$9,082,816	0.2100	\$218,210
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		% of Gas Projects	15% of signed projects	0.0500	\$51,955	
Energy Conscious Blueprint /Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		% of Gas Projects	20% of signed projects	0.0500	\$51,955	
Total Incentive \$ Residential and C&I					1.00000	\$1,039,096	

Eversource CT Gas Performance Incentive 2018

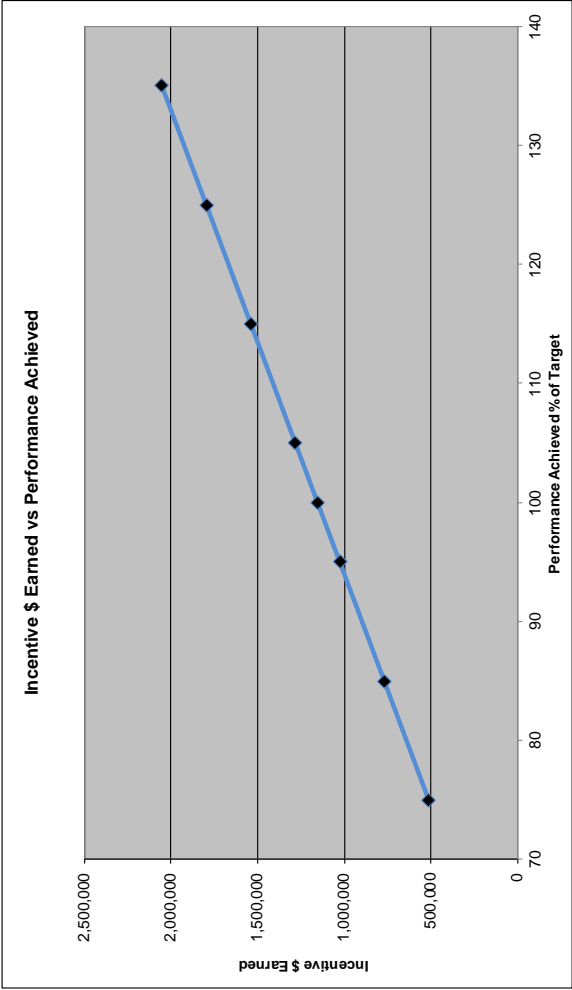
Eversource CT Gas Company

2018 Management Incentive Performance Indicators and Incentive Matrix

Eversource CT Gas and the EEB recognize that having clear indicators and metrics of performance are helpful in delivering quality programs to Connecticut consumers. The following is a table of performance and incentive metrics developed by the utilities with input from the EEB, the Board consultants and the Department. These performance and incentive metrics apply to the programs delineated in this Plan. The projected Eversource CT Gas Performance Incentive is \$1,155,099 and is based on achieving 100% of all performance targets and earning an incentive of 4.5% of the total EE program budget of \$25,688,858 as shown on Table A (exclusive of Energy Efficiency Board costs, Evaluation Consultant costs, Management incentives and Audit costs). The actual earned amount will be calculated on a sliding scale based on the percent of goal achieved and the actual total expenditures, based on the following performance range:

<u>Performance %</u> <u>Minimum</u>	<u>Performance Incentive Illustration-</u> <u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2%	\$513,377
85	3%	\$770,066
95	4%	\$1,026,754
100	4.5%	\$1,155,099
105	5%	\$1,283,443
115	6%	\$1,540,131
125	7%	\$1,796,820
135	8%	\$2,053,509
Maximum		

Incentive Basis Budget \$25,688,858
 Goals will be prorated based on a actual over/under spend of budget in the event actual spending is over/under 5% or more of budget.



Eversource CT Gas Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators			Incentive Metrics						
	Program Name	LT-CCF	% (1)	Incentive Metric	Target Goal	Weight	Incentive			
RESIDENTIAL Residential Programs (Sector Level) Sector Budget	\$13,943,744									
	HES Income Eligible	12,133,146	39.41%	Sum of Gas System Benefit from Residential programs	\$19,334,438	0.1950	\$225,244			
	Home Energy Solutions (HES)	9,856,849	32.02%							
	HES - HVAC	5,680,179	18.45%							
	Residential New Construction	3,116,264	10.12%							
	Total	30,786,438								
	Savings Rate	\$0.6280	/ CCF							
	Savings	\$19,334,438								
	(1) percent of target goal									
	Net Residential Gas Benefit :	\$5,390,694							\$5,390,694	0.1950
Home Energy Solutions	\$5,917,330	Achieve CCF savings per single family home - based on 2017 actuals adjusted to 2018 CT PSD plus 2.0%.						CCF/home	Achieve CCF savings / single family home.	0.0600
HES Income Eligible	\$6,826,414	Annual CCF savings		Annual CCF Savings	633,186	0.0300	\$34,652.96			

Eversource CT Gas Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators		Incentive Metrics				
	Program Name	LT-CCF	% (1)	Incentive Metric	Target Goal	Weight	Incentive
COMMERCIAL & INDUSTRIAL (C&I)	\$10,159,477	14,413,054	48.63%	Total Gas System Benefit from C&I programs	Gas System Benefit from C&I programs	0.2100	\$242,571
	C&I Programs (Sector Level) Sector Budget	11,442,988	38.61%		\$20,159,137		
	Energy Conscious Blueprint	2,384,827	8.05%				
	Energy Opportunities	1,394,802	4.71%				
	Business & Energy Sustainability (O&M, RetroCx, BSC)	29,635,671					
	Small Business						
	Savings Rate	\$0.6802	/ CCF				
	Savings	\$20,159,137					
	(1) percent of target goal						
Net C&I Gas System Benefit:	Net C&I Gas System Benefit:	\$9,999,660			\$9,999,660	0.2100	\$242,571
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).			% of Gas Projects	20% of signed projects	0.0500	\$57,755
Energy Conscious Blueprint /Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).			% of Gas Projects	25% of signed projects	0.0500	\$57,755
Total Incentive \$ Residential and C&I						1.00000	\$1,155,099

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CONNECTICUT NATURAL GAS BUDGET AND SAVINGS TABLES

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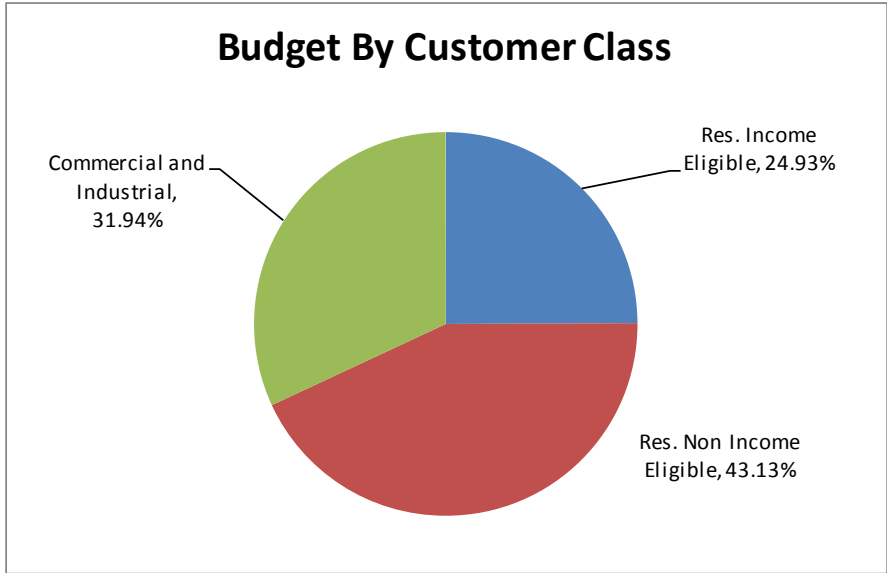
Table A – CNG Budget (2015-2018)

Table A
CNG
Proposed Natural Gas Energy Efficiency Plan Budget

Natural Gas EE Budget	2016 CNG Proposed Budget	2017 CNG Proposed Budget	2018 CNG Proposed Budget
RESIDENTIAL			
Residential New Construction	\$ 598,443	\$ 598,443	\$ 598,443
Home Energy Solutions (HES)	\$ 3,397,061	\$ 3,599,357	\$ 3,720,221
HVAC / Water Heating	\$ 1,627,741	\$ 1,657,413	\$ 1,706,155
HES Income Eligible	\$ 3,612,406	\$ 3,781,275	\$ 3,941,950
Residential Behavior	\$ 106,598	\$ 140,566	\$ 241,493
Subtotal Residential	\$ 9,342,249	\$ 9,777,054	\$ 10,208,262
COMMERCIAL & INDUSTRIAL			
C&I LOST OPPORTUNITY			
Energy Conscious Blueprint	\$ 2,196,830	\$ 2,400,256	\$ 2,519,940
Total - Lost Opportunity	\$ 2,196,830	\$ 2,400,256	\$ 2,519,940
C&I LARGE RETROFIT			
Energy Opportunities	\$ 1,249,481	\$ 1,271,145	\$ 1,334,871
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 683,000	\$ 711,300	\$ 746,206
Total - C&I Large Retrofit	\$ 1,932,481	\$ 1,982,444	\$ 2,081,077
Small Business	\$ 254,500	\$ 242,711	\$ 254,271
Subtotal C&I	\$ 4,383,811	\$ 4,625,411	\$ 4,855,288
OTHER - Education			
Educate the Public	\$ 190,067	\$ 190,067	\$ 190,067
Customer Engagement	\$ 150,000	\$ 150,000	\$ 150,000
Educate the Students	\$ 42,941	\$ 42,941	\$ 42,941
Educate the Workforce	\$ 37,256	\$ 37,256	\$ 37,256
Subtotal Education	\$ 420,264	\$ 420,264	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS			
Financing Support - Residential	\$ 186,292	\$ 186,292	\$ 186,292
Financing Support - C&I	\$ 75,000	\$ 75,000	\$ 75,000
Research, Development and Demonstration	\$ 50,000	\$ 50,000	\$ 50,000
Subtotal Programs/Requirements	\$ 311,292	\$ 311,292	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING			
Administration	\$ 121,329	\$ 121,329	\$ 121,329
Marketing Plan	\$ 81,058	\$ 81,058	\$ 81,058
Planning	\$ 80,000	\$ 80,000	\$ 80,000
Evaluation Measurement and Verification	\$ 266,667	\$ 280,000	\$ 293,333
Evaluation Administrator	\$ 29,333	\$ 30,800	\$ 32,267
Information Technology	\$ 133,333	\$ 133,333	\$ 133,333
Energy Efficiency Board Consultants	\$ 50,015	\$ 50,015	\$ 50,015
Audits - Financial and Operational	\$ 10,000	\$ 10,000	\$ 10,000
Performance Management Incentive	\$ 681,300	\$ 712,338	\$ 742,687
Subtotal Other - Administrative & Planning	\$ 1,453,035	\$ 1,498,873	\$ 1,544,022
PROGRAM SUBTOTALS			
Residential	\$ 9,861,402	\$ 10,296,207	\$ 10,727,414
C&I	\$ 4,627,272	\$ 4,868,872	\$ 5,098,750
Other	\$ 1,421,977	\$ 1,467,815	\$ 1,512,964
TOTAL	\$ 15,910,651	\$ 16,632,894	\$ 17,339,128

Table A – Pie - CNG 2016

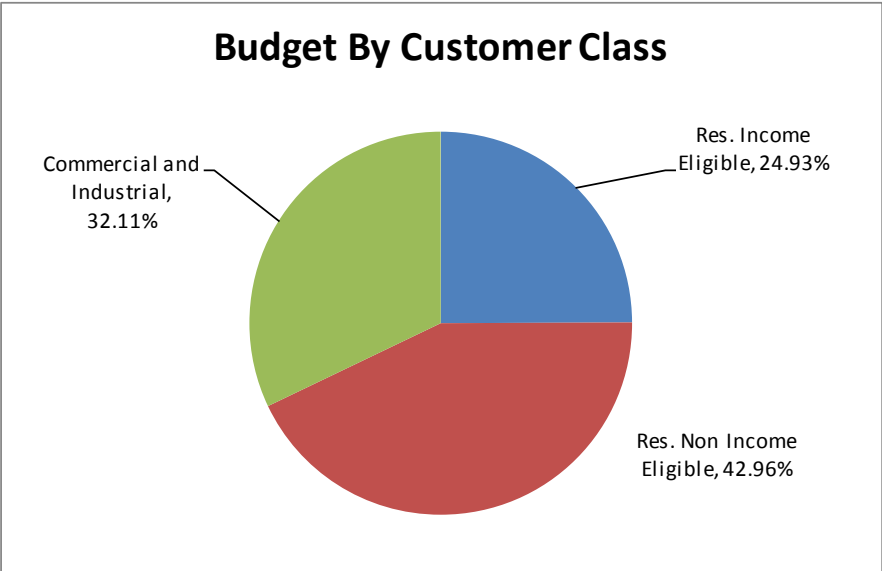
CNG 2016 Budget Analysis



Customer Class	Budget	% of Total Conservation Budget	% of Residential & C&I Budget
Res. Income Eligible	\$3,612,406	22.70%	24.93%
Res. Non Income Eligible	\$6,248,996	39.28%	43.13%
Residential Subtotal	\$9,861,402	61.98%	68.06%
Commercial and Industrial	\$4,627,272	29.08%	31.94%
C&I Subtotal	\$4,627,272	29.08%	31.94%
Residential and C&I Subtotal	\$14,488,674	91.06%	100.00%
Other Expenditures			
Other Expenditures	\$1,421,977	8.94%	
Other Expenditures Subtotal	\$1,421,977	8.94%	
TOTAL	\$15,910,651	100.00%	

Table A – Pie - CNG 2017

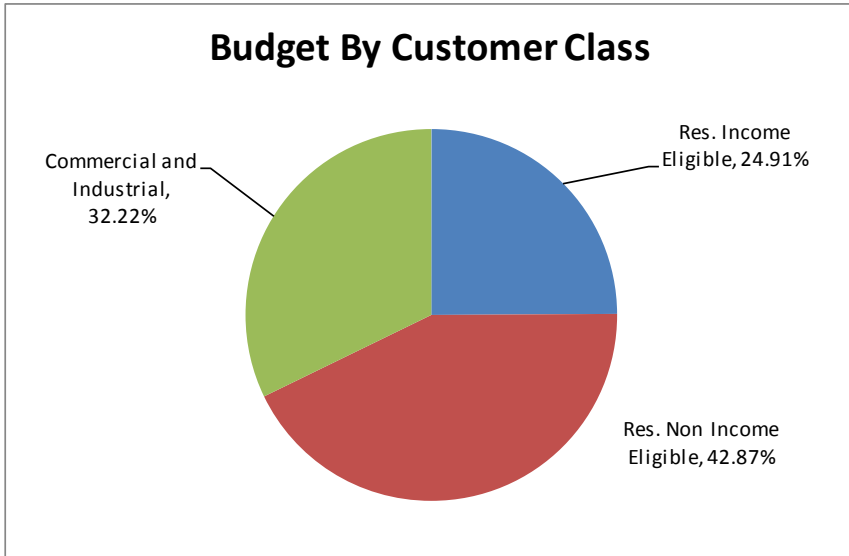
CNG 2017 Budget Analysis



Customer Class	Budget	% of Total Conservation Budget	% of Residential & C&I Budget
Res. Income Eligible	\$3,781,275	22.73%	24.93%
Res. Non Income Eligible	\$6,514,931	39.17%	42.96%
Residential Subtotal	\$10,296,207	61.90%	67.89%
Commercial and Industrial	\$4,868,872	29.27%	32.11%
C&I Subtotal	\$4,868,872	29.27%	32.11%
Residential and C&I Subtotal	\$15,165,079	91.18%	100.00%
Other Expenditures			
Other Expenditures	\$1,467,815	8.82%	
Other Expenditures Subtotal	\$1,467,815	8.82%	
TOTAL	\$16,632,894	100.00%	

Table A – Pie - CNG 2018

CNG 2018 Budget Analysis



Customer Class	Budget	% of Total Conservation Budget	% of Residential & C&I Budget
Res. Income Eligible	\$3,941,950	22.73%	24.91%
Res. Non Income Eligible	\$6,785,464	39.13%	42.87%
Residential Subtotal	\$10,727,414	61.87%	67.78%
Commercial and Industrial	\$5,098,750	29.41%	32.22%
C&I Subtotal	\$5,098,750	29.41%	32.22%
Residential and C&I Subtotal	\$15,826,164	91.27%	100.00%
Other Expenditures			
Other Expenditures	\$1,512,964	8.73%	
Other Expenditures Subtotal	\$1,512,964	8.73%	
TOTAL	\$17,339,128	100.00%	

Table B – CNG/SCG Costs and Benefits Summary 2016

Table with multiple columns: Program, Program Costs, Customer Cost, Total Resource Cost, Program Benefit, Total Resource Benefit, % of Budget, Program B/C Ratio, Total Resource B/C Ratio, Goals/ # Units, Units of Measure, Annualized Savings (ccf), Lifetime Savings (ccf), Peak Day Savings (ccf). Rows include Residential, Commercial and Industrial C&I Lost Opportunity, Commercial and Industrial Large Retrofit, Other Programs/Requirements, and Program Subtotals.

Table B – CNG/SCG Costs and Benefits Summary 2018 (cont)

Table B
2018 COMPARISON OF ENERGY EFFICIENCY PROGRAMS

Program	Peak Day Savings (ccf)	Annual Cost Rate (\$/ccf)	Lifetime Cost Rate (\$/ccf)	Annualized Savings Oil (gallons)	Lifetime Savings Oil (gallons)	Annualized Propane (gallons)	Lifetime Propane (gallons)	Annual MMBTU	Lifetime MMBTU	Cost per Annual MMBTU	Cost per Lifetime MMBTU
RESIDENTIAL											
CNG HES Income Eligible	4,193	\$ 11.66	\$ 0.54					34,774	748,300	\$ 113.36	\$ 5.27
SCG HES Income Eligible	3,937	\$ 11.52	\$ 0.53					32,600	714,804	\$ 111.94	\$ 5.11
Sub Total HES Income Eligible	8,131	\$ 11.59	\$ 0.53	0	0	0	0	67,374	1,463,104	\$ 112.67	\$ 5.19
CNG Home Energy Solutions	7,709	\$ 8.35	\$ 0.47	0	0	0	0	45,837	814,438	\$ 81.16	\$ 4.57
SCG Home Energy Solutions	4,866	\$ 8.50	\$ 0.49	0	0	0	0	26,617	462,096	\$ 82.64	\$ 4.76
Sub Total Home Energy Solutions	12,574	\$ 8.41	\$ 0.48	0	0	0	0	72,454	1,276,534	\$ 81.70	\$ 4.64
CNG HVAC / Water Heating	1,665	\$ 7.33	\$ 0.37					23,954	474,169	\$ 71.23	\$ 3.60
SCG HVAC / Water Heating	2,950	\$ 7.27	\$ 0.37					26,557	525,929	\$ 70.67	\$ 3.57
Sub Total HVAC / Water Heating	4,615	\$ 7.30	\$ 0.37	0	0	0	0	50,511	1,000,099	\$ 70.93	\$ 3.58
CNG Residential Behavior	0	\$ 1.96	\$ 0.93	0	0	0	0	12,682	46,925	\$ 19.04	\$ -
SCG Residential Behavior	0	\$ 1.96	\$ 0.98	0	0	0	0	12,682	25,365	\$ 19.04	\$ -
Sub Total Residential Behavior	0	\$ 1.96	\$ 0.89	0	0	0	0	25,365	72,290	\$ 19.04	\$ 6.68
CNG New Construction	895	\$ 6.05	\$ 0.26					10,173	235,383	\$ 58.83	\$ 2.54
SCG New Construction	740	\$ 9.76	\$ 0.41					7,812	187,606	\$ 94.89	\$ 4.00
Sub Total New Construction	1,635	\$ 7.68	\$ 0.33	0	0	0	0	18,085	422,989	\$ 74.61	\$ 3.19
Subtotal Residential	26,954	\$ 8.33	\$ 0.46	0	0	0	0	233,789	4,235,016	\$ 80.95	\$ 4.47
Commercial and Industrial C&I Lost Opportunity											
CNG Energy Conscious Blueprint	4,081	\$ 6.88	\$ 0.43					37,688	607,143	\$ 66.86	\$ 4.15
SCG Energy Conscious Blueprint	3,825	\$ 7.00	\$ 0.43					30,459	480,682	\$ 68.02	\$ 4.22
Sub Total Lost Opportunity	7,906	\$ 6.93	\$ 0.43	0	0	0	0	68,146	1,087,826	\$ 67.38	\$ 4.18
Commercial and Industrial Large Retrofit											
CNG Energy Opportunities	2,822	\$ 3.47	\$ 0.32					39,585	435,395	\$ 33.72	\$ 3.07
SCG Energy Opportunities	2,267	\$ 3.39	\$ 0.31					31,809	349,865	\$ 32.97	\$ 3.00
Sub Total Energy Opportunities	5,089	\$ 3.44	\$ 0.31	0	0	0	0	71,393	785,259	\$ 33.39	\$ 3.04
CNG Business & Energy Sustainability (O&M, RetroCx, BSC)	3,140	\$ 1.70	\$ 0.33					45,264	231,622	\$ 16.49	\$ 3.22
SCG Business & Energy Sustainability (O&M, RetroCx, BSC)	1,885	\$ 1.63	\$ 0.32					25,617	131,088	\$ 15.87	\$ 3.10
Sub Total O&M	5,026	\$ 1.67	\$ 0.33	0	0	0	0	70,882	362,710	\$ 16.26	\$ 3.18
CNG Small Business	520	\$ 4.61	\$ 0.31					5,671	83,901	\$ 44.84	\$ 3.03
SCG Small Business	590	\$ 4.26	\$ 0.30					7,124	100,598	\$ 41.43	\$ 2.93
Sub Total Small Business	1,109	\$ 4.42	\$ 0.31	0	0	0	0	12,795	184,499	\$ 42.94	\$ 2.98
Subtotal Commercial & Industrial	19,130	\$ 4.00	\$ 0.37	-	-	-	-	-	-	-	-
OTHER											
CNG Other Programs / Requirements											
SCG Other Programs / Requirements											
Sub Total											
CNG Other Education, Administrative & Planning											
SCG Other Education, Administrative & Planning											
Sub Total											
Subtotal Other											
PROGRAM SUBTOTALS											
CNG Residential	14,461	\$ 8.24	\$ 0.45	-	-	-	-	127,421	2,319,215	\$ 80.11	\$ 4.40
SCG Residential	12,493	\$ 8.43	\$ 0.47	-	-	-	-	106,368	1,915,801	\$ 81.96	\$ 4.55
Residential Total	26,954	\$ 8.33	\$ 0.46	-	-	-	-	233,789	4,235,016	\$ 80.95	\$ 4.47
CNG C&I	10,562	\$ 3.90	\$ 0.37	-	-	-	-	128,208	1,358,061	\$ 37.87	\$ 3.58
SCG C&I	8,568	\$ 4.14	\$ 0.37	-	-	-	-	95,009	1,072,233	\$ 40.23	\$ 3.56
C&I Total	19,130	\$ 4.00	\$ 0.37	-	-	-	-	223,217	2,430,294	\$ 38.88	\$ 3.57
CNG Other								0	0		
SCG Other								0	0		
Other Total	-	-	-	-	-	-	-	0	0	-	-
CNG TOTAL	25,024	\$ 6.98	\$ 0.49	-	-	-	-	255,629	3,677,276	\$ 67.83	\$ 4.72
SCG TOTAL	21,061	\$ 7.51	\$ 0.51	-	-	-	-	201,376	2,988,034	\$ 73.01	\$ 4.92
GRAND TOTAL	46,084	\$ 7.21	\$ 0.49	-	-	-	-	457,005	6,665,310	\$ 70.11	\$ 4.81

Table C – CNG 2016

Table C
CNG 2016 Budget Details

GAS ENERGY EFFICIENCY BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Incentives	Marketing	Administrative Expenses	TOTAL
RESIDENTIAL							
Residential New Construction	\$ 38,975	\$ 1,000	\$ 4,000	\$ 547,968	\$ 4,000	\$ 2,500	\$ 598,443
Home Energy Solutions (HES)	\$ 252,241	\$ 2,000	\$ 296,634	\$ 2,792,159	\$ 50,000	\$ 4,027	\$ 3,397,061
HVAC / Water Heating	\$ 58,566	\$ 6,300	\$ 128,000	\$ 1,411,875	\$ 20,000	\$ 3,000	\$ 1,627,741
HES Income Eligible	\$ 234,806	\$ 2,500	\$ 30,000	\$ 3,332,500	\$ 10,000	\$ 2,600	\$ 3,612,406
Residential Behavior	\$ -	\$ -	\$ 106,598	\$ -	\$ -	\$ -	\$ 106,598
Subtotal Residential	\$ 584,588	\$ 11,800	\$ 565,232	\$ 8,084,502	\$ 84,000	\$ 12,127	\$ 9,342,249
COMMERCIAL & INDUSTRIAL LOST OPPORTUNITY							
Energy Conscious Blueprint	\$ 335,000	\$ 11,177	\$ 186,889	\$ 1,641,410	\$ 11,177	\$ 11,177	\$ 2,196,830
Subtotal C&I - Lost Opportunity	\$ 335,000	\$ 11,177	\$ 186,889	\$ 1,641,410	\$ 11,177	\$ 11,177	\$ 2,196,830
COMMERCIAL & INDUSTRIAL LARGE RETROFIT							
Energy Opportunities	\$ 128,000	\$ 7,683	\$ 142,131	\$ 956,301	\$ 7,683	\$ 7,683	\$ 1,249,481
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 65,000	\$ 2,128	\$ 34,385	\$ 570,849	\$ 6,383	\$ 4,255	\$ 683,000
Subtotal C&I - Lost Opportunity	\$ 193,000	\$ 9,811	\$ 176,516	\$ 1,527,150	\$ 14,066	\$ 11,938	\$ 1,932,481
Small Business	\$ 28,000	\$ 1,273	\$ 13,280	\$ 208,129	\$ 2,545	\$ 1,273	\$ 254,500
Subtotal C&I	\$ 556,000	\$ 22,261	\$ 376,685	\$ 3,376,689	\$ 27,788	\$ 24,388	\$ 4,383,811
OTHER - PROGRAMS/REQUIREMENTS & PLANNING							
OTHER - EDUCATION							
Educate the Public	\$ 38,404	\$ 1,000	\$ 145,163	\$ -	\$ 5,000	\$ 500	\$ 190,067
Customer Engagement	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
Educate the Students	\$ 9,217	\$ 780	\$ 30,544	\$ -	\$ 1,800	\$ 600	\$ 42,941
Educate the Workforce	\$ 5,291	\$ 520	\$ 29,845	\$ -	\$ 1,200	\$ 400	\$ 37,256
Subtotal Education	\$ 52,912	\$ 2,300	\$ 355,552	\$ -	\$ 8,000	\$ 1,500	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS							
Financing Support - Residential	\$ -	\$ -	\$ 186,292	\$ -	\$ -	\$ -	\$ 186,292
Financing Support - C&I	\$ -	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ 75,000
Research, Development and Demonstration	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000
Subtotal Programs/Requirements	\$ -	\$ -	\$ 311,292	\$ -	\$ -	\$ -	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING							
Administration	\$ 100,654	\$ -	\$ 20,675	\$ -	\$ -	\$ -	\$ 121,329
Marketing Plan	\$ -	\$ -	\$ 81,058	\$ -	\$ -	\$ -	\$ 81,058
Information Technology	\$ 13,321	\$ -	\$ 120,012	\$ -	\$ -	\$ -	\$ 133,333
Planning	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000
Evaluation Measurement and Verification	\$ 20,418	\$ -	\$ 246,249	\$ -	\$ -	\$ -	\$ 266,667
Evaluation Administrator	\$ -	\$ -	\$ 29,333	\$ -	\$ -	\$ -	\$ 29,333
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 50,015	\$ -	\$ -	\$ -	\$ 50,015
Audits - Financial and Operational	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 681,300	\$ 681,300
Subtotal Other	\$ 214,393	\$ -	\$ 557,342	\$ -	\$ -	\$ 681,300	\$ 1,453,035
PROGRAM SUBTOTALS							
Residential	\$ 613,809	\$ 13,184	\$ 1,048,310	\$ 8,084,502	\$ 88,540	\$ 13,057	\$ 9,861,402
C&I	\$ 579,691	\$ 23,177	\$ 591,509	\$ 3,376,689	\$ 31,248	\$ 24,958	\$ 4,627,272
Other	\$ 214,393	\$ -	\$ 526,284	\$ -	\$ -	\$ 681,300	\$ 1,421,977
TOTAL BUDGET	\$ 1,407,893	\$ 36,361	\$ 2,166,103	\$ 11,461,191	\$ 119,788	\$ 719,315	\$ 15,910,651

Table C – CNG 2017

**Table C
CNG 2017 Budget Details**

GAS ENERGY EFFICIENCY BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Incentives	Marketing	Administrative Expenses	TOTAL
RESIDENTIAL							
Residential New Construction	\$ 38,975	\$ 1,000	\$ 4,000	\$ 547,968	\$ 4,000	\$ 2,500	\$ 598,443
Home Energy Solutions (HES)	\$ 252,241	\$ 2,000	\$ 296,634	\$ 2,994,455	\$ 50,000	\$ 4,027	\$ 3,599,357
HVAC / Water Heating	\$ 58,566	\$ 6,300	\$ 128,000	\$ 1,441,547	\$ 20,000	\$ 3,000	\$ 1,657,413
HES Income Eligible	\$ 234,806	\$ 2,500	\$ 30,000	\$ 3,501,369	\$ 10,000	\$ 2,600	\$ 3,781,275
Residential Behavior	\$ -	\$ -	\$ 140,566	\$ -	\$ -	\$ -	\$ 140,566
Subtotal Residential	\$ 584,588	\$ 11,800	\$ 599,200	\$ 8,485,339	\$ 84,000	\$ 12,127	\$ 9,777,054
COMMERCIAL & INDUSTRIAL LOST OPPORTUNITY							
Energy Conscious Blueprint	\$ 335,000	\$ 10,251	\$ 86,400	\$ 1,907,099	\$ 41,004	\$ 20,502	\$ 2,400,256
Subtotal C&I - Lost Opportunity	\$ 335,000	\$ 10,251	\$ 86,400	\$ 1,907,099	\$ 41,004	\$ 20,502	\$ 2,400,256
COMMERCIAL & INDUSTRIAL LARGE RETROFIT							
Energy Opportunities	\$ 128,000	\$ 5,000	\$ 29,114	\$ 1,074,031	\$ 30,000	\$ 5,000	\$ 1,271,145
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 65,000	\$ 5,000	\$ 45,000	\$ 578,800	\$ 10,000	\$ 7,500	\$ 711,300
Subtotal C&I - Lost Opportunity	\$ 193,000	\$ 10,000	\$ 74,114	\$ 1,652,831	\$ 40,000	\$ 12,500	\$ 1,982,445
Small Business	\$ 28,000	\$ 2,000	\$ 10,000	\$ 192,711	\$ 5,000	\$ 5,000	\$ 242,711
Subtotal C&I	\$ 556,000	\$ 22,251	\$ 170,514	\$ 3,752,641	\$ 86,004	\$ 38,002	\$ 4,625,412
OTHER - PROGRAMS/REQUIREMENTS & PLANNING							
OTHER - EDUCATION							
Educate the Public	\$ 38,404	\$ 1,000	\$ 145,163	\$ -	\$ 5,000	\$ 500	\$ 190,067
Customer Engagement	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
Educate the Students	\$ 9,217	\$ 780	\$ 30,544	\$ -	\$ 1,800	\$ 600	\$ 42,941
Educate the Workforce	\$ 5,291	\$ 520	\$ 29,845	\$ -	\$ 1,200	\$ 400	\$ 37,256
Subtotal Education	\$ 52,912	\$ 2,300	\$ 355,552	\$ -	\$ 8,000	\$ 1,500	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS							
Financing Support - Residential	\$ -	\$ -	\$ 186,292	\$ -	\$ -	\$ -	\$ 186,292
Financing Support - C&I	\$ -	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ 75,000
Research, Development and Demonstration	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000
Subtotal Programs/Requirements	\$ -	\$ -	\$ 311,292	\$ -	\$ -	\$ -	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING							
Administration	\$ 100,654	\$ -	\$ 20,675	\$ -	\$ -	\$ -	\$ 121,329
Marketing Plan	\$ -	\$ -	\$ 81,058	\$ -	\$ -	\$ -	\$ 81,058
Information Technology	\$ 13,321	\$ -	\$ 120,012	\$ -	\$ -	\$ -	\$ 133,333
Planning	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000
Evaluation Measurement and Verification	\$ 20,418	\$ -	\$ 259,582	\$ -	\$ -	\$ -	\$ 280,000
Evaluation Administrator	\$ -	\$ -	\$ 30,800	\$ -	\$ -	\$ -	\$ 30,800
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 50,015	\$ -	\$ -	\$ -	\$ 50,015
Audits - Financial and Operational	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 712,338	\$ 712,338
Subtotal Other	\$ 214,393	\$ -	\$ 572,142	\$ -	\$ -	\$ 712,338	\$ 1,498,873
PROGRAM SUBTOTALS							
Residential	\$ 613,809	\$ 13,184	\$ 1,082,278	\$ 8,485,339	\$ 88,540	\$ 13,057	\$ 10,296,207
C&I	\$ 579,691	\$ 23,167	\$ 385,338	\$ 3,752,641	\$ 89,464	\$ 38,572	\$ 4,868,873
Other	\$ 214,393	\$ -	\$ 541,084	\$ -	\$ -	\$ 712,338	\$ 1,467,815
TOTAL BUDGET	\$ 1,407,893	\$ 36,351	\$ 2,008,700	\$ 12,237,980	\$ 178,004	\$ 763,967	\$ 16,632,895

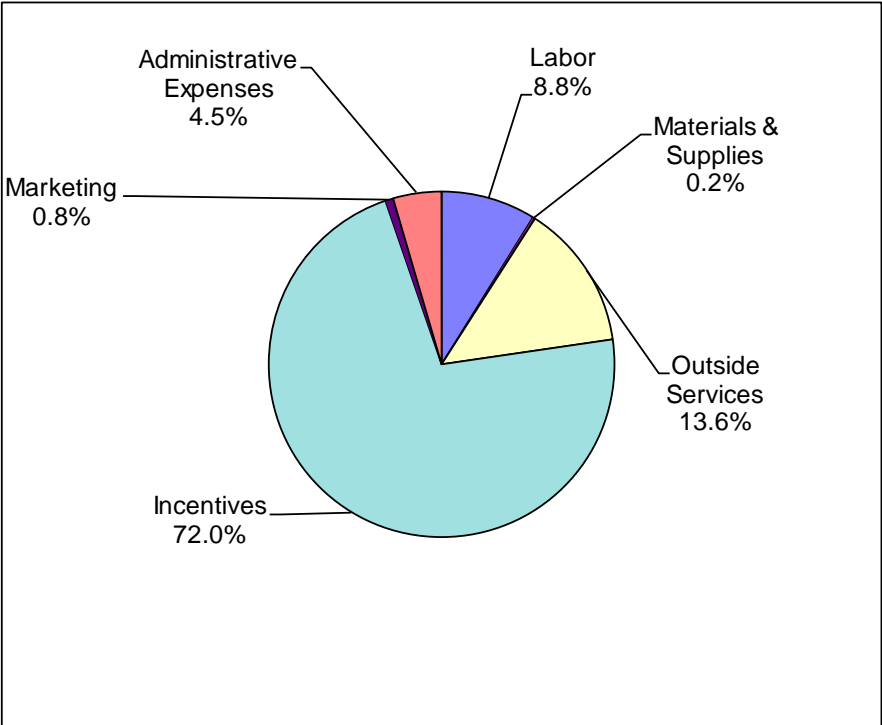
Table C – CNG 2018

Table C
CNG 2018 Budget Details

GAS ENERGY EFFICIENCY BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Incentives	Marketing	Administrative Expenses	TOTAL
RESIDENTIAL							
Residential New Construction	\$ 38,975	\$ 1,000	\$ 4,000	\$ 547,968	\$ 4,000	\$ 2,500	\$ 598,443
Home Energy Solutions (HES)	\$ 252,241	\$ 2,000	\$ 296,634	\$ 3,115,319	\$ 50,000	\$ 4,027	\$ 3,720,221
HVAC / Water Heating	\$ 58,566	\$ 6,300	\$ 128,000	\$ 1,490,289	\$ 20,000	\$ 3,000	\$ 1,706,155
HES Income Eligible	\$ 234,806	\$ 2,500	\$ 30,000	\$ 3,662,044	\$ 10,000	\$ 2,600	\$ 3,941,950
Residential Behavior	\$ -	\$ -	\$ 241,493	\$ -	\$ -	\$ -	\$ 241,493
Subtotal Residential	\$ 584,588	\$ 11,800	\$ 700,127	\$ 8,815,620	\$ 84,000	\$ 12,127	\$ 10,208,262
COMMERCIAL & INDUSTRIAL LOST OPPORTUNITY							
Energy Conscious Blueprint	\$ 335,000	\$ 10,251	\$ 86,400	\$ 2,026,783	\$ 41,004	\$ 20,502	\$ 2,519,940
Subtotal C&I - Lost Opportunity	\$ 335,000	\$ 10,251	\$ 86,400	\$ 2,026,783	\$ 41,004	\$ 20,502	\$ 2,519,940
COMMERCIAL & INDUSTRIAL LARGE RETROFIT							
Energy Opportunities	\$ 128,000	\$ 5,000	\$ 29,114	\$ 1,137,757	\$ 30,000	\$ 5,000	\$ 1,334,871
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 65,000	\$ 5,000	\$ 45,000	\$ 613,706	\$ 10,000	\$ 7,500	\$ 746,206
Subtotal C&I - Lost Opportunity	\$ 193,000	\$ 10,000	\$ 74,114	\$ 1,751,463	\$ 40,000	\$ 12,500	\$ 2,081,077
Small Business	\$ 28,000	\$ 2,000	\$ 10,000	\$ 204,271	\$ 5,000	\$ 5,000	\$ 254,271
Subtotal C&I	\$ 556,000	\$ 22,251	\$ 170,514	\$ 3,982,517	\$ 86,004	\$ 38,002	\$ 4,855,288
OTHER - PROGRAMS/REQUIREMENTS & PLANNING							
OTHER - EDUCATION							
Educate the Public	\$ 38,404	\$ 1,000	\$ 145,163	\$ -	\$ 5,000	\$ 500	\$ 190,067
Customer Engagement	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
Educate the Students	\$ 9,217	\$ 780	\$ 30,544	\$ -	\$ 1,800	\$ 600	\$ 42,941
Educate the Workforce	\$ 5,291	\$ 520	\$ 29,845	\$ -	\$ 1,200	\$ 400	\$ 37,256
Subtotal Education	\$ 52,912	\$ 2,300	\$ 355,552	\$ -	\$ 8,000	\$ 1,500	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS							
Financing Support - Residential	\$ -	\$ -	\$ 186,292	\$ -	\$ -	\$ -	\$ 186,292
Financing Support - C&I	\$ -	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ 75,000
Research, Development and Demonstration	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000
Subtotal Programs/Requirements	\$ -	\$ -	\$ 311,292	\$ -	\$ -	\$ -	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING							
Administration	\$ 100,654	\$ -	\$ 20,675	\$ -	\$ -	\$ -	\$ 121,329
Marketing Plan	\$ -	\$ -	\$ 81,058	\$ -	\$ -	\$ -	\$ 81,058
Information Technology	\$ 13,321	\$ -	\$ 120,012	\$ -	\$ -	\$ -	\$ 133,333
Planning	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000
Evaluation Measurement and Verification	\$ 20,418	\$ -	\$ 272,915	\$ -	\$ -	\$ -	\$ 293,333
Evaluation Administrator	\$ -	\$ -	\$ 32,267	\$ -	\$ -	\$ -	\$ 32,267
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 50,015	\$ -	\$ -	\$ -	\$ 50,015
Audits - Financial and Operational	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 742,687	\$ 742,687
Subtotal Other	\$ 214,393	\$ -	\$ 586,942	\$ -	\$ -	\$ 742,687	\$ 1,544,022
PROGRAM SUBTOTALS							
Residential	\$ 613,809	\$ 13,184	\$ 1,183,205	\$ 8,815,620	\$ 88,540	\$ 13,057	\$ 10,727,415
C&I	\$ 579,691	\$ 23,167	\$ 385,338	\$ 3,982,517	\$ 89,464	\$ 38,572	\$ 5,098,749
Other	\$ 214,393	\$ -	\$ 555,884	\$ -	\$ -	\$ 742,687	\$ 1,512,964
TOTAL BUDGET	\$ 1,407,893	\$ 36,351	\$ 2,124,427	\$ 12,798,137	\$ 178,004	\$ 794,316	\$ 17,339,128

Table C – Pie - CNG 2016

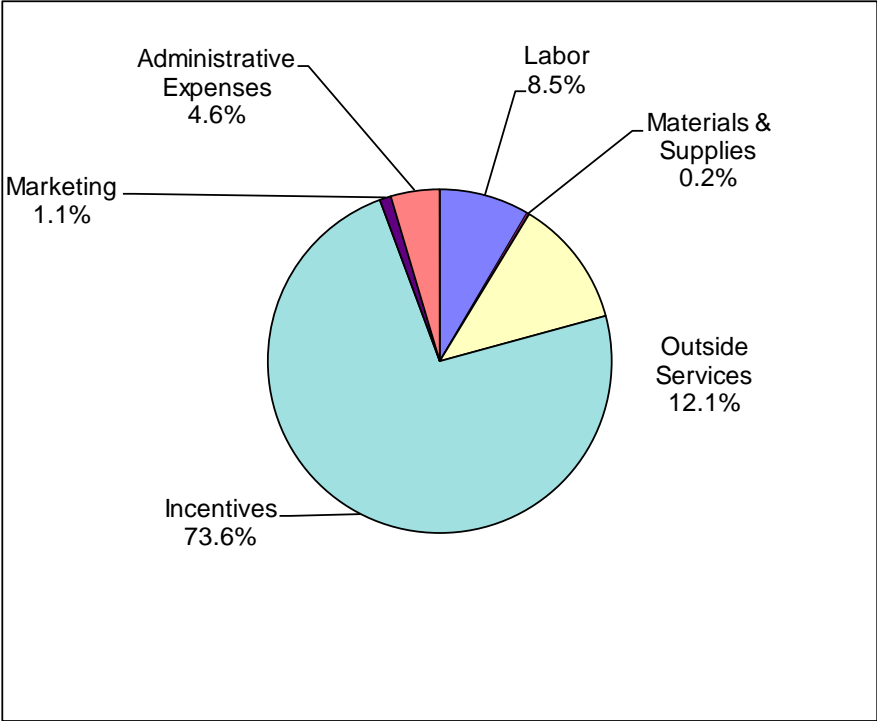
CNG
2016 Gas Energy Efficiency
Budget By Expense Class



Expense Classes	Budget	% of Budget
Labor	\$ 1,407,893	8.8%
Materials & Supplies	\$ 36,361	0.2%
Outside Services	\$ 2,166,103	13.6%
Incentives	\$ 11,461,191	72.0%
Marketing	\$ 119,788	0.8%
Administrative Expenses	\$ <u>719,315</u>	<u>4.5%</u>
Total	\$ 15,910,651	100.00%

Table C – Pie - CNG 2017

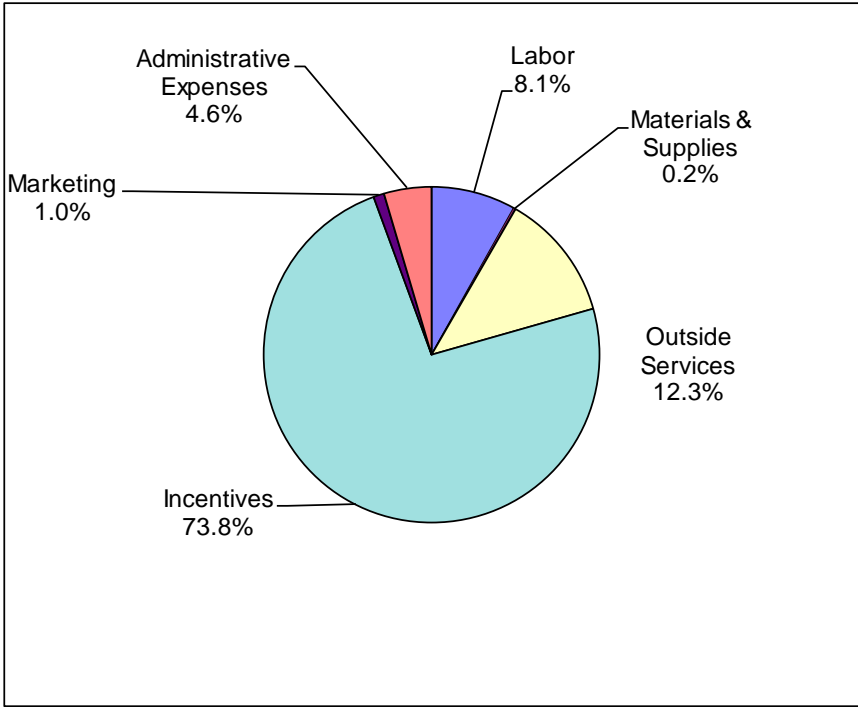
CNG
2017 Gas Energy Efficiency
Budget By Expense Class



Expense Classes	Budget	% of Budget
Labor	\$ 1,407,893	8.5%
Materials & Supplies	\$ 36,351	0.2%
Outside Services	\$ 2,008,700	12.1%
Incentives	\$ 12,237,980	73.6%
Marketing	\$ 178,004	1.1%
Administrative Expenses	\$ <u>763,967</u>	<u>4.6%</u>
Total	\$ 16,632,895	100.00%

Table C – Pie - CNG 2018

CNG
2018 Gas Energy Efficiency
Budget By Expense Class



Expense Classes	Budget	% of Budget
Labor	\$ 1,407,893	8.1%
Materials & Supplies	\$ 36,351	0.2%
Outside Services	\$ 2,124,427	12.3%
Incentives	\$ 12,798,137	73.8%
Marketing	\$ 178,004	1.0%
Administrative Expenses	\$ <u>794,316</u>	<u>4.6%</u>
Total	\$ 17,339,128	100.00%

Table D - CNG – Historical and Projected Expenditures and Units (2009-2018)

Table D
CNG Historical and Projected \$ and Units

Expenditures \$ (000)										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Actual	Actual	Actual	Actual	Actual	Actual	Goal	Goal	Goal	Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	\$ 666	\$ 805	\$ 1,035	\$ 838	\$ 904	\$ 2,912	\$ 3,157	\$ 3,612	\$ 3,781	\$ 3,942
Home Energy Solutions (HES)	\$ 520	\$ 1,368	\$ 1,518	\$ 1,548	\$ 2,014	\$ 4,584	\$ 5,663	\$ 3,397	\$ 3,599	\$ 3,720
HVAC / Water Heating	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,628	\$ 1,657	\$ 1,706
Residential New Construction	\$ 179	\$ 422	\$ 905	\$ 477	\$ 1,374	\$ 448	\$ 428	\$ 598	\$ 598	\$ 598
Residential Behavior								\$ 107	\$ 141	\$ 241
Water Heating	\$ 92	\$ 59	\$ 45	\$ 45	\$ 22	\$ 97	\$ 310			
Subtotal Residential	\$ 1,456	\$ 2,654	\$ 3,503	\$ 2,908	\$ 4,314	\$ 8,041	\$ 9,558	\$ 9,342	\$ 9,777	\$ 10,208
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	\$ 572	\$ 727	\$ 873	\$ 1,262	\$ 1,177	\$ 1,885	\$ 2,346	\$ 2,197	\$ 2,400	\$ 2,520
Total - Lost Opportunity	\$ 572	\$ 727	\$ 873	\$ 1,262	\$ 1,177	\$ 1,885	\$ 2,346	\$ 2,197	\$ 2,400	\$ 2,520
C&I LARGE RETROFIT										
Energy Opportunities	\$ 140	\$ 325	\$ 471	\$ 778	\$ 1,536	\$ 814	\$ 1,252	\$ 1,249	\$ 1,271	\$ 1,335
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 8	\$ 14	\$ 29	\$ 160	\$ 90	\$ 385	\$ 684	\$ 683	\$ 711	\$ 746
Total - C&I Large Retrofit	\$ 148	\$ 339	\$ 500	\$ 938	\$ 1,626	\$ 1,199	\$ 1,936	\$ 1,932	\$ 1,982	\$ 2,081
Small Business	\$ -	\$ -	\$ -	\$ 51	\$ 211	\$ 199	\$ 234	\$ 255	\$ 243	\$ 254
Subtotal C&I	\$ 721	\$ 1,067	\$ 1,374	\$ 2,251	\$ 3,014	\$ 3,283	\$ 4,516	\$ 4,384	\$ 4,625	\$ 4,855
PROGRAM SUB-TOTALS										
Residential	\$ 1,456	\$ 2,654	\$ 3,503	\$ 2,908	\$ 4,314	\$ 8,041	\$ 9,558	\$ 9,342	\$ 9,777	\$ 10,208
C&I	\$ 721	\$ 1,067	\$ 1,374	\$ 2,251	\$ 3,014	\$ 3,283	\$ 4,516	\$ 4,384	\$ 4,625	\$ 4,855
TOTAL	\$ 2,177	\$ 3,721	\$ 4,877	\$ 5,159	\$ 7,328	\$ 11,325	\$ 14,075	\$ 13,726	\$ 14,402	\$ 15,064

Units										
	2009	2010	2011	2012	2013	2014	2015	2016	2016	2016
	Actual	Actual	Actual	Actual	Actual	Actual	Goal	Goal	Goal	Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	1,492	1,428	1,720	1,112	800	3,766	4,917	4,259	3,829	3,860
Home Energy Solutions (HES)	1,064	3,251	1,895	2,709	4,543	4,872	4,634	4,296	5,344	5,003
HVAC / Water Heating	-	-	-	-	-	-	-	4,296	2,526	2,633
Residential New Construction	116	152	204	276	345	163	170	443	281	358
Residential Behavior								12,500	20,000	36,250
Water Heating	269	193	250	88	26	288	1,061	-	-	-
Subtotal Residential	2,941	5,024	4,069	4,185	5,714	9,089	10,782	25,793	31,980	48,104
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	26	33	46	93	125	97	61	193	224	238
Total - Lost Opportunity	26	33	46	93	125	97	61	193	224	238
C&I LARGE RETROFIT										
Energy Opportunities	12	23	44	20	24	31	25	40	45	48
Business & Energy Sustainability (O&M, RetroCx, BSC)	-	1	3	9	8	19	12	86	87	93
Total - C&I Large Retrofit	12	24	47	29	32	50	37	126	133	141
Small Business	-	-	-	9	20	24	9	66	61	65
Subtotal C&I	38	57	93	131	177	171	107	385	418	443
PROGRAM SUB-TOTALS										
Residential	2,941	5,024	4,069	4,185	5,714	9,089	10,782	25,793	31,980	48,104
C&I	38	57	93	131	177	171	107	385	418	443
TOTAL	2,979	5,081	4,162	4,316	5,891	9,260	10,889	26,178	32,398	48,547

Table D1 - CNG – Historical and Projected Annual and Lifetime Savings (CCF) (2009-2018)

Table D1
CNG Historical and Projected Annual and Lifetime ccf

Annual ccf (000)										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	136	149	211	124	95	423	308	315	325	338
Home Energy Solutions (HES)	68	267	196	269	403	607	592	409	430	445
HVAC / Water Heating	-	-	-	-	-	-	-	217	223	233
Residential New Construction	28	39	35	34	74	90	47	124	99	99
Residential Behavior								43	45	123
Water Heating	16	12	14	8	1	16	47	-	-	-
Subtotal Residential	248	467	456	435	573	1,136	995	1,109	1,122	1,238
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	89	106	154	308	399	274	393	337	359	366
Total - Lost Opportunity	89	106	154	308	399	274	393	337	359	366
C&I LARGE RETROFIT										
Energy Opportunities	72	122	140	217	403	264	312	390	389	385
Business & Energy Sustainability (O&M, RetroCx, BSC)	-	8	34	200	91	245	282	434	463	440
Total - C&I Large Retrofit	72	130	174	417	494	509	594	823	852	825
Small Business	-	-	-	19	33	14	66	57	55	55
Subtotal C&I	161	237	328	744	926	797	1,052	1,218	1,266	1,246
PROGRAM SUB-TOTALS										
Residential	248	467	456	435	573	1,136	995	1,109	1,122	1,238
C&I	161	237	328	744	926	797	1,052	1,218	1,266	1,246
TOTAL	408	703	783	1,180	1,500	1,934	2,047	2,326	2,388	2,484

Lifetime ccf (000)										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	2,161	2,062	2,752	2,500	1,612	8,285	6,054	6,594	6,973	7,272
Home Energy Solutions (HES)	1,419	5,414	3,416	4,997	7,461	12,033	11,551	7,344	7,737	7,915
HVAC / Water Heating	-	-	-	-	-	-	-	4,301	4,421	4,608
Residential New Construction	693	980	878	820	1,675	2,078	1,185	2,877	2,287	2,287
Residential Behavior								157	168	456
Water Heating	327	235	280	146	25	285	875	-	-	-
Subtotal Residential	4,599	8,691	7,325	8,463	10,773	22,681	19,665	21,273	21,586	22,539
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	1,351	1,578	2,343	4,294	6,670	4,233	6,034	5,430	5,783	5,900
Total - Lost Opportunity	1,351	1,578	2,343	4,294	6,670	4,233	6,034	5,430	5,783	5,900
C&I LARGE RETROFIT										
Energy Opportunities	832	1,439	1,483	2,094	4,517	2,793	3,517	4,270	4,273	4,231
Business & Energy Sustainability (O&M, RetroCx, BSC)	-	84	327	1,172	466	1,700	1,689	2,220	2,369	2,251
Total - C&I Large Retrofit	832	1,523	1,809	3,267	4,983	4,493	5,206	6,490	6,642	6,482
Small Business	-	-	-	193	442	217	742	860	815	815
Subtotal C&I	2,183	3,101	4,153	7,753	12,095	8,943	11,982	12,780	13,241	13,198
PROGRAM SUB-TOTALS										
Residential	4,599	8,691	7,325	8,463	10,773	22,681	19,665	21,273	21,586	22,539
C&I	2,183	3,101	4,153	7,753	12,095	8,943	11,982	12,780	13,241	13,198
TOTAL	6,782	11,792	11,478	16,216	22,868	31,624	31,647	34,053	34,827	35,736

Table D2 - CNG – Historical and Projected Annual and Lifetime Cost Rates (2009-2018)

Table D2
CNG Historical and Projected Annual and Lifetime Cost Rates

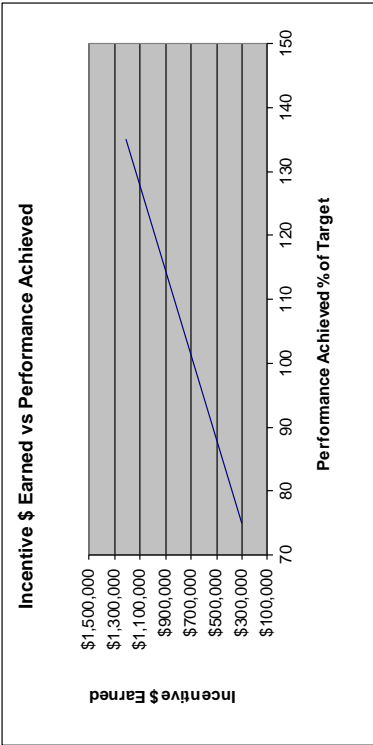
Annual \$/ccf										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Actual	Actual	Actual	Actual	Actual	Actual	Goal	Goal	Goal	Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	\$ 4.910	\$ 5.400	\$ 4.906	\$ 6.734	\$ 9.464	\$ 6.884	\$ 10.250	\$ 11.451	\$ 11.648	\$ 11.665
Home Energy Solutions (HES)	\$ 7.619	\$ 5.128	\$ 7.757	\$ 5.748	\$ 4.998	\$ 7.552	\$ 9.565	\$ 8.304	\$ 8.370	\$ 8.352
HVAC / Water Heating								\$ 7.490	\$ 7.421	\$ 7.329
Residential New Construction	\$ 6.459	\$ 10.766	\$ 25.790	\$ 14.046	\$ 18.663	\$ 4.978	\$ 9.038	\$ 4.816	\$ 6.053	\$ 6.053
Residential Behavior								\$ 2.508	\$ 3.101	\$ 1.959
Water Heating	\$ 5.632	\$ 5.068	\$ 3.218	\$ 5.900	\$ 17.200	\$ 6.013	\$ 6.521			
Subtotal Residential	\$ 5.876	\$ 5.687	\$ 7.687	\$ 6.680	\$ 7.523	\$ 7.077	\$ 9.607	\$ 8.427	\$ 8.712	\$ 8.244
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	\$ 6.453	\$ 6.834	\$ 5.688	\$ 4.093	\$ 2.950	\$ 6.880	\$ 5.973	\$ 6.518	\$ 6.686	\$ 6.880
Total - Lost Opportunity	\$ 6.453	\$ 6.834	\$ 5.688	\$ 4.093	\$ 2.950	\$ 6.880	\$ 5.973	\$ 6.518	\$ 6.686	\$ 6.880
C&I LARGE RETROFIT										
Energy Opportunities	\$ 1.955	\$ 2.669	\$ 3.352	\$ 3.585	\$ 3.811	\$ 3.083	\$ 4.011	\$ 3.208	\$ 3.268	\$ 3.470
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ -	\$ 1.706	\$ 0.876	\$ 0.799	\$ 0.989	\$ 1.571	\$ 2.431	\$ 1.574	\$ 1.536	\$ 1.696
Total - C&I Large Retrofit	\$ 2.066	\$ 2.608	\$ 2.875	\$ 2.250	\$ 3.291	\$ 2.356	\$ 3.262	\$ 2.347	\$ 2.327	\$ 2.524
Small Business	\$ -	\$ -	\$ -	\$ 2.676	\$ 6.337	\$ 13.808	\$ 3.538	\$ 4.429	\$ 4.404	\$ 4.614
Subtotal C&I	\$ 4.491	\$ 4.509	\$ 4.194	\$ 3.024	\$ 3.254	\$ 4.117	\$ 4.291	\$ 3.600	\$ 3.653	\$ 3.897
PROGRAM SUB-TOTALS										
Residential	\$ 5.876	\$ 5.687	\$ 7.687	\$ 6.680	\$ 7.523	\$ 7.077	\$ 9.607	\$ 8.427	\$ 8.712	\$ 8.244
C&I	\$ 4.491	\$ 4.509	\$ 4.194	\$ 3.024	\$ 3.254	\$ 4.117	\$ 4.291	\$ 3.600	\$ 3.653	\$ 3.897
TOTAL	\$ 5.331	\$ 5.291	\$ 6.226	\$ 4.373	\$ 4.886	\$ 5.857	\$ 6.874	\$ 5.900	\$ 6.030	\$ 6.064

Lifetime \$/ccf										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
	Actual	Actual	Actual	Actual	Actual	Actual	Goal	Goal	Goal	Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	\$ 0.308	\$ 0.390	\$ 0.376	\$ 0.335	\$ 0.561	\$ 0.351	\$ 0.521	\$ 0.548	\$ 0.542	\$ 0.542
Home Energy Solutions (HES)	\$ 0.366	\$ 0.253	\$ 0.444	\$ 0.310	\$ 0.270	\$ 0.381	\$ 0.490	\$ 0.463	\$ 0.465	\$ 0.470
HVAC / Water Heating								\$ 0.378	\$ 0.375	\$ 0.370
Residential New Construction	\$ 0.258	\$ 0.431	\$ 1.032	\$ 0.582	\$ 0.821	\$ 0.216	\$ 0.362	\$ 0.208	\$ 0.262	\$ 0.262
Residential Behavior								\$ 0.678	\$ 0.838	\$ 0.530
Water Heating	\$ 0.282	\$ 0.253	\$ 0.161	\$ 0.306	\$ 0.860	\$ 0.341	\$ 0.354			
Subtotal Residential	\$ 0.317	\$ 0.305	\$ 0.478	\$ 0.344	\$ 0.400	\$ 0.355	\$ 0.486	\$ 0.439	\$ 0.453	\$ 0.453
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	\$ 0.424	\$ 0.461	\$ 0.373	\$ 0.294	\$ 0.176	\$ 0.445	\$ 0.389	\$ 0.405	\$ 0.415	\$ 0.427
Total - Lost Opportunity	\$ 0.424	\$ 0.461	\$ 0.373	\$ 0.294	\$ 0.176	\$ 0.445	\$ 0.389	\$ 0.405	\$ 0.415	\$ 0.427
C&I LARGE RETROFIT										
Energy Opportunities	\$ 0.169	\$ 0.226	\$ 0.318	\$ 0.372	\$ 0.340	\$ 0.291	\$ 0.356	\$ 0.293	\$ 0.297	\$ 0.315
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ -	\$ 0.171	\$ 0.090	\$ 0.136	\$ 0.193	\$ 0.226	\$ 0.405	\$ 0.308	\$ 0.300	\$ 0.332
Total - C&I Large Retrofit	\$ 0.178	\$ 0.223	\$ 0.276	\$ 0.287	\$ 0.326	\$ 0.267	\$ 0.372	\$ 0.298	\$ 0.298	\$ 0.321
Small Business	\$ -	\$ -	\$ -	\$ 0.265	\$ 0.476	\$ 0.918	\$ 0.315	\$ 0.296	\$ 0.298	\$ 0.312
Subtotal C&I	\$ 0.330	\$ 0.344	\$ 0.331	\$ 0.290	\$ 0.249	\$ 0.367	\$ 0.377	\$ 0.343	\$ 0.349	\$ 0.368
PROGRAM SUB-TOTALS										
Residential	\$ 0.317	\$ 0.305	\$ 0.478	\$ 0.344	\$ 0.400	\$ 0.355	\$ 0.486	\$ 0.439	\$ 0.453	\$ 0.453
C&I	\$ 0.330	\$ 0.344	\$ 0.331	\$ 0.290	\$ 0.249	\$ 0.367	\$ 0.377	\$ 0.343	\$ 0.349	\$ 0.368
TOTAL	\$ 0.321	\$ 0.316	\$ 0.425	\$ 0.318	\$ 0.320	\$ 0.358	\$ 0.445	\$ 0.403	\$ 0.414	\$ 0.422

CNG Performance Incentive 2016

**CONNECTICUT NATURAL GAS CORPORATION
2016 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2016 Incentive Matrix with Performance Indicators. The Utility Performance Incentive is \$681,300. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including ECMB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$302,800
85	3.0%	\$454,200
95	4.0%	\$605,600
100	4.5%	\$681,300
105	5.0%	\$757,000
115	6.0%	\$908,400
125	7.0%	\$1,059,800
135	8.0%	\$1,211,200

Total Original Budget* \$15,140,003

*Does not include Incentive, ECMB costs and Audit

CNG Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
Residential Program Budgets	Lifetime Savings (ccf): HES Income Eligible Home Energy Solutions HVAC / Water Heating Residential Behavior New Construction Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	6,594,041 7,344,352 4,301,055 157,250 2,876,578 21,273,277 \$0.6594	Gas Benefit from all Residential programs \$14,027,214	0.195	\$132,854
	Total Residential Gas Benefit: \$14,027,214 Net Residential Gas Benefit: \$4,684,964				
HES	Achieve CCF savings per single family home - based on 2015 actuals adjusted to 2016 CT PSD plus 2.0%.		Achieve CCF savings / single family home.	0.060	\$-40,878
HES-IE	Annual ccf savings		315,461	0.030	\$20,439

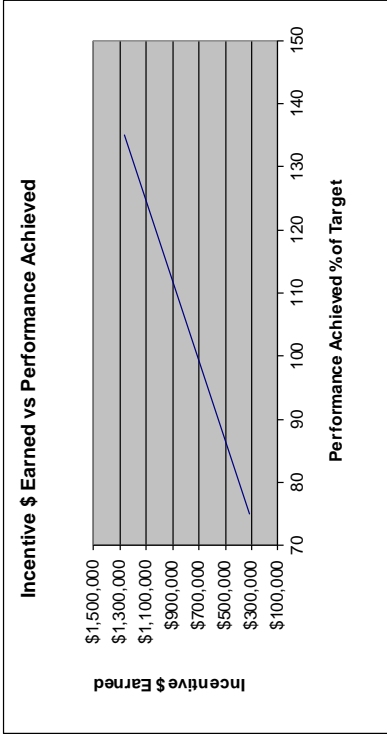
CNG Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
C&I Program Budgets	Lifetime Savings (ccf): Energy Conscious Blueprint Energy Opportunities O&M Small Business Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	5,430,039 4,270,160 2,220,022 859,932 12,780,153 \$0.7639	Gas Benefit from all C&I programs \$9,762,408	0.210	\$143,073
	Total C&I Gas Benefit: Net C&I Gas Benefit	\$9,762,408 \$5,378,597	\$5,378,597	0.210	\$143,073
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	254,500	% of Gas Projects	0.050	\$34,065
Energy Blueprint / Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		% of Gas Projects	0.050	\$34,065
Total Incentive \$ Residential and C&I				1.000	\$681,300

CNG Performance Incentive 2017

**CONNECTICUT NATURAL GAS CORPORATION
2017 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2017 Incentive Matrix with Performance Indicators. The Utility Performance Incentive is \$712,338. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including ECMB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Matrix identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$316,595
85	3.0%	\$474,892
95	4.0%	\$633,190
100	4.5%	\$712,338
105	5.0%	\$791,487
115	6.0%	\$949,784
125	7.0%	\$1,108,082
135	8.0%	\$1,266,379

Total Original Budget* \$15,829,741

*Does not include Incentive, ECMB costs and Audit

CNG Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
Residential Program Budgets	Lifetime Savings (ccf): HES Income Eligible Home Energy Solutions HVAC / Water Heating Residential Behavior New Construction Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	6,972,553 7,736,740 4,421,098 1,677,333 2,287,490 21,585,614 \$0.6265	Gas Benefit from all Residential programs \$13,522,558	0.195	\$138,906
	Total Residential Gas Benefit:	\$13,522,558			
	Net Residential Gas Benefit:	\$3,745,504	\$3,745,504	0.195	\$138,906
HES	Achieve CCF savings per single family home - based on 2016 actuals adjusted to 2017 CT PSD plus 2.0%.		Achieve CCF savings / single family home.	0.060	\$42,740
HES-JE	Annual ccf savings		324,621	0.030	\$21,370

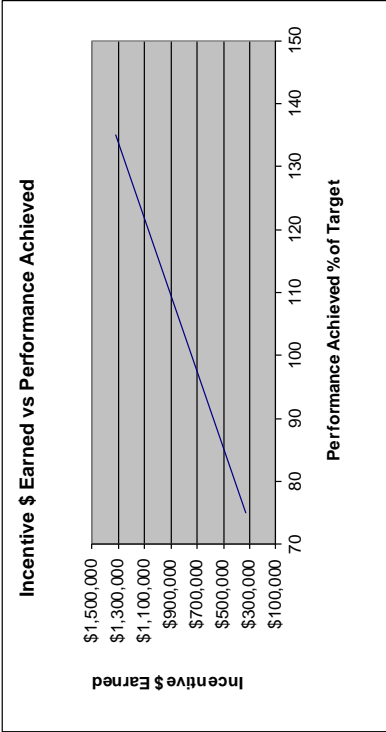
CNG Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
C&I Program Budgets	Lifetime Savings (ccf): Energy Conscious Blueprint Energy Opportunities O&M Small Business Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	5,783,231 4,273,070 2,369,414 815,366 13,241,080 \$0.7058	Gas Benefit from all C&I programs \$9,344,945	0.210	\$149,591
	Total C&I Gas Benefit: Net C&I Gas Benefit:	\$9,344,945 \$4,719,534		0.210	\$149,591
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	242,711	15% of signed projects	0.050	\$35,617
Energy Blueprint / Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		20% of signed projects	0.050	\$35,617
Total Incentive \$ Residential and C&I				1.000	\$712,338

CNG Performance Incentive 2018

**CONNECTICUT NATURAL GAS CORPORATION
2018 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2018 Incentive Matrix with Performance Indicators. The Utility Performance Incentive is \$742,687. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including ECMB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$330,083
85	3.0%	\$495,125
95	4.0%	\$660,166
100	4.5%	\$742,687
105	5.0%	\$825,208
115	6.0%	\$990,250
125	7.0%	\$1,155,291
135	8.0%	\$1,320,333

Total Original Budget* \$16,504,159

*Does not include Incentive, ECMB costs and Audit

CNG Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
Residential Program Budgets	Lifetime Savings (ccf): HES Income Eligible Home Energy Solutions HVAC / Water Heating Residential Behavior New Construction Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	7,272,109 7,914,847 4,608,060 456,025 2,287,490 22,538,530 \$0.5996	Gas Benefit from all Residential programs \$13,514,237	0.195	\$144,824
	Total Residential Gas Benefit: Net Residential Gas Benefit	\$13,514,237 \$3,305,976		0.195	\$144,824
HES	Achieve CCF savings per single family home - based on 2017 actuals adjusted to 2018 CT PSD plus 2.0%.		Achieve CCF savings / single family home.	0.060	\$44,561
HES-IE	Annual ccf savings		337,944	0.030	\$22,281

CNG Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
C&I Program Budgets	Lifetime Savings (ccf): Energy Conscious Blueprint Energy Opportunities O&M Small Business Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	4,855,288 5,900,323 4,231,242 2,250,943 815,366 13,197,874 \$0.9586	Gas Benefit from all C&I programs \$12,651,007	0.210	\$155,964
	Total C&I Gas Benefit: Net C&I Gas Benefit:	\$12,651,007 \$7,795,718		0.210	\$155,964
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	\$ 254,271	20% of signed projects	0.050	\$37,134
Energy Blueprint / Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		25% of signed projects	0.050	\$37,134
Total Incentive \$ Residential and C&I				1.000	\$742,687

SOUTHERN CONNECTICUT GAS BUDGET AND SAVINGS TABLES

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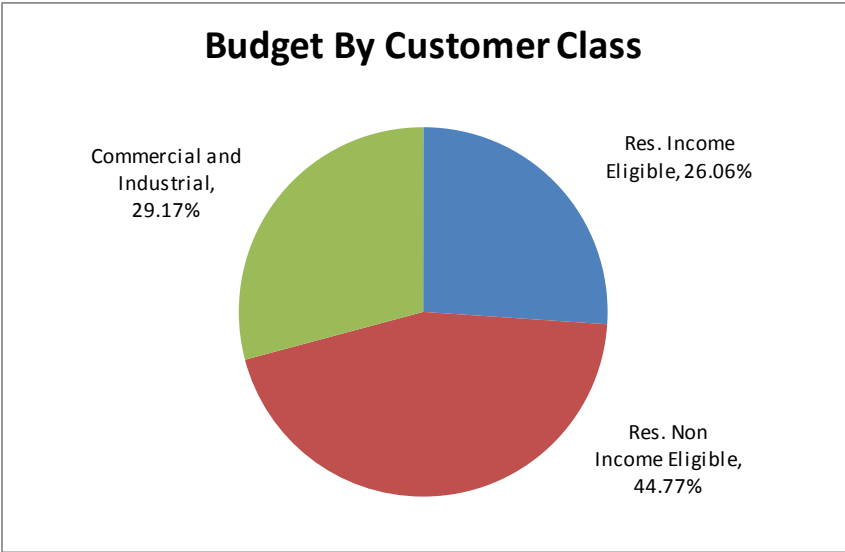
Table A – SCG Budget (2016-2018)

Table A
SCG
Proposed Natural Gas Energy Efficiency Plan Budget

Natural Gas EE Budget	2016 SCG Proposed Budget	2017 SCG Proposed Budget	2018 SCG Proposed Budget
RESIDENTIAL			
Residential New Construction	\$ 750,790	\$ 750,790	\$ 750,790
Home Energy Solutions (HES)	\$ 1,815,062	\$ 2,202,896	\$ 2,199,538
HVAC / Water Heating	\$ 1,363,782	\$ 1,775,299	\$ 1,876,688
HES Income Eligible - Weatherization	\$ 2,651,955	\$ 3,452,174	\$ 3,649,331
Residential Behavior	\$ 106,598	\$ 140,565	\$ 241,494
Subtotal Residential	\$ 6,688,187	\$ 8,321,723	\$ 8,717,841
COMMERCIAL & INDUSTRIAL			
C&I LOST OPPORTUNITY			
Energy Conscious Blueprint	\$ 1,377,048	\$ 1,957,180	\$ 2,071,892
Total - Lost Opportunity	\$ 1,377,048	\$ 1,957,180	\$ 2,071,892
C&I LARGE RETROFIT			
Energy Opportunities	\$ 850,681	\$ 990,780	\$ 1,048,767
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 251,000	\$ 384,524	\$ 406,557
Total - C&I Large Retrofit	\$ 1,101,681	\$ 1,375,304	\$ 1,455,324
Small Business	\$ 246,510	\$ 279,581	\$ 295,186
Subtotal C&I	\$ 2,725,239	\$ 3,612,065	\$ 3,822,402
OTHER - Education			
Educate the Public	\$ 190,067	\$ 190,067	\$ 190,067
Customer Engagement	\$ 150,000	\$ 150,000	\$ 150,000
Educate the Students	\$ 42,941	\$ 42,941	\$ 42,941
Educate the Workforce	\$ 37,256	\$ 37,256	\$ 37,256
Subtotal Education	\$ 420,264	\$ 420,264	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS			
Financing Support - Residential	\$ 186,292	\$ 186,292	\$ 186,292
Financing Support - C&I	\$ 75,000	\$ 75,000	\$ 75,000
Research, Development and Demonstration	\$ 50,000	\$ 50,000	\$ 50,000
Subtotal Programs/Requirements	\$ 311,292	\$ 311,292	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING			
Administration	\$ 121,329	\$ 121,329	\$ 121,329
Marketing Plan	\$ 81,058	\$ 81,058	\$ 81,058
Planning	\$ 80,000	\$ 80,000	\$ 80,000
Evaluation Measurement and Verification	\$ 266,667	\$ 280,000	\$ 293,333
Evaluation Administrator	\$ 29,333	\$ 30,800	\$ 32,267
Information Technology	\$ 133,333	\$ 133,333	\$ 133,333
Energy Efficiency Board Consultants	\$ 50,015	\$ 50,015	\$ 50,015
Audits - Financial and Operational	\$ 10,000	\$ 10,000	\$ 10,000
Performance Management Incentive	\$ 487,232	\$ 601,248	\$ 629,138
Subtotal Other - Administrative & Planning	\$ 1,258,967	\$ 1,387,783	\$ 1,430,473
PROGRAM SUBTOTALS			
Residential	\$ 7,207,339	\$ 8,840,876	\$ 9,236,994
C&I	\$ 2,968,700	\$ 3,855,526	\$ 4,065,863
Other	\$ 1,227,909	\$ 1,356,725	\$ 1,399,415
TOTAL	\$ 11,403,949	\$ 14,053,127	\$ 14,702,272

Table A – Pie - SCG 2016

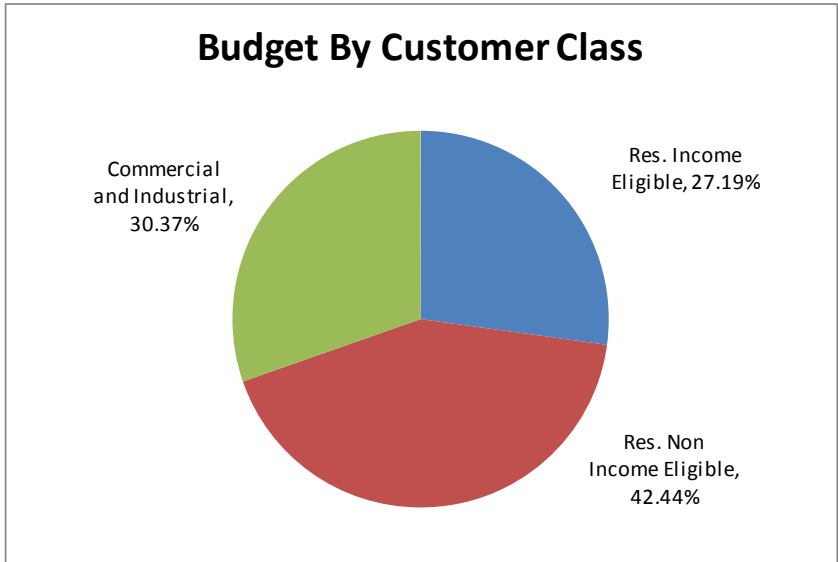
SCG 2016 Budget Analysis



Customer Class	Budget	% of Total Conservation Budget	% of Residential & C&I Budget
Res. Income Eligible	\$2,651,955	23.25%	26.06%
Res. Non Income Eligible	\$4,555,385	39.95%	44.77%
Residential Subtotal	\$7,207,339	63.20%	70.83%
Commercial and Industrial	\$2,968,700	26.03%	29.17%
C&I Subtotal	\$2,968,700	26.03%	29.17%
Residential and C&I Subtotal	\$10,176,040	89.23%	100.00%
Other Expenditures			
Other Expenditures	\$1,227,909	10.77%	
Other Expenditures Subtotal	\$1,227,909	10.77%	
TOTAL	\$11,403,949	100.00%	

Table A – Pie - SCG 2017

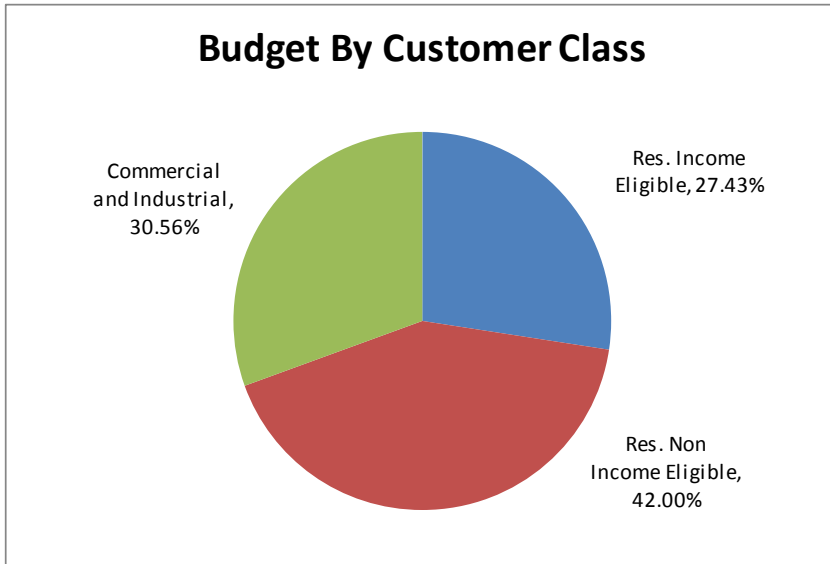
SCG 2017 Budget Analysis



Customer Class	Budget	% of Total Conservati on Budget	% of Residential & C&I Budget
Res. Income Eligible	\$3,452,174	24.57%	27.19%
Res. Non Income Eligible	\$5,388,702	38.35%	42.44%
Residential Subtotal	\$8,840,876	62.91%	69.63%
Commercial and Industrial	\$3,855,526	27.44%	30.37%
C&I Subtotal	\$3,855,526	27.44%	30.37%
Residential and C&I Subtotal	\$12,696,402	90.35%	100.00%
Other Expenditures			
Other Expenditures	\$1,356,725	9.65%	
Other Expenditures Subtotal	\$1,356,725	9.65%	
TOTAL	\$14,053,127	100.00%	

Table A – Pie - SCG 2018

SCG 2018 Budget Analysis



Customer Class	Budget	% of Total Conservati on Budget	% of Residential & C&I Budget
Res. Income Eligible	\$3,649,331	24.82%	27.43%
Res. Non Income Eligible	\$5,587,663	38.01%	42.00%
Residential Subtotal	\$9,236,994	62.83%	69.44%
Commercial and Industrial	\$4,065,863	27.65%	30.56%
C&I Subtotal	\$4,065,863	27.65%	30.56%
Residential and C&I Subtotal	\$13,302,857	90.48%	100.00%
Other Expenditures			
Other Expenditures	\$1,399,415	9.52%	
Other Expenditures Subtotal	\$1,399,415	9.52%	
TOTAL	\$14,702,272	100.00%	

Table B – CNG/SCG Costs and Benefits Summary 2016

Program	Program Costs	Customer Cost	Total Resource Cost	Program Benefit	Total Resource Benefit	% of Budget	Program B/C Ratio	Total Resource B/C Ratio	Goals/Units Measure	Annualized Savings (ccf)	Lifetime Savings (ccf)	Peak Day Savings (ccf)
RESIDENTIAL												
CNG HES Income Eligible	\$ 3,612,406	\$ -	\$ 3,612,406	\$ 4,268,490	\$ 4,573,724	22.7%	1.18	1.27	Homes	315,461	6,594,041	3,801
SCG HES Income Eligible	\$ 2,651,955	\$ -	\$ 2,651,955	\$ 3,143,111	\$ 3,344,855	23.3%	1.19	1.26	Homes	229,346	4,882,684	4,706
Sub Total HES Income Eligible	\$ 6,264,360	\$ -	\$ 6,264,360	\$ 7,411,601	\$ 7,918,579	22.9%	1.18	1.26	Homes	544,808	11,476,726	8,506
CNG Home Energy Solutions	\$ 3,397,061	\$ 1,274,519	\$ 4,671,580	\$ 4,993,045	\$ 4,994,681	21.4%	1.47	1.07	Homes	409,066	7,344,352	6,831
SCG Home Energy Solutions	\$ 1,815,062	\$ 1,038,073	\$ 2,853,135	\$ 2,879,834	\$ 2,879,819	15.9%	1.48	0.94	Homes	223,353	3,916,539	4,040
Sub Total Home Energy Solutions	\$ 5,212,123	\$ 2,312,591	\$ 7,524,715	\$ 7,873,386	\$ 7,874,500	19.1%	1.47	1.02	Homes	632,420	11,260,892	10,870
CNG HVAC /Water Heating	\$ 1,627,741	\$ 1,799,799	\$ 3,427,540	\$ 2,859,071	\$ 2,859,071	10.2%	1.76	0.83	HVAC	217,312	4,301,055	2,019
SCG HVAC /Water Heating	\$ 1,363,782	\$ 1,630,736	\$ 2,994,518	\$ 2,333,145	\$ 2,333,145	12.0%	1.71	0.78	HVAC	177,369	3,512,375	2,016
Sub Total HVAC /Water Heating	\$ 2,991,523	\$ 3,430,535	\$ 6,422,058	\$ 5,192,216	\$ 5,192,216	11.0%	1.74	0.81	HVAC	394,681	7,813,430	4,035
CNG Residential Behavior	\$ 106,598	\$ -	\$ 106,598	\$ 101,239	\$ 177,488	0.7%	0.95		Units	42,500	157,250	0
SCG Residential Behavior	\$ 106,598	\$ -	\$ 106,598	\$ 101,239	\$ 177,488	0.7%	0.95		Units	42,500	157,250	0
Sub Total Residential Behavior	\$ 213,196	\$ -	\$ 213,196	\$ 202,478	\$ 354,977	0.8%	0.95	0.95	Units	85,000	314,500	0
CNG New Construction	\$ 598,443	\$ 547,968	\$ 1,146,411	\$ 1,805,368	\$ 1,805,368	3.8%	3.02	1.57	Homes	124,268	2,876,578	1,125
SCG New Construction	\$ 750,790	\$ 708,500	\$ 1,459,290	\$ 1,118,510	\$ 1,118,510	6.6%	1.46	0.77	Homes	76,869	1,823,191	740
Sub Total New Construction	\$ 1,349,233	\$ 1,256,468	\$ 2,605,701	\$ 2,923,878	\$ 2,923,878	4.9%	2.17	1.12	Homes	201,157	4,699,768	1,864
Subtotal Residential	\$ 16,030,436	\$ 6,999,894	\$ 22,817,134	\$ 23,401,559	\$ 24,064,149	56.7%	1.46	1.05	44,300 Homes/ Units	1,858,065	35,565,316	25,276
Commercial and Industrial C&I Lost Opportunity												
CNG Energy Conscious Blueprint	\$ 2,196,930	\$ 3,868,557	\$ 6,065,487	\$ 3,747,980	\$ 3,747,980	13.8%	1.71	0.62	Projects	337,064	5,430,039	3,305
SCG Energy Conscious Blueprint	\$ 1,377,048	\$ 2,617,841	\$ 3,994,889	\$ 2,308,137	\$ 2,308,137	12.1%	1.68	0.58	Projects	207,576	3,344,008	2,220
Sub Total Lost Opportunity	\$ 3,573,878	\$ 6,486,398	\$ 10,060,376	\$ 6,056,117	\$ 6,056,117	13.1%	1.69	0.60	290 Projects	544,640	8,774,046	5,525
Commercial and Industrial Large Retrofit												
CNG Energy Opportunities	\$ 1,249,481	\$ 1,869,182	\$ 3,138,663	\$ 3,183,593	\$ 3,183,593	7.9%	2.55	1.01	Projects	369,525	4,270,160	2,372
SCG Energy Opportunities	\$ 850,681	\$ 1,317,342	\$ 2,168,023	\$ 2,215,263	\$ 2,215,263	7.5%	2.60	1.02	Projects	271,046	2,971,337	1,650
Sub Total Energy Opportunities	\$ 2,100,162	\$ 3,206,525	\$ 5,306,687	\$ 5,398,856	\$ 5,398,856	7.7%	2.57	1.02	68 Projects	660,571	7,241,497	4,022
CNG Business & Energy Sustainability(O&M, RetroC&I, BSC)	\$ 683,000	\$ 874,532	\$ 1,557,532	\$ 2,181,641	\$ 2,181,641	4.2%	3.19	1.40	Projects	433,842	2,220,022	3,097
SCG Business & Energy Sustainability(O&M, RetroC&I, BSC)	\$ 251,000	\$ 314,363	\$ 565,363	\$ 784,223	\$ 784,223	2.2%	3.12	1.39	Projects	155,951	798,019	1,113
Sub Total O&M	\$ 934,000	\$ 1,188,895	\$ 2,122,895	\$ 2,965,864	\$ 2,965,864	3.4%	3.18	1.40	117 Projects	589,793	3,018,041	4,210
CNG Small Business	\$ 254,500	\$ 888,293	\$ 1,142,793	\$ 649,193	\$ 649,193	1.6%	2.55	0.58	Projects	57,457	859,932	585
SCG Small Business	\$ 246,510	\$ 805,145	\$ 1,051,655	\$ 607,956	\$ 607,956	2.2%	2.47	0.58	Projects	57,134	806,759	487
Sub Total Small Business	\$ 501,010	\$ 1,693,437	\$ 2,194,447	\$ 1,257,149	\$ 1,257,149	1.8%	2.51	0.58	128 Projects	114,590	1,666,691	1,041
Subtotal Commercial & Industrial	\$ 7,109,050	\$ 12,545,255	\$ 19,654,305	\$ 15,677,986	\$ 15,677,986	26.0%	2.21	0.80	604 Projects	1,908,594	20,700,275	14,798
OTHER												
CNG Other Programs / Requirements	\$ 311,292	\$ -	\$ 311,292	\$ -	\$ -							
SCG Other Programs / Requirements	\$ 311,292	\$ -	\$ 311,292	\$ -	\$ -							
Sub Total	\$ 622,584	\$ -	\$ 622,584	\$ -	\$ -							
CNG Other Education, Administrative, & Planning	\$ 1,873,299	\$ -	\$ 1,873,299	\$ -	\$ -							
SCG Other Education, Administrative, & Planning	\$ 1,679,231	\$ -	\$ 1,679,231	\$ -	\$ -							
Sub Total	\$ 3,552,530	\$ -	\$ 3,552,530	\$ -	\$ -							
Subtotal Other	\$ 4,175,114	\$ -	\$ 4,175,114	\$ -	\$ -							
PROGRAM SUBTOTALS												
CNG Residential	\$ 9,342,249	\$ 3,622,285	\$ 12,964,534	\$ 14,027,214	\$ 14,410,332	58.7%				1,108,608	21,273,277	13,775
SCG Residential	\$ 6,688,187	\$ 3,377,609	\$ 10,065,796	\$ 9,374,346	\$ 9,653,817	58.6%				749,456	14,282,039	11,501
Residential Total	\$ 16,030,436	\$ 6,999,894	\$ 22,817,134	\$ 23,401,559	\$ 24,064,149	58.7%				1,858,065	35,565,316	25,276
CNG C&I	\$ 4,383,811	\$ 7,490,564	\$ 11,874,375	\$ 9,762,408	\$ 9,762,408	27.6%				1,217,888	12,780,153	9,328
SCG C&I	\$ 2,725,239	\$ 5,054,692	\$ 7,779,931	\$ 5,915,579	\$ 5,915,579	23.9%				691,706	7,920,122	5,470
C&I Total	\$ 7,109,050	\$ 12,545,255	\$ 19,654,305	\$ 15,677,986	\$ 15,677,986	26.0%				1,909,594	20,700,275	14,798
CNG Other	\$ 2,184,591	\$ -	\$ 2,184,591	\$ -	\$ -	13.7%						
SCG Other	\$ 1,990,523	\$ -	\$ 1,990,523	\$ -	\$ -	17.5%						
Other Total	\$ 4,175,114	\$ -	\$ 4,175,114	\$ -	\$ -	15.3%						
CNG TOTAL	\$ 15,910,651	\$ 11,112,849	\$ 27,023,500	\$ 23,789,821	\$ 24,172,740	58.2%				2,326,486	34,053,429	23,103
SCG TOTAL	\$ 11,403,949	\$ 8,432,300	\$ 19,836,249	\$ 15,289,924	\$ 15,669,386	41.8%				1,441,164	22,212,161	16,972
GRAND TOTAL	\$ 27,314,600	\$ 19,545,149	\$ 46,859,749	\$ 39,079,745	\$ 39,842,126	100.0%	1.43	0.94		3,767,660	56,265,591	40,075

Table B – CNG/SCG Costs and Benefits Summary 2016 (cont)

Program	Annual Cost Rate (\$/ccf)	Lifetime Cost Rate (\$/ccf)	Annualized Savings Oil (gallons)	Lifetime Savings Oil (gallons)	Annualized Savings Propane (gallons)	Lifetime Savings Propane (gallons)	Annual MMBTU	Lifetime MMBTU	Cost per Annual MMBTU	Cost per Lifetime MMBTU
RESIDENTIAL										
CNG HES Income Eligible	\$ 11.45	\$ 0.55					32,461	678,527	\$ 111.28	\$ 5.32
SCG HES Income Eligible	\$ 11.56	\$ 0.54					23,600	502,428	\$ 112.37	\$ 5.28
Sub Total HES Income Eligible	\$ 11.50	\$ 0.55	0	0	0	0	56,061	1,180,955	\$ 111.74	\$ 5.30
CNG Home Energy Solutions	\$ 8.30	\$ 0.46	0	0	0	0	42,093	755,734	\$ 80.70	\$ 4.50
SCG Home Energy Solutions	\$ 8.13	\$ 0.46	0	0	0	0	22,983	403,012	\$ 78.97	\$ 4.50
Sub Total Home Energy Solutions	\$ 8.24	\$ 0.46	0	0	0	0	65,076	1,158,746	\$ 80.09	\$ 4.50
CNG HVAC / Water Heating	\$ 7.49	\$ 0.38					22,361	442,579	\$ 72.79	\$ 3.68
SCG HVAC / Water Heating	\$ 7.69	\$ 0.39					18,251	361,423	\$ 74.72	\$ 3.77
Sub Total HVAC / Water Heating	\$ 7.58	\$ 0.38	0	0	0	0	40,613	804,002	\$ 73.66	\$ 3.72
CNG Residential Behavior	\$ 2.51	\$ 0.68	0	0	0	0	4,373	16,181	\$ 24.36	\$ -
SCG Residential Behavior	\$ 2.51	\$ 0.68	0	0	0	0	4,373	16,181	\$ 24.36	\$ -
Sub Total Residential Behavior	\$ 2.51	\$ 0.68	0	0	0	0	8,747	32,362	\$ 24.36	\$ 6.59
CNG New Construction	\$ 4.82	\$ 0.21					12,787	296,000	\$ 46.80	\$ 2.02
SCG New Construction	\$ 9.76	\$ 0.41					7,912	187,606	\$ 84.89	\$ 4.00
Sub Total New Construction	\$ 6.71	\$ 0.29	0	0	0	0	20,699	483,606	\$ 65.18	\$ 2.79
Subtotal Residential	\$ 8.63	\$ 0.45	0	0	0	0	191,195	3,659,671	\$ 83.84	\$ 4.38
Commercial and Industrial C&I Lost Opportunity										
CNG Energy/Conscious Blueprint	\$ 6.52	\$ 0.40					34,684	558,751	\$ 63.34	\$ 3.93
SCG Energy/Conscious Blueprint	\$ 6.63	\$ 0.41					21,360	344,098	\$ 64.47	\$ 4.00
Sub Total Lost Opportunity	\$ 6.56	\$ 0.41	0	0	0	0	56,043	902,849	\$ 63.77	\$ 3.96
Commercial and Industrial Large Retrofit										
CNG Energy/Opportunities	\$ 3.21	\$ 0.29					40,082	439,399	\$ 31.17	\$ 2.84
SCG Energy/Opportunities	\$ 3.14	\$ 0.29					27,891	305,751	\$ 30.50	\$ 2.78
Sub Total Energy Opportunities	\$ 3.18	\$ 0.29	0	0	0	0	67,973	745,150	\$ 30.90	\$ 2.82
CNG Business & Energy Sustainability (O&M, RetroC&I, BSC)	\$ 1.57	\$ 0.31					44,642	228,440	\$ 15.30	\$ 2.99
SCG Business & Energy Sustainability (O&M, RetroC&I, BSC)	\$ 1.61	\$ 0.31					16,047	82,116	\$ 15.64	\$ 3.06
Sub Total O&M	\$ 1.58	\$ 0.31	0	0	0	0	60,690	310,556	\$ 15.39	\$ 3.01
CNG Small Business	\$ 4.43	\$ 0.30					5,912	88,487	\$ 43.05	\$ 2.88
SCG Small Business	\$ 4.31	\$ 0.31					5,879	83,015	\$ 41.93	\$ 2.97
Sub Total Small Business	\$ 4.37	\$ 0.30	0	0	0	0	11,791	171,502	\$ 42.49	\$ 2.92
Subtotal Commercial & Industrial	\$ 3.72	\$ 0.34	-	-	-	-	-	-	-	-
OTHER										
CNG Other Programs / Requirements										
SCG Other Programs / Requirements										
Sub Total										
CNG Other Education, Administrative & Planning										
SCG Other Education, Administrative & Planning										
Sub Total										
Subtotal Other										
PROGRAM SUBTOTALS										
CNG Residential	\$ 8.43	\$ 0.44	-	-	-	-	114,076	2,189,020	\$ 81.90	\$ 4.27
SCG Residential	\$ 8.92	\$ 0.47	-	-	-	-	77,119	1,470,651	\$ 86.73	\$ 4.55
Residential Total	\$ 8.63	\$ 0.45	-	-	-	-	191,195	3,659,671	\$ 83.84	\$ 4.38
CNG C&I	\$ 3.60	\$ 0.34					125,321	1,315,078	\$ 34.98	\$ 3.33
SCG C&I	\$ 3.94	\$ 0.34					71,177	814,981	\$ 38.29	\$ 3.34
C&I Total	\$ 3.72	\$ 0.34	-	-	-	-	196,497	2,130,058	\$ 36.18	\$ 3.34
CNG Other							0	0		
SCG Other							0	0		
Other Total							0	0		
CNG TOTAL	\$ 6.84	\$ 0.47	-	-	-	-	239,396	3,504,098	\$ 66.46	\$ 4.54
SCG TOTAL	\$ 7.91	\$ 0.51	-	-	-	-	148,296	2,285,631	\$ 76.90	\$ 4.99
GRAND TOTAL	\$ 7.25	\$ 0.49	-	-	-	-	387,692	5,789,729	\$ 70.45	\$ 4.72

Table B – CNG/SCG Costs and Benefits Summary 2017

Program	Program Costs	Customer Cost	Total Resource Cost	Program Benefit	Total Resource Benefit	% of Budget	Program B/C Ratio	Total Resource B/C Ratio	Goals/ # Units	Units of Measure	Annualized Savings (ccf)	Lifetime Savings (ccf)	Peak Day Savings (ccf)
RESIDENTIAL													
CNG HES Income Eligible	\$ 3,781,275	\$ -	\$ 3,781,275	\$ 4,246,719	\$ 4,521,150	22.7%	1.12	1.20	3,829	Homes	324,621	6,972,553	4,001
SCG HES Income Eligible	\$ 3,452,174	\$ -	\$ 3,452,174	\$ 3,973,073	\$ 4,190,301	24.6%	1.15	1.21	2,823	Homes	298,922	6,553,734	3,716
Sub Total HES Income Eligible	\$ 7,233,449	\$ -	\$ 7,233,449	\$ 8,219,792	\$ 8,711,450	23.6%	1.14	1.20	6,652	Homes	623,543	13,526,287	7,717
CNG Home Energy Solutions	\$ 3,599,357	\$ 925,940	\$ 4,525,297	\$ 4,920,293	\$ 4,922,345	21.6%	1.37	1.09	5,344	Homes	430,040	7,736,740	6,742
SCG Home Energy Solutions	\$ 2,202,896	\$ 880,144	\$ 3,083,040	\$ 2,965,315	\$ 2,966,793	15.7%	1.35	0.96	3,223	Homes	259,369	4,663,963	4,197
Sub Total Home Energy Solutions	\$ 5,802,252	\$ 1,806,084	\$ 7,608,337	\$ 7,885,608	\$ 7,889,137	18.9%	1.36	1.04	8,567	Homes	689,409	12,400,703	10,939
CNG HVAC/Water Heating	\$ 1,657,413	\$ 1,813,701	\$ 3,471,114	\$ 2,768,775	\$ 2,768,775	10.0%	1.67	0.80	2,526	Rebated HVAC	223,343	4,421,098	2,603
SCG HVAC/Water Heating	\$ 1,775,299	\$ 2,226,382	\$ 4,001,681	\$ 2,954,246	\$ 2,954,246	12.6%	1.66	0.74	2,939	Rebated HVAC	238,378	4,720,787	2,779
Sub Total HVAC /Water Heating	\$ 3,432,712	\$ 4,040,082	\$ 7,472,794	\$ 5,723,021	\$ 5,723,021	11.2%	1.67	0.77	5,465	HVAC	461,722	9,141,885	5,383
CNG Residential Behavior	\$ 140,566	\$ (140,566)	\$ -	\$ 150,481	\$ 150,481	0.8%	1.07		20,000	Units	45,333	167,733	0
SCG Residential Behavior	\$ 140,566	\$ (140,566)	\$ -	\$ 111,518	\$ 111,518	1.0%	0.79		20,000	Units	45,333	90,667	0
Sub Total Residential Behavior	\$ 281,131	\$ (281,131)	\$ -	\$ 261,999	\$ 261,999	0.9%	1.00		40,000	Units	90,667	258,400	0
CNG New Construction	\$ 598,443	\$ 547,968	\$ 1,146,411	\$ 1,436,291	\$ 1,436,291	3.6%	2.40	1.25	281	Homes	98,863	2,287,490	895
SCG New Construction	\$ 750,790	\$ 708,800	\$ 1,459,590	\$ 1,118,510	\$ 1,118,510	5.3%	1.49	0.77	358	Homes	76,889	1,823,191	740
Sub Total New Construction	\$ 1,349,233	\$ 1,256,768	\$ 2,606,001	\$ 2,554,801	\$ 2,554,801	4.4%	1.89	0.98	639	Homes	175,752	4,110,681	1,635
Subtotal Residential	\$ 18,098,777	\$ 6,821,804	\$ 24,920,581	\$ 24,645,220	\$ 25,140,408	59.0%	1.36	1.01	61,323	Homes/ Units	2,041,093	39,437,956	25,673
Commercial and Industrial C&I Lost Opportunity													
CNG Energy Conscious Blueprint	\$ 2,400,256	\$ 4,488,498	\$ 6,888,753	\$ 3,806,224	\$ 3,806,224	14.4%	1.59	0.55	224	Projects	358,988	5,783,231	3,840
SCG Energy Conscious Blueprint	\$ 1,957,180	\$ 4,210,687	\$ 6,167,866	\$ 3,054,253	\$ 3,054,253	13.9%	1.56	0.50	157	Projects	288,065	4,640,675	3,595
Sub Total Lost Opportunity	\$ 4,357,435	\$ 8,699,184	\$ 13,056,620	\$ 6,860,477	\$ 6,860,477	14.2%	1.57	0.53	382	Projects	647,053	10,423,906	7,434
Commercial and Industrial Large Retrofit													
CNG Energy Opportunities	\$ 1,271,145	\$ 2,118,125	\$ 3,389,270	\$ 2,949,580	\$ 2,949,580	7.6%	2.32	0.87	45	Projects	389,000	4,273,070	2,664
SCG Energy Opportunities	\$ 990,780	\$ 1,685,450	\$ 2,676,230	\$ 2,351,539	\$ 2,351,539	7.1%	2.37	0.88	36	Projects	310,128	3,406,684	2,124
Sub Total Energy Opportunities	\$ 2,261,925	\$ 3,803,575	\$ 6,065,500	\$ 5,301,119	\$ 5,301,119	7.4%	2.34	0.87	81	Projects	699,128	7,679,754	4,787
CNG Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 711,300	\$ 886,713	\$ 1,598,013	\$ 2,013,916	\$ 2,013,916	4.3%	2.83	1.26	87	Projects	463,037	2,369,414	3,140
SCG Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 384,524	\$ 532,401	\$ 916,925	\$ 1,209,199	\$ 1,209,199	2.7%	3.14	1.32	52	Projects	278,017	1,422,647	1,885
Sub Total O&M	\$ 1,095,824	\$ 1,419,114	\$ 2,514,938	\$ 3,223,115	\$ 3,223,115	3.6%	2.94	1.28	140	Projects	741,054	3,792,061	5,026
CNG Small Business	\$ 242,711	\$ 794,711	\$ 1,037,422	\$ 575,224	\$ 575,224	1.5%	2.37	0.55	61	Projects	55,114	815,366	520
SCG Small Business	\$ 279,584	\$ 975,676	\$ 1,255,257	\$ 689,715	\$ 689,715	2.0%	2.47	0.55	76	Projects	69,235	977,632	590
Sub Total Small Business	\$ 522,295	\$ 1,770,387	\$ 2,292,679	\$ 1,264,940	\$ 1,264,940	1.7%	2.42	0.55	137	Projects	124,349	1,792,997	1,109
Subtotal Commercial & Industrial	\$ 8,237,476	\$ 15,695,261	\$ 23,932,737	\$ 16,649,650	\$ 16,649,650	26.8%	2.02	0.70	739	Projects	2,211,583	23,688,718	18,356
OTHER													
CNG Other Programs / Requirements	\$ 311,292	\$ -	\$ 311,292	\$ -	\$ -	-							
SCG Other Programs / Requirements	\$ 311,292	\$ -	\$ 311,292	\$ -	\$ -	-							
Sub Total	\$ 622,584	\$ -	\$ 622,584	\$ -	\$ -	-							
CNG Other Education, Administrative & Planning	\$ 1,919,137	\$ -	\$ 1,919,137	\$ -	\$ -	-							
SCG Other Education, Administrative & Planning	\$ 808,047	\$ -	\$ 808,047	\$ -	\$ -	-							
Sub Total	\$ 3,727,184	\$ -	\$ 3,727,184	\$ -	\$ -	-							
Subtotal Other	\$ 4,349,768	\$ -	\$ 4,349,768	\$ -	\$ -	-							
PROGRAM SUBTOTALS													
CNG Residential	\$ 9,777,054	\$ 3,147,043	\$ 12,924,097	\$ 13,522,558	\$ 13,799,041	56.8%					1,122,201	21,585,614	14,241
SCG Residential	\$ 8,321,723	\$ 3,674,761	\$ 11,996,484	\$ 11,122,662	\$ 11,341,368	59.2%					918,892	17,852,342	11,432
Residential Total	\$ 18,098,777	\$ 6,821,804	\$ 24,920,581	\$ 24,645,220	\$ 25,140,408	59.0%					2,041,093	39,437,956	25,673
CNG C&I	\$ 4,625,411	\$ 8,288,047	\$ 12,913,456	\$ 9,344,945	\$ 9,344,945	27.8%					1,266,139	13,241,080	10,163
SCG C&I	\$ 3,612,065	\$ 7,407,214	\$ 11,019,279	\$ 7,304,705	\$ 7,304,705	25.7%					945,445	10,447,638	8,193
C&I Total	\$ 8,237,476	\$ 15,695,261	\$ 23,932,737	\$ 16,649,650	\$ 16,649,650	26.8%					2,211,583	23,688,718	18,356
CNG Other	\$ 2,230,429	\$ -	\$ 2,230,429	\$ -	\$ -	13.4%							
SCG Other	\$ 2,119,339	\$ -	\$ 2,119,339	\$ -	\$ -	15.1%							
Other Total	\$ 4,349,768	\$ -	\$ 4,349,768	\$ -	\$ -	14.2%							
CNG TOTAL	\$ 16,632,894	\$ 11,435,089	\$ 28,067,983	\$ 22,867,503	\$ 23,143,985	54.2%					2,388,339	34,826,694	24,404
SCG TOTAL	\$ 14,053,127	\$ 11,081,975	\$ 25,135,102	\$ 18,427,367	\$ 18,646,073	45.8%					1,864,337	28,299,980	19,625
GRAND TOTAL	\$ 30,686,021	\$ 22,517,064	\$ 48,853,317	\$ 41,294,870	\$ 41,790,058	100.0%	1.35	0.86			4,252,676	63,126,674	44,030

Table B – CNG/SCG Costs and Benefits Summary 2017 (cont)

Table B
2017 COMPARISON OF ENERGY EFFICIENCY PROGRAMS

Program	Annual Cost Rate (\$/ccf)	Lifetime Cost Rate (\$/ccf)	Annualized Savings Oil (gallons)	Lifetime Savings Oil (gallons)	Annualized Savings Propane (gallons)	Lifetime Savings Propane (gallons)	Annual MMBTU	Lifetime MMBTU	Cost per Annual MMBTU	Cost per Lifetime MMBTU
RESIDENTIAL										
CNG HES Income Eligible	\$ 11.65	\$ 0.54					33,404	717,476	\$ 113.20	\$ 5.27
SCG HES Income Eligible	\$ 11.55	\$ 0.53					30,759	674,379	\$ 112.23	\$ 5.12
Sub Total HES Income Eligible	\$ 11.60	\$ 0.53	0	0	0	0	64,163	1,391,855	\$ 112.74	\$ 5.20
CNG Home Energy Solutions	\$ 8.37	\$ 0.47	0	0	0	0	44,251	796,111	\$ 81.34	\$ 4.52
SCG Home Energy Solutions	\$ 8.49	\$ 0.47	0	0	0	0	26,689	479,922	\$ 82.54	\$ 4.59
Sub Total Home Energy Solutions	\$ 8.42	\$ 0.47	0	0	0	0	70,940	1,276,032	\$ 81.79	\$ 4.55
CNG HVAC / Water Heating	\$ 7.42	\$ 0.37					22,982	454,931	\$ 72.12	\$ 3.64
SCG HVAC / Water Heating	\$ 7.45	\$ 0.38					24,529	485,769	\$ 72.38	\$ 3.65
Sub Total HVAC / Water Heating	\$ 7.43	\$ 0.38	0	0	0	0	47,511	940,700	\$ 72.25	\$ 3.65
CNG Residential Behavior	\$ 3.10	\$ 0.84	0	0	0	0	4,665	17,260	\$ 30.13	\$ -
SCG Residential Behavior	\$ 3.10	\$ 1.55	0	0	0	0	4,665	9,330	\$ 30.13	\$ -
Sub Total Residential Behavior	\$ 3.10	\$ 1.09	0	0	0	0	9,330	26,589	\$ 30.13	\$ 10.57
CNG New Construction	\$ 6.05	\$ 0.26					10,173	235,383	\$ 58.83	\$ 2.54
SCG New Construction	\$ 9.76	\$ 0.41					7,912	187,606	\$ 94.89	\$ 4.00
Sub Total New Construction	\$ 7.68	\$ 0.33	0	0	0	0	18,085	422,989	\$ 74.61	\$ 3.19
Subtotal Residential	\$ 8.87	\$ 0.46	0	0	0	0	210,028	4,058,166	\$ 86.17	\$ 4.46
Commercial and Industrial C&I Lost Opportunity										
CNG Energy Conscious Blueprint	\$ 6.69	\$ 0.42					36,940	595,094	\$ 64.98	\$ 4.03
SCG Energy Conscious Blueprint	\$ 6.79	\$ 0.42					29,642	477,525	\$ 66.03	\$ 4.10
Sub Total Lost Opportunity	\$ 6.73	\$ 0.42	0	0	0	0	66,582	1,072,620	\$ 65.44	\$ 4.06
Commercial and Industrial Large Retrofit										
CNG Energy Opportunities	\$ 3.27	\$ 0.30					40,028	439,699	\$ 31.76	\$ 2.89
SCG Energy Opportunities	\$ 3.19	\$ 0.29					31,912	350,548	\$ 31.05	\$ 2.83
Sub Total Energy Opportunities	\$ 3.24	\$ 0.29	0	0	0	0	71,940	790,247	\$ 31.44	\$ 2.86
CNG Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 1.54	\$ 0.30					47,647	243,813	\$ 14.93	\$ 2.92
SCG Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 1.38	\$ 0.27					28,608	146,390	\$ 13.44	\$ 2.63
Sub Total O&M	\$ 1.48	\$ 0.29	0	0	0	0	76,254	390,203	\$ 14.37	\$ 2.81
CNG Small Business	\$ 4.40	\$ 0.30					5,871	83,901	\$ 42.80	\$ 2.89
SCG Small Business	\$ 4.04	\$ 0.29					7,124	100,598	\$ 39.24	\$ 2.78
Sub Total Small Business	\$ 4.20	\$ 0.29	0	0	0	0	12,795	184,499	\$ 40.82	\$ 2.83
Subtotal Commercial & Industrial	\$ 3.72	\$ 0.35	-	-	-	-	-	-	-	-
OTHER										
CNG Other Programs / Requirements										
SCG Other Programs / Requirements										
Sub Total										
CNG Other Education, Administrative & Planning										
SCG Other Education, Administrative & Planning										
Sub Total										
Subtotal Other										
PROGRAM SUBTOTALS										
CNG Residential	\$ 8.71	\$ 0.45	-	-	-	-	115,474	2,221,160	\$ 84.67	\$ 4.40
SCG Residential	\$ 9.06	\$ 0.47	-	-	-	-	94,554	1,837,006	\$ 88.01	\$ 4.53
Residential Total	\$ 8.87	\$ 0.46	-	-	-	-	210,028	4,058,166	\$ 86.17	\$ 4.46
CNG C&I	\$ 3.65	\$ 0.35	-	-	-	-	130,286	1,362,507	\$ 35.50	\$ 3.39
SCG C&I	\$ 3.82	\$ 0.35	-	-	-	-	97,286	1,075,062	\$ 37.13	\$ 3.36
C&I Total	\$ 3.72	\$ 0.35	-	-	-	-	227,572	2,437,569	\$ 36.20	\$ 3.38
CNG Other							0	0		
SCG Other							0	0		
Other Total							0	0		
CNG TOTAL	\$ 6.96	\$ 0.48	-	-	-	-	245,760	3,583,667	\$ 67.68	\$ 4.64
SCG TOTAL	\$ 7.54	\$ 0.50	-	-	-	-	191,840	2,912,068	\$ 73.25	\$ 4.83
GRAND TOTAL	\$ 7.22	\$ 0.49	-	-	-	-	437,600	6,495,735	\$ 70.12	\$ 4.72

Table B – CNG/SCG Costs and Benefits Summary 2018

Table B
2018 COMPARISON OF ENERGY EFFICIENCY PROGRAMS

Program	Program Costs	Customer Cost	Total Resource Cost	Program Benefit	Total Resource Benefit	% of Budget	Program B/C Ratio	Total Resource B/C Ratio	Goals/ # Units	Units of Measure	Annualized Savings (ccf)	Lifetime Savings (ccf)
RESIDENTIAL												
CNG HES Income Eligible	\$ 3,941,950	\$ -	\$ 3,941,950	\$ 4,330,353	\$ 4,607,021	22.7%	1.10	1.17	3,860	Homes	337,944	7,272,109
SCG HES Income Eligible	\$ 3,649,331	\$ -	\$ 3,649,331	\$ 4,119,562	\$ 4,348,382	24.8%	1.13	1.19	2,985	Homes	316,909	6,946,593
Sub Total HES Income Eligible	\$ 7,591,281	\$ -	\$ 7,591,281	\$ 8,449,916	\$ 8,955,403	23.7%	1.11	1.18	6,845	Homes	654,753	14,218,702
CNG Home Energy Solutions	\$ 3,720,221	\$ 1,545,794	\$ 5,266,015	\$ 4,823,029	\$ 4,825,080	21.5%	1.30	0.92	5,003	Homes	445,455	7,914,847
SCG Home Energy Solutions	\$ 2,199,538	\$ 902,363	\$ 3,101,901	\$ 2,786,972	\$ 2,788,450	15.0%	1.27	0.90	3,283	Homes	258,665	4,490,732
Sub Total Home Energy Solutions	\$ 5,919,759	\$ 2,448,157	\$ 8,367,917	\$ 7,610,001	\$ 7,613,531	18.5%	1.29	0.91	8,285	Homes	704,118	12,405,579
CNG HVAC /Water Heating	\$ 1,706,155	\$ 1,911,747	\$ 3,617,902	\$ 2,821,989	\$ 2,821,989	9.8%	1.65	0.78	2,633	HVAC Rebated	232,788	4,608,080
SCG HVAC /Water Heating	\$ 1,876,688	\$ 2,455,626	\$ 4,332,313	\$ 3,936,650	\$ 3,936,650	12.8%	2.10	0.91	3,182	HVAC Rebated	258,086	5,111,071
Sub Total HVAC /Water Heating	\$ 3,582,843	\$ 4,367,373	\$ 7,950,216	\$ 6,758,639	\$ 6,758,639	11.2%	1.89	0.85	5,815	HVAC	490,874	9,719,131
CNG Residential Behavior	\$ 241,493	\$ (241,493)	\$ -	\$ 102,575	\$ 348,057	1.4%	0.42		36,250	Units	123,250	456,025
SCG Residential Behavior	\$ 241,494	\$ (241,494)	\$ -	\$ 75,144	\$ 245,251	1.6%	0.31		36,250	Units	123,250	246,500
Sub Total Residential Behavior	\$ 482,987	\$ (482,987)	\$ -	\$ 177,719	\$ 593,308	1.5%	0.37		72,500	Units	246,500	702,525
CNG New Construction	\$ 588,443	\$ 547,968	\$ 1,136,411	\$ 1,436,291	\$ 1,436,291	3.5%	2.40	1.25	358	Homes	98,863	2,287,490
SCG New Construction	\$ 750,790	\$ 708,800	\$ 1,459,590	\$ 1,118,510	\$ 1,118,510	5.1%	1.49	0.77	281	Homes	76,889	1,823,191
Sub Total New Construction	\$ 1,349,233	\$ 1,256,768	\$ 2,606,001	\$ 2,554,801	\$ 2,554,801	4.2%	1.89	0.98	639	Homes	175,752	4,110,681
Subtotal Residential	\$ 18,926,103	\$ 7,589,511	\$ 26,515,614	\$ 25,551,075	\$ 26,475,682	59.1%	1.35	1.00	94,085	Homes/Units	2,271,997	41,156,617
Commercial and Industrial C&I Lost Opportunity												
CNG Energy Conscious Blueprint	\$ 2,519,940	\$ 4,767,760	\$ 7,287,700	\$ 4,841,669	\$ 4,841,669	14.5%	1.92	0.66	238	Projects	366,256	5,900,323
SCG Energy Conscious Blueprint	\$ 2,071,892	\$ 4,478,348	\$ 6,550,240	\$ 3,912,952	\$ 3,912,952	14.1%	1.89	0.60	168	Projects	296,002	4,768,537
Sub Total Lost Opportunity	\$ 4,591,832	\$ 9,246,108	\$ 13,837,940	\$ 8,754,620	\$ 8,754,620	14.3%	1.91	0.63	406	Projects	662,258	10,668,860
Commercial and Industrial Large Retrofit												
CNG Energy Opportunities	\$ 1,334,871	\$ 2,242,049	\$ 3,576,920	\$ 4,039,928	\$ 4,039,928	7.7%	3.03	1.13	48	Projects	384,690	4,231,242
SCG Energy Opportunities	\$ 1,048,767	\$ 1,801,214	\$ 2,849,981	\$ 3,246,314	\$ 3,246,314	7.1%	3.10	1.14	39	Projects	309,121	3,400,046
Sub Total Energy Opportunities	\$ 2,383,638	\$ 4,043,263	\$ 6,426,901	\$ 7,286,243	\$ 7,286,243	7.4%	3.06	1.13	87	Projects	693,811	7,631,288
CNG Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 746,206	\$ 886,713	\$ 1,632,919	\$ 3,127,297	\$ 3,127,297	4.3%	4.19	1.92	93	Projects	439,885	2,250,943
SCG Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 406,557	\$ 532,401	\$ 938,958	\$ 1,769,909	\$ 1,769,909	2.8%	4.35	1.88	56	Projects	248,955	1,273,932
Sub Total O&M	\$ 1,152,763	\$ 1,419,114	\$ 2,571,878	\$ 4,897,206	\$ 4,897,206	3.6%	4.25	1.90	148	Projects	688,840	3,524,876
CNG Small Business	\$ 254,271	\$ 794,711	\$ 1,048,982	\$ 642,112	\$ 642,112	1.5%	2.53	0.61	65	Projects	55,114	815,366
SCG Small Business	\$ 295,186	\$ 975,676	\$ 1,270,862	\$ 804,185	\$ 804,185	2.0%	2.72	0.63	81	Projects	69,235	977,632
Sub Total Small Business	\$ 549,457	\$ 1,770,387	\$ 2,319,844	\$ 1,446,298	\$ 1,446,298	1.7%	2.63	0.82	145	Projects	124,349	1,792,997
Subtotal Commercial & Industrial	\$ 8,677,690	\$ 16,478,873	\$ 25,156,563	\$ 22,384,367	\$ 22,384,367	27.1%	2.58	0.89	786	Projects	2,169,258	23,618,020
OTHER												
CNG Other Programs /Requirements	\$ 311,292	\$ -	\$ 311,292	\$ -	\$ -	-	-	-	-	-	-	-
SCG Other Programs /Requirements	\$ 622,584	\$ -	\$ 622,584	\$ -	\$ -	-	-	-	-	-	-	-
Sub Total	\$ 1,964,286	\$ -	\$ 1,964,286	\$ -	\$ -	-	-	-	-	-	-	-
CNG Other Education, Administrative & Planning	\$ 1,850,737	\$ -	\$ 1,850,737	\$ -	\$ -	-	-	-	-	-	-	-
SCG Other Education, Administrative & Planning	\$ 3,815,023	\$ -	\$ 3,815,023	\$ -	\$ -	-	-	-	-	-	-	-
Sub Total	\$ 4,437,607	\$ -	\$ 4,437,607	\$ -	\$ -	-	-	-	-	-	-	-
Subtotal Other	\$ 4,437,607	\$ -	\$ 4,437,607	\$ -	\$ -	-	-	-	-	-	-	-
PROGRAM SUBTOTALS												
CNG Residential	\$ 10,208,262	\$ 3,764,017	\$ 13,972,279	\$ 13,514,237	\$ 14,038,439	56.9%	-	-	-	-	1,236,298	22,538,530
SCG Residential	\$ 8,717,841	\$ 3,825,495	\$ 12,543,336	\$ 12,036,838	\$ 12,437,243	59.3%	-	-	-	-	1,033,699	18,618,087
Residential Total	\$ 18,926,103	\$ 7,589,511	\$ 26,515,614	\$ 25,551,075	\$ 26,475,682	59.1%	-	-	-	-	2,271,997	41,156,617
CNG C&I	\$ 4,855,288	\$ 6,691,234	\$ 11,546,522	\$ 12,651,007	\$ 12,651,007	28.0%	-	-	-	-	1,245,946	13,197,874
SCG C&I	\$ 3,822,402	\$ 7,787,639	\$ 11,610,041	\$ 9,733,360	\$ 9,733,360	26.0%	-	-	-	-	923,312	10,420,147
C&I Total	\$ 8,677,690	\$ 16,478,873	\$ 25,156,563	\$ 22,384,367	\$ 22,384,367	27.1%	-	-	-	-	2,169,258	23,618,020
CNG Other	\$ 2,275,578	\$ -	\$ 2,275,578	\$ -	\$ -	13.1%	-	-	-	-	-	-
SCG Other	\$ 2,162,029	\$ -	\$ 2,162,029	\$ -	\$ -	14.7%	-	-	-	-	-	-
Other Total	\$ 4,437,607	\$ -	\$ 4,437,607	\$ -	\$ -	13.8%	-	-	-	-	-	-
CNG TOTAL	\$ 17,339,128	\$ 12,455,250	\$ 27,518,800	\$ 26,165,244	\$ 26,689,445	54.1%	-	-	-	-	2,484,244	35,736,404
SCG TOTAL	\$ 14,702,272	\$ 11,613,134	\$ 24,153,377	\$ 21,770,198	\$ 22,170,603	46.9%	-	-	-	-	1,957,012	29,038,234
GRAND TOTAL	\$ 32,041,400	\$ 24,068,384	\$ 51,672,177	\$ 47,935,441	\$ 48,860,049	100.0%	1.50	0.95	-	-	4,441,255	64,774,638

Table B – CNG/SCG Costs and Benefits Summary 2018 (cont)

Table B
2018 COMPARISON OF ENERGY EFFICIENCY PROGRAMS

Program	Peak Day Savings (ccf)	Annual Cost Rate (\$/ccf)	Lifetime Cost Rate (\$/ccf)	Annualized Savings Oil (gallons)	Lifetime Savings Oil (gallons)	Annualized Savings Propane (gallons)	Lifetime Savings Propane (gallons)	Annual MMBTU	Lifetime MMBTU	Cost per Annual MMBTU	Cost per Lifetime MMBTU
RESIDENTIAL											
CNG HES Income Eligible	4,193	\$ 11.66	\$ 0.54					34,774	748,300	\$ 113.36	\$ 5.27
SCG HES Income Eligible	3,937	\$ 11.52	\$ 0.53					32,600	714,804	\$ 111.94	\$ 5.11
Sub Total HES Income Eligible	8,131	\$ 11.59	\$ 0.53	0	0	0	0	67,374	1,463,104	\$ 112.67	\$ 5.19
CNG Home Energy Solutions	7,709	\$ 8.35	\$ 0.47					45,837	814,438	\$ 81.16	\$ 4.57
SCG Home Energy Solutions	4,866	\$ 8.50	\$ 0.49					26,617	462,096	\$ 82.64	\$ 4.76
Sub Total Home Energy Solutions	12,574	\$ 8.41	\$ 0.48	0	0	0	0	72,454	1,276,534	\$ 81.70	\$ 4.64
CNG HVAC / Water Heating	1,665	\$ 7.33	\$ 0.37					23,954	474,169	\$ 71.23	\$ 3.60
SCG HVAC / Water Heating	2,950	\$ 7.27	\$ 0.37					26,557	525,929	\$ 70.67	\$ 3.57
Sub Total HVAC / Water Heating	4,615	\$ 7.30	\$ 0.37	0	0	0	0	50,511	1,000,099	\$ 70.93	\$ 3.58
CNG Residential Behavior	0	\$ 1.96	\$ 0.53					12,682	46,925	\$ 19.04	\$ -
SCG Residential Behavior	0	\$ 1.95	\$ 0.98					12,682	25,365	\$ 19.04	\$ -
Sub Total Residential Behavior	0	\$ 1.96	\$ 0.69	0	0	0	0	25,365	72,290	\$ 19.04	\$ 6.68
CNG New Construction	895	\$ 6.05	\$ 0.26					10,173	235,383	\$ 58.83	\$ 2.54
SCG New Construction	740	\$ 9.76	\$ 0.41					7,912	187,606	\$ 94.89	\$ 4.00
Sub Total New Construction	1,635	\$ 7.68	\$ 0.33	0	0	0	0	18,085	422,989	\$ 74.61	\$ 3.19
Subtotal Residential	26,954	\$ 8.33	\$ 0.46	0	0	0	0	233,789	4,235,016	\$ 80.95	\$ 4.47
Commercial and Industrial C&I Lost Opportunity											
CNG Energy Conscious Blueprint	4,081	\$ 6.88	\$ 0.43					37,688	607,143	\$ 66.86	\$ 4.15
SCG Energy Conscious Blueprint	3,825	\$ 7.00	\$ 0.43					30,459	490,682	\$ 68.02	\$ 4.22
Sub Total Lost Opportunity	7,906	\$ 6.93	\$ 0.43	0	0	0	0	68,146	1,097,826	\$ 67.38	\$ 4.18
Commercial and Industrial Large Retrofit											
CNG Energy Opportunities	2,822	\$ 3.47	\$ 0.32					39,585	435,395	\$ 33.72	\$ 3.07
SCG Energy Opportunities	2,267	\$ 3.39	\$ 0.31					31,809	349,865	\$ 32.97	\$ 3.00
Sub Total Energy Opportunities	5,089	\$ 3.44	\$ 0.31	0	0	0	0	71,393	785,259	\$ 33.39	\$ 3.04
CNG Business & Energy Sustainability (O&M, RetroCx, BSC)	3,140	\$ 1.70	\$ 0.33					45,264	231,622	\$ 16.49	\$ 3.22
SCG Business & Energy Sustainability (O&M, RetroCx, BSC)	1,885	\$ 1.63	\$ 0.32					25,617	131,088	\$ 15.87	\$ 3.10
Sub Total O&M	5,026	\$ 1.67	\$ 0.33	0	0	0	0	70,882	362,710	\$ 16.26	\$ 3.18
CNG Small Business	520	\$ 4.61	\$ 0.31					5,671	83,901	\$ 44.84	\$ 3.03
SCG Small Business	590	\$ 4.26	\$ 0.30					7,124	100,598	\$ 41.43	\$ 2.93
Sub Total Small Business	1,109	\$ 4.42	\$ 0.31	0	0	0	0	12,795	184,499	\$ 42.94	\$ 2.98
Subtotal Commercial & Industrial	19,130	\$ 4.00	\$ 0.37	-	-	-	-	-	-	-	-
OTHER											
CNG Other Programs / Requirements											
SCG Other Programs / Requirements											
Sub Total											
CNG Other Education, Administrative & Planning											
SCG Other Education, Administrative & Planning											
Sub Total											
Subtotal Other											
PROGRAM SUBTOTALS											
CNG Residential	14,461	\$ 8.24	\$ 0.45					127,421	2,319,215	\$ 80.11	\$ 4.40
SCG Residential	12,493	\$ 8.43	\$ 0.47					106,368	1,915,801	\$ 81.96	\$ 4.55
Residential Total	26,954	\$ 8.33	\$ 0.46	-	-	-	-	233,789	4,235,016	\$ 80.95	\$ 4.47
CNG C&I	10,562	\$ 3.90	\$ 0.37					128,208	1,358,061	\$ 37.87	\$ 3.58
SCG C&I	8,568	\$ 4.14	\$ 0.37					95,009	1,072,233	\$ 40.23	\$ 3.56
C&I Total	19,130	\$ 4.00	\$ 0.37	-	-	-	-	223,217	2,430,294	\$ 38.88	\$ 3.57
CNG Other								0	0		
SCG Other								0	0		
Other Total	-	-	-	-	-	-	-	0	0	-	-
CNG TOTAL	25,024	\$ 6.98	\$ 0.49	-	-	-	-	255,629	3,677,276	\$ 67.83	\$ 4.72
SCG TOTAL	21,061	\$ 7.51	\$ 0.51	-	-	-	-	207,376	2,988,034	\$ 73.01	\$ 4.92
GRAND TOTAL	46,084	\$ 7.21	\$ 0.49	-	-	-	-	463,005	6,665,310	\$ 70.11	\$ 4.81

Table C – SCG 2016

Table C
SCG 2016 Budget Details

GAS ENERGY EFFICIENCY BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Incentives	Marketing	Administrative Expenses	TOTAL
RESIDENTIAL							
Residential New Construction	\$ 30,928	\$ 720	\$ 4,762	\$ 708,800	\$ 4,080	\$ 1,500	\$ 750,790
Home Energy Solutions (HES)	\$ 223,920	\$ -	\$ 126,634	\$ 1,449,041	\$ 15,000	\$ 467	\$ 1,815,062
HVAC / Water Heating	\$ 58,566	\$ 6,300	\$ 128,000	\$ 1,147,916	\$ 20,000	\$ 3,000	\$ 1,363,782
HES Income Eligible - Weatherization	\$ 213,070	\$ 2,500	\$ 20,000	\$ 2,412,885	\$ 2,000	\$ 1,500	\$ 2,651,955
Residential Behavior	\$ -	\$ -	\$ 106,598	\$ -	\$ -	\$ -	\$ 106,598
Subtotal Residential	\$ 526,484	\$ 9,520	\$ 385,994	\$ 5,718,642	\$ 41,080	\$ 6,467	\$ 6,688,187
COMMERCIAL & INDUSTRIAL LOST OPPORTUNITY							
Energy Conscious Blueprint	\$ 143,000	\$ 3,555	\$ 119,230	\$ 1,102,732	\$ 3,555	\$ 4,976	\$ 1,377,048
Subtotal C&I - Lost Opportunity	\$ 143,000	\$ 3,555	\$ 119,230	\$ 1,102,732	\$ 3,555	\$ 4,976	\$ 1,377,048
COMMERCIAL & INDUSTRIAL LARGE RETROFIT							
Energy Opportunities	\$ 101,500	\$ 4,370	\$ 61,901	\$ 665,430	\$ 13,110	\$ 4,370	\$ 850,681
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 16,000	\$ 1,255	\$ 22,270	\$ 205,200	\$ 3,765	\$ 2,510	\$ 251,000
Subtotal C&I - Lost Opportunity	\$ 117,500	\$ 5,625	\$ 84,171	\$ 870,630	\$ 16,875	\$ 6,880	\$ 1,101,681
Small Business	\$ 29,000	\$ 1,233	\$ 14,460	\$ 198,119	\$ 2,465	\$ 1,233	\$ 246,510
Subtotal C&I	\$ 289,500	\$ 10,413	\$ 217,861	\$ 2,171,481	\$ 22,895	\$ 13,089	\$ 2,725,239
OTHER - PROGRAMS/REQUIREMENTS & PLANNING							
OTHER - EDUCATION							
Educate the Public	\$ 38,404	\$ 1,000	\$ 145,163	\$ -	\$ 5,000	\$ 500	\$ 190,067
Customer Engagement	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
Educate the Students	\$ 9,217	\$ 780	\$ 30,544	\$ -	\$ 1,800	\$ 600	\$ 42,941
Educate the Workforce	\$ 5,291	\$ 520	\$ 29,845	\$ -	\$ 1,200	\$ 400	\$ 37,256
Subtotal Education	\$ 52,912	\$ 2,300	\$ 355,552	\$ -	\$ 8,000	\$ 1,500	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS							
Financing Support - Residential	\$ -	\$ -	\$ 186,292	\$ -	\$ -	\$ -	\$ 186,292
Financing Support - C&I	\$ -	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ 75,000
Research, Development and Demonstration	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000
Subtotal Programs/Requirements	\$ -	\$ -	\$ 311,292	\$ -	\$ -	\$ -	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING							
Administration	\$ 98,496	\$ -	\$ 22,833	\$ -	\$ -	\$ -	\$ 121,329
Marketing Plan	\$ -	\$ -	\$ 81,058	\$ -	\$ -	\$ -	\$ 81,058
Information Technology	\$ 13,321	\$ -	\$ 120,012	\$ -	\$ -	\$ -	\$ 133,333
Planning	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000
Evaluation Measurement and Verification	\$ 20,418	\$ -	\$ 246,249	\$ -	\$ -	\$ -	\$ 266,667
Evaluation Administrator	\$ -	\$ -	\$ 29,333	\$ -	\$ -	\$ -	\$ 29,333
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 50,015	\$ -	\$ -	\$ -	\$ 50,015
Audits - Financial and Operational	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 487,232	\$ 487,232
Subtotal Other	\$ 212,235	\$ -	\$ 559,500	\$ -	\$ -	\$ 487,232	\$ 1,258,967
PROGRAM SUBTOTALS							
Residential	\$ 555,705	\$ 10,904	\$ 869,072	\$ 5,718,642	\$ 45,620	\$ 7,397	\$ 7,207,340
C&I	\$ 313,191	\$ 11,329	\$ 432,685	\$ 2,171,481	\$ 26,355	\$ 13,659	\$ 2,968,700
Other	\$ 212,235	\$ -	\$ 528,442	\$ -	\$ -	\$ 487,232	\$ 1,227,909
TOTAL BUDGET	\$ 1,081,131	\$ 22,233	\$ 1,830,199	\$ 7,890,123	\$ 71,975	\$ 508,288	\$ 11,403,949

Table C – SCG 2017

Table C
SCG 2017 Budget Details

GAS ENERGY EFFICIENCY BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Incentives	Marketing	Administrative Expenses	TOTAL
RESIDENTIAL							
Residential New Construction	\$ 30,928	\$ 720	\$ 4,762	\$ 708,800	\$ 4,080	\$ 1,500	\$ 750,790
Home Energy Solutions (HES)	\$ 223,920	\$ -	\$ 126,634	\$ 1,836,875	\$ 15,000	\$ 467	\$ 2,202,896
HVAC / Water Heating	\$ 58,566	\$ 6,300	\$ 128,000	\$ 1,559,433	\$ 20,000	\$ 3,000	\$ 1,775,299
HES Income Eligible - Weatherization	\$ 213,070	\$ 2,500	\$ 20,000	\$ 3,213,104	\$ 2,000	\$ 1,500	\$ 3,452,174
Residential Behavior	\$ -	\$ -	\$ 140,565	\$ -	\$ -	\$ -	\$ 140,565
Subtotal Residential	\$ 526,484	\$ 9,520	\$ 419,961	\$ 7,318,212	\$ 41,080	\$ 6,467	\$ 8,321,724
COMMERCIAL & INDUSTRIAL LOST OPPORTUNITY							
Energy Conscious Blueprint	\$ 143,000	\$ 2,000	\$ 12,000	\$ 1,785,380	\$ 6,800	\$ 8,000	\$ 1,957,180
Subtotal C&I - Lost Opportunity	\$ 143,000	\$ 2,000	\$ 12,000	\$ 1,785,380	\$ 6,800	\$ 8,000	\$ 1,957,180
COMMERCIAL & INDUSTRIAL LARGE RETROFIT							
Energy Opportunities	\$ 101,500	\$ 2,000	\$ 12,000	\$ 856,266	\$ 14,814	\$ 4,200	\$ 990,780
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 16,000	\$ 2,000	\$ 12,000	\$ 347,524	\$ 5,000	\$ 2,000	\$ 384,524
Subtotal C&I - Lost Opportunity	\$ 117,500	\$ 4,000	\$ 24,000	\$ 1,203,790	\$ 19,814	\$ 6,200	\$ 1,375,304
Small Business	\$ 29,000	\$ 1,000	\$ 5,000	\$ 240,081	\$ 2,500	\$ 2,000	\$ 279,581
Subtotal C&I	\$ 289,500	\$ 7,000	\$ 41,000	\$ 3,229,251	\$ 29,114	\$ 16,200	\$ 3,612,065
OTHER - PROGRAMS/REQUIREMENTS & PLANNING							
OTHER - EDUCATION							
Educate the Public	\$ 38,404	\$ 1,000	\$ 145,163	\$ -	\$ 5,000	\$ 500	\$ 190,067
Customer Engagement	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
Educate the Students	\$ 9,217	\$ 780	\$ 30,544	\$ -	\$ 1,800	\$ 600	\$ 42,941
Educate the Workforce	\$ 5,291	\$ 520	\$ 29,845	\$ -	\$ 1,200	\$ 400	\$ 37,256
Subtotal Education	\$ 52,912	\$ 2,300	\$ 355,552	\$ -	\$ 8,000	\$ 1,500	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS							
Financing Support - Residential	\$ -	\$ -	\$ 186,292	\$ -	\$ -	\$ -	\$ 186,292
Financing Support - C&I	\$ -	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ 75,000
Research, Development and Demonstration	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000
Subtotal Programs/Requirements	\$ -	\$ -	\$ 311,292	\$ -	\$ -	\$ -	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING							
Administration	\$ 98,496	\$ -	\$ 22,833	\$ -	\$ -	\$ -	\$ 121,329
Marketing Plan	\$ -	\$ -	\$ 81,058	\$ -	\$ -	\$ -	\$ 81,058
Information Technology	\$ 13,321	\$ -	\$ 120,012	\$ -	\$ -	\$ -	\$ 133,333
Planning	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000
Evaluation Measurement and Verification	\$ 20,418	\$ -	\$ 259,582	\$ -	\$ -	\$ -	\$ 280,000
Evaluation Administrator	\$ -	\$ -	\$ 30,800	\$ -	\$ -	\$ -	\$ 30,800
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 50,015	\$ -	\$ -	\$ -	\$ 50,015
Audits - Financial and Operational	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 601,248	\$ 601,248
Subtotal Other	\$ 212,235	\$ -	\$ 574,300	\$ -	\$ -	\$ 601,248	\$ 1,387,783
PROGRAM SUBTOTALS							
Residential	\$ 555,705	\$ 10,904	\$ 903,039	\$ 7,318,212	\$ 45,620	\$ 7,397	\$ 8,840,877
C&I	\$ 313,191	\$ 7,916	\$ 255,824	\$ 3,229,251	\$ 32,574	\$ 16,770	\$ 3,855,526
Other	\$ 212,235	\$ -	\$ 543,242	\$ -	\$ -	\$ 601,248	\$ 1,356,725
TOTAL BUDGET	\$ 1,081,131	\$ 18,820	\$ 1,702,105	\$ 10,547,463	\$ 78,194	\$ 625,415	\$ 14,053,128

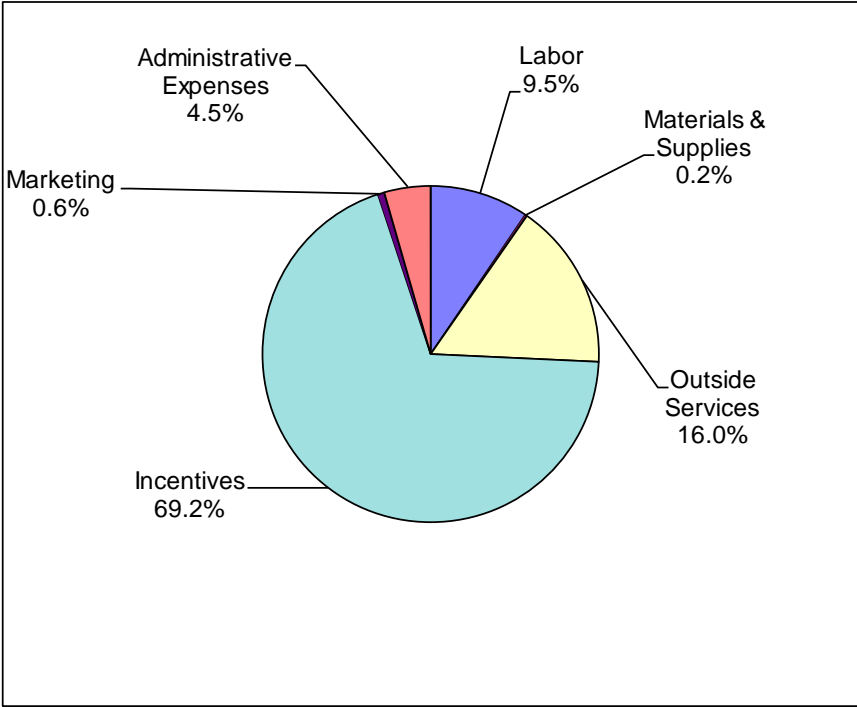
Table C – SCG 2018

Table C
SCG 2018 Budget Details

GAS ENERGY EFFICIENCY BUDGET (\$000)	Labor	Materials & Supplies	Outside Services	Incentives	Marketing	Administrative Expenses	TOTAL
RESIDENTIAL							
Residential New Construction	\$ 30,928	\$ 720	\$ 4,762	\$ 708,800	\$ 4,080	\$ 1,500	\$ 750,790
Home Energy Solutions (HES)	\$ 223,920	\$ -	\$ 126,634	\$ 1,833,517	\$ 15,000	\$ 467	\$ 2,199,538
HVAC / Water Heating	\$ 58,566	\$ 6,300	\$ 128,000	\$ 1,660,822	\$ 20,000	\$ 3,000	\$ 1,876,688
HES Income Eligible - Weatherization	\$ 213,070	\$ 2,500	\$ 20,000	\$ 3,410,261	\$ 2,000	\$ 1,500	\$ 3,649,331
Residential Behavior	\$ -	\$ -	\$ 241,494	\$ -	\$ -	\$ -	\$ 241,494
Subtotal Residential	\$ 526,484	\$ 9,520	\$ 520,890	\$ 7,613,400	\$ 41,080	\$ 6,467	\$ 8,717,841
COMMERCIAL & INDUSTRIAL LOST OPPORTUNITY							
Energy Conscious Blueprint	\$ 143,000	\$ 2,000	\$ 12,000	\$ 1,900,092	\$ 6,800	\$ 8,000	\$ 2,071,892
Subtotal C&I - Lost Opportunity	\$ 143,000	\$ 2,000	\$ 12,000	\$ 1,900,092	\$ 6,800	\$ 8,000	\$ 2,071,892
COMMERCIAL & INDUSTRIAL LARGE RETROFIT							
Energy Opportunities	\$ 101,500	\$ 2,000	\$ 12,000	\$ 914,253	\$ 14,814	\$ 4,200	\$ 1,048,767
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 16,000	\$ 2,000	\$ 12,000	\$ 369,557	\$ 5,000	\$ 2,000	\$ 406,557
Subtotal C&I - Lost Opportunity	\$ 117,500	\$ 4,000	\$ 24,000	\$ 1,283,810	\$ 19,814	\$ 6,200	\$ 1,455,324
Small Business	\$ 29,000	\$ 1,000	\$ 5,000	\$ 255,686	\$ 2,500	\$ 2,000	\$ 295,186
Subtotal C&I	\$ 289,500	\$ 7,000	\$ 41,000	\$ 3,439,588	\$ 29,114	\$ 16,200	\$ 3,822,402
OTHER - PROGRAMS/REQUIREMENTS & PLANNING							
OTHER - EDUCATION							
Educate the Public	\$ 38,404	\$ 1,000	\$ 145,163	\$ -	\$ 5,000	\$ 500	\$ 190,067
Customer Engagement	\$ -	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000
Educate the Students	\$ 9,217	\$ 780	\$ 30,544	\$ -	\$ 1,800	\$ 600	\$ 42,941
Educate the Workforce	\$ 5,291	\$ 520	\$ 29,845	\$ -	\$ 1,200	\$ 400	\$ 37,256
Subtotal Education	\$ 52,912	\$ 2,300	\$ 355,552	\$ -	\$ 8,000	\$ 1,500	\$ 420,264
OTHER - PROGRAMS/REQUIREMENTS							
Financing Support - Residential	\$ -	\$ -	\$ 186,292	\$ -	\$ -	\$ -	\$ 186,292
Financing Support - C&I	\$ -	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ 75,000
Research, Development and Demonstration	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000
Subtotal Programs/Requirements	\$ -	\$ -	\$ 311,292	\$ -	\$ -	\$ -	\$ 311,292
OTHER - ADMINISTRATIVE & PLANNING							
Administration	\$ 98,496	\$ -	\$ 22,833	\$ -	\$ -	\$ -	\$ 121,329
Marketing Plan	\$ -	\$ -	\$ 81,058	\$ -	\$ -	\$ -	\$ 81,058
Information Technology	\$ 13,321	\$ -	\$ 120,012	\$ -	\$ -	\$ -	\$ 133,333
Planning	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000
Evaluation Measurement and Verification	\$ 20,418	\$ -	\$ 272,915	\$ -	\$ -	\$ -	\$ 293,333
Evaluation Administrator	\$ -	\$ -	\$ 32,267	\$ -	\$ -	\$ -	\$ 32,267
Energy Efficiency Board Consultants	\$ -	\$ -	\$ 50,015	\$ -	\$ -	\$ -	\$ 50,015
Audits - Financial and Operational	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
Performance Management Incentive	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 629,138	\$ 629,138
Subtotal Other	\$ 212,235	\$ -	\$ 589,100	\$ -	\$ -	\$ 629,138	\$ 1,430,473
PROGRAM SUBTOTALS							
Residential	\$ 555,705	\$ 10,904	\$ 1,003,968	\$ 7,613,400	\$ 45,620	\$ 7,397	\$ 9,236,994
C&I	\$ 313,191	\$ 7,916	\$ 255,824	\$ 3,439,588	\$ 32,574	\$ 16,770	\$ 4,065,863
Other	\$ 212,235	\$ -	\$ 558,042	\$ -	\$ -	\$ 629,138	\$ 1,399,415
TOTAL BUDGET	\$ 1,081,131	\$ 18,820	\$ 1,817,834	\$ 11,052,988	\$ 78,194	\$ 653,305	\$ 14,702,272

Table C – Pie - SCG 2016

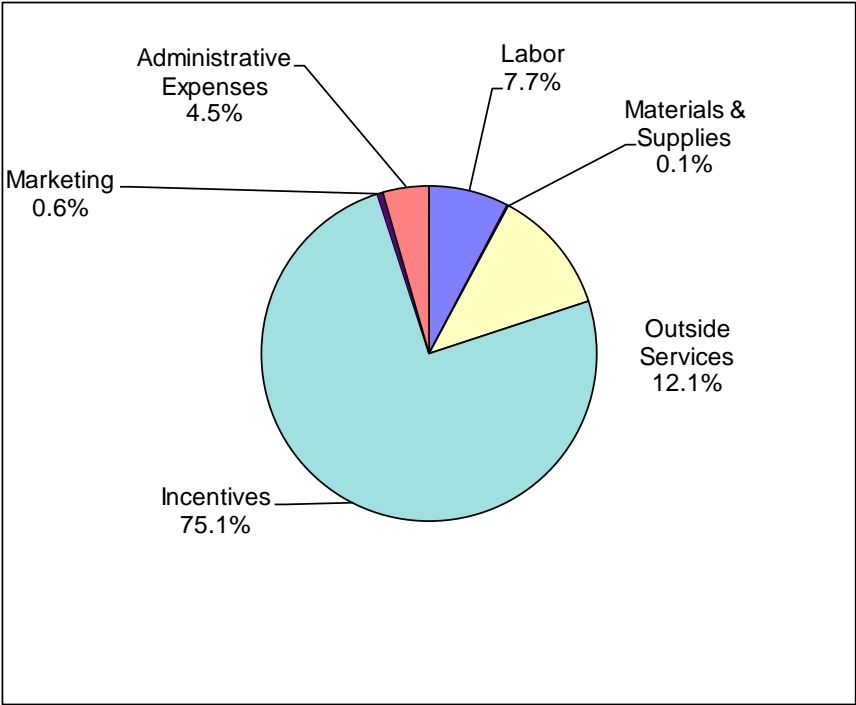
SCG
2016 Gas Energy Efficiency
Budget By Expense Class



Expense Classes	Budget	% of Budget
Labor	\$ 1,081,131	9.5%
Materials & Supplies	\$ 22,233	0.2%
Outside Services	\$ 1,830,199	16.0%
Incentives	\$ 7,890,123	69.2%
Marketing	\$ 71,975	0.6%
Administrative Expenses	\$ <u>508,288</u>	<u>4.5%</u>
Total	\$ 11,403,949	100.00%

Table C – Pie - SCG 2017

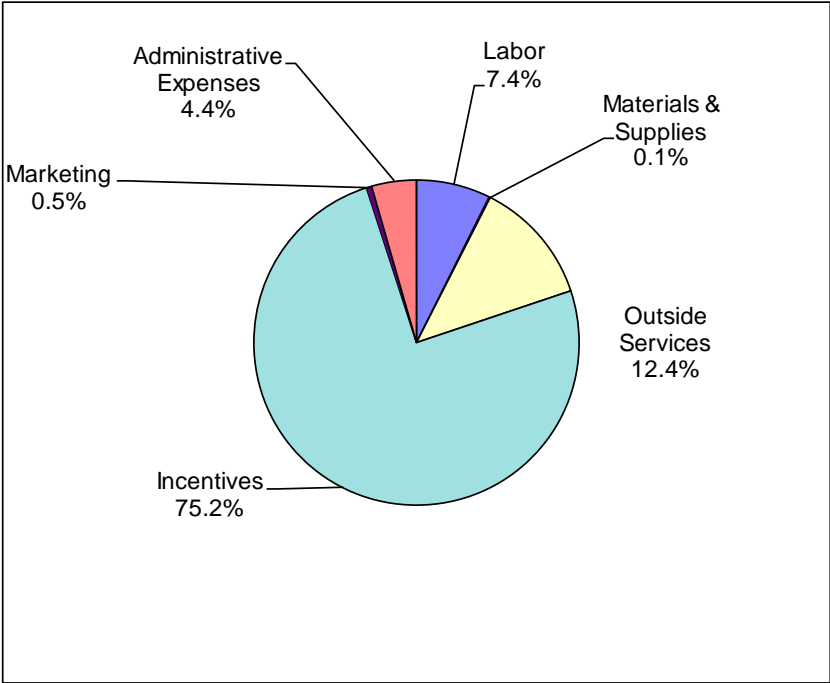
SCG
2017 Gas Energy Efficiency
Budget By Expense Class



Expense Classes	Budget	% of Budget
Labor	\$ 1,081,131	7.7%
Materials & Supplies	\$ 18,820	0.1%
Outside Services	\$ 1,702,105	12.1%
Incentives	\$ 10,547,463	75.1%
Marketing	\$ 78,194	0.6%
Administrative Expenses	\$ 625,415	4.5%
Total	\$ 14,053,128	100.00%

Table C – Pie - SCG 2018

SCG
2018 Gas Energy Efficiency
Budget By Expense Class



Expense Classes	Budget	% of Budget
Labor	\$ 1,081,131	7.4%
Materials & Supplies	\$ 18,820	0.1%
Outside Services	\$ 1,817,834	12.4%
Incentives	\$ 11,052,988	75.2%
Marketing	\$ 78,194	0.5%
Administrative Expenses	\$ <u>653,305</u>	<u>4.4%</u>
Total	\$ 14,702,272	100.00%

Table D - SCG – Historical and Projected Expenditures and Units (2009-2018)

Table D
SCG Historical and Projected \$ and Units

Expenditures \$ (000)										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	\$ 1,350	\$ 948	\$ 2,056	\$ 1,766	\$ 3,816	\$ 3,541	\$ 1,746	\$ 2,652	\$ 3,452	\$ 3,649
Home Energy Solutions (HES)	\$ 540	\$ 1,296	\$ 1,402	\$ 1,285	\$ 1,666	\$ 3,344	\$ 1,830	\$ 1,815	\$ 2,203	\$ 2,200
HVAC / Water Heating	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,364	\$ 1,775	\$ 1,877
Residential Behavior	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 114	\$ 621	\$ 107	\$ 141	\$ 241
Residential New Construction	\$ 188	\$ 94	\$ 365	\$ 120	\$ 596	\$ 281	\$ 331	\$ 751	\$ 751	\$ 751
Water Heating	\$ 91	\$ 73	\$ 40	\$ 54	\$ 39	\$ 266	\$ 307	\$ -	\$ -	\$ -
Subtotal Residential	\$ 2,169	\$ 2,411	\$ 3,862	\$ 3,224	\$ 6,116	\$ 7,546	\$ 4,835	\$ 6,688	\$ 8,322	\$ 8,718
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	\$ 606	\$ 624	\$ 1,090	\$ 1,351	\$ 697	\$ 1,483	\$ 986	\$ 1,377	\$ 1,957	\$ 2,072
Total - Lost Opportunity	\$ 606	\$ 624	\$ 1,090	\$ 1,351	\$ 697	\$ 1,483	\$ 986	\$ 1,377	\$ 1,957	\$ 2,072
C&I LARGE RETROFIT										
Energy Opportunities	\$ 185	\$ 84	\$ 1,037	\$ 169	\$ 835	\$ 808	\$ 501	\$ 851	\$ 991	\$ 1,049
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ 3	\$ 8	\$ 251	\$ 2	\$ (20)	\$ 46	\$ 189	\$ 251	\$ 385	\$ 407
Total - C&I Large Retrofit	\$ 188	\$ 93	\$ 1,288	\$ 171	\$ 815	\$ 854	\$ 691	\$ 1,102	\$ 1,375	\$ 1,455
Small Business	\$ -	\$ -	\$ -	\$ 92	\$ 92	\$ 113	\$ 141	\$ 247	\$ 280	\$ 295
Subtotal C&I	\$ 794	\$ 716	\$ 2,378	\$ 1,613	\$ 1,604	\$ 2,450	\$ 1,818	\$ 2,725	\$ 3,612	\$ 3,822
PROGRAM SUB-TOTALS										
Residential	\$ 2,169	\$ 2,411	\$ 3,862	\$ 3,224	\$ 6,116	\$ 7,546	\$ 4,835	\$ 6,688	\$ 8,322	\$ 8,718
C&I	\$ 794	\$ 716	\$ 2,378	\$ 1,613	\$ 1,604	\$ 2,450	\$ 1,818	\$ 2,725	\$ 3,612	\$ 3,822
TOTAL	\$ 2,963	\$ 3,127	\$ 6,240	\$ 4,838	\$ 7,720	\$ 9,996	\$ 6,652	\$ 9,413	\$ 11,934	\$ 12,540

Units										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	3,511	2,034	3,268	2,479	3,647	2,395	2,574	2,607	2,823	2,985
Home Energy Solutions (HES)	1,421	2,538	2,369	2,049	2,619	3,957	1,306	2,649	3,223	3,283
HVAC / Water Heating	-	-	-	-	-	-	-	2,649	2,939	3,182
Residential Behavior	-	-	-	-	-	-	2,500	12,500	20,000	36,250
Residential New Construction	71	32	114	40	116	336	116	353	358	281
Water Heating	266	236	235	80	155	747	1,058			
Subtotal Residential	5,269	4,840	5,986	4,648	6,537	7,435	7,554	20,758	29,343	45,981
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	28	45	46	90	100	87	26	97	157	168
Total - Lost Opportunity	28	45	46	90	100	87	26	97	157	168
C&I LARGE RETROFIT										
Energy Opportunities	2	9	11	36	31	40	8	28	36	39
Business & Energy Sustainability (O&M, RetroCx, BSC)	-	1	3	4	3	4	3	31	52	56
Total - C&I Large Retrofit	2	10	14	40	34	44	12	59	89	94
Small Business	-	-	-	27	72	57	5	63	76	81
Subtotal C&I	30	55	60	157	206	188	43	219	322	343
PROGRAM SUB-TOTALS										
Residential	5,269	4,840	5,986	4,648	6,537	7,435	7,554	20,758	29,343	45,981
C&I	30	55	60	157	206	188	43	219	322	343
TOTAL	5,299	4,895	6,046	4,805	6,743	7,623	7,597	20,977	29,665	46,323

Table D1 - SCG – Historical and Projected Annual and Lifetime Savings (CCF) (2009-2018)

Table D1
SCG Historical and Projected Annual and Lifetime ccf

Annual ccf (000)										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	463	214	361	264	635	459	161	229	299	317
Home Energy Solutions (HES)	176	319	243	231	284	501	183	223	259	259
HVAC / Water Heating								177	238	258
Residential Behavior	-	-	-	-	-	-	145	43	45	123
Residential New Construction	20	9	24	8	19	30	33	77	77	77
Water Heating	16	14	13	6	7	46	47	-	-	-
Subtotal Residential	675	557	641	509	945	1,035	570	749	919	1,034
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	133	233	165	387	290	201	167	208	288	296
Total - Lost Opportunity	133	233	165	387	290	201	167	208	288	296
C&I LARGE RETROFIT										
Energy Opportunities	31	37	126	261	222	508	105	271	310	309
Business & Energy Sustainability (O&M, RetroCx, BSC)	-	3	58	36	86	2	78	156	278	249
Total - C&I Large Retrofit	31	40	185	297	308	510	183	427	588	558
Small Business	-	-	-	27	11	37	36	57	69	69
Subtotal C&I	164	273	350	711	609	748	386	692	945	923
PROGRAM SUB-TOTALS										
Residential	675	557	641	509	945	1,035	570	749	919	1,034
C&I	164	273	350	711	609	748	386	692	945	923
TOTAL	839	830	991	1,220	1,554	1,783	956	1,441	1,864	1,957

Lifetime ccf (000)										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Goal	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	7,965	3,551	5,637	4,942	13,533	9,680	3,170	4,883	6,554	6,947
Home Energy Solutions (HES)	3,239	5,472	4,180	4,359	5,613	10,147	3,610	3,917	4,664	4,491
HVAC / Water Heating								3,512	4,721	5,111
Residential Behavior	-	-	-	-	-	-	1,454	157	91	247
Residential New Construction	508	235	600	188	457	705	818	1,823	1,823	1,823
Water Heating	323	267	263	111	136	861	871	-	-	-
Subtotal Residential	12,035	9,545	10,680	9,600	19,739	21,393	9,923	14,292	17,852	18,618
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	2,009	3,152	2,555	5,325	4,484	3,339	2,559	3,344	4,641	4,769
Total - Lost Opportunity	2,009	3,152	2,555	5,325	4,484	3,339	2,559	3,344	4,641	4,769
C&I LARGE RETROFIT										
Energy Opportunities	629	399	1,834	3,087	2,322	5,158	1,177	2,971	3,407	3,400
Business & Energy Sustainability (O&M, RetroCx, BSC)	-	27	804	307	430	10	466	798	1,423	1,274
Total - C&I Large Retrofit	629	426	2,638	3,394	2,752	5,168	1,643	3,769	4,829	4,674
Small Business	-	-	-	378	152	408	411	807	978	978
Subtotal C&I	2,638	3,579	5,193	9,097	7,388	8,915	4,613	7,920	10,448	10,420
PROGRAM SUB-TOTALS										
Residential	12,035	9,545	10,680	9,600	19,739	21,393	9,923	14,292	17,852	18,618
C&I	2,638	3,579	5,193	9,097	7,388	8,915	4,613	7,920	10,448	10,420
TOTAL	14,674	13,124	15,873	18,697	27,127	30,308	14,537	22,212	28,300	29,038

Table D2 - SCG – Historical and Projected Annual and Lifetime Cost Rates (CCF) (2009-2018)

Table D2
SCG Historical and Projected Annual and Lifetime Cost Rates

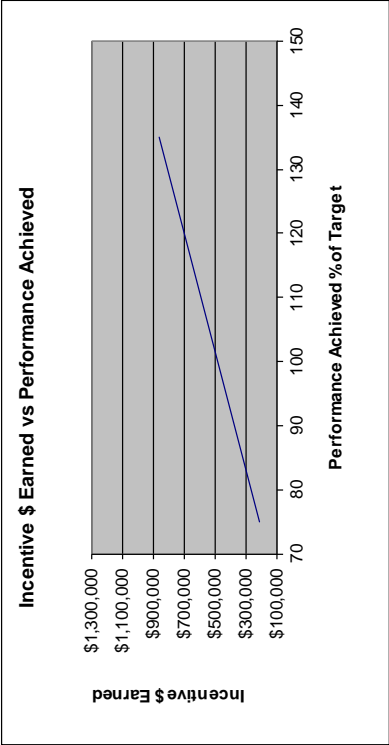
Annual \$/ccf										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	\$ 2.918	\$ 4.419	\$ 5.698	\$ 6.679	\$ 6.009	\$ 7.715	\$ 10.831	\$ 11.563	\$ 11.549	\$ 11.519
Home Energy Solutions (HES)	\$ 3.068	\$ 4.062	\$ 5.767	\$ 5.569	\$ 5.866	\$ 6.675	\$ 9.994	\$ 8.126	\$ 8.493	\$ 8.503
HVAC / Water Heating								\$ 7.689	\$ 7.447	\$ 7.272
Residential Behavior	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4.268	\$ 2.508	\$ 3.101	\$ 1.959
Residential New Construction	\$ 9.253	\$ 10.056	\$ 15.203	\$ 15.287	\$ 31.464	\$ 9.449	\$ 10.108	\$ 9.765	\$ 9.765	\$ 9.765
Water Heating	\$ 5.627	\$ 5.103	\$ 3.047	\$ 8.949	\$ 5.493	\$ 5.844	\$ 6.501			
Subtotal Residential	\$ 3.212	\$ 4.327	\$ 6.025	\$ 6.335	\$ 6.473	\$ 7.289	\$ 8.486	\$ 8.924	\$ 9.056	\$ 8.434
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	\$ 4.566	\$ 2.678	\$ 6.600	\$ 3.486	\$ 2.403	\$ 7.378	\$ 5.905	\$ 6.634	\$ 6.794	\$ 7.000
Total - Lost Opportunity	\$ 4.566	\$ 2.678	\$ 6.600	\$ 3.486	\$ 2.403	\$ 7.378	\$ 5.905	\$ 6.634	\$ 6.794	\$ 7.000
C&I LARGE RETROFIT										
Energy Opportunities	\$ 5.984	\$ 2.257	\$ 8.204	\$ 0.647	\$ 3.761	\$ 1.591	\$ 4.795	\$ 3.139	\$ 3.195	\$ 3.393
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ -	\$ 3.055	\$ 4.289	\$ 0.057	\$ (0.233)	\$ 22.277	\$ 2.428	\$ 1.609	\$ 1.383	\$ 1.633
Total - C&I Large Retrofit	\$ 6.080	\$ 2.311	\$ 6.965	\$ 0.576	\$ 2.646	\$ 1.675	\$ 3.784	\$ 2.580	\$ 2.338	\$ 2.608
Small Business	\$ -	\$ -	\$ -	\$ 3.405	\$ 8.364	\$ 3.054	\$ 3.871	\$ 4.315	\$ 4.038	\$ 4.264
Subtotal C&I	\$ 4.852	\$ 2.624	\$ 6.793	\$ 2.269	\$ 2.634	\$ 3.276	\$ 4.710	\$ 3.940	\$ 3.820	\$ 4.140
PROGRAM SUB-TOTALS										
Residential	\$ 3.212	\$ 4.327	\$ 6.025	\$ 6.335	\$ 6.473	\$ 7.289	\$ 8.486	\$ 8.924	\$ 9.056	\$ 8.434
C&I	\$ 4.852	\$ 2.624	\$ 6.793	\$ 2.269	\$ 2.634	\$ 3.276	\$ 4.710	\$ 3.940	\$ 3.820	\$ 4.140
TOTAL	\$ 3.532	\$ 3.767	\$ 6.296	\$ 3.966	\$ 4.968	\$ 5.605	\$ 6.961	\$ 6.532	\$ 6.401	\$ 6.408

Lifetime \$/ccf										
	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Goal	2015 Goal	2016 Goal	2017 Goal	2018 Goal
RESIDENTIAL										
HES Income Eligible - Weatherization	\$ 0.169	\$ 0.267	\$ 0.365	\$ 0.357	\$ 0.282	\$ 0.366	\$ 0.551	\$ 0.543	\$ 0.527	\$ 0.525
Home Energy Solutions (HES)	\$ 0.167	\$ 0.237	\$ 0.335	\$ 0.295	\$ 0.297	\$ 0.330	\$ 0.507	\$ 0.463	\$ 0.472	\$ 0.490
HVAC / Water Heating								\$ 0.388	\$ 0.376	\$ 0.367
Residential Behavior	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.427	\$ 0.678	\$ 1.550	\$ 0.980
Residential New Construction	\$ 0.370	\$ 0.402	\$ 0.608	\$ 0.638	\$ 1.304	\$ 0.399	\$ 0.404	\$ 0.412	\$ 0.412	\$ 0.412
Water Heating	\$ 0.281	\$ 0.255	\$ 0.152	\$ 0.482	\$ 0.283	\$ 0.309	\$ 0.353			
Subtotal Residential	\$ 0.180	\$ 0.253	\$ 0.362	\$ 0.336	\$ 0.310	\$ 0.353	\$ 0.487	\$ 0.468	\$ 0.466	\$ 0.468
COMMERCIAL & INDUSTRIAL										
Energy Conscious Blueprint	\$ 0.302	\$ 0.198	\$ 0.427	\$ 0.254	\$ 0.155	\$ 0.444	\$ 0.385	\$ 0.412	\$ 0.422	\$ 0.434
Total - Lost Opportunity	\$ 0.302	\$ 0.198	\$ 0.427	\$ 0.254	\$ 0.155	\$ 0.444	\$ 0.385	\$ 0.412	\$ 0.422	\$ 0.434
C&I LARGE RETROFIT										
Energy Opportunities	\$ 0.295	\$ 0.211	\$ 0.565	\$ 0.055	\$ 0.360	\$ 0.157	\$ 0.426	\$ 0.286	\$ 0.291	\$ 0.308
Business & Energy Sustainability (O&M, RetroCx, BSC)	\$ -	\$ 0.306	\$ 0.312	\$ 0.007	\$ (0.047)	\$ 4.455	\$ 0.406	\$ 0.315	\$ 0.270	\$ 0.319
Total - C&I Large Retrofit	\$ 0.299	\$ 0.217	\$ 0.488	\$ 0.050	\$ 0.296	\$ 0.165	\$ 0.420	\$ 0.292	\$ 0.285	\$ 0.311
Small Business	\$ -	\$ -	\$ -	\$ 0.243	\$ 0.605	\$ 0.277	\$ 0.343	\$ 0.306	\$ 0.286	\$ 0.302
Subtotal C&I	\$ 0.301	\$ 0.200	\$ 0.458	\$ 0.177	\$ 0.217	\$ 0.275	\$ 0.394	\$ 0.344	\$ 0.346	\$ 0.367
PROGRAM SUB-TOTALS										
Residential	\$ 0.180	\$ 0.253	\$ 0.362	\$ 0.336	\$ 0.310	\$ 0.353	\$ 0.487	\$ 0.468	\$ 0.466	\$ 0.468
C&I	\$ 0.301	\$ 0.200	\$ 0.458	\$ 0.177	\$ 0.217	\$ 0.275	\$ 0.394	\$ 0.344	\$ 0.346	\$ 0.367
TOTAL	\$ 0.202	\$ 0.238	\$ 0.393	\$ 0.259	\$ 0.285	\$ 0.330	\$ 0.458	\$ 0.424	\$ 0.422	\$ 0.432

SCG Performance Incentive 2016

**SOUTHERN CONNECTICUT GAS COMPANY
2016 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2016 Incentive Matrix with Performance Indicators.
 The Utility Performance Incentive is \$487,233
 This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including ECMB costs, Audit Costs or Management Incentive).
 Goals will be prorated based on actual over/under spend of budget.
 The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$216,547
85	3.0%	\$324,821
95	4.0%	\$433,095
100	4.5%	\$487,233
105	5.0%	\$541,368
115	6.0%	\$649,642
125	7.0%	\$757,916
135	8.0%	\$866,190

Total Original Budget* \$10,827,369

*Does not include Incentive, ECMB costs and Audit

SCG Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
Residential Program Budgets	Lifetime Savings (ccf): HES Income Eligible Home Energy Solutions HVAC / Water Heating Residential Behavior New Construction Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	6,688,187 4,882,684 3,916,539 3,512,375 157,250 1,823,191 14,292,039 \$0.6559	Gas Benefit from all Residential programs \$9,374,346	0.195	\$95,010
	Total Residential Gas Benefit:	\$9,374,346			
	Net Residential Gas Benefit:	\$2,686,159	\$2,686,159	0.195	\$95,010
HES	Achieve CCF savings per single family home - based on 2015 actuals adjusted to 2016 CT PSD plus 2.0%.		Achieve CCF savings / single family home.	0.060	\$29,234
HES-IE	Annual ccf savings		229,346	0.030	\$14,617

SCG Performance Incentive 2016 (cont)

SECTOR Program	Performance Indicators				Incentive Metrics		
	Incentive Metric	Target Goal	Weight	Incentive			
C&I Program Budgets	\$ 2,725,239	Lifetime Savings (ccf): Energy Conscious Blueprint Energy Opportunities O&M Small Business Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	3,344,008 2,971,337 798,019 806,759 7,920,122 \$0.7469	Total Gas Benefit from all C&I programs	Gas Benefit from all C&I programs \$5,915,579	0.210	\$102,319
		Total C&I Gas Benefit: Net C&I Gas Benefit:	\$5,915,579 \$3,190,340			0.210	\$102,319
Small Business	\$ 246,510	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		% of Gas Projects	12% of signed projects	0.050	\$24,362
Energy Blueprint / Energy Opportunities		Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		% of Gas Projects	15% of signed projects	0.050	\$24,362
Total Incentive \$ Residential and C&I						1.000	\$487,233

SCG Performance Incentive 2017

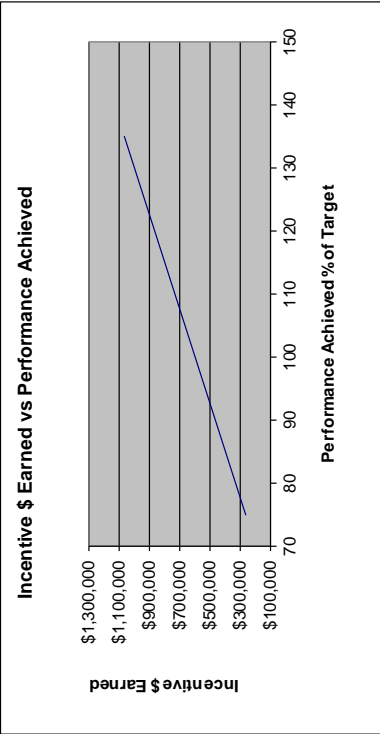
**SOUTHERN CONNECTICUT GAS COMPANY
2017 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2017 Incentive Matrix with Performance Indicators. The Utility Performance Incentive is \$601,248. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including ECMB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:

<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$267,221
85	3.0%	\$400,832
95	4.0%	\$534,443
100	4.5%	\$601,248
105	5.0%	\$668,053
115	6.0%	\$801,664
125	7.0%	\$935,274
135	8.0%	\$1,068,885

Total Original Budget* \$13,361,064

*Does not include Incentive, ECMB costs and Audit



SCG Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
Residential Program Budgets	Lifetime Savings (ccf): HES Income Eligible 6,553,734 Home Energy Solutions 4,663,963 HVAC / Water Heating 4,720,787 Residential Behavior 90,667 New Construction 1,823,191 Total Lifetime Savings (ccf) 17,852,342 Present Value Lifetime Savings (ccf) \$0.6230 Total Residential Gas Benefit: \$11,122,662 Net Residential Gas Benefit: \$2,800,939	Total Gas Benefit from all Residential programs	Gas Benefit from all Residential programs \$11,122,662	0.195	\$117,243
HES	Achieve CCF savings per single family home - based on 2016 actuals adjusted to 2017 CT PSD plus 2.0%.	ccf/home	Achieve CCF savings / single family home.	0.060	\$36,075
HES-IE	Annual ccf savings	Annual ccf savings	298,922	0.030	\$18,037

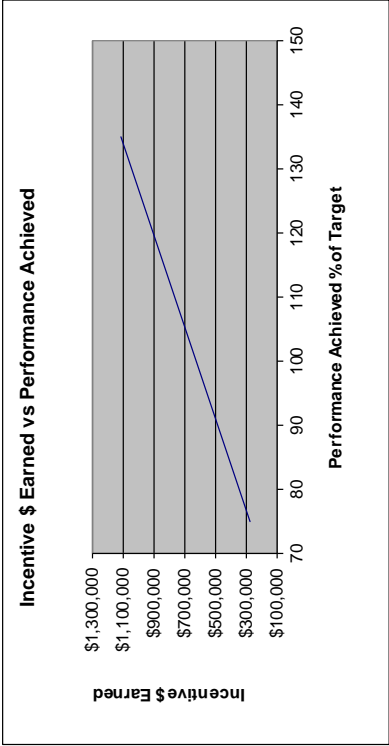
SCG Performance Incentive 2017 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
C&I Program Budgets	Lifetime Savings (ccf): Energy Conscious Blueprint Energy Opportunities O&M Small Business Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	4,640,675 3,406,684 1,422,647 977,632 10,447,638 \$0,6992	Gas Benefit from all C&I programs \$7,304,705	0.210	\$126,262
	Total C&I Gas Benefit: Net C&I Gas Benefit:	\$7,304,705 \$3,692,640	\$3,692,640	0.210	\$126,262
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	279,581	% of Gas Projects	0.050	\$30,062
Energy Blueprint / Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		% of Gas Projects	0.050	\$30,062
Total Incentive \$ Residential and C&I				1.000	\$601,248

SCG Performance Incentive 2018

**SOUTHERN CONNECTICUT GAS COMPANY
2018 Management Incentive Performance Indicators and Incentive Matrix**

Provided below is the 2018 Incentive Matrix with Performance Indicators. The Utility Performance Incentive is \$629,138. This calculated is based on achieving 100% of all performance targets and earning a target incentive of 4.5% of EE budgets (not including ECMB costs, Audit Costs or Management Incentive). Goals will be prorated based on actual over/under spend of budget. The actual incentive earned will be determined by the performance achieved in each of the Incentive Metrics identified below, based on the following Performance Index:



<u>Performance %</u>	<u>Pretax Incentive</u>	<u>Pre-tax Incentive</u>
75	2.0%	\$279,617
85	3.0%	\$419,426
95	4.0%	\$559,234
100	4.5%	\$629,138
105	5.0%	\$699,043
115	6.0%	\$838,851
125	7.0%	\$978,660
135	8.0%	\$1,118,468

Total Original Budget* \$13,980,852

*Does not include Incentive, ECMB costs and Audit

SCG Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
Residential Program Budgets	Lifetime Savings (ccf): HES Income Eligible 6,946,593 Home Energy Solutions 4,490,732 HVAC / Water Heating 5,111,071 Residential Behavior 246,500 New Construction 1,823,191 Total Lifetime Savings (ccf) 18,618,087 Present Value Lifetime Savings (ccf) \$0.6465 Total Residential Gas Benefit: \$12,036,838 Net Residential Gas Benefit: \$3,318,996	Total Gas Benefit from all Residential programs	Gas Benefit from all Residential programs \$12,036,838	0.195	\$122,682
HES	Achieve CCF savings per single family home - based on 2017 actuals adjusted to 2018 CT PSD plus 2.0%.	ccf/home	Achieve CCF savings / single family home.	0.060	\$37,748
HES-IE	Annual ccf savings	Annual ccf savings	316,809	0.030	\$18,874

SCG Performance Incentive 2018 (cont)

SECTOR Program	Performance Indicators	Incentive Metrics			
		Incentive Metric	Target Goal	Weight	Incentive
C&I Program Budgets	Lifetime Savings (ccf): Energy Conscious Blueprint Energy Opportunities O&M Small Business Total Lifetime Savings (ccf) Present Value Lifetime Savings (ccf)	4,768,537 3,400,046 1,273,932 977,632 10,420,147 \$0,9541	Gas Benefit from all C&I programs \$9,753,360	0.210	\$132,119
	Total C&I Gas Benefit: Net C&I Gas Benefit:	\$9,753,360 \$5,910,958	\$5,910,958	0.210	\$132,119
Small Business	Develop and implement comprehensive offerings specific to Retail plus a minimum of 3 targeted segments (e.g. Medical offices, Restaurants and Commercial Services). Offerings will consist of a tailored combination of measures and service bundles, energy management, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).	295,186	20% of signed projects	0.050	\$31,457
Energy Blueprint / Energy Opportunities	Develop and implement comprehensive offerings specific to Manufacturing plus a minimum of 3 targeted segments (e.g. Retail, Education and Government). Offerings will consist of a tailored combination of measures and service bundles, technical assistance for SEM, benchmarking and financing where appropriate (especially for high cost, long payback measures). Calculated as signed projects that included comprehensive offerings at time of offering / all signed projects (excluding rebates).		25% of signed projects	0.050	\$31,457
Total Incentive \$ Residential and C&I				1.000	\$629,138

CHAPTER THREE: RESIDENTIAL PROGRAMS

HISTORICAL PERSPECTIVE

Connecticut's residential energy-efficiency programs are designed to cost-effectively engage, deliver comprehensive energy savings, and provide innovative cost-saving solutions to residential customers. The state's energy-efficiency programs are continuously ranked in the top ten for energy efficiency by the ACEEE and its residential programs are nationally-recognized, and receive numerous local, state, and national awards and recognitions.

For the past 20 years, the Companies have helped to deliver innovative energy-efficiency programs to residential customers. From the first days of energy efficiency when the compact fluorescent lamp ("CFL") was introduced, to today's energy lighting star: the light-emitting diode ("LED"), the Companies have educated customers that they do not have to compromise their quality of life to save energy. As the residential energy-efficiency marketplace evolves, the Companies have designed flexible infrastructures that progress with new building energy codes, increased customer demands, emerging technologies, increased trade ally participation, and new federal standards.

In recent years, the Companies have added to the Residential Program Portfolio with new behavioral-based programs. These behavioral-based initiatives allowed the Companies to explore capturing energy savings from modifications customers make to their energy use behaviors, and by installing energy-efficient measures. The ability to capture energy conservation behavior savings is an innovative example of the Companies' progress in the residential marketplace. The 2016-2018 Residential Program Portfolio is comprehensive; it captures energy savings from both direct installed energy-efficient measures and from behavioral-based changes.

The Companies' flagship residential program, Home Energy Solutions, will continue to evolve in 2016-2018. The program will continue to deliver high-quality, energy-efficiency services to customers through a managed program approach, while opening the program up to all qualified contractors. This will broaden the Home Energy Solutions program's reach to customers who have not yet taken advantage of the program in the past, while also helping to diversify the participating market actors, and foster further development of the home performance marketplace. A detailed discussion of the evolution of Home Energy Solutions and 2016-2018 program changes and offerings can be found later here in Chapter Three.

KEY THEMES FOR 2016-2018 RESIDENTIAL PROGRAMS

The Companies target all residential customer segments and fuels in an effort to provide energy-saving opportunities to all. The Companies have designed the 2016-2018 Residential Program Portfolio to offer customers a wide variety of options to invest in energy efficiency. The Companies will continue to work with the Energy Efficiency Board and the Connecticut Green Bank to optimize the mix of Energize Connecticut incentives and financing to make the best use of customer funds while pursuing all cost-effective energy efficiency.

A key theme for the 2016-2018 Residential Program Portfolio is shifting the residential energy-efficiency marketplace toward market transformation. In an effort to initiate more comprehensive energy-efficient projects and savings, the Companies have devised an overall marketing strategy for 2016-2018 to promote the value of energy-efficient and weatherization measures to the residential marketplace. This strategy has resulted in significant changes to program models and processes to focus efforts on customer-centric programs.

As a result of high winter peak demand, the Companies have proactively designed the 2016-2018 Plan programs to provide relief to customers by focusing on electric measures with high-coincidence factors with the winter peak and natural gas energy-efficiency measures. Promotional activities and program enhancements will be used to advance high-efficiency technologies and behaviors for residential customers. The Companies' 2016-2018 Plan programs are designed to reduce natural gas and electricity consumption during critical winter peak periods. Residential promotional activities will focus on efficient lighting and insulation measures in homes with natural gas or electric heat in response to winter peak energy prices.

The Companies and the Energy Efficiency Board continuously monitor the lighting market to assess customer demand, emerging and evolving technologies, and new state or federal mandates. Building on recent program activity, the Companies, starting in 2016 and continuing through 2018, plan to provide continuous and growing support for LEDs while strategically withdrawing support for CFLs. This paradigm shift of utilizing LED technologies instead of CFLs to replace inefficient lighting technologies has rippling effects across the Residential Program Portfolio.

The Retail Products program intends to slowly phase out incentives for ENERGY STAR-certified CFLs and progress and shift toward incentivizing only high-efficacy LED bulbs by 2018. This new incentive structure is a direct result of the Companies establishing incentive levels based on wattage and efficacy. This policy change will impact energy savings, program offerings, and

incentives offered within the Retail Products, Home Energy Solutions, Home Energy Solutions-Income Eligible, and Residential New Construction programs.

The Residential New Construction program will further evolve to a tiered, performance-based approach; ensuring new construction projects are measured and verified by certified Home Energy Rating System (“HERS”) Raters using a HERS Index score. The HERS Index will serve as the foundation of the program’s 2016-2018 efforts, and should further increase the program’s energy savings. The Residential New Construction program’s 2016-2018 efforts will focus on creating a clear path for the residential new construction market to move toward Zero Net Energy Homes and will continue to encourage the installation of renewable technologies or for the home to be “renewable ready.” This is in clear alignment with the Energy Efficiency Board’s and Companies’ priority of moving all buildings (residential and commercial) toward becoming Zero Net Energy Buildings. Additionally in 2016, the Companies will explore establishing a linear, performance-based design incentive structure, and increasing builder outreach and trainings to move the residential new construction market toward Zero Net Energy Home practices.

Connecticut’s iconic Home Energy Solutions program will continue to evolve in 2016-2018. In 2016, this flagship program of the Residential Program Portfolio will continue to deliver the same high-quality services through a managed program approach, but it will be open to all qualified contractors. The Companies will also continue to focus on improving the performance of the Home Energy Solutions program, which hinges on the performance of the contractor/vendor network. Under this model, the program is still managed by the Companies in order to ensure delivery of the same high-quality, innovative, and cost-effective weatherization services.

These changes should help shift the market for direct-install weatherization services and broaden the program’s reach to customers who have not yet taken advantage of the program in the past. In 2016-2018, a key priority is to deliver, demonstrate, and communicate to customers the value of the services delivered by the Home Energy Solutions program (both energy and non-energy benefits). To improve the customer’s recognition and acceptance of the program services and deliver more comprehensive measures, the Companies will focus on educating customers about the value of home performance. This transition will need to be underscored by a marketing campaign that highlights the value of home performance to residents.

The Home Energy Solutions program, and its sister program, Home Energy Solutions-Income Eligible, will continue to serve as the primary vehicles used by the Companies to fulfill the goal of Connecticut Public Act 11-80, Section 33 of weatherizing 80 percent of Connecticut’s existing homes by 2030. The Companies will continue to deliver comprehensive weatherization services

through the 2016-2018 Home Energy Solutions and Home Energy Solutions-Income Eligible programs statewide.

Starting in 2016, the Companies will create a stand-alone heating, ventilation, and air conditioning (“HVAC”) and Domestic Water Heating (“DWH”) program that will separate program budgets and energy savings for HVAC and DWH equipment from the Home Energy Solutions program. The Companies will continue to explore opportunities to move more HVAC and DWH equipment rebates toward an upstream model. Moving more, if not all, HVAC and domestic hot water equipment rebates upstream would clearly effect a shift in the market’s practices, by changing the stocking practices of distributors, offering customers (HVAC and plumbing contractors) the ability to have discounted energy-efficient HVAC and DWH products readily available in the distributor’s inventory, and by lowering processing costs (per unit redemption). Combining upstream HVAC and DWH rebates with increased contractor and distributor outreach/education in 2016-2018 will move energy-efficient products quickly off distributors’ shelves and into customers’ homes.

The 2016-2018 Residential Program Portfolio will include established behavioral-based programs that track energy savings resulting from communications through Home Energy Reports delivered to a customer’s home and through communications via online platforms, including the Companies’ Customer Engagement Platforms. In 2016, Eversource will build upon its current efforts and explore a targeted expansion of its current 347,000 electric customer program that will utilize a market segmentation approach to enhance program targeting, customer engagement, and energy savings. Eversource will expand the program to include two customer segments: (1) Home Energy Solutions and Home Energy Solutions-Income Eligible program participants; and (2) limited-income electric customers. Additionally, over the 2016-2018 Plan, Eversource will evaluate the benefits of delivering its behavior-based program, Home Energy Reports, to Eversource natural gas customers. Starting in 2016, UIL Holdings Corporation (United Illuminating, Connecticut Natural Gas, and Southern Connecticut Gas: “UIL”) will launch its Home Energy Reports platform for both its electric (United Illuminating) and natural gas customers (Connecticut Natural Gas and Southern Connecticut Gas) that is fully integrated with UIL’s Web Customer Engagement platform.

In an effort to continuously evolve the programs and keep pace with the energy-efficiency marketplace, the Companies and the Energy Efficiency Board research new and emerging residential technology applications, and assess their potential for inclusion in the Residential Program Portfolio. Throughout Chapter Three, the Companies highlight emerging demand response technologies (i.e., Wi-Fi-enabled smart thermostats and home energy management systems) and innovative, energy-efficient technologies (i.e., advanced power strips, aerosol

envelope sealing, automated window shades, and night-purging ventilation) that they will review and assess for possible inclusion in the 2016-2018 Residential Program Portfolio. For more detailed information regarding the Companies' and the Energy Efficiency Board's research into emerging technologies and their planned residential demand response pilots, see Chapter Eight: Demand Response and Emerging Technologies.

PROCESS FOR CONTINUED IMPROVEMENT

The Companies are committed to continuous improvement of the residential programs and participate on a number of local, state, and national boards and organizations to study best practices, learn about new methods, and to stay up-to-date on emerging technologies that could drive residential energy savings. Additionally, the Companies work closely with contractors, distributors, manufacturers, retailers, and stakeholders to determine cost-effective and cost-efficient strategies, adjust program infrastructures and designs as warranted, and to continuously move forward with the residential energy-efficiency marketplace.

The Companies also review the results and recommendations from independent process and impact evaluations of their Residential Program Portfolio, and integrate the recommendations and "lessons learned" into the programs going forward. In addition, the Companies review other state's evaluations of energy-efficiency programs, including: California, Massachusetts, New York, Oregon, Rhode Island, and Vermont. The programs in these states are similar in design to Connecticut's programs. Evaluating other prominent programs also offers the Companies ideas for improvement that can be applied to Connecticut's energy-efficiency programs.

As in the past, the 2016-2018 Residential Program Portfolio will deliver cost-effective measures statewide to Connecticut's residential customers. Through ongoing marketing analysis of emerging technologies and benchmarking other states' best practices and models, the Companies will continuously assess programmatic designs, incentive structures, and supported technologies to promote energy efficiency in Connecticut. In 2015, the Companies launched individual Customer Engagement Platforms designed to identify, customize, and deliver energy-saving products and services to both business and residential customers, with a particular emphasis on the installation of hard-wired, energy-efficient improvements. These Customer Engagement Platforms have also been designed to interweave with the Companies' behavioral-based programs, which are detailed further in Chapter Three.

Coupled with marketing analysis is a concerted effort to educate through customer communications. The Companies have highly-engaged communications teams who work with the Companies' marketing analysis teams and program administrators to effectively deliver targeted communications (i.e., print and radio campaigns, social media, and public relations) to

customers. As always, the Companies will employ strategic communications tactical plans to ensure customers learn about the value of energy-efficient technologies and practices, and participate in Connecticut’s residential programs. For more detailed information regarding the Companies’ tactical communications plans for residential programs, see Appendix B: 2016 Marketing Tactical Plan.

CONNECTICUT ENERGY CODE (RESIDENTIAL)

The current Connecticut Energy Code is the 2009 International Energy Conservation Code (“2009 IECC”). The Office of the State Building Inspector and the Codes and Standards Committee are in the process of preparing the draft Connecticut Supplement for the next State Building Code. The Connecticut Supplement will adopt the 2012 family of codes developed by the International Code Council and will be coordinated with the State Fire Safety Code. After the preparation is complete, the Commissioner of the Department of Administrative Services will forward the draft to the Governor’s office and the Office of Policy and Management to begin the statutorily-mandated adoption process that in the past has taken anywhere between nine and fourteen months to complete. The new State Building Code will take effect when it is filed with the Secretary of State.

It is Connecticut’s desire to regularly adopt the current published edition of the model codes as the State Building Code. The adoption of the entire family of codes would maintain the coordination among the codes. Also, adopting codes on each cycle would expedite the review process since the change markings in the codes would have an applicable meaning. Table 3-1 shows the historic and anticipated effective dates (when the permit is filed with the town or city) for the Connecticut Energy Codes.

Table 3-1: Historic and Planned Effective Dates for Connecticut Energy Codes

	2013	2014	2015	2016	2017	2018
2009 IECC	■	■	■	■		
2012 IECC		■	■	■	■	■
2015 IECC						■
2003 IRC	■	■	■	■		
2009 IRC		■	■	■	■	■
2012 IRC					■	■
2015 IRC						■

- IECC = International Energy Conservation Code;

- IRC = International Residential Code;
- 2009 IECC was adopted October 6, 2011; and
- 2009 IRC was adopted February 14, 2014.

The residential requirements in the 2012 IECC are for a tighter and more thermally-efficient building envelope. Blower door testing of the thermal envelope is now required and the option for a visual inspection has been eliminated. An efficiency requirement for ventilation system fan efficiency and a mandatory requirement for circulating service hot water systems have also been added in the 2012 IECC.

The residential requirements in the 2015 IECC are generally not more stringent than in the 2012 IECC. The 2015 IECC does explicitly allow the use of an energy rating index approach as a means of compliance with the code. The requirements for additions and alterations of existing buildings have been moved to a separate section to better differentiate the requirements and exceptions. The mandatory requirements for circulating service hot water have been better defined in the 2015 IECC. There is also an appendix for solar-ready provisions in detached one- and two-family dwellings and townhouses that may or may not be adopted with the 2015 IECC.

For the Residential New Construction program, the expected code changes in the 2012 IECC require 75 percent high-efficacy lighting for homes regardless of compliance path. This new requirement gives homeowners and builders a choice in meeting the 75 percent high-efficacy requirement: base it on either the number of lamps or on the number of lighting fixtures. This affects the Residential New Construction program, as the energy savings associated with high-efficacy lamps is more dependent on occupant behavior than the structural improvements to the thermal envelope and equipment efficiencies required by the 2012 IECC.

MARKETING COMMUNICATIONS

Situation Analysis

In the 2013-2015 Plan, the Companies outlined the importance of transitioning to a customer-centric program delivery model. In order to do this, the Companies undertook a rigorous examination of the energy needs and consumption attributes of their customers. This segmentation data is now informing the go-to-market strategy – supporting the introduction of instant discounts (the upstream model) on DHW and HVAC equipment, and resulting in a more streamlined participation process.

Marketing communications efforts have transformed as well over the last three years. The most visible change has been the paradigm shift from focusing on program and rebate signups, to

solution-based promotions that stress the value of home performance in general, and energy efficiency in particular. This solution-based messaging is more about “why” and less about “should.” For example, the headline in a 2015 digital advertisement reads: *“Nearly 20% of Your Home’s Energy Costs are Related to Water Heating,”* and the call to action is “learn more” (at EnergizeCT.com). This is an example of a pull strategy that works very well with upstream incentives – a push strategy. The advertising sets up the value proposition, and the convenient availability of the discounted energy-efficient equipment facilitates the sale.

New digital advertising products have also created opportunities for targeted messaging. The Companies have started using “remarketing” or “retargeting” – a technology that helps advertisers reach out to users who have visited a particular site or application. Previous visitors to EnergizeCT.com, or customers who search for terms related to our offerings, will see advertisements as they browse websites that are part of the Google Display Network, or other purchased ad networks. This technology allows the Companies to serve up the advertisements based on demographics and certain psychographic attributes – increasing energy-efficiency program awareness and penetration into specific sectors such as distressed communities and areas where participation has been lagging.

The market research that is now regularly undertaken through the statewide marketing efforts has validated elements of the Companies’ messaging strategy, and has revealed opportunities for change, too. Results of a focus group of past Home Energy Solutions participants showed that approximately half of those customers were not aware of, or didn’t understand, the available energy-efficiency financing options. This information suggests that the authorized Home Energy Solutions contractors are not delivering that message as clearly as the Companies had believed. To supplement the Home Energy Solutions contractor’s role, the program’s leave-behind materials were revised and now include a financing comparison table, as well as renewable energy information. Additionally, financing language has been added as a secondary, enabling message in many promotions, and changes are being implemented on the EnergizeCT website.

The messaging research confirmed the conventional wisdom that more and more customers are using mobile devices to get their energy information. The Companies’ marketing teams have responded to those changes in a variety of ways. One new tactic introduced in 2015 was digital advertising using “Smart Fence” technology. These are advertisements that appear in thousands of mobile applications, but are served up to customers based on selected demographics. For example, LED light bulb manufacturer Sylvania partnered with the Companies to reduce their price point in combination with a special Energize Connecticut incentive. An advertisement was created to promote this special offer. The advertisement appeared in these mobile apps to customers who by their browsing history appear to be interested in home improvement and

were inside of the “fenced” geographic boundaries set by the Companies. The advertisement alerted them to a special-offer light bulb available at a nearby Lowe’s store.

The research also showed that social media is becoming a more important information channel for residential customers. In addition to engaging a new social media partner (in partnership with the Connecticut Green Bank) for Energize Connecticut, the Companies have included paid Facebook and Twitter advertising into their marketing communications mix. With the help of the social media partner, the Companies are also exploring other potential social media platforms.

In the next three years, the Companies will deploy marketing communications tactics that build upon the success of traditional mediums (with continued high use of radio), but will also take advantage of new, digital opportunities that allow them to capitalize on the segmentation work that has been completed. Targeting provides a way to specifically match the right message to the right customers, and it also helps the Companies to better manage the implementation budget. With targeting, the Companies can scale back on marketing to customer segments who are already participating at high levels, and focus on underserved or under indexing customer segments.

Marketing Communications Mix: 2016-2018

Overall, the Companies have been using a growing and more diverse marketing communications mix that has included: radio, print, direct response, social media, public relations, events, and the new media opportunities described above. Table 3-2 (on the next page) shows the potential marketing communications mediums that may be employed during the 2016-2018 timeframe, along with the appropriate audience, the measures promoted, and the high-level objective of the tactic. The extent that these mediums will be used is dependent on what is needed at any given time to achieve the Companies’ energy-saving and participation goals.

Table 3-2: 2016-2018 Marketing Communications Mix for Residential Programs

Medium	Audience	Objective	Measures and Activities Promoted (potential)
Radio Advertising	Mass Residential Market, minimal audience differentiation	Value of energy efficiency (“EE”), measure/solution-specific: focus on the value proposition	Insulation, hot water equipment, home heating equipment, air conditioning equipment, LED technology, Home Energy Solutions core, and income-eligible services
Print Advertising	English and Non-English speaking residential, contractors and architects	Value of EE, measure/solution-specific: focus on the value proposition	Insulation, domestic hot water equipment, home heating equipment, air conditioning equipment, LED technology, Home Energy Solutions core services, income-eligible services, and new construction
Digital Display Advertising (Advertising on Websites)	Targeted residential	Value of EE, measure/solution-specific: lead generators	Insulation, hot water equipment, home heating equipment, air conditioning equipment, LED technology, income-eligible services, Home Energy Solutions core services, and new construction.
Paid Online Search	Targeted residential	Solution-specific, increase user ability to connect with energy-saving resources	Keyword bid terms include: technology, equipment, behavior, environmental, save money, and home improvement
Public Relations	Targeted residential, legislative, trade allies, and associations	Value of EE, measure/solution-specific: focus on the value proposition. Tell the energy efficiency story via real-life examples	Insulation, hot water equipment, home heating equipment, air conditioning equipment, LED technology, income-eligible services, Home Energy Solutions core services, museum partnerships, Clean Energy Communities, events, Energize CT Center, awards/recognition, and new construction
Direct Response	Targeted residential, trade allies, associations	Solution Specific, utilizing traditional mail, email, and Customer Engagement Platform tools: lead generators	Insulation, hot water equipment, home heating equipment, air conditioning equipment, income-eligible services, Home Energy Solutions core services, museum partnerships, Communities, events, Energize CT Center, awards/recognition, new construction
Paid Social Media Advertising	Mass Residential Market	Value of EE, measure/solution-specific: focus on the value proposition. Foster dialogue, interest, and community	Insulation, hot water equipment, home heating equipment, air conditioning equipment, LED technology, income-eligible services, Home Energy Solutions core services, museum partnerships, Clean Energy Communities, events, Energize CT Center, awards/recognition, and new construction
Events	Targeted residential, associations and trade allies	Value of EE, measure/solution-specific: focus on the value proposition. Lead generation when possible. Foster dialogue, interest, and community	Insulation, hot water equipment, home heating equipment, air conditioning equipment, LED technology, income-eligible services, Home Energy Solutions core services, museum partnerships, Communities, Energize CT Center, awards/recognition, and new construction
Co-op	Targeted residential via Authorized Contractors	Value of EE, measure/solution-specific: lead generators	Insulation, hot water equipment, home heating equipment, air conditioning equipment, income-eligible services, and Home Energy Solutions core services

Education, Awareness, and Promotion via the Customer Engagement Platforms

A detailed description of the Customer Engagement software platforms can be found in Chapter Six: Customer Engagement Platforms. This section is focused on how the Companies will promote these tools and also how they can be used as a new marketing communications medium or channel.

The new Eversource and UIL Customer Engagement Platforms (marketed under “My Energy Consultant” and “Home Energy Advisor,” respectively) provide customers with a significantly richer, more useful experience as they look to their energy providers for information and guidance. They also provide new opportunities to connect with customers and to connect customers to energy-efficiency solutions. As with any new product, service, or opportunity, the Customer Engagement Platforms need to be promoted in their own right, and both Companies will promote this new call to action. Additionally, EnergizeCT.com will feature promotional content and links to both “My Energy Consultant” (Eversource) and “Home Energy Advisor” (UIL).

Promoting the Customer Engagement Platforms

A variety of promotional activities will be employed to introduce the new tools, including, as needed:

- Email notices;
- Content included in traditional printed bill inserts and newsletters;
- Targeted, stand-alone direct mail to key customer segments, including high-use customers who have not created online accounts;
- On-bill messaging;
- Content on EnergizeCT.com;
- Targeted digital display advertising;
- Public relations;
- Social media; and
- Content in Home Energy Solutions program kitchen-table wrap-up leave-behind materials.

Promoting Ongoing Participation and Deeper Savings via the Customer Engagement Platforms

Once customers *are* engaging with the new platforms, the communications shift from directing them to the site, to encouraging them to take action. The Companies will be analyzing the information Customer Engagement Platform-engaged customers will provide as they add to their profile, the topics they are engaging with, and the energy-efficiency measure recommendations being provided. The Companies will be fully engaged in a cycle of email messaging to assist these customers in maximizing the opportunities to realize energy savings and improve the performance of their homes. The Companies' email communications will also target prior program participants and remind them of recommended energy-saving measures (i.e., insulation, HVAC equipment, and lighting) that were not purchased or installed.

FINANCING FOR THE RESIDENTIAL SECTOR

Overview

In 2016-2018, the Companies will continue to use financing, where effective, in the Residential Program Portfolio to leverage Energy Efficiency Fund program resources and to move closer toward the state goal of achieving all cost-effective, energy efficiency by achieving deeper and greater savings.

In order to implement the most cost-effective and cost-efficient strategy for increasing comprehensiveness, the Companies will build on available knowledge and market research to combine financing with other program resources, and will coordinate with the Connecticut Green Bank and the Connecticut Housing Investment Fund to secure low-cost capital sources to ensure the continuation of existing loan products and reduce the costs of continuing to provide low-interest loans.

Leveraging Partnerships

The Companies will continue to work with the DEEP, the Energy Efficiency Board's consultants, the Connecticut Green Bank, and the Connecticut Housing Investment Fund to identify program improvements, increase program volume, and reduce customer costs. Overall coordination with the Connecticut Green Bank will be guided by the needs of the Companies' customers and priorities of the energy-efficiency programs, including those outlined by the Energy Efficiency Board. These include the Energy Efficiency Board-adopted recommendations of the Joint Committee of the Energy Efficiency Board and Connecticut Green Bank Board, included in Appendix C: Financing. The Companies refer to the single-family sector-level coordination

document developed by the Single-Family Working Group of the Joint Committee, which contains additional areas of coordination that the Companies and the Connecticut Green Bank are expected to work on over the 2016-2018 time period. This document has been discussed in ongoing residential financing coordination meetings, and has been reviewed and made available to the full Energy Efficiency Board.

In addition, the Companies will work with the Connecticut Green Bank to use financing, where effective, to achieve important policy objectives through improved Green Bank financing offerings. These include, but are not limited to, the following:

- Exploring options to expand alternative underwriting and simplified approvals where possible and appropriate to reach more customers while reducing hassle and delays, including customers below 80 percent area median income and credit-challenged customers;
- Developing solutions that incorporate financing where effective and appropriate to address health and safety or other remediation issues;
- Exploring and developing strategies for driving energy efficiency through the solar channel, and vice versa; and
- The goals of the Joint Committee, comprised of the Companies, the Department of Energy and Environmental Protection, the Connecticut Green Bank, and the Energy Efficiency Board are detailed in Appendix C: Financing.

2016-2018 Financing Offerings

With increased fund budgets continuing throughout 2016 to 2018, the Companies expect continued strong customer interest and participation in financing programs. The Companies have experienced success with the on-bill repayment financing programs for the residential sectors, including but not limited to the zero percent repayment plan, Home Energy Solutions Loan, Smart-E Loan (on-bill customer option started in 2015), and Energize CT Heating Replacement Loan. The Electric Companies (Eversource and United Illuminating) were among the first utilities in the nation to offer on-bill repayment of energy-efficiency measures for residential customers. The Companies and the Connecticut Green Bank also have a variety of third-party financing programs which offer low-interest financing.

The Companies plan to continue to offer their short-term (up to three years) zero percent repayment plan to encourage customers to invest in more comprehensive projects along with

their add-on measures. Since these loans are both small and short-term, the funds are repaid quickly and interest expense buy down costs are minimal to the Connecticut Energy Efficiency Fund. However, the Companies will encourage the Connecticut Green Bank to utilize its existing American Resource and Recovery Act funding to promote and encourage residential customers who participate in HES and invest in add-on measures to provide shorter-term (i.e., five year) and subsidized low-interest rate Smart-E loans for comprehensive measures and also to search for a lower source of capital, and also to develop financing vehicles that will finance the remediation of health and safety barriers.

With the exception of the zero percent repayment plan, the Companies will look to the Connecticut Green Bank to provide low-interest loans to support residential single-family comprehensive Smart-E loans. The legislatively-mandated Energize CT Heating Loan is funded by the Systems Benefit Charge and will continue in 2016 with an interest rate of up to 2.99 percent. The Connecticut Green Bank has discontinued the Cozy Home Loan.

The Companies and the Connecticut Green Bank also have a variety of third-party financing programs which offer low-interest financing. Table 3-3 (on the next page) details the planned residential financing offerings for the 2016-2018 Plan.

Table 3-3: Residential Financing Offerings for 2016-2018 Energy Efficiency Projects

Loan Product	Loan Limits	Terms	Interest Rate	Funding Source
Energize CT Heating Loan	<ul style="list-style-type: none"> Up to \$15,000 (Loan payments made via Eversource and United Illuminating bills) 	Max. 10 years	0% through Oct. 31, 2015	Systems Benefit Charge
Energy Conservation Loan Program (“ECLP”)	<ul style="list-style-type: none"> Up to \$25,000 for single-family (1 to 4 units) 	Max. 10 years	Below market interest rates	Connecticut Energy Efficiency Fund and the State of Connecticut
Multi-Family Energy Loan Program	<ul style="list-style-type: none"> \$3,500-\$100,000 Up to \$100,000 per building for multi-family (\$3,500 per unit). 	Max. 10 years	3% or 6% based on the income of tenants living in the building	Connecticut Housing Investment Fund
Residential Energy Efficiency Financing Program (<i>Home Energy Solutions</i>)	\$1,000-\$25,000	Max. 12 years	<u>\$1,000-\$3,000</u> <ul style="list-style-type: none"> • 0% interest up to 3 years <u>\$3,000-\$25,000</u> <ul style="list-style-type: none"> • 2.99% interest up to 10 years -For comprehensive projects • 4.49% interest, 5-year loan • 5.99% interest, 7-year loan • 6.99% interest, 12-year loan -For projects that include “Type 2 Qualifying Improvements” 	Energize Connecticut and Connecticut Green Bank.
Smart-E	<ul style="list-style-type: none"> Up to \$25,000 for single-family (1 to 4 units) 	Max. 12 years.	<ul style="list-style-type: none"> • 4.49% interest, 5-year or 7-year loan • 5.99% interest, 10-year loan • 6.99% interest, 12-year loan 	Connecticut Green Bank and local credit unions

Single-Family Residential Programs

In the single-family residential sector, the Companies will use financing, where effective, to help drive more projects with deeper savings, and to increase comprehensiveness. For the Home Energy Solutions program specifically, the Companies will use financing, where effective, to increase the quantity of recommended follow-on energy-efficient measures completed overall, and to increase the quantity of comprehensive follow-on projects.

The Companies anticipate that the use of financing tools will help achieve two distinct purposes within the Home Energy Solutions program: (1) capturing more follow-on opportunities overall, and (2) achieving more comprehensive projects. Financing is expected to help facilitate a greater quantity of follow-on projects than would have occurred without financing tools. Savings per project are expected to be higher among comprehensive projects, where financing will be leveraged with other resources to encourage the installation of more measures per home.

Although financing initially increases ratepayer costs, financing will be the first mechanism used to help achieve deeper and greater savings. For example, non-comprehensive Smart-E residential loans carried a financing-related program management cost in 2014 that has been reduced in the first half of 2015, in addition to any credit enhancements, interest-rate buy-downs, rebates, or other Home Energy Solutions program costs. These additional costs were supported by the Connecticut Green Bank, and will continue to be tracked on an ongoing basis. It is expected that costs per loan will be reduced over time as the number of loans expand, but it is not necessarily expected that financed projects will have lower costs than non-financed projects over the 2016-2018 Plan period. Instead, financing will be used to achieve the goals of increased savings and comprehensiveness.

The Companies continue to measure the success of financing, including: tracking information on the number of projects, energy savings per projects, costs per project, and cost per unit of saving for Home Energy Solutions core services and follow-on measures overall, financed follow-on projects, and comprehensive projects. The Companies will continue to track these indicators in 2016-2018 in order to better understand the impact of financing going forward in achieving program objectives. Financing will also be incorporated into impact evaluations, both within the Energy Efficiency Board Evaluation process, and in evaluations coordinated with the Connecticut Green Bank. This is done in order to better measure the success of financing tools in helping achieve overall program objectives.

RESIDENTIAL CUSTOMER SEGMENTATION (EVERSOURCE)

In advance of the 2016-2018 Plan, Eversource has developed a residential segmentation model to help differentiate customers based on the energy savings potential within their homes, as well as the customer's propensity to participate in energy-efficiency programs. By using this two-dimensional matrix of opportunity and value, Eversource can develop customized messaging to target energy-efficiency opportunities which are consistent with a customer's values. The residential customer segmentation model is a fluid and ongoing process and Eversource will continue to refine as warranted.

The five categories noted below rate a home based upon the physical feasibility of the home to save energy. They include:

- **Efficiency Opportunity.** These are primarily owner-occupied, single-family homes with high energy savings potential and lack of physical barriers. Eversource determines whether a home will be part of this category based on certain parameters, including but not limited to: age of the home, air leakage, fuel type, and presence of insulation.
- **Leading Edge.** These are primarily single-family homes that have less potential for weatherization or major system upgrades and that meet the Connecticut Draft Weatherization Standard.¹¹ Eversource determines whether a home is part of this group based on potential savings embodied in the home’s equipment, systems, and thermal envelope.
- **2-4 Family.** This type of home qualifies for either the Home Energy Solutions program or Home Energy Solutions-Income Eligible program, but it may be helpful to approach them differently than as freestanding, single-family homes. Eversource assumes that the person(s) residing in these homes require landlord permission and cannot freely make decisions that impact all four walls, the roof, and fixed appliances. These 2-4 Family homes could be flagged for further marketing to get all units to participate in a program; or they could be flagged for special marketing.
- **Multi-Family.** A multi-family home is any property with five or more units. Eversource assumes that the person(s) occupying this home cannot freely make decisions that impact all four walls, the roof, and fixed appliances. Eversource will determine how to best approach these buildings based on how they are managed (i.e., a property management company or a condominium association).
- **Barriered Home.** These are single-family homes that have one or more challenges that keep them from being good candidates for weatherization or major system upgrades. There are two major barriers currently identified:
 - Property is a renter-occupied single-family property; and
 - Pre-weatherization barriers are present. These could include, but are not limited to: asbestos, knob and tube wiring, mold, and unvented appliances.

¹¹ *NMR Group Weatherization Baseline Assessment*. Revised Review Draft Released for Committee Review, Jan. 3, 2014. <http://www.energizect.com/sites/default/files/RS-Connecticut%20Weatherization%20Baseline%20Assessment-RevisedReviewDraft010314.pdf>.

In 2014, Eversource began monitoring the impacts of contractor reported barriers to instrument-guided blower door air sealing. These barriers include the presence of health and safety issues, such as asbestos or mold, which would prevent the operation of a blower door test to determine the quantity of air leakage in the home. Eversource collected data from Home Energy Solutions contractors for visits performed from January through July in 2014 and 2015. This data indicates that nearly seven percent of the visits could not receive instrument-guided (blower door) air sealing due to health and safety barriers. Figures 3-1 and 3-2 depict the results of the Home Energy Solutions contractor barrier reporting and provide evidence that funding and financing to remediate health and safety barriers will be an ongoing need in order to achieve the 80 percent weatherization goal by 2030. In 2016, UIL intends to use the Mobile Field Tool and their program tracking system to collect and track similar data.

Figure 3-1: Contractor Reporting of Barriers to Performing a Blower Door Test

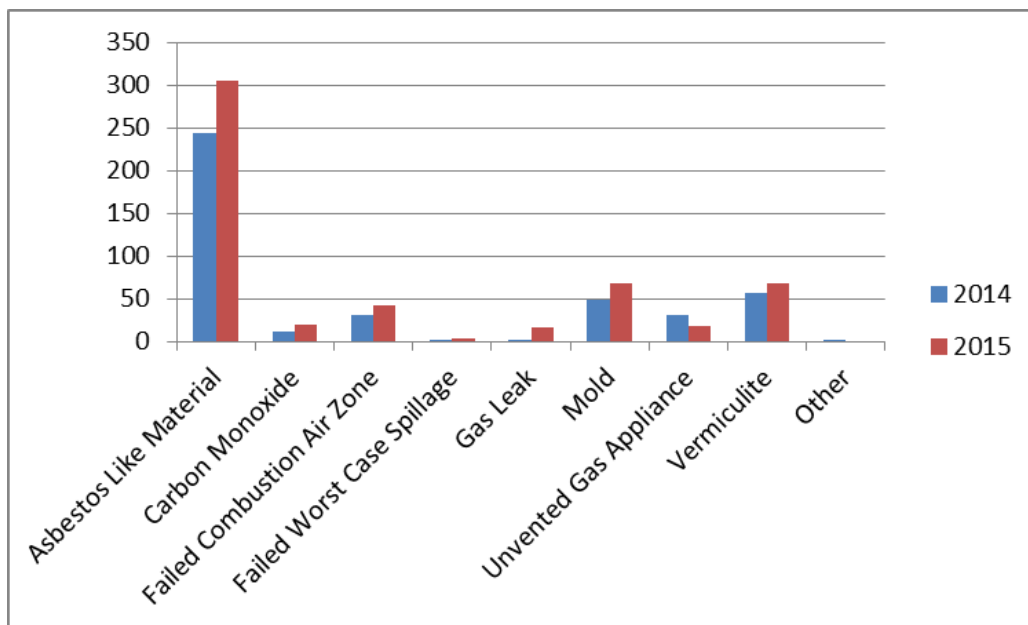
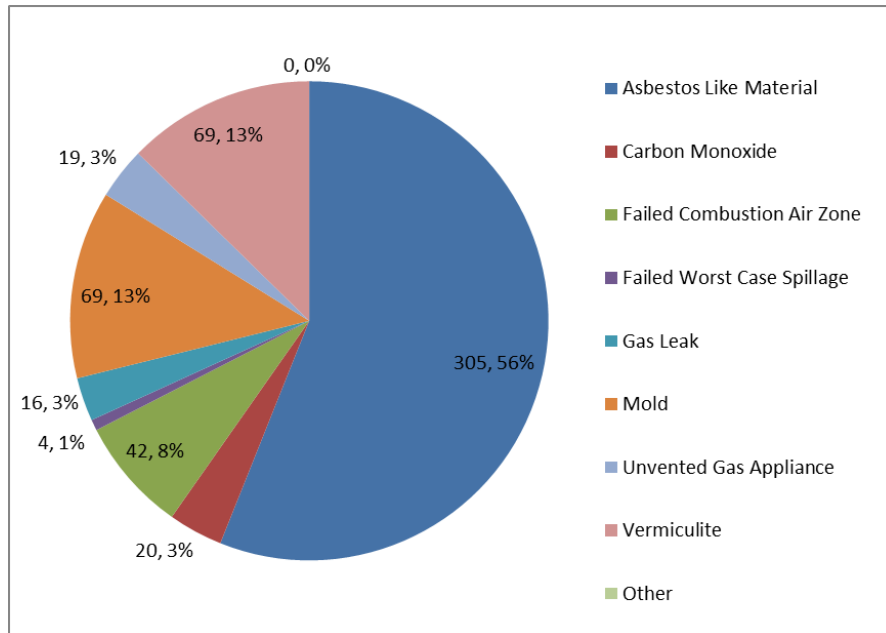


Figure 3-2: Contractor Reporting of Barriers to Performing a Blower Door Test



	2014	2015
Barriered Jobs	429	544
January-July Home Energy Solutions Participants	7,781	7,006

Eversource will also segment customers based on their likeliest motivations to participate, such as: desire to reduce impact on the environment, financial savings, and improved comfort. Through research, Eversource is working to identify which characteristics can be used to label each customer in Connecticut, and will utilize demographics and other data sources to categorize customer propensities. To date, Eversource has identified five types of “motivated” customers:

- **Income-Eligible** customers have household incomes at or below 60 percent of the state median income. In order to access income-eligible services and options in Eversource’s Customer Engagement Platform, the customer must be qualified as income-eligible by Eversource.
- **Conflicted** customers are not likely to participate in energy-saving programs. They may believe that energy efficiency is the right thing to do; however they may not have the time or drive to participate in the Companies’ programs.

- **Savers** are motivated to participate in energy-efficiency programs and/or adopt energy conservation behaviors if they help customers save on their energy bills.
- **Comfort Seekers** are motivated by personal comfort and maximizing happiness. These customers may participate in energy-efficiency programs in order to improve their perceived comfort, and to increase the value of their homes. These customers will not participate in energy-saving actions, if the action decreases their comfort.
- Members of **The Choir** are motivated by protecting the environment. They may be willing to take energy conservation actions and to make long-term investments in energy-efficient technologies.



By understanding the characteristics of the housing stock and the customers who live in them, and through an evaluation of their usage history, Eversource is able to determine where the best opportunities for savings reside. For example, data mining may show a density of larger, older, electrically-heated homes occupied by upper-income customers. For that identified sub-segment, a specific go-to-market strategy could be created, including a bundle of appropriate offerings implemented by identified local contractors and promoted using hyper-local tactics, such as the Eversource Clean Energy Communities team, civic organizations, and direct mail.

Messaging to the above-referenced customer groups will be tailored to their individual profile. For example, messaging to “Savers” would focus on energy savings, while messaging to “The Choir” might focus on the environmental benefits of energy efficiency, and messaging to “Limited-Income Customers” may highlight the low- or no-cost opportunities available through the Companies’ limited-income offerings.

RESIDENTIAL RETAIL PRODUCTS PROGRAM

Overview and Objectives

The Residential Retail Products (“Retail Products”) program is designed to increase customer acceptance, awareness, and purchases of ENERGY STAR®-certified lighting, appliances, and consumer electronics in Connecticut’s retail marketplace. The program has had considerable success in educating residential customers regarding the importance of investing in energy-saving equipment and devices.

The Retail Products program offers incentives through three different channels: mail-in rebates, online catalogs, and upstream payments to manufacturers. Upstream incentives account for the large majority of the incentives and are offered through negotiated cooperative promotions (“NCPs”) between the Companies, lighting manufacturers, and retailers to promote ENERGY STAR-certified appliances, and light bulbs and fixtures. NCPs enable customers to pay a discounted price at the point-of-purchase, rather than requiring the customer to complete a mail-in rebate and wait for their reimbursement. This purchasing simplification increases sales, customer satisfaction, and the adoption of energy-saving equipment that might be considered too costly without the NCP-provided immediate discount.

Throughout 2016-2018, the Companies will continuously monitor the dynamic lighting marketplace to proactively address new regulations and their implementation, and emerging technologies. The 2016-2018 Retail Products program will provide support for LEDs while strategically withdrawing support for CFLs. This strategy allows the Companies to anticipate and prepare the Connecticut retail market for the implementation of the 2020 performance standards of the *Energy Independence and Security Act of 2007’s* (“EISA”) requiring greater efficiency in many light bulb categories, without losing CFL and LED market share to less-efficient halogen bulbs in the interim.

Starting in 2016, the Companies plan to continue phasing out incentives for ENERGY STAR-certified CFLs (began in 2015) and progress and shift toward providing incentives to only high-efficacy standard (general service) and specialty (non-general service) LEDs by sometime in 2018, as market conditions warrant. This strategy is a direct result of the Companies establishing incentive levels based on wattage and efficacy rather than just kilowatt-hour savings. The Companies will research emerging lighting technologies that show increased efficacy, including those LEDs whose benefits go above and beyond ENERGY STAR-certified bulbs.

The plan is to gradually implement these changes, as the Companies realize that a sudden shift in not supporting CFLs could create a void where customers may only have two choices: more

expensive LEDs or lower-cost halogen bulbs. Recognizing this potential void, the Companies anticipate their plans will influence customers to purchase energy-efficient lighting while increasing consumer awareness.

The Companies also promote ENERGY STAR-certified appliances and consumer electronics. In 2015, TopTen USA was replaced by an Efficient Product Finder (powered by Enervee), a closed-loop on-line marketing platform and rebate tool. The Companies will continue to monitor the results of the 2015 Efficient Product Finder pilot and will determine if this type of platform should be used in the 2016-2018 Retail Products program.

In 2016, the Companies will explore partnering with the US EPA and national retailers to create a Retail Products Platform pilot in Connecticut. This type of market transformation initiative would offer direct retailer incentives, through big-box retail stores, such as Best Buy, Sears, and Home Depot, to increase the stocking and sale of energy-efficient products such as: air cleaners, dryers, freezers, home theater devices, and sound bars. The Companies will continuously review how they can support the Retail Products program market, for both small and big-box retail stores, through novel and innovative channels.

Target Markets

The Retail Products program's target market are residential customers who purchase lighting, appliances, and consumer electronics through retail channels, including: big-box, whole sale clubs, independent, drug, grocery, and hard-to-reach stores, as well as online market channels, fundraisers, lighting sales, and other Energize Connecticut programs and marketing channels.

Program Offerings and Incentives

Lighting Strategy

Evolution of the Lighting Market

As previously noted in Chapter Three's introductory section, the Companies monitor the continuously evolving lighting market and adapt and alter the Retail Products program as market conditions warrant. From conversations with national retail partners, the Companies understand that shelf space in big-box stores will predominately be dedicated to LED products in 2017. Thus big-box stores, including do-it-yourself stores and wholesale clubs, are shifting lighting portfolios on a national level and progressing on their own toward a LED-dominant marketplace. This is a considerable paradigm shift from treating LEDs as fringe or niche market lighting products only just a few years ago. For example, in 2014 and 2015, the Companies started offering incentives for ENERGY STAR-certified LED light bulbs. These incentives positively impacted LED light bulb

sales with LEDs making up 38 percent of the Retail Products program sales; a significant increase over LEDs' 13 percent share in 2013 for the program.

2016-2018 Lighting Strategy

In 2015, the Companies discontinued incentives for dimmable CFLs, as well as specialty CFLs (i.e., candelabras, globes, reflector lamps, and three-way CFLs). Starting in 2016, the Companies intend to continue phasing out incentives for ENERGY STAR-certified CFLs, progressing and shifting toward incentivizing only high-efficacy standard (general service) and specialty (non-general service) LED bulbs by sometime in 2018. This incentive strategy is a direct result of the Companies establishing incentive levels based on efficacy and wattage, rather than just wattage savings.

The Companies will research emerging lighting technologies that show increased efficacy, including those LEDs whose benefits go above and beyond ENERGY STAR-certified bulbs. This strategic shift, and the implementation tactics used, will be dependent upon the lighting market; and the Companies' strategy and tactics will be adjusted throughout the 2016-2018 Plan timeframe as warranted by market conditions. Continuous monitoring of the marketplace, along with maintaining program flexibility, will be key to the successful market transformation toward LED technologies without backsliding toward the adoption of less-efficient products.

National Retailer Strategy (Do-It-Yourself, Big Box, and Wholesale Clubs)

From ongoing conversations with national retail partners, the Companies recognize that retailers are moving toward a LED-dominant marketplace, but as noted above, this shift must be gradual and strategic.

In 2016, the Companies' strategy for big box retailers will position the Companies to achieve approximately 60 percent overall program penetration of LEDs; with projected 2018 program penetration to move closer to 90 percent. The Companies will continue to support LED technologies and to provide incentives for both general service and specialty LEDs. In 2015, the Companies discontinued incentives for dimmable CFLs as well as specialty CFLs (i.e., candelabras, globes, reflector lamps, and three-way CFLs). In 2016, in big-box and wholesale clubs, the Companies will continue to shift support to LED products and plan to only offer incentives for high-lumen replacement CFLs for which the LED equivalents currently command a significant cost premium.

In 2017, the Companies will progress toward incentivizing ENERGY STAR-certified LEDs and will consider exploring higher efficacy standards as part of the selection process determining which LED bulbs to support. The Companies will monitor the mainstream marketplace to determine

what incentives and marketing strategies are needed to ensure Connecticut will continue to help shift the residential lighting marketplace to the highest levels of energy efficiency.

Local Retailer Strategy (Independent and Hard-to-Reach)

In 2016, the Companies will continue to offer incentives for standard CFLs, including high lumen replacement options, in independent and hard-to-reach retail stores. Continued incentive support in 2016 will allow time for the Companies' increased consumer educational and outreach efforts to take effect in the hard-to-reach, independent, and mainstream marketplaces. In 2017, the Companies will continue to monitor the marketplace to adjust incentives and strategies as warranted. Based on marketplace conditions, the Companies intend to provide minimal support and incentives for CFL technologies in hard-to-reach markets in 2017.

In 2018, the Companies will continue to proactively prepare the retail marketplace in Connecticut for EISA 2020 performance standards: at least 45 lumens per watt efficiency in light bulbs. This preparation will include continued strategic support and consumer education for LEDs in hard-to-reach markets.

Continued Education and Awareness

The Companies recognize that education and awareness is paramount to customers choosing energy-efficient products in the retail marketplace. All customers, including those in hard-to-reach markets, must be educated regarding why selecting a LED or CFL is important to their aesthetic, comfort, and fiscal needs. Additionally, the Companies will focus their efforts on educating customers about the benefits of LEDs, and will encourage early replacement of incandescent and halogen bulbs.

Lumens vs. Watts

A focus of the Retail Products program's educational efforts has been on teaching customers about the U.S. Federal Trade Commission's ("FTC") labeling system which requires light bulb packaging to contain information on these measures: brightness (or lumens), energy use, estimated yearly energy cost, life-expectancy, and light appearance. The FTC's labeling system was created to emulate national nutritional guidelines found on food packaging. The FTC's light bulb label highlights the amount of lumens a light bulb produces and then details other attributes of the bulb. *Lumens* are a measurement of the amount of light a bulb produces.

Through their intensive outreach efforts, the Companies have found that customers often still look for wattages, instead of lumens, when they shop for light bulbs. This is due to when a lamp's light bulb burns out; the fixture's instructions indicate the necessary wattage for the replacement bulb. For many customers, replacing a bulb with an equal wattage unit is hard-

wired into their purchasing mind-sets. To battle this engrained instinct, the Companies have enlisted innovative marketing efforts including: point-of-purchase literature, in-store signage, end cap space displays, and in-store product demonstrations during high traffic periods. These efforts are designed to educate and market to consumers when and where they make their retail choice decisions: store aisles. The Companies' 2016-2018 marketing efforts will continue to guide customers toward purchasing light bulbs due to their lumens, and lower energy costs, in lieu of wattages.

LEDs vs. Halogens¹²

An additional challenge for the Companies over the next three years is the continued onset of "efficient" halogens and lower cost non-ENERGY STAR-certified LEDs, and their increasing competition with LEDs in the retail marketplace. In recent years, halogens have somewhat improved in efficiency, with some bulbs meeting early EISA requirements. In order to move toward a LED-dominant marketplace, the Companies must educate customers about the benefits of ENERGY STAR-certified LEDs over halogens and other energy-efficient lighting technologies. This requires marketing the attributes of LEDs, such as their: dimming capabilities, efficacies, longer lifetimes, and environmental benefits such as no mercury. Additionally, the Companies must market the quality benefits of program supported ENERGY STAR-certified LEDs compared to lower cost non-program supported, or non-ENERGY STAR-certified LED options.

The Companies' concern is that discontinuing CFL incentives too soon would result in lower-priced, less-efficient halogen bulbs filling the discounted CFL and LED void, especially in hard-to-reach retail stores. This would mean that customers would have only two choices on store shelves: (1) lower-priced halogens, or (2) more expensive CFL and LED options. Therefore to prevent this issue from arising, the Companies will monitor the lighting market, and plan to maintain incentives for high-wattage replacement CFLs as market conditions warrant in national/big-box retailers, and standard CFLs, including high lumen replacement options in local retail stores to avoid giving customers no affordable, energy-efficient options. The Companies will also continue educating hard-to-reach customers about the benefits of LEDs through various channels that include: in-store promotions, marketing campaigns, online and social media, and signage.

¹² Connecticut Energy Efficiency Board Retreat. *2015 Lighting Strategy Presentation*. May 20, 2015. <https://app.box.com/s/m8axah0mbqjk7916h1agy2lvpujj4q7z>.

Messaging Channels for Hard-to-Reach Consumers

The Companies plan to increase targeted outreach efforts to “hard-to-reach” customers, which are defined as those customers not likely to invest in energy-efficient lighting for a variety of cultural, economic, and linguistic reasons. The Companies recognize that customer education is imperative in order to shift from a CFL to LED-dominant marketplace by 2018.

In 2014 and 2015, the Companies made significant strides in introducing low-cost LEDs to retail locations serving hard-to-reach customers. This emphasis on reaching the hard-to-reach market segment ensures parity for all Connecticut residential customers, regardless of ethnicity, cultural and linguistic barriers, or income, and that all customers have access to low-cost LED and CFL products. Starting in 2016, support for CFLs will continue in local retail outlets frequented by hard-to-reach customers, such as Big Lots, Dollar Tree, Family Dollar, Goodwill, Ocean State Job Lot, and ethnic grocery stores. This will gradually phase-out to only minimal support if needed, for high-lumen output replacement CFLs only in hard-to-reach and independent retailers by 2018. Concurrently, the Companies will continue to target and increase LED support in these same retail outlets. The Companies see an opportunity to increase awareness and create a new generation of energy-efficient consumers in this underserved population segment.

To ensure consumer market-wide access, the Companies will employ multiple marketing channels to educate hard-to-reach customers regarding the benefits of LEDs. These include:

- **Field Implementation Vendors.** The Companies will increase the number of in-store promotions and demonstrations in hard-to-reach retail stores. Consumer education is imperative in order to completely transition to a LED-dominant marketplace.
- **Increased Marketing & Signage.** The Companies will increase Energize Connecticut marketing and signage at hard-to-reach retail stores regarding the benefits of purchasing LED bulbs.

Maintaining Quality Control

The Companies will continue to provide and enhance quality control processes to maintain program integrity. Quality control processes have been developed for the Companies’ field implementation vendor, which includes continuous training and support for retailers, and periodic monitoring of sales transactions. Retail lighting sales data are also monitored through both the field implementation and rebate fulfillment vendors to ensure program compliance. In addition, the Companies work closely with retailers at both the regional and national levels to ensure that program guidelines are regularly communicated back to the stores. The Companies

will continue to look for opportunities to further enhance these quality control efforts in the 2016-2018 Plan program years.

Leveraging Manufacturing Partnerships

The Companies recognize the need to leverage their ongoing marketing efforts with those of manufacturers. Consumer research and groundbreaking marketing insight performed by manufacturers can provide valuable information on what works to drive a customer to select one product over another. This market research is invaluable to the Companies as it can determine a customer's preference for lighting color, temperature, linguistic style, visual effect, or one-on-one verbal communication that if made, could encourage a customer to purchase the efficient choice. Additionally, establishing partnerships with manufacturers enables the Companies to launch coordinated point-of-purchase promotional materials and efforts with significant financial and coordination support. Thus, leveraging manufacturing partnerships allows the Companies to use program dollars toward incentives rather than increasing marketing and communications expenditures.

Retail Online Platform

Since the mid-1990's, the Companies have promoted energy-efficient lighting products through the retail catalog and online platform: the SmartLiving™ Catalog. In 2008, the Companies redeveloped and transitioned the catalog to be solely an online marketing platform. Since 2010, the SmartLiving Catalog website, www.smartlivingcatalog.com, has helped promote the sale of approximately 11,000 energy-efficient lighting products. For the 2016-2018 Plan, the Companies have determined that it is time to reevaluate the value of maintaining this online retail platform. In 2016, the Companies plan to issue a RFP for third-party assistance in developing a new retail online platform that is aligned with the Retail Products program's goals. Based on the review of historic results from the former SmartLiving catalog and the results of the above-referenced RFP, the Companies will determine the value in continuing to offer an online retail platform.

Appliances and Consumer Electronics

Enervee "Efficient Product Finder" Pilot

The Companies recognize that some customers shop online for energy-saving appliances, lighting, and consumer electronics. In an effort to capture the online consumer market for ENERGY STAR-certified products, the Companies partnered with TopTen USA, a web-based platform offering high-efficiency product information and consumer rebates from 2011 to mid-2014. When TopTen USA was discontinued, the Companies transitioned to a new web-based platform in mid-2014, the Enervee "Efficient Product Finder" pilot.

The “Efficient Product Finder” pilot promotes the purchase of high-efficiency appliances, consumer electronics, and lighting. The pilot’s web-based platform also provides customer reviews, scores, energy and dollar savings, and purchase costs for a variety of energy-efficient products, such as: dishwashers, dryers, light bulbs, refrigerators, televisions, and washers. Several products incentivized through Energize Connecticut programs are offered through this web-based platform, including: clothes dryers, clothes washers, freezers, and refrigerators. The website notes which products are ENERGY STAR or ENERGY STAR Most Efficient.

The 2015 “Efficient Product Finder” pilot offers the Companies an innovative closed loop marketing approach which allows them to streamline the rebate redemption process and monitor customers as they shop via the online platform. The Companies are able to track customers as they begin shopping, and to follow them as they make purchases and redeem rebates. Simplifying rebate processing and potentially increasing follow-through of customers from “just looking” to making online purchases are just two of the benefits of the “Efficient Product Finder” platform. In 2016, the Companies will monitor results of the pilot, and based on performance levels, the Companies will adjust offerings or the platform itself, to ensure a cost-effective online approach to drive purchases of energy-efficient appliances, consumer electronics, and lighting.

[ENERGY STAR Retail Products Platform Pilot](#)

In 2016, the Companies will explore partnering with national retailers and the US EPA to launch an ENERGY STAR Retail Products Platform (“RPP”) pilot. The ENERGY STAR RPP is a nationally-coordinated approach to align state energy-efficiency programs with retailers’ business models. Connecticut’s ENERGY STAR RPP pilot would potentially offer mid-stream incentives to increase retailers’ stock of energy-efficient products, such as: air cleaners, clothes dryers (electric and natural gas), freezers, home theater systems, room air conditioners, and sound bars at Connecticut retail locations. If the pilot launches, the Companies would closely monitor the results to determine if this type of platform shifts the marketplace toward increased awareness, sales, and stock of energy-efficient appliances and consumer electronics.

[Current Offerings and Emerging Technologies](#)

In 2016, the Companies will reevaluate participation in current program offerings and incentives. This reevaluation will include analyzing the cost-effectiveness of offering incentives for freezers.

While energy-efficient appliances are more readily available due to efforts by the ENERGY STAR program, new technologies continue to emerge. As an example, in 2015, the Companies began offering rebates for ENERGY STAR-certified electric heat pumps and natural gas clothes dryers. As additional models become certified and available on the market, the Companies anticipate

that prices will begin to drop and adoption of these technologies will continue to grow over time. The Companies will continue to monitor the market for efficient appliances and technologies, review new technologies and products as they emerge, and consider integrating them into the Retail Lighting program's offerings. In addition, the Companies will continue to explore the feasibility of offering demand reduction options with connected devices, including the development of strategies to address the procurement of peak demand savings.

New Offerings

In 2016, the Companies will explore new program offerings and incentives for ENERGY STAR-certified appliances and consumer electronics. These new program offerings include, but are not limited to:

- **Air Purifiers.** In 2016, the Companies may offer mid-stream rebates for certain energy-efficient products to big-box retail stores, such as Best Buy, Home Depot, and Sears, through a RPP pilot. The RPP pilot may include midstream rebates on air purifiers, thereby hopefully increasing retailer stock and sales of these energy-efficient devices. If the RPP pilot moves forward, the Companies will explore various rebate mechanisms, such as instant rebates, for both big-box and small retailers.

RESIDENTIAL NEW CONSTRUCTION PROGRAM

Overview and Objectives

The Residential New Construction program's primary objectives are to reduce energy use and peak demand in residential new housing and to create a clear path for the residential new construction market to move toward more efficient Zero Net Energy homes. The program provides incentives to builders and/or homeowners to incorporate advanced energy-efficient technologies into residential new construction or gut rehab projects. Secondary program objectives include: increasing awareness and education regarding energy-efficient practices, integrating renewable readiness into the program, and preparing builders and market actors for the adoption of the 2012 and 2015 International Energy Conservation Code ("2012 IECC" and "2015 IECC"). In 2016-2018, the Residential New Construction program will focus on comprehensiveness, performance-based design, renewable readiness, streamlined market solutions, and system rebates.

The Residential New Construction program's incentive structure, educational outreach, and trainings are calculated efforts by the Companies to move the residential new construction market toward more permanent, energy-efficient, and Zero Net Energy home practices. Homes going through the Residential New Construction program are built with efficient features that include, but are not limited to: enhanced building envelope measures, high-efficiency HVAC and water heating systems, and efficient lighting and controls.

In recent years, the Residential New Construction program has undergone significant program structure changes to increase cost-effectiveness. In 2015, the Companies streamlined builder and/or homeowner participation to two tracks: (1) the Home Energy Rating System ("HERS") Index and (2) the Prescriptive Path. Both tracks required builders and homeowners to hire a HERS Rater to measure and verify either the home's comprehensive energy performance (HERS Index) or individual building system's energy efficiency performance (Prescriptive Path). In 2016, the Companies will create a tiered, performance-based approach utilizing the HERS Index. The HERS Index will serve as the required key component for participation in the 2016-2018 Residential New Construction program, and will potentially further increase program cost-effectiveness for single-family and low-rise multi-family projects. This shift in program structure is designed to comprehensively measure and verify a new home's energy performance.

In 2016, the Companies will launch an extensive workshop series for builders and building code officials regarding HERS Ratings, and to raise awareness of the 2012 IECC (see Residential Code section earlier in Chapter Three for effective dates). These workshops will continue in 2017 and

2018, with the addition of workshops on the 2015 IECC, and are an effort to drive the residential new construction community toward lower HERS ratings and compliance with 2015 IECC. Due to this enhanced educational outreach, the Companies anticipate a future upturn in the quantity of Connecticut homes utilizing HERS raters to obtain a HERS Index Score and participating in the Residential New Construction program. The Companies also anticipate an increase in homes qualifying as DOE Zero Net Energy Homes. Additional training may include seminars on the DOE Home Energy Score (“DOE HEScore”) to raise builder and real estate agent awareness regarding this home energy performance rating. Additionally, the Companies will advocate for an updated new construction baseline evaluation to update the new construction baseline.

Also starting in 2016, the Companies will also explore establishing a linear, performance-based design incentive structure to reward builders and/or homeowners who focus on whole building energy performance and whose homes obtain a low HERS Index. The Companies will design the new incentive structure to encourage more comprehensive projects focusing on home performance as a whole, rather than individual building systems.

In 2015, the Companies began requiring renewable readiness for all homes that planned to meet the HERS Path Track 1, Tier 3 level of incentives (a home with a HERS Index of 50 or lower). This meant that every home achieving that level of efficiency also had to follow the DOE’s Zero Energy Ready Home Consolidated Renewable Energy Ready Checklist. Starting in 2016, the Companies will require that all homes with a HERS Index of 55 or lower meet this renewable readiness requirement. In 2017 and 2018, the Companies will explore strengthening the renewable readiness requirement for longer term incorporation of renewables into whole building performance in the Residential New Construction program. The Companies will continue to coordinate renewable integration with the Connecticut Green Bank.

Target Markets

The Residential New Construction target market is any residential customer or multi-family property owner who is building a new home, or conducting a gut rehab, who will receive electric or natural gas service from Eversource, United Illuminating, CNG, or SCG. Customers who will use oil, propane, or another fuel source to heat their homes and water are eligible to participate, as long as they receive electrical service from Eversource or United Illuminating.

For single-family and low-rise multi-family projects, the property must be a residential account for Eversource or UIL and classified as a single or multi-family property (three stories or less) being built in the state of Connecticut. For Multi-Family Whole Building Performance projects, the multi-family property may be a hybrid of residential and commercial metered accounts, which is four stories and above.

The Connecticut Department of Economic and Community Development reports 4,603 housing permits were issued in Connecticut in 2014. Approximately 33 percent, or 1,519 new residential single-family and multi-family dwellings participated in the 2014 Residential New Construction program. The Companies anticipate increased participation rates in 2016-2018 as a result of increased builder awareness and the Residential New Construction program's new performance-based design incentive structures. Having captured 33 percent of the marketplace in 2014, the Residential New Construction program will work to incrementally secure more of the market throughout 2016-2018. This will include targeted outreach to limited-income customers.

Program Offerings and Incentives

Performance-Based Design

Home Energy Rating System Index

In 2016, the Residential New Construction program's Prescriptive Path will be eliminated and the Companies will launch a performance-based design tier incentive system using the HERS Index. The HERS Index will serve as the core structure for the 2016-2018 Residential New Construction program for single-family and low-rise multi-family projects. This shift in program structure is designed to comprehensively measure, and verify, a new home's energy-efficiency performance.

This tiered incentive structure will reward builders and/or homeowners who focus on optimal whole building energy performance and who obtain low HERS Ratings. This new performance-based design tiered system (excluding renewables) will encourage builders to view home energy performance as a whole, rather than building systems as silos that do not interact.

There are two main reasons for the Prescriptive Path's elimination. First, less than 10 percent of the 2014 Residential New Construction's single-family and low-rise multi-family projects utilized the Prescriptive Path. Secondly, the Prescriptive Path already required the use of a HERS Rater to qualify high-performance equipment, so this eliminates the issue of the builder and/or homeowner of paying for a professional (the HERS Rater) but not receiving a comprehensive energy analysis of the home. Builders and/or homeowners will realize greater energy savings if they work within the HERS Index, as it looks beyond individual building systems and toward a comprehensive energy-efficient home approach. There will still be minimum "prescriptive" requirements, such as mechanical ventilation.

The HERS Index allows a builder and/or homeowner to work directly with a HERS Rater to ensure high-efficiency equipment, high-performance building methods, and sustainable materials are utilized throughout the building process. An additional benefit is that HERS Raters can provide

duct and building envelope testing which can confirm code compliance. To drive efficiency in Connecticut's new construction market, a HERS Rating will be required for any single-family and low-rise multi-family new construction project applying for Energize Connecticut incentives.

In 2016, the Companies will explore issuing a Request for Information to determine average prices for a HERS Rating, and to establish standard expectations, pricing, and expertise of Residential New Construction program-approved HERS Raters. Transparency in how much a HERS Rating will cost, and standardizing builder and/or homeowner expectations, should help drive market transformation.

In 2016, the Companies intend to structure their incentives such that homes receiving a HERS Index Score of 45 or lower will receive a greater base incentive and will still be eligible for additional point incentives. This performance-based incentive structure is designed to truly incentivize builders and/or homeowners to comprehensively address a home's energy performance. An additional requirement of Tier 2 and 3 recipients is to have the home designed as "Solar Photovoltaic PV Ready," which means it is constructed such that the wiring conduit and construction are ready for a photovoltaic system to be installed at a later date. This requirement was introduced in 2015, and will continue during the 2016-2018 Plan.

Additional Building Certifications and Incentives

In addition to the HERS Rating, the 2016-2018 Residential New Construction program will incorporate bonus incentives for builders and/or homeowners who build to, and qualify for, additional energy-efficiency certifications and designations, including: DOE Zero Energy Ready Homes, Leadership in Energy and Environmental Design certification, Passive House, and ENERGY STAR Homes. Below are descriptions of these certifications and designations.

ENERGY STAR Version 3 Certified Home

A home can earn an ENERGY STAR certification just like other products, such as appliances, consumer electronics, and light bulbs. Available for the past 20 years, an ENERGY STAR Home designation certifies that a home has been built to the highest of energy-efficiency building standards. Energy-efficient measures considered for certification include: comprehensive air sealing, high-efficiency HVAC and DWH equipment, high-performance doors and windows, and quality-installed insulation. ENERGY STAR-certified homes use 30 percent less energy than a typical new construction home.

DOE Zero Energy Ready Home

This certification builds upon ENERGY STAR for Homes Version 3's building science requirements, and certified DOE Zero Energy Ready Homes typically have a HERS Index Score in the low mid-50s. Qualifying energy-efficient measures typically include: thermal enclosure, HVAC quality installation, high-performance ENERGY STAR-certified windows, water management, ENERGY STAR-certified appliances and lighting, efficient hot water distribution system, and certification by the US EPA's Indoor Air Plus program. A DOE Zero Energy Ready Home also must meet 2012 IECC levels for insulation, and also comply with the Photovoltaic ("PV")-Ready checklist for climates with significant solar insolation (includes Connecticut).

Leadership in Energy and Environmental Design ("LEED") for Homes

A LEED certification for a residential construction project requires both energy-saving and sustainable building practices. LEED-certified homes are built to save energy and water, minimize exposure to airborne toxins and pollutants, and to ensure fresh indoor air quality. Builders and/or homeowners work with a LEED for Homes Green Rater to attain certification. The Residential New Construction program requires that a home must receive at least a Silver LEED certification to receive a bonus incentive.

Passive House

A certified Passive House is designed and built in accordance with six building-science principles. Passive houses requirements are very stringent and exceed highest Tier 3 standards. First, a certified Passive House must utilize continuous insulation throughout its entire building envelope without any thermal bridging. Then, a Passive House must feature high-performance windows and doors, as well as an extremely airtight building envelope. Additionally, a Passive House must use some form of balanced heat and moisture recovery ventilation, and also use a minimal space conditioning system. Finally, a certified Passive House's solar gain must be managed to minimize the sun's energy during cooling seasons and to maximize it during heating seasons.

Multi-Family Whole Building Performance Initiative

In 2013, the Residential New Construction program integrated the Multi-Family Whole Building Performance Initiative ("Multi-Family WBP Initiative") into its structure design, and also coordinated with the Companies' Commercial and Industrial programs to address new construction and gut rehabs of industrial and warehouse buildings. Created for multi-family projects of four stories or higher, the Multi-Family WBP Initiative incentivizes building owners to construct, renovate, and invest in, high-performance buildings that consume substantially less energy than comparable code-compliant buildings. These energy-saving Multi-Family WBP

Initiative projects are comprised of Energy Efficiency Measures (“EEMs”), such as high-performance materials and energy-efficient controls/systems, which increase upfront building costs but drastically reduce the operations and maintenance costs over the building’s lifecycle. The Multi-Family WBP Initiative offers three types of incentives:

- **Incentive 1: Subsidies for Building Energy Simulations.** Engineering subsidies are paid to a Simulator (i.e., design firm) for submitting Phase 1 pre-construction and Phase 2 post-construction building energy simulation reports.
- **Incentive 2: Multi-Family WBP Initiative Incentive.** A property owner receives this incentive to invest in constructing a high-performance building that complies with the Companies’ Multi-Family WBP Initiative guidelines.
- **Incentive 3: Bonus for LEED or ENERGY STAR Multi-Family High Rise (“MFHR”) Certified Buildings.** A special incentive is paid to the owner of a Multi-Family WBP Initiative project for obtaining LEED certification (Silver, Gold, or Platinum), or ENERGY STAR MFHR certification for the multi-family residential building.

Streamlined Market Solutions

Solar Photovoltaic-Ready Homes

In 2015, in an effort to create more PV-ready homes, the Companies developed a “*renewable ready*” criteria for homes that have a HERS Rating of 50 or less. In 2016-2018, the Companies will continue to require the DOE’s Zero Energy Ready Home Consolidated Renewable Energy Ready Checklist for Tier 3 HERS Ratings (rating of 55 or less). PV-readiness helps increase new construction Connecticut housing stock ready to become DOE Zero Net Energy Homes.

LED Lighting Requirements

The Companies will continue to promote the use of efficient lighting and fixtures in new construction and gut rehab projects. Currently, the Residential New Construction program requires that at least 80 percent of sockets contain CFLs, LEDs, or other fluorescent/high-efficiency lighting. As the Companies gradually shift toward offering incentives for LEDs only, the Residential New Construction program will align its lighting requirements with other Energize Connecticut program year requirements. The changes to the 2012 IECC and its effects on the Residential New Construction program’s lighting requirements are detailed further in the Residential New Construction section.

Limited-Income Residences

Residential New Construction projects, both single-family and multi-family, built for limited-income residents receive 125 percent of eligible incentives. Limited-income is defined as individuals who make less than 60 percent of the state median income, and these higher incentives are available to individual tenant/dwelling units which qualify.

Connecticut Zero Energy Challenge

In 2012, the Companies launched the CT Zero Energy Challenge ("ZEC") as a design and build competition to raise builder awareness and showcase high-performance Zero Net Energy Homes and "near zero energy" homes. Subsequent challenges were held in 2013, 2014, and 2015. ZEC homes are the pinnacle of high-performance homes and demonstrate to the building community that Zero Net Energy Home construction is achievable—the ultimate Residential New Construction program goal for new construction projects over time. The 2014 ZEC first-place winner was built by Glastonbury Housesmith and was the first LEED-certified Gold house built in Connecticut.

Participants in the ZEC are assigned a performance score based on the presence of energy-efficient features that curb overall energy use. The Companies use Residential Energy Services Network ("RESNET") Rating Standards to determine each completed home's HERS Index. ZEC participants are judged on the following criteria: the home's HERS Index Score, the cost-effectiveness of the project, and the home's total estimated energy use.

The Challenge offers recognition for the architectural/design community and cash prizes to the top three builders and/or homeowners who build the most efficient Zero Net Energy Homes. The annual event also provides the builders and Energize Connecticut with positive media exposure. The Challenge has increased builder, contractor, and homeowner awareness of energy-efficient building practices, codes, and the Residential New Construction program itself. The Challenge has established Connecticut as a leader in Zero Net Energy Home design and continues to draw interest from numerous stakeholders across the United States. The Companies plan to continue holding the annual ZEC through 2018, and will continue to promote the affordability and benefits of Zero Net Energy Homes through this marketing and builder awareness channel.

Typical Zero Net Energy Homes exceed minimum building code standards and are built efficiently so that they use either very little energy, or no more energy, from the electrical grid annually than the home produces on-site. Typical features include: advanced insulation, sustainable building practices minimizing waste and cost, high-efficiency HVAC systems, high-performance water heating systems, balanced mechanical ventilation systems, air sealing and tight

construction, optimal solar orientation, properly-sized HVAC systems, and on-site clean energy generation.

Emerging Technologies for the Residential New Construction Market

As further detailed in Chapter 8: Emerging Technologies, the Companies continue to explore emerging technologies that could affect energy-efficiency programs, and offer more opportunities for customers to install deeper energy-saving measures. In the Residential New Construction market, the Companies are exploring aerosol envelope sealing and automated window shades in residential applications. Additionally, the Companies are continuously benchmarking other state's energy-saving efforts and have noted that many states are currently developing road maps and "pathways" to create more Zero Net Energy Homes and low-load homes. The Residential New Construction program will continue to explore technologies, conduct trainings, and utilize various outreach mechanisms to push the Connecticut residential new construction marketplace toward affordable Zero Net Energy Homes.

Increased Education, Training, and Outreach

The Companies realize the Residential New Construction market is continuously evolving and adopting new building practices and standards. As an effort to drive the Residential New Construction program community toward lower HERS Ratings and compliance with 2015 IECC, there will be an enhanced focus on education, outreach, and training in 2016-2018. As part of the 2015 IECC, new construction homes must earn a HERS rating of 55 or lower when following the Energy Rating Index Performance Path option. The Companies will explore adjusting the program incentive tiers over time as appropriate to align with codes changes. To support the Residential New Construction program community and increase builder awareness and education, trainings will include these subjects and certifications: 2012 IECC, 2015 IECC, and HERS Ratings. The Companies will explore offering Duct and Envelope Tightness ("DET") verification training and certification. The Companies anticipate a significant upturn in the quantity of HERS-rated and Zero Net Energy Homes as a result of builder education.

The Companies will also explore coordinating efforts with DEEP to provide education and outreach to the real estate, home inspection, and appraisal communities in order to educate these sectors about energy ratings and labeling systems, such as HERS and the DOE HEScore, in order to further transform the new construction and real estate markets.

2012 IECC and 2015 IECC Code Adoption

The Companies anticipate that the IECC 2012 will be adopted during the implementation of the 2016-2018 Plan. The Companies intend to increase building code trainings during this period to

make more building officials aware of residential code changes. Starting in 2016, the Companies will explore the idea of attributing energy savings from IECC 2012 and IECC 2015 trainings for building officials, trade allies, and others to the Residential New Construction program’s portfolio. The Companies will review code attribution models currently in place in other states, including: Arizona, California, Massachusetts, and Rhode Island. The Companies will also review NEEP’s recent research efforts¹³ on 2012 and 2015 IECC adoption, including the work of Massachusetts, Rhode Island, Vermont, and Washington D.C. to develop and adopt a “stretch” energy code.

For the Residential New Construction program, the expected code changes in the 2012 IECC require 75 percent high-efficacy lighting for homes regardless of compliance path. This new requirement provides homeowners and builders a choice in meeting the 75 percent high-efficacy requirement—base it on either the number of lamps or the number of fixtures. This affects the Residential New Construction program, as the energy savings associated with high-efficacy lamps is more dependent on occupant behavior than the structural improvements to the thermal envelope and equipment efficiencies required by the 2012 IECC.

¹³ Northeast Energy Efficiency Partnerships. <http://www.neep.org/blog/mid-year-update-state-progress-building-energy-codes>.

HVAC AND DOMESTIC WATER HEATING PROGRAM

Overview and Objectives

In 2016-2018, the Companies will separate incentive budgets and energy savings for HVAC equipment from the Home Energy Solutions program and create a stand-alone, energy savings HVAC and Domestic Water Heating (“DWH”) program. High-efficiency HVAC and DWH equipment purchased as a result of Home Energy Solutions program services will have resulting energy savings, incentives, and programmatic costs tracked within the HVAC and DWH program. The Companies will determine a mechanism for tracking rebates and affiliating them to Home Energy Solutions “jobs” as appropriate, both for purposes of tracking rebates on the Energize Connecticut online dashboard, as well as for matching and tracking Home Energy Solutions contractor performance.

The HVAC and DWH program will continue to consist of both traditional mail-in rebates, as well as upstream instant discounts offered through equipment distributors. The Companies will offer traditional rebates for air source and ductless heat pumps, central air conditioning and geothermal heat pumps. Instant discounts on energy-efficient equipment, including boilers, efficient circulator pumps, furnaces, gas water heaters, and heat pump water heaters will be offered through distributors or retailers. During 2016-2018, the Companies will explore shifting more traditional rebates for HVAC equipment toward upstream instant rebates.

Additionally, the Companies will promote and market the state’s financing mechanisms for cost-effective efficiency projects, such as the Energize CT Heating Loan, to encourage investment in energy-efficient HVAC and domestic water heating equipment. For more information regarding financing mechanisms for the Residential Program Portfolio, please see the overview section in Chapter Three and Appendix C: Financing.

The Companies will continue to partner with, and leverage outreach and training efforts with Northeast HVAC equipment distributors, and plan to coordinate with other regional utilities and energy-efficiency administrators to schedule joint trainings, particularly for boilers. Northeast HVAC equipment distributors conduct numerous trainings and workshops that can help move the Connecticut HVAC installer market toward high-quality installations of HVAC and condensing equipment. The Companies anticipate that increased awareness and knowledge of how to size and install HVAC equipment properly should ensure that estimated energy savings are attained and improve the quality of HVAC installations.

Additionally during the 2016-2018 Plan, the Companies will align their incentives for both natural gas and electric water heaters with the new federal standards which took effect in April 2015. The new federal standard significantly impacts water heaters of 55 gallons or larger. To meet the new federal standards, these larger units will need to utilize condensing systems (natural gas) or heat pump systems (electric). This standard change is the backdrop for modifying and aligning the efficiency threshold for the instant discount, and it also prompts the need for additional contractor training regarding proper sizing and installation of equipment.

Target Markets

There are two target markets for the HVAC and DWH program's rebates and instant discounts: (1) all residential customers of Eversource, United Illuminating, CNG, and SCG, and (2) installers, retailers/distributors, and contractors providing services in Connecticut. While HVAC equipment is primarily installed by contractors, electric heat pump water heaters and natural gas water heaters are sold at both retail and distributor locations.

In 2016, the Companies will continue to raise program awareness through increased contractor and distributor trainings regarding the quality installation and proper sizing of HVAC equipment and natural gas/heat pump water heaters. These trainings are expected to drive customer satisfaction, energy savings, incentives and rebates redeemed, and awareness regarding how high-efficiency HVAC and natural gas/heat pump water heaters are only efficient if they are properly sized and installed correctly.

Program Offerings and Incentives

Upstream Rebates

During the 2013-2015 Plan, the Companies saw a significant increase in HVAC rebate activity due to moving equipment rebates to an upstream model. From 2014 to 2015 alone, natural gas boiler rebates nearly doubled, natural gas water heater rebates increased by over 900 percent, and heat pump water heater rebates increased by over 600 percent. The Companies will continue to build on these significant successes during the 2016-2018 Plan.

During the 2016-2018 Plan, the Companies will further explore opportunities to move more HVAC equipment rebates upstream. The Companies will continue to require contractors, distributors, and installers to release customer demographic information when applying an upstream instant discount on eligible HVAC and natural gas water heater purchases (i.e., customer addresses and equipment model numbers), in order to maintain insight into the HVAC and DWH equipment markets, and for tracking purposes.

The Companies recognize that continued refinement of the upstream HVAC instant discount program for efficient boilers, circulator pumps, furnaces, and water heaters should increase the stocking and sales of high-efficiency HVAC and domestic water heating equipment. Combining moving HVAC rebates upstream with increased contractor and distributor outreach/education should also help move energy-efficient products quickly off shelves and installed in customers' homes.

High-Efficiency Natural Gas Domestic Hot Water Heaters

In 2016, the Companies will continue to offer an instant discount for ENERGY STAR-certified natural gas water heaters that must meet the following criteria. The Companies may periodically adjust the qualifying criteria or incentives levels based on factors such as budget and standard changes:

- **ENERGY STAR-Certified Natural Gas Tankless Water Heater with Electric Ignitions.** These units must have an Energy Factor of 0.94 or greater; and
- **ENERGY STAR-Certified Natural Gas Condensing Storage Water Heater.** These heaters must have a Thermal Efficiency of 0.95 or greater.

ENERGY STAR-Certified Heat Pump Water Heaters

Heat pump water heaters utilize heat from the surrounding air to heat water. The Companies have recognized that newer heat pump water heater models on the market have minimum Energy Factors of 2.0 with some models as high as 3.2. The Companies recognize that some consumers and/or installers will install multiple smaller units to ensure the home has enough hot water. Starting in 2016, the Companies will offer upstream rebates for ENERGY STAR-certified heat pump water heaters with Energy Factors of 2.0 or higher.

High-Efficiency Furnace, Natural Gas Boiler, and Boiler Circulator Pumps

For the 2016-2018 Plan, the Companies will continue to provide upstream rebates to increase the purchase of energy-efficient boilers and furnaces. A furnace or boiler's efficiency is measured by annual fuel utilization efficiency ("AFUE") which shows what percentage of fuel (i.e., natural gas, oil, or propane) is converted to useful heat for a home. Additionally, the Companies require energy-efficient boilers and furnaces to meet ratings (i.e., standards) set by the Air-Conditioning, Heating, and Refrigeration Institute ("AHRI"), an industry-respected certification program. For the 2016-2018 Plan, the Companies have established AFUE and AHRI-rated efficiency requirements in order to qualify for an instant discount:

Table 3-4: High-Efficiency Furnace, Natural Gas Boiler, and Boiler Circulator Pumps

High-Efficiency System	Efficiency*
Natural Gas Warm Air Furnace	ENERGY STAR-certified 95% AFUE or greater, and AHRI-rated
Oil Warm Air Furnace	ENERGY STAR-certified 85% AFUE or greater, and AHRI-rated
Propane Warm Air Furnace	ENERGY STAR-certified 95% AFUE or greater, and AHRI-rated
Natural Gas Boiler	ENERGY STAR-certified 90% AFUE with temperature reset or purge control
Boiler Circulator Pump	Boiler circulator pumps with Electronically Commutated Motors installed on any fuel boiler or domestic hot water heater.
<p><i>*Note: These are 2015 Energize Connecticut requirements which are subject to change; the Companies will make periodic updates as needed throughout 2016-2018. The Companies will coordinate with Massachusetts and Rhode Island on higher tiers or common pump qualifications.</i></p>	

Energy-Efficiency Requirements for Central Air Conditioning and Heat Pump Systems

To receive a rebate (traditional or upstream), the Companies utilize nationally-recognized energy-efficiency requirements for central A/C systems and heat pump rebates. These energy-efficient requirements include:

- **Heating Seasonal Performance Factor (“HSPF”).** The HSPF measures a heat pumps’ heating efficiency. The higher the HSPF, the more efficient the heat pump. The HSPF shows the total heating output of the heat pump during a normal heating season (in British Thermal Units or “BTUs”) as compared to the total electricity consumed (in kilowatt-hours) during the same time period.
- **Seasonal Energy Efficiency Ratio (“SEER”).** A central air conditioner’s or heat pump’s SEER rating measures the efficiency of the system over an entire cooling season. The higher the SEER, the more efficient the system. A system’s SEER rating indicates the cooling output of the system (central air conditioner or heat pump) in BTUs during the normal cooling season as compared to the total electricity consumed (in kilowatt-hours) during the same period.
- **Energy Efficiency Ratio (“EER”).** A central air conditioner’s or heat pump’s EER rating measures how efficiency the system will operate when the outdoor temperature is at a specific level (95°F). The higher the EER, the more efficient the system.

Traditional Rebates

The Companies still offer traditional rebates for some HVAC systems. These systems include: mini-split heat pump systems, high-efficiency HVAC systems, and geothermal heat pumps. During the 2016-2018 Plan, the Companies will continue to explore additional opportunities for moving these rebates upstream.

Mini-Split Heat Pump Systems (Ductless Heat Pumps)

In 2016, the Companies will continue to offer direct customer rebates for the installation of ENERGY STAR-qualified ductless heating and cooling systems (“ductless heat pumps”). Ductless heat pump systems must be installed by a contractor who is: (1) certified by the manufacturer for the product installed, and (2) has attended an Energize Connecticut training seminar.

For the past few years, Northeast Energy Efficiency Partnerships (“NEEP”) has facilitated a Northeast/Mid-Atlantic Air-Source Heat Pump Working Group (“Working Group”) to develop Cold Climate Air-Source Heat Pump (“ccASHP”) specifications to better characterize heat pump performance in the Northeast and Atlantic. As members of this Working Group, the Companies and Energy Efficiency Board worked with other energy-efficiency stakeholders to establish a metric for confidently characterizing air-source heat pump’s heating performance at low temperatures.

The Working Group was formed due to stakeholders’ concerns that the nationally-recognized performance metric (the HSPF) for air-source heat pumps did not: (1) take into account the low temperature testing points below 17 degrees Fahrenheit, (2) assumed the use of electric resistance elements, and (3) tested units in steady-state operation without allowing modulation. The concern was that HSPF measurements did not accurately reflect the high-performance of the latest generation of air-source heat pumps, which are optimized to provide heat during extremely cold conditions.

The new ccASHP specifications will help the Companies monitor the energy performance of air-source heat pumps and to shift incentive levels for units based on efficacy. The Companies have created their own cold climate specifications for air-source heat pumps which is mostly based on NEEP’s ccASHP specifications, which include: (1) must be an ENERGY STAR-certified system, (2) an AHRI-Rated system, and (3) 10 HSPF for single indoor units and 9 HSPF for multi-outdoor units. As the ccASHP specifications did not denote a specific SEER rating, the Companies have selected a 20 SEER rating for single indoor units and an 18 SEER rating for multi-outdoor units.

Table 3-5: Ductless Heat Pumps

Ductless Heat Pumps	Efficiency
AHRI-Rated Ductless Heating and Cooling System of Matched Assembly Single Indoor Unit	20 SEER/10 HSPF
AHRI-Rated Ductless Heating and Cooling System of Matched Assembly Multi-Outdoor Unit	18 SEER/9 HSPF
<i>*Note: These are 2015 Energize Connecticut requirements which are subject to change; the Companies will make periodic updates as needed throughout 2016-2018. The Companies may align with regional organizations to coordinate heat pump qualifications.</i>	

High-Efficiency HVAC Systems

The Companies will continue to give rebates for both Split HVAC and Package systems where both the condenser unit and evaporator coils are installed simultaneously. A split HVAC system has both an indoor coil section, typically located within the ductwork, and an outdoor coil section that contains the compressor/condenser. A Package system contains all the components in one box; including the compressor, condenser, and fan, and is typically installed outside of the home. The Companies have established these efficiency requirements in order to qualify for a rebate:

Table 3-6: High-Efficiency HVAC Systems

High-Efficiency HVAC System	Efficiency
AHRI-Rated Unitary Air Conditioning and Split Systems	16 SEER/13 EER
AHRI-Rated Central Air Conditioning Packaged Systems	16 SEER/12 EER
AHRI-Rated Air Source Heat Pump Split Systems	18 SEER/13 EER/10 HSPF
AHRI-Rated Air Source Heat Pump Packaged Systems	16 SEER/12 EER/8.2 HSPF
<i>*Note: These are 2015 Energize Connecticut requirements which are subject to change; the Companies will make periodic updates as needed throughout 2016-2018.</i>	

Geothermal Heat Pumps

In 2016, the Companies will continue to provide rebates for the proper installation of ENERGY STAR-certified geothermal heat pumps. These include geothermal closed loop or direct expansion equipment, packaged or matched coil/split, including water to water-designed types of up to six tons per unit. The criteria listed below will be revisited annually over the course of the 2016-2018 Plan. Rebates will be given for geothermal heat pump equipment that meets the following criteria.

- Equipment must be closed loop or direct expansion type;
- Equipment must be ENERGY STAR-certified;
- Appropriate field testing must be conducted to verify performance;
- AHRI/ISO/ASHRAE Standard 13256-1 closed loop systems qualify;
- AHRI/ISO/ASHRAE Standard 870 for DX systems qualify;
- Ground Source Closed Loop Heat Pump water to air: ENERGY STAR 17.1 EER, 3.6 COP;
- Generally existing homes must participate in HES (but is not required) and reduce air leakage to less than 1CFM 50/sq. ft. conditioned floor area;
- Must be installed by a qualified contractor; and
- A geothermal Eligibility Application must be completed by a Home Energy Solutions contractor or customer and submitted to the appropriate Company for approval.

The Companies will also continue to monitor the current Verification of Installed Performance (“VIP”) tool used to verify ground source heat pump performance and make adjustments where necessary. The Companies also plan to continue to assess the market and provide International Ground Source Heat Pump Association (“IGSHPA”) trainings to help support this industry.

Emerging Technologies

The Companies and the Energy Efficiency Board continue to look for emerging technologies and innovative solutions that can increase the efficiencies of HVAC and domestic hot water heating systems (see Chapter Eight: Emerging Technologies for more detailed information). Some potential emerging solutions include:

- **Night-Purge Ventilation.** These technologies open windows, other barriers, and HVAC systems to “flush” warm air out of a building. Night-purge technologies are integrated with HVAC systems, and automatically ventilate homes using a smart thermostat and ductwork systems. This smart technology turns the A/C system off when outdoor temperatures are lower than indoor temperatures, and ventilates the home with cool air.
- **Variable Capacity Heat Pumps.** These technologies eliminate the inefficient on-and-off cycling of residential heat pumps, and have been found to yield both seasonal and peak demand heating energy savings.
- **CompWireless Sensors and Smart Thermostats.** These technologies are combined with easy-to-use interfaces on smart devices that allow homeowners to monitor and manage their home energy usage with simple systems.

- **Home Energy Management Systems.** These systems combine sensors, controls, and smart device interfaces that could lead to significant savings if users are able to take advantage of the new technologies. Home Area Network (“HAN”) devices and technologies allow homeowners to control energy usage of home appliances and systems. A variety of devices and systems are available from several different manufacturers.

Contractor Education, Training, and Outreach

In 2016, the Companies will enhance their focus on industry training regarding quality installation. HVAC equipment distributors conduct numerous trainings and the Companies plan to leverage distributors’ existing efforts to move the HVAC installer market toward high-quality installations of HVAC equipment, particularly for condensing boilers. Knowledge and awareness of how to size and install HVAC and water heaters properly should result in increased energy savings and quality in HVAC equipment installations. Industry feedback and recent evaluation findings have documented that many contractors and installers are not properly installing condensing equipment. By proactively supporting and enhancing training efforts, the Companies should see an increase in quality installations.

Enhanced Quality Assurance Efforts for Installations

A recent Massachusetts program evaluation uncovered that condensing boilers installed in that state were often improperly installed. In 2016, recognizing that this situation may not be isolated to Massachusetts, the Companies will focus on enhancing quality assurance efforts, including contractor and inspector training to ensure that HVAC and DWH equipment are indeed being properly installed at the residential locations .

HOME ENERGY SOLUTIONS PROGRAM

Overview and Objectives

Objectives

The Home Energy Solutions (“HES”) program’s primary objective is to reduce residential energy use through the comprehensive treatment of all single-family and multi-family residential dwellings in Connecticut. For single-family homes, the HES program delivers comprehensive, direct-install services (“core services”) to customers including: air sealing, duct sealing, insulation, CFL and LED light fixtures and bulbs, and domestic hot water conservation measures (i.e., faucet aerators, hot water pipe insulation, and low-flow showerheads). Single-family and multi-family customers also have the opportunity to pursue additional measures (“add-on measures”), such as: appliance upgrades, HVAC systems, insulation, water heating equipment, and windows.

Underlying the program’s primary objective are three fundamental goals:

- 1) Customer Value.** A key objective of the HES program is to deliver high-quality, dependable energy-saving services to Connecticut’s residential customers. The HES program provides customers with easy access to services, produces substantial energy savings, and provides non-energy benefits such as comfort, and health and safety upgrades. These characteristics offer a consistent experience statewide, while engaging customers and providing a comprehensive assessment of their individual needs.
- 2) Market Development.** In order to effectively create a naturally occurring market and advance the home performance industry in Connecticut, the HES program must ensure the high-quality of energy-saving services statewide and educate customers on the value of Home Energy Solutions (energy and non-energy benefits). The availability of HES services for all customers continues to create statewide demand; leading to the development of a market that takes advantage of market forces, including cost-efficiencies where increased competition lowers costs and results in higher energy savings.

In addition, the incorporation and program wide roll out of the DOE HEScore, which provides an energy score for single family residential dwellings, began in 2015 and will continue throughout the 2016-2018 program. This tool will be instrumental in seeding the market with home energy scores. When coupled with outreach and education to the

real estate community, the vision is that the DOE HEScore will further move the market toward valuing homes with scores.

- 3) Resource Acquisition.** As the flagship residential platform for energy savings, the HES program model was designed to acquire residential energy-efficiency savings as a reliable and predictable resource for meeting energy demands, today and in the future. The Companies continuously work to improve program delivery and increase resulting energy savings (MMBTUs). Resource acquisition is made further predictable as the program’s overall comprehensiveness is increased.

The HES program will continue to serve as the primary approach used to fulfill Connecticut Public Act No. 11-80, Section 33’s goal of weatherizing 80 percent of existing homes by 2030. Starting in 2016, the Companies will build off the strong foundation they have established for the HES program, and open up the program to all qualified contractors, which will ensure a high-quality customer experience, continuity of energy savings, identification and implementation of follow-on energy-efficient measures beyond the initial visit, and consistent customer messaging in order to educate customers about the value of home performance.

Overview

In 2006, the Companies and the Energy Efficiency Board developed the HES program model in response to the growing need for a residential statewide platform that provided reliable and predictable energy savings. At the time, there was limited customer demand for a comprehensive residential program and very few market players were qualified or able to provide energy-saving services. Customers had limited knowledge regarding the availability of energy-saving services for their homes and were not adequately engaged in understanding their energy consumption. At the time, no market existed to establish clear standards for qualifications/credentials, services offered, and the costs of those services. The Companies and the Energy Efficiency Board had to design a program that would not only transform, but establish, an energy-saving platform for the residential customer marketplace. This resulted in the creation of the HES program.

Flashing forward to 2015, the HES program model is an award-winning residential platform that serves as a predictable energy-efficiency resource to the Companies, the Energy Efficiency Board, the state, and the Companies’ customers. The program has a large group of qualified contractors who must continuously meet stringent certifications and qualifications, including but not limited to: energy-saving thresholds, Building Performance Institute (“BPI”) certifications, qualified DOE HEScore Assessors, and have a high success rate in encouraging customers to take advantage of add-on measures. For a low-entry cost, Connecticut’s residential customers now

have access to a comprehensive energy-saving program whose message is clearly and effectively communicated and that delivers significant economic, environmental, health, and safety benefits.

Demand for the program is now greater than the national average with more than 44,300 HES visits and one million MMBTUs cumulatively saved since 2012. The program continues to realize high customer satisfaction rates and has achieved cost-efficiencies through multiple rounds of Request for Proposals for contractors. In 2015, the HES program became the first energy-efficiency program in the country to implement the DOE HEScore statewide. Although the HES program continues to be an industry leader, there still exists opportunities to progress the program, which is now poised for its next evolutionary phase.

Stakeholder Engagement Process for Continuous Improvements of HES

Working with stakeholders has always been an integral part of the Companies' management and implementation of the state's energy-efficiency programs. Stakeholder engagement, specifically in regards to the "future transformation of the HES program," also became a priority of the DEEP in 2013. This was in response to ongoing feedback received from some home performance contractors, as well as Energy Efficiency Board members and DEEP representatives that a long-term objective of DEEP and the Companies should be to transition HES to a "market-based" program. In 2013 and 2014, working groups and stakeholder input sessions were held in order to discuss how the HES program could transition to a more market-based approach, bringing forth various topics to address, such as: valuing home performance, exploring the need for licensing and registration of home performance contractors, drafting a "weatherization" definition, and home energy labeling. These discussions formed the basis for continued dialogue regarding the future state of the HES program, but left many questions unanswered, and illustrated the wide range of opinions regarding these various elements of a home performance program.

In 2015, the Companies completed a Request for Proposal process and began a new cycle for the HES program, bringing in 19 contractors based on current market capacity and need. This was a reduction in the number of HES contractors from the previous year, and concerns were raised publicly both from Energy Efficiency Board members, as well as contractors, that the program appeared to be closed off to potential market participants. The contractors who were no longer able to participate in HES were encouraged to offer services through the alternative program path offered by the Companies, the Home Performance with ENERGY STAR ("HPwES") program.

As a result, the Companies and the Energy Efficiency Board understood that they would need to grow and streamline this program path in order to accommodate additional contractors. In order to do this, the Companies began reaching out to Connecticut's home performance community to

determine how the HPwES program could be improved to increase customer participation. The Companies began by soliciting feedback from the contractor community, presenting the Companies' plan to begin shifting demand from HES to HPwES, thereby increasing participation, and hosting several events to engage the home performance community.

The first event the Companies held was a peer-to-peer exchange on February 24, 2015 to discuss ways to build value in the HPwES program, and to assist the contractors with increasing the amount of customers served by the program. As a result of this meeting, the contractors discussed several items that were causing bottlenecks in the HPwES program. Most notably, it was determined that the incentives for items could be streamlined by creating a rebate tool to expedite the process. Development of the rebate tool began shortly thereafter.

In April 2015, understanding that some stakeholders had a desire to see HES transition into a market-based approach, the Companies began to look into the possibility of combining the HPwES and HES programs for 2016. This would entail creating one streamlined program that could be open to all qualified home performance contractors in Connecticut. In order to accomplish this goal, the Companies understood that additional input from all stakeholders would be crucial to the success of the new HES program design. In order to capture the input from the various stakeholders, the Companies focused on a new initiative to encourage and help facilitate stakeholder engagement, and make sure that the stakeholders participated in the design of the 2016 HES program.

After reviewing some of the key differences between HPwES and HES, and rolling out the new rebate tool, the April 2015 HES Contractor Principal's meeting included a dedicated focus group to solicit feedback from contractors on how a market-based program could work in Connecticut. The Companies quickly followed this up with a contractor roundtable in May 2015 to continue discussions about the HPwES program and improvements that could be made, while receiving input on moving toward a more market-based approach.

At the June 2015 Residential Committee and Energy Efficiency Board meetings, the Companies presented an initial proposal for the 2016 HES program transition plan. Some highlights of the initial proposal were: eliminating the RFP process and opening the program up to all qualified contractors, eliminating contractor budgets, removing the current fixed co-pay amount, and adjusting the incentives based on budgets and customer demand. In the initial proposal, contractors would be free to charge what the market would bear (hence the term "market-based") for their services, and the incentives would be paid based on the fixed levels.

The initial proposal received many comments from the Energy Efficiency Board, the board's consultants, and the home performance community. The feedback established that a reasonable

and fixed co-pay is the key component of a customers' decision-making process to participate in the HES program, and that incentives need to remain consistent to keep the momentum in the program moving forward, and to avoid any loss of credibility.

Based on this feedback, in July 2015, the Companies released their revised proposal to the Energy Efficiency Board and the board's Residential Committee. The revised proposal took the suggestions that were received, and proposed a merged HPwES and HES program that would allow all eligible contractors, meeting minimum qualifications, to participate in the 2016 HES program. In this iteration, which the Companies coined as an "open market" approach, the co-pay would be maintained, and the incentives would remain fixed. Current marketing and quality assurance processes would remain, and minimum thresholds would have to be achieved by contractors to remain a "contractor in good standing." The July 2015 proposal also included allowing the Companies to adjust the co-pay to control the program budgets for each operating company, and encourage participation in underserved communities. Additionally, contractor budget caps would be removed.

After the release of the July 2015 proposal, the Companies' efforts to engage stakeholders culminated in a HES and HPwES roundtable on August 5, 2015. This event was attended by 65 participants representing 44 home performance contractor companies, and an additional 21 participants representing Eversource, UIL, DEEP, Energy Efficiency Board consultants, and the Connecticut Housing Investment Fund. The roundtable was structured to separate the participants into eight groups where they were presented with two topics to discuss and create solutions for the 2016 HES program. The groups then had one speaker present their solutions to the larger group, and all solutions were captured and voted on to prioritize the importance of each topic and solution.

Based on the solutions presented at the roundtable, the input the Companies continued to receive from stakeholders, and final considerations from the Energy Efficiency Board and its consultants, the Companies revised their 2016 HES program proposal to maintain an annual enrollment of qualified contractors, but to provide spending caps to ensure that a strong and diverse contractor force can continue to thrive in Connecticut. The Energy Efficiency Board's consultants and the Energy Efficiency Board felt strongly about retaining one consistent statewide co-pay for any year, as was discussed at the August 2015 Board meeting. The copay could be reset statewide at the beginning of each year. The Energy Efficiency Board and the Energy Efficiency Board's consultants recommended a number of means other than varying the co-pay to respond to varying customer demand and possible budget limitations. The Companies will endeavor to use every means to effectively manage the budgets, but may ultimately be faced with program curtailment if the funding is exhausted.

Through this stakeholder engagement process, it has been identified that certain market barriers still remain and must be addressed before the HES program can shift from a managed energy-efficiency program to a market-based future state, capable of driving cost-efficiencies, encouraging contractors to integrate novel approaches to home performance services, and increasing marketplace awareness of weatherization services. Another barrier that must be overcome is making customers understand the “value of participation” in the HES program. The final path forward created by the Companies is a compromise based on the structure of Connecticut’s energy-efficiency programs, the goals and obligations placed upon the Companies to implement cost-effective programs, and the input received from the many stakeholders that participated in this process. The current model will allow for all qualified contractors to participate in the HES program, but will still maintain oversight by the Companies to maintain the program’s success, and the credibility that has been built with Connecticut ratepayers, all while cost-effectively serving their customers.

A Managed Program Open to All Qualified Contractors

Utilizing feedback gained through the comprehensive stakeholder engagement process described above, Connecticut’s iconic HES program will continue to evolve in 2016-2018. In 2016, this flagship program of the Residential Program Portfolio will continue to deliver high-quality, energy-saving services to customers through a managed program approach, however the program will be open to all qualified contractors. Under this model, the HES program is still managed by the Companies in order to ensure delivery of the same high-quality, innovative, and cost-effective weatherization services supported by a robust quality assurance process. Maintaining a managed program while opening the program to more contractors will broaden the program’s reach to customers who have not yet taken advantage of the program in the past, while also helping to diversify the participating market actors, and foster further development of the home performance marketplace.

In order to facilitate this transition, the Companies will merge the HES and HPwES programs into one program under the HES brand that will help avoid customer confusion, ensure that customers will continue to easily access services, and contractors will have greater program access, all while maintaining the Companies’ budget management controls. Stringent contractor qualifications will continue, with all contractors being required to meet the program’s minimum qualifications to be able to participate; thereby encouraging market growth and further expanding the geographical reach of the HES program.

The HES program will continue to focus on the delivery of comprehensive weatherization services focusing on air and duct sealing, water conservation measures, and direct installation of

efficient LED and CFL lighting, while also promoting additional energy-saving measures. In 2016, the Companies will create a standalone HVAC and DWH program. All energy savings and program budgets will be transitioned from HES to the new program.

The Companies will also continue to require a co-pay to reduce customer decision-making time and leverage the familiarity with the current program structure. The Companies will set the co-pay amount based on that year's anticipated customer demand, available program budget, and the number of qualified contractors providing services within the program. In 2016 and 2017, as a contractor management mechanism, the Companies will provide contractors with budgetary caps and the co-pay will remain consistent statewide. The Companies will utilize marketing and contractor management techniques strategically to control customer demand. If the Companies and the Energy Efficiency Board find it necessary, the Companies will consider requesting an adjustment in the co-pay if all available marketing and other tools are not achieving or overachieving on desired results.

The 2016 HES program will leverage current program successes by continuing to provide consistent services enforced by a robust quality assurance process and the direct-installation of core services, all while increasing the frequency of customers taking advantage of comprehensive services. The use of technology will continue to be streamlined in the program, ensuring the quality and clarity of customer messaging, and delivery of the DOE HEScore by continuing to utilize and evolve the HES Android mobile application.

The Companies' 2016 HES program offering will continue to include the DOE HEScore. Focus groups have shown that the benefits of energy-efficiency upgrades are still not widely accepted, and customers have a difficult time valuing these services. The DOE HEScore has been implemented to help drive the marketplace and enable customers to improve the value of their homes, as well as reduce their energy usage, by improving their scores. The DOE HEScore, however, is still in its infancy and has not yet become a recognized benchmark in the Connecticut real estate market. The Companies will explore working in partnership with DEEP to further educate and engage the real estate community about the value of energy efficiency, and of utilizing and leveraging the DOE HEScore.

The 2016 program changes will enable the HES program to build off of its attributes that have made it a national leader, while further advancing the marketplace by delivering a consistent customer experience, a better understanding of the value of home performance, bringing in more participants, generating cost efficiencies, and increasing the required program standards and eligibility requirements to encourage innovation and progress.

Target Markets

The program services all existing residential structures, including single and multi-family homes in Connecticut. Single-family units are defined as structures with one to four units.

The HES program's Multi-Family Initiative services residential properties with five or more units. These structures include, but are not limited to: apartment complexes, assisted living facilities, group homes, high-rise dwellings and mixed-use developments. In 2016, the Multi-Family Initiative will continue to provide streamlined market solutions and utilize creative financing partnerships for market-rate, income-eligible, and affordable-rate customers.

In 2016, the Companies will also utilize program, census track, and demographic data to determine if certain segments of customers, such as those who have been identified as customers whose income levels fall within a certain percent of the state's median income, are being adequately served by the HES program. For customer segments or locations identified as being underserved, the Companies will utilize tools such as limited-time promotions, rebates, targeted marketing, and/or special financing offered through the Connecticut Green Bank.

Program Offerings and Incentives

Single Family

In 2016, the HES program will continue to deliver comprehensive, cost-effective weatherization services to single- and multi-family homes statewide. To effectively ensure the consistent delivery of services during the shift toward a more market-based program model, the Companies will continue to require the delivery of HES core-services at the time of the home assessment, increase contractor performance metrics with a minimum MMBTU threshold to continue to be a contractor in good standing, and continue to end the assessment with the kitchen table wrap-up. This approach allows HES contractors to tailor services for an individual home's energy-efficiency needs. The HES program will still require the following core services to be delivered:

Blower Door Guided Air Sealing

The blower door test is a diagnostic tool that measures air infiltration in a home. A blower door test produces a partial vacuum in the home that allows contractors to measure the number of cubic feet per minute ("CFM") of air leakage. This diagnostic tool allows contractors to identify where air leaks occur in a home and guides them toward the primary areas that need to receive air-sealing services. Air-sealing services include caulking, spray foam, and weatherization strips. A post-blower door test reading is performed and measures the home's CFM air leakage after air-sealing services are performed. Energy reductions are measured by the difference between pre-

and post-blower door tests performed before and after weatherization services are rendered in a home.

Duct Sealing

If the home has a ducted central heating/cooling system, a duct blaster test can measure the air leakage throughout the home's ductwork system. If the test reveals air leakage then air leaks are sealed on-site with UL-rated adhesive products. Before and after measurements are taken by HES contractors to measure duct leakage reductions.

Hot Water Conservation Measures

Approximately 16 percent of an American home's energy consumption is used for heating water for baths, dish washing, showering, and washing clothes. The HES program will continue to promote water conservation measures, including the installation of faucet aerators, hot water pipe insulation, and low-flow showerheads. These measures not only provide energy-saving benefits, but also provide non-energy benefits such as water conservation.

Lighting

The HES program focuses on reducing energy costs associated with inefficient lighting fixtures and bulbs. In 2016, the Companies plan to continue phasing out CFLs as part of the HES program and promote the installation of efficient LED bulbs and fixtures. In 2016, the installation of LED bulbs may be targeted to high-use areas, such as bathrooms, kitchens, and living areas. CFLs will be used where the Companies see greater cost-effectiveness in their installation. The Companies will explore phasing out CFLs entirely within the HES program in 2017 or 2018.

DOE HEScore

The DOE HEScore was established by the DOE to assist in the creation of a naturally-occurring market, and to generate increased demand for residential energy efficiency nationwide. In April 2015, Connecticut, through the HES program, became the first state in the nation to implement the use of the DOE HEScore statewide. Although the DOE HEScore does not generate savings directly, the use of the score in all HES projects will allow Connecticut customers to become familiar with the score, and better understand how to value energy efficiency.

The Companies have fully integrated the use of the DOE HEScore into the HES program to create the infrastructure to better support the state's long-term initiatives of mandating home labeling. Once the DOE HEScore becomes readily available in the marketplace and ubiquitous to consumers, Connecticut will be able to create statewide policies that require the integration of the DOE HEScore into real estate listings, and should provide greater transparency to energy

conscious customers. It is the Companies' goal to gradually transition the costs of the DOE HEScore to the customer as the labeling tool gains traction.

Additional Measures

Wi-Fi-Enabled Thermostat Rebates

In 2015, Eversource and CNG introduced a Wi-Fi-enabled thermostat rebate and SCG will begin a pilot in 2016. The Companies have established three rebate requirements: (1) a Home Energy Solutions visit; (2) must be a natural gas customer of CNG, Eversource, or SCG, and (3) the system must be Wi-Fi-enabled. This rebate will be available only through participation in the HES program. Installing Wi-Fi-enabled thermostats will enable the Companies to pilot demand response capabilities for electric customers.

Advanced Smart Power Strips

Per a recent evaluation, the Companies will explore including advanced smart power strips into the HES program as a direct install measure. For more information, please refer to Chapter Nine: Evaluations.

Insulation

Insulation will continue to be promoted through the HES program to better complement the services provided during the core-services visit. Insulation in the attic, walls, and basement are evaluated during the HES assessment to determine the insulation opportunities and needs for each customer. Rebates are provided to customers that have an insufficient amount of insulation existing in these critical areas.

HVAC Systems

All of the home's HVAC systems are evaluated during a HES assessment to ensure safe operation during and after the HES visit, as well as evaluating mechanical equipment for energy-efficient upgrades. Heating system upgrades, including the use of Electronically Commutated Motor ("ECM") technologies, are evaluated during the HES assessment, and customers with older, inefficient equipment are notified about the available upstream rebates or ductless split heat pump options. Central air conditioning systems and heat pump systems are also evaluated through the HES assessment, and energy-efficient alternatives are promoted to customers with inefficient systems. The HES program continues to encourage customers installing new HVAC equipment to hire licensed quality installation and verification contractors to ensure that systems are properly sized, installed, and function at the most efficient levels possible.

In addition to the evaluation of a home's existing HVAC systems, the HES program will continue to promote the installation of geothermal heat pumps to homes that are adequately air sealed and insulated to maximize the effectiveness of these systems.

Domestic Hot Water Systems

The domestic hot water heater system in each home is evaluated during a HES assessment to ensure safe operation during and after the HES visit, as well as evaluating mechanical equipment for energy-efficient upgrades. Heat pump water heaters and tankless gas water heaters will continue to be promoted and recommended to eligible customers.

Natural Gas Boiler Temperature Reset Control

A natural gas boiler temperature reset control can save about five percent of a boiler's energy costs per year. During the HES assessment, technicians evaluate customers that have a natural gas boiler to determine whether they have a temperature reset control. These devices automatically control the boiler water temperature based on the temperature outdoors. During the shoulder months, the water can be run a little cooler than during the coldest parts of the winter, which improves boiler efficiency and indoor comfort.

Health and Safety Testing

Their health and safety are the biggest concerns for the Companies' customers, and prior to conducting the installation of any energy-saving measures, HES technicians perform a variety of tests to ensure that all systems within the home are operating safely. Technicians begin by performing a visual assessment of the home looking for hazardous conditions that could be exacerbated or disturbed by weatherization. Once the visual inspection is completed, technicians perform testing on the home to ensure that gas pipes are properly sealed, combustion systems are venting properly, and that the home is properly ventilated. These tests not only ensure that the home is safe for the installation of core-services, but it also helps ensure the health and safety of the home's occupants.

Kitchen Table "Wrap Up"

A critical part of the HES program visit is the Kitchen Table "Wrap Up." The Wrap Up occurs when the HES contractors sit down with customers to explain the weatherization services received and to review a customer toolkit. This toolkit contains valuable information regarding energy-saving tips, energy assistance programs, financing options, health and safety information, online resources, proper CFL disposal, and renewable energy opportunities. For HES program participants, the contractors also leave behind rebates so that customers are encouraged to take

deeper, energy-saving steps to reduce their energy usage. These rebate forms can include: HVAC equipment, domestic hot water systems, insulation, and Wi-Fi-enabled smart thermostats.

Multi-Family Initiative

Unlike other program offerings, the Multi-Family Initiative can be defined as “unique” in the sense that it involves many different types of housing scenarios. The Multi-Family Initiative services residential properties with five or more units. These structures include, but are not limited to: apartment complexes, assisted living facilities, dormitories, group homes, high-rise dwellings, and mixed-use developments.

The Multi-Family Initiative combines the Companies’ residential, and commercial and industrial program offerings to deliver comprehensive energy-saving services to tenants and/or owners of multi-family properties. The Multi-Family Initiative provides valuable weatherization services in tenant areas (i.e., apartments and condominiums) and addresses direct-install energy-efficient measures in common and exterior areas (i.e., hallways, laundry rooms, walkways, and parking lots). The challenge in addressing a multi-family property’s unique energy needs is to offer a package of energy-efficient measures that benefits both the tenants in the living/tenant spaces, and the owners with capital property improvements to the common and exterior areas.

Work Process Flow

The Companies have established a streamlined approach for processing Multi-Family Initiative projects with a concierge service approach. First, a Weatherization Contractor will submit a request to audit or “sample” a multi-family property. A sampling is when a Weatherization Contractor will perform core services in a percentage or sample of the multi-family property’s residential units. From the services performed and data collected, the Weatherization Contractor can extrapolate the energy savings, measures needed, and potential opportunities for the entire Multi-Family Initiative project.

Once the audit and sampling have occurred, the Weatherization Contractor submits an Audit Report and energy-saving proposal to the appropriate Companies. Once the Audit Report is reviewed by the Companies and the energy savings are validated, a Letter of Agreement (“LOA”) is issued by the Companies that includes the following information: proposed energy-efficiency measures, predicted energy savings, expected Energize Connecticut incentives, and financing options. Once the LOA is signed, the weatherization measures and energy-efficient technologies are installed by the Weatherization and/or other Contractors. Once the services are completed, the Companies perform a Quality Assurance (“QA”) inspection to verify that energy-efficient measures have been installed properly, and then the Companies issue the incentives for the project.

Financing and Leveraging Partnerships

The Companies realize that Multi-Family Initiative projects can be complex and difficult for all parties involved as no two projects are ever the same. Each project includes nuances and scenarios tailored to each specific building. In an effort to address the uniqueness of the Multi-Family Initiative, the Companies plan to further streamline the workflow process in 2016. The Companies will ensure all projects have the right key partners to offer customers the overall best energy-saving project. Additionally, the Companies will also leverage their partnerships to ensure customers have the fiscal services needed to finance Multi-Family Initiative projects.

In 2016-2018, the Multi-Family Initiative will continue to leverage partnerships to provide streamlined market solutions and financing to reduce energy costs for property owners and tenants, as well as to improve the comfort and overall energy performance of tenant living spaces. The initiative will utilize key industry partners to continue addressing residential properties in the most comprehensive manner, including: Weatherization Contractors, Lighting Contractors, HVAC Contractors as well as Multi-Family Engineering Consultants on a case-by-case basis. The Companies believe working with these three key partners offers a good balance between installing tenant-related measures in dwelling units and owner-paid energy improvements in the common and exterior areas of residential properties.

Financing

For the 2016-2018 Plan, the Companies will continue to work with the Energy Efficiency Board and the Connecticut Green Bank on optimizing the mix of financing and incentives to make the best use of customer funds. The Companies will continue to work with a number of financial institutions and organizations to provide diverse financing options to multi-family property owners. Leveraging Energize Connecticut incentives with low-interest financing can help property owners afford the capital improvement costs associated with energy-saving projects. The Companies will continue to work closely with the following entities and their loan and financing products:

- Green Bank: Commercial Property Assessed Clean Energy (“C-PACE”) Loan;
- Eversource and United Illuminating: Municipal Loan (is an option for municipal housing authorities); and
- Connecticut Housing Investment Fund: Low-Income Multi-Family Energy-Efficiency (“LIME”) Loan, Multi-Family Energy Conservation Loan (“MEL”), and Bridge Loans.

Streamlined Market Solutions

In 2016, the Companies will explore creating a Multi-Family Initiative software tool to assist key partners in analyzing the incentives and energy savings of proposed energy-efficient measures. This software would allow key partners to enter in their proposed measures determined from their initial audits or sampling (i.e., where a Weatherization and/or Lighting Contractor provides weatherization services to a “sample” of the property’s tenant spaces and subsequently extrapolates the sample’s energy savings to the remaining non-serviced tenant spaces). This high-level analysis software will allow Weatherization Contractors and/or Lighting Contractors to calculate incentives and energy savings for proposed project measures in order to quickly and efficiently “sell” a Multi-Family Initiative project to the customer. This should also eliminate multiple rounds of review between the Companies and key partners, while eliminating the use of the LOA as a marketing and sales tool.

Market-Rate and Affordable-Rate Customers

In 2016, the Multi-Family Initiative will continue to provide streamlined market solutions and creative financing partnerships for market-rate, income-eligible, and affordable-rate (i.e., “middle income”) customers. The Multi-Family Initiative offers the same weatherization and energy-efficient services to all customer segments, however the financing, technical support, and incentive levels vary.

- **Market-Rate.** This type of residential dwelling is your classic condominium or luxury apartment complex. This is considered a typical project where incentives are used to pay for some or all of the incremental costs of installing energy-efficient measures and the property owner pays for the energy-efficient measures with capital improvement funds and/or financing.
- **Affordable-Rate.** In 2016, in an effort to ensure parity and equitable levels of program services, the Companies will continue to utilize program and other data sources to ensure that customers whose income levels fall within 60 percent to 100 percent of the state’s median income are being adequately served by the program. For multi-family properties that qualify as underserved, affordable-rate projects, the Companies will explore utilizing tools such as limited-time promotions, rebates, and/or special financing offered by the Connecticut Green Bank.

Contractor Education, Training, and Outreach

The Companies recognize that to increase the comprehensiveness of the HES program and to achieve deeper energy savings, that contractors must have the most up-to-date training

regarding building science and design, high-efficiency equipment installation, lighting design, emerging technologies, and weatherization services. In 2016-2018, the Companies plan to leverage partnerships in order to facilitate training opportunities for program contractors and contractors. Training opportunities may include, but are not limited to: Building Performance Institute certification, DOE HEScore Qualified Assessor, Home Energy Professional certification, health and safety barrier training, and financing workshops.

Quality Assurance and Quality Control

In order to ensure the consistent delivery of high-quality, dependable energy-saving services to Connecticut's residential customers, the Companies have taken great strides to focus on a robust quality assurance and quality control ("QA/QC") process. The QA/QC process is founded upon requiring a high level of industry-specific expertise and experience in both the HES technicians and QA/QC inspectors who provide services within the HES program. The qualifications for every lead technician providing HES program services includes: prior experience, Building Performance Institute certifications, lead renovation, repair and painting certification, and being a qualified DOE HEScore Assessor.

Once qualified technicians and inspectors are verified and approved for participation in the HES program, the Companies employ the use of in-progress and post-inspections to continue to monitor the delivery of services within the program. In-progress inspections are provided on five to ten percent of HES projects, and have a QA/QC inspector on-site while technicians are performing the services in a customer's home. The Companies post-inspection process complements the in-progress inspections by ensuring customer satisfaction and comprehensiveness of HES projects.

The QA/QC inspectors have a streamlined Quality Inspection ("QI") form that is organized into six categories, which are used to assess a technician's performance. The QI scores received from the Companies' inspections are rolled into the Contractor Scorecard. The Contractor Scorecard assigns or deducts action points (a lower score is better) based on a contractor's performance in three key areas: (1) energy savings (MMBTUs), (2) program compliance, and (3) inspection scoring. While repeated non-conformance may lead to remedial actions, the purpose of the Contractor Scorecard is to be proactive rather than reactive, and to provide meaningful opportunities to empower HES contractors to address areas requiring improvement by creating action plans that detail corrective actions required to achieve increased performance in targeted areas.

Lastly, the Companies continue to utilize and evolve the HES Android mobile application to control the scope and quality of data being captured in the field and transferred to the

Companies' respective tracking systems. This process enables the Companies to ensure that all services required to be administered during a HES visit are being provided, and that consistent and accurate information is being captured to project accurate energy savings.

This multi-faceted QA/QC process has been crucial to manage the consistent increase in energy savings realized on a per home basis, and in maintaining extremely high levels of customer satisfaction. As more new contractors enter the HES program, this process will continue to be a critical aspect of the HES program, to progress and evolve the delivery of high-quality, dependable energy-saving services to HES participants.

HOME ENERGY SOLUTIONS-INCOME ELIGIBLE

Overview and Objectives

The objective of the Home Energy Solutions-Income Eligible (“HES-Income Eligible”) program is to provide income-eligible customers, defined as at or below 60 percent of the state median income, with the same home weatherization services and energy-efficient upgrades offered to market-rate customers through the Home Energy Solutions program. HES-Income Eligible customers receive most weatherization services for free and some energy-efficient upgrades for a nominal customer or landlord co-payment, whereas HES program market-rate customers pay a nominal fee for core weatherization services and are provided a prescriptive rebate incentive for energy-efficient upgrades.

Weatherization services include: air sealing, duct sealing, energy-efficient lighting including CFLs and LEDs, and domestic hot water conservation measures (i.e., faucet aerators, hot water pipe insulation, and low-flow showerheads). Energy-efficient upgrades include: appliance replacements (i.e., dehumidifiers and refrigerators), insulation, water heaters, HVAC systems, and windows. Providing these free and low-cost copayments for in-home, direct installed weatherization services and energy-efficient upgrades helps reduce the energy cost burden for income-eligible customers.

Along with HES, the HES-Income Eligible program serves as one of the primary vehicles used to fulfill the goal of Connecticut Public Act No. 11-80, Section 33 of weatherizing 80 percent of existing homes by 2030. The 2016-2018 HES-Income Eligible program will deliver a cost-effective platform of energy-efficient and weatherization measures for all single-family properties (defined as 1-4 units) and multi-family properties (defined as 5 or more units) across Connecticut. To ensure continuous cost-effective delivery of the HES-Income Eligible program, the Companies will continue to evaluate charging fees or landlord co-payments for specific projects or energy-efficiency measures.

In the 2016-2018 Plan, the Companies will continue their partnership with the Community Action Agencies (“CAAs”) to cost share for Weatherization Assistance Program (“WAP”)-funded projects. WAP is funded by the DOE, and is administered by DEEP, in partnership with the statewide CAA network. WAP, which targets single-family properties (defined as 1-4 units), is designed to help limited-income customers minimize energy-related costs and fuel usage in their homes through retrofits and home improvement measures. The Companies cost share several energy-efficiency measures related to WAP projects, including: domestic hot water measures, ductless heat pumps, energy audit fees, heating system replacements, insulation, lighting, and

windows. The Companies will continue to enhance their coordination both with DEEP and the CAAs in order to ensure that high-quality services continue to be delivered to customers, and that the cost-shared program is implemented in a streamlined manner.

Target Markets

The HES-Income Eligible program services all existing residential structures, including single and multi-family homes. This weatherization program is fuel-blind and offers the same services and energy-efficient technologies to electric, natural gas, oil, and propane heated homes. The Companies partner with the HES-Income Eligible contractor/vendor network and/or local CAAs to maximize delivery of weatherization services.

The program's Multi-Family Initiative services residential properties with five or more units. These structures include, but are not limited to: apartment complexes, assisted living facilities, group homes, high-rise dwellings, and mixed-use developments. In 2016-2018, the Companies will continue to service multi-family properties through the HES-Income Eligible program as long as residents meet income guidelines. The Multi-Family Initiative will leverage partnerships to provide streamlined market solutions and financing designed to reduce energy costs for tenants and property owners, as well as to improve the overall energy performance and comfort of tenant living spaces.

Income Eligibility Guidelines

The HES-Income Eligible program targets income-eligible residential customers across the state. Customers who qualify for the program's free weatherization services must meet the following criteria:

- Have income that is at or below 60 percent of the state median income;
 - For multi-family properties 66 percent (or two-thirds) of the residents must meet the above-referenced qualifications;
- Customers who reside within Community Reinvestment Act areas and their eligible census tracts; and
- Customers who live in residential dwellings or facilities that provide beneficial services to residents. Examples include: disabled veterans groups, group homes, halfway homes, not-for-profit agencies who offer housing to disadvantaged residents, residential treatment facilities, and shelters.

Program Offerings and Incentives

Single Family

The core of the HES-Income Eligible program is the delivery of in-home, direct-installed weatherization services to single-family and multi-family properties. HES-Income Eligible program contractors/vendors and/or the CAAs, selected through a competitive Request for Proposal (“RFP”) process, deliver weatherization services to homes to comprehensively address inefficiencies and to provide energy savings for income-eligible customers. The HES-Income Eligible program provides the same platform of energy-saving services statewide, and typical services include:

Blower Door Guided Air Sealing

The blower door test is a diagnostic tool that measures air infiltration in a home. A blower door test produces a partial vacuum in the home that allows contractors to measure the number of cubic feet per minute (“CFM”) of air leakage. This diagnostic tool allows contractors/vendors to identify where air leaks occur in a home and guides them toward the primary areas that need to receive air-sealing services. Air-sealing services include: caulking, spray foam, and weather stripping. A post blower door test reading is performed and measures the home’s CFM air leakage after air sealing services are performed. Energy reductions are measured by the difference between pre- and post-blower door tests performed before and after weatherization services are rendered in a home.

Duct Sealing

A duct blaster test measures the air leakage throughout a home’s ductwork system. If the test reveals air leakage then air leaks are sealed on-site with UL-rated adhesive products. Before and after measurements are taken by contractors to measure air leakage reductions.

Lighting

The HES-Income Eligible program provides free energy-efficient light bulbs and fixtures to eligible homes. In 2016, the Companies will plan to continue phasing out CFLs as part of the HES-Income Eligible program and promote the installation of LED bulbs and fixtures. In 2016, the installation of LED bulbs will be targeted to high-use sockets, such as those located in bathrooms, kitchens, and living areas. CFLs will be used where the Companies see greater cost-effectiveness in their installation. The Companies will explore phasing out CFLs entirely within the HES-Income Eligible program by 2018.

Hot Water Conservation Measures

Approximately 16 percent of an American home's energy consumption is used for heating water for baths, dishwashing, showers, and washing clothes. The HES-Income Eligible program provides water conservation measures, including faucet aerators, hot water pipe insulation, and low-flow showerheads. These measures not only provide energy-saving benefits, but also provide non-energy benefits such as water conservation.

Appliance Replacement

Appliances, when considered in aggregate, use a significant amount of electricity within the home, especially the refrigerator which uses approximately 10 percent of an American home's annual electric consumption. Inefficient appliances increase the energy burden of income-eligible customers and should be replaced. The HES-Income Eligible program provides incentives for appliance replacements (i.e., dehumidifiers, freezers, and refrigerators) based upon cost-effectiveness screenings.

Clean, Tune, and Test

The maintenance of HVAC equipment is paramount to the efficiency of a home's heating and cooling systems. Over the years, the Companies have found that providing upkeep and maintenance to HVAC systems provides energy savings through improved combustion efficiency. It also extends the life of HVAC equipment, preventing the need for costly equipment replacements. The Companies will offer this service if it is seen as a barrier to performing instrument-guided weatherization (blower door test).

Kitchen Table "Wrap Up"

A critical part of an HES-Income Eligible program visit is the Kitchen Table "Wrap Up." The Wrap Up occurs when the contractors/vendors sit down with customers to explain the weatherization services received and to review a customer toolkit. This toolkit contains valuable information regarding energy-saving tips, energy assistance programs, financing options, health and safety information, online resources, proper CFL disposal, and renewable energy opportunities.

Additional Measures

The HES-Income Eligible program may provide an incentive to cover the installation of additional measures based on cost-effectiveness and eligibility screening. These measures include: domestic hot water system replacement, heat pump water heaters, HVAC system upgrades, insulation upgrades, window replacements, as well as other custom energy-efficiency upgrades. In 2016, the Companies plan to add Wi-Fi-enabled thermostats as an offering for the HES-

Income Eligible program. Though these energy-saving measures are generally provided at no cost, the Companies may require customers and/or property owners to contribute financial resources toward some measures to maintain program cost-effectiveness.

Advanced Smart Power Strips

Per a recent HES evaluation, the Companies will explore including advanced smart power strips into the HES-Income Eligible program as a direct install measure. For more information, please refer to Chapter Nine: Evaluations.

Multi-Family Initiative

Unlike other program offerings, the Multi-Family Initiative can be defined as “unique” in the sense that it involves many different types of housing scenarios. The Multi-Family Initiative services residential properties with five or more units. These structures include, but are not limited to: apartment complexes, assisted living facilities, group homes, high-rise dwellings, and mixed-use developments.

Designed as a hybrid approach, the Multi-Family Initiative combines the Companies’ residential and commercial program offerings to deliver comprehensive energy-saving services to tenants and/or owners of multi-family properties. The Multi-Family Initiative provides valuable weatherization services in tenant living spaces (i.e., apartments and condominiums) and addresses direct-install, energy-efficient measures in common and exterior areas (i.e., hallways, laundry rooms, walkways, and parking lots). The challenge in addressing a multi-family property’s unique energy needs is to offer a package of energy-efficient measures that benefits both the tenants in the dwelling spaces, and the owners with capital property improvements to the common and exterior areas.

The HES-Income Eligible Multi-Family Initiative utilizes the same income eligibility criteria as the single-family HES-Income Eligible program. Sixty-six percent of tenants within a multi-family property must meet HES-Income Eligible income criteria in order to qualify for free weatherization services and energy-efficient measures. HES-Income Eligible criteria include:

- Have income that is at or below 60 percent of the state median income;
 - For multi-family properties, two-thirds of the residents must meet the above-referenced qualifications;
- Customers who reside within Community Reinvestment Act areas and their eligible census tracts; and
- Customers who live in residential dwellings or facilities that provide beneficial services to residents. Examples include: disabled veterans groups, group homes, halfway homes,

not-for-profit agencies who offer housing to disadvantaged residents, residential treatment facilities, and shelters.

Work Process Flow

Similar to the market-rate program, the Companies have established a streamlined approach for processing Multi-Family Initiative projects. First, a weatherization contractor will submit a request to audit or “sample” a multi-family property. A sampling is when a weatherization contractor will perform core services in a percentage of the residential units. From the services performed and data collected, the weatherization contractor can extrapolate the energy savings, measures needed, and potential opportunities for the entire Multi-Family Initiative project.

Once the audit and sampling have occurred, the weatherization contractor submits an audit report and energy-saving proposal to the appropriate Companies. Once the audit report is reviewed by the Companies and the energy savings are validated, a Letter of Agreement (“LOA”) is issued by the Companies that includes the following information: proposed energy-efficiency measures, predicted energy savings, expected Energize Connecticut incentives, and financing options. Once the LOA is signed, the weatherization measures and energy-efficient technologies are installed by the weatherization and/or other contractors. Once the services are completed, the Companies perform a quality assurance (“QA”) inspection to verify that the energy-efficient measures have been installed properly and then issue the incentives for the project.

Leveraging Partnerships

The Companies realize that Multi-Family Initiative projects can be complex for all parties involved as no two projects are ever the same. Each project includes nuances and scenarios tailored to each specific building. In an effort to address the uniqueness of the Multi-Family Initiative, the Companies plan to further streamline the workflow process in 2016. The Companies will ensure all projects have the right key partners to offer customers the overall best energy-saving and economically feasible project. Additionally, the Companies will leverage their partnerships to ensure customers have the fiscal services needed to finance Multi-Family Initiative projects.

In 2016-2018, the Multi-Family Initiative will continue to leverage partnerships to provide streamlined market solutions and financing to reduce energy costs for property owners and tenants, as well as to improve the comfort and overall energy performance of tenant living spaces. The initiative will utilize key industry partner channels to continue addressing residential properties in the most comprehensive manner, including: weatherization contractors and lighting contractors, HVAC Contractors as well as multi-family engineering consultants on a case-by-case basis. The Companies believe working with these partner channels will offer a good

balance between installing tenant-related measures in dwelling units and installing owner-paid energy improvements in the individual units, common areas and exterior areas of residential properties.

Financing

For the 2016-2018 Plan, the Companies will continue to work with the Energy Efficiency Board and the Connecticut Green Bank on optimizing the mix of financing and incentives to make the best use of ratepayer funds. The Companies will continue to work with a number of financial institutions and organizations to provide diverse financing options to multi-family property owners. Leveraging Energize Connecticut incentives with low-interest financing can help property owners afford the capital improvement costs associated with energy-saving projects. The Companies will continue to work closely with the following entities and their loan and financing products:

- Green Bank: Commercial Property Assessed Clean Energy (“C-PACE”) Loan;
- Eversource and United Illuminating: Municipal Loan (is an option for municipal housing authorities); and
- Connecticut Housing Investment Fund: Low-Income Multi-Family Energy-Efficiency (“LIME”) Loan, Multi-Family Energy Conservation Loan (“MEL”), and Bridge Loans.

Streamlined Market Solutions

In 2016, the Companies will explore creating a Multi-Family Initiative software tool to assist key partners in analyzing the incentives and energy savings of proposed energy-efficient measures. This software would allow key partners to enter in their proposed measures identified during the initial audits. This high-level analysis software will allow weatherization contractors and/or lighting contractors to calculate incentives and energy savings for proposed project measures in order to quickly and efficiently “sell” a Multi-Family Initiative project to the customer. This should also eliminate multiple rounds of review between the Companies and key partners, while replacing the use of the LOA as a marketing and sales tool.

Health and Safety

A secondary objective of the HES-Income Eligible program is a focus on the health and safety of limited-income customers. In order to effectively weatherize 80 percent of homes by 2030, the Companies have worked extensively to leverage financial partnerships to address health and/or

safety issues present within income-eligible homes. While there are no stable funding sources, the Companies will continue to explore additional funding opportunities to address this issue. The presence of health and safety issues, such as asbestos or asbestos like material (“ALM”), lead, and mold, have historically postponed or deferred the implementation of the HES-Income Eligible program’s energy-saving measures within many homes.

To address this issue, the Companies received a grant from the DOE to develop and launch the Connecticut Efficient and Healthy Homes Initiative (“CTEHHI”) in 2010. The three-year CTEHHI program successfully weatherized and performed health and safety services in 968 households statewide – homes which otherwise would not have been weatherized due to their existing health and safety issues. In December 2013, the funding was fully exhausted and the Companies were unable to cover the gap for health and safety services with funds earmarked for weatherization services. However, due to funding from the Northeast Utilities-NSTAR merger settlement in 2014, \$1.5 million in statewide funding was allocated by DEEP to fund the remediation of health and safety barriers that prevent weatherization, including ALM, lead, and mold. These funds will launch the Clean Energy & Healthy Homes Initiative (“CEHHI”) in late 2015 for the Companies’ HES-Income Eligible program.

The Companies began utilizing these funds to address income-eligible properties where health and/or safety barriers to weatherization have been identified. CEHHI will continue through 2016, or until the funding is exhausted. In the absence of an ongoing sustainable source of funding to remediate health and safety barriers to weatherization, the Companies will continue to partner with DEEP and other state agencies, as well as partner organizations, to help identify grants, financing tools, and other funding sources in order to develop a sustainable program addressing health and safety going forward.

Contractor Education, Training, and Outreach

The Companies recognize that to provide deeper savings and increased cost-effectiveness of the HES-Income Eligible program, contractors/vendors, and CAAs must have the most up-to-date training regarding building science and design, high-efficiency equipment installation, lighting technologies, emerging technologies, and weatherization services. In 2016-2018, the Companies plan to leverage partnerships in order to facilitate training opportunities for program contractors/vendors. Training opportunities may include, but are not limited to: BPI certification, Home Energy Professional certification which is under development, health and safety barrier training, and financing workshops.

BEHAVIOR-BASED PROGRAMS: HOME ENERGY REPORTS

Overview

Behavioral-based programs are built around the premise that the majority of customers are neither engaged, nor knowledgeable, regarding their energy consumption and habits. Utilities and third-party energy-efficiency program administrators can combat this disengagement through electronic and print behavioral-based communications; thereby making customers aware of how much energy they consume and empowering them to adopt energy-efficient technologies and behaviors.

Critical pieces of information provided by behavioral-based communications include: how much energy an individual customer consumes, how they compare to other customers, and what steps they can take to become more energy efficient. Printed reports are often called “Home Energy Reports” and include energy information for customers that is laid out in easy-to-understand language and with easy-to-read graphics. The more “disengaged” a customer is deemed to be regarding their energy consumption and behavior, the higher the frequency of printed reports. This type of targeting is more cost-effective than traditional marketing approaches, as these are often the customers who are not aware of energy-efficiency program options and are deemed “hard-to-reach” for a variety of cultural, economic, and linguistic reasons.

The high-frequency of printed reports to “disengaged customers” is equalized by sending cost-effective electronic communications to “engaged customers;” these are customers who have previously participated in past energy-efficiency programs and/or who have online accounts with their electric and/or natural gas utility. These customers can be very knowledgeable regarding their energy consumption and show the propensity for participating in energy-efficiency programs. Routine emails to engaged customers can easily encourage the purchase of new emerging technologies or to test the energy savings that result from making a minor change to the way they consume energy.

During the implementation of the 2013-2015 Plan, the Companies implemented behavior-based pilots to explore electric-efficiency gains made by simply providing their customers feedback regarding how much electricity they consumed. In 2014 and 2015, each of the Companies’ successful pilots morphed into full-fledged programs due to their cost-effectiveness, electric savings, and correlated customer participation in other energy-efficiency programs.

Continuing in 2016, the Companies will individually continue to deliver behavior-based programs to their customers, while monitoring the marketplace for continued enhancements to customer engagement platforms. A detailed overview of each Company’s behavior-based program for

2016-2018 appears in the next two sections. UIL will offer a joint electric and natural gas behavior-based program, while Eversource will continue to offer an electric behavior-based program but will evaluate the benefits of Home Energy Reports for natural gas customers.

Eversource’s Behavior-Based Program: Home Energy Reports

Overview and Objectives

The primary objective of Eversource’s Home Energy Reports behavior-based program is to drive residential energy-efficiency and conservation efforts to reduce electricity consumption, as well as increase participation in residential Energize Connecticut programs and services. Eversource utilizes the Home Energy Reports program to help provide significant insight into how customers use electricity and to provide meaningful and appropriately targeted information to customers regarding the energy-saving results of their actions. The Home Energy Reports program is also used to provide targeted energy-saving tips to market segments, increase Energize Connecticut program participation rates, and to enhance customer satisfaction with Energize Connecticut programs.

In 2014, Eversource began development of its Customer Engagement Platform, which is detailed further in Chapter Six. Through its Customer Engagement Platform (“CEP”), Eversource is able to identify, customize, and deliver energy-saving products and services to both business and residential customers, with a particular emphasis on the installation of hard-wired energy-efficient improvements. As a result of the 2015 launch of the CEP, a new objective for the Home Energy Reports program is to serve as a complementary initiative to the CEP to further drive customer engagement through behavioral energy-efficiency savings.

Currently, the Home Energy Reports program provides valuable energy usage information through electronic and printed reports to a variety of customers. These reports provide valuable energy usage information to drive behavioral energy-efficiency savings. They also provide a communications channel to those customers who are not familiar with the CEP or who have limited abilities to access a digital platform. In 2016, the program’s electronic and printed reports will contain messages driving traffic to the CEP; thereby encouraging greater digital engagement and self-service.

Starting in 2016, Eversource will explore a targeted expansion utilizing a market segmentation approach to enhance program delivery. Eversource will explore targeting two customer market segments:

- **Home Energy Solutions Program Participants.** Eversource will continue targeting HES program participants, a customer segment added to the program in 2014. Continued

outreach to this market segment through the Home Energy Reports program allows Eversource to capture behavioral energy savings and insight from recent HES program participants, as well as reinforce the value of pursuing recommended energy-efficiency upgrades or “add-on measures.”

- **Limited-Income Customers.** In 2016, Eversource will begin to target the limited-income customer segment by expanding the Home Energy Reports program to include 40,000 income-eligible customers. It is Eversource’s belief that this customer segment would benefit highly from increased education and knowledge regarding how they use energy within the home. Though the HES-Income Eligible program is able to provide valuable energy-efficient and weatherization services, behavioral changes in how these customers use energy could help decrease this customer segment’s significant energy burdens.

Target Markets

The target market for the Eversource Home Energy Reports program are residential electric customers of Eversource. As referenced above, Eversource will explore a targeted expansion of its 347,000 customer program to target two residential customer segments: (1) Home Energy Solutions program participants; and (2) limited-income customers.

In April 2014, approximately 7,500 customers who previously participated in the Home Energy Solutions or HES-Income Eligible programs were automatically enrolled into the Home Energy Reports program and started to receive printed reports. Eversource will continue to enroll new Home Energy Solutions and HES-Income Eligible program participants into the Home Energy Reports program at a rate of approximately 1,000 customers per quarter.

Eversource is interested in targeting limited-income customers through the Home Energy Reports program as an effort to help decrease this customer segment’s energy burdens, and to evaluate which behavioral modifications are adopted by limited-income customers. In 2016, Eversource will expand the Home Energy Reports program to include 40,000 income-eligible customers, and an additional 60,000 medium to high-use customers, who will start to receive paper reports.

Program Offerings and Incentives

In 2016-2018, Eversource’s Home Energy Reports program will continue to send email and paper energy reports to approximately 347,000 existing Eversource electric customers. Eversource will also expand the Home Energy Reports program to include 40,000 income-eligible customers and an additional 60,000 medium to high-use customers, who will start to receive paper reports.

Eversource will continue to explore cost-efficiencies by optimizing the communication channels through which different customer segments receive Home Energy Reports (print or electronic), incrementally decreasing the number of print reports mailed to customers, and encouraging online engagement.

Eversource will continue to explore cost-efficiencies by optimizing the communications channel through which different customer types receive home energy reports (print or email). Currently the behavior-based program provides targeted Home Energy Reports to 347,000 customers who have been divided into the following treatment groups:

- 24,000 customers who participated in the 2011 Home Energy Reports pilot. The remaining customers from the initial pilot receive three paper reports per year;
- 9,000 high-use customers who started to receive reports in 2012. The remaining customers receive quarterly electronic reports, in addition to two paper reports per year;
- 210,000 high-use customers who receive quarterly paper reports to drive increased energy savings;
- 85,000 high-use customers who receive monthly electronic reports, in addition to two paper reports per year; and
- Approximately 7,500 customers who have recently participated in the HES or HES-Income Eligible programs. These customers were enrolled on a rolling basis at a rate of 1,000 customers per quarter. This customer segment receives paper reports with customized tips to maintain energy savings from Home Energy Solutions program-installed measures, as well as to increase the adoption of add-on measures.

The Home Energy Reports program quantifies energy savings from the above-referenced treatment groups and compare them against a baseline control group of similar Eversource customers who are non-participants in the program.

In 2016-2018, Eversource will continue to identify and explore additional ways to promote other Energize Connecticut programs and initiatives through the Home Energy Reports program. This can include additional panels on printed reports and exclusive promotional offerings to program participants. Previous marketing promotions on printed reports have included additional panels highlighting LED bulbs, winter peak demand campaign, and Home Energy Solutions program participant testimonials. Eversource plans to continue utilizing marketing modules in 2016-2018,

and planned promotions include: LED bulbs and heat pump water heaters. Additionally, over the 2016-2018 Plan, Eversource will evaluate the benefits of Home Energy Reports for natural gas customers.

UIL’s Behavior-Based Program: Home Energy Reports

Overview and Objectives

The objective of the UIL Home Energy Reports program is to provide meaningful and appropriately targeted energy-efficiency information and advice to United Illuminating, SCG, and CNG customers that drives energy savings, increases participation in Energize Connecticut programs, creates greater customer satisfaction, and engages customers in recognizing the value of energy conservation. In addition to the above objectives, UIL will also encourage Home Energy Reports program customers to utilize the UIL Customer Engagement Platform (“CEP”) to conduct online energy audits, research energy-saving opportunities, and to learn about Energize Connecticut programs. As a registered UIL “My Account” customer utilizing the CEP, customers are able to compare their energy usage performance with similar customers, and set personal energy-saving goals. As a “My Account” customer, progress toward their set energy usage goals are reflected in a customer’s Home Energy Report, along with targeted advice and promotional offers for their home.

In 2015, UIL developed and launched an enhanced CEP across all its electric and natural gas utilities (CNG, SCG, and United Illuminating). In conjunction with the CEP, UIL launched a complementary behavioral Home Energy Reports program in 2015 that targeted single-family homes within United Illuminating’s electric service territory. This Home Energy Reports program was designed to cost-effectively induce behavioral actions that generate the most energy savings and investments in energy-efficient actions and measures. Armed with targeted energy-efficiency information, UIL customers are empowered to take control of their energy usage.

In 2015, the Home Energy Reports program targeted 50,000 electric customers within United Illuminating’s 17-town service territory. The program had two distinct populations who received Home Energy Reports. The first population was 37,500 electric customers who currently have online profiles (“My Account”) through the CEP. This population received electronic Home Energy Reports program communications and were identified as more likely to reduce energy consumption in response to an email/electronic campaign. This population received seven electronic communications per year; which consisted of a welcome packet (an email along with the first electronic Home Energy Report), followed by five additional electronic Home Energy Reports. To maximize cost-efficiencies, this population received energy information via email and through online “My Account” messaging. These email/electronic communications included

information regarding: the customer's energy consumption, historical energy usage, and targeted energy-saving recommendations based on the customer's demographic data.

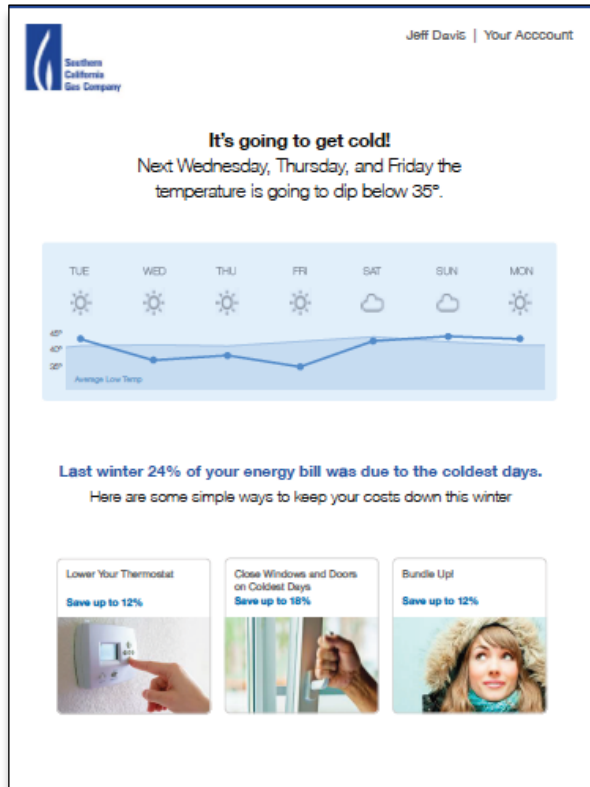
The second population was 12,500 customers who had not utilized the UIL "My Account" feature, but were identified as more likely to reduce their consumption in response to a paper Home Energy Report. This population received five print communications per year; which consisted of a welcome packet (a welcome letter along with the first print Home Energy Report), followed by three additional print Home Energy reports, and one reminder postcard. This population received a targeted print campaign with the ultimate program goal of switching these customers to electronic Home Energy Reports.

Within each Home Energy Report, print and email/electronic communication, the following elements are incorporated:

- Targeted message(s): static messages specific to each customer segment;
- Home comparison: comparing the customer's energy use to typical homes;
- Personalized energy-saving measures: targeted customer messaging that includes personalized cost estimates and savings;
- Static energy-saving measures: standard tips for all customers that include generic cost-estimates and savings;
- Promotions for United Illuminating's "My Account"/online enrollment; and
- Promotions for the Home Energy Solutions program.

In 2016, UIL will add an additional 50,000 customers into the Home Energy Reports program. This will consist of an additional 25,000 electric customers, plus a new target population of approximately 25,000 non-"My Account" natural gas customers. Customers will also be introduced to a new Home Energy Reports element that will highlight customer data available through advanced meter information ("AMI"). The AMI data will include insights such as the customer's highest energy consumption day and the time of day that the customer utilizes the most energy. In 2016-2018, UIL will continue to modify and evolve the Home Energy Reports' elements, content, and messaging, as well as test report frequencies to maximize energy savings.

In 2016, UIL will also look to present AMI data, along with the inclusion of Bill-to-Date and Weather Sensitivity interventions. Bill-to-Date is an opt-out, electronic behavioral bill alert

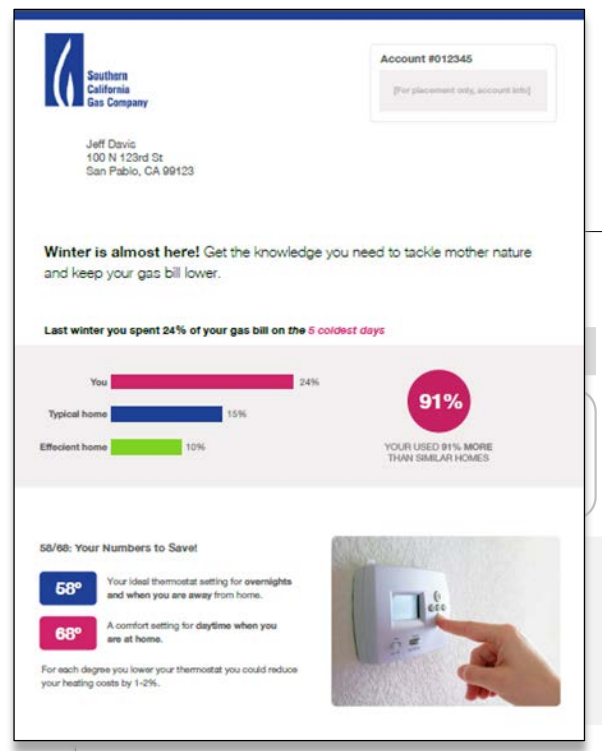


with a projected bill amount. This projection indicates what the customer's bill might be if their consumption pattern does not change, and provides targeted energy-saving tips to take action. The intent is to help customers maintain a vital "top of mind" awareness of their energy consumption to create the behavioral change necessary to achieve energy conservation goals and program adoption.

The Weather Sensitivity feature is designed to impact peak demand reductions, along with overall energy consumption. The Weather Sensitivity feature will not only target those customers identified as high energy users, but also those that have the most "elasticity" around their energy consumption relative to cold or hot temperatures. This elasticity represents the most significant opportunity to change customer behaviors around cooling/heating, and in the case of cooling, the opportunity to reduce peak demand.

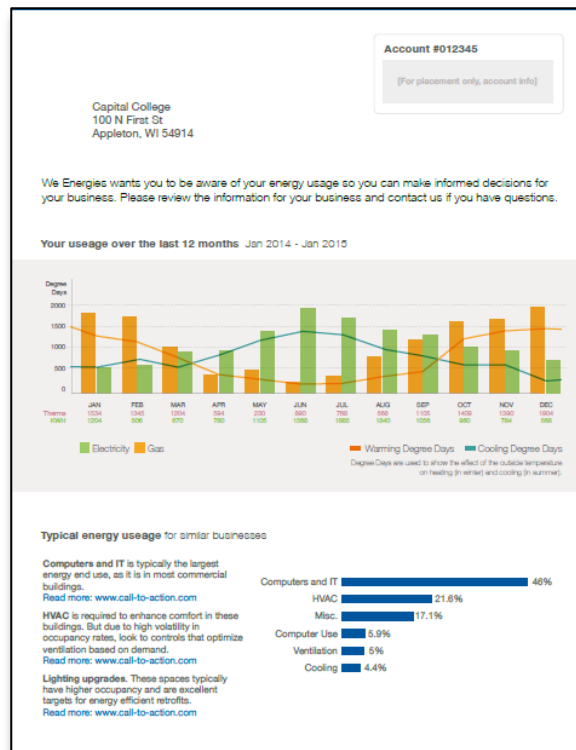
program that has great potential in reaching large numbers of existing United Illuminating "My Account" customers and demonstrating to customers regarding how they can meet their energy reduction goals in a cost-effective manner. Bill-to-Date is a weekly alert via email or text, which contains the bill-to-date amount (in dollars), projected total bill for the month, and a targeted energy-saving tip or promotion.

The Bill-to-Date alert is made possible by leveraging AMI data and sophisticated rate analytic engines to enhance the email/text alerts



During the winter (natural gas) or summer (electric) season, monthly communications will be delivered via mail or email. These communications will focus on how the customer performs during the most unfavorable weather conditions, including the relative amount of energy consumption during these periods to total energy consumption, how that consumption compares to similar homes, and what they can do to improve their home’s performance, as well as simple steps for big impacts.

Customers will also receive weather alerts that are triggered by a configured weather forecast threshold that alerts the customer to the impending opportunity to change their previous behaviors. The alerts will include a seven-day outlook on forecasted temperatures, a reminder about the customer’s energy usage during previous periods of similar weather, and easy, no-cost/low-cost tips to decrease their energy usage.



In 2017, UIL will look to add additional residential customers, along with 10,000 small business customers as part of its Business Energy Reports program. The Business Energy Reports program is similar to the Home Energy Reports program, but is focused on the small business customer. UIL will also study the persistence of savings, and will look to launch residential community challenges/competitions through the web, social medial channels, and local events.

In 2018, UIL will continue to add new customers to grow the Home Energy Reports and Business Energy Reports programs, and will utilize advanced disaggregation to deliver advanced energy-saving offers precisely-targeted to individual customers to maximize savings. UIL will continually look to modify the timing and frequency of Home Energy Reports and Business Energy Reports year-over-year to maximize the energy savings impact and customer satisfaction.

Target Markets and Segments

The initial target market for the Home Energy Reports program are residential electric customers in United Illuminating’s 17-town service territory who live in single-family homes. To drive cost-

efficiencies, UIL will utilize electronic messaging to deliver the majority of Home Energy Reports to “engaged” customers (existing UI “My Account” customers), while delivering printed reports to “disengaged” customers (customers who have not signed up as a “My Account” customer on the UIL CEP).

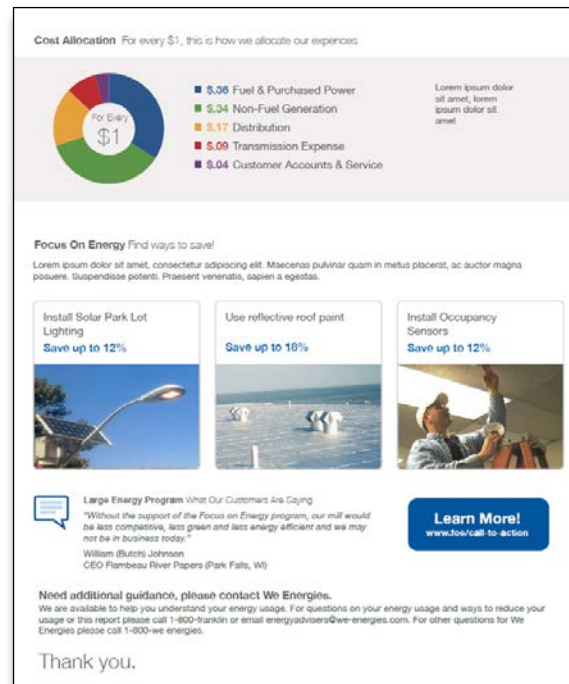
In 2016, UIL will further expand the Home Energy Reports program to natural gas customers and additional UIL “My Account” electric customers. In 2017, UIL will add a new market segment—small business customers—through its Business Energy Reports program. These small business customers will receive similar communications (email and print) that are similar to the Home Energy Report program’s communications, however, these reports will contain small business-related content. UIL will also investigate the possibility of conducting a dual-fuel customer community competition pilot. In 2018, UIL will look to continually grow the Home Energy Reports program in all customer sectors, while making improvements to increase program effectiveness and customer satisfaction.

Program Offerings and Incentives

During the 2016-2018 Plan, the UIL Home Energy Reports program will continuously evolve to provide an improved customer experience while optimizing energy savings. During 2016-2018, the Home Energy Reports program will incorporate print and email/electronic campaigns, with the intention of converting print report recipients to become electronic communications recipients, in order to increase program cost-effectiveness.

The 2016 Home Energy Reports program will look to expand upon its current 50,000 customer base with additional customer touch points and/or interventions, and will look to modify reports to present AMI data and insights. UIL will also incorporate Bill-to-Date and Weather Sensitivity features to the Home Energy Reports program to drive additional savings.

In 2017, the Home Energy Reports program will again expand its behavioral offerings to small business customers through a new program—Business Energy Reports. Starting in 2018, UIL will add in community challenges/competitions among customer segments through the Internet, social medial channels, and local events.



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CHAPTER FOUR: COMMERCIAL & INDUSTRIAL PROGRAMS

OVERVIEW OF NEW CONSTRUCTION AND RETROFIT PROGRAMS

Continuous Change and Improvement to Program Design and Delivery

As discussed in Chapter One, the Companies are continuously seeking ways to improve the design and delivery of the energy-efficiency programs they offer, to enhance program reach into relatively underserved markets, and to engage customers they have served in the past with new offerings, solutions, and technologies to further enhance the efficiency and performance of their buildings or facilities. This continuous process of improvement and customer engagement relies on a number of sources of data, field experience, information, and research, including:

- Ongoing communications between the Companies in order to share the pragmatic lessons of program implementation in the field;
- Review of results and recommendations from independent process and impact evaluations, and integrating “lessons learned” into programs going forward;
- Review of other state’s evaluations of energy-efficiency programs, including: California, Massachusetts, New York, Oregon, Rhode Island, and Vermont. The programs in these states are very similar in design to Connecticut’s programs, and the market dynamics of the commercial and industrial marketplace, and its component submarkets, tend to have many more commonalities than differences. Evaluating other prominent programs also offers the Companies ideas for improvement that can be applied to Connecticut’s energy-efficiency programs;
- Review of industry “best practices” and other studies, as well as conference proceedings and papers from organizations, such as the ACEEE and the Association of Energy Services Professionals. Similar studies are available from the DOE network of national research laboratories, and from regional efficiency organizations such as the Northwest Energy Efficiency Alliance and Northeast Energy Efficiency Partnerships. The Companies are also active in industry collaborations, such as the Consortium for Energy Efficiency. Additional sources of thought leadership and information include: E Source, the Fraunhofer Institute, the Institute for Market Transformation, the New Buildings Institute, and the Rocky Mountain Institute; and

- Maintenance of an extensive peer network. Public energy-efficiency programs have a culture of regional and national collaboration among their boards, consultants, and administrators. The Companies' staff knows many of their counterparts, and there are regular exchanges of information and advice among peers for the mutual benefit of the industry.

As the Companies developed the 2016-2018 Plan for their Commercial and Industrial Program Portfolio, they utilized many of the above-referenced resources, and as a result many program innovations and best practices are reflected. Additionally, the Companies contracted with E Source to conduct targeted research on best practices, and emerging trends and technologies. The Companies also hired E Source to independently verify that the Companies' internal research reflected the most current assessments of industry best practices.

Core Commercial & Industrial Solutions

Within this context of continuous improvement, the Companies continue to evolve the design and delivery of their Commercial and Industrial ("C&I") Program Portfolio. In their development of the 2016-2018 Plan, the Companies established four successful core C&I Solutions, which include:

- **New Construction and New Equipment (Energy Conscious Blueprint).** This solution targets all commercial new construction, renovation, remodeling, and expansion projects in Connecticut, as well as end-of-life replacement purchases. This solution is the Companies' primary conduit for pushing the new construction market for commercial buildings toward Zero Net Energy buildings during the 2016-2018 Plan;
- **Retrofit Solutions (Energy Opportunities).** Considered the "umbrella" C&I solution, Retrofit Solutions provides an extensive menu of energy-efficient incentives and ancillary technical services designed to encourage building owners to replace functioning, but outdated and inefficient equipment with premium-efficiency counterparts;
- **Small Business Energy Advantage.** This cost-effective solution provides turnkey energy-saving services for small C&I customers who do not have the time, financial resources, or in-house expertise necessary to analyze and reduce their energy usage; and
- **Business and Energy Sustainability.** This solution seeks to integrate energy efficiency into day-to-day operations of C&I customers through innovative services and niche products

not significantly addressed through the Companies' three other above-referenced C&I Solutions.

Key Themes for 2016-2018 Programs

The 2016-2018 Plan for C&I Solutions has three broad themes:

- 1) Better and more granular market research that will aid in the development of more and effective market-segmented approaches to service delivery;
- 2) More focus on long-term engagement with customers to move their buildings and facilities toward deeper and more comprehensive energy savings. This includes the use of a variety of such tools, such as: Strategic Energy Management, comprehensive approaches, and multi-year Memorandums of Understanding and/or Customized Solutions Partnerships; and
- 3) A shift from sorting customers into programs with narrow requirements toward providing customers with customized C&I Solutions that match the Companies' market segmentation research, and meet the C&I customer's individual business needs and concerns.

CONNECTICUT ENERGY CODE (COMMERCIAL)

The current Connecticut Energy Code is the 2009 International Energy Conservation Code ("2009 IECC"). The Office of the State Building Inspector and the Codes and Standards Committee are in the process of preparing the draft Connecticut Supplement for the next State Building Code. The Connecticut Supplement will adopt the 2012 family of codes developed by the International Code Council and will be coordinated with the State Fire Safety Code. After the preparation is complete, the Commissioner of the Department of Administrative Services will forward the draft to the Governor's office and the Office of Policy and Management to begin the statutorily-mandated adoption process that in the past has taken anywhere between nine and fourteen months to complete. The new State Building Code will take effect when it is filed with the Secretary of State.

It is Connecticut's desire to regularly adopt the current published edition of the model codes as the State Building Code. The adoption of the entire family of codes would maintain the coordination among the codes. Also, adopting codes on each cycle would expedite the review process since the change markings in the codes would have an applicable meaning.

Table 4-1 shows the historic and anticipated effective dates for the Connecticut Energy Codes.

Table 4-1: Historic and Anticipated Effective Dates for Connecticut Energy Codes

	2013	2014	2015	2016	2017	2018
2009 IECC						
2012 IECC						
2015 IECC						
2003 IRC						
2009 IRC						
2012 IRC						
2015 IRC						

- IECC = International Energy Conservation Code;
- IRC = International Residential Code;
- 2009 IECC was adopted October 6, 2011; and
- 2009 IRC was adopted February 14, 2014.

The commercial requirements in the 2012 IECC are generally more stringent than those in the 2009 IECC. The code requirements for equipment are beginning to approach the limits of technology, while the ability of the average contractor, designer, and code enforcement official is not keeping pace with the changes in technology. The major change in the 2012 IECC is a requirement to incorporate an additional efficiency option into the project. The designer has the responsibility to select the option that can change a requirement from that in the “regular” section of the code. The 2012 IECC also establishes a new section for system commissioning.

The commercial requirements in the 2015 IECC are even more stringent, with more specificity, than the 2012 IECC, and include equipment and systems not previously covered in previous IECCs. The 2015 IECC also has options in the building envelope section, which if used, impose requirements on the lighting system design. Since the requirements for equipment are approaching the limits of technology, more and better defined control requirements are included in the code. There are more additional efficiency options in the 2015 IECC that are better defined than they were in the 2012 IECC.

The Companies anticipate that the 2012 IECC will be adopted during the implementation of the 2016-2018 Plan. The Companies intend to increase building code trainings during this period to make more building officials aware of C&I building code changes. Starting in 2016, the Companies will explore the idea of attributing energy savings from 2012 IECC and 2015 IECC

trainings for building officials, trade allies, and others to the Energy Conscious Blueprint program's portfolio. The Companies will review code attribution models currently in place in other states, including: Arizona, California, Massachusetts, and Rhode Island.

COMMERCIAL AND INDUSTRIAL INCENTIVES

The Companies provide incentives through their C&I Solutions that are designed to motivate customers to pursue all cost-effective energy-efficiency solutions when renovating an existing space, designing a new building, replacing failed equipment, or altering their business operations so they can work in a sustainable manner. Well-designed incentives should be attractive enough to induce action, but not so high as to spend customer funds inefficiently.

Incentives for equipment purchased in new construction or renovation situations, or when an existing piece of equipment fails, can be relatively smaller, because the customer has already decided to make a purchase, independent of the energy-efficiency benefits. In these circumstances, the purchase itself is "market-driven;" the incentive is not the driving force of the investment. An attractive share of the incremental cost to go from a conventional lamp to a LED fixture is sufficient.

Retrofit incentives must induce the customer to replace a piece of equipment that is functioning well, but is inherently inefficient. In these circumstances, the incentive is often the motivation driver, and therefore must factor in a significant share of the measure cost, along with the labor to install the equipment.

Commercial and Industrial Incentive Types

The following are some common incentive types that are referenced throughout the 2016-2018 Plan to describe the C&I Program Portfolio's offerings:

- **Unit Incentives and Rebates.** These are pre-determined basic incentives for common technologies where savings can broadly be assumed and quantified in a variety of applications and circumstances. These incentives are primarily for smaller projects where customers can quickly and easily identify a particular piece of equipment, such as small HVAC units or lighting fixtures, and match the standard equipment to a high-efficiency alternative. Since these are pre-determined basic incentives, the C&I customer can confidently purchase the energy-efficient equipment knowing the accompanying incentive or rebate they will receive.

- **Installed Cost Incentives.** These are used for retrofit projects and are designed to pay a percentage of the cost of purchasing and installing efficient equipment. This incentive is designed to motivate customers to replace existing functional, but inefficient equipment.
- **Incremental Cost Incentives.** These incentives are for new construction or “lost-opportunity” equipment replacement projects where the customer already needs to install new equipment. The incentive is designed to pay some of the extra incremental costs associated with upgrading from standard-efficiency to premium-efficiency equipment. Standard-efficiency is often defined as the minimum efficiency to meet building code requirements. Typically, this incentive is also used when older equipment fails and is being replaced, or when existing equipment is near the end of its useful lifetime, and the customer is planning for a replacement.
- **Whole Building Incentives.** These are used for new construction and major renovation projects to reward High-Performing, energy-efficient designs. A tiered-approach is used; so the incentive increases the more a design is relative to building code.
- **Upstream Incentives.** Upstream incentives are paid to distributors to stock and promote energy-efficient measures, such as LED lamps and bulbs, to contractors at the point-of-purchase of materials. The goal of establishing upstream incentives is to eliminate the price barrier between standard and premium-efficient equipment. Since the distributor receives the incentive, this incentive is often invisible to the C&I customer.
- **Design Incentives.** In new construction and major renovation projects, these incentives are available to design teams to compensate them for some of the extra costs associated with running multiple building simulations. These building simulations, or energy models, are used to systematically evaluate multiple energy-efficient measure strategies and measures. These energy models assist designers and builders in the decision making process and help evaluate the interactive effects of various pieces of energy-efficient equipment together. Design incentives are also used to motivate design teams to maximize energy-efficient design and equipment selection for new buildings, and to ensure energy-efficiency survives the value-engineering process when resources are constrained.
- **Technical Study Costs.** Studies to evaluate energy-efficiency opportunities can be co-funded by the C&I Solution and the C&I customer, if both parties agree that a study would help explore and identify opportunities for cost-effective, energy-saving measures. Examples of such studies include compressed-air system evaluations, and focused studies on high-consumption electrical or natural gas equipment.

- Comprehensive Incentives.** These incentives motivate customers to go deeper and include more measures in projects for implementation. The goal of this incentive is to help customers capture savings from a number of measures at one time, rather than replace individual old measures sequentially when they fail. Customers receive a higher incentive when they bundle measures than they would if they pursued each one individually (only when they failed). By combining energy-efficient measures, implementation contractors can do more while on-site with a single larger, comprehensive project than they could implementing a series of smaller projects over time with the same customer.

The Companies assess their comprehensive incentive structure, including energy-efficient measure combinations or array of offerings to target market customers, on a periodic and ongoing basis. The criteria for the comprehensive incentive structure is intended to sufficiently encourage the installation of the highest combination of measures, with applicable financing support, in order to obtain deeper sustainable energy savings without exceeding a customer's financial or payback thresholds. During the 2016-2018 Plan, the Companies will explore tailored incentives for some targeted customer segments.

The Companies will explore adding appropriate incentive dividends for C&I customers who enter into a Customized Solutions Partnerships agreement, as they may warrant additional incentives due to the large economies of scale achieved by attaining all cost-effective, energy-efficiency measures.

Incentive Cap Elimination

In its Decision approving the 2013-2015 Electric and Conservation Load Management Plan, dated October 31, 2013 (the "Decision"), DEEP stated:

"In its 2012 Expanded Determination, the Department directed the Companies and the Energy Efficiency Board to consider, for the 2013-2015 C&LM Plan, proposing program enhancements to allow large C&I customers more flexibility to direct C&LM expenditures toward energy investments that would improve process efficiencies. The Department also concluded that, at the Expanded Plan funding level, the annual Federal Tax ID cap should be raised from \$800,000 to \$2 million and the per metered site cap should be eliminated.

CL&P supports an incentive cap of \$2 million per Federal Tax ID, and the ability to waive the cap for large projects for those customers that have entered into an MOU with the Companies to achieve energy efficiency goals. CL&P Comments, p. 10. DEEP will allow the Companies to waive the annual \$2

million Federal Tax ID Cap, upon approval from the Department on a case-by-case basis for projects that meet the above criteria.”¹⁴

The Companies have evaluated the potential contracts, Memorandum of Understandings (“MOUs”), and Customized Solutions Partnerships (“CSPs”) participations levels, incentive projections for key customer accounts (including state of Connecticut buildings and facilities), and equity across customer quartiles. As the Companies’ outreach to large C&I customers increases, the Companies hope to develop long-term and strategic partnerships with large C&I customers to help the Companies and customers meet their long-term energy savings and goals.

For 2016-2018, based on the evaluation, the Companies are recommending to eliminate the incentive cap (\$2 million) on key customer accounts that have MOUs and CSPs. With the elimination of the incentive cap, the Companies can be flexible and responsive in implementing long-term contracts, MOUs, and CSPs with large C&I customers. Currently the incentive cap serves as a barrier to customer participation due to uncertainty and lack of confidence that the incentive mechanism will be available to large C&I customers. However, the Companies will continue to work under the \$2 million cap for all other projects and will request exemption on a case-by-case basis.

ECONOMIC CONTEXT FOR THE 2016-2018 PLAN

Customers make investment decisions based on their perceptions of the business environment they currently experience, and their expectations for the near horizon. In the 2013-2015 Plan, the Companies noted that businesses and consumers perceived that Connecticut was facing a difficult economy in 2013. The forecasts for 2016 and beyond remain mixed, and are increasingly volatile as the 2016-2018 Plan is being written. Losses in manufacturing jobs have somewhat plateaued according to economic data, and Connecticut remains one of the strongest manufacturing states in the country; a position likely to remain secure. However, the value of contracts in the defense industry sector has declined, reflecting a decline in defense spending attributable to the drawdown of military operations in Iraq and Afghanistan.¹⁵ Furthermore, ongoing fiscal issues within the state government and state budgets are emerging as an increasing macroeconomic concern. In fact, the Connecticut Center of Economic Analysis

¹⁴ Department of Energy and Environmental Protection. *2013-2015 Conservation and Load Management Plan Final Decision*. Oct. 2013, p.72.

¹⁵ Office of Policy and Management. *“FY 2016 –FY 2017 Biennium Economic Report of the Governor,”* Feb. 18, 2015, p. 62.

(“CCEA”) in June 2015 reported “strong downward revisions for Connecticut Real Gross State Product, wiping out the strong growth reported in CCEA's previous Outlook.”¹⁶

In the commercial sector, the continued prominence of corporate, finance, and insurance headquarters in Connecticut means that commercial office space, particularly Class A space, will continue to factor heavily in the state’s economy. Vacancy rates in the two predominant markets, Southwest Connecticut and Hartford, remain above the national average, reflecting a slow recovery from the recession.¹⁷ Continued instability in the financial sector makes the Southwest Connecticut market particularly volatile,¹⁸ and Hartford is flat to declining.¹⁹ Until current vacancies are absorbed, office construction is likely to remain modest. Again, ongoing fiscal issues within the state government and state budgets are emerging as an increasing concern of the commercial sector.

In the institutional sector, financial pressures, market dynamics, regulatory changes, and technological innovations have converged to produce a period of rapid consolidation and redefinition in many industries, notably the hospital and health care industry. Today in Connecticut, a substantial portion of the acute care hospitals and affiliated physicians are associated with two dominant entities: Hartford Healthcare and Yale-New Haven. Similarly, many of the long-term care facilities (both nursing homes and assisted living) have evolved into affiliations or networks.

Connecticut is not unique to this situation. Nationally, from 2009 through 2013, hospital mergers and consolidation transactions increased at the annual rate of 14 percent.²⁰ Some industry observers suggest that part of this restructuring process will involve institutions divesting of their buildings, with other entities emerging as hospital REITs to manage the physical plants.²¹ During this period of change and flux, health care institutions appear unlikely to make large capital commitments that do not have very short returns on investment (“ROI”); less than two years is the current industry ROI norm.²² However, it should also be noted that current indications within the healthcare sector are that with consolidation, largely complete capital investment may be poised to rebound.

In summary, overall, Connecticut’s economy is expected to grow 2.8 percent in Fiscal Year 2015, and then decline to an average of 2.0 percent growth in Fiscal Years 2016 to 2018. Employment is not expected to surpass its pre-recession peak until the second quarter of 2016.²³ Thus, the

¹⁶ CCEA Outlook. Jun. 2015.

¹⁷ CB Richard Ellis. *Office Vacancy Index of the United States*. Updated through 2014 Q1.

¹⁸ Cushman & Wakefield Research. *Market Beat Office Snapshot – Fairfield County*, Q1 2015.

¹⁹ Cushman & Wakefield Research. *Market Beat Office Snapshot – Hartford*, Q1 2015.

underlying economic dynamics during the 2016-18 Plan period appear to be somewhat better than existed during the 2013-2015 Plan, however near-term uncertainty, particularly in key sectors as noted above, and in consideration of the ongoing state government fiscal challenges, will likely encourage investment caution among many non-residential customers.

MARKETING COMMUNICATIONS

Situation Analysis

As noted in the preceding sections, the Companies take into consideration the key markets in Connecticut and the state's economic climate as they guide the evolution of existing services and solutions and work to create new ones. The perspective continues to be customer-centric: customized, sustainable measures developed within the context of customer segmentation. The messaging and marketing to promote these measures has significantly changed in the past three years, particularly to larger customers, who are now benefiting from relationships with energy-efficiency sales support.

Across the entire C&I Program Portfolio, the communications strategy shifted from asking customers to participate in programs, to articulating what their particular energy needs and challenges are, and presenting them with solutions. This messaging has been applied to specific vertical markets, such as: agriculture, educational institutions, food services industry, health care, hospitality, manufacturing, municipalities, office space, retail, and senior living.

In the last three years, the Companies have continued to use the traditional mediums that reach large, relatively undifferentiated business audiences, such as: business print journals, business-oriented digital display, and radio advertising. However, these mediums now represent a smaller percentage of the overall marketing mix. They are still useful mediums for reaching smaller business customers who represent larger audiences; however the greater marketing communications investment has been made in these mediums: energy efficiency sales professionals, association advertising and outreach, direct mail and e-mail, newsletters, public relations, and targeted digital advertising.

²⁰ Deloitte. *2015 Health Care Providers Outlook - United States*.

²¹ Ervin, Jon. AVP, HealthTrust, Nashville, telephone interview, Oct. 2013.

²² See 10 Id.

²³ Ibid. Biennium Economic Report, p. 216.

Additionally, the Companies extended their marketing reach by contracting with firms like Ecova, who market the upstream lighting program to a distribution network or through relationships with contractors who specialize in strategic energy management.

Marketing Communications Mix: 2016-2018

Table 4-2 on the next page shows the potential marketing communications mediums that may be employed during the 2016-2018 Plan timeframe, along with the appropriate audience, the measures promoted, and the high level objective of the tactic. The extent that these mediums will be used is dependent on what is needed at any given time to achieve the Companies' energy-saving and participation goals.

Table 4-2: 2016-2018 Marketing Communications Mix for Commercial & Industrial Programs

Medium	Audience	Objective	Measures/Activities Promoted (potential)
Radio Advertising	Mass Business Market, minimal audience differentiation, most valuable for small or mid-sized local businesses	Business case for energy efficiency (“EE”): focus on the value proposition	Audits, incentives, financing, and resources in general
Print Advertising	General business customer audiences (via traditional business pubs and associations), segment-specific to customers and trade allies (via vertical pubs and associations)	Business case for EE: focus on the value proposition	Audits, incentives, financing, design and building grants, resources in general, and equipment/service specific
Digital Display Advertising	Targeted by location, size and/or segment: both customers and trade allies	Measure/solution-specific: lead generators	Audits, incentives, financing, resources in general, and equipment/service specific
Paid Online Search	Targeted business and trade allies	Solution-specific, increase user ability to connect with energy-efficiency resources	Keyword bid terms include technology, equipment, behavior, environmental, save money, and sustainability
Public Relations	Targeted business, legislative, trade allies, and associations.	Value of EE, measure/solution-specific: focus on the value proposition. Tell the energy efficiency story via real-life examples.	Audits, incentives, financing, design and building grants, resources in general, equipment/service specific, events, and awards/recognition.
Direct Response	Targeted business, trade allies, and associations	Solution Specific, utilizing traditional mail, email, and CEP tools: lead generators	Audits, incentives, financing, resources in general, and equipment/service specific
Paid Social Media Advertising	Facebook: Small business Linked In: all business sectors	Business case for EE. Foster dialogue, interest. Lead generation	Audits, incentives, financing, design and building grants, resources in general, equipment/service specific, events, awards/recognition, and sustainability
Events	Targeted business, associations, and trade allies	Business case for EE. Foster dialogue, interest. Lead generation when possible	Audits, incentives, financing, resources in general, equipment/service specific, events, awards/recognition, and sustainability
Co-op	Small Business Authorized Contractors	Value of EE, measure/solution-specific: lead generators	Audits, incentives, financing, and equipment/service specific

Education, Awareness, and Promotion via the Customer Engagement Platforms

A detailed description of the Companies' CEPs can be found in Chapter Six: Customer Engagement Platforms. The following sections are focused on how the Companies will promote the tools and also how they can be used as a new marketing communications medium or channel.

The new Eversource and UIL CEPs (marketed under "My Energy Consultant" and "Home Energy Advisor," respectively) provide customers with a significantly richer, more useful experience as they look to their energy providers for information and guidance. They also provide new opportunities to connect with customers and to connect customers to energy-efficiency solutions. As with any new product, service, or opportunity, the CEPs need to be promoted in their own right, and both Companies will promote this new call to action. Additionally, EnergizeCT.com will feature promotional content and links to both "My Energy Consultant" and "Home Energy Advisor."

Promoting the Customer Engagement Platforms

A variety of promotional activities will be employed to introduce the new tools, including, as needed:

- Direct outreach by energy-efficiency sales teams;
- Email notices;
- Content included in traditional, printed bill inserts and newsletters;
- Content on EnergizeCT.com;
- Targeted digital display advertising (small business target);
- Public relations; and
- Social media (limited small business).

Promoting Ongoing Participation and Deeper Savings via the Customer Engagement Platforms

Once customers have created online accounts, the communications strategy switches to using the CEPs to facilitate a personalized, ongoing dialogue. For small business customers and some mid-sized companies (that do not have an assigned sales executive), the Companies will be looking at the information those users provide as they add to their profile, the topics they are engaging with, and the measure recommendations being provided. The Companies will be fully engaged in a cycle of email messaging to assist customers in maximizing their opportunities to realize energy savings and improve the performance of their facilities.

For mid-sized and larger businesses that have an established relationship with the Companies' energy-efficiency staff, the insight provided by the CEPs will be used for content development. For example, energy-use trends and spikes identified by the energy usage information may be included in email outreach or meeting materials. The CEPs will empower the Companies' sales teams and energy engineers with current and relevant information that can facilitate meaningful, ongoing touch points.

FINANCING

With increased budgets continuing throughout 2016 to 2018, the Companies expect continued strong customer interest and participation in energy-efficiency financing programs. In particular, the Electric Companies' zero percent, on-bill financing for the Small Business Energy Advantage program has been extremely successful and is recognized as a strong business model and emulated by other utilities. The Small Business Energy Advantage financing model is very simple, easy to explain to customers, and is sold directly to customers through the SBEA program's contractors. Additionally, the default rates have continued to remain low (less than one percent). This financing model is also utilized with Connecticut municipalities, and is instrumental for facilitating project implementation, especially when funding is scarce.

The Companies and the Connecticut Green Bank also have a variety of third-party financing programs which offer low-interest financing. The Companies will continue to work with DEEP, the Energy Efficiency Board's consultants, the Connecticut Green Bank, and CHIF, to identify program improvements, increase program volume, and reduce ratepayer costs. The goals of the Joint Committee, comprised of the Companies, DEEP, the Connecticut Green Bank, and the Energy Efficiency Board are detailed in Appendix C: Financing.

The Small Business Energy Advantage/Municipal Loan program currently offers \$500,000 in financing for municipalities, limited to \$100,000 in financing per account. In 2016-2018, the Companies propose to eliminate the \$100,000 in financing per account maximum for municipalities, however the \$500,000 cap per Municipal Loan will remain. Interest expenses for Small Business Energy Advantage and municipal customers are included in the Companies' program budgets under Administrative Expenses. Table 4-3 on the next page outlines the C&I financing programs available.

Table 4-3: Commercial, Industrial, and Municipal Financing for 2016-2018 Projects

Loan Product	Loan Limits	Terms	Interest Rate	Funding Sources
Commercial & Industrial Loan	\$2,000 to \$1,000,000	Max. 60 months	2.99% or 4.99% up to \$100,000 (market rates on balance)	M-CORE and Univest Capital
C-PACE	For capital improvements over \$150,000 or boiler upgrades/natural gas conversions and solar under \$150,000	Typically 10 years or longer	Low-interest financing with loan repayment on your property bill	Connecticut Green Bank
PURA Loan	\$1,000,000 and over	Max. 120 months	1% below customer's eligible rate or prime rate	Bank of America
Connecticut Hospital Association Trust, Inc.	Varies	5 to 7 years	0%	Self-Funding
Small Business & Municipal Loan	\$500 to \$100,000	Max. 48 months	0%	Companies and the Connecticut Energy Efficiency Fund

A NEW APPROACH TO ENGAGE THE COMMERCIAL & INDUSTRIAL CUSTOMER

Historically, energy-efficiency programs have categorized their C&I customers into broad traditional utility industry categories, often drawn from rate classes (i.e., commercial, industrial, and small business) or by metered usage (i.e., small, medium, and large). Once categorized, C&I customers were offered general technology-based solutions based on an engineering economics analysis, rather than considering the individual customer's business needs. This approach was historically successful and the Companies' C&I Program Portfolio resulted in large energy savings for customers and the state over the years.

However, as program penetration has increased and energy-efficiency baselines have risen, the Companies have to continuously reevaluate how they approach C&I customers with energy-efficiency solutions. This is an effort to ensure all cost-effective, energy-efficiency measures are

being installed at the time of a large renovation, construction of a new building, or the replacement of working but inefficient equipment. In the past few years, the Companies have begun to approach customers in more of a consultant-based fashion to address their energy and business needs. Understanding the customer—their business needs, equipment, services provided, and how they use energy—will become the focal point of how the Companies approach various C&I segments regarding participation in Connecticut’s energy-efficiency programs during implementation of the 2016-2018 Plan.

The new CEPs allow the Companies to collect and analyze the metered data they collect with more granularity, and to tease out usage characteristics and patterns that allow them to sort customers into many more precise subcategories. This analysis, when combined with emerging tools from the realms of social science and behavioral economics, creates the opportunity to finely tailor offerings of technologies and services to sub segments of customers (i.e., hospitals, manufacturing, and restaurants) that previously were aggregated into much larger categories (i.e., commercial, industrial, and small business). For more discussion regarding these platforms, see Chapter Six: Customer Engagement Platforms.

To address the fact that program penetration has increased and baselines have risen, the Companies have begun to ask three simple, yet critical, questions:

- 1) **Who?** Asking this question helps the Companies sort C&I customers into various market segments (i.e., agriculture, hospital, and restaurant). Once the customer’s market segment has been identified, the Companies utilize their market segmentation analysis to understand what that particular customer’s business needs are, including basic types of equipment used, business processes, and operational hours. The section, Targeted Market Segments, will detail the “who?” the C&I customers are, the priority market segments for C&I Solutions in 2016-2018, and what these customer segments look like as far as energy and decision-making are concerned.

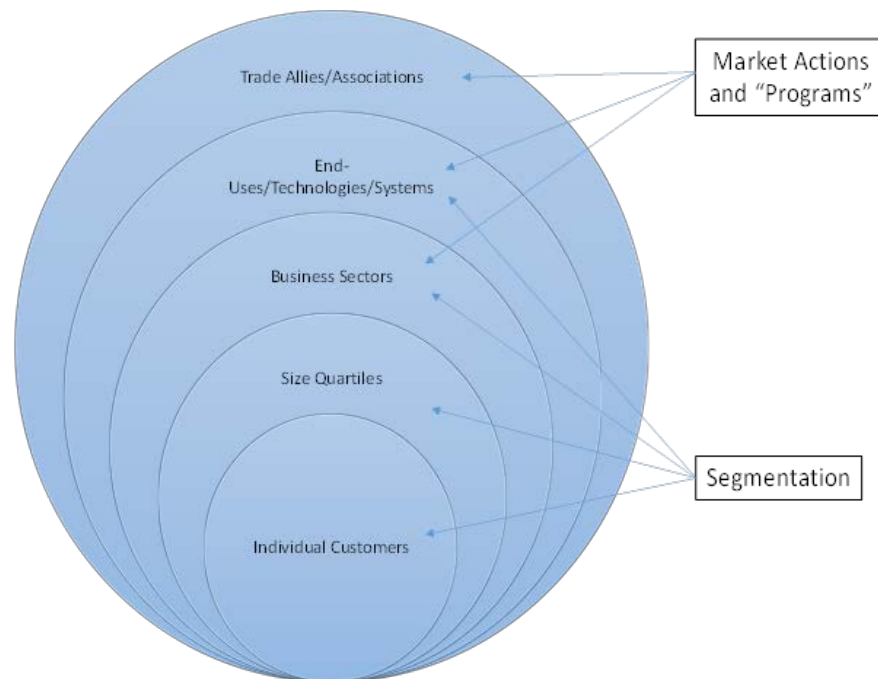
- 2) **How?** Asking this question allows the Companies to determine what particular “market action(s)” should be used in order to meet a C&I customer’s needs, while still driving toward all cost-effective energy efficiency. Market actions can vary from offering various types of incentives (i.e., comprehensive, incremental, and upstream) to working with a particular trade ally networks (i.e., communications/entertainment, financial, and manufacturing) that can effectively communicate the energy-efficiency messages to a customer. The section, Targeted Market Segments, details the “how?” in each of the market segments’ subsections “Market Actions.”

- 3) **What?** Historically, before the Companies' new approach to customer engagement, this was the first question asked by the Companies. With the Companies' new market segmentation approach, the questions "who?" and "how?" precede the "what?" This new approach allows the Companies' staff to craft a customized C&I Solution for each customer addressing their market segment's energy use profile, while already understanding what market action(s) need to be taken.

With these questions answered, the Companies can determine which C&I Solution, or combination thereof, should be offered to the C&I customer based on their business needs and market segment. The section "Commercial & Industrial Solutions" will discuss the "what?" and detail the C&I Solutions offered by the Companies (i.e., Business and Energy Sustainability, Energy Conscious Blueprint, Energy Opportunities, and Small Business Energy Advantage). Additionally, the Companies will leverage other third-party offerings (i.e., Connecticut Green Bank, Connecticut Hospital Trust Association, and third-party financial institutions) to enhance the customized C&I Solution.

This new approach in sorting customers into *market segments*, identifying specific *market actions*, and then offering customized C&I Solutions is detailed in Figure 4-1.

Figure 4-1: C&I Segmentation and Market Actions



COMMERCIAL & INDUSTRIAL MARKET SEGMENTATION ANALYSIS

In the 2013-2015 Plan, the Companies noted that they would “continue to invest in marketing strategies to identify the needs of various customer segments and design services to specifically target these segments,” and considerable progress has been made in this regard. In the “Commercial & Industrial Market Segmentation” and “Commercial & Industrial Solutions” sections below, the Companies describe what their customer segmentation analysis has revealed, and how they will customize targeted C&I Solutions accordingly during the 2016-2018 Plan.

Commercial & Industrial Customer Segmentation by Quartiles

C&I Customer Segmentation (Electric Quartiles)

The Companies segment their C&I electric customers into four quartiles. The Companies devise them by adding the electric usage of all C&I customers and then dividing by four. All C&I customers are then sorted into their electric usage quartiles. The C&I customers in the top quartile (Quartile 1) are the largest electric users, but small in quantity (usually averaging around 50 C&I customers). In the middle quartiles (Quartile 2 and Quartile 3), there are typically more customers and their quantities are typically approximately 200 and 1,500, respectively. The bottom quartile (Quartile 4) use the least amount of electricity, however this is where the majority of C&I customers reside (approximately 55,000 customers).

Table 4-4 on the next page details the top market segments by electric usage and quartile data.

Table 4-4: Top Market Segments by Electric Usage and Quartile Data

Segments	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Total
Communications & Entertainment	2.2%	0.7%	1.0%	1.0%	5.0%
Distribution & Warehousing	0.0%	0.0%	0.0%	0.5%	0.5%
Educational	1.7%	3.2%	2.0%	0.0%	7.0%
Financial	1.2%	1.2%	1.2%	0.0%	3.7%
Government Agency	3.7%	3.7%	1.5%	0.0%	9.0%
Hospital	2.2%	1.5%	0.0%	0.0%	3.7%
Lodging	0.0%	0.0%	0.7%	0.0%	0.7%
Long-Term Care Facilities	0.7%	0.0%	0.7%	0.5%	2.0%
Manufacturing ²⁴	8.0%	6.7%	7.2%	2.7%	24.6%
Medical Office	0.0%	0.0%	0.0%	1.2%	1.2%
Other Institution	0.0%	0.0%	0.0%	1.2%	1.2%
Others	0.7%	0.5%	2.7%	2.2%	6.2%
Professional Service	0.0%	0.0%	0.0%	5.7%	5.7%
Real Estate Management	0.0%	3.0%	3.5%	2.0%	8.5%
Retail ²⁵	3.7%	3.2%	4.0%	8.0%	18.9%
Utility	0.5%	1.5%	0.0%	0.0%	2.0%
Sub-total	25%	25%	25%	25%	100.0%
Number of customers as a percentage of total C&I customers (electric)	0.07%	0.37%	2%	97%	

There are several takeaways from Table 4-4, including that the majority of the Companies' C&I electric customers fall into Quartile 4 (97 percent of customers) which is considered "small business." However, of this 97 percent, it is highly unlikely that all small businesses use energy in the same manner and have the same energy-efficiency opportunities. Therefore, the Companies must also analyze the market segments to determine what type of "small business" customer they are working with, as a hair salon uses electricity very differently than a mom-and-pop convenience store.

If the market segment data is analyzed further, the largest category is "Manufacturing" with 24.6 percent of electric customers sorted into this market segment. This market segment is further sub-divided into six sub-segments: aerospace, computers & electronics, food & beverage, paper, pharmaceutical, and other manufacturing. Each of these sub-segments has complex business

²⁴ Manufacturing segment includes Aerospace, Computers & Electronics, Food & Beverage, Paper, Pharmaceuticals/Medicines, and Other Manufacturing.

²⁵ Retail segment includes Auto Service, Grocery & Convenience, Mall, Personal Service, and Restaurant.

needs that share some commonalities, but also have differences regarding their electric usage, equipment needed, available capital, and economic viability. Therefore a one-size-fits-all approach for all C&I customers identified as “manufacturers” will not work. The Companies must understand the “who?” and “how?” before they determine the “what?” (the targeted C&I Solution).

C&I Customer Segmentation (Natural Gas Quartiles)

The Companies segment their C&I natural gas customers into four quartiles. The Companies devise them by adding the natural gas usage of all C&I customers and then dividing by four. All C&I customers are then sorted into their natural gas usage quartiles. The C&I customers in the top quartile (Quartile 1) are the largest natural gas users, but small in quantity (usually averaging around 50 C&I customers). In the middle quartiles (Quartile 2 and Quartile 3), there are typically more customers and their quantities are typically approximately 200 and 1,500, respectively. The bottom quartile (Quartile 4) use the least amount of natural gas, however this is where the majority of C&I customers reside (approximately 55,000 customers).

Table 4-5 below shows each customer segment’s quartile data and percentage of natural gas usage.

Table 4-5: Top Market Segments by Natural Gas Usage and Quartile Data

Segments	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Total
Communications & Entertainment	5.3%	0.3%	0.8%	0.0%	6.3%
Educational	0.0%	5.0%	1.8%	0.0%	6.8%
Financial	0.0%	0.0%	0.0%	0.3%	0.3%
Government Agency	3.3%	2.8%	2.8%	0.3%	9.0%
Hospital	2.0%	3.3%	0.5%	0.0%	5.8%
Lodging	0.0%	0.0%	0.0%	0.3%	0.3%
Long-Term Care Facilities	0.0%	0.0%	1.0%	0.3%	1.3%
Manufacturing	9.0%	8.8%	6.8%	0.8%	25.3%
Other Institution (Agriculture, etc.)	0.0%	0.0%	2.3%	1.3%	3.6%
Professional Service	0.0%	1.3%	4.0%	10.5%	15.8%
Real Estate Management	0.0%	0.3%	2.0%	0.3%	2.5%
Retail	0.0%	3.0%	3.3%	11.5%	17.8%
Utility	5.5%	0.5%	0.0%	0.0%	6.0%
Sub-total	25%	25%	25%	25%	100%
Number of customers as a percentage of total C&I customers (natural gas)	0.03%	0.23%	1.85%	97.9%	

A key takeaway from Table 4-5 is that the Companies have identified several market segments that use a high percentage of customers that use natural gas. Once again, “Manufacturing” just like in the electrical usage analysis, is the largest market segment (25.3 percent), but there are several other notable market segments: Professional Service (15.8 percent), Retail (17.8 percent), and Government Agency (9.0 percent). This marketing segmentation analysis shows the Companies that tailoring C&I solutions for these market segments could result in increased energy-efficiency opportunities and savings.

Other takeaways from Table 4-5, include that once again, the majority of the Companies’ C&I customers (this time natural gas customers) fall into Quartile 4 (97.9 percent of customers) and are considered “small C&I businesses.” However, of this 97.9 percent, it is highly unlikely that all small businesses use natural gas in the same manner. While a Retail Store may use natural gas in the winter to keep their customers warm while shopping, a pizza restaurant may use natural gas to heat their ovens. Knowing what market segment a C&I customer can be sorted into allows the Companies to design a tailored C&I Solution that specifically targets that market segment. While Table 4-3, Table 4-4, Table 4-5, and Table 4-6 reflect a data-driven and high-level view of market segmentation, it provides a start toward identifying specific markets within each sector to be targeted by the Companies.

C&I Customer Market Segmentation

Broadly, the Companies segment C&I customers into *Commercial* and *Industrial* categories, with the Commercial category containing the sub-segment of small C&I businesses. These categories are further divided into business and industry types, and can further be segmented by size.²⁶

Electric C&I Customers

Table 4-6 on the next page shows within each major sector—commercial, industrial, and small business—the percent of retail electric usage that are accounted for by various marker subsectors.

²⁶ Eversource, for example, subdivides its customers by energy use into quartiles.

Table 4-6: Top Segments by Electric Usage in Commercial, Industrial, and Small C&I Sectors

Segments	Commercial (50%)	Industrial (25%)	Small C&I (25%)
Communications & Entertainment	8%		4%
Data Center		1%	
Distribution & Warehousing	2%		2%
Educational	14%		
Financial	8%		
Government Agency	18%		
Hospital	8%		
Lodging	2%		
Long-Term Care Facilities	3%		
Manufacturing		87%	11%
Medical Office	1%		5%
Other Institution (Agriculture, etc.)	1%		16%
Professional Services			23%
Real Estate Management	14%		8%
Research Laboratory		1%	
Retail	22%		32%
Software & Internet		1%	
Utility		10%	
TOTAL	100%	100%	100%
<i>The Commercial and Industrial businesses include Q1, Q2, and Q3 customer usage. Q4 customer data is identified as small business/small C&I in this table.</i>			

From this market segment analysis, a key takeaway for the Companies is that their commercial electric customers are comprised of several large market segments, including: Educational (14 percent), Government Agency (18 percent), Real Estate Management (14 percent), and Retail (22 percent). These are the four largest customer segments who use the highest percentage amounts of electricity. This allows the Companies to set up targeted efforts and initiatives that can focus on these market segments and design innovative, tailored C&I Solutions that fit the particular market segment's electrical needs. Other takeaways include that the Manufacturing segment comprises nearly 87 percent of the Industrial sector, while the Small C&I sector is comprised of several large market segments, including: Manufacturing (11 percent), Professional Services (23 percent), and Retail (32 percent).

Natural Gas C&I Customers

Table 4-7 below shows the top C&I market segments within each major sector – commercial, industrial, small business – as the percent of retail natural gas usage that are accounted for by various market subsectors.

Table 4-7: Top Segments by Natural Gas Usage in Commercial, Industrial, and Small C&I Sectors

Usage	Commercial (44%)	Industrial (31%)	Small C&I (25%)
Communications & Entertainment	14%		
Educational	15%		1%
Financial			1%
Government Agency	20%		1%
Hospital	13%		
Lodging	1%		1%
Long-Term Care Facilities	2%		2%
Manufacturing		80%	5%
Other Institution (Agriculture, etc.)	3%		4%
Professional Services	12%		32%
Real Estate Management	5%		7%
Research Laboratory		1%	
Retail	15%		46%
Software & Internet		1%	
Utility		18%	
TOTAL	100%	100%	100%
<i>The Commercial and Industrial businesses include Q1, Q2, and Q3 customer usage. Q4 customer data is identified as small business/small C&I in this table.</i>			

Key takeaways from Table 4-7 include that the Manufacturing segment comprises nearly 80 percent of the Industrial sector, while the Small C&I sector is comprised of two market segments that utilize a large percentage of natural gas: Professional Services (32 percent) and Retail (46 percent). Additionally, a key takeaway for the Companies is that their commercial natural gas customers are comprised of several large market segments, including: Educational (15 percent), Government Agency (20 percent), Hospital (13 percent), and Retail (15 percent).

TARGETED MARKET SEGMENTS

Usage-driven segmentation (as detailed in the previous section) provides insight into where priorities should be applied; and these priorities must balance both energy savings (magnitude) and number of participants (equity).²⁷ The Companies further sift targeted market segments through stakeholder input, customer-interest, their own experiences, and that of peer energy-efficiency programs around the region and country. As the Companies developed the 2016-2018 Plan, a number of new potential target markets were identified, and some existing market segments will benefit from the fresh marketing analysis and new programmatic approaches. The initial target markets identified for particular focus during the 2016-2018 Plan include:²⁸

- 1) Agriculture;
- 2) Commercial Real Estate (office buildings and office spaces);
- 3) Government Facilities (state and local);
- 4) Grocery;
- 5) Health Care;
- 6) Higher Education (technical high schools, community colleges, and state colleges);
- 7) Hospitality (Lodging);
- 8) Manufacturing;
- 9) Restaurants and Commercial Kitchens; and
- 10) Water and Wastewater.

The Companies have already developed a significant knowledge base in many of these markets, and are expanding their knowledge in others. Sources of knowledge and market intelligence include: efficiency industry research (i.e., ACEEE, CEE, E Source), industry experts, industry trade organizations and their staff, industry trade publications, national/regional/state databases, and regional/national peer programs and their managers.

By way of example, the Companies provide below several market segment summaries. The intent is to highlight at a distilled level: (a) a definition and description of the market subsector to be targeted; (b) a listing of the significant electric and gas end uses, systems and equipment; (c) the barriers to efficiency investment that are unique or particularly pronounced in this market; and (d) the market actions, programmatic offerings, and approaches directed to overcome these barriers.

²⁷ Equity must also include a consideration of underserved markets, of whatever size, as well.

²⁸ No priority implied within this listing.

Agriculture

Definition and Description

According to the Connecticut Department of Agriculture, Connecticut's nearly 6,000 farms add almost \$4.6 billion to the state's economy every year. Among the subsectors of this market, where energy is a particular concern, are greenhouse and nursery operations which account for 45 percent of the agricultural receipts, as well as dairy.

After decades of decline, Connecticut is actually undergoing an agricultural resurgence of sorts. Between 2007 and 2012, the total acreage dedicated to farming in Connecticut increased to 436,000 acres, a 7.5 percent increase, and the number of farms is up 22 percent in the same period, from 4,916 to 5,977 – the largest increase of any New England state.²⁹ There are multiple reasons for this trend. First, local customers are increasingly demanding high quality, fresh food both – plant and protein – that is grown close at hand. Second, Connecticut is in easy delivery proximity to large numbers of urban buyers who have the same desires. The state is also blessed with good soils and a relatively long growing season.

In recent years there has been great interest in expanding both Connecticut's agricultural output and growing season through the use of greenhouse operations. Greenhouses are already important in the state's large greenhouse and nursery sector, but "Controlled Environment Agriculture," which is popular in Europe is a relatively new concept in the United States. The Companies are investigating the contribution of improved energy efficiency to the viability and profitability of these new, or revived, forms of production. For example, Backyard Farms, which operates a 42-acre tomato greenhouse in Madison, Maine, uses state-of-the-art lighting and lighting controls, heating, and ventilation to offset the substantial energy costs inherent in the operation. In Connecticut, the start-up Agrivolution, has received U.S. Department of Agriculture funding to pilot greenhouse production of strawberries at schools. By using state-of-the-art LED grow lights, which produce no heat, Agrivolution can stack plants closer together in vertical growing spaces without risking leaf burn.³⁰

When the definition of agriculture is extended to forestry and aquaculture, other end uses and efficiency opportunities can be identified. For example, upgrades to heating, ventilation, and lighting control systems can produce significant savings in existing greenhouses as well. When Cornell University upgraded 47 greenhouses and installed new control systems that responded quickly to changes in the environment, such as turning lights, vents or thermostats on or off,

²⁹ US Department of Agriculture. *2012 Census of Agriculture*.

³⁰ <http://agrivolution.co>

depending on need, the electric savings realized were 62 percent.³¹ Dairying is also heavily dependent on electricity for cooling, lighting, milking, and ventilation. An additional market niche where electric costs are important is maple sugaring.³²

Barriers

There are a variety of barriers for C&I customers in the agricultural sector in adopting more energy-efficient technologies, which include:

- Lack of awareness of utility/regional programs, rebates, and incentives;
- Lack of awareness of qualifying energy-efficient measures that not only save electric energy, but also have the potential to also bring multiple non-energy benefits;
- Concern regarding production and agricultural operations, an interruption in production, or a compromise to quality; and
- Many agricultural operations do not have the internal resources available to assess opportunities and champion energy-saving project implementation.

*End-Uses, Systems, and Equipment*³³

In the Agriculture market segment, dairy farms are the single largest user of energy. Most of Connecticut's dairy farms have smaller operations than the national average, however there are a myriad energy-efficient technologies and opportunities for small and medium-sized dairy farms can implement to significantly reduce their energy bills. Some of the typical energy-efficient measures include: compressor heat recovery, dairy lighting, energy-efficient stock waterers, milk pre-coolers, milk pump variable speed drives, scroll compressors, variable speed drives on milking vacuum pumps, ventilation, and water heating.

Another large energy user in the Agriculture market segment are greenhouses. Greenhouses have the greatest energy-efficiency opportunities in reducing heat loss in the greenhouse. Greenhouse energy savings can be found in motors, refrigeration, upgrading the lighting, and in ventilation. Similar to greenhouses, open-air nurseries can benefit from many of the same

³¹ Cornell University. *Energy Conservation Initiative in Greenhouses*, 2013.

³² Reverse Osmosis ("RO") systems remove 75 percent of the water content from maple sap. This cuts boiling time with the evaporator by 50-75 percent, saving time and fuel. Similarly sap vacuum pumps can be fitted with VSDs.

³³ *The Connecticut Farm Energy Best Management Practices Guide*. EnSave, Inc., 2014.

energy-efficient measures, except for the heating and insulation measures. Nurseries can benefit from additional energy-saving opportunities, including innovative irrigation and water management technologies.

Poultry growers typically use a lot of energy, and often second only to dairy farms in energy usage. Like their counterparts in the dairy industry, there are ample opportunities for growers to reduce their energy use. Energy-efficient measures include: attic inlets, brooding curtains, circulation fans, controllers, insulation, radiant heaters, and tunnel ventilation fans.

Market Actions

For the agricultural market segment, the Companies will increasingly rely on the use of specialized retrofit contractors, who are skilled in both managing and delivering efficiency services to agricultural operations quickly, efficiently, and in the least disruptive manner possible.

The Companies will leverage the Connecticut Farm Energy Program, which is supported in collaboration with the Connecticut Resource Conservation & Development Area, Inc. (“CT RC&D”) and the U.S. Department of Agriculture (“USDA”). The mission of the Connecticut Farm Energy Program is to provide technical assistance to the agricultural sector, and to increase awareness about energy conservation and energy efficiency, while promoting alternative and renewable energy sources on Connecticut farms. This will be the main market action channel for the Companies as this is a relatively new market sector for the Companies.

Commercial Real Estate

Definition and Description

Connecticut is a state of office workers, and commercial and professional office space, including the target markets of Professional Services and Real Estate Management, which account for approximately 60,000 electric customers.³⁴ Office space can be segmented into owner-occupied and tenant-occupied, as well as by class; A through C. Institutional office spaces, often occupied by government agencies, non-profits, and educational institutions, constitute a unique subcategory. Offices are further distinguished by size; from the large, multi-story buildings found in urban cores to the smaller low-rise units found in the suburbs and smaller communities. In fact, Retail Services represents 32 percent of the Small Business sector. Offices tend to operate

³⁴ Customer segmentation data used throughout the 2016-2018 Plan is from Eversource sources. The working assumption is that within some reasonable factor of variance these percentage shares can be applied statewide. The number here reflects the total of the Eversource Professional Services and Real Estate Management accounts.

during typical business hours on non-holiday weekdays, thus these buildings have limited energy consumption during evening, nighttime, and weekend periods.

End-Uses, Systems, and Equipment

The office environment is generally consistent in the end-uses, systems, and equipment found within it across facility sizes, classes, and ownership structures. Major energy users include: elevators, employee kitchen and lunchrooms, HVAC, lighting, and plug loads (such as office equipment).

Barriers

The primary concern of commercial office space decision-makers is occupant comfort. While a persuasive argument can be made that energy-efficiency upgrades in occupied spaces, which mostly include lighting and plug load upgrades, can improve occupant satisfaction, there is often reluctance based on a fear that any disruption to the known universe could produce unhappy tenants. And, as utility costs are often passed through to tenants in leased space, the owner and/or decision maker sees no particular benefit in moving forward with energy-efficiency upgrades.

Market Actions

Specialized Retrofit Contractors

In the small to mid-market office spaces, the Companies will increasingly rely on the use of specialized retrofit contractors, who are skilled in both managing and delivering efficiency services to office markets quickly, efficiently, and in the least disruptive manner possible. These contractors will also have delegated authority from the Companies to manage each project comprehensively; from initial project savings assessments, through installation and cleanup, to completion of all necessary incentive applications and verifications. While the primary retrofit opportunities in occupied small and mid-market office spaces is in lighting and plug load,³⁵ contractors will be incentivized to explore more comprehensive opportunities through direct contractor incentives for achieving non-lighting savings targets; or penalties for failure to do so.

Customized Approaches for Real Estate Management Companies

Both Companies have a smaller number of accounts held by real estate management companies. These are firms that own and/or manage larger buildings or portfolios of buildings. Ownership

³⁵ Plug load services are not currently offered through the C&I Solution: Small Business Energy Advantage, but they are a planned addition.

can be in the hands of individual companies, institutional investors, or Real Estate Investment Trusts (“REITs”). These REITs often have different investment objectives and ownership horizons than their smaller peers. The buildings held by these entities also often have more complex energy-consuming systems and use more energy in total. Because of the potential for savings inherent in these buildings or portfolios, and because these customers often have more internal financial and technical expertise, the Companies intend to invest in more tailored and customized approaches with them. For example, individual memorandums of agreement could be negotiated to include a package of energy-efficiency measures and services that could be jointly implemented by the participating REIT over a multi-year period. Multi-year agreements like these can include employee behavioral initiatives, too.³⁶

Intervention in the Early Design Phase

The Companies will also take an aggressive approach to identify and recruit owners and designers involved in the construction or major renovation of all non-residential buildings. This process requires multi-faceted strategies, because development is, by its nature, a competitive process that largely takes place out of the public eye, often until a construction trailer and fence appears on site. The challenge is to gain market intelligence from a myriad sources so that the Companies can intersect with customers as early as possible in the building process, at the time when the fundamental design decisions that most impact future energy use are being made. The objective is to offer building owners and designers a menu of efficiency services and incentives that are tailored to complement each customer’s ownership objectives and investment criteria, and can add value no matter where their building is along the design and construction continuum – and can do so without impacting the design/build schedule.

Whole Building Design Solutions

For larger buildings, services can range from a package of expert design and engineering assistance and incentives at the level of the whole building design (when the project is in early concept stage), to similar assistance within discrete facility systems, components, or processes in cases where the project is more advanced, to prescriptive incentives for a large menu of pre-selected premium performance lighting, HVAC, and other mechanical measures – or a mix of all of these options.

³⁶ Northwest Energy Efficiency Alliance. *Commercial Real Estate Participant Cohorts Market Progress Report*, Mar. 4, 2015.

Advanced Buildings Program

The Companies are also examining options to develop streamlined approaches to encourage comprehensiveness in smaller (<100,000 square feet) buildings where: (a) full-scale scenario modeling is often cost-prohibitive, and/or (b) where building systems are often less complex. It is important to focus efforts on comprehensiveness on this market segment as 95 percent of the US non-residential building stock is less than 50,000 square feet³⁷ and the Companies' data puts this percentage similarly high at approximately 85 percent of the small business sector. The Companies are considering the potential use of the *Advanced Buildings* program, developed by the New Buildings Institute. Advanced Building applies "state of the shelf" (proven, but not yet common practice) technology and building science to the design of commercial and institutional buildings in the 10,000–70,000 square foot range.

The Advanced Building criteria are based on the results of 30,000 energy modeling evaluations of three major building prototypes (retail, office, school), with four high-efficiency HVAC system permutations for each prototype, in the climate zones of six U.S. cities. That analysis identifies a package of consistent strategies that lead to predictable energy savings that exceed the energy code across all climate zones. Also, Advanced Building is a recognized and accepted alternative pathway to achieving the energy and environmental points required to qualify a smaller building for LEED certification by the U.S. Green Buildings Council.

Tenant Improvement Process

There is also a market-based opportunity to capture the energy savings potential that becomes available in the period when office space is vacated by one tenant and refitted for occupancy by a new one (the tenant improvement ("TI") process) or when a new office building, is in the initial leasing phase (tenant fit-out). At least 20 percent of all energy used in commercial buildings is in office space, and estimates show that the average commercial office building could reduce its energy use by 20 percent.³⁸

During the TI/fit-out process, the office space is typically vacant and decisions are made regarding lighting fixture selection and space design to fit the needs of the new occupants. This creates an opportunity to significantly influence energy-consuming elements of a building, as well as enhance aesthetics of a space, and increase the likelihood that its future occupants will

³⁷ Langner, et al. *Industry Research and Recommendations for Small Buildings and Small Portfolios*, National Renewable Energy Laboratory and Huppert, et al, Preservation Green Lab, National Trust for Historic Preservation, December, 2013.

³⁸ *Office Real Estate Value Proposition*, Northwest Energy Efficiency Alliance.

enjoy the space. This becomes the opportune moment for energy savings; when both the tenant and owner are actively thinking about the space and the financial considerations around it, when the space is vacant, and when the parties already assume and accept some level of construction disruption.

Sustainable Office Design Package

The Companies are developing a sustainable office design initiative to provide enhanced services to building owners and prospective tenants, aligning on this market-based TI/initial fit-up opportunity. The initiative will provide both technical assistance and incentives designed to motivate the parties to think beyond simple lamp and ballast replacements, and to consider function-based integrated lighting and controls solutions, designed for the specific proposed occupancy activity.

Government Facilities

Definition and Description

The Government segment is a significant one to the Companies, with state buildings and municipal facilities alone representing approximately 18 percent of their commercial sector sales. This section includes both state and municipal public buildings, including municipal schools, Connecticut Technical High School System, and administrative office spaces.

State Buildings

Distributed across the state, there are 3,200 state buildings, with 60.5 million square feet of space, whose annual energy expenditures are \$200 million. The Connecticut Board of Regents system, including Connecticut's 12 community colleges and the four Connecticut State University System campuses (Central, Eastern, Southern, and Western) are addressed in the Higher Education market segment section.

Municipal Buildings

There are 169 Connecticut cities and towns with 104.5 million square feet of space for Board of Education and municipal buildings, whose annual energy expenditures are \$314 million. Municipal building types include: administrative office buildings, police stations, park and recreation facilities, primary and secondary schools, town halls, and water and waste water treatment facilities.

Connecticut Technical High School System Buildings

The Connecticut Technical High School System (“CTHSS”), run by the State Board of Education, includes 18 schools throughout the state that provide career technical and academic education in preparation for careers in business and industry. The 18 technical high schools comprise a total of 3.6 million square feet, using over 353,503,700 kBtu/year at an annual energy cost of over \$8 million. CTHSS schools represent 4.74 percent of the total square footage of all state buildings in Connecticut. The current average system Energy Utilization Index is 101.7 kBtu/square foot (based on ENERGY STAR benchmarking analysis). CTHSS annual greenhouse gas emissions are approximately 17,500 metric tons of carbon dioxide equivalent from building energy use alone.

End-Uses, Systems, and Equipment

State and Municipal Buildings

Government facilities have numerous types of end-uses, systems and equipment. Major energy users for state and municipal buildings, include:

- Building automation systems;
- Cooking equipment;
- Elevators;
- Lighting;
- Heating, ventilation and air conditioning equipment;
- Plug loads such as office equipment;
- Poor air sealing; and
- Pumps and fans.

CTHSS Buildings

The majority of the CTHSS schools rely predominantly on electricity and natural gas, but some schools use oil and propane as fuel sources. The CTHSS schools use more energy than the typical high school because they have shops and labs to teach and train students—HVAC shops, electrical shops, carpentry shops, automotive shops, culinary arts kitchens—which require more energy than classrooms. Recent energy benchmarking and walk-through energy audits of 15 CTHSS schools, that were not new or under major renovation, resulted in energy reports for each school, which will serve as the basis for the implementation of energy-efficient measures in all CTHSS schools. Some of the identified energy-efficiency measures common to many of the CTHSS schools include:

- Old, poorly functioning, and inadequate Building Automation Systems, including: lack of controls for exhaust equipment and hot water, no access to energy data, and restricted access to Building Automation Systems (access at only one work station);
- Some heating, ventilation and air conditioning systems that still use fuel oil;
- Highly inefficient lighting (i.e., T-12s, mercury vapor and metal halide, over-lit rooms, and hallways);
- Poor air sealing; and
- Inefficient energy use in culinary teaching kitchens and cafeterias—i.e., multiple refrigerators and freezers running even when empty or partially used (especially in summer), uncontrolled pilot lights, inefficient exhaust hoods (no fan speed controls), and inefficient cooking equipment.

Barriers

State and Municipal Buildings

Governmental bodies have unique challenges with regard to energy-efficiency investments. Many public buildings are antiquated and in need of upgrades, and therefore, there are significant energy-efficiency technical opportunities. However, state or municipal governments may have capital limitations including statutory limitations on how capital can be raised, or staffing limitations. Historically, these challenges limited to some degree, the ability of government buildings to have access to energy-efficiency programs.

CTHSS Buildings

While the CTHSS has been diligent in pursuing energy retrofits within their limited means, the primary barriers to energy upgrades at CTHSS schools have been: limited capital, limited staff expertise and time, lack of awareness and understanding of Energize Connecticut programs, and lack of a comprehensive overview of energy needs and opportunities that takes into account all buildings within the system and synergies between schools. In 2014, the Institute for Sustainable Energy, at the request of the CTHSS leadership team in the system office, initiated a systems approach to sustainable energy management for the portfolio of buildings in the CTHSS system, to be connected with student learning and workforce development. The continuation of these work efforts will continue during the 2016-2018 Plan period.

Market Actions

Support for State Buildings

In 2011, Connecticut Public Act No. 11-80, An Act Concerning the Establishment of The Department of Energy and Environmental Protection and Planning for Connecticut Energy Future, set aggressive energy savings goals (20 percent by 2018) for state and municipal buildings. As a result, the State of Connecticut launched an innovative energy-saving performance contracting initiative for use by state agencies and municipalities in 2011—the Lead by Example program.

The Lead by Example program is supported by a strong partnership that includes the Department of Administrative Services, Department of Energy and Environmental Protection, Department of Construction Services, Office of Policy and Management, Board of Regents, Office of the Treasurer, Attorney General’s Office, the Companies, and the Connecticut Green Bank.

Energy Savings Performance Contracting (“ESPC”) is the use of guaranteed savings from the maintenance and operations budget (energy utilities) as capital to make needed upgrades and modernizations to building environmental systems, financed over a specified period of time. The Lead by Example program has developed a standardized ESPC process that allows state agencies to enter into performance contracting agreements with qualified energy service companies/providers, to leverage outside funding from the Connecticut Green Bank³⁹, and to take advantage of energy-efficiency incentives through Energy Efficiency Fund programs. The Lead by Example program provides further support by: (1) providing a set of ESPC documents that have been pre-approved by the Connecticut Attorney General’s office, (2) education for municipalities and state agencies regarding the Lead by Example program, (3) energy expertise technical support, and (4) financial technical support.

To date, the Lead by Example program has resulted in several significant ESPCs with state buildings, including Connecticut Valley Hospital, the Connecticut Department of Corrections, and the completion of dozens of other state building projects.⁴⁰ The Companies will continue to work collaboratively with DEEP to support the Lead by Example program through technical support, program incentives which will be designed to encourage deeper and more comprehensive energy-efficiency projects, and supporting performance contracting.

³⁹ Connecticut Green Bank. Comprehensive Plan for Fiscal Years 2015 and 2016. Updated on July 17, 2015.

⁴⁰ http://www.ct.gov/deep/cwp/view.asp?a=4405&Q=489980&deepNav_GID=2121%20.

Support for Municipalities

Lead by Example Program

Municipalities are a critical market segment for the Lead by Example program. To support municipalities pursuing all cost-effective energy efficiency, the Companies will continue to coordinate their municipal energy-saving project efforts with the Lead by Example program. To date, the Lead by Example program has resulted in several significant ESPCs with municipal buildings, including the City of Bristol, and the completion of other municipal building projects.⁴¹ The Companies will continue to work collaboratively with DEEP to support the Lead by Example program through technical support, program incentives which will be designed to encourage deeper and more comprehensive energy-efficiency projects, and supporting performance contracting.

Clean Energy Communities Program

The Companies' Clean Energy Communities program, further detailed in Chapter Five: Education and Outreach Programs, provides technical benchmarking support and energy-efficiency expertise to encourage all cost-effective energy-saving projects in board of education and municipal buildings. When designing the Clean Energy Communities program in 2011 and 2012, the Companies purposefully aligned the program's energy reduction goals for a municipality with the Lead by Example program's goals for state and municipal buildings—20 percent by 2018.

The Clean Energy Communities program, through its Municipal Technical Assistance Benchmarking Initiative, offers financial and technical engineering assistance to help Clean Energy Communities (municipalities) benchmark the energy usage of their municipal and board of education buildings. Technical engineering assistance includes hands-on training regarding building analytics, energy intensity reporting, and the US EPA Portfolio Manager Software. In 2016-2018, the Companies will continue to partner with their current benchmarking resources, to help municipalities gather energy usage data, update Portfolio Manager accounts, benchmark municipal and board of education buildings, generate Municipal Action Plans ("MAPs"), and participate in Energize Connecticut's programs, financing, and services.

Support for Connecticut Technical High School System

There are over 11,350 students and 1,115 teachers in the CTHSS, with students enrolled in 35 different technical education occupational trade programs. Many of these technical programs have a direct connection to energy use and building performance, including: sustainable

⁴¹ http://www.ct.gov/deep/cwp/view.asp?a=4405&Q=489980&deepNav_GID=2121%20.

architecture, electrical, facilities management, HVAC, plumbing, heating, and cooling, pre-electrical engineering and applied electronics technology, automotive technology, manufacturing technology, bioscience, and environmental technology. During the 2016-2018 Plan, the Companies will conduct a Connecticut Clean Career Tech Program (“CCCTP”) to help prepare CTHSS students for the workforce. The planned goals for the CCCTP are: (1) students will complete certification programs; (2) students will gain awareness of career options in the industry; and (3) students will be positioned for employment or higher education upon graduation.

The Companies will support the implementation of all cost-effective energy-saving projects discovered through investigations performed during the 2016-2018 CCCTP. Additionally in 2016, the Companies will continue a systems approach to sustainable energy management for the portfolio of buildings in the CTHSS system that will be connected with the CCCTP’s student learning and workforce development.

Grocery

Definition and Description

The Grocery sector is similar to other retail sectors in that there are typical store sizes, tiered into small, medium, and large. While grocery stores are not necessarily high energy users in absolute terms, on a per square foot basis, they are among the most energy intensive. Grocery stores are also low-profit margin businesses, with one to five percent on both a gross operating and net basis common.

There are grocery stores of all sizes in Connecticut, serving local communities and neighborhoods of varying sizes and demographics, with varying ranges of product offerings based on wide-appeal breadth, or in some cases narrower specialized ethnic or culturally targeted offerings. The operators of these stores range from independent smaller single location markets, to franchised operations such as “IGA,” to small in-state chains (Stew Leonard’s), regional chains (Stop & Shop and Big Y), on up to national operators like Walmart and Costco.

End-Uses, Systems, and Equipment

The grocery store environment is generally consistent in the end-uses, systems, and equipment found within it across facility sizes, classes, and ownership structures. Major energy users include: HVAC equipment, lighting, motors, and refrigeration. Increasingly commercial cooking is a significant end-use as well, as operations once limited largely to baking now extend to more complete take-out and prepared meal food services.

Barriers

Product safety, quality, freshness, cleanliness, and presentation are the primary focuses of grocery operations. Grocery operators are unwilling to risk any action that compromises these priorities, or that affects the presentation and/or the general shopping environment. Energy efficiency is perceived to connote dimmer lighting, more temperature and humidity discomfort for shoppers, and/or “warmer” refrigerated and frozen products in coolers and freezers. Also, groceries have long operational hours, and they fear the disruption and perceptions of uncleanliness that accompany any renovation project, including efficiency upgrades.

Critically, despite high energy intensity, energy costs do not necessarily rank high on the list of the largest or most significant cost centers, as viewed by grocery store businesses themselves. As a result, it is difficult to motivate decision-makers in this sector to prioritize energy efficiency highly.

With many and varied priorities for capital investments, energy conservation and efficiency focused efforts have to compete aggressively for funding. However, with a 2 percent profit margin for example, a grocery store that saves \$1 in energy expenses through an efficiency investment provides a bottom line benefit equivalent to generating \$50 in product sales. Properly conveyed, this simple economic fact can help the Companies get the attention of grocery store operators. Reducing an overhead expense, like energy, by \$1 is easier than receiving, handling, displaying, and then selling \$50 in products to equal the bottom line effect of “earning” \$1 in energy savings.

Market Actions

There is potential to obtain significant comprehensive energy savings within the grocery sector, both in aggregate across all grocery operators, and at each individual location, with lighting, refrigeration, ventilation, cooling, motor, and heating savings potential to be realized. This potential exists both in the “lost opportunity” context of new construction or fit-out/renovation, as well as in existing store locations within an operations and maintenance and/or retrofit context. In order to increase the likelihood of grocers accepting changes required to achieve significant energy savings in general, and doing so comprehensively in particular, program efforts by the Companies will focus on two areas: (1) Overcoming the risk and energy; and (2) Overcoming the prioritization barrier.

Risk and Energy Prioritization

Given the low (1 to 5 percent) margin nature of the grocery business, and the food safety and shopping aesthetic benefits of energy efficiency, outreach to the decision-maker can change the

disposition of key financial and operations staff from critics to champions. It is a demonstrable fact that HVAC and lighting energy-efficiency measures, for example LED cooler lighting and refrigeration retro-commissioning and controls, improve both product presentation and temperature control. In a low margin and highly competitive environment, energy efficiency represents a quick and painless way to improve the grocer's competitive position.

Comprehensive Solutions

Highly credible grocery specialist energy service companies do exist and offer multiple energy-optimizing or energy-conserving packaged services ("packages") for the grocery sector. These packages involve turn-key analysis, design, and implementation solutions to serve the energy savings needs of grocers. These firms are also skilled in delivering these services without compromising the quality of the shopping experience or the products for sale. Packages address both retrofit and lost opportunity situations. Additional resources include an ASHRAE guide for grocery store construction or renovation, "Advanced Energy Design Guide for Grocery Stores" (ISBN: 978-1-936504-90-9), and the U.S. DOE/NREL Building Technologies Program provides a retrofit guide entitled, "Advanced Energy Retrofit Guide: Practical Ways to Improve Energy Performance; Grocery Stores" (DOE/GO-102012-3655). Applying these design guides and other resources, including turn-key grocery specialists, the Companies can deploy a number cost-effective services to this sector.

Components of comprehensive energy-saving packages for grocers can include:

Lighting

- Utilize advanced solid-state lighting (LED) products and systems with integrated advanced lighting controls for a number of modes of varying lighting system operation in response to a variety of control inputs;
- For this industry sector, the installation of LED lighting and controls in freezer cases can reduce energy use significantly. These lighting systems include the use of motion sensors and dimming power supplies, which save energy by automatically dimming the lights when it is "sensed" that no one is near the freezer cases.

Heating, Ventilation, and Air-Conditioning and Refrigeration ("HVAC-R")

- Re-commissioning HVAC-R;
- Adjust condenser fan speeds to regulate condenser capacity based on actual heat rejection load rather than solely on system operating pressure;
- Adjust HVAC unit supply air fan speeds to the level required to meet air volume requirements of current operating mode (e.g. cool, dehumidify, heat, ventilate); and

- Ensure all major energy-consuming systems are operating correctly and using optimal and specifically configured control system strategies and set points for key input variables such as flow, pressure, temperature, time, etc.
- Variable speed and temperature difference control of refrigeration condenser fans;
- Upgrade/specify variable speed control of major HVAC roof top unit supply air fans, with programming to optimally address heating modes, ventilate-only modes, and cooling modes;
- Install communications modules, input/output boards, and related equipment to control the condenser fan VFDs and RTU supply air fan VFDs; including temperature sensors, humidity sensors, and pressure transducers to facilitate condenser fan temperature difference control.;
- Adjust low temperature commercial refrigeration system racks to an optimal and specific minimum condensing set point temperature, and associated temperature difference control;
- Adjust medium temperature refrigeration system racks to an optimal and specific minimum condensing set point temperature, and associated temperature difference control;
- Apply an optimal and specific minimum condensing pressure set point for various low-temperature refrigeration system racks, and an optimal and specific minimum condensing pressure set point for various medium temperature commercial refrigeration system racks; and
- Replace conventional motors with electrically commutated motors (“ECMs”).

Healthcare

Definition and Description

The Hospital/Healthcare sector is a significant one to the Companies, with hospitals alone representing approximately 10 percent of their commercial sector sales. Healthcare facilities provide acute care and extended care for patients. Connecticut’s hospital sector has largely consolidated, with most facilities associated with either Hartford Healthcare or Yale-New Haven, but with some notable exceptions such as Middlesex and Stamford. These customers are large energy consumers⁴² with complex energy consuming-systems and concerns regarding power

⁴² Eversource has seven hospitals in its top quartile of use (Quartile 1) and fourteen in its second quartile (Quartile 2).

quality and consistency.⁴³ Hospitals and clinics have high energy demands due to 24x7 availability and the need to achieve optimal patient care, comfort, and safety.⁴⁴

End Uses, Systems, and Equipment

Hospitals and healthcare facilities are complex operations with numerous types of end-uses, systems and equipment. Major energy users include⁴⁵:

- Heating, ventilation and air conditioning with special requirements for clean air and disease control as well as significant refrigeration needs;
- Lighting;
- Commercial laundry and kitchens;
- Medical imaging and related equipment;
- Pumps and fans;
- Elevators; and
- Plug loads such as office equipment.

Barriers

As the Affordable Care Act unfolds, hospitals are experiencing profound changes in their business models, some anticipated; some not. Cost pressures are forcing economies of scale, and hospital mergers and consolidations increased at an annual rate of 14 percent from 2009-13.⁴⁶ Former smaller community full-service hospitals are reemerging from this process as outpatient and urgent care facilities only. Some industry observers suggest that the next phase of this restructuring process may involve institutions divesting of their buildings, with other entities, such as specialized hospital REITs stepping in to own and manage the physical plants.⁴⁷

During this period of change and flux, health care institutions appear unlikely to make large capital commitments that do not have very short returns; less than two years is the current industry norm.⁴⁸ Another barrier is the perceived investment timeline associated with efficiency projects; an energy project may take three to five years to pay for itself, while a new state-of-the-art MRI machine is perceived to provide advantage to a hospital in a highly competitive

⁴³ *ERs, ORs, and PEs*, US EPA, Apr. 2002.

⁴⁴ Schneider, Op. cit., p. 3.

⁴⁵ Sheppy, et al. "Healthcare Energy End-Use Monitoring," National Renewable Energy Laboratory, Aug. 2014.

⁴⁶ "2015 Health Care Providers Outlook - United States", Deloitte, Op.cit.

⁴⁷ Jon Ervin interview, Op.cit.

⁴⁸ Id.

environment from the moment it is plugged in.⁴⁹ The healthcare sector is an enormously expensive industry where energy use often represents only two percent of a total budget.

A further compounding factor is that Connecticut has reduced state support to hospitals. State support fell \$26 million in 2014, with projections showing higher short-falls thereafter; \$108 million in both 2016 and 2017. Hospitals are therefore foregoing nearly \$200 million in federal funds, reducing their revenue stream.

Market Actions

Focused customer outreach, CSPs, and individualized multi-year MOU agreements are effective tools to engage large customers, like hospitals, in multi-year strategic planning and investment in energy-efficiency upgrades. The key advantage that these agreements bring to hospital customers is the stability and predictability of a long-term partnership with the Companies that allow both parties to think in terms of multi-year strategic capital investments in efficiency. MOUs have been highly successful program delivery vehicles in Massachusetts, where most of the largest hospitals in the Commonwealth are under MOU agreements, and in the Pacific Northwest, where the Northwest Energy Efficiency Alliance has ongoing Strategic Energy Management Plans (“SEMPs”) with hospitals representing 40 percent of the beds in the region.⁵⁰

Higher Education

Definition and Description

The State of Connecticut is home to approximately 40 higher education institutions with physical campuses and over 200,000 students. Higher education is the only market segment with organizational commitments to carbon neutrality. Connecticut’s higher education institutions serve as a model of leadership on climate change for Connecticut and the nation.

Currently, 13 Connecticut campuses, including seven of the Board of Regents (“BOR”) facilities, are signatories to the American College and University Presidents’ Climate Commitment. They have committed to become carbon neutral and are working towards that goal on an annual basis. Based on the best available information, the combined greenhouse gas emissions of the 13 Connecticut campuses emit approximately 530,000 metric tons of carbon dioxide; equivalent to approximately one percent of Connecticut’s total statewide greenhouse gas emissions. Through strong energy-efficiency programs and other carbon reduction measures, the 16 BOR system

⁴⁹ *NEEA Hospitals Strategic Energy Management (SEM) Initiative: Energy Efficiency Market Transformation and Lasting Impact*, Hughes and Price, Apr. 9, 2015, p. 3.

⁵⁰ <http://neea.org/initiatives/commercial/healthcare>.

schools will help Connecticut achieve its 20 percent by 2018 energy reduction goal (Public Act 11-80) for state agencies and statewide greenhouse gas reduction targets. Similar commitment by all of Connecticut campuses could represent up to three percent of the state's total greenhouse gas footprint.

Connecticut has an enormous opportunity to support sustainable innovation across industries by engaging the diverse and talented student body that the institutions in the state attract. Energize Connecticut seeks to nurture and encourage their involvement toward the goal of educating students for a green jobs economy while achieving meaningful climate mitigation, adaptation, and resiliency.

End-Uses, Systems, and Equipment

While the behavior of the student body is a primary driver of energy consumption, the operations, facilities, and equipment present a large opportunity for progress in energy reduction as well. Colleges and universities have a broad range of energy systems and equipment needs, including:

- Building envelope;
- Central power plants;
- Cooling controls;
- Cooking and food service;
- Heating, cooling, and ventilation;
- Water heating;
- Lighting;
- Living spaces;
- Steam systems;
- Plug loads such as office equipment.

Barriers

While some BOR campuses have pursued energy efficiency and achieved significant savings, there are many barriers to engagement in comprehensive sustainable energy management, including: limited capital, limited staff expertise and time, lack of awareness and understanding of Energize Connecticut programs, and lack of a comprehensive overview of energy needs and a plan identifying opportunities that takes into account all buildings within the system and synergies between BOR campuses.

Market Actions

Energize CT Business Sustainability Challenge

The C&I Solution, the Business Sustainability Challenge, makes comprehensive sustainability accessible, achievable, and profitable with the goal of helping the BOR campuses become industry leaders through closed-loop and net-zero operations. The Business Sustainability Challenge will work with the BOR campuses' facilities personnel, teachers, and students to assist with activities addressing energy usage, waste and recycling, and calculating simple payback for energy-efficiency projects such as lighting, building recommissioning, and sensor installation. The potential areas of focus will be on the high energy use intensity ("EUI") buildings, including: high energy intensity, long-run hour systems, low and no-cost operating and process improvements, and areas of high potential for capital improvements, such as equipment upgrades and distributed energy resources. This will result in new system operations and ultimately lead to awareness and behavior change of the campus inhabitants.

The Connecticut League for the Advancement of Sustainable Universities ("CLASU") has been hosted through the Companies since the beginning of 2014 and brings together higher education institutions to share best practices and collaborate around challenging issues such as organic waste, scalable renewable energy development, and carbon neutrality. The CLASU roundtables provide the participating colleges and universities the opportunity to collaboratively build on the work of each individual project and create opportunities for continued improvements.

The Energize CT Higher Education Fellows Initiative connects colleges and universities to the Business Sustainability Challenge and supports students becoming meaningfully involved in the achievement of carbon neutrality through the Presidents' Climate Commitment. The goal of the initiative is for students to become directly involved in every aspect of planning, data collection, analysis, and reporting associated with the Business Sustainability Challenge initiatives. These Energize CT Fellows will receive supervision and instruction from a faculty advisor, as well as a representative from Energize Connecticut programming. This direct involvement helps the student fellow understand the impact and results of changing the behavior of not only the individual student, but also other members of the student body.

The Energize CT Higher Education Fellows Initiative will provide funding for four competitive fellowship positions for students during a semester. Each selected fellow will be provided a small stipend for a semester-long fellowship at participating institutions. Selected student fellows will participate in energy projects that align and work in conjunction with the BSC program. Students will be awarded the fellowship based on academic merit, experience, and a demonstrated passion for energy-related environmental reform.

The fellowship will be both interdisciplinary and collaborative in nature and is encouraged to solicit applicants from a variety of disciplines, with at least two from STEM fields. The fellowship will be based on an expectation of total hours worked including weekly commitments, regular meetings, and independent supervised activities.

- Student participation may include:
 - Briefings on energy efficiency, LEED buildings, and campus total energy consumption;
 - Hands-on report generation with Energy Reports/Automated Logic building analytics software;
 - Campus feasibility audit (walk around, Google Earth map study) for PV rooftop or ground mount solar;
 - Calculating simple payback for an energy-efficiency project (i.e., lighting, building re-commissioning, and sensor installation);
 - Balancing priorities of project costs, efficiency gains, carbon and other pollutant reductions, deferred maintenance issues, payback periods, scheduled construction and renovation, expected future improvements in technology, and costs of delay; and
 - Guided resume building activity, articulating fellowship activities, and value in the competitive job market.
- Social and behavior change efforts may include:
 - Engage and spearhead common sense and behavior change student activities that are focused on energy savings and sustainability; and
 - Develop fun and innovative energy and sustainability efforts through challenges and contests.

[Institute for Sustainable Energy \(“ISE”\)](#)

The Companies, in partnership with ISE, will work to enhance energy efficiency at BOR facilities. ISE, which is funded by the Connecticut Energy Efficiency Fund, will complete the following initiatives during the 2016-2018 Plan:

- Complete updated US EPA Portfolio Manager accounts for all buildings at the 12 community colleges in the BOR system; and
- Develop the BOR Energy Management Plan (to be developed in 2016), focusing on deep, comprehensive energy savings, sustainable energy management, and innovative national best practices for new construction (i.e., performance-based procurement).

Hospitality (Lodging)

Definition and Description

Hotels, inns, and motels are modest energy users, but collectively they represent a significant number of customers in the Companies' service territories. Nationally, lodging is the tenth largest commercial building segment, accounting for 7.5 percent of all commercial buildings.⁵¹ Energy costs in the lodging industry are about 6 percent of operating costs, about \$1.42 per square foot. In a typical property space, heating, lighting, and hot water account for about three-quarters of total energy use.⁵²

More than 70 percent of U.S. hotels are either part of a national chain or a franchise of one. Franchises are often owned by limited partnerships or other investor groups who may not confine their portfolio to a single brand. The lodging industry has increasingly targeted facilities to very specific different market demographics. For example, there are facilities designed and equipped to meet the differing needs of the business traveler (airport hotels, commercial hotels, convention hotels); the recreational traveler (condominium hotel, the motor hotel/motel, resort hotel, or timeshare); and the long-term lodger (suite hotels). Each of these is further stratified by luxury/amenity levels (one through five stars), frequent customer reward systems, reward-based perquisites, and differing ownership models (chain, franchise, individual operator, etc.). Thus, for example, the Hilton chain offers ten different brands, ranging from Hilton Garden Inns (executive business travelers), to Hampton Inns (mid-range business and leisure travelers), to Hilton Resorts (multi-night stay vacationers).

End-Uses, Systems, and Equipment

While a proportionate share of use can vary by building type and amenities offered (one or two story suburban budget motel vs. downtown full service convention hotel), the following end uses are important in the lodging sector: cooking, HVAC, lighting, pool pumps, refrigeration, and water heating.

Barriers

Occupant comfort is the overriding concern of hotel management; even more so than in offices; because the occupants are paying for the privilege. And, "unlike office buildings...where tenants typically have long-term leases at a company level and individuals don't have a choice in the

⁵¹ Horsy, Mary. *E Source Sector Snapshot: Hotels and Motels*, Sep. 8, 2009, p.1.

⁵² See 50 Id.

selection of the building where they work, hotel ‘tenants’ are transient and they make a choice each time they travel.”⁵³ Thus, “a hotel’s first priority is guest satisfaction, and the energy-efficiency measures that get funded are those that either improve guest comfort while saving energy, or those that save energy without diminishing guest satisfaction.”⁵⁴ Also, just like hospitals, hotels are occupied 24 x 7 and have high concerns regarding construction atmospherics – dust, noise, loss of access to space – which constrain types of retrofits and hours during which they can be performed.

Market Actions

In almost all instances, the companies that directly manage their hotels or franchise their operations have explicit amenity requirements that require that each facility dedicate a percentage of revenue (often \$4-5 per \$100 in revenue) to facility improvements. “Soft goods” renovations include carpeting, bedspreads, seating, and fabric, and typically occur every three to seven years. “Hard goods” renovations include furniture and often upgrades to basic room systems. Because furniture is more durable than fabric, those renovations occur once every fifteen years. In addition to these predictable events, there are always significant renovations when a facility is acquired by a new corporate owner and rebranded (the Hilton becomes a Marriott), “up scaled” (the Hampton Inn becomes an Embassy Suites), or rebranded to address a new demographic (the Sheraton becomes an Aloft).

From an efficiency program perspective, these events can present a significant opportunity to achieve deeper savings in hotel rooms, as well as common areas and support areas, such as kitchens and laundry rooms. This is because the “major disruption to business” threshold has already been crossed, and the design and construction trades (electricians, HVAC servicers/installers) that can specify and install efficiency measures will already be engaged in the renovation project for other purposes.

The Companies will investigate developing a specialized offering directed to these market-driven events, and is following closely a similar approach being developed by Southern California Edison. More importantly, our outreach efforts will take the business drivers and route the customers through existing programs.

⁵³ Hand, et al. *Optimizing Energy Performance in U.S. Hotel*. 2006 ACEEE Summer Study on Energy Efficiency in Buildings, pgs. 6-103.

⁵⁴ Id., p.14.

Manufacturing

Definition and Description

Connecticut has a diverse manufacturing economy. The manufacturing segment includes, but is not limited to, several subsectors including: aerospace, computers & electronics, food & beverage, paper mills, pharmaceuticals & medicines, and small manufacturing. Connecticut is home to 5,000 manufacturers who employ nearly 170,000 people and generate more than 12.7 percent of the state GDP.⁵⁵ The largest manufacturing group in Connecticut is the defense industry. Connecticut ranks second in the nation for manufacturing in this sector at \$3,487 per capita in defense contracts,⁵⁶ with other manufacturers serving as suppliers to this industry, and other companies that serve other sectors. There are also several key general manufacturing firms and a large number of small, specialty manufacturers in, for example, the specialty metals and injection molding industries. Air, heat, light, motors and drives, and ventilation are prominent energy-consuming characteristics of this sector as a whole.

As noted in some detail elsewhere in the 2016-2018 Plan, the data suggests that the manufacturing base is under duress. A recent annual survey by the Manufacturing Alliance of Connecticut identified increased overhead costs due to infrastructure, labor (wages and benefits), taxes, and competition both from overseas and within the United States, as the primary ongoing challenges for Connecticut manufacturers.⁵⁷ These and overhead increases were the most serious threats to sales growth reported. The New Haven Manufacturing Association noted at a December 2014 presentation that manufacturers who want to continue to produce in the United States are being approached by other states that offer lower overhead costs and tax benefits, such as Florida, South Carolina, and Texas.⁵⁸ The Companies can make a compelling case, substantiated by a long record of project data, that the energy-efficiency programs they administer can dramatically reduce overhead costs, and provide substantial non-energy benefits, and that the investment for these benefits is modest, when considering the incentives and technical assistance services on off from the Companies.

End-Uses, Systems, and Process Equipment

Despite the diversity of the industrial sector, there are many common end-uses, systems, and processes that collectively represent the majority of natural gas and electric load within manufacturing facilities. These include: air compressors and leaks, HVAC equipment,

⁵⁵ See www.connstep.org.

⁵⁶ National Association of Manufacturers, 2009 CT Manufacturing Employment and Compensation.

⁵⁷ Klepper-Smith, Don. Chief Economist and Director of Research, DataCore Partners LLC, NHMA Presentation, April 2, 2015.

⁵⁸ See 43id.

incinerators, lighting, motors and drives, process equipment and machinery, steam systems, and water heating. In addition, the Companies will explore further energy-saving opportunities from systems and process optimization, including: compressed air, industrial refrigeration, motor drives, pumping, and leveraging trade ally initiatives.

Barriers

Challenges to serving the manufacturing sector, in the form of barriers, are numerous, including:

- Due to ongoing competitive pressures over the past several years, manufacturers have become aggressive in attempting to lower costs by upgrading their facilities with efficient machines or fixtures, rendering remaining potential for energy savings limited.
- In many of the larger manufacturing facilities, decision-makers are located at central offices or plants that are located outside of Connecticut or the United States. Plants that are parts of large conglomerates or multinationals are usually forced to compete with other plants for funding their capital projects, and often the priority for limited funding goes to projects that increase production, or are mandatory to meet regulatory requirements.
- Although capital itself may not be a constraint for larger manufacturers, there could be several layers of approval that require justification of investment and ROI prior to project acceptance. And for the smaller manufacturers, availability of existing available capital can be a constraint even though there is access to external capital.
- In recent years, the internal payback hurdle for American industry in general has risen dramatically. In some cases, it is less than a year.
- The primary concern of leadership is production, therefore risk of change, an interruption in production, or a compromise to quality, are barriers to consideration of efficiency projects.
- Finally, many companies reduced staffing during the recession, and they may not have the internal resources available to assess opportunities and champion energy-saving project implementation.

Market Actions

Historically, the Companies have provided two dedicated programmatic offerings especially designed to aid manufacturers in remaining competitive and staying in Connecticut: the Process

Reengineering for Increased Manufacturing Assessment (“PRIME”) and Energy Utilization Assessment (“EUA”) both focus on process improvements, or reducing the overall cost to manufacturers. In addition, the Business Sustainability Challenge (“BSC”), engages manufacturers to further business sustainability practices by facilitating manufacturer roundtables, networking, and sharing of lessons learned.

Manufacturers are targeted and then evaluated by segment, for example:

- **Aerospace.** The Companies target machine tools, mist, and dust collection systems, timing of use, and energy sources used by particular pieces of equipment.
- **Injection Molding.** The Companies evaluate cooling systems, all off-line processing such as material transfer, grinding, conveying, cooling, welding, and final assembly.
- **Metal Plating.** These manufacturers see exhaust systems, heat recovery, rectifiers, water conservation and recovery systems, and waste treatment systems examined.
- **Printing.** The focus in these facilities are: air dryers, chilling and warmer water systems, and steam-driven systems for aid in the printing and drying of various materials.

By way of example, one EUA identified that a printing company could save \$8,000 and realize 30,950 kWh savings per year with a simple \$300 investment from using a particular type of system for winter-chilled water cooling. Another EUA at a medical device manufacturer’s facility, identified \$3,000 in savings by optimizing control of “smog hog” machines for “clean rooms.”

Generally, the customers yielding the most savings and success are those who have a mixture of large air compressor systems, boilers, motors, and/or building management systems in their facility. These customers are pursued in conjunction with strategic energy management as delivered through the Business Sustainability Challenge, so that holistic and long-term support is the outcome.

In each of these areas the programs either offer incentives or are prepared to work with qualified customers to develop field tests of new technologies or custom applications for qualifying measures.

During the 2016-2018 Plan, the Companies will continue to provide outreach, education, and training opportunities for the manufacturing segment, including these trainings: Compressed Air

Challenge, Pump Systems Matter, and Refrigerating Engineers & Technicians Association (“RETA”) training.

Restaurants

Definition and Description

In 2013, there were 7,704 eating and drinking establishments in Connecticut. Restaurant sales are projected to be \$6.4 billion in 2015, and the industry will employ 159,500 residents – 9 percent of the total employment in the state. As the economy climbs out of the recession, consumers are engaging in more discretionary spending, and growth in restaurant sales and employment growth has been on a steady growth curve.

While there are many market niches, restaurants can be segmented into three broad categories: (1) Quick-service, or fast-food/takeout, (2) Midscale, and (3) Upscale. Quick-service restaurants are often chains or franchises (McDonald’s, Burger King, etc.) where patrons place orders at a drive-through or counter, and either take the food out or seat themselves, and table turnover is rapid. Décor is typically Spartan and utilitarian, and menus are fixed with little customization or variation. Midscale restaurants are typically chains or franchises (Ruby Tuesday’s, Olive Garden, Outback, etc.), where there is table service, usually a broader menu choice (sometimes around food themes), and usually bar service. These restaurants have more ambiance, and table turn is moderate. Upscale restaurants typically require reservations, and elegance, leisure, and a “dining experience” are the goals of this type of restaurant; hence there tends to be more emphasis on the surroundings, presentation, lighting, etc.

The Energy Information Administration (“EIA”) concludes that restaurants are the most energy intensive commercial buildings in the US; they consume nearly three times the commercial building average. Long operating hours and specialized equipment for cooking, cooling, dishwashing, freezing, and storing, account for much of the consumption. “Rigorous climate control equipment loads and longer-than-usual operating hours make restaurant buildings some of the biggest energy consumers. Add to that multiple air changes and food refrigeration, and you have some of the toughest obstacles for energy efficiency.”⁵⁹

Utility costs consume about 2.5 to 3.4 percent of total restaurant sales, depending on the type of operation. While this may seem relatively minor, a \$1 reduction in energy costs equals \$12.50 in sales at an 8 percent profit margin, without the need to increase sales, margins, or table

⁵⁹ Connected Buildings Blog. “The Challenge of Making Restaurant Buildings Energy Efficient,” Jul. 25, 2013.

turnover. It is estimated that 80 percent of total energy costs are in just three areas: food preparation, holding, and storage. It is further estimated that restaurants can make key efficiency investments that will reduce these costs 10 to 30 percent without sacrificing either food quality or customer comfort/satisfaction.

End-Uses, Systems, and Equipment

While a proportionate share of use can vary by restaurant type, the following end uses are important: cooking equipment, HVAC equipment, lighting, refrigeration, and water heating. Emerging technologies for restaurants include such things as new equipment that is more efficient. One of the primary sources of energy consumption for restaurants is food broiling. Restaurants can replace existing un-lidded char-broilers with lidded char-broilers with thermostatic controls to reduce energy consumption in the kitchen.

Barriers

According to the National Restaurant Association's 2013 Restaurant Industry Forecast, a majority of restaurateurs across all industry segments are looking to invest in energy- and water-efficient technologies. Among those surveyed, 85 percent of quick service and 80 percent of family-dining and fast-casual operators said they planned to invest in energy-saving measures and equipment. However, there are also significant barriers. Restaurants have a high failure rate (about 60 percent in the first three years) and decision-makers work long hours in a fast-paced environment. Again according to the National Restaurant Association, they often have little time and inadequate information to make informed equipment choices.

Also, because of the high turn-over rate, there is a robust market for used restaurant equipment, which can be purchased at steep discounts. This makes purchases of new and more efficient equipment a harder sell.

Market Actions

To effectively capture efficiency in the restaurant market, programs must recognize all of these industry characteristics and limitations, and adapt marketing and delivery approaches accordingly. For example, retrofit opportunities may be greater in individual operator or franchise operations, where the local decision-maker can influence or control equipment selection, as compared to chain operations where equipment specifications are often controlled at some distant corporate office. In new construction, early program intervention with value added – in not just offering the prospect of lower energy costs, but also enhancements that provide greater customer and staff comfort and satisfaction with their surroundings – is always key.

The Companies will maximize their credibility and reach to restaurant customers by partnering with local trade associations and institutions, such as the Connecticut Restaurant Association, the Hospitality and Tourist Management Program at the University of New Haven, and national associations, such as the Green Restaurant Association.

Water and Wastewater Facilities

Definition and Description

Water and Wastewater facilities are a unique public sector market segment, as their energy-saving potential exists in industrial measures, such as drives, fans, motors, and pumps. These facilities are very energy-intensive; nearly 30 percent of a water and wastewater treatment plant's operational budget is spent on electricity.

In 2014 and 2015, the Companies, in conjunction with the US EPA Region 1, held five half-day roundtables with water and wastewater treatment facilities across the state. This was a concerted effort by the Companies to identify the opportunities and barriers to identifying and implementing energy-efficiency measures in these facilities. The roundtables focused on energy conservation and efficiency at water and wastewater treatment plants, afforded opportunities for federal-state-municipal collaboration, and highlighted the importance of this segment while creating energy and monetary savings for several water and wastewater plants.

The goals of these roundtables were to share experiences and best practices with other water and wastewater facilities and learn about ways to: increase energy efficiency, reduce energy costs, perform energy assessments/audits, apply 'Plan-Do-Check-Act' tools to support existing energy management programs and initiate new ones, and to identify priorities for implementation of energy evaluations and funding/financing strategies. The themes pursued during the Companies' roundtables were: (1) energy audits/evaluations (part of facilities planning, identify opportunities, not intrusive or time-consuming for facilities, foundation to start energy improvements), (2) implementation of audit recommendations (not just about ROI), criteria for priorities can include: ease of implementation, impact on operations, and availability of financial resources), and (3) tools and resources exist to support energy improvements.

End-Uses, Systems, and Equipment

Water and Wastewater facilities are complex operations with numerous types of end-uses, systems, and equipment. Major energy users include: blower and diffuser technologies for aeration systems, design and control of aeration systems, efficient pumping systems, energy-efficient measures for selected treatment processes (such as anoxic mixing, membranes, and UV

disinfection), motors, and variable frequency drives.

Barriers

The implementation barriers for this market segment include:

- Determining of how feasible and reasonable (i.e., cost and labor) it would be to figure out the mechanics of a certain process;
- Balancing identifying and resolving issues with continuous plant operation;
- Overcoming the temptation of short-term paybacks in order to take advantage of more beneficial longer-term returns related to energy initiatives;
- Addressing discharge permit modifications in an upgrade process;
- Deciding whether to change processes/equipment based on plant upgrade schedule (i.e., financial payback, process improvement);
- Wastewater plants noted the challenge (and opportunities) of implementing energy efficiency improvements while in the middle of design and upgrades;
- Responding to the Board, Commission, and public regarding the financial impact of improvement decisions; and
- Ensuring that improvements are compatible with current equipment and processes.

Market Actions

At the Companies' 2014 and 2015 roundtables, facilitators discussed energy audits and gave examples of facility evaluations and subsequent recommendations. These one-day evaluations included an analysis of real-time equipment operation and condition data, and the identification of additional equipment attributes (i.e., horsepower, run-time) to assess possible energy-efficiency opportunities.

Some market actions for this market segment include:

- Pump rebuilds and/or replacements;
- Mixing methods (i.e., compressed-air mixers rather than mechanical mixing);
- UV system optimization;
- Plant water system replacement;
- Aeration (i.e., positive displacement blowers, hybrid units, and minimizing operation);
- Efficiencies in sludge pump mixing, odor control, and SBR;
- Operational measures (i.e., reprogramming SCADA system);
- Water and wastewater Aeration System tank blower control (i.e., cycling changes and sizing corrections); and
- LED lighting.

At the culmination of the June 2015 roundtable, facilities were urged to pursue the following courses of action:

- Exposure to experiences with other measures/equipment;
- More information related to sustainability programming such as BSC and associated resources;
- Pump stations and associated energy costs;
- Other available federal/state sources of money to help offset the costs of the projects (e.g., flow chart to guide how to track down sources of money, directory of funding-related sources or contacts);
- Municipal processes; and
- Opportunities for municipalities to promote energy improvements by contract operators of water and wastewater facilities.

For the 2016-2018 Plan, the Companies' goal is to continue these roundtables and push for meaningful change in the energy use of the facilities, while working with partners such as DEEP and the US EPA to achieve results. Also, the Companies are aware that the DOE is developing a Superior Energy Performance initiative for the market segment that may have water and wastewater applicability in the near future. The Companies will monitor this initiative for potential Connecticut applications.

In the Waste and Wastewater market segment, DEEP is a key public-sector ally. The Companies work with DEEP to conduct equipment screening of facilities aeration and pumping system assets in order to identify potential energy-saving opportunities in high-electric use areas. Facilities with opportunities are eligible for program incentives and technical assistance, as well as for funding under the Clean Water State Revolving Fund for such activities as: energy audits, reduced energy consumption, improve treatment efficiency, and to replace aging infrastructure and incorporate energy-efficient equipment.

MARKET ACTIONS FOR ALL C&I CUSTOMERS

Customer segmentation is the subdivision of a market, in this case the C&I market, into discrete customer groups that share similar characteristics. Market Actions are the activities by which those segmented customers will be reached. This purpose of this section is to describe the strategies and the market actions the Companies will use to engage segmented customers during the 2016-2018 Plan period. The Companies can maximize the level of service to customers, and the resulting energy savings, when all customer engagement channels and actions reflect an understanding of the importance of the multiple benefits of efficiency at a level that is specific to the market sector in which the C&I customer operates and competes.

Market Action: Engage the Companies' Employees

The Companies' first and front line to engage C&I customers are their own employees. In recent years, the Companies have made considerable investment in training staff regarding the techniques of energy-efficiency sales.⁶⁰ The approach used emphasizes moving beyond a simple focus of reducing energy costs, to a discussion of the ancillary non-energy financial benefits from installing energy-efficient technologies (i.e., lower maintenance costs, less waste, and reduced water consumption) and the non-financial benefits (i.e., better light, better air quality, quieter space, and better learning/reduced absenteeism).

The Companies will engage customer segments in several ways, including:

- By organizing, independently or in partnership with an industry or professional organization, customer sector-specific educational forums and trainings that focus on unique and specialized efficiency opportunities. Such events develop new project leads and open the door to discussions about forming partnerships for continuous efficiency improvements, through such vehicles as the Business Sustainability Challenge, Customized Solutions Partnerships, Memorandums of Understanding ("MOUs"), and Strategic Energy Management endeavors;
- Encouraging staff to join industry or professional organizations, and to take active leadership roles when appropriate. These new networks can provide opportunities for the Companies' staff to demonstrate their sector knowledge, and to make the personal connections that can lead to project opportunities;

⁶⁰ See: <http://www.eefg.com/>.

- Encouraging pilot projects of emerging technologies at customer sites. In conducting these technology projects, the Companies assume all the risk, so customers are held harmless if savings do not materialize, or if they are otherwise dissatisfied. Successful pilots and projects can lead to published case studies and wider peer adoption of the emerging technology;
- Submitting articles for publication in market sector-specific newsletters and magazines and professional journals. These publications often need content, and publication provides a way to elevate the Companies' visibility and technical expertise with sector-specific readers. Such publications can provide broader visibility for case study results as well; and
- Fostering the development of various forms of long-term, multi-layered Memorandums of Understanding and Customized Solutions Partnerships with customers. Such agreements can include elements of all the programs and services offered by the Companies, and can include mutual commitments for investments in capital energy improvements, as well as operations and maintenance ("O&M") and Strategic Energy Management activities. Examples of the various forms of MOUs that will be used by the Companies include: Customized Solutions Partnerships, Clean Energy Communities, and state facilities' Lead by Example and/or Small Business Energy Advantage Master Agreements. The most comprehensive of the forms of Memorandums of Understanding, integrating all aspects of Strategic Energy Management under one umbrella, is the Business Sustainability Challenge.

Market Action: Role of Implementation Contractors

The Companies contract with third-party implementation and support contractors to supplement and enhance delivery of specialized energy-efficiency services. While such contractors may be contracted with scopes of work for the delivery of a particular offering or set of services under a specific program, these same individuals can also be deployed across the Companies' programs to provide customers with services that match their needs. Current examples of specialized services provided by contractor firms include:

- Energy Usage Audits associated with the Business Sustainability Challenge or Energy Opportunities;
- Lean manufacturing and process specialists under the Process Reengineering for Increased Manufacturing Efficiency ("PRIME") offering;
- O&M assessments and tools (such as energy management systems) under the Business and Energy Sustainability;

- Providing sector-specific services, for example to national accounts and groceries;
- Retrocommissioning services;
- Specialized engineering, providing expertise in qualifying custom projects and advising on whole building design projects; and
- Turn-key installation contractors delivering Small Business Energy Advantage solutions.

Market Action: Trade Ally Communications

Customer engagement and the customer experience are both critically important to every success metric the 2016-2018 Plan articulates. The Companies continuously strive for meaningful, impactful ways to communicate and interact with customers. The customer engagement platforms (“CEPs”) present a new way to communicate information to customers. However, customers are also engaged directly with a dizzying array of trade allies; and their experiences vary widely. Trade Ally Communications falls into three general relationship categories:

- 1) Contractors who have contractual relationships with the Companies. The Small Business Energy Advantage program’s contractors are the primary members of this group; however there are other firms, including Ecova, EFI, Retroficiency, and other retro commissioning firms;
- 2) Contractors who sell energy-efficient products or services, such as distributors and manufacturers; and
- 3) Contractors who design and specify energy-efficient equipment, such as architects, design/build contractors, and engineers.

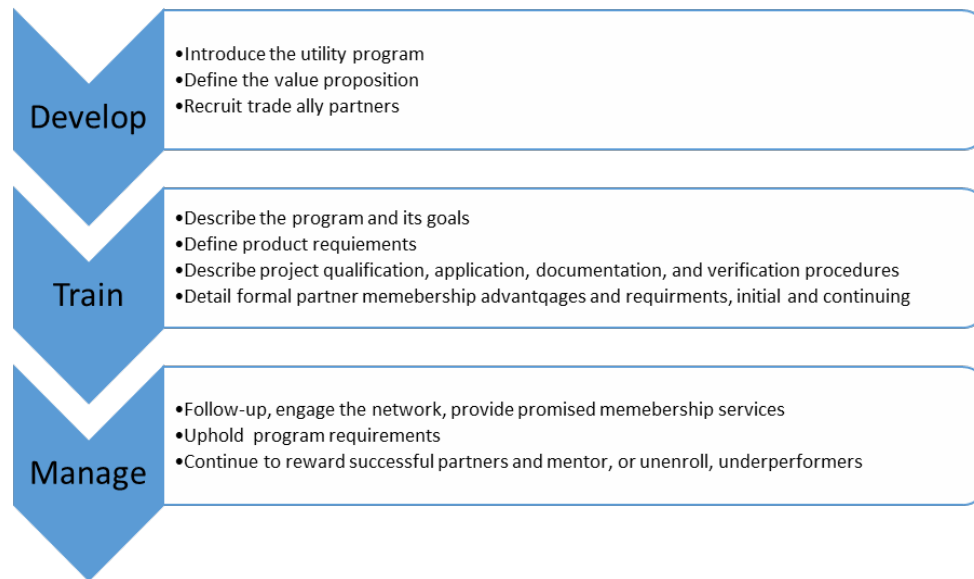
Each of these groups represents an opportunity to extend the Companies’ messages and reach their target customers. But control of the messaging is challenging with every customer segment. The Companies’ marketing teams will work to develop strategies that address each of those main groups.

During the 2016-2018 Plan period, the Companies will increasingly leverage and augment their own staff and contractor resources by recruiting, training, qualifying, and managing networks of trade allies (distributors, specifiers, and installers) and partnering with professional and trade associations to stimulate development of participating energy-efficiency projects. Although the Companies have always sought to cultivate mutually advantageous relationships with various types of business partners who also engage with their customers, such as electrical and HVAC contractors and equipment supply houses, the Companies will move toward more formalized

business or trade ally models during the 2016-2018 Plan period. The Companies have commissioned a consultant to provide a high-level set of strategic plan recommendations for creating a statewide lighting partnership alliance, and proposals for other sector partnerships will follow. The Companies are examining the trade ally structures that other program implementers have put in place⁶¹ with the goal of developing a set of “best practices” criteria.

An effective and formalized trade alliance or partnership structure can not only expand the reach of program marketing and delivery, it can also provide substantive business advantages to participating allies. This accelerates market adoption of new technologies and helps make the installation of energy-efficiency equipment a standard practice.

Figure 4-2: Trade Ally Alliance Execution



The Companies have identified an initial, non-exhaustive list of market segments where Trade Ally-oriented Alliances might prove productive. These and the target markets they address are summarized in Table 4-8:

⁶¹ E.g., Energy Trust of Oregon, Efficiency Vermont, Efficiency Maine, etc.

Table 4-8: Potential Trade Ally Channels

Alliance / Target Market	Lighting	HVAC	Compressed Air	Metal Finishing	Water/Waste-water	Dry Cleaning	Injection Molding	Commercial Kitchens	Agriculture
Retail	X	X						X	
Manufacturing	X		X	X			X		
Professional Services	X	X							
Government Agency	X	X						X	
Educational	X	X						X	
Real Estate Management	X	X						X	
Utility/Water and Wastewater					X				
Hospitals	X	X						X	
Communications and Entertainment	X	X							
Financial Services	X	X							
Other						X		X	X

The Companies also propose to strengthen and deepen relationships with professional and trade associations that are respected sources of information to customers. Unlike trade ally alliances which are formalized with individual businesses, association partnerships emphasize relationship with the entity itself, which in turn, has a direct relationship with individual businesses. Examples of such associations are:

- Northeast Energy Efficiency Council (“NEEC”);
- American Institute of Architects (“AIA”), Connecticut Chapter;
- American Society of Heating Refrigeration and Air Conditioning Engineers (“ASHRAE”); and
- Connecticut Green Building Council (“CTGBC”) of the US Green Building Council (“USGBC”).

The Companies have a number of existing Alliances and Association Partnerships, and have initiated research expanding into additional areas. For illustrative purposes, the Companies will summarize their approach to two Alliances (lighting and commercial kitchens) and two Association Partnerships (AIA and USGBC) below.

Lighting Alliance

Lighting is the predominant end-use in all C&I facilities, and thus is the source of most program savings in Connecticut and with all programs nationally. The lighting market is a very dynamic marketplace today, and establishing lighting trade allies are a critical focus of the Companies. Through the existing offering of prescriptive rebates, the Companies have a strong and nearly comprehensive list of lighting distributors and other mid-stream market actors with whom a relationship exists.

Similarly through the Small Business Energy Advantage program and prescriptive lighting rebate historical documentation, the Companies have a substantial knowledge of who the installers of lighting are that actively work in Connecticut. The establishment of a Lighting Alliance can appropriately begin here, through outreach to these existing trade allies. Information provided to these allies would include: details regarding the prescriptive offerings and custom opportunities in lighting, and requirements and expectations of trade allies in tapping these incentive opportunities on behalf of and in conjunction with their customers.

Commercial Kitchens Alliance

The Commercial Kitchens Alliance is a key example of how the Companies can fill existing customer engagement gaps to serve a high-energy consumption end-use. The commercial kitchen supply chain will be pursued through outreach and developed through the Commercial Kitchens Alliance to more efficiently utilize the existing Connecticut Kitchen Equipment Rebate program. Since it is itself a small, niche pool of allies serving a niche market, the Commercial Kitchens Alliance is likely appropriate for more one-on-one and personal engagement by the Alliance's facilitators. Examples of potential members include: Classic, Demartino's, Globe, HAFSCO, Kitteredge, and Restaurant Equipment Paradise.

AIA Partnership

Architects are a critical audience for the Energy Conscious Blueprint program. As discussed previously, new construction and tenant fit-out projects are driven by time and minimization of risk. Thus a key objective of this partnership will be to help AIA convey to members how the Energy Conscious Blueprint program can add value without interrupting their project's flow and timelines. With ASHRAE 90.1-2010 becoming the new baseline, there will be a significant impact on new construction and end-of-life equipment replacement markets. However this provides an opportunity to partner with AIA, as well as the Connecticut Building Officials Association to provide code training and an introduction to the Energy Conscious Blueprint program in the same forum. Partnering with the Energy Conscious Blueprint program early can actually minimize

compliance and design risks. As an example of the type of work the AIA Partnership will undertake, in 2015, the Companies led a webinar for AIA and the Green Building Certification Institute, entitled “*Energize CT Business Sustainability Challenge: Energy Efficient Design and Commercial Competitiveness*” that included over 300 participants.

USGBC Partnership

The USGBC through the Leadership in Energy & Environmental Design (“LEED”) building certification program, is generally considered the preeminent standard for sustainable and efficient design, and the rating and labeling of new and existing buildings in North America. Because end-use customers, the real estate and property management communities, the policy/political communities, and institutional investment communities all embrace USGBC, it is a critical ally for the Companies. Engaging the organization, its chapters, and local activities, is an important partnership that the Companies will continue to cultivate in moving the market toward holistic approaches to efficiency and sustainability.

Market Action: Customer Roundtables, Conferences, and Events

The Companies remain well aware that in addition to leveraging the upstream trade allies and associations, customers themselves are part of the market and seek to reach them directly en masse as well. As the Companies have become more and more customer-centric, it is evident that the “word of mouth” form of advertising and influence is extremely important. Coincident with the Companies’ efforts to specifically address manufacturing, wastewater treatment, healthcare, and universities through the BSC, several Customer Roundtables have been held for these audiences to serve as opportunities for networking and sharing of experiences and best practices. The Companies will continue to utilize this vehicle to support other segment or system-specific activities throughout the course of the 2016-2018 Plan’s implementation.

More broadly, the Companies actively seek a presence at local business-to-business trade shows, such as those for facilities managers, and at regional and national conferences. For example, the BSC was presented as a best practice program at the 2015 ACEEE Behavior, Energy and Climate Change Conference.

Market Action: Specific Support to Programs

To make an implied but not explicitly stated objective of the Alliances and Association Partnerships clear, the Market Actions seek to leverage what the market does in its normal course of business in driving participation in the Companies’ programs. For example, AIA members are by definition—designers—and tend to be engaged for larger projects. Therefore the support the AIA Partnership provides will be almost entirely to the Energy Conscious

Blueprint program, and for primarily new construction, major renovation, or tenant fit-out of large commercial buildings.

Similarly, the Compressed Air, Metal Finishing, and Injection Molding Alliances are strictly industrial propositions, and other than adding controls and add-on devices to existing equipment, the vast majority of their work will be focused on Energy Conscious Blueprint projects involving end-of-life replacements or newly added equipment situations. The exception, and it is an important example, is that we anticipate the Compressed Air Alliance may emerge as a valuable tool providing air leak detection and mitigation services. This is a basic Energy Opportunities proposition, thus leading to development of substantial additional opportunities for major compressed air system retrofits or replacement of existing air-driven tools with higher efficiency models. By the same token, we expect the Lighting Alliance to have influence in virtually all facility types touched by the Energy Conscious Blueprint, Energy Opportunities, and the Small Business Energy Advantage program. Below in Table 4-9, the Companies summarize which particular programs and primary focus areas the Alliances and Association Partnerships are expected to bring their influence to bear.

Table 4-9: Alliance and Association Partnership/Program Overlay

Alliances	Energy Conscious Blueprint			Energy Opportunities			SBEA	BES
	New Construction	New Equipment	End of Life	Large	Mid-Market	Industry		
Lighting	X	X	X	X	X	X	X	
HVAC	X	X	X	X	X	X	X	
Compressed Air		X	X			X	X	
Metal Finishing		X	X			X	X	X
Water/Wastewater	X					X		X
Dry Cleaning		X	X				X	X
Injection Modeling		X	X			X	X	X
Commercial Kitchens		X	X				X	
Agriculture		X	X			X	X	X
Association Partnerships								
AIA	X							
NEEC		X	X	X	X	X	X	
ASHRAE	X	X	X	X	X	X		

COMMERCIAL AND INDUSTRIAL SOLUTIONS

C&I Solution: New Construction and Major Renovations (Energy Conscious Blueprint)

Overview and Key Objectives

Energy Conscious Blueprint (“ECB”) is one of the Companies’ four core C&I Solutions within which budgets and energy savings production are planned and tracked.⁶² The ECB program targets all commercial new construction, renovation, remodeling, and expansion projects in Connecticut, as well as end-of-life replacement purchases.

There is a market-driven window of opportunity to achieve energy efficiency and transform design and equipment specification practices at minimal cost when new commercial buildings are being designed and constructed, and when existing ones are renovated or expanded. ECB offers a menu of services and incentives to developers of new buildings, and the owners of existing buildings that are undergoing major renovations or additions. These services are tailored to complement each owner’s unique project objectives and investment criteria. The program can add value regardless of where a building is along the design and construction continuum, and can do so in a manner and on a schedule, that fits within and complements project timelines. Program options range from a comprehensive approach, to building design, to a prescriptive approach, and includes failed equipment replacement.

While there is a continuum of engagement, the energy-saving impacts are more substantial if engagement is as early in the design process as possible. The ECB program offers different strategies depending on the first point of engagement in the project. The earlier the engagement, the greater the opportunities are for implementation of more cost-effective and deeper energy-efficiency opportunities.

During the 2016-2018 Plan timeframe, the Companies, in partnership with the Institute for Sustainable Energy, National Renewable Energy Laboratory, and other performance-based procurement partners will explore performance-based procurement for new construction. Through performance-based procurement, building owners establish and specify an energy performance requirement as part of the design and contractor team selection process. The energy performance requirement is a specific, legally enforceable target added to the project request for proposal and contract. A competitive process for a design-build contractor is deployed to select the highest value for the amount of budget available. Projects leveraging this

⁶² The other three Core C&I Solutions are Energy Opportunities, Small Business Energy Advantage, and Business and Energy Sustainability; each will be discussed in succession.

market-based approach have achieved energy savings of up to 50 percent beyond code at little additional cost, as the architecture and the engineering of the building are fully integrated. This strategy has also been used to procure zero-energy buildings with a payback of less than ten years.

The greatest potential to achieve savings, and to add value to the customer, occurs when the Companies and performance-based procurement partners engage with designers and their projects in the initial conceptual design or schematic design phase. Here, the project can be examined comprehensively, allowing for design assistance, scenario modeling, and whole building equipment specification. At this early stage, measures that can commonly be considered include: envelope insulation optimization, orientation and site considerations, system and distribution types (with associated benefits and penalties), alternate lighting technology review and recommendations, thermal mass and shading option impacts, the value of various daylighting depths, load modulation ranges for control selection, reduction/ elimination of simultaneous heating and cooling, and improved confidence to reduce equipment oversizing.

These fundamental pre-design requirements and early design decisions can shape the energy costs of a building for its entire life, which in New England can be a hundred years or more. Similarly, initial equipment choices may establish energy consumption patterns for decades, until that equipment fails and must be replaced, or until a more costly retrofit project is proposed. If this narrow and fleeting window of opportunity to influence building design and equipment specification is missed, it is not exaggeration to say that it is lost for a generation. The services provided through ECB help lower building operating and maintenance costs throughout its entire life cycle while increasing comfort, health, and productivity for building occupants.

If the design process is well underway when the Companies are able to engage the customer, a more prescriptive approach to individual measures, or a custom approach to discrete building systems, can still capture considerable efficiency, again at relatively modest program expense.

The Companies aggressively seek out and recruit owners and designers involved in the construction or major renovation of all non-residential buildings in Connecticut. This process requires multi-faceted strategies, because development is, by its nature, a competitive process that largely takes place out of the public eye, often until a construction trailer and fence appears on site. The challenge is to gain market intelligence from a myriad of sources so that program representatives can intersect with customers as early as possible in their process – at the time when the fundamental design decisions that most impact future energy use are being made.

ECB services range from a package of expert design and engineering assistance and incentives at the level of the whole building (when the project is in early design), to similar assistance within

discrete facility systems, components, or processes in cases where the project is more advanced, to prescriptive incentives for a large menu of pre-selected premium performance lighting, HVAC, and other mechanical measures; or a mix of all of these options. For many participants, the value of this program is not just in the incentives, but also for the opportunity to access the expert, impartial, unbiased technical assistance provided by the Companies' staff and through the stable of technical experts with whom they collaborate. Mobilizing the market through the trade ally alliances and association partnerships will provide an additional dimension to this support.

Over the course of the 2016-2018 Plan, the market will need to adjust to the new ASHRAE 90.1-2010 code baseline. On the one hand, this will make engagement with the program more attractive to the architectural, engineering and design ("AE&D") community because training on the new code and its impact will be provided. On the other hand, the code raises the efficiency floor, so savings per project are likely to be smaller and more expensive.

Thousands of similar, but smaller time-dependent opportunities occur whenever energy-consuming equipment fails in existing buildings. Just as in new construction, there is a brief window of opportunity for the program to intervene to present a more efficient option when the customer is focused on purchasing replacement equipment quickly and returning their facility to full operation. Here the ECB program works with equipment vendors and suppliers, often using an upstream approach, to ensure that premium alternatives are available and promoted during that brief window.

Target Markets and Eligibility

The Companies aggressively attempt to identify influence decisions affecting all new construction, renovation, and addition projects in Connecticut, as well as businesses replacing outmoded or failed equipment outside of a more comprehensive construction or upgrade project. ECB projects can be expected to arise from any of the identified target markets.

The target for the ECB program is all "time-dependent" natural gas and electric energy-efficiency opportunities in the non-residential sector, which includes commercial, industrial, institutional, and governmental customers. Time dependent opportunities, or lost opportunities, exist when new buildings are being designed and constructed, and when existing ones are expanded, remodeled, or renovated. These opportunities are also available when existing equipment fails, and must be quickly replaced to restore the building to full functionality in end-of-life or failed equipment situations. In the new construction market, key market actors include: architects, distributors, engineers, equipment specifiers, manufacturers, suppliers, commissioning agents, and the owners or developers of new buildings. In the replacement market, key decision-makers include: building owners or managers, equipment supply houses, and facility staff.

The non-residential development process has a number of characteristics that make it difficult to influence from the outside. First and foremost, with the exception of government or institutional projects, or very large projects that require some form of planning body approval, most of the process occurs in an environment that is outside of public view. Decisions to develop particular buildings on particular sites, and subsequent agreements for financing, real estate purchase, design and construction services, and, ultimately, sale or rental are, after all, private business. The participants do not reveal that a development is even contemplated because they do not wish to alert potential competitors to their intentions or because there is simply no need or requirement to do so.

Also, the process itself often does not proceed along a seamless continuum. Development can be an episodic process, with flurries of activity around securing permitting or financing for example, followed by periods of dormancy until the next hurdle is addressed. And with many hurdles, a significant number of projects never move from the conceptual stage to actual completion, and from all the projects that are proposed, it is often difficult to determine which proposed projects will materialize, particularly at the earliest conceptual phase.

Yet it is at the conceptual phase, when all plans are fluid that the greatest potential exists to influence the project in the direction of a comprehensive, holistic energy-efficient design. When earth gets moved, the plans have long since been functionally complete and all attention is then and from that point forward on the projected completion and occupancy date. Millions of dollars have been borrowed and no revenue is generated to repay these loans until the tenants or owners move in. A change to incorporate efficiency, or any change for that matter, is perceived to mean delay, and delay costs money.

Additionally, it is estimated that between 40 and 50 percent of small commercial buildings are built for tenant occupancy. This creates two very daunting barriers to the consideration of more efficient design or equipment. First, the typical lease model, the so-called “triple net” lease, flows all operating costs, including utility bills, through to the tenant. Sometimes this is accomplished through direct metering of the tenant premises (as in a freestanding retail space); in other cases, there is a master meter with a pro-ration of costs to all tenants (as in the case of a strip-mall or a small office building). In neither case does the tenant have the incentive to upgrade the landlord’s property (except in the limited instances where the payback term is significantly less than the remaining life of the lease). Thus, lowest first cost often rules the day in the development process. If there is additional money to be spent on building systems, the developer and his design engineer will often invest it to oversize HVAC equipment and over-light spaces as a shield against future tenant complaints or litigation.

A retrofit project typically involves a turn-key vendor selling a project specifically on efficiency attributes. By contrast, in the new construction market, products are specified in the design process, not sold. Among the market actors whose interests must be considered are:

- **Owners and Occupants.** These market actors expect to be long term tenants in their own buildings, and therefore are more likely to be receptive to the concept of life-cycle costing and to longer payback measures, or to an “inspiring” design;
- **Larger Architectural and Engineering Firms.** These market actors tend to design from a library of “typical” building packages. Once their template design and equipment specifications are modified, they will be reapplied in numerous similar buildings in the future. A key influence of the AIA Partnership will be to build the trusting relationship and buy-in of this community so they can also be equipped with resources to design in ECB-eligibility and support;
- **“Leading” Design Firms.** These market actors tend to establish the new market standards that are then followed by more conventional firms. Many of these design and build professionals can be expected to be pursued and cultivated through the relevant trade ally alliances;
- **Chain and Franchise Owners.** These market actors often use one design template, which can be varied according to site requirements, and who often use in-house architects and engineers. The Companies’ National Accounts pilot effort is an example of how the Companies seek to reach this population;
- **Public Sector Owners.** These market actors often have regulatory requirements that include life-cycle costing and legislated goals for energy efficiency. For example, the Companies will provide coordination and leverage to the Lead by Example and Energy Services Performance Contracting initiatives;
- **Environmentally Conscious Owners.** These market actors wish to promote their building as an extension of their corporate ethic. The Companies note their leadership role with the USGBC as an example of their intentional engagement of this community;
- **Speculative Developers.** These market actors, to the extent they can be persuaded that a low-energy-cost building has a promotion value to attract tenants; and

- **Equipment Manufacturers and Suppliers.** These market actors need to be persuaded to stock energy-efficient equipment so that it will be available to meet program-generated demand. Again, the trade ally alliances will bring significant influence to bear, as will the Companies' increasing focus on mid- and upstream incentives and support.

Specific outreach strategies are designed for each of these groups, but for all, one-on-one communication is the primary approach that has produced results over time; building relationships by partnering on an initial successful project and showing added value, leading-edge technical expertise, and rapid response to the client's needs will put the program top-of-mind when the next project comes along. This direct marketing is facilitated and supplemented through other channels including: brown bag educational seminars, formal training seminars and webinars (particularly when they qualify for Continuing Education Unit credits), case studies, and open houses.

For time-dependent projects involving replacement of failed or end-of-life equipment, the Companies' marketing efforts focus on customers and their facility managers, and on equipment vendors, again using extensive one-on-one communications. These communications are supported by case studies and other promotional pieces, participation in a variety of trade shows and industry conferences, breakfast meetings, and other customer and vendor focused training seminars. The Companies continually engage with equipment distributors and installers to help them promote energy-efficient equipment and systems to their customers and to explore innovative ways to work together to mutual advantage.

Program Theory and Description

The ECB program has multiple participation options, depending both on where the building is in its construction or renovation schedule, and the owner's investment criteria and goals for the project. Assistance is offered at a variety of levels and with a variety of approaches.

- **The Whole Building Approach** allows the customer, the design team, and program-supported experts to work together from the conceptual design stage of a new construction or substantial renovation project to consider holistic design and equipment options that will improve the overall efficiency of an entire building and its operating systems. Under this approach, eligible customers may take advantage of both program-sponsored technical assistance to help define and quantify cost-efficiency options, as well as substantial reimbursement to the customer's own design team for additional design work or analysis necessary to accommodate program recommendations.

The customer's financial incentive is calculated to help offset increased design interaction and potential costs of construction, and is awarded based on an analysis of the entire project design and the interrelationship between the various building energy-consuming systems. In order to encourage such a comprehensive approach, incentive strategies may vary and be based on natural gas and electric energy intensity per square foot, per unit of gas or electric energy saved, or incremental cost. Incentive levels may vary through the establishment of performance tiers that may be based on metrics such as building energy ratings as such constructs emerge, percentage better than building energy code, or thousands of BTU per square foot, as the Companies seek to move facilities along the path to a Zero Net Energy building.

Customers may also be eligible for technical support and incentives which allow them and their design teams to aggressively pursue high-efficiency options that fully integrate building envelope, lighting, and mechanical systems to produce a building that is as efficient as current technology and design techniques allow. Resources such as National Renewable Energy Laboratory design guides, the Better Buildings program of DOE, US EPA's Portfolio Manager-based Target Finder, and the Architecture 2030 Initiative may all come into play. The combination of technical consultation and incentives provided by the program will cover a significant portion of the additional design, modeling, and equipment costs required to turn an average building into an exemplary one.

Given the myriad approaches to building model specification and reporting, the numerous tools and initiatives by government and non-governmental organizational entities, and the transition to the ASHRAE 90.1-2010 building energy codes, the Companies will dedicate significant attention to training, technical assistance and standardization of program requirements. Referencing the Market Actions section above, organizations such as the AIA, the broader architect, engineer and designer ("AE&D") community, and the Connecticut Building Officials Association can be expected to figure prominently.

- **Performance-Based Procurement Approach** provides a method for owners to specify energy efficiency during the design team selection process, and competitively engage the marketplace for creative ideas on meeting performance targets within a set budget. Supporting this process through ECB requires owner outreach and engagement before a design team is engaged. The ECB program will provide guidance on best practices for performance-based procurement, and help owners set the appropriate energy performance target for their projects. The benefits are large, in that deep energy savings can be achieved for little or no additional cost. Efforts include education of new construction stakeholders on

performance-based procurement, including architects, design firms, engineers, and private and public building owners.

Performance-based procurement addresses some key challenges and barriers identified in the May 26, 2015 evaluation report prepared for the Energy Efficiency Board.⁶³ The evaluation report recommended increasing outreach efforts to individuals involved with new construction projects to increase participation in the ECB program. The evaluation determined that current outreach approaches are “time intensive.”

The Performance-Based Procurement Approach addresses this issue by requiring the design community to meet energy performance targets in their project proposals in order to compete successfully to be selected for project design. This approach provides a market incentive for innovation in high-efficiency performance, rather than relying on broad education to the design community with hopes that designers will incorporate best practices.

- **The System Specific Approach** focuses on one or two aspects of a building’s energy systems during new construction, a remodel, or a change in space use. The Companies encourage customers to think broadly as systems are frequently interrelated and may be more economical to install when walls and ceilings are open or down, or large equipment is being installed. Projects often involve control options for systems such as lighting, refrigeration, building management, industrial process or specialized equipment, or non-typical application of common equipment or controls." Customers who select the System Specific Approach will receive prescriptive incentives for each measure for which one exists, or custom incentives for site or use-specific measures.

Again, the advent of new code-driven baselines will figure prominently in the Companies’ activities as they engage the AE&D community and various systems-oriented trade ally alliances.

- **The Custom Approach** is designed to facilitate creative and deeper energy savings in systems of a new construction or major renovation project. Custom projects rely on engineering calculations to estimate energy savings and evaluate whether or not a project is cost-effective and, as a result, eligible for financial incentives. The custom option is designed to encourage non-standard energy-efficiency measures and allows customers to request a technical assessment of measures of their own choosing that are not on the prescriptive list.

⁶³ C2O: Energy Conscious Blueprint 2013-2014 Process Evaluation: Program Year April 2013 to March 2014.

This option allows for a more comprehensive and creative consideration of projects that are more complex than the prescriptive option allows, but involve less than a whole building design. It also encourages and rewards customer initiative and creativity. Often the savings generated by these measures are site and end use-specific, and thus a detailed analysis is required to qualify them for incentives. Project viability, eligibility, and incentives are assessed on a case-by-case basis, and are determined by a technical study which details energy and demand savings, and project costs. The study is conducted according to program specified procedures and is subject to review and approval by the Companies. The baseline standard practice against which each proposal is judged, is determined on a case-by-case basis, using such resources as: building energy codes, current baseline studies and other market research, program experience with similar projects, as well as utility or public program experience from other comparable jurisdictions.

The measures eligible for the Custom Approach include, but are not limited to: lighting and lighting systems, shell measures, HVAC systems, water heating, motor systems, building envelope and refrigeration measures, and a variety of industrial process end uses. Incentives are related to a number of site or use-specific variables, total project costs, and associated savings. The Companies will engage Trade Ally Alliances and Association Partnerships and, as with the Whole Buildings Approach, strengthen program requirements with respect to, for example, modeling.

- **The Prescriptive Approach** is a standardized, streamlined solution for energy-efficiency incentive delivery. It allows customers to choose equipment from a pre-qualified list of measures and receive an incentive that covers a significant percentage of incremental cost (adjusted for consideration of market barriers, baseline construction practices and market transformation objectives). This approach is helpful for customers who have projects that are beyond the design phase, and perhaps are in actual construction or when a simple equipment substitution upgrade is available. Prescriptive measures can be included in new construction, renovation, remodeling, and equipment replacement projects.

Prescriptive measures are available for those technologies where the ECB program has enough data to predict savings with reasonable accuracy across all applications (as compared to counterpart technologies of lesser efficiency) on a portfolio basis. These technologies include, but are not limited to: lighting equipment and controls, unitary HVAC equipment, water heating equipment, chillers, motors, and variable speed drives, as well as food service equipment. This approach often serves as the customer's initial exposure to the program and, following an initial satisfactory experience; customers may choose the more sophisticated comprehensive or custom paths for subsequent projects.

Prescriptive incentive strategies can range from per unit incentives on such measures as high-efficiency commercial kitchen equipment, to tiered incentives based on size for measures such as rooftop air conditioning (and heating) units based on tonnage, mbtu/h, and efficiency metrics such as seasonal energy efficiency ratio (“SEER”).

Additional incentive strategies under consideration also include moving upstream of the customer or contractor to the distribution channels, providing incentives at the distributor or manufacturer level for stocking, and sale of high-efficiency heating equipment based on efficiency and output in mbtu/h, for example. This will require engagement of the new trade allies, perhaps at the regional or national level.

C&I Solution: Existing Buildings and Retrofit (Energy Opportunities)

Overview and Objectives

Energy Opportunities (“EO”) is an umbrella offering that provides an extensive menu of product incentives and ancillary technical services to encourage building owners to replace functioning, but outdated and inefficient equipment with premium-efficiency counterparts. This program provides a significant share of the Companies’ C&I savings, so program managers continuously monitor its performance and refine delivery approaches, the product mix, and incentive levels to reflect changing market expectations and evolving technologies.

EO is a mature program and as customers have experienced beneficial results from prior program participation and have become more aware of the variety of energy-saving investment opportunities available, the Companies have encouraged them to transition away from episodic equipment-based retrofit events and toward a planned series of building upgrades that will move their properties towards a “building renewal.” Like many other long-standing and successful retrofit programs, the Companies are finding that much of the easiest and less expensive savings opportunities on customer premises have been harvested. However, because the Companies have established trusted relationships with customers, built from successful project experience, the mix of the savings portfolio has shifted towards more sophisticated custom projects and fewer simpler prescriptive ones.

To broaden the penetration of existing, “simple-substitution C&I measures,” the Companies will be moving some of these measures, heretofore dealt with prescriptively at the customer level, upstream by providing wholesale incentives at the distributor and/or manufacturer level of the supply chain. In addition, as noted in the Customer Segmentation and Market Actions sections described above, the opportunity to develop new customer relationships and new projects by specifically targeting certain populations, “speaking their language,” and tailoring solutions to their specific needs can be expected to bear significant new fruit.

EO offers prescriptive incentives for a variety of widely-applicable electric and natural gas technologies, and a custom approach which focuses on unique opportunities that are customer, site, or process specific.

Prescriptive incentives whether upstream or at the customer level, are offered for measures that provide predictable energy savings in virtually all applications where they replace a similar technology of lesser efficiency. Incentives are available for a long list of electric and natural gas technologies – lighting equipment and controls, HVAC equipment, chillers, motors and drives, water heating, and commercial kitchen equipment. This commodity-based path often serves as

the customer's initial exposure to the EO program and may lead to more complex custom projects.

To identify and quantify custom opportunities, the Companies provide customers with expert technical assistance using both their own technical staff and subject matter experts drawn from a pool of prequalified expert private sector engineering consultants. To move customers to action once opportunities have been identified, the Companies offer financial incentives that are calibrated to match customer investment criteria. The overarching goal is to instill customer confidence in projections of project savings and the reliability of equipment performance, in order to make the financial investment attractive, and to provide a delivery process that makes the upgrade process as simple and seamless as possible.

Target Markets and Eligibility

The potential EO market is the entire stock of non-residential customers including, for natural gas measures, those who are on a firm rate. In addition to commercial buildings, this includes schools (K-12 and colleges and universities), public and institutional buildings and facilities (state and municipal buildings, water and wastewater facilities, hospitals, and a variety of not-for-profit enterprises, etc.), and industrial facilities (including factories, warehousing, agriculture, storage and processing, etc.), as well as common area spaces in multi-family buildings. The Companies' efforts at identifying key markets and sub-markets (see Customer Segmentation above), developing packaged solutions for them, and harnessing the market to augment existing staff and implementation contractor resources, are all critical new elements to moving from a single target market to a robust, customer-centric model.

The Companies serve approximately 70,000 electric and 35,000 natural gas commercial and industrial customers.⁶⁴ As the EO program has matured, and the Companies have deepened their focus on customer segmentation and market targeting, the associated offerings and delivery structures have become increasingly complex. All of the customer engagement channels described in Market Actions are used in delivering services:

- For large customers, with peak electric loads of greater than 300-350 kilowatts ("kW"), the Companies primarily utilize their internal staff of account managers and technical experts, supplemented with external technical support as required, to work alongside the customer to identify and deliver solutions. The Business Sustainability Challenge is particularly appropriate here, as is use of the Customized Solutions Partnership.

⁶⁴ Numbers represent customers. Customers may have multiple accounts.

- For mid-sized customers whose peak electric loads are in the 200-350 kW range, but are too numerous to be fully and expeditiously served directly by the Companies' staff, the development of deeper and richer trade ally relationships and association partnerships will be increasingly important. The use of third-party implementation vendors can be expected to increase in importance for the mid-market as well.
- For smaller customers with peak loads under 200 kW and who are also eligible for service by the Small Business Energy Advantage program, the combination of trade allies, association partnerships, self-service access to program information via the internet, and the Companies' customer engagement platforms' audit and guidance facilities, will all be deployed.

Program Theory and Description

The EO program targets customers who have functioning, but inefficient, energy-consuming equipment in their facility. The program uses a variety of sales and delivery strategies to educate customers about the true cost of continuing to operate inefficient equipment, including the "cost" of reduced customer or employee satisfaction with the building environment they experience. The program provides customers with information on the cost-saving and ancillary additional benefits of more efficient equipment, and then provides an easy path to the upgrade, including streamlined incentives and direction to a skilled contractor who can perform the work. In some cases all of these services are provided through turnkey service providers working under contract to and supervision by the Companies. In other cases, particularly with larger customers or property management firms, the outreach, sales, and service coordination is conducted by company's account managers.

The core elements of the EO program are the System-Specific, Custom, and Prescriptive approaches. Incentive structures may include a mix of prescriptive incentives for standard measures, custom incentives for complex measures or systems, or tiered performance-based incentives for overall improvement of whole building performance based on improvements in benchmarking or building energy rating score.

- **The System Specific Approach** focuses on one or two aspects of a building's energy systems. Program experts encourage customers to explore the life-cycle cost and non-energy advantages of early replace and retrofit of systems. In addition to technical support and access to the various financing options, customers who participate in the System Specific Approach will receive prescriptive incentives for each measure for which one exists, or custom incentives for site or use-specific measures.

- **The Custom Approach** develops and supports retrofit projects that rely on engineering calculations to estimate energy savings and evaluate whether or not a project is cost effective and, as a result, eligible for financial incentives. The Custom Option is designed to encourage non-standard, energy-efficiency measures and allows customers to request a technical assessment of measures of their own choosing that are not on the prescriptive list. This approach allows for a more comprehensive and creative consideration of projects that are more complex than the prescriptive option allows, but involve less than a whole building design. It also encourages and rewards customer initiative and creativity. Often the savings generated by these measures are site and end use-specific, and thus a detailed analysis is required to qualify them for incentives.

Project viability, eligibility and incentives are assessed on a case-by-case basis, and are determined by a technical study, which details energy and demand savings, and project costs. The study is conducted according to program specified procedures and is subject to review and approval by the Companies' technical staff. Custom retrofit measures may include, but are not limited to: lighting, shell measures, HVAC measures, water heating, refrigeration measures, and a variety of industrial process end uses. Incentives are related to a number of site or use-specific variables, total project costs, and associated savings.

- **The Prescriptive Approach** is a standardized, streamlined approach for energy-efficiency incentive delivery. It allows customers to choose equipment from a pre-qualified list of measures and receive an incentive that covers a significant percentage of incremental cost. Prescriptive measures are available for those technologies where the EO program has enough data to predict savings with reasonable accuracy across all applications (as compared to counterpart technologies of lesser efficiency) on a portfolio basis. These technologies include, for example: lighting equipment, variable speed drives, and water heating equipment. This approach often serves as the customer's initial exposure to the program and, following an initial satisfactory experience; customers may choose the more sophisticated comprehensive or custom approaches or paths for subsequent projects.

Incentive strategies include per unit rebates and upstream incentives to the distribution channels, for example, by providing incentives at the distributor or manufacturer level for the stocking and sale of LEDs.

Third-Party Vendor Relationships

With respect to EO in particular, the Companies have begun, and will continue, to be more aggressive in developing third-party vendor relationships to serve as sector specialists. Current examples include:

National Accounts

National Accounts increasingly dominate the retail and restaurant sectors. The Companies recognize that these national customers bring unique challenges in decision-making, but they also present substantial opportunities for large volumes of savings that can be replicated across multiple facilities. A current pilot is utilizing a third-party vendor with corporate-level contacts at National Accounts customers.

Grocery

As with National Accounts, the Grocery segment is a very specialized market with special circumstances, drivers and systems, distinct refrigeration and cooling loads, as well as LED lighting and EC Motor opportunities that bring tremendous savings opportunities. A current pilot is exploring the effectiveness of a comprehensive, grocery-specific audit methodology and the relationship between retrofit investment and improvement of the razor-thin profit margins in the sector.

Property Management

The Companies have begun to investigate the opportunity to develop initial building specific audits remotely, using providers of various “remote audit” tools and services for certain large, managed office and professional buildings, such as corporate headquarters, hospitals, and colleges and universities. It is expected that such remote audits, without requiring the investment of human and time resources in a physical, on-site audit, can serve to “triage” such buildings to identify specific buildings and systems ripe for further investigation and EO project development.

Specialty and Niche Opportunities

As discussed in the Customer Segmentation and Market Actions sections, there are certain niche markets – either business types or systems – of particular interest to the Companies for potential development over the term of the 2016-2018 Plan. Facilities such as commercial kitchens, dry cleaners, metal finishing shops, and the heat-intensive injection molding industry, use specialized energy-consuming equipment for which premium-efficiency alternatives are available and may prove to be cost-effective to the Companies and financially viable to customers.

District Heating Loops

During the June 2015 Legislative Special Session, Public Act 15-5 was passed, which included a section that allowed for energy savings resulting from connection to district heating loops that utilized waste heat to be eligible for incentives.

As such, the EO program will include incentives for connection to such District Heating Loops. Customers who connect on or after March 1, 2016, to a district heating system for heating purposes shall be eligible to receive an incentive based on such customer's projected natural gas demand reduction for the period of time that such customer commits to utilize the services of the heating system. The projected natural gas demand reduction shall be based on such customer's weather-adjusted historical usage data from the previous three years. The amount of the incentive will be calculated in the same manner as any other energy conservation measure that a customer installed with similar savings and measure life.

As part of the Companies' proceeding before the Public Utilities Regulatory Authority for authorization for funding for the 2016-2018 Plan, the Companies will request revenues to fund such incentive payments through a fully reconciling conservation adjustment mechanism ("CAM"), which will not exceed more than \$9 million dollars in total. This funding request would be in addition to revenues for the programs pursuant to section 16-245m of the Connecticut General Statutes. If funding in excess of \$2 million dollars is required to fund such incentive payments, the recovery will be over a period of not less than two years.

C&I Solution: Small Business Energy Advantage and Retrofit

Overview and Objectives

The objective of the Small Business Energy Advantage (“SBEA”) program continues to be to provide cost-effective, turnkey energy-saving services for small commercial and industrial customers who do not have the time, financial resources, or in-house expertise necessary to analyze and reduce their energy usage.

Historically the emphasis in describing the SBEA program has been on the core program of turnkey services with substantial incentives and no-cost, cash-flow positive financing for the balance. However, with the shift in focus to a customer-centric approach to doing the business of administering the C&LM programs, the Companies now also emphasize that SBEA-eligible customers may access a far larger number of discrete actions and initiatives, including the totality of special initiatives such as the engagement of the state’s Lead by Example and Energy Services Performance Contracting efforts under the SBEA Master Agreement, the National Accounts initiative, the grocery initiative, and the Companies’ mid- and upstream offerings.

Target Markets and Eligibility

The SBEA appears to be doing a sufficient job at serving all customer segments. Recently an evaluation revealed that SBEA participants and eligible customers were distributed similarly across market segments and corporate structures.⁶⁵

The target market for SBEA is customers of less than 200 kW of peak load and, for natural gas measures, who are on a firm gas rate. Because there are over 100,000 customers in the overall population, the greatest opportunities for these customers based on the Companies’ market segmentation analysis, are in the following market segments: Manufacturing (11 percent), Other—Agriculture, etc. (16 percent), Professional Services (23 percent), and Retail (32 percent).

Additionally, the Companies have identified several specific subsectors (see below) that could use further support from Trade Ally Alliances and other Market Actions. These subsectors have barriers that can include: geographic, linguistic, and available technical support directly from the Companies. As an example of a technical support barrier, the Companies may not understand the intricate details regarding the equipment utilized at a dry cleaner establishments. A Dry Cleaners Alliance can provide the expertise and understanding of this subsector, to help educate

⁶⁵ Applied Public Policy Research Institute for Study and Evaluation. *C10: CT SBEA Data Mining Report*. Dec. 15, 2014.

the Companies about new energy-saving opportunities in a dry cleaning facility. The following subsectors have been identified for the 2016-2018 Plan:

- **Dry Cleaners.** This subsector would potentially be supported by a sector-specific Trade Ally Alliance;
- **Manufacturing.** This subsector would be supported by the Compressed Air, Metal Finishing, and Injection Molding Trade Ally Alliances;
- **Food Service.** This subsector would potentially be supported by the Commercial Kitchens Alliance; and
- **Agriculture.** This subsector would potentially be supported by a sector-specific Trade Ally Alliance, including the Connecticut Farm Energy Program which is detailed in the Market Segmentation Agriculture section.

Furthermore, the Companies are considering the targeting of deployment of the network of turnkey contractors through “Main Street” pilots, a concept introduced in Massachusetts to canvass targeted neighborhoods including ethnic and under-served communities. This initiative may include higher incentives and/or relaxed financing criteria.

Program Theory and Description

The SBEA program is designed in recognition of how small businesses are structured and operate, and why they often do not participate in the Companies’ energy-efficiency programs. There are three “pillars” to the SBEA program: (1) Reach, (2) Expertise, and (3) Financial Support.

At its core, the “traditional” SBEA program will continue to see the Companies pay incentives for relevant energy-efficiency measures within cost-effectiveness constraints, and offer an interest-free financing option to credit-qualifying customers for the balance resulting in a cash positive scenario (where applicable). The financed contract amount appears as a line item on the customer’s electric bill. The loan repayment term, which is typically determined by the simple payback of the project, is set at a level which typically provides the customer with a positive or at least neutral annual cash flow based upon the estimated energy savings resulting from the installed measures.

Similarly, the customer cost for the portfolio of natural gas measures are financed as part of the on-bill repayment on the customer’s electric bill. Importantly, where amounts to be financed or when the simple payback of the measures exceed maximums established by the Companies, access to the same types of third-party financing facilitated by the Companies in the EO program

will be made available for those portions of the principal to be financed that are not eligible for zero-interest, on-bill financing.

However, given the sheer size of the SBEA population, the Companies will increasingly rely on different customer engagement channels as described in Market Actions and, relatedly, delivery channels as follows:

- For the largest of the SBEA-eligible customers, those of peak loads between 100 and 200 kW, the combination of Trade Ally Alliances, Association Partnerships, self-service access to program information via the internet, and the Companies' customer engagement platforms' audit and guidance facilities will all be available to customers who are not reached by SBEA's turnkey delivery vendors and/or have needs not met through the turnkey SBEA offerings.
- For the large population of mid-sized SBEA-eligible customers, those of peak loads between 10 and 100 kW of peak load, the Companies' networks of turnkey service providers can be expected to generate the majority of participation.
- For the micro-businesses of less than 10 kW of peak load, the ongoing development of internet resources and the Companies' customer engagement platforms are being developed to stimulate awareness, enable self-service assessment, and facilitate self-service access to prescriptive rebates and financing applications.

Offerings of the SBEA program include:

- Traditional SBEA turnkey services including installation of measures and on-bill financing;
- Trade ally and Association Partnership-driven participation in prescriptive elements of EO;
- Self-service access to prescriptive rebate materials via the web;
- Audit, self-assessment and guidance materials via the Companies' customer engagement platforms;
- Tailored service by sector-specialist implementation contractors as described above under EO (i.e., grocery and national accounts); and

- Leveraged participation by state entities through the Lead by Example initiative that utilizes the SBEA Master Agreement.

The SBEA program also includes an educational component to inform small business customers of the benefits that can be achieved through energy-efficiency efforts.

C&I Solution: Business and Energy Sustainability

Overview and Objectives

Business and Energy Sustainability (“BES”), seeks to integrate energy efficiency into day-to-day operations of C&I customers through services and niche products not appropriately addressed in ECB, EO, or SBEA. BES is a collection of initiatives, each of which can be utilized on a standalone basis, or under the SEM umbrella of the BSC as described immediately below, with the consistent objective of continuous improvement while striving for greater business and energy sustainability. Elements of the BES program are intended to serve as “feeders” to the incentive-oriented emphases of the ECB and EO programs, although services and incentives are offered and provide substantial benefits on their own.

The hallmark of the BES program, described below, is the Business Sustainability Challenge. The Business Sustainability Challenge has evolved as the premier example of how the Companies are reorienting from promoting individual programs to providing a customer-centric approach using the energy-efficiency sales principles as discussed above in the Market Actions section. The Business Sustainability Challenge was launched as an umbrella entry point for larger C&I customers to access the C&I Program Portfolio and, through integration with the Companies’ Customer Engagement Platforms, will evolve to provide such an umbrella entry point for all C&I customers. Coupled with the Companies’ ongoing market segmentation, tailoring customer engagement to specific defined target markets, and developing new while honing existing other Market Actions, the Business Sustainability Challenge becomes a potent end-to-end example of the application of the Companies’ evolving shift toward comprehensive, segment-driven programming. The Business Sustainability Challenge integrates all aspects of Strategic Energy Management through a structured process.

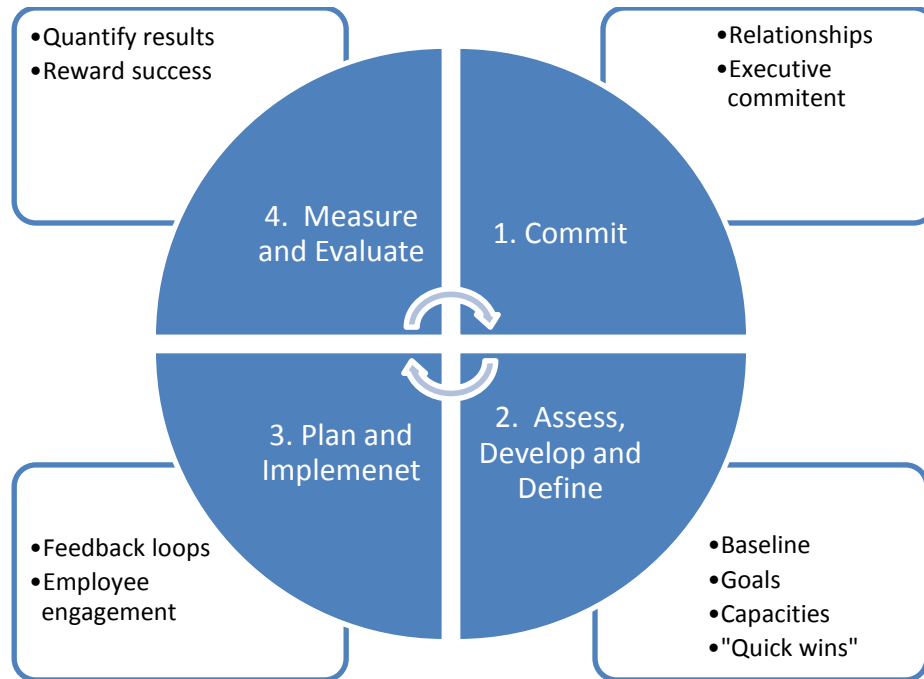
Business Sustainability Challenge

Introduction

The Business Sustainability Challenge (“BSC”) addresses energy efficiency in the context of sustainability and competitive business advantages making Strategic Energy Management (“SEM”) accessible, achievable, and profitable. The BSC provides third-party support to larger C&I customers through sustainability consultants and online support through the customer engagement platforms of the Companies to smaller C&I customers. Regardless of customer size or the means of engagement, the result is similar—development and execution of long-term plans and provisions of facility audits, or online assessments, to drive participation in the energy-saving services of the BES and the incentive offerings of the ECB, EO, and SBEA programs.

Figure 4-3 describes the Companies' SEM framework and how the BSC functions as the structured process to undertake it:

Figure 4-3: Strategic Energy Management as Facilitated by the Business Sustainability Challenge



Beginning with the establishment of relationships between the customer and the Companies, the BSC is built around a multi-year, executive-level commitment by participants. This leads to assessment of the baseline energy and sustainability condition of the subject facility, establishment of goals, and development of internal capacities while solidifying momentum by undertaking "quick win" actions. Over time, as the capacities are harnessed in pursuit of the established energy and sustainability goals, the participating customer builds in feedback loops and actively engages all employees so the BSC becomes "everybody's initiative." Finally, and critically, results are quantified by measurement and evaluation against both the customer's metrics and the Companies' evaluation, measurement and verification ("EM&V") protocols, and successes are rewarded.

It is important to recognize that although the BSC is the only vehicle currently available to "pull together all the pieces" of SEM, all offerings and services of the Companies are always available as appropriate to customers on an a la carte basis.

The Companies recognize the value of non-energy benefits, as well as continued public and commercial/industrial awareness and understanding of the Companies' programs, and how to

access and optimize their use. Addressing the intersection of energy and non-energy benefits is essential to making the Companies' programmatic offerings resonate with the C&I customer base. The BSC addresses energy needs in tandem with the other issues in the Connecticut business community such as overall competitiveness, regulatory pressures, workforce development, and sales growth.

The BSC is innovative. It helps each business develop a strategic carbon and energy management plan as a foundation, then it moves on to integrating issues like waste, water, materials, employee engagement, sales, and innovation with the overall goal of industry leadership through net-zero and net-positive operations. The BSC connects businesses with the resources they need to get on the path of continuous improvement toward sustainability and capture both energy savings and comprehensive non-energy benefits.

Target Markets

Moving from selling "programs" to meeting customer needs through the Companies' C&I Solutions as a whole, the BSC represents an option, or a "tool in the Companies' toolbox," that can serve as an entry point for all customers into the C&I Program Portfolio. It does so by presenting the C&I customer a solution that addresses overall competitiveness and profitability through a comprehensive approach to sustainability that is driven by energy savings and the energy-efficiency offerings of the Companies.

From a current starting point that addresses such segments as water/wastewater, manufacturing and universities, the BSC will evolve to provide each targeted market, or segment, a customized approach, materials, and pathways toward the overall goal of improving competitiveness through customer satisfaction (access and availability), performance improvements, and energy use reductions moving toward Net Zero Energy buildings. Progressive development of targeted markets addressed by the BSC will be ongoing, with the goal of a finer level of granularity.

Programmatic Offerings

Participating large- and medium-sized customers can today receive individual assistance through selected technical and strategy consultants, and the smaller and micro customers will receive online tools and calculators to obtain their energy and sustainability goals via the Companies' Customer Engagement Platforms (see Chapter Six for more detail). All customer segments are eligible to share best practices and opportunities for collaboration through peer roundtables organized by segment, such as: manufacturing, higher education, health care facilities, and water/wastewater facilities. Through the roundtables, businesses can share ideas and begin to

develop collaborations that help them tackle trickier issues like renewable energy, cost-effective recycling, and material recovery.

In the first year of its existence, 2014 into 2015, over 20 companies joined the BSC and are currently working together through the roundtable programming. Beyond energy and carbon improvements, recently two of the larger neighboring companies, a public water company and a global manufacturer, are exploring sharing a waste and recycling hauler. Additionally, five universities are working toward an organic waste collaboration and potentially joint investment in an anaerobic digester system.

At a recent water and wastewater customer roundtable in June 2015, an anecdotal evaluation was conducted, and the following responses to the question “What did you find most helpful?” were collected. Responses included:

- Sharing information and experiences;
- Strategic planning tools/exercises;
- Open talks;
- Having the CT DEEP/EPA/Utility in one room;
- Networking;
- Utility company contact;
- Sources of information;
- Audits;
- Reevaluation/review energy audit;
- Action plan;
- Policy creation; and
- Evaluation processes.

The facilities listed the following as the “take away” points:

- Get audit;
- Review audit for items that can be done;
- Using audits as benefits;
- Evaluating plants;
- Set action plans;
- Work with staff to review training/awareness;
- Alternate energy; and
- Create goals.

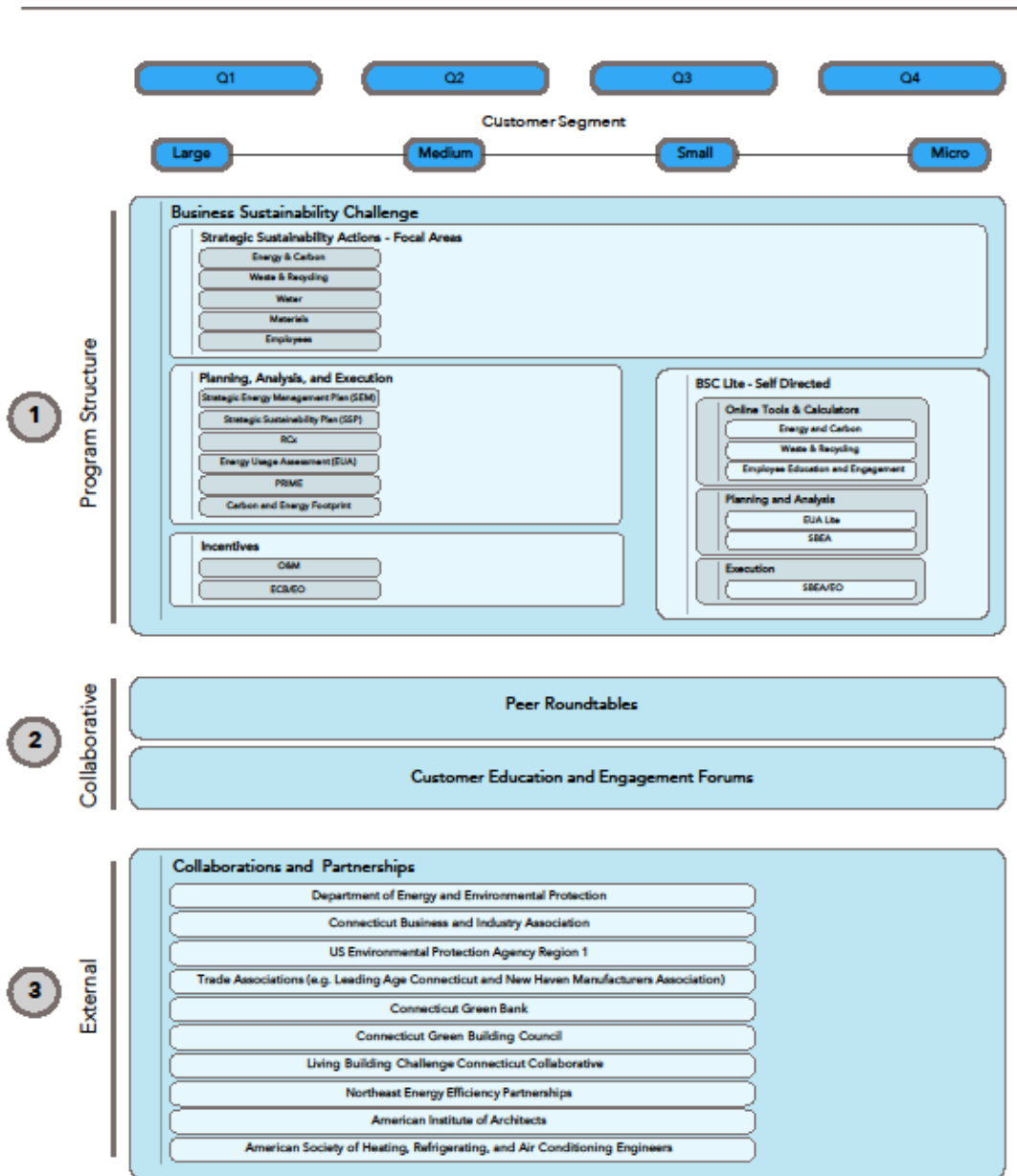
The BSC is not traditional energy-efficiency programming. It is building a culture of broader and deeper energy and carbon gains through business competitiveness and cooperation that can access literally all of the Companies' C&I Program Portfolio, and across all size quartiles and all segments or targeted markets as depicted on the next page in Figure 4-4.

As the graphic illustrates, BSC is designed to be accessible by customers of any size and integrates all programmatic offerings for all segments or target markets. At the top, the customer sizes by quartile or description indicate that there is a spectrum of services and ways for customers to utilize BSC shown left to right in blocks one to three below from largest customers to smallest.

Block one illustrates the holistic nature of the BSC approach for all sizes and types of customers by addressing five focal areas of sustainability: energy, waste, water, materials, and employees. Planning, analysis, and execution support for the larger customers can include any of the following offerings of the Business and Energy Sustainability program: sustainability planning, retro-commissioning, operations and maintenance ("O&M") services, energy usage audits, PRIME, and development of a carbon and energy footprint. From this the larger customers then also have access to the incentive opportunities provided by the ECB and EO programs. For smaller customers, similar services and tools, including access to the EO and SBEA programs are available, largely driven by online tools in conjunction with the Companies' CEPs.

Blocks two and three illustrate the various personal outreach and engagement platforms from both a business-to-consumer and business-to-business standpoint available to all customers. The Companies have had initial success with direct engagement of customers (business-to-consumer) through segment or target market-specific peer roundtables and educational forums as described above, and will continue to develop such offerings to address more and more target markets. This is shown in block two. Similarly, block three illustrates that the Companies will continue to build out their efforts in engaging on a business-to-business basis via trade ally alliances and association partnerships.

Figure 4-4: Business and Energy Sustainability



Target Markets and Eligibility

BES is a highly specialized set of offerings specifically targeted to the identified target markets, although elements of BES can be effectively utilized by all C&I customers with peak loads greater than 200 kW and, for gas services and incentives are on a firm gas rate.

Program Offerings and Incentives

Energy Usage Audits (“EUA”)

The Companies have developed a standardized approach to facility audits that is geared toward being more action-oriented and holistic than the myriad audits delivered by market providers. Using a select group of auditors selected through a competitive solicitation process customers are provided audits with costs shared between the Companies and the customer. The cost-sharing model limits participation to those customers who are serious about investing in the greater competitiveness and sustainability the Companies’ other BES offerings and programs provide. As part of the action-oriented nature of the programs, and to emphasize the intent of the EUA to generate additional energy-saving participation in other offerings, the Companies provide reimbursement of up to the full customer contribution. This is based on energy savings from participation in other offerings and programs, in addition to the services and incentives already provided by them.

Process Reengineering for Increased Manufacturing Efficiency (“PRIME”)

Specifically targeting Connecticut’s manufacturing sector, PRIME engages manufacturers in a systematic approach to evaluating and identifying inefficiencies and waste in their operations. The PRIME program provides businesses with training in “lean manufacturing” techniques in order to streamline product flow, eliminate or reduce waste, improve production efficiency, minimize environmental impact, and reduce electrical energy consumption. Following a site-survey by one of the Companies’ lean manufacturing vendors (selected by a competitive solicitation process), participants are eligible for equipment-oriented incentives through the ECB and EO programs, as well as lean manufacturing training funded by the Companies based on the estimated energy savings associated with such training.

Retro-Commissioning and Continuous Commissioning

The Retro Commissioning program (“RCx”) identifies energy savings in existing commercial and industrial buildings by improving the operation of a building’s management system (“BMS”). As buildings age and occupancy changes, it is important to maintain the building’s control strategies and operating procedures. With malfunctioning and outdated control logic, a BMS often consumes more energy and operates at less than peak performance. RCx engineering vendors

(selected by a competitive solicitation process) conduct an initial assessment funded in part or in whole by the Companies.

If warranted and upon approval by the customer, the RCx engineering firm uses a structured process to document how a facility should be operated to maximize energy-saving opportunities that improve the facility's overall performance in a detailed RCx implementation plan, the development of which is co-funded by the Companies. Additional incentives are available to implement the recommendations as defined by the ECB and EO programs, or on a custom basis in relation to costs and savings for other measures not addressed by the ECB and EO programs.

Related to RCx, the Companies are exploring development of "RCx-lite" services at a lower cost to larger customers and via their Customer Engagement Platforms for smaller customers. In addition, the Companies are exploring vendors and their technologies to provide monitoring-based or continuous commissioning ("CCx") to ensure that once optimized, buildings continue to operate at the newly established, higher level of performance.

Operations and Maintenance Services

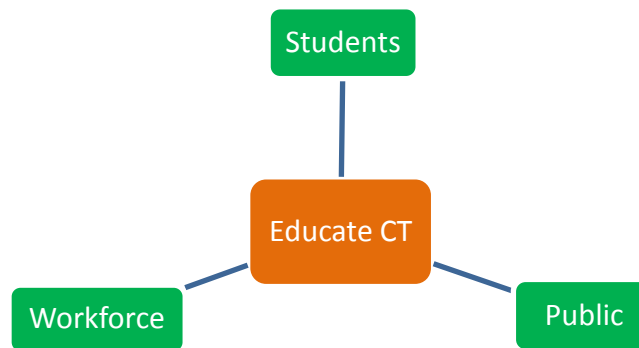
In contrast to capital investment-oriented upgrades such as those provided by the ECB and EO programs, O&M Services enables customers to improve the electrical and thermal efficiency of their operations by changes and repairs to existing infrastructure. The Companies' staff, and/or contracted vendors, will partner with the participating customer's internal or external human resources to identify energy-saving opportunities and support their implementation with custom incentives related to the costs and savings associated with the improvements.

CHAPTER FIVE: EDUCATION AND OUTREACH PROGRAMS

EDUCATION & OUTREACH

In 2016-2018, the Companies will realign their educational and community programs into a comprehensive platform addressing three priority objectives: (1) educating children and students, (2) educating and developing the workforce, and (3) empowering the community through innovative and targeted outreach. The revised Education and Outreach program platform (“Educate CT”) will act like a “Three Legged Stool” with each of the three priority objectives listed above serving as the “legs.” The Companies will effectively manage educational and outreach programs to this business model so that resources and efforts are equally distributed; thus ensuring programs are successful and all objectives are achieved.

Figure 5-1: 2016-2018 Educate CT Platform



The key components of the Companies’ strategy for community engagement will be the Clean Energy Communities program, the Energize Connecticut Center and Museum Partnerships program which are focused on educating and engaging the public, the K-12 Education program to engage students and children, and workforce development partnerships and initiatives. This integrated approach allows the Companies to highlight their positive impact on Connecticut’s communities and stakeholders including: business organizations, clean energy task forces, commercial businesses, environmental organizations, facility managers, K-12 students and educators, municipalities, museums and educational centers, residential customers, small business customers, technical high schools, and institutions of higher education.

Educate the Public

In 2016-2018, the Companies will expand the Clean Energy Communities program to create resilient, sustainable communities. Communities in Connecticut and across the nation face extraordinary complex challenges while trying to become resilient, efficient, and sustainable communities. The Companies are uniquely positioned to support municipal leaders and communities partners thanks to their long-standing working relationships, both internally and externally. Therefore, the Companies are able to help Connecticut's municipalities respond to these challenges and proactively collaborate to develop a comprehensive strategy for success. The Companies will focus their efforts on the program's Sustainable-Energy Community Strategy which is detailed further in Chapter Five.

Starting in 2016, the Clean Energy Communities program will focus on delivering its Sustainable-Energy Community Strategy which includes establishing an Executive Commitment to the program, with the town manager, first selectman, or mayor serving as the "executive." Once the Executive Commitment has been made, the Companies and the municipality can collaborate in developing a strategy that best supports each unique community in becoming resilient, efficient, and sustainable. The Sustainable-Energy Community Strategy will be supported by three programmatic pieces: (1) establishing achievable goals, (2) devising measurement tools that can track and report successes, and (3) continuing the program's reward and recognition mechanisms for communities who meet their goals.

Recently opened in April 2015, the Energize Connecticut Center serves as the primary educational and outreach center for Energize Connecticut outreach, programs, services, trainings, workforce development, and educational workshops/seminars. Located in North Haven, Conn., this state-of-the-art educational facility will serve as an indispensable resource for the 2016-2018 Energize Connecticut community, education, and outreach engagement programs. Other venues which are leveraged to target energy and science, technology, engineering, arts and technology ("STEAM")-related education to the public, include Energize Connecticut's museum partnerships, such as the Connecticut Science Center, the Discovery Museum, the Stepping Stones Museum for Children, and the Connecticut Resource Recovery Authority's Trash Museum.

Educate the Students

In 2016-2018, the Companies will continue their successful educational platform, the K-12 Education program, to effectively work with Connecticut's educational community. The objective of the program is to introduce and facilitate efficient and clean, renewable energy curriculum, with a focus on STEAM-related concepts which align with state and national standards and

frameworks, to children and students throughout Connecticut. The K-12 educational program's community resources include: grade-specific lessons and activities, guided school tours at the Energize Connecticut Center, ongoing partnerships with Connecticut science centers and museums, and professional development for K-12 educators.

Educate the Workforce

The Companies successfully conducted numerous educational outreach, trainings, and work force development workshops during the 2013-2015 Plan. Therefore, the Companies recognize and embrace the tremendous value in maintaining their ability to create a highly-skilled, trained, and educated workforce for the energy-efficiency and renewable energy industries. In 2016-2018, the Companies will continue to offer educational outreach, workforce trainings, and development workshops to create a competitive workforce to support Energize Connecticut programs, services, and incentivized technologies; thereby helping to create a thriving market and supporting market transformation for energy-efficiency products and services. From technical trade-aligned programs to Energize Connecticut contractor technicians, the Companies understand that educating today's and tomorrow's workforce on energy-saving and renewable technologies will drive participation and savings, all while ensuring a positive customer experience with Energize Connecticut programs.

Table 5-1: 2016-2018 Educate CT Platform Annual Budget

Educate the Public	Total
Clean Energy Communities Programming	\$ 1,000,000
Energize Connecticut Center Operations	\$ 614,768
Other Museum Partnerships	\$ 200,000
Companies' Overhead Costs	\$ 681,242
CTHSS Strategic Energy Management	\$55,000
Higher Education Strategic Energy Management	\$ 200,000
TOTALS	\$ 2,851,010
Educate the Students	Total
<i>eesmarts</i> Programming (Professional Development)	\$ 422,000
Project Learning Tree MOU (CT Forest & Park Association)	\$ 3,600
eeEvents	\$ -
<i>eesmarts</i> Student Contest	\$ 10,000
CT Science & Engineering Fair	\$ 5,000
Company Overhead Costs	\$ 163,519
CT Green LEAF Schools Coordination	\$ 40,000
TOTALS	\$ 644,119
Educate the Workforce	Total
CT Clean Career Tech Program - Program Management (CBIA)	\$ 60,000
CT Clean Career Tech Program -Workshops, Trainings & Events	\$ 20,000
E-House Openings	\$ 10,000
E-House Upgrades	\$ 60,000
Higher Education Initiatives and Trainings	\$ 100,000
Companies' Overhead Costs	\$ 93,847
CT Green LEAF School Benchmarking	\$ 120,000
Procurement-Based Practices	\$ 95,000
TOTALS	\$ 558,847

COMMUNITY ENGAGEMENT AND EDUCATING THE PUBLIC

Clean Energy Communities

Success and Background

For the past five years, the Companies have worked closely together to create a strong community outreach program that effectively works with the municipal community: the 169 towns and cities across Connecticut. The Clean Energy Communities program, and many of its initiatives, have been nationally recognized by the US DOE. In 2012, the Companies helped launch the Clean Energy Communities program with the vision of all of Connecticut's 169 municipalities committing themselves to reduce their municipal building energy consumption, increasing their municipal buildings' use of renewable energy sources, and empowering their internal communities of businesses, residents, and municipal officials to participate in Energize Connecticut programs.

Shaped by municipal benchmarking initiatives, conversations with clean energy task force members, hosting stakeholder and public input sessions, and meetings with community organizations and leaders, the Companies designed a new community outreach program model: the Clean Energy Communities program. The Companies established two visionary objectives for the program: (1) to engage communities in reaching for lofty energy-efficiency goals of decreasing municipal building energy consumption 20 percent by 2018, and (2) increasing community-wide participation in Energize Connecticut programs. The Companies envisioned a robust community outreach platform that would engage various community members, from businesses, clean energy task forces, municipal officials, and environmental groups, to work together to make their communities more energy efficient.

In 2016, the Clean Energy Communities program will celebrate its fifth-year anniversary of community engagement; with the program's original visions having become realities. Since 2012, over 141 Connecticut towns and cities have taken the challenge of become a Clean Energy Community. Program successes can be seen in the distribution of multiple Bright Idea Grant rewards to municipalities, a streamlined online participation tracking database, and multiple examples of successful community-wide events and marketing campaigns that have engaged businesses, residents, and municipalities in energy programs.

Due to the Clean Energy Communities program's outreach, participation in Energy Efficiency Fund programs, such as HES and SBEA has increased. The Companies will continue to promote the Clean Energy Communities program to the remaining unsigned towns and cities throughout 2016-2018. The Companies will continue to assist municipalities in identifying potential energy-

saving projects or programs that can be funded by their Bright Idea Grant rewards. Furthermore, the Companies will continue to develop and support community engagement campaigns to increase awareness of HES, SBEA, the Business Sustainability Challenge, and other Energize Connecticut programs as requested by community partners.

Target Market and Segmentation

The Clean Energy Communities program provides education, training, and targeted outreach to business, municipal, and residential customers to promote energy efficiency, energy conservation, and sustainable buildings and processes. The 2016-2018 Clean Energy Communities program will target sub-communities within existing Clean Energy Communities. This includes outreach, training, and technical support to a Clean Energy Community's commercial entities, the business community, houses of worship, non-profits, small businesses, and universities.

Program support will include helping target markets benchmark their energy usage, create Energy Action Plans, and attain their energy reduction goals. Thus, the Clean Energy Communities program will help drive business, education, and faith communities to follow their municipality's lead by example initiatives. Throughout 2016-2018, the Clean Energy Communities program will continue to provide both financial and technical support for Connecticut's 169 municipalities in achieving 20 percent energy reductions in both municipal and board of education buildings by 2018.

Sustainable-Energy Community Strategy

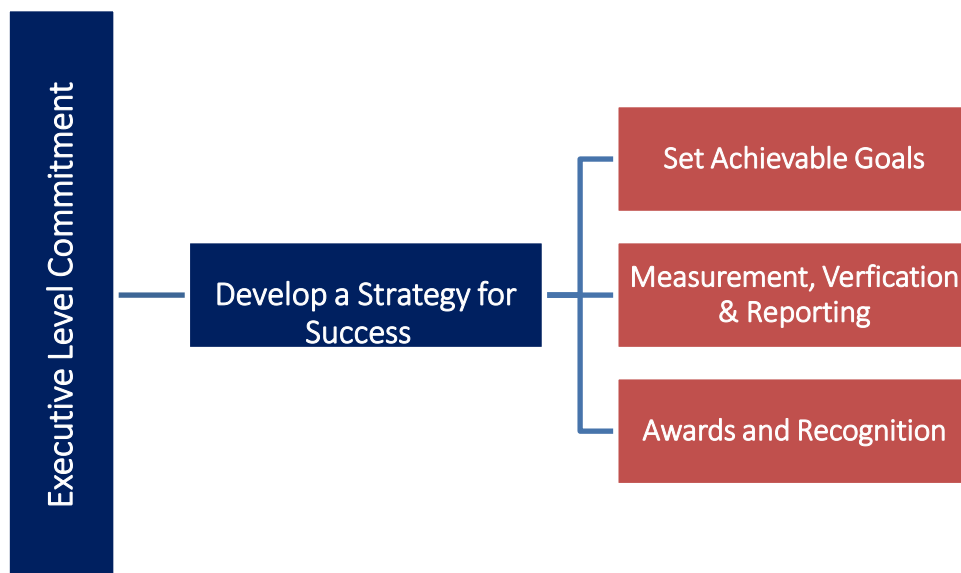
In 2016, with a majority of the state's municipalities and stakeholders participating, the Clean Energy Communities program will expand its programmatic efforts to create resilient, sustainable communities. The Clean Energy Communities program is uniquely positioned to help Connecticut's communities face the extraordinary, complex challenges that arise for towns and cities trying to become resilient and efficient communities.

The Clean Energy Communities program helps DEEP, the Energy Efficiency Board, and the Companies meet and exceed statewide energy-efficiency goals by achieving large reductions in annual electric, natural gas, and fuel consumption on a community-wide basis. The program was effectively designed to form strong partnerships between like-minded organizations, town officials, and various stakeholders within a municipal community. These partnerships collaborate together toward common energy goals of energy reductions, natural gas conversions, and the adoption of clean renewable energy sources.

The Clean Energy Communities program serves as a marketing channel and education conduit to the sub-communities of its participating municipalities, including: businesses, churches, environmental groups, non-profits, municipal officials and staff, and residents. By increasing community-wide awareness of Energize Connecticut programs, the Clean Energy Communities program helps both to support and further the state-mandated goals of comprehensive statewide energy reductions.

Beginning in 2016, Clean Energy Communities will focus its programmatic delivery through the newly established Sustainable-Energy Community Strategy. Detailed below in Figure 5-2, the Sustainable-Energy Community Strategy's foundation starts with an executive commitment from a community's leaders: the first selectman, mayor, and/or town manager. Once a formal executive commitment has been made, the Companies, DEEP, and the Energy Efficiency Board work with community-wide stakeholders to develop energy goals for the municipality. The Clean Energy Communities program encourages the realization of these goals through three key support structures: (1) helping the municipality establish achievable goals, (2) identifying measurement tools to track and report the community's successes, and (3) maintaining an incentive mechanism to reward communities for accomplishing short-term and long-term energy goals.

Figure 5-2: Sustainable-Energy Community Strategy



The Sustainable-Energy Community Strategy empowers business professionals, community leaders, educators, and residents by arming them with knowledge. This knowledge includes: how buildings operate and use energy, which technologies are the most efficient, how to benchmark energy consumption, the benefits of energy efficiency, and what Energize Connecticut programs

and services are available to help these entities reduce their energy use. The Clean Energy Communities program has a proven track record in providing a successful framework for communities to align innovative energy solutions, progress local policies, and quantify energy strategies to achieve sustainable goals.

The Clean Energy Communities program works with the entire community, partnering the grassroots (individuals, energy task forces, and community organizations) with the grass tops (municipal leaders/staff and large commercial entities). The primary strengths of the Clean Energy Communities program are its overarching goals for education and community-wide involvement in energy-efficiency campaigns, programs, and services. By developing community outreach campaigns in partnership with key players, program participation multiplies due to a sense of civic duty and involvement. Increased participation results in aggregated community energy savings, behavior modifications, and project replication.

Clean Energy Communities Model

To participate in the Clean Energy Communities program, the municipality's executive (mayor, first selectman, and/or town manager) must sign a pledge committing the municipality to meet energy efficiency and renewable energy goals by 2018. Municipalities agree to reduce municipal building energy consumption 20 percent by 2018, according to the following schedule:

- July 1, 2015, to June 30, 2016: 14 percent reduction;
- July 1, 2016, to June 30, 2017: 17 percent reduction; and
- July 1, 2017, to June 30, 2018: 20 percent reduction.

In 2016, the Clean Energy Communities will introduce a new concept, "Community Levels," to help categorize communities based upon their progress and program achievements in becoming resilient, sustainable communities. The four Community Levels include: Bronze Community, Silver Community, Gold Community, and Sustainable-Energy Community. As referenced in Table 5-2, Connecticut's Clean Energy Communities will be sorted by their progress in the following metrics: Energy Efficiency Fund program participation and promotion, energy benchmarking and reporting, energy reductions achievements, and ENERGY STAR rating qualifications.

The Clean Energy Communities program intends to assist the communities by helping to transition municipalities through the Community Levels in order; with an ultimate goal of helping all Clean Energy Communities achieve the "Gold Community" Level designation or better by the end of 2018.

Table 5-2: Clean Energy Community Levels

	Bronze Community	Silver Community	Gold Community	Sustainable Energy Community
Attributes of Clean Energy Community	Clean Energy Communities Pledge signed	<ol style="list-style-type: none"> 1. Establish Energy Task Force 2. Engage in community awareness of energy efficiency 3. Earn First Bright Idea Grant 4. Start EPA Portfolio Manager Account and enter 1 FY data 5. 10% Residential Program participation 6. 10% Commercial Program participation 	<ol style="list-style-type: none"> 1. Benchmark 100% Data from Municipal and Board of Education buildings in EPA PM 2. Redeemed first Bright Idea Grant for energy-saving project or program 3. Completed outreach campaign for residential and/or business community 4. Achieve 20% Residential Program participation 5. Achieve 15% Commercial/SBEA Program participation 	<ol style="list-style-type: none"> 1. Developed a Municipal Action Plan (MAP) 2. Audited 100% Municipal and Board of Education buildings with C&I engineer 3. Achieve 20% energy reduction (CEC pledge) 4. Engaged in continuous outreach energy efficiency campaign 5. Integrated eesmarts curriculum in schools 6. Implementing MAP recommendations 7. Redeemed Second Bright Idea Grant 8. Achieved 30% Residential Program participation 9. Achieved 20% Commercial Program participation
Support Services Offered	<ul style="list-style-type: none"> · Present at Town Hall meetings · Assistance in setting up Energy Task Force <ul style="list-style-type: none"> - Press release templates - Attend/project ETF guidelines - Establish point of contact - Monthly meetings · Basic energy efficiency outreach/mailings <ul style="list-style-type: none"> -Drafting letters, graphic design, town correspondence · Basic event support · Create Portfolio Manager Account · Establish baseline year and benchmarking goal · Develop Energy Reduction Plan 	<ul style="list-style-type: none"> · On-site technical benchmarking · Portfolio Manager training and support · Residential outreach campaign set up · Town-wide communications · Bright Idea Grants earned · PR/Media support · Special projects, campaigns and event support · Energy Education curriculum trainings 	<ul style="list-style-type: none"> · Program participation reporting · Recognition of community promotions, energy reductions, and accomplishments · Press releases, media and social media · Coordination of community engagement · Deeper measures outreach campaign · Event set up and support · District-wide eesmarts and Project Learning Tree training and materials 	<ul style="list-style-type: none"> · Energize campaign · Greenhouse Gases Accounting to establish carbon footprint of the community · Resiliency and Adaptation Plan · Micro Grid Feasibility Study · Wastewater management services
Achievements Required to Advance	<ol style="list-style-type: none"> 1. Establish Energy Task Force 2. Engage in community awareness of energy efficiency 3. Earn First Bright Idea Grant 4. Start Portfolio Manager Account and 1 FY data 5. 10% Residential Program participation 6. 10% Commercial Program participation 	<ol style="list-style-type: none"> 1. Benchmark 100% Data from Municipal and Board of Education buildings in Portfolio Manager 2. Redeemed first Bright Idea Grant for energy-saving project or program 3. Completed outreach campaign for residential and/or business community 4. Achieve 20% Residential Program participation 5. Achieve 15% Commercial Program participation 	<ol style="list-style-type: none"> 1. Developed a Municipal Action Plan (MAP) 2. Audited 100% Municipal and Board of Education buildings with C&I engineer 3. Achieve 20% energy reduction goal (CEC pledge) 4. Engaged in continuous outreach energy efficiency campaign 5. Integrated eesmarts curriculum in schools 6. Implementing MAP recommendations 7. Redeemed Second Bright Idea Grant 8. Achieved 30% Residential Program participation 9. Achieved 20% Commercial Program participation 	<ol style="list-style-type: none"> 1. 50% Municipal and Board of Education buildings (if eligible); Achieve ENERGY STAR Ratings; or 20% EUI reduction from CEC baseline year (if ineligible) 2. Establish Commercial Building Energy Reporting Policy 3. Promote Department of Energy Home Energy Score 4. Regularly Updating MAP with new projects 5. Regularly Updating EPA PM Account

Bright Idea Grants

Once qualified as a Clean Energy Community, a municipality can earn energy-efficiency points that can be redeemed as Bright Idea Grants toward funding energy-saving projects or programs. Bright Idea Grants are given in \$5,000, \$10,000, and \$15,000 increments based on a municipality's population size. They can be used toward energy-saving projects and programs within the community, including municipal building improvements and energy conservation campaigns.

To qualify for a Bright Idea Grant, a city or town must earn 100 energy-efficiency points through the Clean Energy Community's participation in Energy Efficiency Fund programs. Municipalities can earn energy-efficiency points in the following manner:

- 6 points awarded for every 1 percent of households participating in Energize Connecticut programs, such as Home Energy Solutions, Home Energy Solutions-Income Eligible, and Residential New Construction. Participation is retroactive back to January 1, 2010;
- 4 points awarded for every 1 percent of households who redeem rebates for energy-efficient technologies, such as HVAC equipment and appliances. Participation is retroactive back to January 1, 2010;
- 4 points awarded for every 1 percent of commercial or municipal entities who participate in Energize Connecticut business or municipal programs, such as Small Business Energy Advantage, Business Sustainability Challenge, Energy Opportunities, and Energy Conscious Blueprint. Participation is retroactive back to January 1, 2010; and
- 1-10 points will be awarded as Special Project Points for communities hosting or promoting special energy projects or programs, such as Lead by Example, district-wide participation in the K-12 Education program's offerings, and energy-saving outreach/campaigns. Special Project Points are retroactive back to January 1, 2012.

All points are tracked on the Clean Energy Communities dashboard and updated monthly on www.EnergizeCT.com.

Providing Technical Support to Municipalities

Through the Municipal Technical Assistance Benchmarking Initiative, the Companies will continue to offer financial and technical engineering assistance to help Clean Energy Communities benchmark the energy usage of their municipal and board of education buildings. Technical engineering assistance will include hands-on training regarding building analytics,

energy intensity reporting, and the US EPA Portfolio Manager Software. In 2016-2018, the Companies will continue to partner with their current benchmarking resources, to help municipalities gather energy usage data, update Portfolio Manager accounts, benchmark municipal and board of education buildings, generate Municipal Action Plans (“MAPs”), and participate in Energize Connecticut’s programs, financing, and services.

Municipalities can elect to utilize a baseline year for their energy benchmarking comparisons. These baseline year options include:

- Baseline Year 1: July 1, 2009 to June 30, 2010;
- Baseline Year 2: July 1, 2010 to June 30, 2011;
- Baseline Year 3: July 1, 2011 to June 30, 2012;
- Baseline Year 4: July 1, 2012 to June 30, 2013;
- Baseline Year 5: July 1, 2013 to June 30, 2014; and
- Baseline Year 6: July 1, 2014 to June 30, 2015

The Municipal Benchmarking Technical Initiative is essential in ensuring that municipalities commit not only to the Clean Energy Communities pledge, but take concrete steps toward achieving energy reductions by 2018.

Training for Municipalities

In 2016-2018, the program will work with its Clean Energy Communities to conduct energy management trainings for municipal staff. This training initiative is designed to empower Clean Energy Communities to continue their own ongoing benchmarking, track and report energy usage data, and to determine if the municipality is following its MAP to attain 20 percent reduction in energy consumption by 2018. This will result in a coordinated, streamlined approach for the Companies, all while increasing cost-effectiveness in program delivery.

This new training initiative will allow a Train-the-Trainer model to be implemented in highly-motivated Clean Energy Communities; thereby ensuring municipal and board of education facility managers can provide ongoing reports to the municipality’s board of selectman and board of education regarding how buildings are performing and energy-saving steps being taken. Initial trainings will be limited to two municipal staff per Clean Energy Community. The Companies will design a reward and recognition mechanism to create positive reinforcement among the Clean Energy Communities who wish to train municipal staff and/or clean energy task force officials. Certifications may include Certified Energy Managers (“CEM”) trainings or Green Professional Building Skills Training (“GPRO”) training provided by the U.S. Green Building Council.

Outreach Platform

In 2016, the program will continue to offer fun “Energy Saving” community engagement opportunities, referred to as “gamification offerings,” to Clean Energy Communities, energy task forces, and community organizations. Gamification offerings will be designed to encourage awareness of Energize Connecticut programs and services in a fun, interactive manner. This element of the Clean Energy Communities program will enhance community partnerships by incentivizing participation through reward-based mechanisms. Gamification offerings may include, but are not limited to: annual Clean Energy Communities Award Ceremony, community light bulb swaps, *eesmarts* Student Contest, Boy Scouts and Girl Scouts Energy Challenges, Business Sustainability Challenge, deeper energy measure promotions, and Summer Energy Scavenger Hunts.

Continuing in 2016, the Clean Energy Communities program will continue to offer recruitment advice support and training for Clean Energy Communities’ energy task forces. The Companies will continue to work with energy task forces to maintain monthly or bi-monthly meetings, and to facilitate regular reports and updates regarding the status of municipal benchmarking, attainment of MAP goals, Bright Idea Grant-funded programs and projects, and reports on the status of energy-saving projects. Promotional materials and support will continue to be provided to task forces to encourage Energize Connecticut program participation and outreach. On an as-needed basis, the program will offer additional training and technical support to Clean Energy Communities regarding emerging technologies, or new software that can support energy benchmarking requirements.

Community Network Coordination

An integral part of the Clean Energy Communities program’s success is its coordination with municipal departments to support town-wide promotions. Town-wide promotions start at the grassroots top with lead-by-example initiatives designed for municipal leaders and government officials to share their Energy Efficiency Fund program experiences with community stakeholders. These tactics increase knowledge of Energize Connecticut programs, like Home Energy Solutions, and awareness of deeper energy-saving measures such as high-performance insulation and high-efficiency lighting.

To support community outreach campaigns, the Clean Energy Communities team coordinates with key municipal department partners, such as: Social Services, Human Resources, the Department of Housing, Community Health, and local fuel banks to bring energy-saving programs to the various neighborhoods of the community. Additionally, the Clean Energy Communities team collaborates with business community partners, economic development

commissions, and chambers of commerce, to deliver business energy solutions and increase program participation. These outreach programs and coordinated canvassing efforts help drive program awareness to the correct community members.

Home Energy Solutions-Income Eligible Program Outreach

To increase customer awareness and participation in the Home Energy Solutions-Income Eligible program, the Clean Energy Communities will continue conducting neighborhood canvassing in targeted limited-income areas identified using census tract data. In the past, canvassing efforts have achieved considerable success in these communities: Bloomfield, Bridgeport, Hamden, New Haven, North Haven, and Waterbury.

For example, each summer in Bridgeport, the Mayor's Conservation Corps hires students to promote energy and money-saving programs to residents in targeted Community Development Block Grant ("CDBG") neighborhoods. The objective of the canvassing effort is to promote a streamlined message to Bridgeport residents, including: energy efficiency, renewable energy, as well as other city-sponsored programs in support of Bridgeport's BGreen 2020 initiative. More than 20,000 households are touched during the CDBG canvassing initiative.

Likewise, in New Haven, a similar canvassing effort exists with the city's Youth Conservation Corps to promote energy and money-saving programs to residents in targeted neighborhoods. Through the Youth at Work Initiative, which provides employment opportunities and work readiness activities to high-school students, the City of New Haven hires students to support a summer canvassing effort, much like the City of Bridgeport's Mayor's Conservation Corps.

An overall increase in program activity is observed as a result of Clean Energy Communities program engagement activities. The canvassing efforts directly tie to Home Energy Solutions-Income Eligible program participation, as well as other energy-efficiency programs promoted by the Clean Energy Communities program.

Home Energy Solutions Customer Engagement Outreach

During 2016, Eversource proposes to test some customer engagement tactics in an effort to increase HES program participation. The customer engagement pilots will be targeted to one or two communities in an Eversource dual fuel (electric/natural gas) municipality. Eversource is exploring the following tactics:

- **Loaner Program for Precision Temperature Monitors.** The proliferation of small, inexpensive and precise measurement devices are now ready to make their way into the home. It is now inexpensive and easy to precisely measure the temperature in a home

and to automatically transfer that information to the Internet Cloud. The proposed pilot will test how precision temperature monitoring in a home can be used to engage home and apartment occupants by helping them understand what their thermostat is really doing. Eversource proposes to supply these devices to entities such as local libraries for use by local residents.

- **Large Employee Engagement Contest.** The purpose of this pilot will be to test how and what employees really do as a result of a voluntary competitive game framework. Eversource plans to recruit three or four of Eversource’s large customer employers who will compete in an employee energy engagement contest. Contestants would be required to improve their energy efficiency at home and avail themselves of existing energy-efficiency program offers. Eversource plans to compare and contrast employee savings results at each company and declare an overall winner.

Regional Workshops

In 2016-2018, to cost-effectively reach as many task forces, municipal officials, and other energy organizations, the Clean Energy Communities program will offer ongoing monthly conference calls to keep clean energy leaders apprised of new program offerings, initiatives, and to answer Q&A regarding program processes. On a quarterly basis, the 2016-2018 program will offer webinars featuring select Clean Energy Communities to share best practices regarding smart energy topics, such as ongoing energy conservation campaigns, keeping volunteers motivated, progress toward 2018 goals, and use of Bright Idea Grants for energy-saving projects.

Energize Connecticut Center and Museum Partnerships

The objective of both the 2016-2018 Energize Connecticut Center and Museum Partnerships programs is to educate Connecticut residents about the importance of energy efficiency through educational centers, exhibits, and partnerships with museums. For several years, the Companies’ strategic partnerships with learning centers and museums have created a cohesive branding and educational opportunity for Energize Connecticut programs throughout Connecticut. The effort has three approaches:

1) EDUCATIONAL CENTERS.

- **Energize Connecticut Center.** An energy education learning center serving all ages, open since 2001 with a new location that opened in 2015.

2) MUSEUM PARTNERSHIPS. Developing energy education exhibits through strategic partnerships with museums:

- [Connecticut Science Center \(Hartford\)](#). Energy City Gallery open since June 2009; serving ages 5 to adult.
- [The Discovery Museum \(Bridgeport\)](#). Permanent energy gallery open since fall 2009; serving students ages 6-13.
- [Stepping Stones Museum for Children Students \(Norwalk\)](#). Permanent energy gallery, open since December 2010, serving students ages 3-10.
- [Connecticut Resource Recovery Authority, Trash Museum \(Hartford\)](#). Permanent energy and recycling exhibits open since fall 2012; serving students of all ages.

3) TRAVELING EXHIBITS.

- [Stepping Stones Museum for Children, Statewide](#). Conservation Quest™ Mini-Exhibit. Traveling energy exhibit touring nature centers, schools, and municipalities since fall 2009; serving students ages 3-10.

Energize Connecticut Center

Opened in April 2015, the relocated Energize Connecticut Center (“Center”) serves as a key component for Energize Connecticut’s educational and outreach programming for communities. Located in North Haven, Conn., this world-class educational resource facility integrates educational exhibits on commercial and residential energy-efficient technologies, energy conservation behaviors, and renewable energy sources. Strategically located along the central I-91 corridor, the Center serves as Energize Connecticut’s resource and training center for Connecticut’s communities, including: architects, business customers, designers, engineers, environmental groups, formal and informal educators, K-12 students, municipal officials and staff, and non-profit organizations.

The Center is an interactive, professionally staffed facility serving as a resource for promoting energy-efficient products, services, and ideas to educate customers. The educational facility features training sessions and seminars, special events, and tours geared toward teaching both adults and students about using energy wisely, while keeping an eye on the environment and not sacrificing comfort or style.

Visitors to the Center experience the complete story of energy. The experience begins with the fundamentals of energy, sources, electric connections and circuits, conservation, and energy-efficient tips for homes and businesses. Engaging displays focus on: energy sources, electricity

generation, the important role energy plays in our daily lives, and ways to use energy wisely at home, in business, and in the community.

- **Pedal Power! Bike Interactive.** Energy is work. Experience the work needed to power everyday items with energy-generating bicycles;
- **Plasma Ball.** Be part of the circuit and let the electricity flow with the plasma ball;
- **Energy Assessments.** If you've ever wondered what an energy assessment entails, we can show you!;
- **Watt's Up?** Watch the meter go as you turn on energy-wasting items that you would find in any average home, and learn how to keep that meter under control by paying attention to things like phantom power;
- **Hello, Lumens!** Lighting has come a long way and today, fewer watts do not mean less light. Learn how to choose lighting technologies to suit all your needs at the Hello, Lumens! interactive display;
- **Hand Crank.** Use your muscles to feel the difference between the amount of work it takes to power an incandescent bulb versus an energy-efficient bulb;
- **Energy Jeopardy.** After spending some time in the Energize Connecticut Center, you can test your energy smarts with Energy Jeopardy!; and
- **How Low Can You Go?** Track the energy use in your home with this popular stack game. Can you go lower by making different energy choices?

The Center features a rotating exhibit space that offers third parties the opportunity to feature new technologies, and a resource center with a database that connects visitors to additional information about energy-efficient and renewable technology details, contractors, Energize Connecticut programs and financing, utility resources, professional groups and associations.

Events, Seminars, and Educational Tours

As it has since 2001, the Center will continue to offer educational seminars to adults after work and on weekends on topics regarding energy efficiency and renewable energy. Available at no cost to contractors, non-profits, civic organizations, and groups for meeting space, the Center's

meeting space is capable of accommodating up to 100 adults and is equipped with a large projector screen, Wi-Fi, and conference call capability.

The Center's educational tours are aligned with the Companies' K-12 Education program lessons. Center educational tours promote energy educational topics to students in elementary, middle, high schools, technical schools, community groups, camps, and lighthouse programs. Educational tours are available to all age groups including Kindergarten to adult, and to schools, classes, and after-school groups, such as the Boy Scouts, Girl Scouts, and other civic organizations. Themes for Center tours include energy, energy efficiency, energy conservation, and alternate sources of energy. The tours showcase the Center's interactive displays, as well as hands-on inquiry lessons from the Companies' K-12 Education program that aligns with grade-level Connecticut State Frameworks, Next Generation Science Standards, the Common Core State Standards, and question and answer sessions.

The Center will host two major events per year, including Earth Day (April) and Family Science Day (October). The events are opportunities for adults and children to learn about energy-saving activities and home improvement opportunities in an effort to protect the environment, while incorporating fun for the whole family.

Staff

The Energize Connecticut Center staff provides a rich background in school operations management, education, and classroom management. They are also very knowledgeable regarding energy, energy efficiency, and home performance. The Center's staff builds relationships with energy and energy-efficiency partners for continued development and the strategic future of the Center's offerings.

EPA Change the World Tour 2016

In 2016, United Illuminating will begin working on an exciting partnership with the US EPA to support the organization's ENERGY STAR Change the World Tour. The 2016 tour will focus on LED technologies and community service-related events with partner organizations. To promote Energize Connecticut programs, United Illuminating will work with the US EPA to provide targeted educational programming on LED technologies to distressed municipalities in Connecticut. As planning continues for this exciting partnership, activities and special promotions, including the award-winning "The Great Lightbulb Exchange" will be held in North Haven, Conn., where the Energize Connecticut Center is located, and in neighboring municipalities.

Special educational tours for schools from distressed municipalities will be held throughout the week that the Energize Connecticut Center hosts the 2016 ENERGY STAR Change the World Tour. Participating educators will encourage their students to trade-in two inefficient bulbs (incandescent, halogen, or CFL) in exchange for two high-efficiency LED light bulbs. All educational programming, lectures, activities, and marketing materials will promote LED technologies and the ENERGY STAR brand. This will help provide publicity and awareness of the state's award-winning, energy-efficiency programs and educational/outreach initiatives.

Museum Partnerships Program

Over the last decade, the Companies have developed strategic partnerships with Connecticut's museums and science center communities to promote Energize Connecticut programs. The Companies' museum community partnership effort will continue in 2016-2018 with the Companies organizing strategic educational programming, sponsored Energize Connecticut Days, special exhibits, and K-12 professional development workshops for museum educators.

[Connecticut Science Center, Hartford, Conn., Energy City Gallery](#)

In November 2014, the upgraded Energy City Gallery, a model sustainable city that showcases exhibits on energy-efficient and clean, renewable energy technologies, debuted at the Connecticut Science Center. At the entrance to the Energy City Gallery, a Climate Change Theater features an interactive 20-minute presentation on climate change and its relationship to the way humans use energy. Exiting the theater, visitors travel through Greenslope, a model city that features exhibits on: sustainability, Home Energy Solutions, energy-efficient windows, insulation, the electrical grid, passive solar design, residential solar PV installations, energy-efficient appliances and LEDs, wind power, hydropower, fuel cells, real-time energy monitoring systems, day lighting, and occupancy sensors.

The K-12 Education program will continue to offer museum passes to eligible educators participating in professional development workshops.

[Stepping Stones Museum for Children, Norwalk, Conn., Energy Lab Gallery](#)

In November 2010, a permanent energy gallery, Energy Lab, debuted at the Stepping Stones Museum for Children ("Stepping Stones"). The 1,300 square-foot gallery is an immersive solar, wind, and water environment that sets the stage for children and adults to learn about the science of energy; its sources, uses, and emerging alternatives. Exhibits include: a water lab, a giant wind tunnel, a solar lab, an energy wall focusing on energy transformations and renewable/non-renewable energy sources, and a non-renewable tunnel allowing visitors to crawl below the surface of the earth to see the origin of fossil fuels.

The K-12 Education program will continue to offer museum passes to eligible educators participating in professional development workshops. Energize Connecticut will continue its sponsorship of Energy Awareness Month (October) activities, educational programming, *eesmarts* lessons, and phantom power promotions at Stepping Stones' annual Monster Mash.

In 2016-2018, Stepping Stones will begin planning for upgrading the Energy Lab Gallery, which is scheduled for completion by 2020. The Companies will explore expanding their museum partnership with Stepping Stones to support this project.

[Stepping Stones Museum for Children, Statewide. Conservation Quest™ Mini-Exhibit and Tour](#)

For the 2016-2018 Plan, Energize Connecticut will continue its partnership in supporting the Conservation Quest mini-exhibit tour. With over 15 hands-on activities and program ideas designed for students, the mini-exhibit utilizes portable demonstrations promoting energy conservation, energy efficiency, and renewable energy sources. This portable exhibit travels to more than 25 venues annually throughout Connecticut, setting the stage for K-12 students to learn about energy conservation through direct, hands-on experiences.

This tour is a free resource for Connecticut libraries, museums, and schools. The educational goals of the Conservation Quest Mini-Exhibit are:

- Explore what energy is and how we use it;
- Discover that some earth materials are limited and need to be conserved;
- Understand that the choices we make affect our health, and the health of our planet; and
- Be inspired to continue practicing energy conservation techniques.

[The Discovery Museum, Bridgeport, Conn., Energy Gallery](#)

In 2016, the Discovery Museum will complete the upgrade of its Energy Gallery and exhibits regarding energy conservation and energy generation. Through funding from the 2013-2015 Plan, the Energy Gallery is in the process of undergoing a complete transformation, and exhibits are being upgraded to create a unique immersive and experiential approach to teach about energy and energy efficiency.

Inside the current Gallery, visitors can choose between using efficient or inefficient appliances, while watching the electric usage change on the house's electric meter. Throughout the Gallery, visitors can explore hands-on, interactive exhibits that highlight four main sources of energy—fossil fuels, hydropower, solar, and wind power—and promote energy-efficient and renewable technologies.

The upgraded Gallery will feature the concepts of an “Energy Network” and connectivity. The current plans include exhibit sections focused on the following key themes: (1) understanding energy, (2) harnessing energy (primary energy sources), (3) energy transformations, and (4) using energy. Energy efficiency and conservation themes/practices will be integrated throughout the Gallery but will predominantly be highlighted in the energy usage area. The Gallery’s learning objectives will be aligned with Energize Connecticut’s overarching objectives, and will integrate key energy concepts from the *eesmarts™* curriculum. Each section of the Gallery will also contain hands-on activities to illustrate concepts in a meaningful and engaging manner. These hands-on lessons, experiences, and take-home messages will support the evolving missions of both Energize Connecticut and the Discovery Museum regarding energy use and conservation.

The K-12 Education program will continue to offer museum passes to eligible educators participating in PD workshops.

[Connecticut Resource Recovery Authority: The Trash Museum, Hartford, Conn.](#)

The Companies will continue to partner with the Connecticut Resource Recovery Authority and its Trash Museum to incorporate conservation and energy-efficiency components in the facility’s existing 90-minute educational programs offered to students statewide. In 2012, the Trash Museum unveiled a new exhibit on how much energy is saved through recycling, including a Recycl-O-Meter, a physical exhibit and online web tool for visiting students to calculate the amount of recycled materials into kilowatt-hour savings.

EDUCATE CHILDREN AND STUDENTS

For over ten years, the Companies have worked to develop impactful K-12 energy educational lessons and in-classroom experiences in schools throughout Connecticut. In 2012, the Companies partnered with the Capitol Region Education Council (“CREC”) to improve its *eesmarts* K-12 curriculum alignment with State Math and Science Frameworks, Common Core State Standards, and Next Generation Science Standards. The educational outreach programs reach a myriad of schools and educational centers throughout Connecticut, introducing students and educators to energy subjects, such as: climate change, energy conservation, energy efficiency, and renewable energy through hands-on learning experiences. The nationally recognized K-12 Education program has dramatically increased school participation with its in-classroom offerings and educator training workshops; thereby ensuring these community members learn the value of using energy responsibly.

K-12 Education Program

Overview and Objectives

The K-12 Education program is an energy-efficiency and clean, renewable energy learning initiative for K-12 students and educators. The K-12 Education program’s vision is to facilitate students’ understanding of the science, math, engineering, arts, and technology (“STEAM”) related to clean, renewable energy, and electricity in order to create an energy-efficient ethic among all school-age students in Connecticut. The K-12 Education program reaches school-age students in Connecticut through multiple channels, including: an annual student contest, educator professional development, in-class lessons, and outreach through community events.

Since 2002, the program has offered energy-related K-12 curriculum to Connecticut educators and students. The K-12 Education program utilizes the *eesmarts*™ K-12 energy education curriculum and partner curriculums, including Project Learning Tree’s® *Green Schools!* Investigations to teach Connecticut students STEAM-related concepts pertaining to energy, energy efficiency, renewable energy, and resource conservation. The program’s curriculum is aligned with Connecticut’s Math and Science Frameworks, the Common Core State Standards, and Next Generation Science Standards.

The core competencies of the K-12 Education program are its professional development (“PD”) workshops for K-12 educators and in-class lesson programs. Since 2013, 400 educators have participated in PD workshops that empower them to deliver K-12 curriculum to their classrooms multiple times per year. The program’s annual Summer Institute and other ongoing professional development workshops transform educators into “energy ambassadors” to thousands of K-12

students and their families. Based on demand, the in-class lesson program has grown by over 600 percent since 2013, reaching over 2,600 students in 2014 and 5,000 students in 2015.

Target Market

For 2016-2018, the K-12 Education program will continue to focus its efforts on educating K-12 Connecticut classroom educators and students about the importance of energy efficiency. The Companies will continue to target all K-12 charter school, magnet, private, and public school districts, while reaching out to administrators, classroom educators, informal educators, and students statewide.

Program Offerings

The K-12 Education program is an energy-efficiency and clean-energy learning initiative. Program offerings are distributed statewide in the form of professional development workshops for educators, in-class lessons and outreach events, educators' curriculum guides and material kits, and partnerships.

Professional Development and In-Class Lessons

The K-12 Education program will continue to offer high-quality PD workshops regarding its lessons, activities, and material kits. PD workshops can be specifically tailored to align with the school district's curriculum plans upon request, and can also be held in conjunction with a particular district's PD days. In 2016, the Companies will continue to focus on hosting regional PD workshops for individual state educators on topical subjects, including *eesmarts* Grade K-12 lessons, Adventures in Solar Energy (Grades 9-12), climate change education, wind energy, recycling, and Project Learning Tree's *GreenSchools!* Investigations.

The majority of the program's PD workshops are held during the Summer Institute Workshop Series, held annually in July and August. These workshops are designed to improve an educator's understanding of the science related to energy and how to teach it in the classroom. As a result of general PD workshops being held after-hours, on weekends, and during the summertime, the Companies have implemented an educator's stipend to compensate them for their time and travel to workshops. In order to be eligible for the stipend, educators must complete an evaluation at the end of each workshop, which assists the K-12 Education program with quality control and continuous improvement in PD delivery. Educators who complete the workshops and evaluations also have the option to order additional materials and lessons.

The K-12 Education program provides in-class lessons to K-12 classrooms in Connecticut using *eesmarts* and partner curriculums. In-class lessons are conducted by experienced educators and

provide participants with the convenience of integrating energy-efficiency education into their classroom without having to plan lessons and collect materials. Administrators and educators can request an in-class lesson for their classroom/grade through the Companies, who work with educators to determine the best inquiry-based *eesmarts* and/or partner curriculum lessons.

Educator Guides and Curriculum

In 2016-2018, the K-12 Education program will continue to deliver high-quality lessons and materials to Connecticut's K-12 educational community. Through the K-12 Education program, the Companies will continue to supply educators and students with engaging lessons on climate change, energy conservation, energy-efficient technologies, and renewable energy sources. In an effort to be flexible for K-12 educators, the Companies have created Educator Guides grouped in grade levels that provide background information, detailed lesson plans, experiments, extension activities, and reference alignment information regarding the Next Generation Science Standards and the Common Core State Standards. Existing Educator Guides include: Grades K-2, Grades 3-5, Middle School (Grades 6-8), and High School (Grades 9-12). In 2016-2018, the K-12 Education program will evaluate and refresh its core curriculum, and make Educator Guides and lessons electronically available to eligible educators.

In recent years, the Companies have streamlined the lesson ordering process and created an online ordering system through the *eesmarts* website: www.eesmarts.com. Educators who have participated in an *eesmarts* PD workshop can log-in and order lessons and materials online anytime. The streamlined ordering process allows educators to receive ordered materials within two business days. By making Educator Guides available electronically, the K-12 Education program is taking steps toward lean waste processes to reduce materials being sent to landfills and/or incinerators.

The Companies will continue their support for the CT Green LEAF Schools, a sustainable schools initiative designed to support K-12 applications to the federal Green Ribbons School program. Participating schools must meet three pillars of sustainability, including the implementation of environmental curriculum school-wide. The Companies' support will include educating the approximately 100 CT Green LEAF schools regarding how *eesmarts* curriculum, professional development workshops, and outreach (see next section: Outreach and Partnerships) can help their facilities meet the Environmental Education Pillar for the federal Green Ribbons Schools recognition.

Outreach and Partnerships

The K-12 Education program has developed select partnerships to deliver educational outreach to community organizations, educators, schools, and students to further the mission of the program. These include:

eeEvents

The Companies and their partners will provide presentations regarding energy conservation and efficiency to elementary and middle school classrooms, school assemblies, environmental club meetings, Boy/Girl Scouts meetings, and Earth Day events. These presentations include hands-on activities for students and the Companies tailor an eeEvent to the needs of the organization in order to educate and engage the community on energy-saving topics. All eeEvents are conducted in accordance with the needs of the educator, students, class size, and grade levels.

K-12 Student Contest

The Companies plan to continue the annual Student Contest in 2016-2018 and invite students to showcase their skills in science, arts, energy, mathematics, writing, and technology. Students are asked to answer grade-level prompts regarding efficient and renewable topics and technologies in a variety of formats, including: posters depicting energy-saving ideas, presidential speeches, plays, song lyric rewrites, limericks regarding the 3 R's (Reduce, Reuse & Recycle), formal plans for service-learning projects or energy improvements to students' high school buildings. Open to all Connecticut students, the K-12 Student Contest's prompts are aligned with the State Frameworks for English Language Arts, math, and science.

In 2016-2018, the K-12 Student Contest will pilot expanding the contest to include a category for college-level students. The College-level prompt will ask students to submit a creative play for young audiences. The creative writing category will also require these "playwrights" to create an in-school assembly piece that incorporate energy-related learning objectives. The winning theatre piece will be awarded a touring schedule to perform the winning play in elementary schools across Connecticut.

In 2013, the Companies streamlined the Student Contest entry process through an online portal. The Companies will continue to take entries online only for Grades 3-12 and College, and to receive Grades K-2 entries (posters) via US mail. Finalists are honored at a special awards ceremony held at the Connecticut State Capitol.

Connecticut Science & Engineering Fair

The Companies look to partner with various K-12 community partners across Connecticut to promote energy efficiency and Energize Connecticut programs. In previous years, Energize Connecticut had sponsored the Sustainable Resources (Middle School), Future Sustainability (High School), and the Alternative Energy (Middle and High School) categories. The Connecticut Science & Engineering Fair and these categories allow students to reflect on the major scientific principles and public policies that revolve around energy efficiency and renewable energy, such as climate change and the depletion of fossil fuels. In 2016-2018, based on budget availability, Energize Connecticut will consider continuing its seven-year partnership with the Connecticut Science & Engineering Fair.

Project Learning Tree

The K-12 Education program has partnered with Project Learning Tree (“PLT”) to provide PD workshop opportunities to educators in Connecticut. PLT’s *GreenSchools!* Investigations is a national environmental service-learning program that inspires students to take personal responsibility for improving the environment at their school, at home, and in their community. Students, educators, and school staff receive tools, training, and resources for student-led Green Teams to create healthier schools and save money.

PLT’s *GreenSchools!* goals parallel the K-12 Education program’s objectives for K-12 students, including: (1) improving academic performance in STEAM-related fields, (2) developing critical thinking skills, and (3) growing student leaders. The K-12 Education program uses three *GreenSchools!* Investigations: Energy, Waste and Recycling, and Water. The Energy Investigation combines foundational information from the *eesmarts* curriculum and challenges students to complete a school-wide energy assessment. The K-12 Education program also uses *GreenSchools!* Investigations: Water and Waste and Recycling Investigations to teach students how to conduct sustainable audits of their school buildings.

The Companies and the Energy Efficiency Board will continue to support K-12 Connecticut schools that complete PLT *GreenSchools!* Investigations in their schools relating to energy use. The Companies have created a project plan to connect schools with the Companies’ energy engineers to identify energy-saving opportunities and incentives that can be applied to projects identified through *GreenSchools!* Investigations.

WORKFORCE DEVELOPMENT

The Companies have long recognized the tremendous value in creating a highly-trained and educated workforce for the energy-efficiency and renewable energy industries. Numerous educational outreach, trainings, and workshops are held by the Companies and the Energy Efficiency Board regarding Energize Connecticut programs, services, and incentivized technologies. From a technical high school student to Energize Connecticut contractor technicians, the Companies understand that educating today's and tomorrow's workforce regarding energy-saving and renewable technologies will drive participation and savings in Energize Connecticut programs.

Connecticut Technical High School System

E-House Initiative

Since 2006, the K-12 Education program has worked with the Connecticut Technical High School System ("CTHSS") to provide professional development for trade instructors. This includes partnering with manufacturers and installers to conduct training sessions on the installation and maintenance of energy-efficient and clean energy systems.

In 2011, Energize Connecticut established the E-House Initiative in partnership with the CTHSS. An E-House is an energy-efficiency and renewable energy lab built onsite at each of the 18 CTHSS schools. Typically, each E-House is a 20 x 16 foot outdoor structure that is designed, built, modified, and maintained, by the students and educators at the host school. The E-House Initiative ensures that CTHSS building trade students graduate with hands-on experience in energy-efficient construction, HVAC and hot water heat pump installation, and weatherization techniques.

Since 2010, eight E-Houses have opened up at: Abbott Technical High School (Danbury), Bullard-Havens Technical High School (Bridgeport), Cheney Technical High School (Manchester), E.C. Goodwin Technical High School (New Britain), Ella T. Grasso Southeastern Technical High School (Groton), WF Kaynor Technical High School (Waterbury), Oliver Wolcott Technical High School (Torrington), and Platt Technical High School (Milford). There are nine E-Houses that remain to be opened, they include: Bristol Tech (Bristol), Ellis Tech (Danielson), O'Brien Tech (Ansonia), Prince Tech (Hartford), Vinal Tech (Middletown), Whitney Tech (Hamden), Wilcox Tech (Meriden), Windham Tech (Windham), and Wright Tech (Stamford).

An E-House is a “time capsule” that captures various construction and insulation practices of yesterday and also showcases today’s more efficient practices of design and construction. This approach educates students regarding new energy-efficient technologies and building codes, but also familiarizes them with technologies and constructions methods they might encounter out in the field (i.e., in older homes). CTHSS carpentry instructors and students practice performing blower door tests and use infrared cameras to detect air leakage. A variety of air sealing and weather-tightening methods are practiced within E-Houses, as well as a variety of framing techniques and insulation measures.

In 2016-2018, the Companies will continue to provide Energize Connecticut support of the E-House Initiative, including exploring potentially holding “Open E-House Days” to be used as learning opportunities for CTHSS students, educators, families, and other interested parties. Further 2016-2018 support may include: support for changing out and upgrading E-House technologies, programmatic support for energy audits and weatherization training, and funding for renovations to transform each E-House into a Building Science Principles training tool.

Connecticut Clean Career Tech Program

The objective of the Connecticut Clean Career Tech Program (“CCCTP”) is to implement innovative work-based curriculum to prepare CTHSS students for jobs in the energy-efficiency sector. The need to reduce mankind’s carbon footprint necessitates a widespread effort to conserve energy while creating new, cleaner alternative energy sources to sustain our world. To meet this challenge, workers in the electrical, carpentry, plumbing, and HVAC career technology tracks will need additional knowledge and skills needed for employment in the new “green jobs” marketplace.

During the 2013-2015 Plan, the Companies launched an ambitious endeavor, the CCCTP, to work with the Connecticut Business & Industry Association (“CBIA”) and the CTHSS to create a hands-on, educational pilot that trained 400 CTHSS students and 50 CTHSS trade instructors on how to conduct a sustainable audit on their own schools using PLT’s *GreenSchools!* Investigations curriculum. Students participated in performing Energy, Indoor Air Quality, Waste and Recycling, and Water Investigations. Based on their findings, CTHSS students created action plans to improve the sustainability of their high school. The 400 students also participated in workshops regarding: residential weatherization, resume building, sales, sustainability, and job searching in the “green” industry. The CCCTP was conducted as a pilot during the 2013-2015 school years with five CTHSS schools participating: E.C. Goodwin (New Britain), Ella T. Grasso Technical High School (Groton), Henry Abbott Technical High School (Danbury), Norwich Tech (Norwich), and Platt Technical High School (Milford).

2016-2018 CCCTP

Looking forward to 2016, modifications will be made to the CCCTP based on feedback from students, educators, and stakeholders to better serve the needs of the CTHSS students in preparing them for the workforce. The planned goals of the 2016-2018 CCCTP are:

- Students will complete certification programs;
- Students will gain an awareness of career options in the industry; and
- Students will be positioned for employment or higher education upon graduation.

The Companies will support the implementation of all cost-effective energy-saving projects discovered through investigations performed during the 2016-2018 CCCTP. The revised CCCTP is intended to follow a four-year model that builds interest and understanding in preparation for certifications and entry into the workforce. Schools that participated in the pilot program, as well as schools that have participated in the E-House Initiative, will be invited to participate. The Companies' Project Plan and detailed Milestones are outlined in Table 5-3 (Milestone 1), Table 5-4 (Milestone 2), and Table 5-5 (Milestone 3) on the following three pages:

Table 5-3: 2016-2018 Connecticut Clean Career Tech Program (Milestone 1)

A workforce development partnership between the Companies, Energize Connecticut, CTHSS, CBIA and other industry stakeholders.

Program Overview	Grade 9	Grade 10	Grade 11	Grade 12
	Introduction	Experimentation	Implementation	Certification/Accreditation
Milestone 1	Energize Connecticut Center	CT Science & Engineering Fair Project Design Concepts	Zero Energy Home Work Day	Sustainable Building Design & Career Paths Workshop
Description	Career technology students will travel to the Energize Connecticut Center for a school tour and K-12 Education program lesson and take-home activity	Career technology students will work with CTHSS trades and science instructors to create sustainable solutions projects that will be submitted to the CT Science & Engineering Fair. Students will be encouraged to evaluate and redesign projects every school year. These projects can be used for their CTHS capstone projects upon graduation	Career technology students will be partnered with selected zero energy home building companies who participate in the CT Zero Energy Challenge	Career technology students will have 2 guest speakers who will present on the importance of sustainability and connecting to future clean trade careers. Speaker 1 will present on sustainability as an opportunity for trade skill growth. Speaker 2 will present clean trade career paths and industry evaluations with students to create a clean trade startup company
Learning Objective	Students will gain a basic understanding of energy, energy efficiency and renewable energy concepts and technology. Student will take home an evaluation form to complete a self-guided walkthrough assessment of their own homes and appliances	Students will develop design and implementation skills to develop sustainable solutions. Projects can be groups or individual projects	Students will learn the skills for Zero Energy Home and high- efficiency building, including: terminology, techniques and methods that can be applied to work in the high-efficiency building industry. Students will be invited to continue working on the project with a builder on a voluntary basis	Students will learn sustainability basics: definitions and terminology, climate change impacts, water, and natural resources scarcity. Students will learn how to talk about innovative sustainable building practices/technologies as they relate to resource management and resiliency. Students will learn how to evaluate a market for a startup business. Student will learn to assess indicators for economic growth and success
Time	Half Day Trip	Four Class Periods	Full Day Trip	2 Class Periods
Schedule	Spring Freshmen Year	October - March Sophomore Year	Fall Junior Year	Fall Senior Year
Hours	2 hours	4 hours	4 hours	2 hours

Table 5-4: 2016-2018 Connecticut Clean Career Tech Program (Milestone 2)

A workforce development partnership between the Companies, Energize Connecticut, CTHSS, CBIA and other industry stakeholders.

Program Overview	Grade 9	Grade 10	Grade 11	Grade 12
	Introduction	Experimentation	Implementation	Certification/Accreditation
Milestone 2	Sustainability Concepts	Zero Energy Home Site Visit	CT Science & Engineering Fair/Capstone Project Re-Design	Sustainable Trade Study & Certifications
Description	Career technology students will participate in an In-Classroom Lesson that will introduce sustainability concepts, such as natural resources, development, and energy infrastructure	Career technology students will visit a completed CT Zero Energy Challenge home for a guided tour by the design/build team	Career technology students will work with CTHSS trades/science educators to update and improve their original sustainable solutions projects. Improved projects will be submitted to the CT Science & Engineering Fair. Students will be encouraged to evaluate and redesign projects every school year. These projects can be used for their CTHSS capstone projects upon graduation	Career technology students will be enrolled in study programs and training for certifications that align sustainable energy industry with their trade program. Carpentry: BPI Building Science & Weatherization Electrical: NABCEP Solar PV Entry Level Installer Plumbing & Heating: NABCEP Solar Heating Entry Level Installer HVAC: BPI Building Science & Weatherization
Learning Objective	Career technology students will gain the knowledge of natural and manmade systems on the planet and how they are interconnected and necessary for society and life	Career technology students will understand the process for designing and building a Zero Energy Home. Students will evaluate the technologies and systems incorporated into the design. Students will be introduced to sustainability design and cost-benefit analysis for customers	Career technology students will develop critical thinking skills and evaluation skills to help redesign project for higher output in efficiency. Projects can be groups or individual projects	Career technology students will work towards achieving their first industry-related certification which will help with job placement in the sustainable energy work force. Students will be required to study for exams outside the school time. Study workshops will be offered by Energize Connecticut and include an instructor to help prepare students for the exam
Time Required	One Class Period	Half Day Trip	Three Class Periods	1 Study Workshop, 1 Exam Time
Schedule	Spring Freshmen Year	Spring Sophomore Year	October - March Junior Year	Fall or Spring Senior Year
Hours	1 hour	2 hours	3 hours	4 hours

Table 5-5: 2016-2018 Connecticut Clean Career Tech Program (Milestone 3)

A workforce development partnership between the Companies, Energize Connecticut, CTHSS, CBIA and other industry stakeholders.

Program Overview	Grade 9	Grade 10	Grade 11	Grade 12
	Introduction	Experimentation	Implementation	Certification/Accreditation
Milestone 3	Introduction to Energy Efficiency & Renewable Energy	Wesson Energy Visit & Training	Residential Energy Audit - Site Visit	Sustainable Trades Career Fair & Employer Panels
Description	Career technology students will get a hands on lesson on energy efficiency and renewable energy	Career technology students will attend a half-day training course for Building Performance Institute weatherization certification	Career technology students will complete an on-site home energy audit with a home improvement contractor. Students will complete an on-site home solar, geothermal, and solar hot water audit with a local clean energy contractor	Each technical high school in partnership with industry leaders, the companies and energy contractors of Energize Connecticut will host an employer panel and an end of year Clean Trades Career fair
Learning Objective	Career technology students will complete the PLT Energy Investigation around the classroom and build an energy grid prototype which explores connectivity and consumption	Career technology students will learn hands on high-efficiency building practices and technologies from home energy improvement contractors. Career technology students will learn the terminology for weatherization treatments and improvements	Career technology students will develop and practice building auditing skills necessary to evaluate homes/buildings for energy improvement such as energy efficiency, weatherization, and renewable energy applications	Career technology students will interact with employers currently working and hiring in the clean trades industries. Career technology students will have the opportunity to ask questions about job responsibilities, interviewing practices and career placement. After the panel the students will have an opportunity to network with clean trade employers, submit resumes for job openings and schedule information interviews
Time	One Class Period	Full Day Trip	Full Day Trip	Two Class Periods
Schedule	Spring Freshmen Year	Spring Sophomore year	Spring Junior Year	Spring Senior Year
Hours	1 hour	4 hours	4 hours	2 hours
Total Year Hours	4 hours	9 hours	12 hours	8 hours
<p><i>Students will have completed the 30-hour CCTP certificate program endorsed by Energize Connecticut, the Companies, and the CTHSS.</i></p>				

Technical Training

HVAC and Water Heating: Contractor Education, Training, and Outreach

In 2016, the Companies will enhance their focus on industry training regarding quality installation. HVAC equipment distributors conduct numerous trainings, and the Companies plan to leverage distributors' existing efforts to move the HVAC installer market toward high-quality installations of HVAC and condensing equipment. Knowledge and awareness of how to size and install HVAC and water heaters properly should result in increased energy savings and quality in HVAC equipment installations. Industry feedback has suggested that contractors and installers are not properly installing condensing equipment. By proactively supporting and enhancing training efforts, the Companies should see an increase in quality installations.

Residential New Construction: Increased Education, Training, and Outreach

The Companies realize the Residential New Construction market is continuously evolving and adopting new building practices and standards. As an effort to drive the Residential New Construction program community toward lower HERS Ratings and compliance with 2015 IECC, there will be an enhanced focus on education, outreach, and training in 2016-2018. As part of the 2015 IECC, new homes must earn a HERS rating of 55 or lower when following the Energy Rating Index Performance Path option. To support the Residential New Construction program community, trainings will focus on the 2012 IECC, 2015 IECC, and HERS Ratings to increase builder awareness and education. The Companies anticipate an upturn in the quantity of HERS-rated and Zero Net Energy Homes as a result of builder education.

ENERGY STAR Portfolio Manager

The US EPA's ENERGY STAR Portfolio Manager® is an online software tool that is used to measure and track energy and water consumption, as well as greenhouse gas emissions. The software can be used to benchmark the performance of one building, or a whole portfolio of buildings, all in a secure online environment. The Companies will continue their partnership with the US EPA and provide ENERGY STAR portfolio management training to energy task forces and municipal facility managers.

Green Professional Building Skills Training

Green Professional Building Skills Training ("GPRO") is a series of courses and certificate exams designed to teach the people who build, renovate, and maintain buildings, the principles of sustainability combined with trade-specific green construction knowledge. GPRO Certificate holders will be poised to work in accordance with new regulations, and to meet the expectations of owners and tenants who want healthier, environmentally sustainable, and energy-efficient

homes and offices. The Companies will continue their partnership with the Connecticut Green Building Council (“CTGBC”), DEEP, and other third-parties to provide training to CTGBC members, municipalities, and state agencies.

Certified Energy Manager Training

The Certified Energy Manager (“CEM”) credential, offered through The Association of Energy Engineers (“AEE”), has become widely accepted and used as a measure of professional accomplishment within the energy management field. The Companies will continue to partner with the DOE, as well as with numerous state energy offices, industry manufacturers, and other energy service providers to provide training for industry standard certifications, as well as new certifications for emerging technology and standards as they become available.

Building Performance Institute Certification (Three Levels)

Building Analyst Certification

This Entry Level certification enables contractors to go beyond a traditional understanding of an energy audit to perform comprehensive, whole-home assessments, by identifying problems at the root cause, and prescribing and prioritizing solutions based on building science.

Envelope Professional

This Secondary Level certification provides training to enable contractors to quantify performance, and to prescribe improvements to help tighten a building’s envelope (shell), stop uncontrolled air leakage, and optimize comfort, durability, and HVAC performance.

Infiltration and Duct Leakage Certification (“IDL”)

This Advanced Level certification provides training to enable contractors to conduct duct leakage and blower door tests to align with the ASTM E1554-07 standards.

EPA Water Sense Training

Wastewater Operator Training

The Clean Water Act authorizes funding for the Wastewater Treatment Plant Operator On-Site Assistance Training Program. The program addresses non-compliance at small publicly-owned wastewater treatment plants and ensures enough trained personnel are available to operate and maintain existing and future wastewater treatment works.

Wastewater Management Training

The Companies will continue their partnership with the US EPA and DEEP to provide shared experiences and best practices with other wastewater facilities, and learn about ways to increase energy efficiency, reduce energy costs, perform energy assessment/audits, apply ‘Plan-Do-Check-Act’ tools to support existing energy management programs and initiate new ones, and to identify priorities for implementation of energy evaluations and funding/financing strategies.

Small Business Energy Advantage Training

The Companies will continue to offer Small Business Energy Advantage trainings for certifications of utility-authorized contractors who perform energy assessments of commercial and small business facilities in Connecticut. The trainings will review proper installation of technologies for energy-saving improvements and optimizing energy systems.

State Certification for Energy Auditors

The Companies will continue to offer training and certification programs through partnerships with the Connecticut Community College System. Programs will provide students with hands-on educational experiences to develop skills necessary to become certified energy auditors in the State of Connecticut, in accordance with the Companies’ program requirements. Training will include building and technology evaluation skills to recommend measures to achieve energy-efficient buildings and homes. The Companies’ auditing course will prepare students to take the Building Performance Institute (“BPI”) Building Analyst Certification exams and the RESNET Home Energy Rating System (HERS) Certification exams, both nationally recognized accreditations and requirements for the Companies’ energy-efficiency programs in Connecticut.

Building Operator Certification

The Companies will continue to support this nationally recognized training and certification program focusing on energy-efficient building operations and preventative maintenance procedures. Facilities with Building Operator Certification graduates are proven to save energy, have lower energy bills, and offer an improved comfort for occupants.

Professional Training

University and Community College Partnerships

The Companies will continue to leverage their relationships with the state’s public and private universities, community colleges, and other institutions of higher education to promote continuing education and workforce development. The certificates, benchmarking, and

programs have been identified in the Technical sections, as well as described here. The relationships are an integral part to driving Energize Connecticut program participation and continuing to educate the workforce about energy-efficient and renewable energy technologies.

Certifications and Certificate Programs

The Companies will continue to explore the workforce need and feasibility of supporting the development non-degree certificate program focused on BPI certifications offered through Connecticut's Community College System. It first must be determined if the three existing training facilities in Connecticut are able to meet the future workforce training needs for home performance and weatherization professionals, or if additional training resources are needed. If additional resources are necessary, the Companies will explore partnering with Connecticut's Community College System to develop a course curriculum and training facility(ies).

The Companies also envision leveraging their partnership with the CTHSS both in the development of the training facilities, as well as to assist with channeling students from the CTHSS schools into the certificate and certification programs.

Two-Year Degree Programs

Applied Associates of Science Degree in Energy Management

The Companies recognize the value of college courses, certificates, and degrees that support the growing commercial energy management sector in Connecticut. Beginning in 2016, the Companies will support the development of courses and certificates that lead to a two-year Applied Associates of Science ("AAS") Degree in Energy Management through the Connecticut Community College System. The courses will be offered at multiple Connecticut Community Colleges to attract a wide enrollment.

The Energy Management program is a comprehensive two-year degree that trains students to: evaluate energy use patterns, perform public outreach, recommend energy-efficiency techniques, integrate alternative energy sources, perform systems analysis to solve problems, and develop, implement, market and maintain conservation programs. Students learn to apply basic physics and analytical techniques to measure and define energy use of today's building systems with the goal of evaluating and recommending alternative energy solutions that will result in greater energy efficiency and lower energy costs.

Currently, there are no college training courses in commercial energy management in the state. The program will employ industry experts and college instructors to provide hands-on experiential learning to students. Students will conduct energy analyses on actual college

buildings to gain the skills they will be required to perform as energy analyst. Students will not need prior work experience to succeed in the program.

Graduates of the program will be hired by numerous companies and Program Advisory Board Members who have expressed their interest in hiring students. Graduate workers will support the work of energy engineers and project managers. Having a skilled commercial energy workforce benefits the state of Connecticut, and provides new training resources and job opportunities for Connecticut's workforce.

CHAPTER SIX: CUSTOMER ENGAGEMENT PLATFORM

OVERVIEW AND STATUS

The design and implementation of digital customer engagement platforms is underway at both Eversource and UIL. The Companies remain committed to sharing key findings and customer intelligence gleaned from the platforms. The powerful data analytic tools, contained within both Companies' CEPs, will be leveraged to benefit all customers in Connecticut, and results from marketing campaigns, database analyses, and go-to-market strategies will be shared regularly by the Companies. Each of the Companies' CEPs allow customers to utilize the DOE's Green Button to download their electric usage data. Additionally, customers can manually input other fuel information (natural gas, oil, or propane) to calculate their entire energy usage data. The Companies' CEPs utilize the energy usage data to recommend energy-saving opportunities; thereby enabling customers to have an empowering and engaging energy-savings experience.

Throughout the 2016-2018 Plan, the Companies and the Energize Connecticut website committee will continually work to identify ways to create and improve linkages between the Energize Connecticut website and the CEPs to improve the customer experience.

EVERSOURCE CUSTOMER ENGAGEMENT PLATFORM

Eversource's CEP is a tool that has been implemented across all of Eversource's operating companies in Connecticut, Massachusetts, and New Hampshire to provide customers with targeted and customized energy-efficiency recommendations. The CEP provides customers with a comparison of their current energy use to similar homes/businesses and also to efficient homes/businesses. The platform provides customers with an analysis of their energy use by categories, such as lighting or heating, and also a bill comparison. The energy-saving recommendations provided are further targeted as customers complete their profile information. Additional energy reports can be downloaded and printed. In 2015, Eversource's CEP was launched to Connecticut residential and commercial customers.

The platform provides tools that enable Eversource to more efficiently identify, target, and reach all customer segments. The three customer-facing tools or "products" being implemented are:

- **Residential Product.** This product is for all Eversource residential customers;

- **Commercial Product.** This product is for all Eversource micro, small, and medium business customers; and
- **C3 Enterprise Product.** This product is for all of Eversource’s largest commercial customers.

The CEP was rolled out in various phases of functionality. Phase I of the CEP launched in February 2015 for both the Residential and Commercial products. Phase II will see the launch of the C3 Enterprise product in mid-2015, and Phase III will bring all three CEP products to their full functionality by the end of 2015.

In the 2016 to 2018 timeframe, Eversource plans to capitalize on the “Energy Intelligence” and “Customer Engagement” modules of its CEP, which will provide a variety of customer analytics and enable targeted digital marketing campaigns. Through these modules, Eversource will be able to better understand customers and market segments; therefore Eversource will be able to provide the best and most appropriate energy-saving recommendations.

Figure 6-1: Eversource CEP “Comparison to Similar Homes”

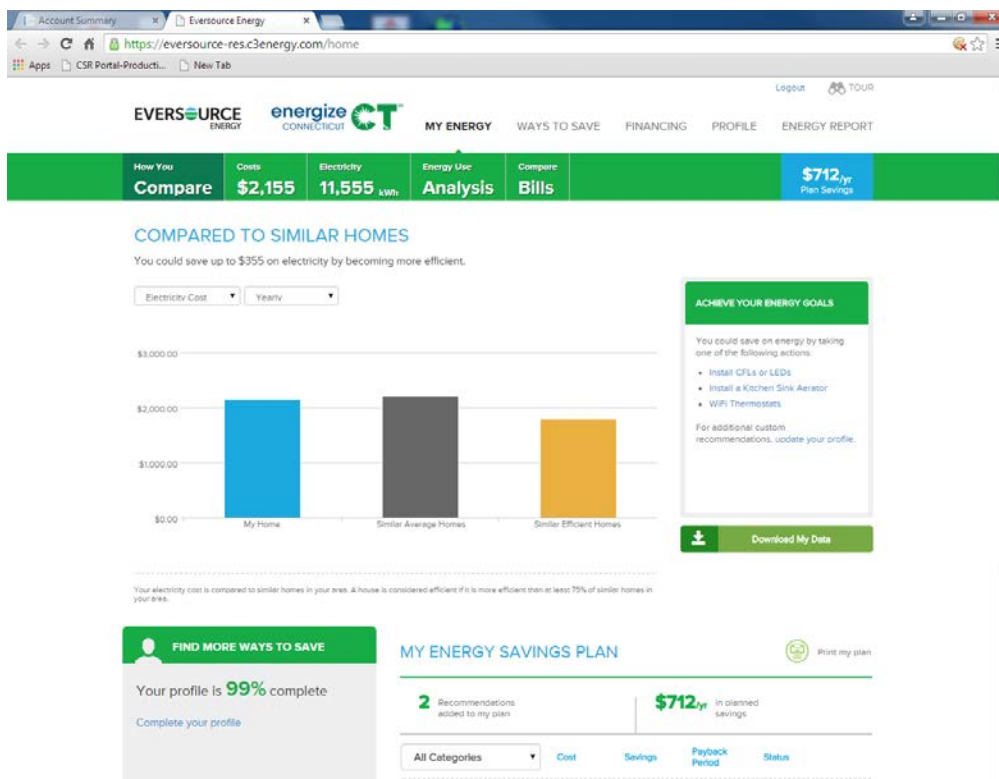
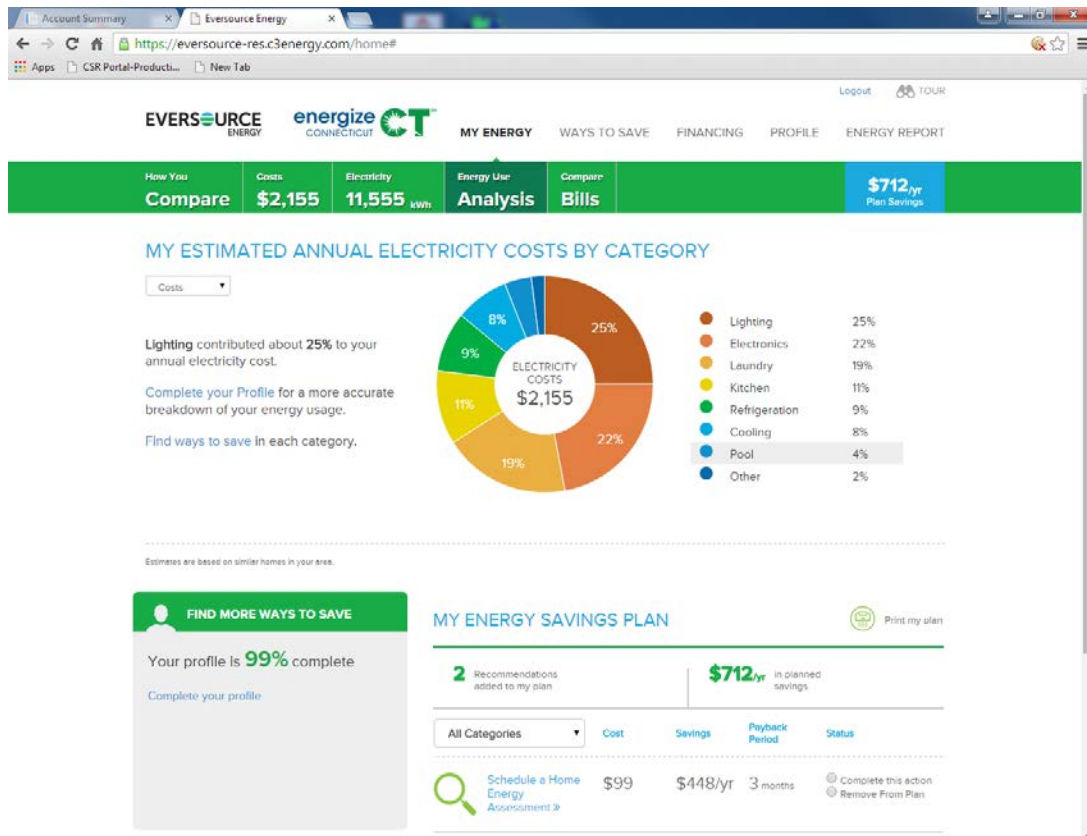


Figure 6-2: Eversource CEP “Estimation of Annual Electricity Costs by Category”



Throughout the 2016-2018 Plan, Eversource and the Energize Connecticut website committee will continually work to identify ways to create and improve linkages between the Energize Connecticut website and the Eversource CEP to improve the customer experience.

UIL CUSTOMER ENGAGEMENT PROGRAM

Objective

The objective of UIL’s CEP is to propel customer engagement into the forefront of customers’ minds and to increase participation in energy-efficiency programs funded by Energize Connecticut. UIL’s CEP and programs have evolved from the previous UIL web site and its associated “My Account” dashboard. In 2015, UIL customer engagement efforts built upon its CEP, with enhancements focused on: engaging web functions, appropriately targeted energy-efficiency information, and advice and support to achieve savings while driving greater customer satisfaction.

The UIL CEP goes beyond the industry standard platform to leverage a multiple channel customer engagement approach. It is designed to cost-effectively induce the types of actions

that generate the most energy savings and investments in energy efficiency, while encouraging positive behavior changes. The UIL CEP ultimately challenges UIL customers to achieve more savings over time, while empowering them to control their energy usage.

Residential and commercial electric and natural gas customers are encouraged to utilize the CEP to conduct on-line business, such as paying their utility bill, taking a simple energy audit to identify savings opportunities, and availing themselves to tailored energy-saving tips and Energize Connecticut programs. As customers engage in actual performance upgrades and make their homes more efficient, their CEP-produced home energy report will detail their actual energy consumption data, and shows them how they are progressing toward their energy-saving goals.

The UIL CEP will:

- Offer both residential and commercial engagement information, tools, and targeted advice to achieve and maintain interest in energy efficiency;
- Engage and encourage residential and business customers to be more energy efficient;
- Empower customers to lower their bills and reduce their energy consumption;
- Reveal areas where customers can make cost-saving improvements to their homes and in their habits;
- Encourage customers to think about their roles as energy users, and give them more control over their energy costs;
- Allow customers to take advantage of beneficial programs and feel supported as they take steps to improve their homes and habits;
- Increase awareness of and participation in Energize Connecticut programs, such as Home Energy Solutions, as well as UIL’s online “My Account” to drive greater savings impacts; and
- Enhance customer satisfaction with UI’s conservation and energy-efficiency leadership.

The UIL CEP brings together a customer engagement web application that interacts and shares data with UIL’s Conservation & Load Management (“C&LM”) database to provide a single powerful customer engagement solution. This interaction, or flow of data, between the UIL CEP and the UIL C&LM database will provide customers with a high level of targeted information, and customized energy-efficiency recommendations and promotions to help raise customers’ energy management awareness. Customized online energy-efficiency offerings inform and educate customers so that they feel in control of their utility bills, and so they behave in a way that reduces their energy consumption on a permanent basis.

During the 2016-2018 Plan, UIL will offer dynamic promotions to communicate more effectively with customers and to draw attention to conservation programs, incentives, rebates, services, and other offers. UIL will tailor dynamic promotions to customers, based on their web activity and customer energy data, allowing for a more meaningful web experience and making it more likely that the customer will enroll and participate by providing relevant information. Promotions within the UIL CEP will include hyperlinks with each recommended action item to open a new window and bring up content of UIL's choosing.

The 2016–2018 Plan, the UIL CEP will continually evolve and look to add platform enhancements to better the customer engagement experience. It will also look to increase the adoption of energy-efficiency programs and measures with the Home and Business Energy Advisor modules.

In conjunction with the CEP online tools, UIL will utilize a customer-targeted direct mail and electronic Home Energy Reports program. This approach will combine a third-party vendor's experience in making energy information understandable for customers, with outside expertise in designing highly-effective programs. UIL will work with its Home Energy Reports vendor to design reports specific to UI's needs, with the opportunity to modify and improve the Home Energy Reports program based on monitoring of the efficacy of the messaging, and targeting in its first year.

UIL's unique approach combines its vendor's consumer engagement web applications, with a proactive Home Energy Report, is designed to contribute to customer energy education, improved awareness of and participation in energy-efficiency programs, and increased customer satisfaction. The CEP will complement the impact of the future Home Energy Reports program, which in turn will guide and direct customers to the UIL CEP.

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CHAPTER SEVEN: BENEFIT-COST SCREENING

OVERVIEW

For the 2016-2018 Plan, the Electric Distribution Companies (“EDCs”) and Natural Gas Companies (“LDCs”), use identical benefit-cost (“B/C”) methodologies for program and measure screening. The B/C screening tools contain consistent methodologies and the same sources for program induced avoided costs and benefits. The electric and fossil fuel avoided costs are based on a regional avoided energy supply cost study (“AECS”) completed in 2015 for New England.⁶⁶ The transmission and distribution (electric) avoided costs are based on studies conducted by the Companies in 2009.⁶⁷ The 2016-2018 Plan was screened on an annual basis by each Company for all three years (five sets of Company B/C tables x 3 years). In addition, the combined B/C tables are provided for each program year. The combined B/C tables include all benefits and costs from the electric and natural gas programs rolled up into three annual portfolio tables.

The Companies use the Connecticut Program Savings Documentation (“PSD”)⁶⁸ to document savings assumptions, including the results of program evaluations. The PSD provides engineering estimates, savings algorithms, and measure life estimates used by the Companies within their programs. The PSD also reflects the results of evaluations by providing realization rates to “true-up” savings based on third-party independent evaluations.

All electric and natural gas conservation measures in the 2016-2018 Plan are evaluated within an integrated supply-and-demand planning framework to ensure that the programs are cost-effective and yield positive net benefits to customers. Use of common cost-effectiveness testing methodologies and savings assumptions allows the DEEP, PURA, the Energy Efficiency Board, and others to compare the benefits, costs, and B/C ratios on a program and measure basis.

Chapter 7 provides details regarding the B/C tests utilized in the 2016-2018 Plan, including the following:

⁶⁶ *Avoided Energy Supply Cost Study in New England*, March 27, 2015, Revised April 3, 2015. Rick Hornby, et al.

⁶⁷ CL&P values based on *Assessment of Avoided Cost of Transmission and Distribution*, ICF International, October 30, 2009. UI values were based *The United Illuminating Company Avoided Transmission & Distribution Study*, Black & Veatch, October 27, 2009.

⁶⁸ The Companies’ PSD is filed annually as part of the Electric and Natural Gas Companies’ C&LM Plan. The PSD is a centralized reference of savings (energy, capacity, fossil fuel and other non-electric) assumptions used by the EDCs and LDCs within the programs.

- Types of B/C tests to be used in the 2016-2018 Plan;
- A description of the benefits used within each of the B/C tests, and their source;
- Financial parameters, e.g., discount rates and inflation factors used in B/C testing;
- Presentation of the B/C test results in the 2016-2018 Plan;
- The use of avoided costs from the 2015 Avoided Energy and Supply Cost Study (“2015 AESC”);
- Recommendations on updating the 2015 AESC going forward; and
- Avoided costs.

BENEFIT-COST TESTS

The following three B/C tests were utilized for the 2016-2018 Plan. The B/C tests compare the net present value of program induced avoided costs with the cost to achieve the benefits. These three B/C tests are identical to those used in the most recent Energy Efficiency Plan Update (“2015 Plan Update”) and include: the Utility Cost Test, Modified Utility Cost Test, and Total Resource Cost Test. These tests are summarized in Table 7-1 on the next page.

- 1) **The Utility Cost Test** includes the value of utility specific benefits and program costs associated with those benefits. For example, the Utility Cost Test includes energy avoided costs from electric/natural gas conservation measures and programs, and all program costs associated with acquiring those benefits. The Utility Cost Test does not include customer out-of-pocket costs, or costs or benefits associated with oil or propane savings. Nor does the Utility Cost Test include indirect or societal benefits, such as reductions in emissions or non-energy benefits (i.e. water).
- 2) **The Modified Utility Cost Test** includes all benefits and costs as the Utility Cost Test referenced above. In addition, the Modified Utility Cost Test includes oil and propane avoided costs, and the program costs associated with acquiring oil and propane savings. Note that the Modified Utility Cost Test currently applies only to residential programs that save oil or propane.
- 3) **The Total Resource Cost Test** includes all energy and non-energy benefits, such as water savings, emissions, and non-resource savings. In addition, the Total Resource Cost Test includes all costs associated with acquiring savings. This includes program costs and customer out-of-pocket costs.

Table 7-1: Benefit/Cost Testing Summary
Includes the source of the avoided costs (benefits)

Benefit Type (numerator)	Units	Utility Cost Test (Gas/Electric)	Modified Utility Cost Test	Total Resource Cost Test	Source
Electric Program Benefits					
Energy	\$/kWh	X	X	X	AESC
Capacity	\$/kW	X	X	X	AESC
Transmission (Note 1)	\$/kW	X	X	X	EDSs
Distribution (Note 1)	\$/kW	X	X	X	EDCs
DRIPE CT	\$/kWh	X	X	X	AESC
DRIPE ROP	\$/kWh	X	X	X	AESC
Capacity DRIPE (Note 2)	\$/kW	X	X	X	AESC
Cross Fuel DRIPE (CT)	\$/kWh	X	X	X	AESC
Non Embedded Emissions	\$/kWh			X	AESC
Natural Gas Program Benefits					
Gas	\$/MMBtu	X	X	X	AESC
DRIPE	\$/MMBtu	X	X	X	AESC
DRIPE ROP	\$/MMBtu	X	X	X	AESC
Cross Fuel DRIPE (CT)	\$/MMBtu	X	X	X	AESC
Cross Fuel DRIPE (ROP)	\$/MMBtu	X	X	X	AESC
Other Benefits - Electric and Natural Gas					
Oil (Note 3)	\$/MMBtu		X	X	AESC
Propane (Note 3)	\$/MMBtu		X	X	AESC
Water (non-gas water home)	\$/Gallons			X	CT rates (Note 4)
Non-Resource	\$(varies)			X	Various (Note 5)
Fossil Emissions	\$/MMBtu			X (New)	AESC
Cost (denominator)		Electric Cost (no oil/propane)	Program Cost (including oil, propane)	Total Cost (program + customer)	
Note 1: Transmission and Distribution benefits are based on Electric Distribution Companies' (EDC) responses to Order 9 Final Decision Docket 08-10-03.					
Note 2: Capacity DRIPE is zero based in the 2015 AESC. It is included in this table since it was a non-zero benefit in 2014.					
Note 3: Oil and Propane benefits are assigned to electric programs. However, natural gas programs may include oil and propane benefits if oil and propane funding in electric programs is exhausted.					
Note 4: Water benefits based on Tighe and Bond Water Survey for Connecticut. http://rates.tighebond.com/index.aspx					
Note 5: Non-Resource benefit assumptions are included in the Program Savings Documentation (PSD).					

The results of B/C screening are included in the 2016-2018 Plan, including reporting of discrete avoided costs.

In addition to the continuation of the three B/C tests, the Companies are maintaining the basic framework of the B/C tests to remain consistent with prior DEEP feedback.⁶⁹ This includes the following: (1) the use of nominal avoided costs, and (2) a nominal discount rate of 5.5 percent for all B/C testing. The discount rate is used to calculate the net present value of the avoided

⁶⁹ September 26, 2014 DEEP Resolution of Conditions.

costs over the life of the energy-efficiency measures. The nominal avoided costs include a 1.88 percent inflation factor based on the 2015 AESC.

There are several enhancements that are warranted to more accurately quantify the benefits of energy-efficiency programs. Specifically, the Companies included the following modifications to B/C testing for the 2016-2018 Plan:

- Inclusion of fossil fuel emissions benefits for fossil fuel savings in the Total Resource Cost Test. Currently, fossil emissions benefits are claimed under energy benefits for electric programs (Non Embedded Emissions). However, direct oil and natural gas emissions (from non-generation) were not included in previous B/C testing. In addition to claiming a fossil emissions benefit, fossil emissions savings (i.e., tons of carbon, sulfur oxides (SOx), and nitrogen oxides (NOx)) are reported in Table 7-1.
- All forms of DRIPE (both electric and natural gas) were included in 2015 B/C testing; however their duration was capped at seven years. For the 2016-2018 Plan, the Companies maintained the DRIPE benefit over the life of the measure, or capped it at their expected duration, based on AESC if DRIPE duration is shorter than the measure life.

Avoided Energy Supply Cost Study

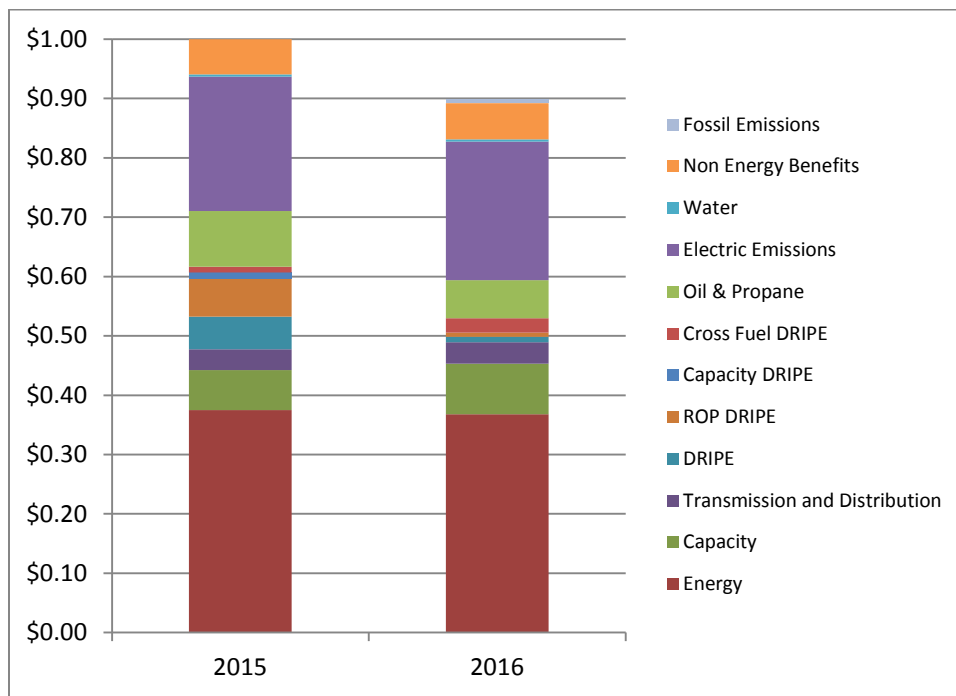
Most of the avoided costs used in B/C testing will be updated for the 2016-2018 Plan based on the recently completed 2015 AESC. The 2015 AESC was sponsored by New England's electric and natural gas utilities, and energy-efficiency program administrators. In addition, other non-utility parties (i.e., regulators and consultants) formed the Avoided Cost Study Group to oversee the development of the 2015 AESC. Previous iterations of an avoided cost study were conducted on a bi-annual basis. However, beginning in 2015, the AESC is moving to a three-year cycle which coincides with the current three-year planning cycle in Connecticut. However, due to the dynamic nature of the energy market, the 2015 AESC's critical assumptions can be updated in 2016 and 2017, as needed, without having to redo the entire 2015 AESC analysis.

In order to understand the impact of updated avoided costs, the Companies screened electric and natural gas programs using the avoided costs from the 2015 AESC. The resulting lower avoided costs for both electric and natural gas programs were primarily due to the impact of lower projections for Henry Hub natural gas prices going forward, and increased natural gas supply into New England. A summary of this analysis is presented in Tables 7-2 and 7-3, and Figures 7-1 and 7-2. These tables and figures are calibrated to a \$1.00 benefit from the 2015 Plan Update.

Table 7-2: 2015 Plan Update and 2015 AESC Electric Avoided Cost Comparison

Electric	2015	2016	Dollar Δ	Percent Δ
Energy	\$0.38	\$0.37	\$ (0.01)	-2%
Capacity	\$0.07	\$0.09	\$ 0.02	28%
Transmission and Distribution	\$0.04	\$0.04	\$ 0.00	2%
DRIFE	\$0.05	\$0.01	\$ (0.05)	-84%
ROP DRIFE	\$0.06	\$0.01	\$ (0.06)	-88%
Capacity DRIFE	\$0.01	\$0.00	\$ (0.01)	-100%
Cross Fuel DRIFE	\$0.01	\$0.02	\$ 0.01	151%
Oil & Propane	\$0.09	\$0.06	\$ (0.03)	-32%
Electric Emissions	\$0.23	\$0.23	\$ 0.01	3%
Water	\$0.00	\$0.00	\$ 0.00	2%
Non Energy Benefits	\$0.06	\$0.06	\$ 0.00	2%
Fossil Emissions	NA	\$0.01	\$ 0.01	NA
Total All (TR Benefit)	\$1.00	\$0.90	\$ (0.10)	-10%
Total Electric (Utility Benefit)	\$0.62	\$0.53	\$ (0.09)	-14%

Figure 7-1: 2015 Plan Update and 2015 AESC Electric Avoided Cost Comparison



Based on the 2015 AESC, it is estimated that total benefits for the electric programs will decrease by approximately 10 percent; or each dollar of benefit will be reduced to approximately \$0.90 (see Figure 7-1 above). In particular, note the following:

- The total electric program (Total Resource Cost Test) benefits decrease by approximately 10 percent from 2015 to 2016. However, the electric benefit (for the Utility Cost Test) decreased by approximately 14 percent;
- The DRIPE categories had significant changes with most DRIPE values decreasing significantly. The 2015 AESC predicts lower duration of DRIPE due to the erosion of surplus generating capacity, and the expectation that market prices will track the cost of new generating units, and thus will be less sensitive to demand changes. Overall, all DRIPE (combined) decreased by 71 percent;
- Fossil Fuels (oil and propane) avoided costs decreased by 32 percent;
- Note that the 2016-2018 Plan avoided costs include Fossil Emissions; which were not included in the 2015 Plan Update program benefits; and
- The 2016 DRIPE values were calculated using their full duration from the 2015 AESC. The 2015 Plan Update DRIPE values were capped at a duration of seven years.

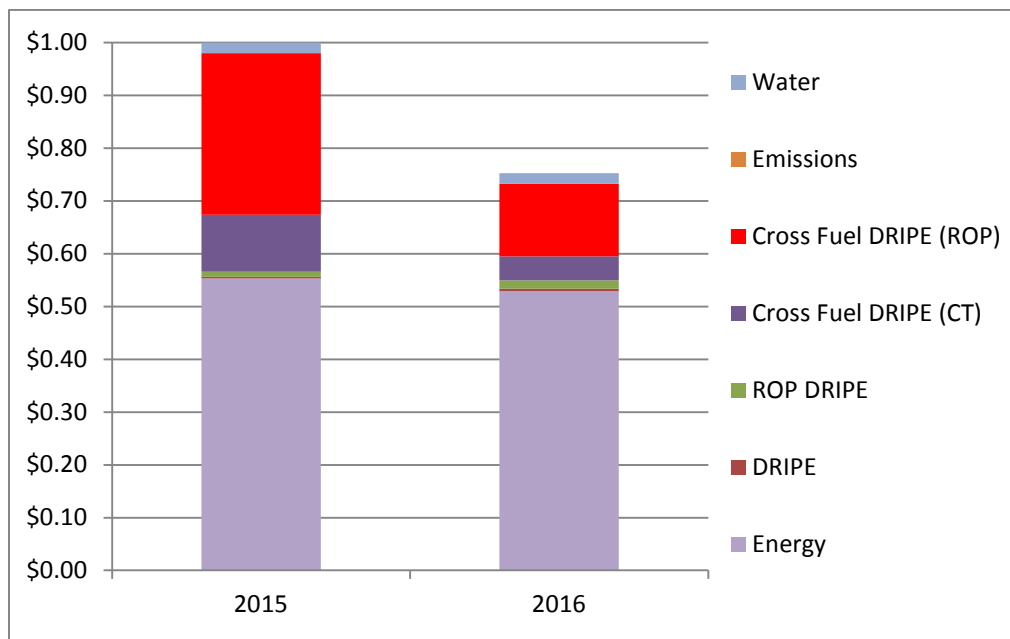
A similar analysis was conducted for the natural gas energy-efficiency programs (Table 7-3 and Figure 7-2) on the next page:

- The natural gas program benefits (for the Utility Cost Test) decreased by approximately 25 percent;
- The 2016-2018 Plan natural gas benefits include natural gas emission avoided costs which were not included in the 2015 Plan Update program benefits. The inclusion of Fossil Emissions benefits is proposed for the 2016-2018 Plan B/C testing. However, if the natural gas Fossil Emissions benefits are not included, the 2016-2018 Plan Total Resource Test benefits decrease by approximately 25 percent;
- The Energy benefits (Utility Cost Test) benefits remained relatively stable. The decrease in total benefits was driven primarily by the decrease in DRIPE benefits, primarily the Cross Fuel DRIPE values; and
- Natural gas DRIPE values were estimated in the 2013 AESC. The 2015 AESC estimates benefits from the latest information on natural gas price elasticity, and some reconsideration of the approach to estimating Basis DRIPE, as well as updated assumptions on pipeline capacity.

Table 7-3: 2015 Plan Update and 2015 AESC Natural Gas Avoided Cost Comparison

Natural Gas	2015	2016	Dollar Δ	Percent Δ
Energy	\$0.55	\$0.53	\$ (0.02)	-4.3%
DRIPE	\$0.003	\$0.005	\$ 0.00	56.0%
ROP DRIPE	\$0.01	\$0.02	\$ 0.01	61.6%
Cross Fuel DRIPE (CT)	\$0.11	\$0.05	\$ (0.06)	-57.6%
Cross Fuel DRIPE (ROP)	\$0.31	\$0.14	\$ (0.17)	-55.2%
Emissions	NA	\$0.09	\$ 0.09	NA
Water	\$0.02	\$0.02	\$ 0.00	1.8%
Total All (TR Benefit)	\$1.00	\$0.85	\$ (0.15)	-15%
Total Natural Gas (Utility Benefit)	\$0.98	\$0.73	\$ (0.25)	-25%

Figure 7-2: 2015 Plan Update and 2015 AESC Natural Gas Avoided Cost Comparison



PROCESS FOR UPDATING

The 2015 AESC moved to a three-year cycle beginning in 2015, and was designed to provide avoided cost values for the next three years (2016–2018). The 2015 AESC is based on a myriad of assumptions and forecasts. The Companies agree that like most embedded assumptions in the 2015 AESC (as is the case in general with long range forecasts), there is some level of uncertainty. It is evident that based on the dynamic energy market, a three-year cycle may be over ambitious, as significant market changes could take place which would have positive or negative impacts on the avoided costs. Based on this uncertainty, the 2015 Avoided Cost Study

Group members agreed that if deemed necessary, it may be appropriate to refresh the 2015 AESC after one year. This provides individual New England states the opportunity to assess the ebbs and flows of the energy market in its entirety, and make a determination as to whether an update is warranted. The Companies will collaborate with the Energy Efficiency Board and DEEP to assess the need to update the avoided costs in year 2 or year 3 of the 2016-2018 Plan.

NON-ENERGY BENEFITS

The Companies quantify and count a number of non-energy benefits (“NEBs”) in the Total Resource Cost Test. These NEBs include water, non-embedded emissions, and non-resource (i.e. lower maintenance) savings. Anecdotally, the Companies are aware that there are other NEBs that customers may receive as a result of participating in energy-efficiency programs. For example, customers who built energy-efficient homes, or who have their homes weatherized, often cite improved comfort or better health as ancillary benefits of energy-efficiency program participation. Many jurisdictions across the United States have quantified numerous NEBs, and they have included them in their Total Resource Cost Tests.

On August 13, 2015, the Companies participated in a Public Information Meeting hosted by DEEP on cost-effectiveness testing. During the meeting, the topic of NEBs was discussed at length with the Companies’ staff, DEEP, and representatives from the Energy Efficiency Board. As a result of these discussions, the Companies will work collaboratively with the Energy Efficiency Board and DEEP to identify and quantify additional NEBs that can be used in Total Resource Cost Testing going forward. It is anticipated that this work will begin in late 2015, and that additional NEBs may be included in B/C testing upon completion of this process. In the long-term, the Companies will continue to work to identify and quantify additional NEBs through the Energy Efficiency Board Evaluation process, and add these into the Total Resource Cost Test where appropriate.

SUMMARY

In conclusion, the following is a summary of B/C testing in the 2016-2018 Plan:

- B/C testing will use the 2015 AESC as it was published, and include all non-capped electric and natural gas DRIPE values;
- B/C testing will include Fossil Emissions values in the 2016-2018 Plan based on the 2015 AESC. These would be counted only within the Total Resource Cost Test, and emission reductions would be reported in Table B-1;
- The Companies will continue to use the DEEP-mandated nominal discount rate of 5.5 percent and nominal avoided costs;

- It is not prudent or warranted to update the 2015 AESC at this time. It may be appropriate to update the 2015 AESC in one or two years after a careful review and analysis of all relevant assumptions;
- B/C testing will continue to report the Utility Cost Test, Modified Utility Cost Test, and Total Resource Cost Test as was done in the 2015 Plan Update; and
- Itemize and report all discrete avoided costs in the 2016-2018 Plan.

Avoided Costs

The following tables (Tables 7-4, 7-5, 7-6, 7-7, and 7-8) detail the avoided costs used in B/C screening. The values are nominal dollars and represent the avoided cost for each year that fall within the life of installed measures.

Table 7-4: Electric Avoided Costs

Year	Electric Avoided Costs										
	Energy (kWh)				Summer Peak (kW)	T and D (kW)		Electric (CT) DRIPE (kWh)			
	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Capacity	Distribution	Transmission	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak
2016	\$0.084	\$0.078	\$0.062	\$0.044	\$20.95	\$36.37	\$1.66	\$0.007	\$0.009	\$0.003	\$0.009
2017	\$0.082	\$0.077	\$0.065	\$0.052	\$64.09	\$37.05	\$1.70	\$0.007	\$0.009	\$0.003	\$0.011
2018	\$0.073	\$0.068	\$0.066	\$0.056	\$75.88	\$37.75	\$1.73	\$0.004	\$0.005	\$0.000	\$0.000
2019	\$0.074	\$0.069	\$0.067	\$0.057	\$71.78	\$38.46	\$1.76	\$0	\$0	\$0	\$0
2020	\$0.074	\$0.068	\$0.069	\$0.057	\$185.70	\$39.18	\$1.79	\$0	\$0	\$0	\$0
2021	\$0.077	\$0.071	\$0.073	\$0.060	\$193.38	\$39.92	\$1.83	\$0	\$0	\$0	\$0
2022	\$0.085	\$0.079	\$0.080	\$0.067	\$199.10	\$40.67	\$1.86	\$0	\$0	\$0	\$0
2023	\$0.088	\$0.082	\$0.086	\$0.071	\$199.93	\$41.44	\$1.90	\$0	\$0	\$0	\$0
2024	\$0.092	\$0.086	\$0.087	\$0.074	\$208.14	\$42.21	\$1.93	\$0	\$0	\$0	\$0
2025	\$0.098	\$0.089	\$0.095	\$0.078	\$216.47	\$43.01	\$1.97	\$0	\$0	\$0	\$0
2026	\$0.101	\$0.093	\$0.101	\$0.081	\$221.44	\$43.82	\$2.00	\$0	\$0	\$0	\$0
2027	\$0.103	\$0.096	\$0.099	\$0.084	\$223.50	\$44.64	\$2.04	\$0	\$0	\$0	\$0
2028	\$0.107	\$0.100	\$0.107	\$0.089	\$233.17	\$45.48	\$2.08	\$0	\$0	\$0	\$0
2029	\$0.115	\$0.108	\$0.114	\$0.095	\$246.80	\$46.34	\$2.12	\$0	\$0	\$0	\$0
2030	\$0.126	\$0.114	\$0.138	\$0.103	\$254.21	\$47.21	\$2.16	\$0	\$0	\$0	\$0
2031	\$0.133	\$0.121	\$0.147	\$0.109	\$247.69	\$48.09	\$2.20	\$0	\$0	\$0	\$0
2032	\$0.140	\$0.127	\$0.156	\$0.116	\$252.10	\$49.00	\$2.24	\$0	\$0	\$0	\$0
2033	\$0.147	\$0.134	\$0.165	\$0.122	\$256.59	\$49.92	\$2.28	\$0	\$0	\$0	\$0
2034	\$0.155	\$0.141	\$0.176	\$0.129	\$261.16	\$50.86	\$2.33	\$0	\$0	\$0	\$0
2035	\$0.163	\$0.149	\$0.187	\$0.137	\$265.81	\$51.81	\$2.37	\$0	\$0	\$0	\$0
2036	\$0.171	\$0.158	\$0.198	\$0.145	\$270.54	\$52.79	\$2.42	\$0	\$0	\$0	\$0
2037	\$0.180	\$0.166	\$0.211	\$0.154	\$275.35	\$53.78	\$2.46	\$0	\$0	\$0	\$0
2038	\$0.190	\$0.176	\$0.224	\$0.163	\$280.25	\$54.79	\$2.51	\$0	\$0	\$0	\$0
2039	\$0.200	\$0.185	\$0.238	\$0.173	\$285.24	\$55.82	\$2.55	\$0	\$0	\$0	\$0
2040	\$0.211	\$0.196	\$0.253	\$0.183	\$290.32	\$56.87	\$2.60	\$0	\$0	\$0	\$0
2041	\$0.222	\$0.207	\$0.269	\$0.194	\$295.49	\$57.94	\$2.65	\$0	\$0	\$0	\$0
2042	\$0.233	\$0.218	\$0.286	\$0.205	\$300.75	\$59.03	\$2.70	\$0	\$0	\$0	\$0
2043	\$0.246	\$0.231	\$0.304	\$0.218	\$306.10	\$60.14	\$2.75	\$0	\$0	\$0	\$0

Table 7-5: Electric Avoided Costs (continued)

Year	Electric Avoided Costs										
	REST of POOL DRIPE (kWh)				Capacity DRIPE (kW)	Cross Fuel DRIPE (kWh)		Avoided Non-Embedded Cost (Emissions) (kWh)			
	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Capacity DRIPE	Winter	Summer	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak
2016	\$0.006	\$0.008	\$0.003	\$0.005	0	\$0.023	\$0.015	\$0.048	\$0.047	\$0.051	\$0.049
2017	\$0.006	\$0.008	\$0.003	\$0.006	0	\$0.014	\$0.009	\$0.048	\$0.047	\$0.051	\$0.049
2018	\$0.003	\$0.004	\$0.000	\$0.000	0	\$0.007	\$0.004	\$0.049	\$0.048	\$0.052	\$0.050
2019	\$0	\$0	\$0	\$0	0	\$0.004	\$0.003	\$0.049	\$0.049	\$0.053	\$0.050
2020	\$0	\$0	\$0	\$0	0	\$0.004	\$0.003	\$0.050	\$0.049	\$0.053	\$0.051
2021	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.050	\$0.050	\$0.054	\$0.051
2022	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.050	\$0.049	\$0.053	\$0.051
2023	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.050	\$0.049	\$0.053	\$0.051
2024	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.049	\$0.049	\$0.052	\$0.050
2025	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.049	\$0.048	\$0.052	\$0.050
2026	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.048	\$0.048	\$0.051	\$0.049
2027	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.048	\$0.047	\$0.051	\$0.049
2028	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.047	\$0.046	\$0.050	\$0.048
2029	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.046	\$0.046	\$0.049	\$0.047
2030	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.046	\$0.045	\$0.049	\$0.047
2031	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.045	\$0.044	\$0.048	\$0.046
2032	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.046	\$0.045	\$0.049	\$0.047
2033	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.046	\$0.046	\$0.049	\$0.047
2034	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.047	\$0.047	\$0.050	\$0.048
2035	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.048	\$0.048	\$0.051	\$0.049
2036	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.049	\$0.048	\$0.052	\$0.050
2037	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.050	\$0.049	\$0.053	\$0.051
2038	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.051	\$0.050	\$0.054	\$0.052
2039	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.052	\$0.051	\$0.055	\$0.053
2040	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.053	\$0.052	\$0.056	\$0.054
2041	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.053	\$0.053	\$0.057	\$0.055
2042	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.054	\$0.054	\$0.058	\$0.056
2043	\$0	\$0	\$0	\$0	0	\$0.001	\$0.001	\$0.055	\$0.055	\$0.059	\$0.057

Table 7-6: Natural Gas Avoided Costs

Year	Gas Avoided								
	Gas Avoided (MMBtu)							DRIPE (MMBtu)	ROP DRIPE (MMBtu)
	Res Non Heating (1)	Res Hot Water (2)	Res Heating (3)	Res All (NA)	C&I Non Heating (6)	C&I Heating (7)	C&I All (NA)	All	All
2016	\$4.75	\$5.26	\$5.43	\$5.29	\$4.94	\$5.27	\$5.13	\$0.06	\$0.197
2017	\$5.56	\$6.25	\$6.47	\$6.30	\$5.81	\$6.25	\$6.07	\$0.06	\$0.200
2018	\$6.17	\$6.84	\$7.06	\$6.88	\$6.42	\$6.85	\$6.66	\$0.06	\$0.204
2019	\$6.34	\$6.90	\$7.08	\$6.93	\$6.55	\$6.91	\$6.75	\$0.07	\$0.208
2020	\$6.06	\$6.61	\$6.79	\$6.64	\$6.27	\$6.62	\$6.47	\$0.07	\$0.212
2021	\$6.52	\$7.09	\$7.28	\$7.12	\$6.73	\$7.10	\$6.93	\$0.07	\$0.216
2022	\$6.73	\$7.30	\$7.49	\$7.35	\$6.95	\$7.31	\$7.16	\$0.07	\$0.220
2023	\$6.96	\$7.54	\$7.74	\$7.58	\$7.18	\$7.55	\$7.39	\$0.07	\$0.224
2024	\$7.32	\$7.93	\$8.13	\$7.97	\$7.54	\$7.93	\$7.76	\$0.07	\$0.228
2025	\$7.60	\$8.20	\$8.40	\$8.23	\$7.83	\$8.21	\$8.04	\$0.07	\$0.233
2026	\$7.87	\$8.49	\$8.70	\$8.53	\$8.10	\$8.50	\$8.32	\$0.07	\$0.237
2027	\$8.12	\$8.75	\$8.96	\$8.79	\$8.35	\$8.76	\$8.58	\$0.08	\$0.241
2028	\$8.41	\$9.05	\$9.26	\$9.10	\$8.66	\$9.06	\$8.88	\$0.08	\$0.246
2029	\$8.82	\$9.47	\$9.69	\$9.52	\$9.07	\$9.48	\$9.30	\$0.08	\$0.251
2030	\$9.36	\$10.02	\$10.24	\$10.07	\$9.61	\$10.03	\$9.85	\$0.08	\$0.255
2031	\$9.72	\$10.39	\$10.61	\$10.44	\$9.98	\$10.40	\$10.22	\$0.08	\$0.260
2032	\$10.10	\$10.77	\$11.00	\$10.83	\$10.36	\$10.78	\$10.60	\$0.08	\$0.265
2033	\$10.49	\$11.17	\$11.40	\$11.23	\$10.75	\$11.18	\$11.00	\$0.08	\$0.270
2034	\$10.89	\$11.59	\$11.82	\$11.65	\$11.16	\$11.60	\$11.41	\$0.09	\$0.275
2035	\$11.31	\$12.02	\$12.26	\$12.08	\$11.59	\$12.03	\$11.84	\$0.09	\$0.280
2036	\$11.75	\$12.47	\$12.71	\$12.53	\$12.03	\$12.47	\$12.29	\$0.09	\$0.286
2037	\$12.21	\$12.93	\$13.17	\$13.00	\$12.49	\$12.94	\$12.75	\$0.09	\$0.291
2038	\$12.68	\$13.41	\$13.65	\$13.48	\$12.96	\$13.42	\$13.23	\$0.09	\$0.296
2039	\$13.17	\$13.91	\$14.15	\$13.98	\$13.46	\$13.91	\$13.73	\$0.09	\$0.302
2040	\$13.68	\$14.42	\$14.67	\$14.50	\$13.97	\$14.43	\$14.24	\$0.10	\$0.308
2041	\$14.21	\$14.96	\$15.21	\$15.04	\$14.50	\$14.97	\$14.78	\$0.10	\$0.313
2042	\$14.76	\$15.52	\$15.77	\$15.60	\$15.06	\$15.52	\$15.34	\$0.10	\$0.319
2043	\$15.33	\$16.09	\$16.35	\$16.18	\$15.63	\$16.10	\$15.91	\$0.10	\$0.325

Table 7-7: Natural Gas Avoided Costs (continued)

Year	Gas Avoided														
	Cross Fuel DRIP CT (MMBtu)							Cross Fuel DRIP - Rest of Pool (MMBtu)							Gas Emissions
	Res Non Heating (1)	Res Hot Water (2)	Res Heating (3)	Res All (NA)	C&I Non Heating (6)	C&I Heating (7)	C&I All (NA)	Res Non Heating (1)	Res Hot Water (2)	Res Heating (3)	Res All (NA)	C&I Non Heating (6)	C&I Heating (7)	C&I All (NA)	All (\$ per MMBtu)
2016	\$3.34	\$3.21	\$3.16	\$3.20	\$3.29	\$3.21	\$3.24	\$10.10	\$9.69	\$9.56	\$9.67	\$9.95	\$9.69	\$9.80	\$0.432
2017	\$2.05	\$1.94	\$1.91	\$1.94	\$2.01	\$1.94	\$1.97	\$6.07	\$5.76	\$5.66	\$5.74	\$5.96	\$5.76	\$5.85	\$0.48
2018	\$0.98	\$0.90	\$0.88	\$0.90	\$0.95	\$0.90	\$0.92	\$2.91	\$2.68	\$2.60	\$2.66	\$2.82	\$2.67	\$2.74	\$0.52
2019	\$0.65	\$0.58	\$0.55	\$0.57	\$0.62	\$0.58	\$0.60	\$1.91	\$1.71	\$1.64	\$1.69	\$1.84	\$1.70	\$1.76	\$0.59
2020	\$0.65	\$0.58	\$0.55	\$0.57	\$0.62	\$0.58	\$0.60	\$1.92	\$1.71	\$1.64	\$1.70	\$1.84	\$1.71	\$1.77	\$0.65
2021	\$0.13	\$0.07	\$0.05	\$0.07	\$0.11	\$0.07	\$0.09	\$0.39	\$0.21	\$0.15	\$0.20	\$0.32	\$0.21	\$0.26	\$0.82
2022	\$0.13	\$0.07	\$0.05	\$0.07	\$0.11	\$0.07	\$0.09	\$0.39	\$0.22	\$0.16	\$0.20	\$0.33	\$0.21	\$0.26	\$1.00
2023	\$0.14	\$0.07	\$0.05	\$0.07	\$0.11	\$0.07	\$0.09	\$0.40	\$0.22	\$0.16	\$0.21	\$0.33	\$0.22	\$0.27	\$1.18
2024	\$0.14	\$0.08	\$0.06	\$0.07	\$0.11	\$0.08	\$0.09	\$0.41	\$0.22	\$0.16	\$0.21	\$0.34	\$0.22	\$0.27	\$1.37
2025	\$0.14	\$0.08	\$0.06	\$0.07	\$0.12	\$0.08	\$0.09	\$0.41	\$0.23	\$0.17	\$0.22	\$0.34	\$0.22	\$0.28	\$1.56
2026	\$0.14	\$0.08	\$0.06	\$0.07	\$0.12	\$0.08	\$0.10	\$0.42	\$0.23	\$0.17	\$0.22	\$0.35	\$0.23	\$0.28	\$1.77
2027	\$0.15	\$0.08	\$0.06	\$0.08	\$0.12	\$0.08	\$0.10	\$0.43	\$0.23	\$0.17	\$0.22	\$0.36	\$0.23	\$0.29	\$1.97
2028	\$0.15	\$0.08	\$0.06	\$0.08	\$0.12	\$0.08	\$0.10	\$0.44	\$0.24	\$0.17	\$0.23	\$0.36	\$0.24	\$0.29	\$2.19
2029	\$0.15	\$0.08	\$0.06	\$0.08	\$0.13	\$0.08	\$0.10	\$0.44	\$0.24	\$0.18	\$0.23	\$0.37	\$0.24	\$0.30	\$2.41
2030	\$0.15	\$0.08	\$0.06	\$0.08	\$0.13	\$0.08	\$0.10	\$0.45	\$0.25	\$0.18	\$0.23	\$0.37	\$0.24	\$0.30	\$2.64
2031	\$0.16	\$0.09	\$0.06	\$0.08	\$0.13	\$0.08	\$0.10	\$0.46	\$0.25	\$0.18	\$0.24	\$0.38	\$0.25	\$0.31	\$3.01
2032	\$0.16	\$0.09	\$0.06	\$0.08	\$0.13	\$0.09	\$0.11	\$0.47	\$0.26	\$0.19	\$0.24	\$0.39	\$0.25	\$0.31	\$3.42
2033	\$0.16	\$0.09	\$0.06	\$0.08	\$0.14	\$0.09	\$0.11	\$0.48	\$0.26	\$0.19	\$0.25	\$0.40	\$0.26	\$0.32	\$3.90
2034	\$0.17	\$0.09	\$0.07	\$0.09	\$0.14	\$0.09	\$0.11	\$0.48	\$0.27	\$0.19	\$0.25	\$0.40	\$0.26	\$0.32	\$4.43
2035	\$0.17	\$0.09	\$0.07	\$0.09	\$0.14	\$0.09	\$0.11	\$0.49	\$0.27	\$0.20	\$0.26	\$0.41	\$0.27	\$0.33	\$5.047
2036	\$0.17	\$0.09	\$0.07	\$0.09	\$0.14	\$0.09	\$0.11	\$0.50	\$0.28	\$0.20	\$0.26	\$0.42	\$0.27	\$0.34	\$5.744
2037	\$0.18	\$0.10	\$0.07	\$0.09	\$0.15	\$0.09	\$0.12	\$0.51	\$0.28	\$0.21	\$0.27	\$0.43	\$0.28	\$0.34	\$6.537
2038	\$0.18	\$0.10	\$0.07	\$0.09	\$0.15	\$0.10	\$0.12	\$0.52	\$0.29	\$0.21	\$0.27	\$0.43	\$0.28	\$0.35	\$7.441
2039	\$0.18	\$0.10	\$0.07	\$0.09	\$0.15	\$0.10	\$0.12	\$0.53	\$0.29	\$0.21	\$0.28	\$0.44	\$0.29	\$0.36	\$8.468
2040	\$0.19	\$0.10	\$0.07	\$0.10	\$0.15	\$0.10	\$0.12	\$0.54	\$0.30	\$0.22	\$0.28	\$0.45	\$0.29	\$0.36	\$9.638
2041	\$0.19	\$0.10	\$0.08	\$0.10	\$0.16	\$0.10	\$0.13	\$0.55	\$0.30	\$0.22	\$0.29	\$0.46	\$0.30	\$0.37	\$10.970
2042	\$0.19	\$0.11	\$0.08	\$0.10	\$0.16	\$0.10	\$0.13	\$0.56	\$0.31	\$0.23	\$0.29	\$0.47	\$0.31	\$0.38	\$12.485
2043	\$0.20	\$0.11	\$0.08	\$0.10	\$0.16	\$0.11	\$0.13	\$0.57	\$0.31	\$0.23	\$0.30	\$0.48	\$0.31	\$0.38	\$14.210

Table 7-8: Fossil Fuel and Other Avoided Costs

Fossil Fuel (MMBtu)						Other	Annual Benefit	DRIPE ROP (2017 and 2018 only)			
					Fossil Fuel Emissions	Water (\$/Gal)		REST of POOL DRIPE (kWh) 2017 and 2018			
Res Oil (4)	Res Propane (5)	C&I Oil (8)	Other (wood) (9)	Other (pellets) (10)	MMBtu (based on oil/propan	Water	NEB	Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak
\$16.47	\$15.58	\$15.07	\$5.83	\$6.64	\$0.59	\$0.012	\$1.00	\$0.000	\$0.000	\$0.000	\$0.000
\$18.17	\$17.79	\$16.75	\$6.44	\$7.32	\$0.65	\$0.012	\$1.02	\$0.009	\$0.006	\$0.008	\$0.003
\$19.68	\$19.44	\$18.18	\$6.97	\$7.93	\$0.71	\$0.012	\$1.04	\$0.010	\$0.003	\$0.004	\$0.000
\$20.46	\$20.01	\$18.97	\$7.25	\$8.25	\$0.80	\$0.013	\$1.06	\$0	\$0	\$0	\$0
\$21.25	\$20.53	\$19.72	\$7.53	\$8.56	\$0.89	\$0.013	\$1.08	\$0	\$0	\$0	\$0
\$22.07	\$21.15	\$20.53	\$7.82	\$8.89	\$1.12	\$0.013	\$1.10	\$0	\$0	\$0	\$0
\$22.93	\$21.74	\$21.39	\$8.12	\$9.24	\$1.36	\$0.013	\$1.12	\$0	\$0	\$0	\$0
\$23.77	\$22.30	\$22.16	\$8.42	\$9.58	\$1.61	\$0.014	\$1.14	\$0	\$0	\$0	\$0
\$24.64	\$22.90	\$22.93	\$8.73	\$9.93	\$1.87	\$0.014	\$1.16	\$0	\$0	\$0	\$0
\$25.50	\$23.55	\$23.76	\$9.03	\$10.28	\$2.13	\$0.014	\$1.18	\$0	\$0	\$0	\$0
\$26.27	\$24.18	\$24.52	\$9.31	\$10.59	\$2.41	\$0.014	\$1.20	\$0	\$0	\$0	\$0
\$27.20	\$24.83	\$25.41	\$9.64	\$10.96	\$2.69	\$0.015	\$1.23	\$0	\$0	\$0	\$0
\$27.99	\$25.45	\$26.15	\$9.91	\$11.28	\$2.98	\$0.015	\$1.25	\$0	\$0	\$0	\$0
\$28.88	\$26.11	\$26.99	\$10.23	\$11.64	\$3.29	\$0.015	\$1.27	\$0	\$0	\$0	\$0
\$29.71	\$26.78	\$27.80	\$10.53	\$11.98	\$3.60	\$0.016	\$1.30	\$0	\$0	\$0	\$0
\$30.67	\$27.47	\$28.71	\$10.86	\$12.36	\$4.10	\$0.016	\$1.32	\$0	\$0	\$0	\$0
\$31.65	\$28.17	\$29.65	\$11.21	\$12.76	\$4.66	\$0.016	\$1.35	\$0	\$0	\$0	\$0
\$32.67	\$28.90	\$30.62	\$11.57	\$13.17	\$5.31	\$0.016	\$1.37	\$0	\$0	\$0	\$0
\$33.72	\$29.64	\$31.63	\$11.94	\$13.59	\$6.04	\$0.017	\$1.40	\$0	\$0	\$0	\$0
\$34.80	\$30.41	\$32.66	\$12.33	\$14.03	\$6.88	\$0.017	\$1.42	\$0	\$0	\$0	\$0
\$35.92	\$31.19	\$33.73	\$12.72	\$14.48	\$7.82	\$0.017	\$1.45	\$0	\$0	\$0	\$0
\$37.07	\$31.99	\$34.83	\$13.13	\$14.94	\$8.91	\$0.018	\$1.48	\$0	\$0	\$0	\$0
\$38.26	\$32.82	\$35.97	\$13.55	\$15.42	\$10.14	\$0.018	\$1.51	\$0	\$0	\$0	\$0
\$39.49	\$33.66	\$37.15	\$13.99	\$15.91	\$11.54	\$0.018	\$1.53	\$0	\$0	\$0	\$0
\$40.76	\$34.53	\$38.37	\$14.44	\$16.43	\$13.13	\$0.019	\$1.56	\$0	\$0	\$0	\$0
\$42.07	\$35.42	\$39.62	\$14.90	\$16.95	\$14.94	\$0.019	\$1.59	\$0	\$0	\$0	\$0
\$43.42	\$36.33	\$40.92	\$15.38	\$17.50	\$17.01	\$0.019	\$1.62	\$0	\$0	\$0	\$0
\$44.81	\$37.27	\$42.26	\$15.87	\$18.06	\$19.36	\$0.020	\$1.65	\$0	\$0	\$0	\$0

CHAPTER EIGHT: DEMAND RESPONSE AND EMERGING TECHNOLOGIES

ISO NEW ENGLAND LOAD RESPONSE AND DEMAND RESPONSE

Objective and Overview

The objective of Eversource's Independent System Operator of New England ("ISO New England") Demand Response participation is to provide support, performance payments, and technical assistance to facilitate customer enrollment in the ISO-NE Forward Capacity Market and Energy Markets, via Demand Response Resources registered with ISO New England. In the Forward Capacity Market ("FCM"), Demand Response Resources provide important supply side capability (installed capacity) in meeting system reliability during peak system load conditions through mandatory load curtailment. Demand Response Resources are composed of Demand Response Assets.

Eversource has exited its Demand Response Resources position in the FCM, which will be effective on June 1, 2018. Eversource will continue to manage its existing Demand Response Resources portfolio during the calendar years 2016 and 2017, and through May 31, 2018.

Target Market

C&I customers and their affiliates who are capable of reducing their peak demand by a minimum 100 kW of load, either at a single site or in the aggregate for multiple facilities, are eligible for participation in the FCM. To maintain its current FCM commitments, Eversource is actively seeking customers for enrollment as a Demand Response Resource.

Program Description

Forward Capacity Market

Customers who enroll as a Demand Response Resource provide load curtailment to meet capacity obligations in the FCM. Enrolled customers are subject to ISO New England's dispatch for system reliability events and seasonal audits (summer and winter). There are two seasonal audits in a capacity commitment period (12 months from June 1 to May 31), summer and winter, conducted between June-August and December-January, respectively. On a monthly basis, customers are eligible to receive FCM compensation for their contribution to the performance of the Demand Response Resource they are associated with, in the FCM.

Additionally, Demand Response Assets of a Demand Response Resource, are paid the zonal Location Marginal Price for the dispatch hours related to demand response reliability or audit events with any energy revenues received from ISO New England rolled into the monthly customer payment process. The sum of an individual customer's performance during ISO New England's dispatch events influences the value of Eversource's FCM portfolio, and therefore affects the compensation customers are eligible to receive.

FCM obligations are accrued three years in advance of a delivery (capacity commitment period) and therefore pricing, or prospective payment rates, are available for marketing purposes. As of June 15, 2015, the FCM Auction for delivery up through May 31, 2018 has been conducted. Eversource is eligible to receive FCM payment rates for the cleared auctions as follows in Table 8-1.

Table 8-1: Eversource FCM Payment Rates (2015-May 31, 2018)

Auction	Capacity Commitment Period	Real-Time Demand Response Rate (\$-kw/yr)*	Real-Time Emergency Generator Rate (\$-kw/yr)*
FCA6	2015-2016	\$41.16	\$36.48
FCA7	2016-2017	\$37.80	\$32.93
FCA8	2017-2018	\$84.30	\$84.30

**Actual payment rate can vary based on performance and portfolio management.*

Automate Demand Response

To help facilitate a more robust response to dispatch, and to ease the execution of responding to a Demand Response event, Eversource will support customer implementation of Automated Demand Response systems ("Auto DR"). Auto DR systems are advanced technologies being utilized throughout the United States that enable faster and more robust customer response to Demand Response events.

Marketing Strategy

Eversource promotes Demand Response through customer seminars as required, and also engages customers through direct sales and service calls. Eversource also employs follow-up meetings to review detailed customer load analysis. These targeted customer outreach efforts assist in minimizing attrition. The reason for marketing to new customers is to maintain the value of Eversource's portfolio within the FCM. Marketing is valuable to Eversource's customers because it reminds them that demand response efforts helps maintain grid reliability, delivers a source of revenue to the customer, and fosters goodwill within the community by helping to keep the lights on. Therefore Eversource's marketing message for Demand Response

participation for the 2016-2018 Plan will continue to focus on grid reliability, load control, and compensation for help in maintaining grid reliability.

Incentive Strategy

Demand Response capacity payments are provided by ISO New England through the FCM to Eversource. Eversource, in turn, provides customer incentives from these revenues to participating customers. Eversource continues to fund the program out of FCM revenues received from ISO New England.

Eversource Specific Issues

Since June 1, 2010, Eversource has operated this program as part of its existing Load Response program as part of Energize Connecticut's energy-efficiency portfolio. However, the revenues used to fund the Load Response program now comes from Demand Response participation in the FCM; and not from customer funds. Eversource will continue to use FCM revenues to cover the Load Response program's costs, including: pay for customer incentives (for participation and response to ISO New England Demand Response Events), Internet-based communication system services, marketing, and administrative labor associated with the program. The Load Response program will continue to be managed by Eversource's existing energy-efficiency personnel, and will be administered subject to the regulations described in ISO New England's Market Rule-1, and other ISO New England governing documents.

Other Potential Demand Response Innovations

Demand Response could be considered at the building design phase; which results in avoided costs associated with retrofitting for Demand Response later on. The Energy Efficiency Board and the Companies will investigate these types of technologies to determine if cost-effective energy savings can be achieved during the Leadership in Energy & Environmental Design ("LEED") design phase, and will provide technical assistance and guidance to C&I customers regarding how to obtain LEED-Demand Response credits.

Implementing an Automated "Shallow" Demand Response ("ASDR") program could attract greater participation in Demand Response programs, as it could require lower Demand Response levels, at five percent for instance, which may be more feasible for customers. The Energy Efficiency Board and the Companies will explore the potentiality of ASDR to determine its cost-effectiveness and energy savings.

Energy Storage and Demand Reduction

The quantity of distributed energy storage options continues to increase each year; and the pricing of these units continues to become more competitive. The Companies' programs will continue to explore and investigate these devices to determine if energy storage technologies can be used to support demand reduction efforts. These technologies include: electrochemical battery, lithium ion battery, and other new technologies like aqueous hybrid ion energy storage. Additionally, new high-efficiency inverter systems may make mid-sized energy storage technologies more efficient.

Phase Change Materials ("PCMs") are products that store and release thermal energy during the process of melting and freezing; while changing from one phase to another. When PCMs freeze, they release energy in the form of latent heat of fusion, or energy of crystallization. As PCMs melt and change from a solid to a liquid, an equal amount of energy is absorbed from the immediate environment. These materials have applications as temporary energy storage units, and can bridge the gap between energy requirement and energy use. A thermal storage application may involve a 24-hour, weekly, or seasonal storage cycle dependent upon the system design requirements, and innovative new PCMs could help reduce daily and seasonal peak loads.

OTHER DEMAND RESPONSE INITIATIVES

Overview of Demand Response Programs

Demand response programs are used by utilities, including the Companies, electric system planners and operators (ISO New England), and regulatory agencies/boards (Energy Efficiency Board, Public Utility Regulatory Authority, and Connecticut Energy Advisory Board) to balance supply and demand on the electrical grid. Demand reductions, measured in kilowatts ("kW"), can help reduce energy prices and price spikes during summer and winter peak demand. Demand response programs can lower the cost of electricity on the wholesale market; thereby leading to lower retail rates.

Additional benefits of demand response programs include an increased resiliency of the electrical grid, and the deferment of utility investments into the distribution, generation, and transmission of electricity. Demand response programs also help mitigate the negative environmental impacts of energy generation, as they deliver significant environmental and emission reduction benefits.

Demand response programs provide an opportunity for customers to help ease demand on the electrical grid by reducing or shifting their electricity usage during peak periods (summer and

winter) in response to time-based rates, or other forms of financial incentives. Time-based rates can include: critical peak pricing, critical peak rebates, real-time pricing, time-of-use pricing, and variable peak pricing. Customers can earn financial incentives by participating in demand response programs that allow utilities to turn on/off air conditioners (room and central units) and water heaters or to adjust thermostats up or down during periods of peak demand.

Connecticut's energy stakeholders consider demand response programs a valuable peak demand reduction resource that can provide economic and environmental benefits, and that can increase the reliability of the electrical grid. Through electrical grid modernization efforts and new advanced metering infrastructures, utilities and electric system planners can "sense" peak load problems and respond immediately with a myriad demand response programs and technologies. In-home displays and home-area-networks ("HAN") technologies make it easier for customers to change their energy behaviors, and to reduce their peak demand consumption based on utility communications regarding their electricity usage and costs.

2016-2018 Residential Demand Response Pilots

During the 2016-2018 Plan, the Companies will look to implement two new integrated energy-efficiency and demand response offerings. These pilots will assess and quantify the potential active demand savings associated with the use of smart Wi-Fi thermostats and smart plug load controls (smart outlets) to "control" residential central air conditioning systems and room air conditioner units.

In both pilots, the Companies will look to better understand the residential demand response markets in Connecticut. They will also look to quantify both the active and passive demand savings, along with the energy savings attributable to the demand response technologies used to control customers' central air conditioner systems and room air conditioner units.

After the three-year pilot periods, the Companies and their respective demand response pilot vendor(s) will assess the:

- Demand reduction (kW) associated with the active demand response component of each pilot;
- Customer participation rates vs. opt-outs; and
- Customer satisfaction and engagement with the pilots.

Both pilots will be co-delivered with the Companies' Residential Program Portfolio offerings, including the HES and HES-Income Eligible programs. During the implementation of the pilots, the Companies understand that customer education regarding demand response initiatives is

imperative. During 2016-2018, the Companies will look to educate customers regarding the benefits of demand response programs, the technologies used in the pilots, and the demand response financial incentives and rebates that will be offered.

Smart Wi-Fi Thermostat Pilot for Central Air Conditioning Systems

Recently, the nation's top thermostat manufacturers have introduced the next generation smart Wi-Fi thermostats, which have evolved to become more user-friendly devices with significant potential to save energy and to reduce peak demand. New wireless controls communicate with users (utility customers), and provide vastly improved and potentially real-time information regarding their HVAC system's energy consumption and energy costs.

Due to the technology's enhanced usability, the US EPA believes these capabilities make it more likely that customers will take effective steps to save energy, and that today's smart Wi-Fi thermostats will soon be promoted and supported by the US EPA's ENERGY STAR label once again. The US EPA suspended the ENERGY STAR programmable thermostats specification effective December 31, 2009.

Starting in 2016, the Companies will each look to acquire approximately 2,000 qualifying vendor smart Wi-Fi thermostats, and will install them in customer homes over a period of three years. The Companies have designed the Smart Wi-Fi Thermostat demand response pilot as a complementary offering to customers who participated in HES program rebate offering for smart Wi-Fi-enabled thermostats. The Companies' goal is to install 2,000 smart Wi-Fi thermostats, in each of their respective service territories, over the pilot's three-year period. In order to help meet this target, the Companies will work with their respective vendors to actively recruit their customers from their existing installed qualifying thermostat customer base into the Smart Wi-Fi Thermostat pilot.

All customers participating in the Smart Wi-Fi Thermostat pilot will be enrolled and qualified through a standalone website that is Energize Connecticut and individual Company-branded. This will include all customers who purchased a qualifying smart Wi-Fi thermostat and received an Energize Connecticut rebate through the HES or HES-Income Eligible programs, or customers who have existing installed qualifying thermostats and who want to enroll in the pilot.

Qualifying customers will need to meet the following criteria:

- Be an Eversource or United Illuminating electric customer;
- Have a Central Air Conditioner in operable and working condition;
- Have a home Wi-Fi Internet connection; and
- Have a home computer, tablet, or Smart Phone (Apple or Android).

Once a customer has installed a smart Wi-Fi thermostat, they will then go to the enrollment website to qualify and enroll in the pilot. Once their enrollment is complete, the customer will then receive their demand response rebate for each smart Wi-Fi thermostat enrolled in the Smart Wi-Fi Thermostat pilot.

During the enrollment process, a customer will be given information regarding the demand response component of the Smart Wi-Fi Thermostat pilot, and the additional financial incentives offered. If a customer agrees to participate in the demand response offering, the customer will grant their respective electric utility (Eversource or United Illuminating) permission to make brief, limited adjustments to their central air conditioner's settings (during the summer) to reduce demand and maintain reliable electric service. Customers will always have total control and can override the settings at any time (i.e., opt-out and decrease/increase temperature settings). As part of the Smart Wi-Fi Thermostat pilot, customers will be able to use their smartphone and/or tablet to keep track of their temperature settings, use less energy, and manage their heating and cooling costs.

Target Market

The target market for the Smart Wi-Fi pilot will be all Eversource and United Illuminating residential electric customers who have central air conditioning systems in their homes—approximately 36 percent of the Companies' electric customers.⁷⁰

For this pilot, the Companies will utilize two different delivery channels to get the Smart Wi-Fi Thermostat product into the residential marketplace. As a note, the demand response enrollment incentive will be tied to confirmation of successful enrollment in the Companies' respective pilots; rather than tied to the purchase of the smart Wi-Fi thermostat itself. This has a distinct advantage because it validates that the customer has properly installed the device and enrolled in the pilot, thereby minimizing the risk of leakage to other service territories.

1. **HES and the HES-Income Eligible Program.** The Companies will co-deliver the Smart Wi-Fi Thermostat demand response pilot, with its Residential Program Portfolio. The Companies will look to utilize the HES and the HES-Income Eligible programs as the main "marketing" channel to introduce the product to the marketplace. The Companies will integrate the Smart Wi-Fi Thermostat pilot as an add-on measure that HES and HES-Income Eligible contractors have at their disposal to recommend to the customer at the

⁷⁰ Based on the 2013 UIL Residential Appliance Saturation Survey, approximately 36 percent of UI residential customers have CAC in their homes. Based on the full United Illuminating residential population of approximately 280,000 residential electric customers, this equates to a potential market of 100,800 potential customers.

“Kitchen Table Wrap-Up.” The Companies will host educational sessions for HES and HES-Income Eligible contractors regarding the benefits of the technology, who qualifies, and how a customer can take advantage of the Smart Wi-Fi Thermostat rebate offer.

The recommendation of this demand response measure will be similar to additional insulation and/or HVAC upgrades, and the HES or HES-Income Eligible contractor will leave an informational sheet with the HES or HES-Income Eligible program’s toolkit that highlights smart Wi-Fi thermostats, the economic, energy, and environmental benefits, and which website a customer must visit in order to sign up for the pilot(s). The selected third-party vendor will track which customers were offered the Smart Wi-Fi Thermostat rebate as an add-on measure, and this information can be shared with the HES or HES-Income Eligible contractor for the purpose of tracking and reminder emails.

2. **Existing Qualifying Thermostat Customers.** For 2016, the Companies will look to offer the pilot to any existing customer with a qualifying thermostat. Invitations to participate in the Smart Wi-Fi Thermostat pilot will be initiated by the Companies and/or selected third-party vendors through electronic communications. Customers who wish to participate will be directed to the appropriate website to start the enrollment process.

The advantage of this customer enrollment model puts the responsibility and choices for installation in a homeowner’s hands. A homeowner may choose to self-install, or hire a local contractor of their choice, to install a qualifying smart Wi-Fi thermostat for their central air conditioning system. Based on past experiences with other thermostat direct-install programs, this customer enrollment model has lower implementation costs, and releases the Companies from issues arising from installation issues and/or customer-perceived thermostat issues after installation.

Program Offerings and Incentives

The Smart Wi-Fi Thermostat pilot will incorporate the next generation of this smart technology, to empower and engage customers with demand response programs and technologies, including remote controllability of HVAC temperature set points and schedules, and gives customers better control over their energy usage. Customers who choose to participate in this demand response pilot will receive a demand response incentive of \$25 per year of participation (and per qualified thermostat), in addition to an Energize Connecticut HES \$100 rebate offer.

The Companies envision the Smart Wi-Fi Thermostat pilot as a way to create a market-ready, residential demand response network. This network will enable quick and successful launches of future demand response programs, which include not only Central Air Conditioning systems, but

holds the possibility of supporting other demand response initiatives, such as “smart” home appliances and connected equipment.

Room Air Conditioner Pilot Using Smart Plug Load Controls

The Companies’ second demand response pilot will focus on plug-based and behind-the-meter control of room air conditioner units, and will look to quantify the demand response savings associated with the use of smart plug controls, and also to assess the demand response potential for aggregation and control of room air conditioning unit loads. The Room Air Conditioner pilot will be a three-year effort (2016-2018), and include the summer periods. At the end of the pilot, the Companies and their third-party vendor(s) will evaluate the results, costs, and benefits associated with the Room Air Conditioner pilot and then determine if the product will continue to be offered as residential demand response tool.

This product, a smart outlet, could potentially provide a new high-tech offering to customers who do not have central air conditioning and who have few opportunities to control their summer time electrical usage. The potential customer participant group will likely include many limited-income customers, and the Companies see this product as a tool that can engage customers, and give the limited-income customer segment better control of their room air conditioner unit’s costs.

For the proposed Room Air Conditioner pilot, Eversource and UIL will each look to install approximately 1,250 smart outlets into the homes of electric customers over a period of two years. Eversource and UIL are each considering the quantity of 1,250 units for several reasons, and also believe that their pilots should be somewhat limited in size in order to reduce the risks associated with this fairly new technology. The Companies will further consider geo-targeting areas across Connecticut that have been identified by ISO New England and other energy stakeholders as critical peak demand reduction areas. Geo-targeting can increase the cost-effectiveness of the pilot, and increase the benefits attributed to demand response programs. The Companies will use the two-year Room Air Conditioner pilot to assess:

- Active demand reduction (kW) of each pilot;
- Customer participation rates vs. opt-outs; and
- Customer satisfaction and engagement with the pilot(s).

The product that the Companies plan to utilize for the Room Air Conditioner pilot is a cloud-based, behind-the-meter, smart outlet control technology designed for utility demand management programs. The identified vendor’s product includes: the smart outlet, a remote control unit, and an easy-to-use utility platform that allows for the aggregation, control, and analysis of the power consumed by Room Air Conditioner loads.

The vendor's product is designed to be a self-installed kit for customers that consists of a plug-based smart outlet and a smart Wi-Fi thermostat remote. The plug-based control (a simple plug-in smart outlet) can be controlled by a wireless thermostat remote, or by a smart phone app that allows electric customers to control the temperature setting of any room air conditioner unit. Customers can remotely turn the unit on or off, and set the temperature of their room air conditioner unit from any smart phone or browser. In addition, customers can pre-set schedules through any web browser, so that their room air conditioners only turn on as needed; thereby transforming a stand-alone room air conditioner into a smart, networked device that gives electric customers users enhanced convenience and control. Customers who participate in the pilot will also be alerted when a peak usage event is called, and the Companies will then have the ability to adjust the unit's temperature. In all cases, the customer will always have the ability to opt-out of any event at any time, by either raising it a set number of degrees, or by raising it to a universal asset point like 76 degrees.

The smart outlet can capture minute-level energy data capture, and allows the electric customer to set a customized schedule to automatically turn their room air conditioner loads on and off, and for them to set a desired room temperature by using the remote thermostat to save energy but stay cool. When a customer plugs the smart outlet directly into a wall outlet and creates a user online account, they are ready to track their energy use and set energy-saving schedules online. The customer can also download the smart outlet app and turn their room air conditioner on or off from an Android or iPhone.

If the customer agrees to participate in this demand response offering, the customer will give the Companies permission to make brief, limited adjustments to the customer's room air conditioner settings during the summer to reduce demand and maintain reliable electric. Customers will always have the control and can override the settings at any time (i.e., opt-out and decrease/increase temperature settings).

Target Market

The target market for this pilot will be all residential customers who have room air conditioner units installed in their homes—approximately 51 percent of the Companies' electric customers.⁷¹

⁷¹ Based on the 2013 UI Residential Appliance Saturation Survey, approximately 51 percent of UI residential customers have RAC units in their homes. Based on the full UI residential population of approximately 280,000 residential customers, this equates to a potential market of greater than 142,000 potential customers that can be targeted for direct load control.

Marketing

For the Room Air Conditioner pilot, the Companies will look to utilize the HES and the HES-Income Eligible programs⁷² as the primary channels to introduce the demand response product to the marketplace.

The Companies will look to introduce the smart outlet as an add-on measure that HES and HES-Income Eligible program contractors have at their disposal to recommend to the customer at the “Kitchen Table Wrap Up.” The recommendation of this measure will be similar to additional insulation or HVAC upgrades, and the HES or HES-Income Eligible contractor will leave an informational sheet with the toolkit that highlights the products, benefits, and website where the customer can enroll in the pilot.

When a HES or HES-Income Eligible program contractor is at a customer premise performing an assessment, they will screen the customer, and if they qualify, will offer the customer information regarding the smart outlet and Room Air Conditioner pilot during the initial visit. Qualifying customers need to have:

- Room air conditioner unit(s) in operable and working condition;
- Home computer (PC or Mac) with Wi-Fi Internet connection; and a
- Smart phone (Apple or Android).

The smart phone will allow them to download and utilize the smart outlet App for better control of their room air conditioner units.

From the third-party vendor marketing side, there are two key marketing and/or communications touch points. The first touchpoint is an email reminder that the customer will receive after a set period of time if the unit is not installed. The second touch point is an annual electronic communication, sent just prior to the cooling season, reminding a customer to re-install their room air conditioner(s) and the smart outlet(s) in order for them to receive their annual demand response incentive, and to get the energy-saving benefits of controlling their room air conditioner.

The Companies may also consider working directly with its third-party vendor to target large residential complexes that hold the potential for large quantities of room air conditioner units in one general location.

⁷² In 2016, HES and HES-Income Eligible contractors performed approximately 4,000 and 5,000 energy assessments, respectively.

Installation

In lieu of hiring a local installation force to support the program or training of HES and HES-Income Eligible program contractors, the simplicity of the selected third-party vendor's product should allow for self-install kits to be drop shipped to qualified customers, and these kits are designed for a simple installation that require several easy steps, including:

- Plug in the smart outlet into a wall outlet next to the room air conditioner unit;
- Plug the room air conditioner into the smart outlet;
- Log in to the selected vendor's web site to set up the thermostat;
- Put the batteries in the hand-held thermostat;
- Download the app on the customer's phone for mobile use and control; and
- Review the selected vendor's User Guide with each kit, this document simplistically reviews the steps required for self-installation. This information also includes contact telephone and email information if the customer has questions or needs assistance.

The HES and HES-Income Eligible program contractors will be educated by the Companies and the selected third-party vendor(s) regarding the benefits of this measure, who qualifies, and how the customer can take advantage of the free smart outlet. The selected third-party vendor will track which customers were offered the smart outlet kit as an add-on measure, and this information can be shared with the HES or HES-Income Eligible contractor for the purpose of tracking and reminder emails.

The benefit or motivator for the HES and HES-Income Eligible contractors will be a company-paid incentive for each smart outlet kit that is properly installed and set up by a customer.

According to a potential third-party vendor for this demand response pilot, approximately 25 percent of customers will need assistance beyond the self-install kit, and will also require on-site assistance. For these customers, the selected third-party vendor will train a local installation team to respond to calls from customers who need on-site assistance. The smart outlet also stores one minute interval usage data, as well as the room ambient temperature every 10 minutes, to support in the verification of reductions obtained through the demand response platform.

Program Offerings and Incentives

Qualifying customers will receive a free smart outlet kit (smart outlet and remote control) and an annual incentive of \$20 for each qualifying and installed smart outlet for their participation in the Room Air Conditioner demand response pilot. At the start of each cooling season, the Companies

and their third-party vendors will send emails to all customers as a friendly reminder to install their smart outlet(s) with their room air conditioners in order to receive their annual incentive.

Commercial & Industrial Demand Response Pilot

During the 2016-2018 Plan, the Companies will investigate implementing a demand response pilot for the 2016-2018 Commercial & Industrial Program Portfolio. This pilot would identify advanced new demand response technologies and practices, including connected equipment, and energy management and analytic systems. In a later section of Chapter Eight—Research, Development, and Demonstration—the Companies discuss several demand response technologies being explored, including: advanced thermostat controls for HVAC systems, and advanced/smart energy management systems that through sensing, feedback, and the use of algorithms, can control a building’s performance holistically for minimized energy use and cost.

For this potential pilot, the Companies will consider geo-targeting areas across Connecticut that have been identified by ISO New England and other energy stakeholders as critical peak demand reduction areas, particularly for the Forward Capacity Market. Geo-targeting could potentially increase the cost-effectiveness of this C&I demand response pilot, and increase the benefits attributed to demand response programs.

RESEARCH, DEVELOPMENT, AND DEMONSTRATION

Objective

The objective of the joint-utility Research, Development, and Demonstration (“RD&D”) program is the advancement of new energy-efficiency measures and more cost-effective and efficient renewable energy technologies. The program is one in which the Electric Distribution Companies (Eversource and United Illuminating) jointly participate.

Target Market

Limited funding may become available for co-sponsorship of special projects involving new energy-efficient technologies, or the continuation of previously funded RD&D projects, and/or the development of a small, targeted request for proposal.

Program Description

The RD&D program provides ongoing technical support for the Energy Efficiency Board’s Roadmap Process, under which new products or technologies submitted to the Energy Efficiency Board are evaluated for consideration of their potential inclusion in an existing energy-efficiency program. The RD&D program reviews and assesses the feasibility, appropriateness, potential

effectiveness, cost-effectiveness, and safety attributes of each proposed new product or technology, and makes resultant recommendations to the Energy Efficiency Board. Such reviews are prepared by the RD&D program staff, with input from the Companies' program administrators, Energy Efficiency Board consultants, and others as appropriate. Review oversight is provided by the RD&D program's Policy Working Group ("PWG"). For the 2016-2018 Plan, the PWG plans to take a more proactive role in screening promising new technologies, practices, and third-party services.

The RD&D program provides ongoing technical support and a Company liaison associated with the co-sponsorship of special projects involving new energy-efficient technologies, including active participation with other utility entities and related organizations involved with the review of proposed energy-efficient products.

The RD&D program also provides engineering and marketing support for previously funded RD&D projects to help them acquire alternative funding, review their reports, and help commercialize their projects to whatever extent possible.

Goals

A goal of the RD&D program is to provide timely technical reviews of new products and/or technologies proposed for consideration of their potential for inclusion in an existing Energize Connecticut program.

A second goal of the RD&D program is to provide technical support and a Company liaison associated with special projects involving new energy-efficient technologies.

A third goal of the RD&D program is to maximize prior-year investments of RD&D project funding and to assist with leveraging additional funding from other sources for follow-up development and/or commercialization activities.

New Program Issues

The joint-utility RD&D Program PWG will review potential emerging technologies and, based on the level of available funding, recommend those eligible for potential consideration under a co-sponsored special project, or RFP solicitation. Some of the potential research efforts are listed below.

POTENTIAL COMMERCIAL & INDUSTRIAL APPLICATIONS

Advanced RTU and HVAC Technologies

New Controls and Smart Systems

New controls and smart systems are pervasive for HVAC systems. These smart systems have a variety of capabilities, including:

- Installing advanced thermostatic controls for HVAC systems, which may combine with other devices to form a company-wide smart device control system, or smart energy management system. Many advanced thermostats have additional inputs and outputs that allow other systems, such as hot water heaters, lighting, refrigeration systems, and other plug loads, to be turned on and off along with the HVAC systems;
- Retrofitting existing single-zone HVAC systems with new controllers to control fans and compressors to gain efficiency for units without variable controls;
- Controlling exhaust hood closures and fans, which reduces airflow volume based upon room occupancy and other factors. Applications include kitchens and laboratories;
- Using ventilation feedback information to prevent over-ventilation in HVAC systems. These smart systems have a demand control ventilation (“DCV”) feature which uses air quality sensors to ensure ventilation codes are satisfied, while reducing energy usage;
- Centrally-controlling multiple room or window A/C systems in non-central HVAC systems from a computer or smartphone, which allow the systems to be turned on and off for the purpose of energy efficiency or demand response, and to change the temperature set point. These systems are primarily used in institutional spaces; and
- Controlling heat, by room, in a central heating system by installing a heat buffer system that allows the room to not overheat.

Emerging HVAC Technologies and Techniques

There are a myriad emerging HVAC technologies and techniques, which include:

- Producing conditioned air through “thermal displacement ventilation,” which integrated as part of new HVAC systems. This HVAC system incorporates a digitally-controlled scroll compressor and tight control of fan speed;

- Displacing a large amount of heat in rooms through destratification by exhausting warm air in the upper areas of rooms and ceiling spaces;
- Using a Cromer Cycle to condition air. These systems use desiccant to transfer moisture and increase energy efficiency and capacity of HVAC systems;
- Using specifically-developed low-flow rate variable air volume (“VAV”) systems to provide more efficiency and control at low-flow conditions;
- Combining space and water heating systems. The domestic hot water heater or boiler supplies hot water to an air-handling unit (“AHU”) or hydronic space-heating systems. Other configurations are possible, and can be built in the field or purchased as a system. These systems can be used in multi-family applications; and
- Energy recovery ventilation (“ERV”) systems capture exhaust air heat, and transfer the heat back to the makeup air in order to minimizing the conditioning of fresh outside air.

Refrigeration and Chilling

New refrigerants, alternatives to R-404A, are now available for refrigeration applications. For example, Honeywell and Solstice have developed Solstice N40, a non-toxic HFO-based refrigerant for use in applications, like supermarket display cases. These new refrigerants have a lower global warming potential and environmental impact, without losing energy efficiency.

Evaporative pre-coolers are not novel; however new products that achieve greater efficiency levels at lower costs are now available, making this technology more cost-effective. According to a 2003 University of Illinois Urbana-Champaign paper by T. Kulkarni and C.W. Bullard, micro-channel heat exchangers have long been used as condensers, but concerns regarding refrigerant “mal-distribution” had previously prevented their use as evaporators. However, newer technologies allow the distribution of working fluid; enabling the use of MCHX in both evaporator and heat pump applications.

Previously for refrigeration and chilling systems, valves were thermostatic and self-contained, and allowed only one pre-set parameter for operation to restrict the flow of refrigerant through the system. Electronic valves allow other system state awareness, and allow adjustment to lead, rather than follow thermal set points. These are available as a stepper motor type, or as pulse width modulation (“PWM”). Each of these valves has its advantages, however, newer valves are now available as hybrids with advantages of both technologies.

A trans-critical compressor is a component of a type of heat pump where the working fluid, typically CO₂ or R744, is used to move heat absent, or without, a phase change. Working pressures in the system can often exceed 1,000 psi, which is a downside, but new turnkey systems have been developed that show high-performance with increased levels of safety.

The use of floating head pressure in refrigeration and chilling systems can be achieved through several different combinations of technologies and operating practices. One technique includes the unique positioning of the expansion valve in a system; resulting in improved energy efficiency.

“Upsizing” existing refrigeration and chilling systems could be a less-expensive alternative to whole-unit replacement. Typical applications include dairy farms and other small businesses, where refrigeration systems are a large expense, and capital for replacement is not available.

Refrigeration and chilling are key energy issues for large data centers. Air-bearing heat exchangers use a circular, flat aluminum part that replaces the CPU fans and heatsinks. Advanced airflow management techniques and technologies that prevent the mixing and recirculation of data center air can improve energy efficiency. Current industry practices allow the chilled supply air to mix with surrounding warmer air before reaching the servers. Another innovative method for cooling servers at data centers is to submerge the servers in a container of mineral oil, which has better heat transfer properties.

Hot Water Heating

One new method of heating water is to heat it by direct flue gas versus using a heat exchanger, through direct-contact water heating.

Demand-controlled circulation for domestic hot water in multi-family homes is another approach to reduce energy. This technology incorporates a special pump, controls, and sensors.

Industrial and Manufacturing Sector Technologies

The U.S. Department of Energy (“DOE”), through its DOE Office of Energy Efficiency and Renewable Energy (“EERE”) and its DOE Industrial Technologies Program (“ITP”), invests in developing energy-efficient technologies to support the industrial and manufacturing sector. Some new, energy-efficient technologies that show potential for reducing manufacturing process energy, include: heat treatment furnace technologies, low-energy air ventilation paint booth systems, material dryers, plastic resin dryers, and technologies for combustion.

The Companies will investigate partnering with manufacturing customers to encourage the adoption of International Organization for Standardization (“ISO”) 50001 practices and use the ISO program to encourage deeper, long-term energy savings. The coordination of measurement, verification, and valuation (“MV&V”) between the Companies and customers could result in statewide standards for measuring and tracking specific energy-efficiency savings at manufacturing facilities.

There are new energy-efficiency engagement platforms that are specifically designed to help manufacturers track energy efficiency by process line or product. If the Energy Efficiency Board and Companies encourage customer adoption of these systems, it could lead to greater levels of manufacturer customer engagement and energy savings.

Motor, Drive, and Pump Technologies

Many industrial and manufacturing facilities rely heavily on motors, drives, and pumps for their operations. Some new motor technologies that show the potential for reducing energy, include: electric motor overload and monitoring systems, more energy-efficient controls for single-phase A/C induction motors, and use of rewind motors. New synchronous motor technologies, like the Q-sync, offer efficiencies surpassing electronically controlled motors (“ECMs”). The DOE has sponsored development of some of these technologies, and has reported design benefits that include: a drop in replacement, high levels of reliability, and long-life bearings.

Potential drive technologies include high-efficiency adjustable speed drives for “large” motors up to 2,500 and 4,000 hp. Smart circulator pumps combine frequency controllers and ECMs, and replace constant-speed circulators for improved efficiency.

Lighting

New advances in lighting technology include: wireless lighting controls, electronic HID lighting, light-emitting plasma (“LEP”) lights, advanced lighting systems that incorporate daylight and sunlight, low-wattage ceramic metal halide (“CMH”) lights, LED bollard lighting for outdoor applications, and organic LEDs (“OLEDs”).

Customer Engagement, Information Systems, Smart Grid Systems, and Plug Load Controls

Customer engagement and smart energy system innovations include the use of graphical display dashboards in industrial and commercial applications, the use of remote savings assessments and screening platforms with differing configuration and automation levels for assessment and retro-commissioning, and advanced/smart energy management systems that through sensing, feedback, and the use of algorithms, control a building's performance holistically for minimized energy use and cost.

Cleaners, Laundromats, and Institutional Garments

For this industry sector, there are several new products, techniques, and technologies that can help industrial customers save energy. These include:

- Professional wet cleaning is a water-based process that uses computer-controlled washers and dryers, specially designed biodegradable detergents to clean sensitive and delicate garments, and specialized tensioning finishing equipment to restore shape and form.
- Ozone washing occurs when a small, compact injection system is installed in a commercial or industrial laundry room. The system uses air and electricity to create ozone, and the system injects the ozone directly into the cold water line leading to the laundry room's washing machines. Because ozone's cleansing power is maximized at low water temperatures, hot water is nearly eliminated from the wash cycle and fabric softener is no longer required. The use of fewer chemicals results in fewer rinse cycles, thus saving water and reducing wash cycle times. Oxygenated garments and linens retain much less water, which in turn reduces laundry weight and dry times.
- Specially-designed polymer beads are used in place of large amounts of hot water to remove stains from fabrics. The polymer beads extract and remove foreign stains from fabrics by both adsorption and absorption processes. Because water is no longer the primary means of removing stains, these systems can get fabrics clean while using significantly less water than a standard commercial laundry machine.
- A CO₂ cleaning machine consists of a washing chamber, storage tank, distilling unit, compressor, refrigeration unit, and depending on the machine design, a pump and a filter. The liquid CO₂ goes easily into the fibers of the clothes and dissolves dirt, fats, and oils, without the use of any water. During the washing cycle a filter cleans particles from

the liquid, and the liquid CO₂ is pumped back into the storage tank at the end of the process to be reused. The clean garments are completely dry, and at room temperature once the cycle is complete, the need for any drying is eliminated.

Deep Commercial & Industrial Retrofits, Zero Net Energy Buildings, and Advanced Barriers

In 2016-2018, the Energy Efficiency Board and Companies will conduct several pilot studies that will hopefully lead to greater understanding of the barriers, challenges, and related efficiency opportunities for deep industrial and commercial retrofits and Zero Net Energy (“ZNE”) buildings. The Energy Efficiency Board and Companies will collaborate with new or existing commercial ZNE building projects to conduct a comprehensive study to better understand modeled vs. actual building performance, and to determine best practices for promoting further ZNE buildings in Connecticut.

Window Innovations

- New technologies include R-5 windows for C&I applications that meet structural requirements, and can lead to as much as a 40 percent increase in energy efficiency.
- Also, new “smart” glass is available on the market that constantly adjusts the window’s tint, allowing the glass to lighten and darken with sunlight. This has significant potential applications for the hotel industry.
- “Smart” window coatings have been developed to control how much heat and sunlight enters a room by blocking heat-producing, near-infrared solar radiation without blocking visible light.
- Automated window shades can be used in combination with sensors and software technologies to control sources of heat in rooms during changing seasons and weather, and can be effective during both winter and summer seasons.
- Daylight Redirecting Film (“DRF”) utilizes micro-replication to redirect light that would have originally hit the floor a few feet from the window, up onto the ceiling, helping to light the room as much as 40 feet from the window. The technology "micro-replication" refers to microscopic structures that are able to redirect as much as 80 percent of light up onto the ceiling, providing more natural light, which has been linked to increased productivity and reduces lighting energy usage.

Small-Scale Energy Management Systems through Advanced Thermostats

- For small C&I buildings that cannot justify the cost of an EMS, comparable cloud thermostats (like the Nest for residential applications) can be installed in Commercial and Industrial buildings to control energy. These technologies lead to lower-cost systems for building energy management.

Advanced Barriers

- Exterior Insulation and Finish Systems (“EIFS”) are proprietary, multi-layered exterior wall systems that can improve energy savings, reduce costs, and provide insulation on the outside of walls. These systems claim to achieve nearly 40 percent improved savings over expanded polystyrene (“EPS”), and are typically used for new construction.
- Aerosol Envelope Sealing is a method of spraying aerosol in a negatively pressurized room in order to fill and seal cracks that cause leaks that lead to energy inefficiency. The benefits of aerosol envelope sealing are that cracks could be sealed in a shorter period of time versus traditional, more manual methods.
- PCMs are materials that store and release latent heat. When used for building applications, the latent thermal storage capacity of PCMs can be used to offset cooling and heating loads in a building. Typically, PCMs store heat by undergoing a solid-liquid phase transformation.

POTENTIAL RESIDENTIAL APPLICATIONS

Advanced RTU and HVAC Technologies

Night-purge ventilation, or "night flushing," opens window, other barriers, and HVAC systems at night to flush warm air out of the building and cool thermal mass for the next day. Night-purge ventilation works best when daytime air temperatures are so high that bringing unconditioned air into the building would not cool people down, but where nighttime air is cool or cold. Night-purge ventilation technologies are usually integrated with HVAC systems, and automatically ventilate homes using the air handler, supply, and return duct system, as well as a smart thermostat, mechanical damper, inlet, and exhaust ducts. When the outdoor temperature is lower than indoor temperatures, the system turns the air conditioning system off, and ventilates the house with 100 percent cool, outside air.

Residential evaporative condensers offer efficiency advantages over conventional air-cooled conditioners by utilizing evaporative cooling to improve condensing unit performance. The evaporative cooling process results in a 30 - 40°F reduction in peak refrigerant condensing temperatures relative to conventional air-cooled systems, contributing to increasing demand savings as outdoor temperatures rise, as well as increased cooling capacity, and efficiency without affecting indoor conditions. California has shown 21-31 percent increased cooling savings for typical relative to conventional 13 SEER air conditioning systems.

Advanced ground source heat pumps have been developed for residential use and small building applications that incorporate inverter driven compressors, indoor air blowers, and water pumps incorporating permanent magnet motor technology. This technology allows the system to match heating and cooling demand, and delivers space heating, space cooling, and water heating for homes.

Variable capacity heat pumps ("VCHPs") eliminate the inefficient on-and-off cycling of residential heat pumps. Recent studies indicate benefits, with one study in 2014 (James B. Cummings and Charles R. Withers, Florida Solar Energy Center) suggesting to oversize units to decrease cooling and heating season energy consumption and peak demand, and to reduce operation of electric resistance back-up elements, yielding *both seasonal and peak demand heating energy savings*.

Some states are investigating market readiness and energy savings achieved by supporting an air conditioner refrigerant charge and air flow verification services program, in order to improve performance and energy savings for home HVAC systems.

Combining space and water heating systems where the domestic hot water heater or boiler supplies hot water to an air-handling unit (“AHU”) or hydronic space-heating systems. Other configurations are possible, and can be built in the field or purchased as a system.

Residential Hot Water Heating

The Energy Efficiency Board and Companies will compare the energy use of conventional and heat pump water heaters, each using solar thermal technology to preheat water, and determine if heat pump water heaters offer advantages due to their efficiency as backup during non-solar (cloudy or at night) periods, as well as the amount of control that they offer in changing the rate of temperature recovery.

Projects are underway, one between Oak Ridge National Laboratory and GE, to develop a gas-fired heat pump water heater that achieves an energy factor greater than 1.0, in order to improve performance over current gas storage water heating.

The Energy Efficiency Board and Companies will investigate technical opportunities and barriers for tankless or instantaneous natural gas water heating for use in residential single family and multi-family buildings, new construction applications, and for retrofit applications.

Home Appliances

While energy-efficient appliances are more readily available due to efforts by the ENERGY STAR program, new technologies continue to emerge. New ENERGY STAR high-efficiency electric clothes dryer models are available, as well as new heat pump clothes dryers.

Residential ZNE Homes, Passive Homes, and Advanced Barriers

Energy-efficient storm windows (Low-e Storm Windows) and interior panels can cost-effectively reduce building energy consumption through upstream discounting and promotions. Aerosol envelope sealing and automated window shades are also available in residential applications (see the Commercial & Industrial Section: *Deep Commercial & Industrial Retrofits, ZNE Buildings, and Advanced Barriers*).

Many states are developing road maps and “pathways” to achieve market penetration for deep energy savings in homes and to create more ZNE and low-load homes. California, for instance, has set a goal of achieving 50 percent energy savings in 10 percent of homes in the state during its next planning period. The road maps layout programs and technologies to help states achieve their energy goals.

Residential Smart Grid, Smart Appliances, and Home Energy Management

Wireless sensors and smart thermostats allow for quick and inexpensive setups when compared to more expensive home energy management systems. When combined with easy-to-use interfaces on smart devices, homeowners can monitor and manage their home energy usage with simple systems.

The cost of home energy management systems continues to lower as their capabilities increase. Home energy management systems combine sensors, controls, and smart device interfaces that could lead to significant savings if users are able to take advantage of the new technologies. Home Area Network (“HAN”) devices and technologies allow homeowners to control energy usage of home appliances and systems. A variety of devices and systems are available from several different manufacturers.

Some communities have tried utilizing Community Energy Dashboards in order to teach residents about peak energy usage and encourage energy-efficiency engagement. Communications include Twitter and Facebook announcements, and requests to turn off appliances and systems during peak energy events.

REFERENCES AND SOURCES

The recommendation for further demonstration and piloting of the above-referenced technologies is a result of a four-state, EERE, and ITP energy-efficiency, emerging technologies benchmarking effort. These emerging technologies are summarized here as potential candidates to study for inclusion in the Companies’ energy-efficiency program portfolio. Descriptions of the technologies were adapted from manufacturer’s websites, and from previous pilot and evaluation study reports performed for the benchmarked states and DOE.

- Efficiency Vermont: Triennial Plan 2015-2017, Prepared by the Vermont Energy Investment Corporation, http://www.encyvermont.com/docs/about_efficiency_vermont/annual_plans/evt-triennial-plan-2015-2017.pdf
- NYSEDA ETAC Programs. <http://www.nyserda.ny.gov/All-Programs/Programs/ETAC-CI>
- California Emerging Technologies Coordinating Council. <http://www.etcc-ca.com/reports/list?&&projtype%5B0%5D=123&>
- Mass Saves. E-Source Consulting Solutions Report. *Best and Emerging Practices and Technologies in Energy-Efficiency Programs*, March 30, 2015. Adam Greenwade, Mike Weedall, Tim Stout, Melanie Wemple, Ira Krepchin, and Katie Elliot.

- U.S. DOE Industrial Technologies Program and U.S. DOE Office of Energy Efficiency and Renewable Energy.
http://energy.gov/sites/prod/files/2013/11/f4/impacts2009_full_report_0.pdf

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CHAPTER NINE: EVALUATION

The Companies recognize the value of thorough, timely, and independent program evaluations and market assessments. These studies provide invaluable feedback to the Companies on program performance which is used to refine and improve the programs to better serve customers.

Through the Energy Efficiency Board, energy-efficiency programs are evaluated on a consistent basis through a third-party, independent process.⁷³ The goals of these evaluations are to ensure that programs are economical, fully effective, and reach a certain threshold of energy savings. Evaluations are selected based on a prioritization, including criteria such as program spending and programs that have not been studied recently. Evaluation results can assist a number of groups, including program planners, administrators, ISO New England, and policy makers to help them make informed decisions about various energy-efficiency strategies and options, and to validate program savings.

In addition, evaluation results help to expand the reach of these programs, by identifying ways to target non-participating customers. They can also help program administrators enhance already cost-effective programs or turn ineffective programs into more cost-effective ones. In addition to evaluations conducted through the Energy Efficiency Board, the Companies participate in the Northeast Energy Efficiency Partnerships (“NEEP”) EM&V Forum⁷⁴ to participate in regional evaluations. Finally, the Companies work collaboratively with other regional and national entities to share evaluation results. Leveraging other studies, where possible, allows the Energy Efficiency Board evaluation process to focus on Connecticut specific studies rather than duplicating studies that have been conducted in other jurisdictions.

2015 EVALUATION RECOMMENDATIONS

One of the outcomes of the Energy Efficiency Board evaluation process is a set of recommendations for the Companies regarding how to improve the evaluated programs. Table 9-1 on the next page details the recommendations issued in 2015, and how the Companies plan to incorporate these recommendations into the 2016-2018 Plan program offerings. The Companies have carefully considered and responded to all evaluation recommendations.

⁷³ See http://www.energizect.com/about/Energy_Efficiency_Board/evaluationcommittee for additional information on the ENERGY EFFICIENCY BOARD evaluation process.

⁷⁴ <http://www.neep.org/initiatives/emv-forum>.

Additionally, several 2015 evaluations produced new realization rates and other estimates intended for use in the 2016 Program Savings Document (“PSD”). These evaluations are also included in Table 9-1 below:

Table 9-1: 2015 Energy Efficiency Board Evaluation Recommendations

Study	Recommendation	Response
Connecticut Consumer Electronics Potential Study Quantitative Literature Review Study R-84	Program approaches should reflect efficiency levels that are a percentage greater than ENERGY STAR minimum specifications.	Given the high penetration of ENERGY STAR models, the Companies agree with this recommendation.
	The Energy Efficiency Board may wish to reassess the market trends and search for other emerging patterns that influence future program success.	The Companies agree with this recommendation and that more research is needed to better understand program impacts from electronics before developing an electronics offering.
	The Energy Efficiency Board may find it useful to conduct a saturation study in Connecticut.	The Companies agree with this recommendation.
	The Energy Efficiency Board may wish to examine the program models currently employed by other program administrators if it wishes to move forward with consumer electronics.	The Companies agree with this recommendation. See also Response 2 above.
	Investigate offering TV incentives based on labels and recognition programs directed at end-users, retailers, and distributor and recycling programs.	The Companies will investigate offering TV incentives during the next three year planning process (for 2016–2018). TV incentives have not been implemented previously because of concerns about high levels of free-ridership and low cost-effectiveness.
	If program managers design programs that promote efficient TVs, they might consider dynamic market factors that can present barriers to accurately claiming savings.	The Companies agree with this recommendation. See also Response 2 above.

	Implement set top boxes through recycling programs, midstream and downstream incentives, and consumer education campaigns.	The Companies will discuss this option with ENERGY EFFICIENCY BOARD consultants as part of the 2016–2018 planning process, but notes that such a program would be challenging to implement because it would require collaboration with media service providers.
	Implementing a set top box offering through end-uses incentives may be inappropriate.	The Companies agree with this recommendation and will discuss this option with the ENERGY EFFICIENCY BOARD consultants as part of the 2016-2018 planning process. See Response 7 above.
	The Energy Efficiency Board may wish to explore using campaigns to educate consumer on optimizing power management and/or use direct installation efforts, perhaps as part of a home energy audit.	The Companies agree with this recommendation.
	Consider offering incentives to end-users, retailers, and distributors for ENERGY STAR personal computers.	The Companies do not agree with this recommendation. Because units are already very efficient, and because of very high free-ridership potential, The Companies feels that it would be imprudent to offer incentives.
	Market dynamics of personal computers may be a barrier to claiming sizeable program savings and achieving adequate participation rates.	The Companies agree with this recommendation. See also Response to Recommendation 10.
	Program design should not include incentives for energy-efficient game consoles.	The Companies agree with this recommendation.
	The Companies may wish to explore the cost-effectiveness of advanced power strips.	The Companies agree with this recommendation and will investigate the potential to introduce power strips into the Home Energy Solutions program as a direct install measure.

HES Additional Measure Review (R-48)	The Companies should consider offering a mail-in rebate for Wi-Fi thermostats that does not exceed \$100.	The Companies will begin offering a \$100 rebate for Wi-Fi thermostats in 2015 to HES, HES-Income Eligible, and HPwES participants.
	The Companies should carefully monitor the roll out of foundation wall insulation as an incentivized measure in the HES and HES-Income Eligible programs.	The Companies' agreements with HES and HES-Income Eligible contractors require that they utilize Building Performance Institute ("BPI") specialists in the HES, HPwES, and HES-Income Eligible programs.
	Due to the average age of existing storage tank hot water heaters, an upcoming increase in the minimum federal standards, and market barriers associated with tank wrap, it is recommended that the Companies do not add water heater tank wrap insulation to their list of incentivized measures.	The Companies agree with this recommendation and currently do not plan on adding water heater tank wrap insulation to the list of incentivized measures.
	The Companies should carefully monitor the cost-effectiveness of solar thermal systems after they have been implemented into the HES and HES-Income Eligible programs.	Based on the 2015 C&LM Plan Update, the Companies will work on developing a solar thermal rebate analysis to determine if there is a cost-effective and appropriate incentive to address this market.
The Residential Lighting Interactive Effects (R-67)	The study concluded that efficient lighting emits less heat than less efficient incandescent bulbs. Replacing these bulbs with more efficient bulbs results in a small impact on the amount of energy consumed by heating, ventilation, and HVAC systems.	The Companies believes that the Program Savings Documentation ("PSD") should be updated to capture interactive effects from efficient lighting retrofits beginning in program year 2016.

R86: Connecticut Residential LED Market Assessment and Lighting Net-to-Gross Overall Report	Based on the range of net to gross (“NTG”) estimates, the Team recommends applying a CFL NTG of 51% and LED NTG of 82% for 2013 and 2014.	The Companies will continue to use overall net-to-gross ratios of 51% and 82% for CFLs and LEDs, respectively in 2015 and 2016, however they will seek to update NTG ratios starting in 2017.
	Although recommendations have been made about prospective NTG ratios, the uncertainty in these estimates suggests that the Energy Efficiency Board should continue regular measurement of this important impact value.	The Companies agree that because of uncertainty in the lighting market, the Energy Efficiency Board should continue regular measurements of NTG ratios on a regular basis.
	LEDs show high levels of customer satisfaction and were viewed by suppliers as a bulb type that will continue to be popular, especially when incentivized.	The Companies agree with this recommendation. The Companies have started to shift program focus toward LEDs and will continue this trend in the 2016-2018 Plan timeframe.
	Results from the current demand elasticity modeling reveal that NTG and net-of-free ridership values differ between various retail channels.	The Companies agree with this recommendation and are already shifting support to non-home improvement channels to better serve hard-to-reach customers.
	The present research suggested declining NTG and net-of-free ridership values for specialty CFLs, even more so than standard CFLs.	The Companies agree with this recommendation and have already phased out incentives for specialty CFLs.
	LEDs are widely considered the future of residential lighting, demonstrating high levels of customer satisfaction, long lifetimes, and strong opportunities for energy savings.	The Companies agree and have already implemented education campaigns toward LEDs through various mediums, including: point-of-purchase displays, print ads, radio ads, and other electronic applications.

REALIZATION RATES

The Companies have incorporated updated realization rates from all evaluations into Appendix 3 of the PSD.

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APPENDIX A: STATEWIDE DASHBOARD

The Connecticut Statewide Energy Efficiency Dashboard (“Energy Efficiency Dashboard”) is made up of two dashboards: (1) a Statewide Dashboard and (2) the Clean Energy Communities Dashboard. The Energy Efficiency Dashboard provides users with “real-time” (updated monthly) data on program performance and metrics for the electric and natural gas energy-efficiency programs and initiatives. The Energy Efficiency Dashboard provides regulators, legislators, advisors, and the general public a snapshot of how well the programs are performing by utilizing user-friendly graphs to portray program performance by company and sector, including expenditures and savings against budgets goals. The Energy Efficiency Dashboard was developed in 2013, and has undergone various refinements since that time. The Clean Energy Communities Dashboard was developed in 2013, and has undergone several upgrades in 2014 and 2015.

URL Link: <http://www.ctenergydashboard.com>

ENERGY EFFICIENCY DASHBOARD

The statewide Energy Efficiency Dashboard contains the Companies’ spending, savings, and program information from 2006 to the present. The “Home” tab contains a summary graphic presentation of the Companies’ year-to-date spending, and the program savings are updated on a monthly basis. The program “Performance Reports” tab contains the Companies’ detailed program spending and savings. The “Residential Loan Financing” tab contains monthly updates on the following five residential loan programs:

- HES/CHIF;
- EnergizeCT Heating;
- Energize Conservation; and
- Smart-E.

The “HES/HES-IE Activity” tab contains Home Energy Solutions program measures and fuel type data by cohort (customers with rebates linked to core services). The “Fund Revenue” tab contains the Companies’ detailed revenues by funding source (i.e., mill rate, conservation adjustment mechanism (“CAM”), Regional Greenhouse Gas Initiative (“RGGI”), etc.). The “Sales and Savings” tab provides utility sales, annual savings, and annual savings as a percentage of sales. The “Cost to Deliver” tab provides the annual and lifetime cost rates. The “Reporting” tab contains a variety of automated reports, including:

- Home Energy Solutions/Home Energy Solutions-Income Eligible;

- Legislative;
- Monthly performance;
- ENERGY EFFICIENCY BOARD Dashboard; and
- Equitable Distribution of funds – Home Energy Solutions/Home Energy Solutions-Income Eligible.

Figure A-1: Connecticut Statewide Energy Efficiency Dashboard

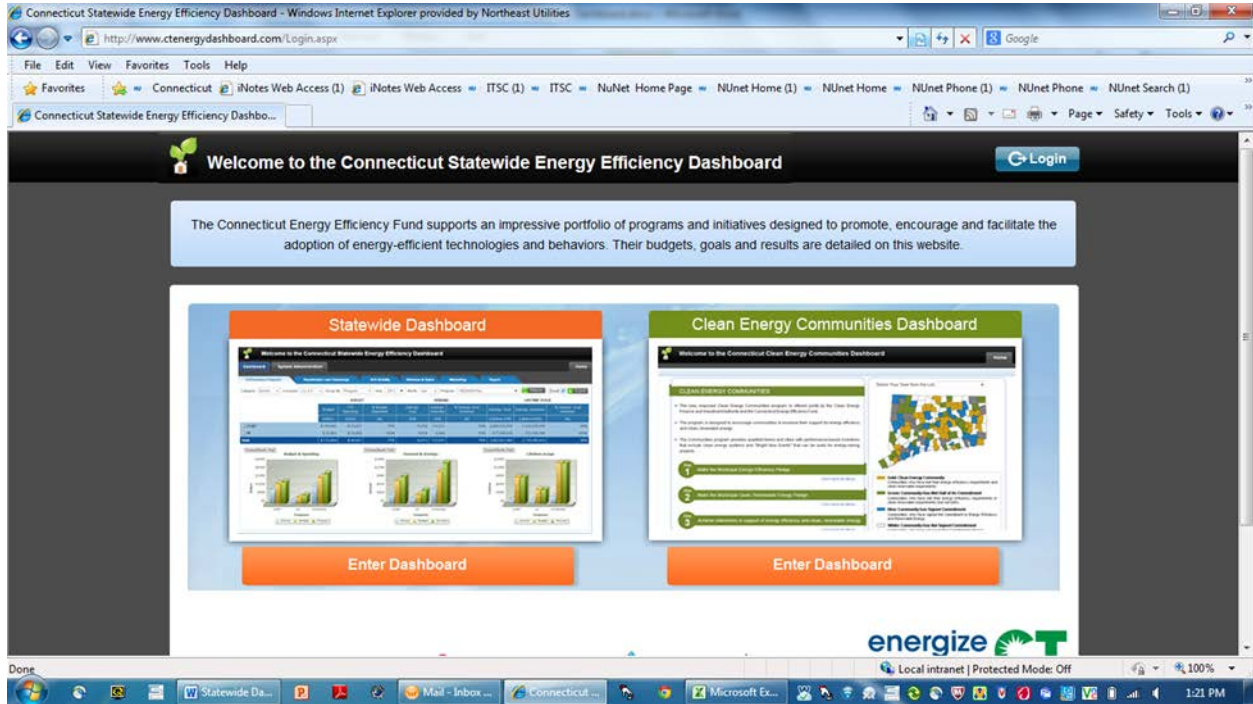


Figure A-2: Connecticut Statewide Energy Efficiency Dashboard



Over the next three years, the Energy Efficiency Dashboard will continue to be expanded and updated, as Energize Connecticut’s programs, requirements, and focus areas change.

CLEAN ENERGY COMMUNITIES DASHBOARD

The Clean Energy Communities Dashboard educates citizens on what their community is doing to build a clean energy future, and how residents and businesses can support their community’s efforts. The “State Map” tab shows the status of towns regarding their signing of a pledge to become a “Clean Energy Community.”

Figure A-3: Clean Energy Communities Dashboard

The screenshot shows the Clean Energy Communities Dashboard in a Windows Internet Explorer browser. The page header includes the "energize CONNECTICUT" logo and the text "Welcome to the Clean Energy Communities Dashboard".

On the left side, there is a section titled "Your community can come together to support energy efficiency and renewable energy, creating a cleaner future today and for generations to come. Jointly offered by the Clean Energy Finance and Investment Authority and the Connecticut Energy Efficiency Fund, the Clean Energy Communities program offers three simple steps to help community leaders, households, and local businesses work together to set clean energy goals and be rewarded for their achievements."

The three steps your town or city can take to become a Clean Energy Community are:

- Step 1:** Commit to the "Clean Energy Communities Municipal Pledge" to save energy in municipal buildings and voluntarily purchase renewable energy. [Click here for more...](#)
- Step 2:** Fulfill the Clean Energy Communities Municipal Pledge by taking actions to save energy and to purchase renewable energy voluntarily. [Click here for more...](#)
- Step 3:** Earn energy efficiency and renewable energy points that can be redeemed for clean energy systems and grants for energy-saving projects. [Click here for more...](#)

Program Details
[Click here for more information about the program...](#)
 Is Your Community a Clean Energy Community?
 To learn what your community is doing to build a clean energy future and how you can support your

On the right side, there is a section titled "Is Your Community a Clean Energy Community?" with a dropdown menu to "Select your town from this list or on the map below" and a map of Connecticut showing various towns colored in blue, green, and orange. A legend below the map explains the colors:

- Clean Energy Community:** Communities that have met both their energy efficiency and renewable energy requirements
- Community Has Met Half of its Commitment:** Communities that have met either their energy efficiency or their renewable energy requirements (but not both)

The browser's address bar shows "http://www.ctenergydashboard.com/CEC/CECHome.aspx". The taskbar at the bottom shows several open applications, including "Statewide Da...", "Mail - Inbox...", "CEC Home - ...", and "Microsoft Ex...". The system tray shows the time as 1:26 PM.

When a website visitor clicks on a town within the "State Map" page, it links to the specific "Town" page where more information can be found regarding the individual town's municipal pledges, Bright Idea Grants earned, Energy Efficiency Points accumulated, Renewable Energy Points accumulated, and town contact information.

APPENDIX B: 2016 STATEWIDE MARKETING TACTICAL PLAN

Introduction

As noted in Chapter 1, the Marketing and Energize Connecticut section, while the Energize Connecticut brand is still young, we are now past the introductory stage that included the brand launch and the creation of the website. The Companies have also completed the bulk of the production tasks associated with creating the Customer Engagement Platforms (“CEPs”).

Those prior year’s activities were significant and laid a strong foundation for the tasks that will be needed to support our future goals. An overview of the statewide marketing activities from the previous three-year planning period (2013-2015 Plan) is found below in Table B-1.

Table B-1: 2013-2015 Statewide Marketing Review

Year	Communications	EnergizeCT.com	Research	Customer Engagement Platforms
2013	<ul style="list-style-type: none"> • Soft launch of brand • Create or revise all customer-facing materials to reflect new brand and ensure brand continuity 	<ul style="list-style-type: none"> • Soft launch of website in January 2013. Launch of Supplier Choice and redirection of CTEnergyInfo.com in Fall 2013 	<ul style="list-style-type: none"> • Brand awareness telephone survey 	<ul style="list-style-type: none"> • In scoping and/or planning phase
2014	<ul style="list-style-type: none"> • Spring Enhanced Brand launch media campaign • Whole Home Video library and associated PR • Seasonal campaign – “Wait ‘Til 8” • “Winterize” media campaign 	<ul style="list-style-type: none"> • Rolled out one change per week (average) • Enhancements to: Find a Professional, Supplier Choice, Program Search Wizard, Contact Us, Sign Up links • New Features: Find a Lender, Demand Graph and Air Quality Map, added new page templates, server capacity, and redundancy added 	<ul style="list-style-type: none"> • Brand awareness pre- and post-campaign telephone survey • Message testing (online) • Year-end telephone survey 	<ul style="list-style-type: none"> • In production phase
2015	<ul style="list-style-type: none"> • Seasonal campaign -- Late Fall/Winter campaign (digital, billboard, Pandora) • Spring branding campaign • Whole Home Video library and associated PR • Seasonal campaign – “Wait ‘Til 8” • “Winterize” media campaign 	<ul style="list-style-type: none"> • Usability study (Q1), Secure portal for document retention, internal help feature, CMS permission role expansion, enhanced CMS features, RWD in progress 	<ul style="list-style-type: none"> • Brand awareness post-campaign telephone survey • Message testing (online) • Year-end telephone survey 	<ul style="list-style-type: none"> • Phased-in go live, starting with residential platforms

In 2016, the scope of the statewide marketing effort will again include website operations, enhancements and technical support for EnergizeCT.com, market research, and dedicated communications campaigns (brand awareness/value and seasonal messaging).

The Energy Efficiency Board Marketing Committee will continue to collaborate with the Connecticut Green Bank to ensure that all marketing communications campaigns – both statewide and solution-specific – are coordinated in order to leverage frequency and reach, and avoid duplicated efforts and missed opportunities for joint promotions.

A calendar view of the major 2016 marketing communications campaigns (subject to change pending program participation and available funds) through statewide marketing communications, utility company solution (program) marketing, and the Connecticut Green Bank is shown in Table B-2 (on the next two pages).

Table B-2: Energize CT, Eversource, UIL, and Connecticut Green Bank Promotional Calendar

Campaign Description	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Statewide Spring Branding				
• TV/Cable, Pandora, Digital Display, Out-of-Home				
Statewide (WT8) Summer Demand				
• Pandora, Digital Display				
Statewide Winterize				
• Commercial Radio				
Statewide Video with Promotion				
• Ongoing, as needed				
Statewide Public Relations				
• Ongoing, as needed				
Eversource Residential Retrofit Campaigns				
• Commercial Radio (insulation, hot water, heating)				
• Digital Display (insulation, hot water, heating, HES-IE)				
• Paid Search (insulation, hot water, heating, audit)				
• Direct Response (CEP users, HES-IE, CEC HES)				
UIL Residential Home Performance Campaigns				
• Commercial Radio (insulation, hot water, heating)				
• Digital Display (insulation, hot water, heating, HES-IE)				
• Paid Search (insulation, hot water, heating, audit)				
• Various Direct Response (CEP users, HES-IE, CEC HES)				
• Public Relations (local, regional & national)				
Eversource Lighting Campaign				
• Commercial Radio (LED bulbs)				
• Digital Smart Fencing and/or Targeted Display Ads (bulbs, as needed)				
• Paid Search (light bulbs)				
UIL Lighting Campaign				
• Commercial Radio (LED bulbs)				
• Select Print Advertising (LED bulbs)				
• Digital Smart Fencing Display Ads (bulbs, as needed)				
• Public Relations (local, regional & national)				
Eversource Residential New Construction				
• Print Ads (CT Builder/AIA directory) w/UIL				
• Paid Search				
UIL Residential New Construction				
• Print Ads (CT Builder/AIA directory) w/Eversource				
• Digital Display Ads				

Table B-2: Energize CT, Eversource, UIL, and Connecticut Green Bank Calendar (continued)

Campaign Description	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Eversource Multi-Family Homes				
• Direct Response (as needed)				
Eversource Small Business				
• Direct Response (CEP users, CEC)				
• Paid Search (ongoing)				
• Digital Display				
• Paid Social (Facebook, LinkedIn)	A	S	N	E
Eversource Medium/Large C&I				
• Vertical Print				
• Paid Social (Linked In)				
• Direct Response (contractor/trade ally)	A	S	N	E
UIL Small C&I				
• Direct Response (CEP users, CEC)				
• Paid Search & Digital Display				
UIL Medium/Large C&I				
• Vehicle Print				
• Paid Search & Digital Display				
• Direct Response (contractor/trade ally)				
Eversource & UIL: EE Solution Awareness (ongoing)				
• Association Advertising (directories, web, etc.)				
• Public Relations/Events (local, regional & national)				
• Trade Ally Support (co-op, materials, etc.)	A	S	N	E
Connecticut Green Bank Brand Launch				
• PR (earned media)	A	S	N	E
• Advertising (radio ad)				
• Outdoor Media				
• TV Segments				
• Trade Online and Print (content)				
• Online Banner				

The estimated costs for the 2016 Statewide Marketing Plan, including joint activities co-funded by the Connecticut Green Bank, are shown in Table B-3 on the next page.

Table B-3: 2016 Statewide Marketing Plan Estimated Costs

2016 Statewide Marketing Plan Estimated Costs				
Statewide Marketing Plan Task	Eversource	UIL	Connecticut Green Bank	Total
Research	\$47,500	\$23,750	\$23,750	\$95,000
Website Maintenance & Enhancements	\$100,000	\$50,000	\$50,000	\$200,000
Marketing Communications	\$711,712	\$282,904	\$211,538*	\$1,206,154*
Total:	\$859,212	\$356,654	\$285,288	\$1,501,154
*Pending Connecticut Green Bank commitment for specific elements of the Spring Campaign only.				

2015 Metrics and Goals

In 2015, the Energy Efficiency Board Marketing Committee approved the following goals for the Spring 2015 campaign:

- *Brand familiarity, as measured by fielded phone surveys conducted at the close of the brand awareness campaign and at the close of 2015.* The Companies project the cumulative results should reflect a 10-12 percent lift (absolute increase of 2.5-3 percent, or 24.8 percent to 27.3-27.8 percent) in familiarity of the Energize Connecticut brand by the audience.
- *Increase web traffic, as measured by tracking activity of the site using Google analytics.* The Companies project that this should reflect a 25 percent increase in sessions, month over month as compared to 2014 for non-supplier choice pages, using a three-month rolling average method.
- *Brand awareness will be looked at from an aided and unaided perspective in our surveying tools.* Beyond the above two items, the Companies will continue to monitor, but not establish goals for the following metrics: “who is associated with the Energize CT brand,”

“who do consumers view as a trusted source of information,” “where do consumers look for energy-related information,” and last but not least, “what types of mediums are the best delivery for information on energy-related topics.”

2016 Metrics and Goals

In 2016, campaign metrics and goals will be revisited and approved by the Energy Efficiency Board Marketing Committee. The 2015 figures above are placeholders. They will be adjusted for 2016 after 2015 research is completed and reviewed so that the Companies can provide realistic and achievable metrics and goals based on customer engagement and market demand for 2016. The Companies will present proposed metrics and goals to the Energy Efficiency Board Marketing Committee at least one-month prior to any statewide campaign launch.

Market Research

In 2013-2015, a series of professional, independent third-party research studies were completed to measure the level of brand familiarity and smart energy resource awareness, to examine the effectiveness of our marketing campaigns, and to better understand customer motivational factors. Please refer to Chapter One, the Marketing and Energize Connecticut section, for key findings from those studies. In 2016, the Companies, in collaboration with the Energy Efficiency Board Marketing Committee and the Marketing Services Committee, will work to examine and improve upon existing research tools where applicable. All members of the Marketing Services Committee (Eversource, the Connecticut Green Bank, UIL and DEEP) will strive to coordinate their research projects to better leverage all efforts.

2016 Market Research Activities

- i. **Pre-Campaign Brand Awareness Survey.** Telephone surveys will continue to be used to measure increases in brand awareness and familiarity. In 2016, the Companies will include a pre-brand survey to measure awareness prior to any major campaign launches. This will provide the baseline for the year. (February–tentative)
- ii. **Mid-Year Brand Awareness Survey.** A mid-year telephone survey will be conducted to determine progress toward agreed upon goals and objectives. Results will allow the Companies to adjust efforts as needed. (June)
- iii. **Messaging Survey.** Due to the success of the 2015 panel message testing, the Companies will continue this method to garner feedback from customers. This method is less costly than focus groups and provides a larger pool of results. Message testing allows the Companies to alter advertisements, mediums, and more based on the results. To influence fall campaigns, a panel will be conducted during or after the main 2016

awareness campaign. In 2016, in addition to testing current messages, we will incorporate messages that we are considering for future use. Additional message testing may be done as needed later in the year. (Q2 & Q3)

- iv. **Year-End Survey.** To measure results from the baseline survey (pre-campaign brand awareness survey), a year-end telephone survey will be conducted. (Nov/Dec)

Budget

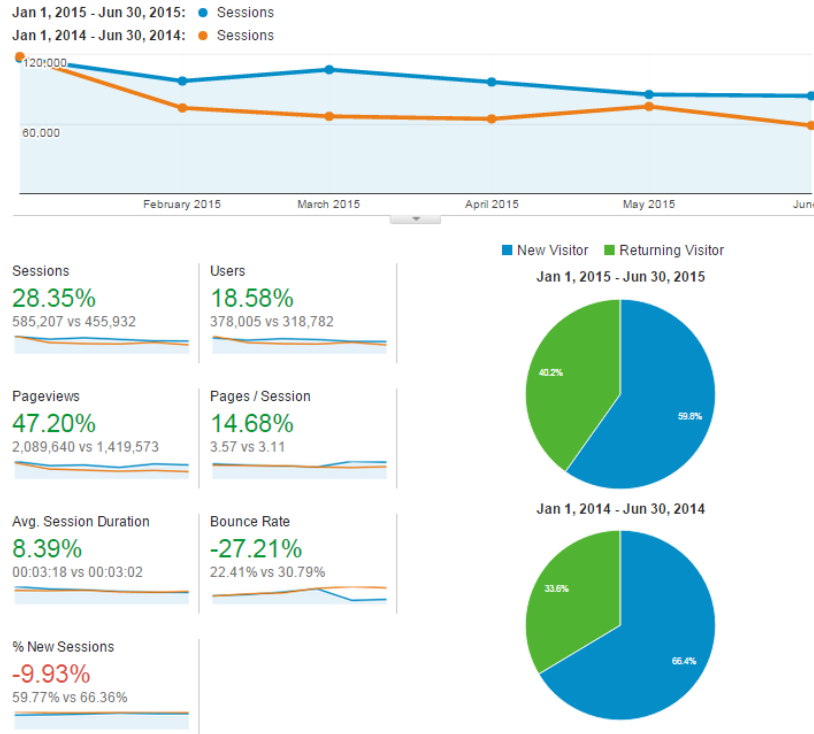
\$95,000

Website Operations, Enhancements, and Technical Support: EnergizeCT.com

Overview

Connecticut's energy-efficiency and renewable energy programs are readily available—and frequently accessed—by consumers, businesses, and municipalities through the brand's website. In addition, site visitors can RSVP for Energize CT events and locate contractors and lenders in their area, and partner vendors are able to retrieve key programmatic information through the site's secure portal.

During the first half of 2015, site traffic continued its upward trend, increasing by over 28 percent. EnergizeCT.com has had over 2 million visitors since its launch in January of 2013 and during 2015 grew to a monthly rate of approximately 100,000 sessions. Key indicators also continued to move in the right direction. Sessions, users, page views, pages per session, and session duration increased. Bounce rates declined, and the number of repeat users is on the rise—all good indicators of a healthy website. Figure B-1 on the next page shows EnergizeCT.com site traffic in 2014 and through June 30, 2015.

Figure B-1: EnergizeCT Website Traffic

Website Usability Study

A comprehensive Website Usability Study, conducted in early 2015, noted that most participants had favorable impressions of the website, including praise for the amount of information presented on the site—describing the site as “helpful,” “useful,” and “informative.”

Participants also noted that finding information took effort. The study therefore recommended that changes to the site be implemented to:

- Simplify and streamline the home page and provide fewer, but clearer paths into the site;
- Simplify and streamline navigation by either greatly simplifying links in power drop downs or eliminate the drop downs completely;
- Simplify and streamline lower-level page layout by reducing visual clutter and bringing key content up higher on the page;
- Improve program/solution search, and bring search results above fold; and
- Provide clarity about who is behind the website.

In the fall of 2015, these recommendations were implemented as part of the greater responsive web design effort. Now all visitors—regardless of device—can easily access energy-efficiency and

renewable energy programs, quickly and efficiently. The site incorporates state-of-the-art web design and is well positioned for future trends in the web industry.

Budget

\$200,000

Planned 2016 Activities

- i. **Site Maintenance.** Ongoing management of site maintenance and readiness is required to ensure that this well-visited, state-of-the-art energy-efficiency and renewable energy website is available 24 hours a day, 7 days a week as a trusted resource for Connecticut consumers and businesses.
- ii. **Search Engine Optimization.** To facilitate Connecticut consumers' and businesses' search for available smart energy programs and solutions, quarterly Search Engine Optimization ("SEO") reviews will be conducted to elevate the Energize Connecticut website in search engine results. During 2016, alternate/additional SEO methods and/or partners will be investigated and implemented to facilitate timely SEO feedback.
- iii. **Expansion of the Contractor/Stakeholder Portal.** The secure area of the website, which now provides key programmatic implementation materials, will be expanded to include other materials for key stakeholders, and additional functionality.
- iv. **Site Intercept Surveys.** During the 2015 Usability Study, site intercept survey functionality was added to the website. In 2016, this functionality will be used to help inform and refine key enhancements to the website. A plan for routine feedback will be developed to also gauge consumer satisfaction with the website.
- v. **Positioning for Future Web Industry Changes.** While Web 3.0 may be years away, we are already seeing some fundamental changes in how users – and marketers – use and interact with the web. In particular, being able to offer up relevant content based on past viewing history and the ability to view content on both small and extra-large screens provides for opportunities to expand consumer engagement. During 2016, the Web Committee, looking toward the horizon of the web industry will:
 1. Identify potential enhancements for implementation in 2017;
 2. Identify the kinds of partner(s) needed to assist in bringing about Web 3.0 changes, both in terms of strategy and technical knowledge; and

3. Solicit proposals accordingly to ensure 2017 implementation.

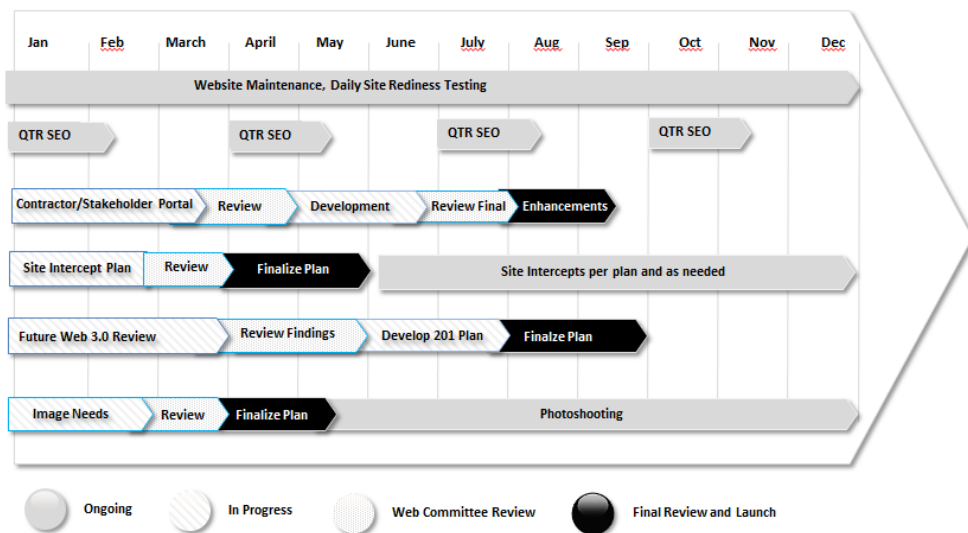
- vi. **Ongoing Graphics Upgrades/Changes.** With our unique products and services, relevant images that quickly convey features are difficult to find through stock photography services. During 2016, areas of the website which can benefit from custom images will be identified for upgraded photography.

- vii. **Ongoing Content Upgrades/Changes.** The Website Usability Study recommended bringing key messaging to the top of pages and streamlining copy. During 2015 lead-in copy was streamlined, the new responsive web design further elevated key messaging in the page, and further content refinement with a common voice was underway. During 2016 this work to refine and reduce content will continue, with the Companies making substantial revisions to the energy efficiency content early in the year.

- viii. **Localization.** Google Analytics show that only a small fraction (<1 percent) of website visitors browse the website with the Spanish language selected. However, recent demographic data shows that Connecticut’s Hispanic population is growing. In 2016, the Companies will investigate the costs associated with launching a Spanish-language version of the EnergizeCT website and initiate the process.

- ix. **EnergizeCT.com Web Maintenance and Enhancement Projects --2016 Implementation Plan and Schedule.** (Figure B-2 is for illustrative purposes, dates are approximate.)

Figure B-2: EnergizeCT.com Web Maintenance and Enhancement Schedule



Marketing Communications

Overview

As in the previous three-year planning cycle, statewide marketing communications in 2016 will be an integral component of the overall smart energy marketing communications mix implemented by the Companies and the Connecticut Green Bank. While the Companies and the Connecticut Green Bank primarily employ targeted, solution-based messaging, the statewide communications strategy is focused on brand awareness and seasonal messaging that needs to reach the broad, relatively undifferentiated mass market in Connecticut.

Marketing Communications Strategy and Associated Tactics

The statewide communication campaigns should be considered in the context of the overall communications activities outlined in the Energize CT, Eversource, UIL, and Connecticut Green Bank campaign calendar shown in the Introduction. Together with the solution-specific campaigns, customers will be exposed to smart energy messaging consistently throughout the year.

Please note that all campaign tactics outlined in the Tables B-4, B-5, and B-6 are subject to change based on the actual need in real time. Costs are budgetary only.

i. Spring Campaign: April-June

New for the 2016 major branding media campaign, the Companies will:

- Create a 30-second TV commercial with companion web ads. The Companies will issue a Request for Proposal for the creation of these advertising assets, independently of the associated media buy.
- The Companies will solicit package proposals from Connecticut's broadcast affiliates. These packages will include airing of the new commercial (see above), web ads, social media, longer-format segments, potential events, and weather/news sponsorships. The number of stations selected will be determined by the strength of the proposals and their combined reach and frequency. Cable advertising in Fairfield County will also be used to supplement the broadcast advertising. (Fairfield County is part of the Metro New York broadcast market.)

Table B-4: Spring Campaign (April-June 2016)

Tactic	Primary Message	Supporting Message	Audience
Produce 30-second TV ad with companion web ads	Energize CT Brand Awareness	Family-friendly brand messaging – tie-in to families at home using energy – learn about energy/environment/ opportunities Financing Renewable opportunities Small business messaging with reference to “no matter how large or small...”	Mass market
Media Partnership(s)	(See above)	(See above)	(See above)
Cable Vision Media Buy to Support Fairfield County	Energize CT Brand Awareness	(Same as above)	Mass market
Pandora Radio	Energize CT Brand Awareness	(Same as above)	Mass market
Digital Display Ads (to fill in any needed geographic coverage)	Energize CT Brand Awareness	(Same as above)	Mass market
Event/Venue/ Sponsorship opportunities	Energize CT Brand Awareness	(Same as above)	Mass market
Out-of-Home	Energize CT Brand Awareness	(Same as above)	Mass market
Google Search	Energize CT general branding keywords		Mass market
Social Media Advertising (funded through program marketing budgets)	Supports ad messaging		Mass market
Video Library (year-long effort)	Whole Home and Business Solutions Series (Value of EE)	Financing	Mass market residential, associations, legislative
Public Relations (year-long effort)	Energize CT Brand awareness, video promotion, statewide event support, Energize CT Center support	Varies by opportunity	Mass market residential, associations, legislative
Total Estimated Budget: \$954,754			
(Pending Connecticut Green Bank participation in advertising elements at \$211,538)			

ii. Summer Campaign: June-August

Table B-5: Summer Campaign (June-August 2016)

Tactic	Primary Message	Supporting Message	Audience
Display Ads on Top CT Sites	Time-of-use messaging/Wait 'til 8	Energy efficiency	Mass market residential
Google Search	Energize CT general branding keywords		Mass market
Video Library (year-long effort)	Whole Home and Business Solutions Series (Value of EE)	Financing	Mass market residential, associations, legislative
Public Relations (year-long effort)	Energize CT Brand awareness, video promotion, statewide event support, Energize CT Center support	Varies by opportunity	Mass market residential, associations, legislative
			Total Estimated Budget: \$63,200

Fall Campaign: September-October

Table B-6: Fall Campaign (September-October 2016)

Tactic	Primary Message	Supporting Message	Audience
Radio	Get ready for winter and solution-specific	Financing	Mass market residential
Out-of-Home	Get ready for winter		Mass market residential
Google Search/Facebook Search	EnergizeCT general branding keywords	Get ready for winter	
Video Library (year-long effort)	Whole Home and Business Solutions Series (Value of EE)	Financing	Mass market residential, associations, legislative
Public Relations (year-long effort)	Energize CT Brand awareness, video promotion, statewide event support, Energize CT Center support	Varies by opportunity	Mass market residential, associations, legislative
Total Estimated Budget: \$188,200			

Statewide Marketing Plan Communications and Management*Regular Communications with Marketing Services Committee (“MSC”) Partners*

The Companies as managers of the statewide marketing efforts will communicate regularly with all MSC entities about the progress of statewide marketing activities. Regular, ongoing communication with all MSC partners will ensure that all parties are well informed about brand activities and can “plug into” campaign activities as necessary. In 2016, the Companies will provide regular (i.e., at least monthly) communications to the MSC about statewide marketing activities including the statewide marketing budget, website, campaigns, and research. All invested partners will be included in the review of any RFPs issued in support of the initiatives outlined in this Statewide Marketing Plan, in accordance with the Companies’ procurement processes.

APPENDIX C: FINANCING

Coordination on Goals and Priorities

September 8, 2015

Joint Committee of the Connecticut Energy Efficiency Fund Board and the Connecticut Green Bank Board

The Energy Efficiency Board and the Connecticut Green Bank have a shared goal to implement state energy policy throughout all sectors and populations of Connecticut with continuous innovation toward greater leveraging of customer funds and a uniformly positive customer experience. The following key priorities, organized by areas of focus, are intended to ensure that principles of leveraging ratepayer funds and continuously improving the customer experience are built into their respective board's goals:

C&I Sector: Government

- 1) **Improve the Customer Experience.** Ensure seamless service delivery that is responsive to State and local governmental and institutional needs, including:
 - o Integration of appropriate Connecticut Green Bank and other related services, especially for those who aren't currently served by Lead By Example ("LBE")-Energy Savings Performance Contracts ("ESPC"); and
 - o Providing technical support and incentives from the Connecticut Energy Efficiency Fund and the Connecticut Green Bank's capability to finance ESPC projects at scale. Establish and communicate a process for customers undertaking ESPCs to receive technical support through internal utility resources and contracted "owner's representative" services.

- 2) **Establish Sustainable and Cost-Effective Financing Mechanisms.** Develop sustainable and cost-effective funding mechanisms for both the preparatory and permanent project financing needs of government sector energy-saving projects.

- 3) **Develop New Products to Fill Market Gaps.** For example, develop a financing vehicle for the aggregation of small-scale, comprehensive energy-saving projects at municipal or other institutional facilities that are individually too big for the Small Business Energy Advantage ("SBEA") financing program, but too small to be standalone ESPC projects.

C&I Sector: Small Business

- 1) **Improve the Customer Experience.** Ensure seamless service delivery between services of the Connecticut Energy Efficiency Fund and the Connecticut Green Bank that is responsive to customers' needs, including integration of appropriate Connecticut Green Bank and other allied small business services, especially for those that aren't currently served by the SBEA financing program.
- 2) **Identify and Engage Alternative Capital Sources to Lower the Cost of and Increase Opportunities for Project Financing.**
- 3) **Examine Ways to Couple SBEA and C-PACE (or Other Financing Offerings).** Promote more comprehensive projects (especially among higher energy usage customers) and longer-term payback measures.

C&I Sector: Medium/Large Businesses

- 1) **Improve Understanding of Opportunities Within this Market for Deep Energy-Efficiency Improvements.** Build on available knowledge and analysis to develop effective and sustainable incentive and financing strategies for stimulating deeper energy investments and that meet all cost-effective energy-efficiency goals.
- 2) **Increase Customer Savings and Benefits from the C&I Programs.** Drive more projects with deeper energy savings, supported with increased financing options (including C-PACE) to help ensure comprehensive investment and closure of financing gaps.
- 3) **Cross-Leverage Connecticut Energy Efficiency Fund and Connecticut Green Bank Programs.** Develop and implement communication and marketing strategies to ensure maximum cross-leveraging of these opportunities to help achieve the state goals of acquiring all cost-effective energy efficiency and expanded renewable deployment through highly effective leveraging of customer funds.

Residential Sector: Single-Family

- 1) **Identify Coordinated Strategies for Expanding Comprehensive Loans for the 2016-2018 Period.** Calibrate incentive and buy-down levels to achieve more comprehensive projects while reducing program costs.

- 2) **Pursue all Cost-Effective Energy Efficiency in the Residential Sector Using Financing**, and increasing the amount of private sector capital where effective (and a simplified approval process where possible and appropriate), to leverage up ratepayer funds and achieve more and deeper savings.
- 3) **Increase Financing in the HES/HPwES Channel.** This will meet the market needs and drive deeper energy savings and more projects.
 - o Increase HES projects with completed follow-ons per the 2016-2018 Plan, using financing as one of the tools to increase completed follow-ons.
 - o Increase the adoption of the Smart-E bundle and CHIF comprehensive loans.

Residential Sector: Multi-Family

- 1) **Reduce Energy Consumption and Costs in Multi-Family Properties.** This is consistent with the goals in the Connecticut Green Bank's Plan and the 2016-2018 Plan. [MMBTUs per unit].
- 2) **Establish, Align, and Fund Financing Programs to Fill Current Unmet Needs and Gaps.** This includes projects driven by energy-efficiency improvements where capital improvements are a subcomponent. This includes completing the tasks from the May 2015 Lean event Work Plan.
- 3) **Fund and Complete a Market Analysis of Certain Sectors to Quantify and Qualify this Segment and Identify Gaps, Opportunities, and Best Ways to Serve by the End of 2016.** Hard to reach sectors include certain rural areas and non-subsidized, non-rent restricted multi-family housing that is privately owned and serving limited-income tenants (also referred to as naturally-occurring affordable properties).

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APPENDIX D: 2015 PUBLIC INPUT COMMENTS



2016-2018 C&LM Plan
April 8, 2015 Public Input Session

May 30, 2015

Note: All submitted written comments and PowerPoint presentations, and a list of all stakeholders who participated in the public input process, may be accessed at Box.net:

<https://app.box.com/s/2fajwdey8ulai8t3m507u65ds48bgvzb>

Name: Alan Weirnasz

Representing: U.S. Energy Systems

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session

Requests/Comments:

- Mr. Weirnasz asked the Board if home heating oil is taken into account in policies related to natural gas. He asked if the Residential programs will be fuel neutral. He expressed some concern about other impacts of natural gas expansion (e.g., impacts on streets). He said that 35 percent of Connecticut will never have access to natural gas.

Companies' Position(s):

- The Residential programs are fuel neutral, and customers regardless of heating fuel, can participate in Home Energy Solutions, Home Energy Solutions-Income Eligible, or the Residential New Construction program, and receive the same services as those customers who heat with natural gas or electricity. Insofar as impacts on streets, the Companies work closely with municipalities to minimize the impact that construction will have on streets. Lastly, the Companies agree that many customers in Connecticut will not have access to natural gas. However, the Companies note that the Comprehensive Energy Strategy supports “a robust, fully-integrated energy-efficiency program, as well as exploring a range of heating options; including efficient oil and propane furnaces, and

new technologies such as solar thermal water heating, ground source heat pumps, ductless heat pumps, and cold weather heat pumps”⁷⁵ as options for customers who are beyond the reach of the natural gas expansion.

Name: Annie Harper

Representing: Yale Community Carbon Fund

Date Input Received: 4/8/2015

Input Method(s): Written Comments

Requests/Comments:

- Innovative financing mechanisms are needed to advance a sustainable market in energy efficiency, but grants/subsidies will continue to be necessary to enable low-income ratepayers to access energy-efficiency services.
- Tracking/mapping equity data made available through compliance with Order 9 is very valuable. An analysis of this data should be used to inform the 2016-2018 Plan. An initial analysis of the data has shown the most of the homes being reached by HES-Income Eligible are 2-4 units; this presents an equity problem that needs to be addressed. The data would be more useful if it included services received by homes in each census tract, and if it was more accessible.
- Health & safety remediation - There needs to be better collaboration with municipalities in identifying funding sources for health and safety remediation; successful examples of such collaboration in Connecticut municipalities could be identified and shared with other municipalities. In general, a mechanism needs to be *developed to identify funding sources for health and safety remediation, particularly in low-income homes. Lessons learned from the CT Efficient Health Homes Initiative should be valuable, although detailed data from this initiative has not yet been made publically available.*
- Renters are still not being serviced equitably, despite efforts made over the last three years. Outreach to rental properties needs to be improved. Little headway has been made in addressing the split-incentive problem. Successful efforts around the country in reaching renters should be identified and highlighted. Section 47a-13a of Chapter 830 (providing written intent to landlords to weatherize) should be simplified and shared widely with landlords and tenants.

⁷⁵ 2013 Comprehensive Energy Strategy for Connecticut.
http://www.ct.gov/deep/lib/deep/energy/cep/2013_ces_final.pdf

Companies' Position(s):

- The Companies agree that grants/subsidies (incentives) are necessary to enable limited-income customers' access to energy efficiency, and that financing is a tool that can help customers overcome financial barriers.
- The Companies agree that tracking and mapping of participant data is valuable and can be used to guide planning activities. Note that Eversource census track data shows that ratio of customers incentives to collections in distressed census track areas exceeds the comparable ratio in non-distressed areas by nearly a 2 to 1 margin. Therefore, customers in distressed areas are receiving higher levels of services compared to their peers in non-distressed areas (based on collections). United Illuminating also shows that middle-income residents, those in the 60-80 percent of SMI are not being underserved. This data also shows that most of the HES-Income Eligible customers served are not 2-4 units. Lastly, the Companies believe that this dataset would become unwieldy if it included services provided to each customer. The Companies believe that the incentives provided can be used as a reasonable proxy for the level of services provided.
- The Companies agree that collaboration with municipalities (and other agencies) is essential and helpful in remediating health and safety issues which are barriers to energy efficiency. Note that in 2013, the Companies worked to develop a strategy for accessing funding sources to address health and safety measures in the HES-Income Eligible program.
- The Companies agree that split-incentives provide a challenge when serving customers who rent. However, the Companies are not aware that renters are being underserved. Note that currently there are two process evaluations underway that are focusing on (among other things) the HES-Income Eligible program and the Multi-Family Initiative. The Companies look forward to receiving these studies and implementing any findings that can be used to enhance the cost-effectiveness and reach of these programs and initiatives.

Name: Arthur Wickson

Representing: Self (Connecticut residential ratepayer/customer)

Date Input Received: 4/4/2015

Input Method(s): Written Comments

Requests/Comments:

- All state buildings should replace all overhead fluorescent fixtures with LED equivalents; and should install sensors to turn lights off when nobody is in the area.
- Electricity customers should be allowed to buy into shares of solar panels and wind farms.

- We should expand natural gas supply into Connecticut. We should use surplus natural gas supplies from fracking to power and heat buildings.

Companies' Position(s):

- The Companies believe that all cost-effective conservation should be pursued in all buildings, including state buildings.
- The Companies have worked closely with state policy makers to examine the issues associated with electricity customers being allowed to buy into shares of solar panels and wind farms. This topic is not under the purview of the energy-efficiency programs included in the 2016-2018 Plan.
- The Companies agree that natural gas supply in Connecticut should be expanded, and note that the Comprehensive Energy Strategy for Connecticut provides a framework for significant natural gas expansion.

Name: Bryan Garcia

Representing: Connecticut Green Bank

Date Input Received: 4/8/2015

Input Method(s): Written Comments

Requests/Comments:

- The Connecticut Green Bank (“CGB”) and the Connecticut Energy Efficiency Fund (“CEEF”) have made real and steady progress in coordinating the programs and activities of the CGB and CEEF. The following achievements are noted:
 - A Joint Committee of the ENERGY EFFICIENCY BOARD and the CGB Board was established;
 - Five key areas of collaboration have been identified (SBEA, C-PACE, LBE/ESPC, Single-Family, and Multi-Family); and
 - A stakeholder process to address energy efficiency and health and safety issues in low-income housing was established.
- The CGB looks forward to working with the ENERGY EFFICIENCY BOARD and the Companies to identify mutually shared goals and objectives that can be included in the CGB’s Plan and the 2016-2018 Plan, and to measure progress against the goals and objectives over time.

Companies' Position(s):

- The Companies appreciate the comments from Mr. Garcia and recognize the progress that the Connecticut Green Bank and Connecticut Energy Efficiency Fund programs have made in coordinating programs. The Companies look forward to continued collaboration and progress with the Connecticut Green Bank.

Name: Jim O'Reilly

Representing: Northeast Energy Efficiency Partnerships

Date Input Received: 4/8/2015

Input Method(s): Verbal Comments at Public Input Session

Requests/Comments:

- When discussing energy-efficiency program costs, it is important to focus on the resource acquisition benefits of the programs.
- Private sector financing is a complement to, but not a replacement for, rate-payer funding. The CEEF should leverage rate-payer funding.
- The ENERGY EFFICIENCY BOARD should endorse funding levels that will achieve all cost-effective energy efficiency (e.g., Massachusetts funding levels).
- Program suggestions:
 - Support for geo-targeted programs;
 - The CEEF should continue to support residential lighting programs; the lighting market has not yet been transformed;
 - Support for advanced lighting controls for the C&I sector;
 - Increased support for home energy management systems;
 - Continued support for air source heat pumps; and
 - Complementary public policies (e.g., appliance standards, home energy scores).
- Mr. O'Reilly said that he would be submitting written comments at a later time.

Companies' Position(s):

- The Companies appreciate the comments from Mr. O'Reilly representing the Northeast Energy Efficiency Partnerships ("NEEP"). The Companies have a long history of working collaboratively with NEEP, and fully support the NEEP vision that energy efficiency should be the cornerstone of energy policy. The Companies look forward to continued support and coordination with NEEP and their initiatives going forward.

Name: John Greeno

Representing: New England Conservation Services

Date Input Received: 4/8/2015

Input Method(s): Verbal Comments at Public Input Session

Requests/Comments:

- Mr. Greeno requested that the ENERGY EFFICIENCY BOARD maintain or increase the CEEF's funding level.

Companies' Position(s):

- The Companies agree that maintaining or increasing energy-efficiency funding levels is necessary in order for the Companies to continue to deliver nationally-recognized, energy-efficiency programs.

Name: Leticia Colon

Representing: Green Eco Warriors

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session and Accompanying PowerPoint Presentation

Requests/Comments:

- Ms. Colon presented an overview of the Green Eco Warriors' programs. The goals of Green Eco Warriors are to:
 - Protect natural resources such as water, air, and land for future use;
 - Engage youth and parents in STEAM activities, environmental research, civic engagement, and sustainability leadership through Education and Motivation of youth and families;
 - Educate energy consumers on their role in energy consumption with special focus on at-risk and minority populations;
 - Create engaging educational tools aligned with national education standards;
 - Reduce carbon emissions, pollution, and energy waste through the reduction of residential and commercial energy usage nationally; and
 - Educate communities on alternative and sustainable energy and water solutions.
- Green Eco Warriors has several programs, including:
 - Save Energy/Save Dinero Challenge;
 - Defeating the Phantom Draw;
 - *Fight For Our Planet's Survival* comic book series;
 - *Pesky Plastic* book; and
 - School challenges and youth summits.
- Ms. Colon suggested the CEEF should consider supporting programs similar to those created by Green Eco Warriors.

Companies' Position(s):

- The Companies are proponents of strategically supporting educational initiatives through the Energy Efficiency Fund's programs. The Companies note that the 2016-2018 Plan continues to provide support of select educational and outreach programs.

Name: Lynn Stoddard

Representing: Institute for Sustainable Energy (“ISE”)

Date Input Received: 4/8/2015

Input Method(s): Written Comments

Note: See summary below of several letters from stakeholders that were submitted in support of ISE.

Requests/Comments:

- ISE very much appreciates past support from the CEEF, and looks forward to continued support and close collaboration with the ENERGY EFFICIENCY BOARD through the development and implementation of the 2016-2018 Plan.
- The ENERGY EFFICIENCY BOARD is encouraged to maintain sustained funding for ISE for the 2016-2018 Plan.
- The ISE's model of technical support aligns with the ENERGY EFFICIENCY BOARD's goals of customer-focused solutions, comprehensive energy savings, and integration of broader sustainability benefits.
- The ISE brings the following value to Connecticut rate-payers:
 - ISE is uniquely positioned to advance and help fulfill the strategic objectives of the CEEF. ISE staff has well-established working partnerships with key energy organizations and stakeholders in Connecticut. As a unit of Eastern Connecticut State University (“ECSU”), ISE bring a unique strong connection to research and innovation; for example, ISE works closely with the Center for Sustainable Energy Studies at ECSU. ISE employs interns who are some of ECSU's top students, allowing responsiveness in staffing to address emerging needs.
 - The ISE has a proven track record and its services are valued by customers and key stakeholders. ISE has performed energy benchmarking on hundreds of municipal and K-12 school buildings, and serves as a well-respected resource and benchmarking help center (e.g., expertise in Portfolio Manager). ISE's sustainability work in K-12 schools, colleges and universities uses energy and building performance as a gateway to broader sustainability action (e.g., Green LEAF Schools Program). These programs allow limited resources in multiple state agencies to be leveraged for significant impact.
 - The ISE will bring innovation and leadership to implementation of the 2016-2018 Plan and emerging energy and sustainability opportunities. ISE uses a holistic systems approach, employing all of its focus areas synergistically. For example, this approach has helped to transform the technical high school system in Connecticut.

Letters in Support of ISE:

As part of the public input process, nine organizations submitted letters expressing support for, and appreciation of, ISE, and continued funding of ISE's programs. In particular, the letters expressed support for ISE's management of the Green LEAF Schools program, ISE's energy benchmarking program, and ISE's schools sustainability program. Some of the letters also expressed appreciation for the state's Lead-by-Example/ESPC program. The following organizations submitted letters of support:

- Connecticut Foundation for Environmentally Safe Schools;
- Western Connecticut Academy for International Studies Magnet School;
- Connecticut Technical High School System;
- Common Ground High School, Urban Farm, and Environmental Education Center;
- Connecticut State Colleges & Universities;
- Connecticut Department of Correction;
- Platt Technical High School;
- DEEP's Kellogg Environmental Center; and the
- Connecticut Audubon Society.

Companies' Position(s):

- The Companies appreciate the comments submitted by Ms. Stoddard on behalf of the ISE. The Companies recognize the value that ISE provides in helping Connecticut achieve a sustainable energy future. The Companies look forward to continued collaboration with ISE.

Name: Maria Siedler

Representing: Dominion Resources, Alternative Energy Solutions

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session and Accompanying PowerPoint Presentation

Requests/Comments:

- Ms. Siedler provided a presentation called Voltage Optimization and AMI Integration. Please refer to the presentation in Box.net for more information.

Companies' Position(s):

- The Companies note power flow analysis, specifically safe and reliable operation of the electric grid under a wide range of operating conditions, is an extremely complicated topic. The Companies believe that Ms. Siedler's presentation appeared to over simplify the complex nature of voltage optimization and AMI integration. A rigorous power flow

study would be required to validate the savings and cost claims provided by Ms. Seidler. Such a study, and subsequent deployment of grid-side deployment of voltage optimization goes beyond the scope of the energy-efficiency programs.

Name: Mark O'Hearne

Representing: NXEGEN

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session, Written Comments

Requests/Comments:

- The CEEF should help C&I customers know when, how, and what cost they use energy through real-time meter data capture devices and portals.
 - Simple, knowledge-based behavioral management has been proven to reduce energy usage and costs, and should be funded by energy-efficiency programs.
 - This solution can be achieved through the deployment of relatively inexpensive meter data capture devices and integrated portals that collect and display real-time data. It can be deployed by customers who have smart meters, but who choose not to actively engage the technology that is available on those smart meters.
 - This solution will help fulfill the need for smart meter data management identified in Connecticut's Comprehensive Energy Strategy.
- The CEEF should help C&I customers better compete by lowering peak kW demand and avoiding demand charges.
 - Demand charges are a significant component of electricity costs for C&I customers in Connecticut.
 - Efficiency funds should be made available to encompass not only enabling C&I customers to permanently reduce kWh usage, but also helping them to avoid costly peak kW demand charges through real-time monitoring and controls.
- The CEEF should extend efficiency funding impacts beyond facility support to address system peak costs that burden the rate base. This would help meet a goal in the state's Comprehensive Energy Strategy.
 - Funding should be made available to support Integrated Supply and Demand Side Management ("ISDSM"), not just Demand Side Management ("DSM"). This can be implemented cost-effectively in C&I facilities that have, or don't yet have, energy management systems.
 - Utilities should make their own system peak forecasts available for integration into facility portals.

- The above recommendations should be piloted/modeled through the Lead-by-Example program to demonstrate their effectiveness because the system functionality already exists to allow the state to test these approaches.

Companies' Position(s):

- The Companies are largely in agreement with the comments provided by Mr. O’Hearne, on behalf of NXEGEN, to the extent that such suggestions are cost-effective, and are fully supportive of strategic energy management (“SEM”) as an asset that can be used to reduce costs (and boost profits) for businesses. The 2016-2018 Plan provides details on the Companies’ current and planned SEM efforts.

Name: Mark Thompson

Representing: ThinkEco, Inc.

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session

Requests/Comments:

- ThinkEco, Inc., developed the modlet, a device to help monitor and control energy use of individual devices/appliances in homes or offices, including A/C units. ThinkEco is looking for opportunities in Connecticut.

Companies' Position(s):

- The Companies are aware of a number of home automation technologies that can help customers control and monitor energy use. The Companies are currently exploring these technologies and assessing their potential as a cost-effective, energy-efficiency option to help customers monitor and control energy use in homes and offices. The Companies encourage ThinkEco to provide additional information, including case studies and evaluations of this technology, to the Companies to aid in their review and assessment of the modlet.

Name: Melissa Everett

Representing: Clean Water Action Connecticut

Date Input Received: 5/18/2015

Input Method(s): Written Comments

Requests/Comments:

- Clean Water Action (“CWA”) is pleased that the CEEF is following through on multiple legislative commitments to energy efficiency as the first fuel to meet the state's energy needs. However, CWA has several recommendations to make the programs stronger.

- The CEEF needs to improve its marketing approach. Resources should be shifted from a focus on broad advertising and brand development (which is costly but easy to implement), to a focus on targeted personal and community engagement.
 - Bring in creative marketing experts from outside the energy world to design engaging campaigns.
 - Increase support for the Clean Energy Communities program to support volunteer-led Clean Energy Task Forces.
 - Increase support for non-profits who can conduct outreach.
 - Use customer data from electric and natural gas utilities to micro-target customers.
- The CEEF should better meet the needs of low-moderate income residential customers who exceed 60 percent of the state medium income, but who cannot afford to move forward with weatherization measures.
 - Launch a HES-Moderate Income incentive program.
 - Consider programs such as Efficient Neighborhoods Plus in Massachusetts.
- The HES program still places too much emphasis on lighting and light air sealing measures at the expense of deeper measures (e.g., comprehensive air sealing and insulation). The program needs to move toward open home performance markets that achieve deeper efficiency, but without sacrificing program scale.
 - Consider moving incentives from a co-pay to reducing the cost upgrades - similar to what Massachusetts does to incentivize insulation.
 - Use weatherization study baseline data to target community outreach efforts.
 - Publicize project data to drive vendor quality.
- The CEEF should continue its support of the Clean Energy Communities program. The field of "community-based social marketing" has been an effective approach in communities across the country, but it requires sophisticated groundwork in order to be successful.
 - The CEEF should use program marketing budgets to hire experts in community-based outreach.
- Public entities should receive greater support than the owners of similar private sector buildings because there is a clear public benefit to reducing energy use in facilities paid for by taxpayers. The CEEF should shift some funding from the SBEA program to municipal customers.

Companies' Position(s):

- The Companies appreciate the comments provided by Melissa Everett on behalf of Clean Water Action Connecticut.
- The Companies balance the need to educate customers broadly through marketing messages vs. the need to market to customers to engage them to participate in the

programs based on the availability of resources to serve those customers. The Companies utilize a multi-faceted approach to engaging customers to participate at the levels required to achieve the programs' goals.

- The data does not support the assertion that low-moderate income customers are underserved.
- The Companies are diligently working to increase uptake in deeper measures, and have program goals that support those efforts.
- The Companies have achieved significant savings in municipal buildings and continue to do so through initiatives such as the Lead by Example initiative.

Name: Michael Gurecka

Representing: New Opportunities, Inc.

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session and Written Comments

Requests/Comments:

- Connecticut should undertake all cost-effective energy efficiency.
- CEEF should explore utilizing the Office of Workforce Competitiveness and the Workforce Investment Boards network for home performance jobs creation and training opportunities.
- Connecticut should continue moving toward a professional certification process for Home Performance contractors, either through a third party entity such as BPI, or through a state process.
- It is imperative that HES-Income Eligible funding levels be maintained. Connecticut should not return to prior residential allocations for the energy-efficiency programs beginning in July 2015 as mentioned in prior annual plan updates.
- Connecticut should continue to explore opportunities to fund health and safety measures, and should create a "One Touch" Health Homes approach.
- Connecticut should continue the process of integrating and streamlining the HES-Income Eligible and DOE Weatherization programs.
- Connecticut should continue the collaborative process to improve opportunities in the multi-family sector.

Companies' Position(s):

- The Companies appreciate the comments provided by Mr. Gurecka on behalf of New Opportunities, Inc. The Companies agree with Mr. Gurecka's comments and believe that the 2016-2018 Plan is consistent with these recommendations. The Companies look forward to continued collaboration with New Opportunities, Inc.

Name: Richard Olisky

Representing: Uplands Construction

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session and Accompanying PowerPoint Presentation

Requests/Comments:

- The location of HES and HES-Income Eligible vendors is not evenly distributed across Connecticut. Vendors are concentrated in the central and southwest parts of the state.
- There are currently no HES vendors, and no non-CAP HES-IE vendors, east of the Connecticut River. Prior to the most recently selection of vendors, there were a few vendors east of the Connecticut River.
- Geography/location should be included as criterion in the next vendor selection process.

Companies' Position(s):

- The HES and HES-Income Eligible vendors were selected through a competitive procurement process conducted in collaboration with the Energy Efficiency Board. While certain companies were not selected as part of this competitive bidding process, the Companies note that non-selected companies may participate in the energy-efficiency programs through the Home Performance channel.

Name: Susie Komornik

Representing: Lockheed Martin

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session

Requests/Comments:

- The ENERGY EFFICIENCY BOARD should place more emphasis on data management (capturing, analyzing and securing data). This will help to make the programs more cost-effective.

Companies' Position(s):

- The Companies agree that data collection and analysis is a tool that can be used to help programs be more cost-effective. As such, the Companies currently collect and track an extensive amount of data relating to all of the energy-efficiency programs. This data is used for a wide range of purposes including: 1) reporting program results to the ENERGY EFFICIENCY BOARD and DEEP; 2) in-depth analyzing of program performance to identify programmatic opportunities; 3) tracking of program metrics and goals; 4) benchmarking programs against comparable programs to identify performance gaps and opportunities;

and 5) third-party evaluations to provide independent studies of program performance and results.

Name: Theresa LaVoie

Representing: Home Performance Alliance of CT (“HPACT”)

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session and Accompanying PowerPoint Presentation

Requests/Comments:

- HPACT's accomplishments since its creation in 2011 include: legislation, collaboration, providing a common voice, technical assistance, and training.
- HPACT is a member of Efficiency First. HPACT receives support from Efficiency First. HPACT benefits from membership by learning best practices from other Efficiency First members.
- HPACT's activities include:
 - Training and Technical Committee - work with Connecticut Workforce Development committee, review of new products/services, and DEEP Residential Roundtable.
 - Advocacy - educate policy makers (e.g., April 14, 2015 event at Legislative Office Building).
 - Events - e.g., National Energy Efficiency and Conservation Dinner.
 - Member Meetings - address issues such as HPwES and other topics.
- HPACT's strategy includes:
 - Short-term: support market transformation, support workforce development, and educate consumers on building science benefits.
 - Long-term: maintain framework for Connecticut home performance services, increase New England’s regional presence in home performance.

Companies' Position(s):

- The Companies appreciate the input provided by Ms. LaVoie and recognize the accomplishments of HPACT since 2011. The Companies will continue to work collaboratively with HPACT through the Energy Efficiency Board (“ENERGY EFFICIENCY BOARD”) and the ENERGY EFFICIENCY BOARD Residential Sub-Committee.

Name: Troy Hiller

Representing: Policy Navigation Group, on behalf of American Waterworks Association

Date Input Received: 4/8/2015

Input Method(s): Verbal Remarks at Public Input Session and Accompanying PowerPoint Presentation

Requests/Comments:

- The American Waterworks Association has an initiative to focus on energy efficiency in drinking water facilities. At least 1 percent of energy is consumed by drinking water utilities, and aging infrastructure has created many energy-efficiency opportunities.
- There are currently no rate-payer programs that support energy efficiency in drinking water facilities.
- Energy-efficiency opportunities in drinking water facilities are cost-effective.
- The greatest need/opportunity is with small/medium-sized facilities.
- Specific recommendations:
 - Build upon the work done with wastewater utilities to provide expertise (audits, technical support, etc.) to help both water and wastewater utilities identify operational energy savings.
 - Develop dedicated water utility program to help streamline the custom program process.
 - Work with industry (both wastewater and drinking water) to develop evaluation, measurement, and verification protocols to enable crediting embodied energy savings from distribution system upgrades and replacement.
 - Participate in both “quick win” initiatives like providing customized information and resources for water/wastewater sector and potentially transformative actions above.

Companies' Position(s):

- The Companies and the 2016-2018 Plan support all cost-effective conservation, including conservation within water and waste-water facilities. Also note that the Companies' energy-efficiency programs provide significant water savings to customers through conservation efforts that reduce hot water consumption (e.g., low-flow showerheads, etc.). The Companies would welcome additional program funding from water utilities to achieve specific water conservation objectives.

Name: Stan Price

Representing: Northeast Energy Efficiency Council (“NEEC”)

Date Input Received: 7/22/2015

Input Method(s): Written Comments

Requests/Comments:

- The NEEC has worked with the state of Connecticut since 2006 to train and certify 475 state and local government building operators in energy-efficient building operations practices through Building Operator Certification (“BOC”). The CEEF should consider funding to expand the state's BOC program to serve the workforce development needs of new market sectors in healthcare, K-12, education, hospitality, and commercial real estate.

Companies' Position(s):

- The Companies have a robust effort to educate the workforce, and select trainings based on the cost and suitability for the target audience.

Name: Evonne Klein (Connecticut Dept. of Housing), Norbert Deslauriers (Connecticut Housing Finance Authority), Bryan Garcia (Connecticut Green Bank)

Date Input Received: 7/7/2015

Input Method(s): Written Comments

Request/Comments:**Streamlining Energy Investment**

- Working with the Connecticut Department of Housing (“DOH”) and the Connecticut Housing Finance Authority (“CHFA”), the CEEF should create a utility incentive allocation process that is integrated with their funding cycles. This change would allow for the more efficient delivery of incentives into those housing developments that will serve low and moderate-income households.
- The CEEF should target the doubling of existing investment into multi-family energy improvements by providing \$20 million in dedicated incentives for development projects financing by DOH and/or CHFA.

Benchmarking and Performance Monitoring

- By April 1, 2016, the CEEF should establish a system for the automated supply of utility data necessary for benchmarking and performance monitoring of all multi-family properties applying to and receiving funding from DOH, CHFA, and the Connecticut Green Bank (“CGB”), including aggregated building data for properties with tenant-paid utilities.
- The CEEF should provide \$500,000 over the three-year 2016-2018 Plan period for the benchmarking of properties financing the DOH, CHFA, CGB and the U.S. Housing & Urban Development (“HUD”). This funding will support an ongoing initiative undertaken by CHFA and the CGB.
- The CEEF should commit to collaborate with DOH, CHFA, CGB, and other interested parties to establish an interagency working group to, by the end of 2016, identify

solutions to address "split incentive" issues that are impeding implementation of cost-effective energy upgrades.

Healthy Homes

- In keeping with the protocols and partnerships established through the Connecticut Efficiency Healthy Homes Initiative, the CEEF should commit to collaborate with the CGB and other interested parties to create an interagency working group to identify solutions and adequate funding to address health and safety issues that are impeding weatherization and comprehensive, cost-effective upgrades.

Training

- The CEEF should provide \$100,000 over three years to support initiatives targeting the training of vendors, service providers, property management personnel, and other housing development professionals.

Companies' Position(s):

The Companies appreciate the efforts of the State agencies to advance energy efficiency in Connecticut, and we look forward to working with the stakeholders on this effort.

There are, however, several areas that need to be explored before the Companies can commit to a specific path. One part of the proposal, the Companies need to explore is what percentage of the properties have already been served by the programs and what is the true size of the opportunity these properties present. Other areas that need to be explored include finding the best ways to benchmark the properties, and how to best provide appropriate training to service providers and property managers.

The Companies agree that a working group approach would be useful and allow for idea sharing on the best approaches to advancing the efficiency of multi-family buildings in Connecticut and the Companies would welcome an opportunity to participate.

Name: New England Clean Energy Council ("NECEC")

Date Input Received: 08/17/2015

Input Method(s): Written Comments

Requests/Comments: NECEC submitted comments regarding recommendations they believe will strengthen the state's robust C&LM programs. These include recommendations included both Demand Response and Behavioral Energy Efficiency recommendations.

Demand Response. Unleash the potential benefits of demand reduction in the state by instituting peak shaving demand response programs and supporting measures that can help reduce peak

demand. Such programs are proven to reduce costs for ratepayers, strengthen reliability and resiliency, and avoid emissions.

Behavioral programs can engage thousands of untapped customers, their energy usage, and serve as a gateway to more concerted energy-efficiency efforts.

Companies' Position(s):

The Companies appreciate the comments of NECEC, and believe that the suggestions brought forward by NECEC are fully supported by the 2016-2018 Plan.

Name: Gabe Shapiro, Next Step Living

Date Input Received: 9/2015

Input Method(s): Written Comments

Requests/Comments:

Recommendations for 2016 HES Planning:

- **Use budget caps to manage budget and cap budgets at less than 10% of the program.** This allows large companies to grow to scale while also allowing smaller players to succeed. Do not support adjusting the co-pay or other program incentives during the course of the year as that makes it hard to budget and plan.
- **Eliminate arbitrary 3-year requirement for HES Team Leads, replace with testing or quality standards.**
 - This is necessary to be able to recruit talent (volume and quantity).
 - There is zero or negative correlation to in-home experience and success as a Team lead. Reference that they use other criteria, including: classroom and field training that creates BPI certified, high-performing energy advisors in six weeks, candidates must pass class written and in-field tests. Company has written test which includes: combustion safety test, best practices, DOE Home Energy Score, Mechanical Systems, POD/ Tablet testing, Utility Compliance, and Field Test.
 - Create a more robust process to ensure quality and program effectiveness, including: minimum project threshold or minimum visits completed, customer experience, QA/QC and compliance, and MMBTU saving threshold.
- **Foster innovation and competition in customer acquisition by relaxing marketing restrictions.**
 - Events: Approve event presence, materials, scripting once and then allow vendors to participate in any event they see fit even if other vendors may also attend. Eliminate event-by-event approval process.

- Door-to-door canvassing: Approve scripting and materials once and eliminate door-by-door approval process.
- Revisit community programs process.
- Customer Incentives: Allow HES vendors to offer small cash like rewards for completing HES visits. Utility guidelines on amount. Evaluate impact on conversion rates
- Allow vendors to use program branding in paid search

Companies' Position(s):

- The Companies have gone through an exhaustive public review of several different iterations of Home Energy Solutions program revisions. The Companies believe that most of the concepts advanced by Next Step Living are found in the final 2016-2018 Home Energy Solutions program design. We appreciate all of the efforts of the trade allies, and we look forward to an ever increasing level of service to Connecticut residents.

Name: Transforming Connecticut's Residential Energy Program, Efficiency for All (a group of Home Energy Solutions program contractors)

Date Input Received: 8/20/2015

Input Method(s): Written Comments

Requests/Comments:

Overview

This plan has been prepared by a team of Home Performance contractors, who recognize the State's desire to create a formal open market home performance program. Our motivation is to maintain, instill, and continue to uphold the high-performance and efficiency standards which have been carefully developed and successfully implemented by the Companies over the past 19 years.

Proposed Plan

- Vetted contractor- annual enrollment;
- Set percentage-based budgets (% per vetted contractor);
- Quarterly review of spending and budget adjustments;
- Quality assurance managed by the Companies; and
- Financing which supports ease of use by both customers and contractors, and its cost.

Core Measures

Core Measures should remain as part of the initial home visit.

Quality Control

Quality Control is a significant and important part in ensuring the effectiveness and success of the program. The existing quality control standards of measures that have been designed and implemented over the last 10 years must continue.

Annual Contractor Onboarding

- Contractor Vetting, enrollment, and onboarding; and
- The Companies, or state vetting of the contractors, utilizing the Connecticut program criteria established in 2014.

Budgeting

- Allow the budgets to be set by a percentage of the total fund/by enrolled contractors;
- Budget reallocations can be determined on a quarterly basis;
- Co-pay: Must be consistent among all customer/the Companies' participants;
- The co-pay should not be used as a toggle for the Energy Efficiency Fund; and
- Budgets must be monitored by the Companies' administrators to ensure program stability throughout the year.

Alternative Models

The two-part model being used in other states would decrease the current level of MMBtu reduction being achieved. Program to continue with existing model.

Procurement and Ethics

Any party receiving state or Energy Efficiency Fund dollars should be required to complete an annual or semi-annual procurement process.

Companies' Position(s):

The Companies have gone through an exhaustive public review of several different iterations of Home Energy Solutions program revisions. The Companies believe that most of the concepts advanced by *Efficiency for All* are found in the final 2016-2018 Home Energy Solutions program design. We appreciate all of the efforts of the trade allies, and we look forward to an ever increasing level of service to Connecticut residents.

Name: Melissa Everett and Roger Smith, Clean Water Action

Date Input Received: 9/01/2015

Input Method(s): Written Comments

Requests/Comments:

Recommendations are built on two straightforward principles:

- Community-based approaches as a source of enormous leverage,
- Strategic targeting of the many low and moderate income Connecticut households who have historically paid their share into the system but have not equally shared in its benefits.

Community-Based Approaches

- Consistently, the Connecticut communities that have achieved the broadest reach with energy-efficiency services have had active Clean Energy Task Forces working alongside private sector contractors. These partnerships have made use of state incentive programs and financing while also adding their own creative, locally appropriate tactics. Community based approaches have been a key to the success of Connecticut’s energy-efficiency programs for specific reasons.
- Reinvest in the vision of the Clean Energy Communities program. Recommend greater attention to training and support for local volunteers, appealing and flexible outreach materials, and ongoing work to mobilize those communities through systematic outreach campaigns.
- Recommend that local or statewide nonprofits such as housing authorities and social service agencies could be selectively and carefully engaged as on-the-ground partners where they have demonstrated outreach capacity.

Low-Moderate Income and Multi-Family Targeting

- Encourage the development of enhanced incentives that can cover pre-weatherization work where needed, as well as encouraging deeper retrofit measures. Recommend studying models that work in nearby states, such as MASS SAVES’s “Efficient Neighborhoods + Initiative” which has proven to have had significant success in Massachusetts.
- Additionally, coordination with health and safety measures and homeowner education, and partnership with private sector entities like hardware stores, can establish valuable linkages for successful outreach as well.
- Recommend that 1/3 of the residential marketing budget be reserved for community-based outreach initiatives.

Companies' Position(s):

- The Companies balance the need to educate customers broadly through marketing messages vs. the need to market to customers to engage them to participate in the programs based on the availability of resources to serve those customers. The Companies utilize a multi-faceted approach to engaging customers to participate at the levels required to achieve the programs' goals.
- The data does not support the assertion that low-moderate income customers are underserved.
- The Companies are diligently working to increase uptake in deeper measures, and have program goals that support those efforts.
- The Companies have achieved significant savings in municipal buildings and continue to do so through initiatives such as the Lead by Example initiative.

Name: Edith Karsky, Executive Director, Connecticut Association for Community Action ("CAFCA")

Date Input Received: 9/04/2015

Input Method(s): Written Comments

Requests/Comments:

- In response to C.G.S. *An Act Concerning Electric Fixed Bill Fees and Grid Modernization* – Sec. 12, Section 16a-41b, Subsection C hereby proposes to address this section through the utilization of a HES-Income Eligible program-funded proposal between the Community Action Agencies, DEEP, and the Companies.
- Proposal to provide a more effective and efficient integration and delivery of HES-Income Eligible, WAP, and CEAP services to CT's eligible low-income residents.
- **Recommendation:** Provide a pool of funds for integrated energy conservation service delivery that will automatically flow through the CT Community Action Agency WAP/HES-IE vendors for the benefit of CT's income-eligible residents.
- CAFCA uses Results Based Accountability ("RBA") framework called Results-Oriented Management and Accountability ("ROMA"). This system not only helps low-income individuals and families with immediate needs, but also works with families to develop their own plans and ways out of poverty so that they are able to see a path to a brighter future, one with positive change for themselves and the economy. This data reporting method allows each local agency to efficiently and effectively measure meaningful customer, agency, and community outcomes and results.

- CAFCA will convene CAA meetings to work in conjunction with the LIEAB board's subcommittee to assure timely submittal to the legislature no later than January 1, 2015 on recommendations and implementation as identified in this legislation.

Companies' Position(s):

The Companies welcome the opportunity to work with all interested parties to improve the efficiency level of Income-eligible homes. We are continuously searching for new ways to streamline the delivery of services, and we welcome specific ideas to advance that objective.

We are opposed to providing a "pool" of funds set aside for any one entity since that may restrict access to services for some customers, but look forward to continued collaboration with the community agencies to improve program delivery.

Name: Green Eco Warriors

Date Input Received: 9/14/2015

Input Method(s): Written Comments

Requests/Comments:

- Green Eco Warriors is a 501(c)(3) non-profit, educational, and research organization focused on environmental conservation, sustainable workforce development, and empowering youth to make smart energy and environmental studies
- Proposal gives overview of Green Eco Warriors' work, including books, school fundraisers, performances, qualifications, and alignment with national/Connecticut educational standards
- Proposal is for funding from the Energy Efficiency Board and the Companies to conduct an educational outreach pilot in all 32 of the City of Hartford's public elementary schools. Green Eco Warriors would present live performances, provide engaging classroom activities, distribute educational materials on sustainability and energy, conduct outreach to parents and educators on Energize Connecticut programs, and manage an energy-saving idea student challenge/competition.
- The term of the pilot would be 3 years. Total funding request is for \$220,800, to work with all 32 public elementary schools (Grades 4-5).
- During School Year 1, Green Eco Warriors would work with 16 of the public schools. The work would include: working with school STEM educators, pre-test administration to understand prior knowledge of energy efficiency, distribution of *Dinero the Frog Learns to Save Energy* books, 30-minute live performance of *Save Energy, Save Dinero*, distribution of *Defeating the Phantom Draw* books, administration of Green Eco Warriors Challenge (including persuasive essay and creative arts challenge), post-test

administration, and top 80 students (from the Green Eco Warriors Challenge) would attend a one-day Summit regarding sustainability and leadership training.

- During School Year 2 of the pilot, Green Eco Warriors would work with the remaining 16 schools.
- During School Year 3 of the pilot, Green Eco Warriors would work with 5 of the 32 schools; and with all grade levels to raise energy awareness and conduct fundraisers. This work would be provided in-kind by Green Eco Warriors.

Companies' Position(s):

Educational offerings are included in the plan, and we would encourage “Green Eco Warriors” to respond to any RFPs for services that the Companies may issue.

APPENDIX E: COMPLIANCE ORDERS

	Compliance Item Name	Due Date
13-03-02 Order 08	DEEP directs the Companies to track relevant data on a census tract basis or report to DEEP what steps they are taking to comply with the requirement to track data on this basis. After the 6-1-14 Filing change the annual date to March 1st. "Per DEEP's Approval Letter, dated February 20, 2015, The Companies must revise their budget tables and submit them no later than March 20, 2015. Any compliance items previously due on March 1, may now be filed by March 20.	03/01/2016
13-03-02 Order 09	On or before June 1, 2014, and thereafter annually on March 1, each EDC shall submit to DEEP and the ENERGY EFFICIENCY BOARD a table containing data for the prior calendar year that includes, on a census tract basis or, if not available by census tract, on a town-by-town basis, the amount of conservation program funds assessed and the amount of incentives expended, disaggregated as small or large customers according to the 100 kW peak demand threshold, and further disaggregated by customer class (i.e., Residential and C&I). Additionally, on or before June 1, 2014, and thereafter annually on March 1, each EDC shall submit to DEEP and the ENERGY EFFICIENCY BOARD a table further disaggregating the residential data component for small customers as follows: specifically, the residential data component for small customers shall be disaggregated by the HES and HES-IE programs, and identify the total number of projects participating in each program, and disaggregate those project numbers by housing stock (i.e., single family, multi-family (2-4 units), and multi-family (>4 units)). The EDCs shall work together to produce a table format that presents the data from each of the companies in a consistent manner. After the 6-1-14 Filing, change the annual date to March 1st. "Per DEEP's Approval Letter, dated February 20, 2015, The Companies must revise their budget tables and submit them no later than March 20, 2015. Any compliance items previously due on March 1, may now be filed by March 20.	03/01/2016

13-03-02 Order 28	The Companies are directed to review the results of program delivery customization with the C&I Committee. This review shall summarize the progress of the self- directed program, identifying the key parameters, the degree of consistency with the best practices described above, and whether additional steps or practices need to be taken in the implementation of self-directed programs. The Companies shall include a progress report of the program and summarize coordination efforts with the C&I Committee in the Annual Update to DEEP.	03/01/2016
13-03-02 Order 33	By March 1, 2014, and annually thereafter, the Companies shall provide a summary of actual data for the previous program (calendar) year. If possible and practical, the Companies may provide such information prior to this deadline. This will allow more time for the Board to consider if any adjustments are warranted. If it is determined that the March 1, 2014 is not practical, then in future years the Companies and the ENERGY EFFICIENCY BOARD can develop a revised submittal schedule.	03/01/2016

APPENDIX F: INSITUTE FOR SUSTAINABLE ENERGY 2016-2018 WORK PLAN

Summary: Institute for Sustainable Energy (“ISE”) Proposed Budget and Work (August 15, 2015)

This budget has been revised from the original proposed budget presented to the C&I Committee on July 7, 2015. The revised budget is decreased by \$90,000, reflecting ISE efforts to leverage additional funds from other sources. Budget figures include total costs for each strategic focus area and work plan. Work plan details are provided in following pages.

Table F-1: Proposed ISE 2016 Work Plan

<i>Strategic Focus 2016 (See detailed work plan submitted 7/7/15)</i>	<i>Requested Annual CEEF Funds, 2016</i>	<i>Annual Leveraged Funds, 2016</i>
1. Systems Approach to Sustainable Energy Management: CT Technical High Schools		
Implement Sustainable Energy Management with CTHSS	\$155,000	
2. Sustainable Energy Management for BOR; Sustainability and Climate Action for Higher Education		
a. Provide energy benchmarking and technical assistance for 12 community colleges. Assist with development of BOR Energy Management Plan and sustainable energy management approach for the BOR system.	\$160,000	
b. Co-chair and coordinate CT Alliance for Campus Sustainability, cultivating leadership across higher ed sector	\$40,000	Proposed \$20,000 from sponsorships, etc.
3. Sustainable Energy Management and Coordination for K-12 Green LEAF Schools		
a. Benchmark approximately 20 Green LEAF Schools, connect with Energize CT resources	\$120,000	
b. Co-chair and coordinate CT Green LEAF Schools, cultivating leadership across K-12 sector	\$40,000	\$10,000 from SDE, proposed \$?? TBD
4. Innovation and Best Practices		
a. Implement Innovative National Best Practices in CT: Performance Based Procurement projects	\$95,000	\$30,000 from DOE
b. Work with partners to explore enhanced sustainable communities initiative		TBD
c. Provide GPRO training for state and municipal building managers		Proposed \$44,000 from DEEP
2016 TOTAL	\$610,000	\$100,000+

ISE Proposed Annual 2016-2018 Budget Overview

Proposed Annual CL&M Budget	2016	2017	2018
Institute for Sustainable Energy	\$610,000	\$610,000	\$610,000