ANNUAL REPORT

2015

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This report is submitted to the Vermont Public Service Board and to the Vermont Public Service Department, in fulfillment of the regulatory requirement for submitting Efficiency Vermont's Annual Report 2015.

Efficiency Vermont

Annual Report 2015

TABLE OF CONTENTS

1. RESULTS OVERVIEW

1. RESULTS OVERVIEW

In 2015, Efficiency Vermont designed and delivered services to enable all Vermonters to benefit from energy efficiency. The energy savings resulting from these efforts strengthened local economies, protected Vermont's environment, and helped to prevent the need for ratepayers to pay for costly electricity infrastructure expansion projects and electricity purchases. To obtain these benefits, Efficiency Vermont helped Vermonters optimize their use of electricity, heating fuels, and process fuels at critical decision-making moments—such as those involving new construction, renovations, and equipment upgrades—and on an ongoing basis as they managed their energy use. Efficiency Vermont also worked in coordination with state, regional, and national partners in efficiency planning, policy, programming, and research efforts that have a lasting, positive impact on Vermont.

Efficiency Vermont's services continued to be designed in alignment with the aims of Vermont's Comprehensive Energy Plan and with goals codified in state energy policy:

> "To assure, to the greatest extent practicable, that Vermont can meet its energy service needs in a manner that is adequate, reliable, secure and sustainable; that assures affordability and encourages the state's economic vitality, the efficient use of energy resources and cost effective demand side management; and that is environmentally sound."[1]

Efficiency Vermont's success in obtaining cost-effective energy savings continued to define efficiency as the cleanest, least expensive, and most locally acquired way to meet the state's energy needs and to reduce Vermonters' energy costs. In 2015, Efficiency Vermont:

- **Empowered Vermonters** of all household income levels, businesses, institutions, and municipalities to lower their energy costs and improve their buildings through Efficiency Vermont's customer-focused services, distribution utility collaborations, and partnerships in Vermont markets and throughout efficient product supply chains.
- **Strengthened Vermont's economy** by: 1) strengthening downtowns and local economies; 2) providing least-cost energy use; 3) increasing positive cash flow for consumers; 4) deferring electricity infrastructure investments; and 5) reducing power plant and heating system emissions that harm the state's environment and related economic drivers such as agriculture and tourism.
- **Ensured operational excellence** in all aspects of service efforts through a commitment to ongoing assessment of the efficiency and effectiveness of operations and service delivery.

[1] Vermont Statute Title 30; Chapter 005; Subchapter 001; § 202a. State energy policy (1).

2015 was the first year of Efficiency Vermont's 2015–2017 performance period.[2] Key results for the year follow.[3]

Energy savings in megawatt-hours:	105,000
Total Resource Benefits:[4]	$112,000,000

The above results demonstrate solid performance toward Vermont Public Service Board (PSB) approved three-year targets. In 2015, as shown in **Table 1**, Efficiency Vermont achieved 33% of its megawatt-hour (MWh) goals and 33% of Total Resource Benefits goals for the 2015–2017 period. These results reflect the strength of the three-year performance period structure, enabling Efficiency Vermont to make strategic adjustments in anticipation of—or in response to—market forces, in accordance with the best short- and long-term interests of ratepayers.[5]

1.1 QUANTIFIABLE PERFORMANCE INDICATORS[6]

Efficiency Vermont continued to operate under a performance-based model. This model ties a significant portion of compensation to specific, aggressive goals in order to encourage high levels of performance, innovation, quality, and operational efficiency. These goals—for specified energy savings acquisitions, administrative performance elements, and other areas—are established with the PSB as Quantifiable Performance Indicators (QPIs) for a three-year performance period. The information in **Table 1** shows Efficiency Vermont's QPI goals and results for the 2015–2017 performance period. These results were achieved within the budget parameters set by the PSB for the period.

[2] Efficiency Vermont's performance periods and savings goals are established with the Vermont Public Service Board, as discussed in Section 1.1.

[3] These key results do not include results from Customer Credit or thermal efficiency and process fuel revenues.

[4] The measure of Total Resource Benefits is the present value of lifetime economic benefits resulting from resource-saving measures, including avoided costs of electricity, fossil fuels, and water. Results are shown in 2015 dollars.

[5] Efficiency Vermont's required annual Budget Variance Report to the PSB, submitted February 15, 2016, for the 2015 performance year, details adjustments made to service offerings in support of electric and thermal savings in multiple business and residential markets. These adjustments were made in 2015 to maintain a responsible balance of spending and service delivery in a year with an exceptionally high rate of customer participation.

[6] Unless otherwise noted, results provided in the narrative section of this report include Customer Credit data, but do not include savings from efficiency measures installed via Burlington Electric Department, Vermont Gas Systems, the Self-Managed Energy Efficiency Program, or the Green Mountain Power Community Energy & Efficiency Development Fund.

Table 1. Selected QPI results for 2015 and progress toward 2015–2017 performance period goals[7]

Key Quantifiable Performance Indicators (QPIs)	Funding Pool	2015 Results	2015–2017 Goals	% of Goal Achieved
Electric savings (MWh)	Electric Efficiency Charge	104,998	321,800	33%
Total Resource Benefits	Electric Efficiency Charge	$111,859,662	$336,300,000	33%
Summer peak kilowatt (kW) demand reduction	Electric Efficiency Charge	11,884	41,300	29%
Winter peak kilowatt (kW) demand reduction	Electric Efficiency Charge	18,188	53,700	34%
Ratio of gross electric benefits to spending	Electric Efficiency Charge	2.0	1.2	167%
Million British thermal unit (MMBtu) savings	Thermal energy and process fuel revenues	47,013	246,000	20%

Efficiency Vermont also completed work related to a program implementation efficiency QPI requiring continuous assessment of key business processes in order to maximize value to the ratepayer. This QPI establishes milestones for Efficiency Vermont submission of annual process improvement plans and year-end reports to verify completion of these plans. In 2015, Efficiency Vermont engaged in value stream improvement activities for the following key business processes:

- Demand Resources Planning Proceeding
- Metering
- Custom Projects
- Home Performance with ENERGY STAR
- Residential New Construction

Full results of QPI activities are provided in Section 3.3 through Section 3.6 of this report.

[7] The total electric and thermal energy and process fuel savings in this table may differ from the summed savings shown in the remainder of the narrative of this document, which reports the results of efforts funded by both the Energy Efficiency Charge and thermal energy and process fuel revenues.

1.2 ECONOMIC BENEFITS

Efficiency Vermont continued to provide a solid economic value for Vermonters. One measure of this value can be seen in the benefit-to-cost ratio, which was 2.1 to 1. **Table 2** shows the factors that contributed to this ratio.

Table 2. Net lifetime economic value of electric and thermal energy efficiency investments in 2015

Benefits	$131,200,000	Total Resource Benefits
	$41,600,000	Operations and maintenance savings
	$172,800,000	**Total Benefits**
Minus Costs	$49,700,000	Efficiency Vermont resource investments
	$33,400,000	Participant and third-party investments
	$83,100,000	**Total Costs**
Equals Net Benefits	$89,700,000	**Net Lifetime Economic Value to Vermont**

Total Resource Benefits in 2015 for Efficiency Vermont's reporting categories:

Existing Businesses	$39.9 million
Retail Efficient Products	$40.5 million
Business New Construction	$29.7 million
Existing Homes	$11.6 million
Residential New Construction	$7.8 million
Customer Credit	$1.8 million

Efficiency Vermont delivered excellent value compared to other sources of energy:[8]

- Efficiency Vermont supplied electric efficiency at a levelized cost of approximately 4.4 cents per kilowatt-hour (kWh) over the average expected lifetime of the efficiency measures installed in 2015. Taking into account participating customers' additional costs and savings, electric energy was saved at a levelized net resource cost of less than 0.1 cent per kWh. By contrast, the cost of comparable electric supply was 8.2 cents per kWh.
- Efficiency Vermont's efforts that were focused on thermal energy and process fuel savings supplied efficiency in 2015 at $10.80 per one million British Thermal Units (MMBtu) over the expected life of the measures. Taking into account participating customers' additional costs and savings, fossil fuel was saved through efficiency in

[8] Numbers in the two ensuing bulleted items do not include Customer Credit. The "levelized net resource cost of saved electric energy" comprises: 1) Efficiency Vermont costs of delivery, plus customer and third-party contributions to measure costs, all adjusted to reflect the comparative risk adjustment of 10% adopted by the PSB in Docket 5270; and 2) costs or savings associated with fuel, water, and building operation and maintenance.

2015 at a levelized net resource cost of $24.03 per MMBtu, whereas the avoided cost for that fuel was $28.24 per MMBtu.

Investments in energy efficiency continued to strengthen businesses and to secure jobs. For example, 55 Vermont contracting businesses, employing a combined 72 Home Performance with ENERGY STAR® and Building Performance contractors, completed approximately 750 projects in 2015. Efficiency Vermont also helped retailers statewide promote and sell efficient products that strengthened their bottom line. In 2015, Efficiency Vermont's retail partners sold more than 6,300 efficient appliances, 34,600 efficient consumer electronics products, and 838,800 efficient lighting products.

Efficiency investments also increased positive cash flow for Vermonters. In a January 2016 report,[9] the Vermont Department of Public Service (DPS) credited energy efficiency savings for a modest increase in Vermont ratepayers' aggregate discretionary income. The report projected that "total ratepayer savings from past efficiency investments will continue to exceed total participant spending on new efficiency investments and will do so by increasing margins."

Efficiency efforts benefited Vermont communities as a whole, thanks to investments made in efficient upgrades to local institutions, municipal buildings, and street lighting. Schools, for example, were able to take advantage of innovative financing through Efficiency Vermont's partnering local lenders, to fund capital upgrades providing positive cash flow and lasting savings without the need for bond issues or new taxes.

1.3 ELECTRIC EFFICIENCY SAVINGS[10]

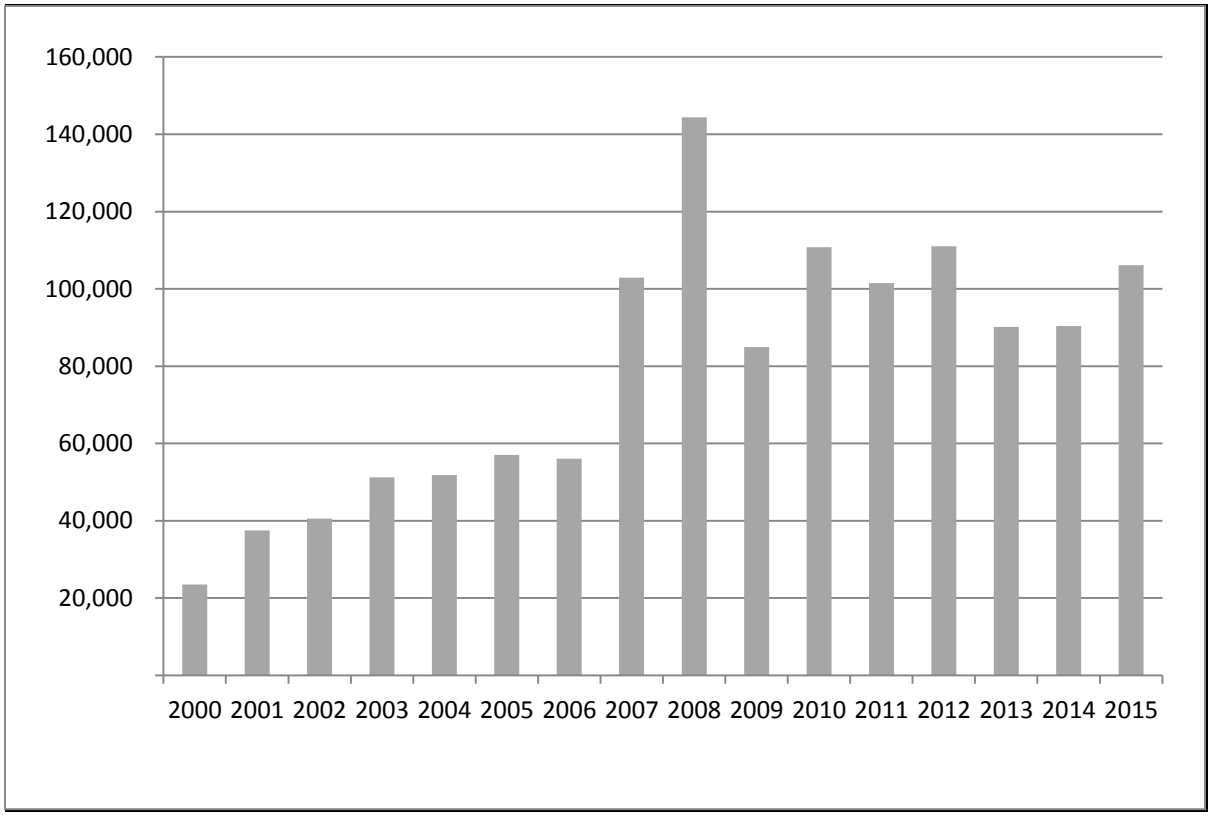
Energy savings resulting from electric efficiency measures installed in 2015 provided an estimated 1.9% of Vermont's overall electric energy requirements for the year. This percentage represents approximately $11.9 million in retail value, annually, based on a rate of 13 cents per kWh.[11] **Figure 1** and **Figure 2** show Vermont's history of energy savings from electric efficiency measures.

[9] The Vermont Department of Public Service's Response to Joint Energy Committee Questions Regarding Energy Efficiency Investments, January 8, 2016.

[10] All data in Section 1.3 include savings from efficiency measures installed through Burlington Electric Department and the Green Mountain Power Community Energy & Efficiency Development Fund, with the exception of Figure 1, which includes only Efficiency Vermont results.

[11] This represents a blended average of commercial, industrial, and residential rates.

Figure 1. Efficiency Vermont annualized megawatt-hour savings



Cumulatively, efficiency measures installed since 2000 provided 1,026 gigawatt-hours (GWh) of savings for Vermont by the end of 2015[12]. This figure represents 14.5% of the state's estimated 2015 electric energy requirements, with a retail value of more than $118.7 million, based on a rate of 13 cents per kWh. **Figure 3** shows the increasing percentage of Vermont's annual electric needs met by efficiency savings.

Energy efficiency also provided significant benefits to ratepayers via avoided or deferred wholesale electricity purchases and transmission and distribution investments. The DPS reports[13] that, from 2000 through 2014, ongoing reductions in electricity consumption attributable to Vermont Energy Efficiency Utility (EEU) programs saved a cumulative total of approximately $50 million more in wholesale costs than ratepayers paid to fund EEU

[12] This number is the sum of efficiency measures reported by Efficiency Vermont, Burlington Electric Department, Customer Credit, the Green Mountain Power Energy Efficiency Fund, and the Green Mountain Power Community Energy & Efficiency Development Fund and accounts for measures that have expired over time.

[13] Source: The Vermont Department of Public Service's Response to Joint Energy Committee Questions Regarding Energy Efficiency Investments, January 8, 2016.

programs. The report estimates that ratepayers would have borne the cost for almost $480 million in wholesale electricity market purchases "if not for the demand-side efficiency improvements enabled by EEU programs." The DPS report credited Efficiency Vermont's services for 88% of Vermont's EEU-linked electric savings.

The above-referenced report also linked energy efficiency savings with electricity bill savings, noting that as many as 90% of Vermont's ratepayers have participated in an EEU program and are now paying lower electricity bills. The report also specifies that "Even with the energy efficiency charge added to their bills, ratepayers as a whole have been paying a lower total dollar amount to utilities than if utilities had supplied the electricity that was saved by EEU investments with resales of electricity purchased from the wholesale market."

Figure 2. Savings from efficiency as a percentage of statewide electric resource requirements

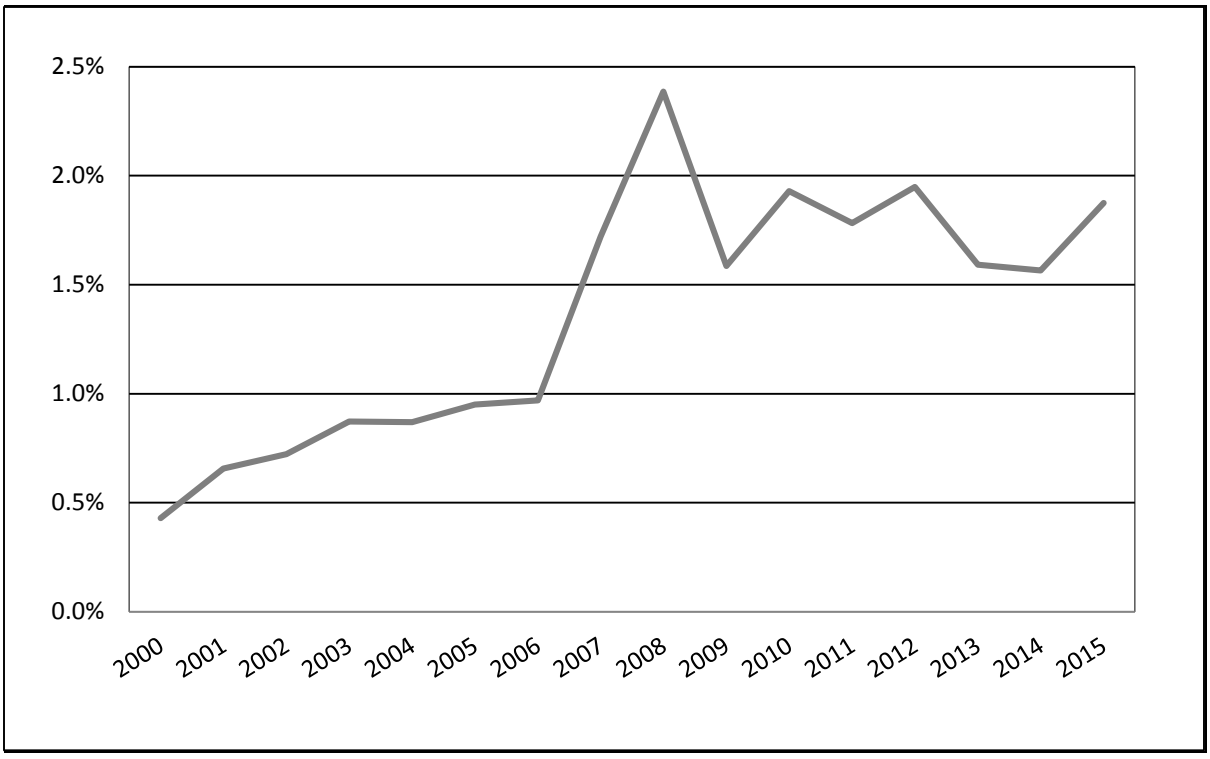
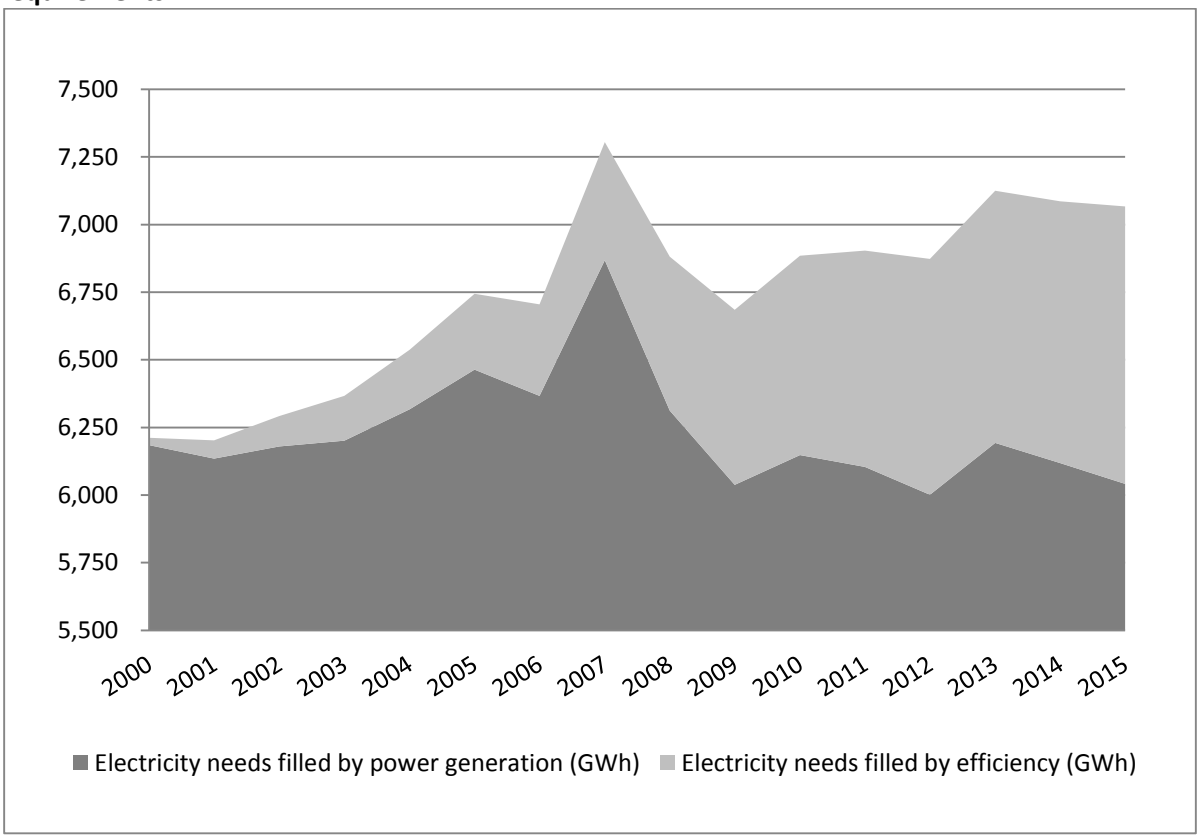


Figure 3. Cumulative impact of efficiency on growth in statewide annual electric supply requirements



In accordance with PSB and statutory requirements, the funding source for Efficiency Vermont's electric efficiency services was separate and distinct from funding sources for efficiency services related to thermal energy and process fuels (TEPF). Efficiency Vermont ensured that from the customer's perspective, provision of services was seamless, regardless of the funding source. Electric services were funded through the Energy Efficiency Charge, whereas TEPF services were funded by Vermont's Regional Greenhouse Gas Initiative revenues and by revenues earned from meeting electric capacity commitments (Efficiency Vermont demand savings) bid into the regional grid's Forward Capacity Market (FCM). The Efficiency Vermont administrator, the Vermont Energy Investment Corporation (VEIC), bids these expected demand savings into the FCM on behalf of the State of Vermont. Efficiency Vermont's 2015 FCM commitments[14] represented Vermont's single largest peak capacity provider, increasing grid capacity by lowering demand. In 2015, 10.94% of Efficiency Vermont spending drew from TEPF funding sources. More detailed budget information is provided in Section 3.2.

[14] Discussed further in Section 2.4.3.

1.4 THERMAL ENERGY AND PROCESS FUEL (TEPF) EFFICIENCY SAVINGS[15]

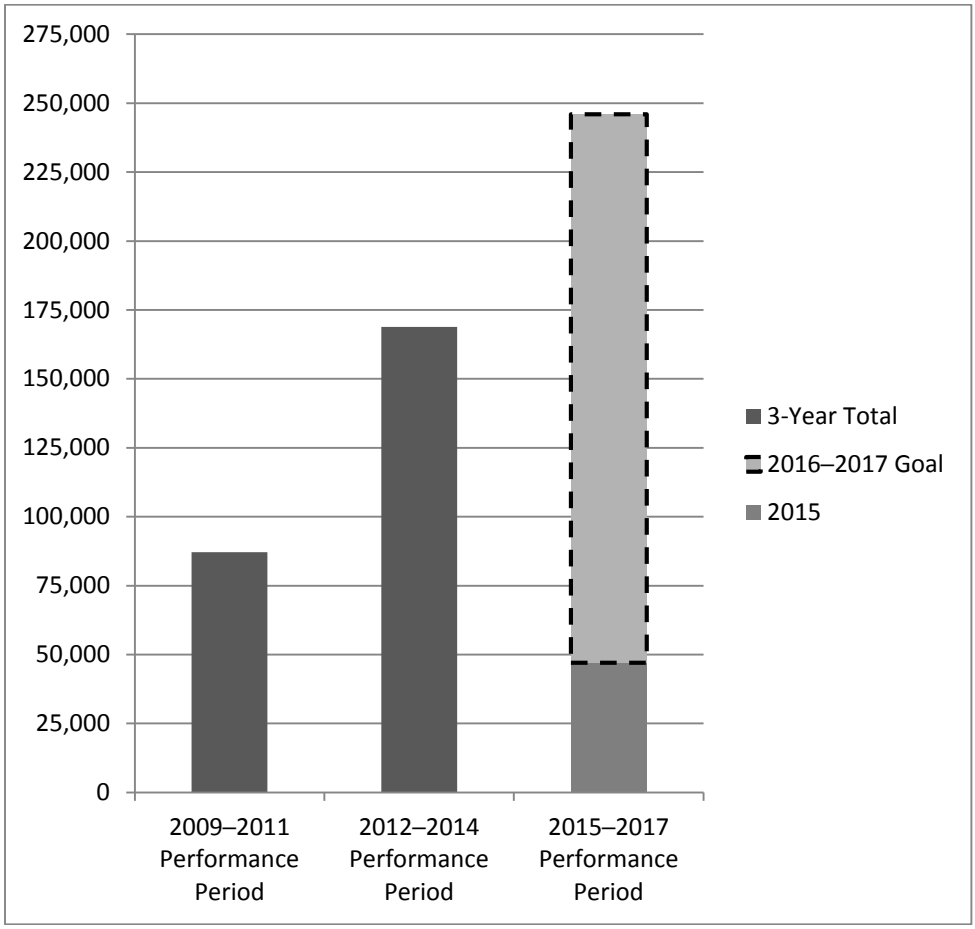
Efficiency Vermont provided both TEPF efficiency services and electric efficiency services, helping Vermont homes and businesses with a comprehensive approach to energy savings. Savings in 2015 from TEPF-funded services totaled approximately 47,000 MMBtu, acquired through the following:

- Services to Efficiency Vermont's statewide network of Home Performance with ENERGY STAR contractors, offering energy efficiency home improvements
- Technical information and financial incentives for high-efficiency residential and commercial heating equipment, including biomass systems and certain efficient oil and propane systems
- Partnerships with fuel dealers, heating contractors, and hot water system installers to enable them to provide specified services to Vermont homeowners regarding efficient heating, ventilation, and air conditioning (HVAC) systems
- Thermal-shell improvements for small businesses and private multifamily property owners through Efficiency Vermont's Building Performance service
- Coordination with affordable housing providers, the Vermont Fuel Efficiency Partnership, and Vermont's Weatherization Program to offer comprehensive multifamily services to low-income households
- Services promoting the installation of recommended efficient non-electric commercial kitchen equipment
- Thermal project partnerships with Burlington Electric Department (BED) and Vermont Gas Systems (VGS).

Figure 4 shows Efficiency Vermont's TEPF savings over time.

[15] Savings data in this section do not include Customer Credit.

Figure 4. Efficiency Vermont's thermal energy and process fuels savings, in MMBtu



At the close of 2015, Efficiency Vermont had reached 20% of its target for cumulative TEPF savings for the 2015–2017 performance period.

Efficiency Vermont's TEPF services were aligned with requirements specified by the PSB and also supported Vermont State energy policy goals as outlined in Section 581 of Act 92 (the Vermont Energy Efficiency and Affordability Act, enacted in 2008) and the 2011 Vermont Comprehensive Energy Plan.

1.5 ENVIRONMENTAL BENEFITS

In addition to energy savings and economic benefits, Efficiency Vermont's performance in 2015 provided benefits for Vermont's environment. By lowering the use of fossil fuels for electricity generation, heating, and industrial processing equipment, energy efficiency prevented associated emissions. Efficiency's role in pollution prevention was of particular note in times of peak electricity demand, when additional fossil fuel–fired power plants were brought on line. In these periods, efficiency measures, such as the use of efficient air conditioners instead of inefficient models during a heat wave, provided their optimal

environmental benefit. **Table 3** shows avoided pollutants over the lifetime of efficiency actions taken in 2015. These reductions are the pollution-prevention equivalent of keeping 12 thousand cars off the road for 13 years.

Table 3. Avoided pollutants over the lifetime of 2015 measures, in U.S. tons[16]

Pollutant	2015 Reduction
Carbon dioxide	855,000
Nitrogen oxides	412
Sulfur oxides	912

[16] Source for fuel savings values: United States Energy Information Administration. Source for electric savings values: United States Environmental Protection Agency's Emissions & Generation Resource Integrated Database for the New England region.

2. 2015 SERVICES

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In 2015, Efficiency Vermont designed and delivered objective, customer-focused technical, financial, and educational services to help Vermonters overcome barriers to improving the energy efficiency of their homes, businesses, institutions, and municipal facilities. Efficiency Vermont designed its approaches through an awareness of customers' priorities, including both energy benefits and such non-energy benefits as lower operating and maintenance costs, reduced water use, greater building occupant comfort, healthier indoor air, improved light quality, and improved working environments. These efforts served Vermonters—regardless of the degree of their past involvement in efficiency activities—by empowering and motivating them through greater awareness, knowledge, and ability to make informed decisions about their energy use.

In 2015, Efficiency Vermont's services were recognized by the U.S. Environmental Protection Agency (EPA), which named Efficiency Vermont an ENERGY STAR Partner of the Year for energy efficiency program delivery. The award honored Efficiency Vermont for:

- Development and adoption of world-class strategies that provide substantial energy and money savings
- Energy efficiency programs that improve the efficiency of products and buildings
- Outstanding contributions to protecting the environment through superior energy efficiency.

2.1 SERVICES TO EXISTING BUSINESS FACILITIES

Existing Vermont businesses, institutions, and municipalities working with Efficiency Vermont in 2015 saved an approximate total of 38,700 MWh and 15,000 MMBtu from more than 3,200 projects, delivering Total Resource Benefits of $39.8 million to approximately 2,250 customers. The average anticipated return on investment for efficiency improvements in existing commercial facilities in 2015 was 29% per year. Highlights of efforts in existing buildings follow.

2.1.1 VERMONT'S LARGEST ENERGY USERS

To serve the state's 600-plus largest energy users—defined by their use of more than 500 MWh of electricity per year—Efficiency Vermont continued to take a customized approach. Efforts to reduce energy use and costs in this sector, which drives approximately 40% of Vermont's electricity usage, included the following.

Account Management

Designated Efficiency Vermont staff established and maintained long-term, proactive professional relationships with individual businesses. To design and deliver effective, customized services, account managers maintained a deep understanding of each company's priorities and challenges. Efficiency Vermont:

- Helped businesses create comprehensive portfolios of savings opportunities
- Provided technical and financial analysis
- Delivered guidance in developing energy savings plans
- Offered financial incentives and upstream price negotiations for recommended approaches
- Delivered assistance in identifying third-party financing options
- Helped customers in assessing and utilizing energy usage data
- Identified, and provided custom solutions to, companies experiencing low returns on energy efficiency investments
- Assisted customers with peak electricity use management and system optimization.

Such approaches were designed to best position businesses to: 1) deepen savings; 2) complete multiple projects over time; 3) utilize best practices in energy use management, and 4) engage in Continuous Energy Improvement (CEI)[17], which helps customers look holistically at their energy use to obtain sustainable and verifiable energy savings. In 2015, Efficiency Vermont served 253 businesses through Account Management, garnering a combined expected annual savings of 23,900 MWh from measures completed in 2015.

In addition to engaging in ongoing work with individual customers in 2015, Efficiency Vermont:

- Continued and expanded CEI efforts.
    - Completed a series of five peer-to-peer workshops for CEI participants, on ways to tactically engage staff in CEI and strategic energy management
    - Initiated development of annual participation reports for each company, providing the customer with a uniform, in-depth summary of activity and progress
    - Launched CEI efforts targeting food manufacturers that use ammonia refrigeration systems.
- Engaged in outreach, communication, and collaboration with strategic partners, including regional development corporations and chambers of commerce, to gain market insights and feedback about services, and to strengthen the promotion of services to these partners' constituencies.
- Held a Best Practices Exchange event for ice rink operators and two such events for ski resort operators, at locations throughout the state, delivering industry-specific energy savings information and providing customers with opportunities to learn from their peers in Vermont.
- Facilitated energy kaizen events at three host company sites, applying continuous quality improvement practices to energy management, for multiple companies. One kaizen included a "sleeping plant tour" to identify energy waste during off-production hours.

[17] CEI efforts in 2015 were delivered as a pilot service, described in Section 2.3.10 Resource Acquisition Research & Development.

2.1.2 Small and Medium-Sized Businesses

Efficiency Vermont designed and implemented services for Vermont businesses using up to 1,000 MWh per year that are not served under Efficiency Vermont's targeted market initiatives (discussed in Section 2.1.3). These services addressed the particular needs of this sector while providing seamless delivery across Efficiency Vermont services, easing business owners' ability to access Efficiency Vermont's technical and financial support regarding high-efficiency commercial equipment, retail efficient products, building improvements, new construction, and market-specific services (such as those described in Section 2.1.3).

In 2015, Efficiency Vermont engaged in the following activities:

- Provided thermal efficiency services through Building Performance. This service, modeled after Home Performance with ENERGY STAR, provides incentives to qualifying small businesses and rental property owners completing efficiency improvements with certified Building Performance contractors.
- Engaged customers through the Efficiency Excellence Network of building improvement contractors, fuel dealers, electricians, and HVAC contractors (discussed in Section 2.3.3).
- Delivered technical guidance and education on technologies, immediate and long-term efficiency opportunities, and financial solutions through direct customer interaction and strategic outreach via numerous avenues, including business media placements, chambers of commerce, business associations, trade associations, planning commissions, economic development groups, and utility partners.
- Engaged in phone consultations to help businesses identify and prioritize savings opportunities and to support owners through the project process.
- Launched Account Management services in the small and medium-sized businesses sector.
- Began inclusion of grocery, convenience, and retail stores (formerly served through targeted market efforts) in small and medium-sized business services.
- Conducted a successful statewide direct-mail campaign for businesses, showing ways to save energy and encouraging owners to get started by contacting Efficiency Vermont, resulting in new interest and projects.
- Initiated data analysis and segmentation efforts to maintain a deep understanding of such factors as customers' building types, measures that may provide the most benefit to customers, industry segments, and usage.
- Distributed information on topics targeted to this market through the monthly "Energy Solutions" column, sent to outlets statewide; the monthly "Business Solutions" eNews; and monthly blog posts on www.efficiencyvermont.com.
- Initiated outreach to businesses in four sectors (hospitality, convenience and grocery, retail, and previously engaged customers) through an initiative offering site visits to targeted customers with annual electricity usage between 250 and 1,000 MWh.

2.1.3 TARGETED MARKETS

Efficiency Vermont continued to implement targeted initiatives—each with its particular approaches, energy-saving measures, and incentives—to address the priorities, challenges, and motivations of specific markets. These markets were agriculture, colleges & universities, hospitals, K–12 schools, leased commercial real estate, lodging facilities, municipalities, restaurants, ski areas, and state buildings.

Highlights of activities in selected targeted markets follow. These highlights provide a glimpse of 2015-specific activities that were undertaken concurrently with targeted services to support the implementation of projects in each market.

Agriculture

Efficiency Vermont:

- Launched the Maple Reverse Osmosis initiative through extensive outreach and publicity, resulting in new projects being undertaken by maple producers and deepened engagement with manufacturers
- Offered a highly successful, limited-time light-emitting diode (LED) rebate specific to agricultural buildings
- Conducted a dairy barn ventilation metering assessment, to review program assumptions
- Interacted with hundreds of Vermont farmers, homeowners, and business owners at the Vermont Farm Show, the Farm Bureau Centennial Meeting, the St. Albans Cooperative Creamery annual meeting, and the Farm to Plate annual gathering; , and interacted with Northeast state officials and utility representatives at the New England Farm Energy Collaborative
- Promoted Farm to Plate and Efficiency Vermont Dairy Farm and Dairy Processing success stories through print media throughout the state
- Accepted leadership of the Farm to Plate Energy Cross-Cutting Team, a group of entities working on food system energy issues in Vermont; hosted meetings to help develop an energy technical assistance provider database to increase the use of efficiency and renewables on farms
- In recognition of the exceptional efforts of customers, attended the U.S. Department of Agriculture Rural Development's *Rural Energy for America* awards honoring the 2015 energy efficiency work that Vermont farmers undertook in collaboration with Efficiency Vermont.

Colleges & Universities

Efficiency Vermont helped higher education institutions in their effective utilization of green revolving funds to finance campus energy efficiency projects. As noted in Section 2.4.5, Efficiency Vermont's green revolving fund efforts are among those that leverage modest EEU resources to draw higher amounts of new project funding without additional ratepayer investment.

Hospitals

Efficiency Vermont conducted a benchmarking and technical data analysis project to inform long-term strategy by providing a refined view of the savings potential and investment needed in the energy-intensive hospitals market. Key outcomes of this effort:

- Two Vermont hospitals became the first in New England to earn the ENERGY STAR certification.
- The statewide median ENERGY STAR score was shown to have improved by seven points compared to 2013 results, and the score range widened, revealing many opportunities and positioning Efficiency Vermont well to guide customers in taking action.

Efficiency Vermont also completed a market research project, begun in 2014, regarding opportunities for customer engagement and support. Efficiency Vermont identified opportunities for stronger partnerships with engineering and architecture firms serving the hospital market as well as potential customer benefits in taking cross-market approaches to technologies and financing.

K–12 Schools

Efficiency Vermont:

- Completed a comprehensive analysis of the information collected through its energy benchmarking study of more than 300 Vermont public schools. The study had been undertaken in coordination with the Vermont Superintendents Association's School Energy Management Program. The analysis assessed the current state of both heating and electric energy efficiency, providing insights into areas where schools could use greater assistance in order to improve their performance. The analysis showed that 76% of assessed schools were performing at a level that made them eligible for certification as ENERGY STAR schools.
- Continued to cost share the ENERGY STAR certification process for schools; 22 schools earned certification.
- Continued to serve the K–12 schools market through the Energy Literacy Project, discussed in Section 2.4.1; the EverGreen Loan Fund, described in Section 2.3.7; and the RELIGHT Program, supporting the use of lighting design professionals to maximize energy savings in lighting projects.

Commercial Real Estate

In 2015:

- The U.S. Department of Energy granted an award to a leased Vermont office building project in which Efficiency Vermont supported the successful upgrade of 66 rooftop units (RTUs) to high-efficiency models. This HVAC upgrade resulted in significant reductions in electricity and natural gas use. The award recognized the greatest number of high-efficiency RTU installations by a government organization (the building leaser).

- Efficiency Vermont sponsored, exhibited, and presented at the Vermont Development Conference of real estate and development professionals, focusing on commercial property construction, leasing, financing, and operation.

Lodging Facilities

Efficiency Vermont continued to strengthen participation through partnerships:

- Sponsored and exhibited at the Vermont Travel Industry Conference (VTIC), of 250 hospitality businesses and suppliers from around Vermont
- Attended the VTIC annual meeting, attended primarily by lodging operators and suppliers
- Exhibited at the Vermont Convention Bureau annual meeting, attended by representatives of Vermont's largest hotels.

Municipalities

Efficiency Vermont:

- Launched targeted market services for municipalities, to include street lighting efforts and services for water and wastewater treatment facilities
- With a consultant, developed a draft guidance document on incorporating energy efficiency and life-cycle cost analysis into major facility upgrades for water and wastewater treatment facilities; worked in partnership with the Vermont Department of Environmental Conservation and the Environmental Committee of the Vermont chapter of the American Council of Engineering Companies
- Created and distributed a case study on the use of sub-surface mixers in lagoon-based treatment facilities, generating a new project
- Held two energy management workshops for wastewater treatment facility operators
- Developed and presented the first annual *Energy Management Award*, in partnership with the Green Mountain Water Environment Association, to a Vermont municipality in recognition of water/wastewater facility efficiency improvement efforts
- Conducted direct-mail outreach to towns throughout the state regarding municipal light-emitting diode (LED) streetlight conversion
- At the Vermont Agency of Natural Resources' annual Vermont Municipal Day, presented information on ways that municipalities can improve efficiency in operations and buildings
- Continued to increase participation in the Municipal Street Lighting Initiative.

Restaurants

Efficiency Vermont:

- Made a presentation to the entire sales team of Vermont's largest commercial kitchen vendor to help the team better promote energy efficiency in its commercial cooking and refrigeration equipment, resulting in the vendor highlighting ENERGY STAR equipment in its quoting software system
- Worked with a Vermont commercial kitchen equipment supply house to ensure labeling of ENERGY STAR models and to keep its sales team prepared to provide

information to customers
- Met with a food service equipment supplier to discuss promotion of ENERGY STAR equipment in Vermont
- Exhibited at the annual Taste of Vermont legislative reception hosted by the Vermont Chamber of Commerce
- Exhibited at the annual Reinhart Foodservice trade show, the largest food service show in Vermont, attended by approximately 1,000 commercial food service operation leaders.

Ski Areas

Efficiency Vermont:

- Supported the installation of the Snowmaking Energy Index (SEI) system at one mountain in the state, allowing an operator to view, in real time, the efficiency of the resort's snowmaking system and to make adjustments as needed; by year-end, an additional three mountains were engaged in the SEI process
- Launched an initiative designed to reduce peak demand by installing controls on lift terminal heaters
- Hosted its second annual Best Practices Exchange for Vermont ski industry operators, attended by ski area management staff, with tracks focused on mountain operations and resort experience
- Attended, and exhibited at, the Vermont Ski Areas Association annual meeting
- Attended the National Ski Areas Association Eastern Conference held at a Vermont resort; as part of the event, Efficiency Vermont tested the efficiency of snow guns from six manufacturers
- Was featured, for its 2014 "Great Gun Round Up," in *Ski Area Management* magazine, which is distributed to the North American ski industry.

State Buildings

Efficiency Vermont coordinated with the Vermont Department of Buildings and General Services (BGS) to develop the State Energy Management Program (SEMP), as outlined by Vermont State legislation, to reach specific energy use reductions in State buildings from July 1, 2015, through June 30, 2019. Efficiency Vermont funding supported BGS SEMP project manager positions, whereas revolving funds financed SEMP projects. In 2015, Efficiency Vermont: 1) engaged in development of SEMP's definition, creation of a memorandum of understanding, and job descriptions; 2) undertook candidate recruitment and selection; and 3) accelerated project pipeline development.

2.1.4 Key Commercial Technologies

Efficiency Vermont continued to maintain awareness of efficient technologies that hold the potential to provide significant benefits in commercial applications and engaged in efforts to bring these benefits to Vermont's commercial sector. Efficiency Vermont primarily focused on technologies offering good opportunities for saving through upgrades. These technologies

included lighting, industrial process equipment, combined heat and power systems, and HVAC systems—including heat pump technologies for both commercial and residential use. To increase the adoption of quality technologies in a wide range of applications, Efficiency Vermont engaged in the below activities.

Commercial Lighting

Efficient lighting technologies and design continued to offer significant savings opportunities owing to their broad applicability across commercial markets. Efficiency Vermont:

- Provided technical guidance and promotions to encourage the adoption of a range of efficiency lighting equipment, including: 1) light-emitting diode (LED) technologies; 2) interior and exterior lighting and lighting controls; and 3) efficient exterior lighting on private sites and municipal streets
- Through engagement in the equipment supply chain, reduced purchase prices via upstream incentives and worked to maintain product availability
- Partnered with lighting distributors, designers, and representatives to leverage their interactions with customers
- Provided efficient lighting technology training and support to lighting designers and service providers
- Monitored and evaluated emerging lighting technologies for possible inclusion in services
- Promoted quality lighting products and initiatives in collaboration with the Consortium for Energy Efficiency, Design Lights Consortium (DLC), ENERGY STAR, Northeast Energy Efficiency Partnerships, and the U.S. Department of Energy.

In 2015, Efficiency Vermont undertook the following:

- Welcomed the first lighting distributor to sign up its branches for an initiative focused on LED troffers with integrated controls
- Began distribution of an informational sheet, developed in collaboration with BED, to help educate the marketplace about the value of integrated lighting controls
- Welcomed two new lighting manufacturer partners
- Conducted a market research project to evaluate the commercial and residential lighting markets and gain insights that could inform overall lighting program strategies
- Distributed Efficiency Vermont's "Lighting" eNews
- Consulted with the EPA on the draft ENERGY STAR lamp specification and with DLC on the draft Networked Controls specification
- Participated in two DLC Networked Controls working groups.

Heating, Ventilation, and Air Conditioning

Efficiency Vermont's 2015 efforts included both direct customer and upstream partnering activities designed to increase the installation of high-efficiency equipment and the optimization of entire systems. A discussion of ongoing upstream efforts can be found in Section 2.3.4.

Highlights of Efficiency Vermont's 2015 activities:

- Launched an updated high-performance circulator pump initiative, with increased minimum efficiencies, fewer qualifying pumps, and decreased incentive levels
- Collaborated with Green Mountain Power to promote heat pump water heaters and cold-climate heat pumps
- Coordinated with Washington Electric Cooperative and the Energy Co-Op of Vermont in promotional efforts focused on efficient solar hot water systems
- Raised incentive levels for biomass systems and tightened eligibility requirements to support only "best in class" systems; changes were based on extensive stakeholder feedback
- Welcomed two new manufacturers to the cold-climate heat pump initiative
- Engaged in product evaluation of advanced rooftop units
- Worked with VGS to coordinate an increase in efficiency requirements for hot water systems rented by VGS and receiving Efficiency Vermont rebates
- Coordinated with BED and VGS to develop a single water heater rebate form for use by customers of all three energy efficiency utilities (BED, VGS, and Efficiency Vermont).

Combined Heat and Power

To promote the use of best practices and best-in-class Combined Heat and Power (CHP) systems, Efficiency Vermont engaged operators of wastewater treatment, agricultural, industrial, and institutional facilities with: 1) on-site electricity generation capability; and 2) substantial heating needs. Efficiency Vermont's services included financial support for third-party cost-benefit CHP feasibility studies and for CHP systems meeting requirements established by the Public Service Board (PSB). In 2015, Efficiency Vermont collaborated with Green Mountain Power to study both CHP feasibility at a major wastewater treatment facility and a proposed large-scale community digester designed to utilize agricultural/food waste products as a source of biogas. Efficiency Vermont also worked with the U.S. Department of Energy industrial assessment center to analyze the feasibility of CHP at a large manufacturing facility for dairy products.

Industrial Process Equipment

Efficiency Vermont continued to work with Vermont manufacturers and other businesses to identify improvements for pumps, motor controls, variable frequency drives, compressed air systems, and process heating and cooling systems. Efforts included Account Management of large customers; supply chain partnerships to increase adoption of efficient technologies; coordination with qualified auditors to take a system-wide or facility-wide approach to

equipment auditing; and research and service development to deepen market knowledge, to further develop internal processes, and to increase customer engagement and savings. In 2015, Efficiency Vermont:

- Deepened engagement with small- and medium-sized businesses with the launch of a pilot initiative to support this sector's industrial businesses through the installation of permanent, cost-effective energy monitoring and data acquisition systems
- Continued a performance-based initiative aimed at optimizing compressed air systems
- Held a kickoff workshop for customers targeted for a Continuous Energy Improvement effort focusing on ammonia refrigeration system optimization.

2.2 SERVICES TO HOMES

2.2.1 EXISTING MARKET-RATE HOMES

Single-Family Homes

To help Vermonters improve the efficiency of their homes, Efficiency Vermont continued to support a network of more than 70 independent Home Performance with ENERGY STAR contractors, who are trained and certified to perform energy-efficient home improvements. Efficiency Vermont provided:

- Tiered financial incentives, and financing through financial institutions, for homeowners who completed projects with certified contractors
- Support by phone to help customers understand and complete projects and to develop long-term plans to achieve comprehensive energy efficiency improvements
- Marketing and outreach campaigns promoting the benefits of working with certified contractors and informing homeowners about available incentives and financing options
- Online customer information
- Direct contractor services, discussed in Section 2.3.3.

In 2015, Efficiency Vermont continued to expand its residential efforts with a view toward enabling more Vermonters to participate in and benefit from taking energy efficiency actions. These efforts were designed to provide customers with greater ability to approach household energy performance improvement as a process with multiple, often interactive opportunities, rather than as a single project. This focus aimed to empower customers to take control of the total energy performance of their homes and to make informed decisions according to their priorities and budgets. Related activities included maintaining and increasing contractor involvement in Efficiency Vermont's building improvement contractor network, as discussed in Section 2.3.3; continuing and expanding collaboration with home ownership centers; and the following activities, which were initiated in 2015:

- Produced three educational www.efficiencyvermont.com videos on weatherization for homeowners, aligned with retail point-of-purchase weatherization how-to guides and supported by Efficiency Vermont residential energy consultants in service to

homeowners—particularly for moderate-income households—unable to afford whole-house upgrades
- Supported the installation of new technologies, including heat pumps and solar hot water systems, to reduce fossil fuel consumption
- Launched early stages of the Vermont Home Energy Score, an energy rating system for homes.

Efficiency Vermont's long-standing support for Vermont's certified-contractor network, along with efforts to raise public awareness about the benefits of efficient home improvements, resulted in homeowner action beyond the scope of official Home Performance with ENERGY STAR services. This manifested in two ways: 1. Customer interest in do-it-yourself tools (see discussion of www.efficiencyvermont.com videos in previous paragraph), and 2. Customer completion, with Home Performance with ENERGY STAR contractors, of thermal measures too small in scope to report as Efficiency Vermont projects (these were reported informally by contractors). While the energy savings from these efforts were not captured in 2015 results, this type of homeowner engagement was indicative of the market transformation impact of Efficiency Vermont's public education and contractor services.

Multifamily Homes

In service to Vermonters living in rental housing, Efficiency Vermont engaged in efforts designed to motivate rental property owners to take energy-saving action. Efficiency Vermont provided owners with:

- Information and education by leveraging relationships with the Vermont Apartment Owners Association, the Vermont Rental Property Owners Association, large property developers, and construction professionals
- Technical and financial support for:
    - The installation of efficient equipment, including the addition of heat pump technologies
    - Thermal improvements completed by certified Building Performance Institute contractors.

2.2.2 Existing and New Low-Income Housing

Efficiency Vermont undertook its efforts in service to low-income households in collaboration with long-standing partners: 1) low-income housing and service providers, including the Vermont Foodbank and agencies of Vermont's Weatherization Program; 2) affordable housing funders, including the Vermont Housing and Conservation Board (VHCB) and the Vermont Housing Finance Agency; and 3) multifamily housing developers, including Housing Vermont. In 2015, Efficiency Vermont engaged in the following:

- Installation, as applicable, of lighting, appliances, heat pumps, and cost-effective custom measures in high-use, low-income households not served through Vermont's Weatherization Program.

- Replacement of inefficient refrigerators with new, efficient units in partnership with the Vermont Department of Health's Women, Infants, and Children program.
- Distribution of efficient lighting through multiple partners, including the Vermont Foodbank, Boys & Girls Club, Salvation Army, Habitat for Humanity ReStore, and other organizations that serve low-income Vermonters.
- Improvement of the energy efficiency of multifamily and single-family buildings housing low-income Vermonters via such efforts as targeted electrical and thermal measures implemented through agencies of Vermont's Weatherization Program, including Capstone Community Action (formerly Central Vermont Community Action Council) in support of 3E Thermal (formerly the Vermont Fuel Efficiency Partnership).
- Increasing the application of design and construction approaches that result in housing exceeding Vermont's Residential Building Energy Standards and ENERGY STAR specifications, attained by partnering with Vermont's network of nonprofit affordable housing providers.
- Technical and financial support for new construction and major renovations of multifamily properties developed by Vermont's affordable housing delivery network, which uses state and federal subsidies.
- Identification and implementation of innovative measures in targeted high-performance multifamily buildings to support the achievement of net-zero goals.
- Provision of a high-performance option for modular home buyers in partnership with VHCB, the Champlain Valley Office of Economic Opportunity, the University of Vermont, the High Meadows Fund, the Vermont Community Foundation, and VerMod High Performance Modular Homes (a Vermont home manufacturer). 2015-specific activities included the following, which resulted in increased inquiries, multi-unit park projects, and orders for new homes:
    - Worked with the U.S. Department of Agriculture (USDA) Rural Development program to develop and promote a USDA pilot loan program for buyers of Vermont-made high-performance modular homes.
    - Held open houses and conducted tours of model units, in multiple locations, for members of the general public; architects; loan originators; and representatives of low-income advocacy groups, land trusts, and affordable housing agencies.
    - Partnered with VerMod to present a production-facility event attended by approximately 200 people, including representatives of banks, home ownership centers, and USDA Rural Development.
    - Was awarded a $45,000 grant from Jane's Trust Foundation in support of the purchase and installation of a high-performance modular home, with solar power, to be installed at BED as a model home, available to the public for two years.
    - Served as an integral resource to VHCB in its successful application to the Vermont Low Income Trust for Electricity for a $150,000 grant in support of high-performance modular home efforts.

2.3 ACTIVITIES IN SERVICE TO MULTIPLE CUSTOMER SECTORS

While targeting specific markets, as described above in Sections 2.1 and 2.2, Efficiency Vermont also provided services that had an impact on multiple sectors. A key element of this cross-sector approach was Efficiency Vermont's ongoing partnering with the businesses that Vermonters turn to for efficient products and services. These partnerships, although not always evident to the general public, have a profound impact on Vermonters' ability to lower energy use in their homes and places of business. Efforts made with these providers included coordinated planning, program creation, information exchange, training, quality assurance, financial incentives, and promotional activities. These partnerships enabled Vermont homes and businesses to have access to a valuable network of knowledgeable providers while strengthening these providers' bottom line.

2.3.1 New Construction Services

Efficiency Vermont's support for the creation of efficient new buildings continued to focus primarily on the professionals engaged in architectural design and construction. These individuals included architects, engineers, specialty design service providers, and practitioners of construction trades. Efficiency Vermont also engaged in efforts targeting developers, equipment suppliers, installation contractors, commissioning agents, appraisers, lenders, and real estate agents, as well as certain building owners as key members of project teams, particularly with respect to construction undertaken by institutions, by government agencies, and by large businesses with multiple buildings. In addition, Efficiency Vermont recognized and publicized exceptional achievement by design and construction practitioners through its annual *Best of the Best* awards for new high-performance buildings and homes.

Business New Construction

Efficiency Vermont maintained its delivery of services to encourage a comprehensive approach to efficient design, integrating energy efficiency decisions into the process and including energy goals as part of the overall construction strategy from the earliest stages of a project. Efforts included:

- Technical assistance throughout the design, construction, and post-construction phases
- Analytics to evaluate efficiency options
- Tiered services aimed at meeting specific building performance levels, including net zero
- Financial incentives for efficient approaches, equipment, and building operation systems
- Post-occupancy energy performance tracking and engagement with building owners to identify ongoing and future savings opportunities, including energy use management
- Leveraging of customer interest in green building, energy performance, and green rating systems such as Leadership in Energy and Environmental Design (LEED)

- Training and information provision to a range of key parties involved in new construction projects
- Maintenance of a Design Professionals Advisory Group, bringing together individuals who offer a diverse view of the market, providing valuable insights into Efficiency Vermont's involvement in new construction
- Sponsorship of events held by key industry groups, including the American Institute of Architects Vermont
- Research, such as a net-zero feasibility study, completed in 2015 in partnership with Maclay Architects and three other market-based partners and presented through a public webinar to 240 participants
- Continued partnerships with national, regional, and international organizations, such as the American Council for an Energy-Efficient Economy, the Consortium for Energy Efficiency, the Construction Specifications Institute, the Institute for Market Transformation, the International Code Council, and the New Buildings Institute, as well as Vermont trade organizations, as specified in Section 2.3.5.

Residential New Construction

In 2015, to support Vermonters' varied efficiency aims for their new homes, Efficiency Vermont offered technical guidance, financial assistance, and energy rating services in alignment with ENERGY STAR, LEED, the National Green Building Standard, and net-zero-ready standards. To assist builders and owner-builders in meeting and exceeding Vermont Residential Building Energy Standards while promoting low-load and net-zero building practices, Efficiency Vermont offered the following services:

- Efficiency Vermont Certified: Homes exceeding Vermont code requirements for energy efficiency and receiving certification for Home Energy Rating and Vermont Residential Building Energy Standards. ENERGY STAR certification was offered as an option.
- Efficiency Vermont Certified Net-Zero-Ready High-Performance: Homes meeting elevated criteria for comprehensive energy efficiency and suitability to achieve net-zero energy use with the incorporation of renewables.
- High-Performance Modular Homes: Vermont-built modular homes meeting high-performance criteria for low energy use, durability, health, and safety. More information on this effort is provided in the discussion of low-Income housing in Section 2.2.2.

In 2015, Efficiency Vermont:

- Collaborated with builders, appraisers, lenders, developers, and real estate agents through the Vermont Green Alliance, advocating for efficient new construction and promoting the value of efficiency in home sales.
- Disseminated information about efficiency through outreach efforts to building supply houses, electric utilities, and media placements.
- Conducted research into builder marketing of energy efficiency to gain insights into opportunities for Efficiency Vermont to help sell the value of energy efficiency.

- Modified the High-Performance Home specification for ventilation to allow for greater diversity in heat recovery ventilation models. This lowers the cost of specified construction without lowering overall efficiency.
- Along with the DPS, BED, and VGS, agreed on shell savings baselines for 2015–2017, EEUs to increase cost-effectiveness by basing savings on actual market baselines rather than code baselines.
- Conducted modeling and analysis of home performance data acquired through monitors in place in high-performance homes since 2012.
- Organized and served as the primary sponsor of the first-of-its-kind Green Real Estate Symposium, bringing together more than 230 real estate professionals, lenders, appraisers, builders, and energy professionals to learn about strategies for valuing and marketing energy efficiency in homes.
- Initiated the use of Vermont Department of Environmental Conservation wastewater permits as a source of project leads, enabling beneficial planning-stage engagement.

New Construction Information and Education

Efficiency Vermont continued to provide energy efficiency information and education to professionals and tradespeople involved in new construction and renovation projects through the Energy Code Assistance Center and the annual Better Buildings by Design Conference. Discussion of these efforts can be found in Section 2.4.1.

2.3.2 Retail Efficient Product Services

Efficiency Vermont provided support for a range of consumer products that met or exceeded efficiency standards set by the U.S. Department of Energy's ENERGY STAR program, including lighting (featuring an increased emphasis on LEDs), appliances, air conditioners, dehumidifiers, pool pumps, and electronics. Efficiency Vermont also provided services to encourage buyers of heat pump technologies to purchase efficient models.

Efficiency Vermont's services were designed to increase efficiency knowledge and reduce purchase costs in order to motivate Vermonters to select efficient models of products for their homes and businesses. Support included rebates, buy-downs, and markdowns at the manufacturer and retail level, point-of-purchase information, advertising, promotional and public information activities, and the targeted provision of "efficiency kits" to introduce customers to specific efficient products. An essential element of Efficiency Vermont's efforts continued to be services to retailers and upstream partners in the product supply chain to ensure the availability of high-quality efficient products in Vermont stores.

In 2015, Efficiency Vermont:

- Named four Vermont retailers Retail Partners of the Year for outstanding promotion of efficient lighting or appliances
- Participated in monthly Northeast Energy Efficiency Partnerships and Consortium for Energy Efficiency (CEE) product category meetings

- Continued participation as a member of the EPA Retail Products Platform core team and Implementation Team.

Activities in support of specific technologies follow.

Lighting

In 2015, Efficiency Vermont:

- Created and distributed a retailer survey on LED lighting.
- Launched the first LED lighting promotions with a major supermarket chain
- Increased the number of promoted LED products.
- Continued the "Saving Is Always in Season" lighting campaign, featuring in-store materials, retail events, and media promotions.
- Hosted events at retail partners' stores to promote efficient lighting and recommended controls.
- Issued a three-party memorandum of understanding to institute an upstream lighting initiative among Efficiency Vermont, a retailer, and a manufacturing partner.
- Continued to participate in EPA discussions on specification changes for luminaires and lamps.
- Expanded the number of retailers in the markdown program and eliminated the buy-down model to simplify participation for retail partners. Through both models, Efficiency Vermont provided incentives that motivated recipients to lower prices for specified efficient products. Markdown incentives were provided to manufacturers, whereas buy-down incentives were for retailers.

Appliances

In 2015, Efficiency Vermont:

- Continued participation in the Super-Efficient Dryer Initiative working group
- Launched the second phase of the Smart Choice campaign, which included a comprehensive point-of-purchase marketing effort at more than 20 retail locations
- Completed a dryer baseline study with Northeast Energy Efficiency Partnerships to evaluate Vermont savings opportunities
- Worked with CEE on an advanced dryer specification to potentially provide a platform for tiered rebates
- Continued field-based retailer program support and activities to support appliance rebates
- Continued implementation of the Second Refrigerator and Freezer recycling initiative through the third quarter of the year
- Worked with retail and manufacturing partners to put heat pump clothes dryers on display and make them available for sale at six Vermont retailers
- Added the first clothes dryer using only heat pump technology to the list of qualified products
- Established a new heat pump water heater rebate.

Further activities with respect to heat pump equipment with residential and commercial uses are discussed in Section 2.1.4.

Consumer Electronics
In addition to continuing its efforts to encourage the use of efficient electronics, Efficiency Vermont participated in both the CEE and Northeast Energy Efficiency Partnerships (NEEP) Home Energy Management Systems working groups and continued discussions with industry contacts on set-top box pilot opportunities.

2.3.3 Services to Building Improvement Contractors

In service to Vermont contractors and their customers, Efficiency Vermont continued its affiliation with the Building Performance Institute (BPI) in training Vermont building improvement contractors to identify and address a range of thermal and electric efficiency issues in buildings. With this training, contractors became certified to deliver comprehensive retrofit efficiency services to residences, through Efficiency Vermont's Home Performance with ENERGY STAR program, and/or to small businesses and rental properties, through Efficiency Vermont's Building Performance program.

Efficiency Vermont supported certified contractors with energy audit software, program promotion, self-marketing and sales training, listings on www.efficiencyvermont.com, and consumer financial incentives and financing options for projects completed by BPI certified contractors. Contractors also were able to receive education credits through Efficiency Vermont's annual Better Buildings by Design Conference (discussed in Section 2.4.1). Efficiency Vermont recognized and publicized exceptional achievement by certified contractors through its annual *Best of the Best* awards for efficient retrofit projects.

In 2015, Efficiency Vermont:

- Instituted a default air leakage protocol for contractors opting to not conduct a blower door test out of safety concerns for disturbing asbestos or vermiculite
- Conducted interviews with and solicited feedback from Home Performance with ENERGY STAR contractors and middle-income homeowners regarding new program offerings
- Improved the Home Performance with ENERGY STAR customer survey to better reflect experiences with participating contractors as well as with the service itself
- Held the following:
    - The Home Performance with ENERGY STAR annual meeting
    - A forum and training sessions in southern Vermont to increase area participation
    - Two forums to solicit ideas for new residential offerings
    - Four forums to discuss a change in software, program optimization efforts, and the direction of services for existing homes.

Efficiency Vermont also continued to coordinate and expand the Efficiency Excellence Network (EEN) of commercial and residential electrical, HVAC, refrigeration, Home Performance with ENERGY STAR, and heat pump contractors. Through the EEN, contractors received technical training that enables them to identify and promote efficiency opportunities for their customers. By the close of 2015, the network included 143 contractor companies encompassing 163 company branches. In 2015, Efficiency Vermont conducted 14 training sessions, in locations throughout the state, and engaged in extensive outreach to contractors through direct mail, e-mail, phone, in-person meetings, trade association meetings, a quarterly newsletter, and monthly updates.

2.3.4 Services to Equipment Supply Chain Partners and Technicians

In 2015, Efficiency Vermont continued successful efforts in partnership with manufacturers, distributors, suppliers, retailers, installers, and service technicians through:

- Engagement with manufacturers, distributors, and suppliers to reduce equipment purchase costs, ensure Vermont product availability to contractors and consumers, and reduce lead times for product ordering.
- Collaboration with manufacturers regarding emerging and rapidly advancing efficiency technologies.
- Account Management of Vermont stores in retail chains, targeting store owners, managers, and staff to ensure implementation of promotional agreements established at the corporate level.
- Assistance to independent and chain retailers, including merchandising support, guidance on efficient product differentiation on the sales floor, and product knowledge training.
- Training and support for installers, to help them increase the use of new, efficient technologies and approaches.
- Promotional work focusing on targeted products.
- Leveraging of a relationship with Heating, Air-conditioning, and Refrigeration Distributors International, a trade association representing more than 475 distributors and close to 500 suppliers, manufacturers, and service vendors, to maintain awareness of the needs of the HVAC supply chain.
- Education credits for HVAC system designers, equipment installers, and service technicians through Efficiency Vermont's Better Buildings by Design Conference (see Section 2.4.1).
- Training for commercial and residential electrical, HVAC, refrigeration, and heat pump contractors through the EEN (described in Section 2.3.3). 2015 saw an increase in HVAC contractor membership after the institution of new criteria for the Heat Saver Loan (described in Section 2.3.7) requiring customers to work with an EEN member.

2.3.5 Trade Association Partnerships

In addition to engaging in direct customer interaction, Efficiency Vermont worked with professional and trade member organizations representing a wide range of constituents. Efficiency Vermont was able to inform business customers about best practices via trusted channels and with targeted messaging resonating with markets' particular priorities through:

- Association newsletters and websites
- Technical materials
- Event sponsorship, conference and trade show participation, and speaking engagements
- Training workshops
- Promotional and educational campaigns.

Active partnerships:

American Council of Engineering Companies of Vermont
American Institute of Architects—Vermont Chapter
American Society of Heating, Refrigerating, and Air-Conditioning Engineers
Building Performance Professionals Association of Vermont
Construction Specifications Institute
Farm to Plate Network
Green Mountain Water Environment Association
Heating, Air-Conditioning and Refrigeration Distributors International
Home Builders and Remodelers Association of Vermont
ICC Building Safety Association of Vermont
Illuminating Engineering Society
University of Vermont Extension
Vermont Alliance of Independent Country Stores
Vermont Apartment Owners Association
Vermont Association of Hospitals and Health Systems
Vermont Association of School Business Officials
Vermont Convention Bureau
Vermont Fuel Dealers Association
Vermont Green Building Network
Vermont Green Home Alliance
Vermont Healthcare Engineers Society
Vermont Hospitality Council
Vermont Inn and Bed & Breakfast Association
Vermont Maple Sugar Makers Association
Vermont Rental Property Owners Association
Vermont Retail & Grocers Association
Vermont Rural Water Association
Vermont Ski Areas Association
Vermont Superintendents Association

2.3.6 Community-Based Activities

Throughout the state, Efficiency Vermont engaged with Vermonters interested in creating or joining efforts to reduce energy use in their towns, institutions, businesses, and homes. Efficiency Vermont partnered with town officials, town energy committees, local organizations, and businesses to increase the impact of existing efforts or to support interest in new efforts. Offered services included planning guidance, promotions, educational materials, volunteer training, and the contribution of efficient products.

In 2015, Efficiency Vermont:

- Through the Vermont Community Energy Partnership Grant effort, helped six low-income service provider nonprofit organizations to provide their clients with basic energy-saving services
- Presented six workshops, in locations throughout the state, on net-zero energy homes, four forums on residential heat pump technology, and five workshops on residential energy efficiency; facilitated two strategic planning sessions on achieving net zero for a town energy committee; and presented three workshops at the Vermont Energy and Climate Action Network conference
- In partnership with the Southwestern Vermont Council on Aging, trained volunteers to conduct home energy visits for seniors, to install energy-efficient products and assess additional energy-saving opportunities
- Provided substantial technical, educational, and logistical support to Vermont's three Georgetown University Energy Prize communities
- Engaged in the development of community outreach and engagement approaches focusing on downtowns and city centers
- Created a new reporting mechanism specific to results of services provided to designated Vermont downtowns, new growth centers, and town centers; see Table 5.2.1 in this report.

2.3.7 Financial Services

In its ongoing commitment to help Vermonters overcome financial barriers to investing in cost-effective efficiency for their buildings and equipment, Efficiency Vermont engaged in the following efforts in 2015.

Product and Service Price Reductions

To motivate Vermonters to make energy-efficient choices in the marketplace, Efficiency Vermont targeted specific products and services for purchase price reductions. Primary mechanisms included: 1) negotiated cooperative promotions that provide incentives to manufacturers, distributors, and retailers—both independent and chain stores—to lower the purchase price of products; and 2) rebates and financial incentives for:

- Efficient products and equipment purchased at the retail level and through commercial suppliers and installation contractors
- Process equipment for such businesses as farms, manufacturers, and industrial facilities
- The incorporation of advanced, cost-effective techniques and approaches that enable the design and construction of high-performance residential and commercial buildings
- Thermal building upgrades made by Building Performance contractors in small commercial and multifamily properties
- Comprehensive home improvement projects conducted by Home Performance with ENERGY STAR contractors.

Financing for Energy Efficiency Projects

Efficiency Vermont continued to work with lenders to ensure the availability of cost-effective financing for more than 200 energy efficiency projects. By including energy savings in the repayment formula, lenders may be able to provide funding for individuals and businesses not otherwise qualifying for financing. In many instances, such financing creates a positive cash flow for borrowers because of monthly energy savings that are larger than loan payments. In 2015, Efficiency Vermont provided technical and financial analysis, promotions, and informational support for customers. Efficiency Vermont engaged with a range of financing vehicles, including the following:

- Business Energy Loan: Increasing businesses' opportunities to finance efficiency projects by factoring energy savings into loan qualification calculations, in partnership with Vermont State Employees Credit Union and Opportunities Credit Union
- Green Mountain Power EverGreen Fund: Zero-interest on-bill financing for Vermont's K–12 schools and towns located in Green Mountain Power service territory
- Municipal Tax-Exempt Leasing: Opportunities for municipalities to make energy-saving upgrades, in facilities such as K–12 schools, without raising budgets or establishing bonds
- Property Assessed Clean Energy (PACE): Home loans secured by a property lien, in collaboration with National Bank of Middlebury and Opportunities Credit Union
- Green Revolving Fund: Financing for colleges, universities, and other nonprofit institutions, with financial support from the High Meadows Fund and in partnership with the Sustainable Endowments Institute
- Heat Saver Loan / EEN Partnership: Financing, in partnership with the Department of Public Service (DPS), Vermont State Employees Credit Union, and Opportunities Credit Union, for heating system replacements and comprehensive thermal efficiency projects through Efficiency Vermont's EEN
- Agricultural Energy Efficiency Loan: Providing agricultural facilities with low-interest financing for efficiency projects, in partnership with Vermont State Employees Credit Union and Opportunities Credit Union
- Energy Efficiency Loan Guarantee Program: loans made by financial institutions to Vermont businesses for energy efficiency improvements in partnership with Vermont Economic Development Authority.

Financing Education and Analysis

To enable Vermonters to be aware of, understand, and make decisions regarding financing options, Efficiency Vermont provided easy access to information by phone, through its website, in printed materials, and in media placements. Efficiency Vermont continued to provide financial analysis for custom projects to help customers understand the financial aspects of efficiency investments. In 2015, Efficiency Vermont raised the profile of financing by:

- Providing Building Performance Institute contractors with tools to calculate and present options for clients regarding financing

- Enhancing www.efficiencyvermont.com listings of financing options and lenders to better educate and guide customers
- Making the discussion of cost-effective financing a standard part of service to customers lacking capital who could benefit from certain technology upgrades
- Presenting on energy efficiency financing at community-based workshops, in coordination with local energy committees.

Financial and Leveraged Product Development
Efficiency Vermont continued its efforts to: 1) increase financing opportunities for Vermonters engaged in energy efficiency projects; and 2) leverage public and private resources to draw new funding for energy efficiency efforts without additional ratepayer investment. These efforts are discussed in Section 2.4.5.

2.3.8 Coordination with Distribution Utilities

In 2015 Efficiency Vermont:

- Executed shared services agreements with Burlington Electric Department and Vermont Gas Systems to ensure coordination in the implementation of efficiency services and special initiatives.
- Contracted with Green Mountain Power Corporation (GMP) in the implementation of services through the Community Energy & Efficiency Development Fund, offering GMP customers unique services as well as shared services, through which GMP invests in existing Efficiency Vermont programs.
- Executed individual Memoranda of Understanding with GMP and Vermont Public Power Supply Authority outlining collaboration and coordination efforts to advance energy policy of the state of Vermont in a way that maximizes benefits for Vermont energy consumers.
- Continued its coordination with Vermont Electric Cooperative and Washington Electric Cooperative.

2.3.9 State, Regional, and National Partnerships

In service to Vermonters and in support of the State's energy goals, Efficiency Vermont continued to leverage the expertise and resources of entities engaged in a range of energy and efficiency endeavors, both in Vermont and outside the state. Efficiency Vermont shared its own expertise at regional and national gatherings, enabling Vermont to be both recognized for its innovations and informed by best practices in other states. In Vermont, partners included the High Meadows Fund, the VHCB, the Regulatory Assistance Project, and many others. On a regional and national level, Efficiency Vermont maintained ongoing partnerships with such organizations as Northeast Energy Efficiency Partnerships (NEEP), the New Buildings Institute, the Consortium for Energy Efficiency, ENERGY STAR, and the American Council for an Energy-Efficient Economy, working to share information on best practices and to establish uniform product eligibility criteria and program designs.

A sample of efforts that Efficiency Vermont engaged in with NEEP in 2015:

- Promotions for quality commercial lighting products and initiatives
- Monthly retail efficient product category meetings
- Completion of an efficient clothes dryer baseline study to evaluate Vermont savings opportunities
- Consumer electronics Home Energy Management Systems working groups
- Review of the NEEP 2015 International Energy Conservation Code Builders Guide
- The NEEP-facilitated new Vermont Code Collaborative, initiated by the DPS to develop improved code approaches and methods.

2.3.10 Resource Acquisition Research & Development

In 2015, Efficiency Vermont launched 2015–2017 performance period efforts to determine the potential for achieving verifiable, cost-effective energy savings from behavior-based energy efficiency services. These services were designed to motivate customers to reduce their energy use by empowering them with knowledge about: 1) their energy use and the benefits of energy use reduction; 2) the connection between their actions and their energy use; and 3) ongoing energy use management approaches and benefits. Efforts were also designed to demonstrate rigorous measurement and verification approaches for quantifying savings and determining cost-effectiveness for behavior-based energy efficiency, and to test data collection and analysis processes. Efficiency Vermont's 2015 activities follow.

Home Energy Reports (HERs)

The HERs pilot program was started in November 2014 to provide individualized, comparative electric usage information and energy-saving tips to 100,000 GMP residential customers through mailed and e-mailed reports. The pilot also provided each participant with a private, secure web portal. In 2015, after a 23-week pause to make changes designed to improve customer satisfaction, Efficiency Vermont resumed the pilot. Because of delays in data transfer implementation for other utilities, GMP customers continued to be the only Vermonters eligible for the pilot, which continued to be delivered by Opower. At year-end, HERs was slated to continue in 2016. In 2015:

- The pilot had an opt-out rate of just under 1%; customers were added to the control group to account for people who opted out or moved
- The following percentages of communications from report recipients to Efficiency Vermont addressed:
    - Interest in more information about the program or savings opportunities: 23%
    - Interest in discussing neighbor usage comparisons provided by the program: 13%
    - Dislike of the program: 10%
    - Signing up for individual web portals providing secure data analysis: Just over 1%.

Continuous Energy Improvement (CEI) Pilot

CEI was undertaken as an approach to reducing energy intensity over time for 50 large commercial and industrial customers. This pilot was facilitated by extensive customer engagement through Efficiency Vermont Account Management outreach. Efficiency Vermont provided participants with: A set of group-focused trainings and peer interactions; individual, on-site trainings; support for assessment and development of energy and procurement plans; and software tools and metering equipment for real-time energy use feedback and management. Efficiency Vermont generated annual reports, for 2016 distribution, of savings and CEI activities for each participating customer, and engaged in pilot evaluation with the Department of Public Service (DPS) and its third-party evaluator. In late 2015, Efficiency Vermont launched efforts for a second CEI cohort, made up of five commercial and industrial customers, focusing on ammonia refrigeration.

Research into Behavior Savings in New Markets

Research was undertaken to determine effective means of capturing behavior savings from current markets and identifying new markets to address. Markets of focus included low-income customers, small- and medium-sized businesses, and community-based outreach approaches. Efficiency Vermont researched non-traditional behavior approaches and conducted an internal call-for-ideas that generated 19 ideas for evaluation. The guidance provided for these ideas was based upon research into behavioral programs and key stakeholder interviews. The ideas generated were evaluated based upon these key objectives: Potential for behavior change, measurability, and emergence into new or underserved markets. The following ideas were moved forward for further review and development:

- Lower-cost Continuous Energy Improvement
- Digital engagement channels and tools
- Multifamily housing behavioral strategies
- Customer engagement impact measurement and verification, as described under “Other Behavior Research” below.

Data Analytics

Utilizing Efficiency Vermont’s new integrated data storage and analytics platform, this research aimed to develop and implement streamlined processes to deliver recommendations and savings estimates, and to verify results to customers. Efforts also investigated the power of this information and the tools developed to understand it, to enhance customer engagement, motivate customer action, and capture energy savings. 2015 activities included the following.

- Building infrastructure designed to access and process data that will support customized energy services
- Integration with existing data tracking system, including synchronization with utility data to provide efficiencies for data analysis
- Completion of a propensity study providing data to apply to market research
- Planning efforts to increase the overall efficacy of the data analytics platform through

identified activities for 2016.

Other Behavior Research
The aim of this research was to obtain an understanding of a novel way to measure the effectiveness and impact of customer engagement activities that existing measurement and verification (M&V) tools were not well equipped to address. In 2015, Efficiency Vermont undertook research to identify new initiatives to meet this objective, with plans for 2016 and 2017 to design and implement pilots testing customer identification, customer engagement, and M&V methodologies.

2.4 DEVELOPMENT AND SUPPORT SERVICES

Efficiency Vermont engaged in efforts that build customer awareness and knowledge; help shape energy and efficiency policies; and identify approaches for optimal service development, delivery, and improvement. These efforts continued to be essential to Efficiency Vermont's efforts to deepen energy savings and to have a lasting, positive impact on Vermont households, businesses, and communities.

2.4.1 EDUCATION AND TRAINING

Codes and Standards Support—Residential and Commercial / Industrial
Efficiency Vermont:

- Helped callers, through the Energy Code Assistance Center, with information about Vermont's commercial and residential energy codes.
- Received a grant of $20,000 from the DPS to support code training.
- Completed training sessions, at different locations in the state, in coordination with the DPS, on 2015 Commercial Building Energy Standards (CBES), with a total of 110 design and construction professionals in attendance.
- Held builder/architect-focused Residential Building Energy Standards training sessions, in collaboration with building supply houses throughout Vermont.
- Attended a meeting at a municipality considering adoption of the stretch code to discuss updated energy codes expected to be adopted for Act 250 projects.
- Distributed 2015 CBES code books and Residential Building Energy Standards handbooks.
- Assisted with the review of the residential standards handbook as well as with the review of the NEEP 2015 International Energy Conservation Code Builders Guide.
- Participated in the new Vermont Code Collaborative, initiated by the DPS and facilitated by NEEP to develop improved code approaches and methods.
- Attended two Vermont Agency of Natural Resources (ANR) Board public hearings for stakeholder input on the adoption of an interim process and the stretch guideline for Act 250 projects. Also provided comments to the ANR and DPS on these new procedures and requirements.

Energy Literacy Project

Through its Energy Literacy Project, Efficiency Vermont worked to inspire lifelong commitment to energy efficiency, conservation, and environmental stewardship in Vermont's next generation by creating greater awareness and understanding of energy and the impact of energy consumption. The primary goals of the Energy Literacy Project continued to be to:

- Promote energy education and literacy in Vermont's K–12 schools
- Affect energy-related behaviors of students and staff at school
- Encourage students and staff to apply their learning at home and to participate in Efficiency Vermont, VGS, and BED efficiency services and programs.

The Vermont Energy Education Program, under contract with Efficiency Vermont to implement this project, supported educators in enhancing school curricula and increasing student awareness of and advocacy for energy-related issues in their schools and communities. In 2015, the Energy Literacy Project worked in schools statewide to deliver in-class workshops, hold teacher training sessions, support schools in the Whole School Energy Challenge, and enroll schools in Project Green School.

General Public Education

To motivate and empower the general public to take energy-saving actions, Efficiency Vermont engaged in activities designed to increase public awareness of: 1) energy efficiency and its benefits; 2) actions that lower energy use; and 3) Efficiency Vermont as a resource for comprehensive energy efficiency solutions. Methods used in 2015 included:

- Provision of information and marketing and advertising promotions via print, broadcast, web-based, and social media
- Engagement of customers through access, at www.efficiencyvermont.com, to recommendations on efficiency actions, online rebate applications, information about efficient technologies and approaches, identification of qualified local service providers, locations of retailers selling efficient products, and information on a range of other efficiency and energy topics
- Dissemination of information at home shows, community events, fairs, and trade shows
- Creation of advice columns and electronic newsletters that delivered information on energy efficiency and Efficiency Vermont's services.

Better Buildings by Design Conference

Efficiency Vermont presented its annual Better Buildings by Design Conference in February. This two-day gathering is the region's premier design and construction conference, serving as a key resource to 1,000-plus construction and design professionals, and equipment installation and service contractors. The conference focused on the latest techniques and technologies for building durability, superior performance, energy efficiency, and value for both residential and business new construction as well as retrofit projects. In addition to 40

workshops and hands-on demonstrations given by industry leaders, the conference hosted a trade show of 50 exhibitors of efficient technologies.

Customer Support
Vermonters continued to have easy access to expert energy efficiency information and guidance through Efficiency Vermont's multichannel contact center, which utilized phone, e-mail, and live chat communications to provide:

- Help for commercial and residential customers in understanding their energy use and engaging in energy management
- Comprehensive information related to Efficiency Vermont's services and to efficient buildings and equipment
- Referrals to resources such as Vermont's Weatherization Program, the Renewable Energy Resource Center, the Energy Code Assistance Center, VGS, and electric distribution utilities.

2.4.2 Applied Research and Development

Efficiency Vermont engaged in a range of research and development projects to gather information on areas with potential for inclusion in future programming.

Emerging Data Services
To strategically plan for the optimal use of data in service to customers, planners, and policy makers, Efficiency Vermont explored new strategies, techniques, and/or technologies that showed promise for increasing energy savings, facilitating targeted segmentation, decreasing delivery costs, or increasing customer engagement and satisfaction. In 2015, Efficiency Vermont engaged in the following.

- Small- and medium-sized business market analytics focusing on customer segmentation
- Peak savings analysis for commercial and industrial accounts
- Feature and functionality customization designed to deepen the ability to deliver targeted savings estimates
- Creation of the following:
  - The automated ability to download high-resolution data from power meters and indoor environmental sensors from 40-plus high-performance residential buildings in order to automate and standardize analyses across the entire portfolio, facilitating faster and more thorough investigations of trends across different building technologies
  - A method to screen large numbers of accounts on a monthly basis to identify accounts with unusually large deviations from normal usage patterns
  - A tool for analysis of data from building management systems
  - A tool to enable quick, web-based access to interval data in discussions with customers
- Activities in the development or exploration stages of the below efforts:

- A secure, standardized interface to access advanced metering infrastructure (AMI) data for analytics software
- Portfolio-level Advanced Metering Infrastructure (AMI) data analysis approaches
- Software designed to segment groups of customers on the basis of weather-related usage
- A submetering data analytics application focused on compressed air systems
- A research partnership with the U.S. Department of Energy to test methods of measuring savings from whole building interval data.

Technology Demonstrations

Efficiency Vermont engaged in activities to advance the goals of sound product and service design over time through field testing, technology demonstrations, and research on emerging technologies and implementation strategies. Efficiency Vermont maintained a webpage at www.efficiencyvermont.com/news-blog/whitepapers, providing the public with access to information about exemplary technology demonstration efforts. An overview of 2015 activities follows.

Mapping Total Energy Burden: For this effort to identify "hot spots" of high usage by mapping Vermont household energy use, Efficiency Vermont compiled and engaged in analysis of data for thermal, electric, and transportation energy costs. Initial outcomes included identification of: 1) town-level mapping of mean household, total average, and per capita electric usage; and 2) preliminary opportunities to lower the energy burden in low-income households in one area of the state. The final report for this effort was planned for 2016.

Deep Commercial and Industrial Energy Retrofits: This project was designed to help determine the feasibility and scalability of 50% energy reduction retrofits in Vermont commercial facilities. The participant group, made up of facilities with varying degrees of energy performance, included a large grocery store, a municipal building, a commercial office building, a daycare facility, and a K–12 school building. Designated Efficiency Vermont staff members were assigned to provide custom assistance to decision makers throughout the project. Initial insights gained included information about costs, optimal conditions for success (such as a committed owner and existing interest), and the value of effective customer support. Efficiency Vermont used these insights to inform approach adjustments and to assess these revised approaches for scalability in 2016.

Pump Up the Savings: Cold-climate heat pumps (CCHPs) have become increasingly popular--owing to their role in reducing fossil fuel use--and they have exhibited potential for deeper user benefits as well as positive impacts on grid performance. However, some uncertainty has existed about CCHP energy savings and about operating characteristics during various seasonal conditions. In 2015, Efficiency Vermont measured CCHP performance in 38 submetered homes and 62 homes providing AMI data. Results showed that: 1) installation of a CCHP increased electricity usage in all seasons, averaging an increase of 0.14 kW in summer and 0.28 kW in winter; 2) the greatest CCHP power consumption occurred in the 30–50 degrees F range; 3) most heat pumps are used primarily for heating; and 4) cooling season

loads are not greatly increased when CCHPs replace existing cooling systems. A full report, including recommendations for further study, was completed.

Evaluation of Combined Heat Pump Water Heater and Residential Solar Hot Water Heating: Initially designed as a field study of the savings potential of combined Heat Pump Water Heater and Solar Hot Water Heating use, this effort shifted to be a lab-based study in early 2015, owing to challenges with an external partner. After ensuing outreach to accredited labs failed to secure a viable facility, Efficiency Vermont changed direction again and launched a performance estimation effort through modeling software. The study estimated performance of Solar Hot Water with a Heat Pump Water Heater backup. Results showed that the combined use of the two systems increased efficiency to 74%, compared to 55% for Solar Hot Water only. The combined approach also resulted in flatter month-to-month savings, which indicated a higher coincidence of peak demand savings than was typical for Solar Hot Water during the winter months. Initial modeling results support the value of further investigation.

Residential New Construction HVAC Design Study and Training: This research and development effort was undertaken to increase awareness, within the building community, of the benefits of efficient HVAC design in residential new construction. The effort aimed to design and install an optimally efficient HVAC system in a new home, which would then be used as an educational model. This project was begun because of the relatively low degree of incorporation of efficient, beneficial HVAC approaches in otherwise efficient new home designs. Efficiency Vermont partnered with a relatively large developer of single-family homes, an HVAC contractor with a substantial presence in the residential new construction market, and an engineer specializing in HVAC system design. Efficiency Vermont contributed the incremental cost for the efficient design, which addressed heating equipment, ducting, air conditioning, balanced ventilation, and framing approaches, as well as post-occupancy monitoring. At the close of 2015, the HVAC design was largely complete. Results of extensive monitoring and submetering were expected to be available in early 2016. A pre-occupancy training session was slated for 2016.

Low-e Storm Windows Pilot: This pilot was undertaken to identify effective strategies for motivating consumer adoption of energy-efficient storm windows. From August to early October, Efficiency Vermont: 1) supported a supplier-level price reduction for efficient storm windows, to match the retail cost of traditional storm windows; 2) launched a multimedia and point-of-sale promotional campaign at five Vermont locations of two national home-improvement retailers; and 3) delivered training to staff of participating stores. During the pilot period, sales of all storm windows increased by more than 37% and sales of efficient models increased by 337%, shifting the efficient market share at participating stores from 22% (in 2014) to 70%. In late 2015, owing to the success of the pilot, Efficiency Vermont began a screening process to determine the pilot's qualification for full program adoption.

Maple Sugaring Electric Consumption: In an effort to better understand the electrical energy usage patterns of maple sugaring technologies, Efficiency Vermont completed an analysis of maple sugarers' electric usage. Results included these promising discoveries: 1) a correlation

between the frequency of wash cycles of reverse-osmosis membranes and the energy efficiency of the operation (as measured by the consumption per unit of production of maple syrup); and 2) evidence that reverse-osmosis units are not the largest electrical energy user in a sugar house. The findings proved valuable in improving the accuracy of calculations used for existing Efficiency Vermont reverse osmosis efforts and enabled a better characterization of statewide electric usage in the Vermont maple sugaring industry. This information informed planning efforts for future program years. A final report was slated for 2016.

Dairy Farm Refrigeration System Assessment: Efficiency Vermont engaged in efforts to deepen knowledge about the savings potential associated with efficient milk chiller projects. These projects are increasingly being undertaken in Vermont; they are a significant investment for farmers and they provide many energy and non-energy benefits. Efficiency Vermont discovered variations in savings claim methodologies among analysts, and that most chiller projects are not determined to be cost effective by the Vermont State screening tool. At year-end, Efficiency Vermont planned to continue to investigate ways to support this technology from a market opportunity standpoint, which may include the addition of controls on the refrigeration system to improve efficiency.

Home Energy Management Systems Baseline: Home Energy Management Systems (HEMS) technology has been drawing considerable interest and involvement from both established manufacturers and small innovators. As these systems have emerged in the marketplace, products and services have varied widely. In 2015, in efforts to assess the baseline energy savings potential of these systems, Efficiency Vermont tested a new HEMS-controlled lightbulb. Lighting was chosen for this testing because of its impact in all markets and its broader implications in statewide and regional demand. The study's small sample size, while enabling deep analysis under several real-world conditions, could not offer insights into scalability or widespread adoption. Preliminary results revealed that HEMS: 1) showed potential for energy savings, 2) were easy to use, and 3) provided data that accurately indicated actual use, holding promise for verifiable savings.

2.4.3 PLANNING AND REPORTING

Annual Plans and External Reporting

Efficiency Vermont prepared and submitted required documents to the PSB, the DPS, and other required stakeholders. The below documents were presented in fulfillment of requirements specified under agreements with State agencies, to maintain accountability and to provide accurate tracking of progress for service delivery optimization, for public benefit, and for the benefit of entities outside Vermont seeking replication.

- Overall Performance Assessment
- Triennial plan update
- Annual savings claim and annual report
- Annual highlights brochure
- Monthly and quarterly reports
- Quarterly and annual budget variance reports
- Service quality reports
- Quarterly customer complaint and feedback reports
- DPS financial audits
- DPS monthly invoice reviews
- Ad hoc reporting requests

Demand Resources Plan

In 2015, a year in which Demand Resources Plan (DRP) proceedings did not occur, Vermont Energy Investment Corporation (VEIC) engaged in activities related to the review of the existing DRP process—with the DPS, PSB, and other Vermont EEUs—and to planning efforts for the next DRP. Activities included the following:

- Developed and reviewed a list of improvements to the DRP process, based on outcomes from process improvement workshops
- In accordance with PSB order, developed shared perspectives about lessons learned in the second DRP and identified possible areas of opportunity in preparation for the planning of the 2018–2020 DRP.

Participation in State and Regional Integrated Planning

Efficiency Vermont continued its active participation in the Vermont System Planning Committee (VSPC), a collaborative body bringing together Vermont's utilities, Vermont Electric Power Company, the DPS, and individuals representing the interests of ratepayers to address approaches to electric transmission system planning and management. In 2015, Efficiency Vermont participated in VSPC's four subcommittees: Coordinating, Forecasting, Geographic Targeting, and Public Participation. Efficiency Vermont supported the VSPC's reliability planning and forecasting, non-transmission alternatives, energy efficiency geographic targeting, and public engagement efforts. In particular, this work involved input to solution selection, cost allocation, and implementation planning of all identified reliability deficiencies.

Independent System Operator–New England (ISO-NE) Forward Capacity Market (FCM) Administration

VEIC, as the implementer of Efficiency Vermont, continued to represent the interests of Vermont ratepayers by participating in the ISO-NE FCM, in which energy efficiency savings are bid as a resource for the regional grid. VEIC delivered approximately 90.8 megawatts of peak capacity savings from Efficiency Vermont activity in the FCM in 2015. This led to approximately $4.2 million in revenues that provided funds for investment in thermal efficiency services. Efficiency Vermont's 2015 FCM commitments represented Vermont's single largest peak capacity provider, increasing grid capacity by lowering demand.

2.4.4 EVALUATION

As an essential part of its reporting efforts, Efficiency Vermont engaged in activities designed to maintain the accuracy of reported savings claims. These activities included the following.

- ISO-NE FCM Metering, Monitoring, and Evaluation: metering, measurement, and evaluation activities related to ISO-NE FCM participation. This process entailed the identification and metering of completed projects, followed by the acquisition of data to confirm projected savings. In 2015, Efficiency Vermont assessed data for 2013 projects. Efficiency Vermont filed a verification report to ISO-NE as part of its FCM bid obligations.
- Annual Savings Verification: working with the DPS as it conducted its annual savings verification to review the initial savings claim.
- Technical Advisory Group: participating in a Technical Advisory Group with the DPS, BED, and other stakeholders to resolve any issues arising from the annual savings verification process, to track the implementation of any recommendations or continuous improvement activities identified via those evaluation activities, and to provide a proactive mechanism for developing energy characterization and savings calculations.
- Technical Reference Manual (TRM): maintaining, updating, and ensuring the reliability of the TRM, which characterizes energy-saving measures on the basis of several parameters: annual electric savings, annual coincident peak savings, annual fossil fuel energy savings, incremental costs and measure lives, and other applicable resource savings such as water savings and operational and maintenance cost savings. TRM efforts included continuous process improvement activities and quality assurance and evaluations of high-impact efficiency programs and measures.
- Quality Management: following rigorous protocols in alignment with Quantifiable Performance Indicators (see Section 3.3) and with the Service Quality and Reliability Plan (SQRP) (see Section 3.6), which defines customer service performance standards in four service categories:
    1. General Customer Satisfaction with Efficiency Vermont's Contact Center: Efficiency Vermont engaged in regular collection of data for use in required single-performance-period reporting, after completion of the 2015–2017 period.

2. Transactional Customer Satisfaction: Efficiency Vermont surveyed customers upon completion of business projects (prescriptive and custom), residential new construction, and retrofit projects. More than 90% of respondents rated service as three or greater on a scale of one to five (five being excellent), exceeding the SQRP performance standard.
3. Incoming Call Responsiveness:
   - Average answer time: 9 seconds.
   - Average percentage of calls answered by a live agent during normal business hours: 89%.
   - Average percentage of abandoned calls: 2%.
4. Complaint Rate and Resolution: Efficiency Vermont conducted tracking of all customer concerns or comments requiring internal referral and subsequent follow-up for resolution. Results:
   - Percentage of complaint follow-up calls attempted by end of next business day: 100%.
   - Proportion of complaints to participants: Eight complaints out of 90,000 participants.
   - Percentage of complaints closed within 12 business days of initial complaint: 94%.

Key Process Improvements

Quality Management efforts included a focus on key process improvements. In 2015, Efficiency Vermont classified efficient products efforts as a key business process owing to related increases in direct customer benefits and market transformation. In accordance with process improvement principles, Efficiency Vermont baselined core portions of the process in order to identify improvement opportunities. The impact of improvement work was measured to be highly positive. Related activities in 2015 included the following.

- Submitted annual reports to the DPS for 2014 key business process improvements
- Conducted internal review of 2014 value stream work
- Engaged in continuing efforts regarding prioritized improvements for residential new construction, metering, Home Performance with ENERGY STAR, and custom projects.

2.4.5 Policy and Public Affairs

Public Affairs

Efficiency Vermont provided energy, financial, and economic information and analysis to policy makers, state agencies, utilities, and other key stakeholders. These efforts were undertaken in ongoing support of Efficiency Vermont's statutory and regulatory mandates, the State's 2011 Comprehensive Energy Plan (CEP) goals, and other relevant energy policy goals, and included:

- Working as a resource for policy makers, regulators, businesses, and community organizations. For example, in 2015, Efficiency Vermont:
  - Engaged in efforts in support of the update to the CEP through stakeholder session

participation, comments on the developing plan, and in-person feedback to the DPS
    - Participated in proceedings that followed from the signing of 2015 Legislative Act 56, which produced the Renewable Energy Standard.
- Briefing the Legislature and state officials on energy efficiency issues.
- Assisting legislators and state officials with review and development of policy proposals related to the Efficiency Vermont scope of work.
- Providing expert testimony and input on pieces of legislation consistent with Efficiency Vermont's status as an appointed EEU.
- Working collaboratively with distribution utilities on public affairs and communications efforts.
- Making presentations at public forums and meetings.

Efficiency Vermont also strategically disseminated information aligned with Vermont energy policy priorities and Efficiency Vermont goals, in order to deepen knowledge of and engagement in energy efficiency actions among targeted populations. Efforts included:

- In-depth discussion of energy issues and their relation to Efficiency Vermont's work, through publication on www.efficiencyvermont.com of:
    - Efficiency Vermont's blog *Energy. Forward.*, providing timely discussion of efficiency activities under way throughout the state and presenting Efficiency Vermont research of value to Vermonters who want to deepen their involvement in their energy use.
    - A library of white papers developed by Efficiency Vermont, sharing the latest thinking, analysis, and cutting-edge research on the future of energy efficiency.
- Outreach and response to media in developing and publishing stories that raised awareness of Efficiency Vermont program offerings, highlighted the experiences of Efficiency Vermont customers, and educated the public on energy efficiency issues. A sample of topics covered by media in 2015 follows.
    - Winners of Efficiency Vermont's *Best of the Best* awards for excellence in high-performance building design and renovation.
    - Energy-saving successes of large customers, including three medical facilities, a Brattleboro-based dairy, a high school, and a municipality.
    - Vermont K–12 schools earning ENERGY STAR designation.
    - The high average energy efficiency ratings of Vermont schools.
    - Efficiency Vermont's:
        - 2014 snow gun initiative, which received a cover story in the National Ski Areas Association Journal.
        - Support of reverse-osmosis systems for maple sugarers.
        - Community Energy Partnership grants.
        - Municipal street lighting upgrade initiative.
        - Better Buildings by Design Conference.

Regulatory Affairs (Non-Demand Resources Plan)

VEIC, as the PSB-appointed administrator of Efficiency Vermont, fulfilled its regulatory requirement to undergo a 2015 Overall Performance Assessment, reviewing performance for at least the 2009–2011 and 2012–2014 performance cycles. These efforts, which consisted of the documentation of evidence and delivery of testimony demonstrating the strength of VEIC's performance, resulted in the reappointment of VEIC as administrator of Efficiency Vermont through the end of 2027.

In 2015, Efficiency Vermont continued to:

- Work with the DPS to write, revise, and maintain governing documents necessary for Efficiency Vermont to operate as a regulated EEU
- Participate in PSB proceedings that affect energy efficiency implementation in Vermont
- Review and provide advice on regulator-required, coordinated services and initiatives with Vermont's other EEUs and weatherization agencies to provide seamless, cost-effective statewide energy efficiency programs
- Oversee Efficiency Vermont interactions in the ISO-NE FCM to ensure regulatory compliance and help secure financial benefits from energy efficiency in New England
- Work with the Regional Greenhouse Gas Initiative (RGGI) to help inform the model rule, report greenhouse gas reductions as a result of Vermont's RGGI-funded programs, and help maximize efficiency benefits from the regional cap and trade
- Develop and support policy instruments that can serve as useful tools for electricity and thermal energy savings through voluntary action or government adoption
- Research regulatory policies to support best practices for efficiency programs to enable continuous improvement in Efficiency Vermont's services and to support Vermont's prominence as a national leader in energy efficiency ideas and practices
- Pursue regulatory approval of flexible and robust strategies to cost-effectively avoid or control capacity and energy supply in support of electric distribution utility integrated resource planning
- Review and provide guidance on Efficiency Vermont internal policies to ensure regulatory compliance
- Participate as a party in the triennial review of distribution utilities' integrated resource plans, updating of avoided costs, and all other PSB-ordered proceedings with potential impact on energy efficiency services
- Work with energy efficiency stakeholders to ensure that the State's related regulatory proceedings on clean energy development (e.g., the Comprehensive Energy Plan and the Renewable Energy Standard) can leverage the expertise of Efficiency Vermont's team in a manner that is cost effective for the State's ratepayers.

Financial and Leveraged Product Development

As part of its efforts to bring efficiency within reach of more Vermonters, Efficiency Vermont continued to:

- Manage relationships with financial institutions, utilities, and government leaders to reduce barriers to implementing financing mechanisms for energy efficiency projects

- Engage in activities designed to acquire public and private resources for Vermonters undertaking efficiency projects in their homes and businesses. This approach multiplies the impact of ratepayer dollars by using a modest amount of funds to draw higher amounts of new resources without additional ratepayer investment.

In 2015, Efficiency Vermont:

- With regulatory oversight by the PSB and DPS, and in partnership with State agencies, Vermont's Congressional delegation, utilities, financial institutions, and energy-related organizations, engaged in extensive efforts resulting in approval from the U.S. Department of Agriculture's Rural Utilities Service for $46 million in loan funds directed at Vermont homeowners and businesses[18].
- Received a grant of $20,000 from the DPS to support energy code training.
- Was awarded a $45,000 grant from Jane's Trust Foundation in support of the purchase and installation of a high-performance modular home with solar power, to be installed at BED as a model home, available to the public for two years.
- Served as an integral resource to VHCB in its successful application to the Vermont Low Income Trust for Electricity for a $150,000 grant in support of high-performance modular home efforts.
- Developed a mortgage financing option, through partnerships with third-party lenders, for purchasers of high-performance modular homes.
- Implemented the Community Energy Partnership Grant Program for nonprofit organizations serving low-income Vermonters. The program leverages Efficiency Vermont funding to acquire third-party resources in order to reach Vermonters with efficient products and assistance through existing, trusted connections.
- Continued to offer the Green Revolving Fund for Colleges & Universities, leveraging funds through the deployment of private capital as a financing mechanism for efficiency projects on Vermont higher education campuses.
- Participated in Energy Action Network meetings to provide input to decision makers on statewide energy efficiency financing initiatives as well as the Local Investment Advisory Committee of the office of the Vermont State Treasurer.

2.4.6 INFORMATION TECHNOLOGY

Efficiency Vermont's information technology efforts continued to focus on two areas:

1. Information Services: optimizing computer infrastructure, critical data and document management, substantial support for reporting and analytics, and ongoing attention to improving and updating existing applications and processes
2. Strategic Technology Services (STS): deepening Efficiency Vermont's ability to serve Vermonters through software development, acquisition, and integration, as well as continuing best-practice data stewardship to ensure customer privacy, security, and alignment with customer data usage preferences.

[18] Conditional approval granted in 2015. Full approval granted in 2016.

In the first quarter of 2015, Efficiency Vermont aligned technical and information technology staff in a new Data and Technical Services division. This division merged staff of STS, Reporting and Analytics, and Evaluation, Measurement and Verification groups for the purpose of common management of key data-related processes.

In addition to ongoing activities, including due diligence regarding improvements, refinements, and updates to existing processes and tools, Efficiency Vermont:

- Engaged in efforts toward the development of a forecasting and screening tool application to replace the existing portfolio screening tool; the new tool was designed to leverage other development efforts, including those connected to the new state screening tool, the TRM application, and the calculation engine, and to support future planning and forecasting needs, as well as the Demand Resources Plan Proceeding for 2018–2037 activities
- Began efforts toward the migration of the KITT application to a web application architecture; KITT is Efficiency Vermont's primary tool for project management, customer relationship management, and energy savings tracking
- Developed web services for KITT and TRM applications for integration
- Increased the efficiency of regulatory reporting tools by integrating financial and performance data; completion and launch of updated tools scheduled for 2016
- Improved measure import and savings calculation tools
- Launched a new, common platform enabling full data sharing and integrated functionality for two existing platforms, to provide improved user experience, greater organizational efficiency, system reliability, accuracy, and stability
- Continued working with Green Mountain Power to improve the quality of data in the Advance Metering Infrastructure (AMI) warehouse
- Undertook report development and data acquisition and delivery to support Georgetown University Energy Prize community-based reporting, which included baseline and quarterly reports in support of three participating Vermont communities
- Continued support and usage report delivery to Vermont town energy committees and regional planning commissions.

2.4.7 General Administration

In support of the efforts discussed in this report, Efficiency Vermont continued to undertake activities centering on such needs as staff meetings; coordination of service implementation across different functions; and management, monitoring, and internal communication of overall performance and spending.

2.5 CONSUMER BEHAVIOR STUDIES

In 2015, Efficiency Vermont submitted a final report to the U.S. Department of Energy regarding Vermont Electric Cooperative's Smart Grid Investment Grant study. This study, completed in 2014, was undertaken with the objective of reducing energy demand and shifting peak load using variable peak pricing. For this study, Efficiency Vermont utilized smart grid carryover funds from 2011 to match federal funding.

3. Resource and Non-Resource Acquisition Results

The tables presented in this section contain information on results from both Resource Acquisition and Non-Resource Acquisition activity, as well as a summary of Service Quality and Reliability.

3.1 Resource Acquisition Summary

	Total Efficiency Vermont Resource Acquisition	Thermal Energy and Process Fuels Resource Acquisition	Electric Resource Acquisition[1]	Customer Credit Resource Acquisition
Efficiency Vermont Costs				
Year to Date Costs	$49,721,480	$5,393,402	$43,822,602	$505,477
Annual Budget Estimate[2]	$48,480,095	$5,771,539	$41,718,556	$990,000
Unspent Annual Budget Estimate	($1,241,386)	$378,137	($2,104,045)	$484,523
% Annual Budget Estimate Unspent	-2.6%	6.6%	-5.0%	48.9%
Other Costs and Commitments				
Participant Costs Year to Date	$33,292,335	$10,549,169	$22,585,458	$157,708
Third Party Costs Year to Date	$89,807	$162,796	($72,989)	$0
Savings Results				
MWh Year to Date	106,099	-860	104,998	1,961
MWh Cumulative starting 1/1/15	106,099	-860	104,998	1,961
Winter Peak Coincident kW Savings Results				
Winter Coincident Peak kW Year to Date	18,464	-47	18,188	323
Winter Coincident Peak kW Cumulative Starting 1/1/15	18,464	-47	18,188	323
Summer Peak Coincident kW Savings Results				
Summer Coincident Peak kW Year to Date	12,147	-60	11,884	322
Summer Coincident Peak kW Cumulative Starting 1/1/15	12,147	-60	11,884	322
TRB Savings Results				
TRB Year to Date	$131,209,651	$17,514,185	$111,859,662	$1,835,805
TRB Cumulative Starting 1/1/15	$131,209,651	$17,514,185	$111,859,662	$1,835,805
MMBtu Savings Results				
MMBtu Year to Date	92,699	47,013	45,687	0
MMBtu Cumulative Starting 1/1/15	92,699	47,013	45,687	0
Participation				
Partic.w/ installs Year to Date	90,057	3,031	87,025	1
Partic.w/ installs Cumulative starting 1/1/15	90,057	3,031	87,025	1

[1] Includes Resource Acquisition Research and Development costs

[2] Annual projections are estimates only and provided for informational purposes.

3.2 Budget Summary

	Budget Current Year 2015[1]	Actual Current Year 2015	%	Budget 2015-2017	Actual 2015-2017	%
RESOURCE ACQUISITION						
Electric Efficiency Funds Activities						
Business Sector	$ 25,969,000	$ 21,707,271	84%	$ 81,805,167	$ 21,707,271	27%
Customer Credit	$ 989,400	$ 502,319	51%	$ 3,027,960	$ 502,319	17%
Residential Sector	$ 13,382,400	$ 20,264,130	151%	$ 45,561,683	$ 20,264,130	44%
Research & Development	$ 1,629,500	$ 1,076,609	66%	$ 5,004,067	$ 1,076,609	22%
Total Electric Efficiency Funds Activities	**$ 41,970,300**	**$ 43,550,329**	**104%**	**$ 135,398,877**	**$ 43,550,329**	**32%**
Thermal Energy and Process Fuels Funds Activities						
Business Sector	$ 1,417,372	$ 554,689	39%	$ 4,252,116	$ 554,689	13%
Residential Sector	$ 4,252,116	$ 4,743,367	112%	$ 12,756,348	$ 4,743,367	37%
Total Thermal Energy and Process Fuels Funds Activities	**$ 5,669,488**	**$ 5,298,056**	**93%**	**$ 17,008,464**	**$ 5,298,056**	**31%**
TOTAL RESOURCE ACQUISITION	**$ 47,639,788**	**$ 48,848,385**	**103%**	**$ 152,407,341**	**$ 48,848,385**	**32%**
DEVELOPMENT & SUPPORT SERVICES						
Education and Training	$ 838,000	$ 624,876	75%	$ 2,564,460	$ 624,876	24%
Applied Research and Development	$ 403,700	$ 362,913	90%	$ 1,235,565	$ 362,913	29%
Planning and Reporting	$ 415,000	$ 350,986	85%	$ 1,655,840	$ 350,986	21%
Evaluation	$ 880,000	$ 807,555	92%	$ 2,693,160	$ 807,555	30%
Policy and Public Affairs	$ 493,000	$ 853,592	173%	$ 1,508,855	$ 853,592	57%
Information Technology	$ 1,501,000	$ 1,327,031	88%	$ 3,922,520	$ 1,327,031	34%
General Administration	$ 261,400	$ 257,851	99%	$ 800,000	$ 257,851	32%
TOTAL DEVELOPMENT & SUPPORT SERVICES	**$ 4,792,100**	**$ 4,584,803**	**96%**	**$ 14,380,400**	**$ 4,584,803**	**32%**
Smart Grid (2014 Carryover)	**$ 18,428**	**$ 18,652**	**101%**	**$ 18,428**	**$ 18,652**	**101%**
Operations Fee	$ 926,400	$ 956,088	103%	$ 2,948,100	$ 956,088	32%
SUB-TOTAL COSTS (prior to Performance-Based Fee)	**$ 53,376,716**	**$ 54,407,928**	**102%**	**$ 169,754,269**	**$ 54,407,928**	**32%**
Performance-Based Fee	$ -	$ -	0%	$ 3,336,070	$ -	0%
TOTAL COSTS (including Performance-Based Fee)	**$ 53,376,716**	**$ 54,407,928**	**102%**	**$ 173,090,339**	**$ 54,407,928**	**31%**

[1] Annual budgets are provided for information purposes only. Efficiency Vermont operates under three-year Board approved budgets.

3.3 Electric Performance Indicators & Minimum Requirements

QPI#	Title	Performance Indicator / Milestone	Target	Status	%
1	Electricity Savings	Annual incremental net MWh savings	321,800	104,998	33%
2	Total Resource Benefits	Present worth of lifetime electric, fossil, and water benefits	$336,300,000	$111,859,662	33%
3	Statewide Summer Peak Demand Savings	Cumulative net summer peak demand (kW) savings	41,300	11,884	29%
4	Statewide Winter Peak Demand Savings	Cumulative net winter peak demand (kW) savings	53,700	18,188	34%
5	Business Comprehensiveness	Savings as a % of baseline year usage for Companies who complete Business Existing Facilities efficiency projects	11.0%	7.6%	69%
6	Market Transformation Residential	Residential new construction project completions with substantial energy savings in 2015-2017 as % of total residential new construction permits in 2014-2016	42%	11%	27%
7	Market Transformation Business	Number of energy efficiency measure supply chain partners linked to at least three (completed) projects	500	228	46%

MPR#	Title	Minimum Requirement	Minimum	Status	%
8	Minimum Electric Benefits	Total electric benefits divided by total costs	1.2	2.0	167%
9	Threshold (or minimum acceptable) Level of Participation by Residential Customers	Total residential sector spending	$32,500,000	$20,628,832	63%
10	Threshold (or minimum acceptable) Level of Participation by Low-Income Households	Total low-income single and multifamily services spending	$10,500,000	$3,626,366	35%
11	Threshold (or minimum acceptable) Level of Participation by Small Business Customers	Number of total non-residential premises with annual electric use of 40,000 kWh/yr or less that acquire kwh savings	2,000	1,276	64%
12	Geographic Equity	TRB for each geographic area is greater than values shown on Geo-Equity Table	12	1	8%
13	Program Efficiency	Meet all pre-determined milestones on schedule	6	2	33%
14	Service Quality	Achieve 92 or more metric points	92	27	29%
15	Resource Acquisition Performance Period Spending	Total spending for a three-year performance period (including applicable operations fees) is less than threshold	$136,411,781	$0	0%
16	Development & Support Services Performance Period Spending	Total spending for a three-year performance period (including applicable operations fees) is less than threshold	$14,787,104	$0	0%

3.4 Electric Minimum TRB per Geographic Area (QPI #12)

Geographic Area[1]	Required TRB per Geographic Area[2]	Actual TRB	% of Goal
Addison	$9,569,786	$5,488,787	57%
Bennington	$11,755,268	$8,499,217	72%
Caledonia	$7,381,188	$11,303,970	153%
Chittenden	$34,376,179	$29,175,018	85%
Essex/Orleans	$8,700,557	$5,429,298	62%
Franklin	$14,422,521	$4,928,281	34%
Grand Isle/Lamoille	$9,155,602	$5,071,687	55%
Orange	$5,985,825	$3,630,789	61%
Rutland	$19,819,855	$8,763,862	44%
Washington	$16,412,881	$12,264,901	75%
Windham	$16,951,229	$9,632,403	57%
Windsor	$16,433,720	$7,671,451	47%
Total	$170,964,610	$111,859,662	65%

[1] All geographic names above refer to Vermont Counties.

[2] Required TRB targets have been adjusted for Customer Credit

3.5 Thermal Energy and Process Fuels Funds
Performance Indicators & Minimum Requirements

QPI#	Title	Performance Indicator / Milestone	Target	Actual	%
1	Thermal & Mechanical Energy Efficiency Savings [1]	Annual incremental net MMBtu savings	246,000	47,013	19%
2	Residential Single Family Comprehensiveness	a. Average air leakage reduction per project	34%	32%	94%
		b. Percent of projects with square feet of insulation added equivalent to at least 50% of the home's finished square feet of floor area	44%	59%	134%
		c. Percent of households (premises) with both shell measures and heating system measures installed, within contiguous calendar years	16%	14%	88%

MPR#	Title	Minimum Requirement	Minimum	Actual	%
3	Threshold (or minimum acceptable) Level of Participation by Residential Customers	Residential sector spending as % of total spending	62.5%	89.5%	143%
4	Threshold (or minimum acceptable) Level of Participation by Low-Income Households	Low-income single- and multi-family spending as % of total spending	17.0%	19.3%	114%
5	Performance Period Spending	Total spending for a three-year performance period (including applicable operations fees) is less than threshold	$18,342,321	$0	0%

3.6 Service Quality and Reliability Summary Report

Metric #	Metric Description	Reporting Frequency	Actual Performance this Period	Points Earned this Period	Cumulative 2015-17 Points Earned	Total Possible 2015-17 Points	%
1	Residential Customer Service Satisfaction: Percentage of Residential Customers who contact Efficiency Vermont and are satisfied or very satisfied with Efficiency Vermont Customer Service will be greater than or equal to 80%	performance period	NA	0	0	12	0%
2	Business Customer Service Satisfaction: Percentage of Business Customers who contact Efficiency Vermont and are satisfied or very satisfied with Efficiency Vermont Customer Service will be greater than or equal to 80%	performance period	NA	0	0	12	0%
3	Customer Satisfaction upon Project Completion: Per each market segment, annual percentage of survey respondents with average service ratings of 3 (or better) shall be ≥ 90%	annually	99%	4	4	12	33%
4	Average answer time shall be ≤ 15 seconds per call	quarterly	9.0	1	4	12	33%
5	Average percentage of calls answered shall be ≥ 85%	quarterly	87.0%	1	4	12	33%
6	Average percentage of abandoned calls shall be ≤ 3%	quarterly	3.0%	1	4	12	33%
7	Percentage of complaint follow-up call attempted by end of next business day shall be ≥ 95%	quarterly	100.0%	1	4	12	33%
8	Percentage of complaints closed within 12 business days of initial complaint call shall be ≥ 95%	quarterly	100.0%	1	3	12	25%
9	For each reporting year, the ratio of total complaints received per total number of Efficiency Vermont participants shall be ≤ 0.5% (one-half of one percent)	annually	0.1%	4	4	12	33%
	Totals			**13**	**27**	**108**	**25%**

3.7 Electric Resource Acquisition Summary

	Totals				Business Energy Services		Residential Energy Services			Other
Services	All Resource Acquisition (including CC)	Efficiency Vermont Resource Acquisition	Subtotal Business Energy Services	Subtotal Residential Energy Services	Business New Construction	Business Existing Facilities	Residential New Construction	Efficient Products	Existing Homes	Customer Credit Program
Electric Resource Acquisiton Costs										
Year to Date Costs	$43,232,091	$42,726,613	$22,097,782	$20,628,832	$3,475,905	$18,621,876	$3,019,600	$13,459,020	$4,150,211	$505,477
Annual Budget Estimate[1]	$41,049,100	$40,059,700	$26,436,500	$13,623,200	$3,264,900	$23,171,600	$2,883,300	$6,281,900	$4,458,000	$989,400
Unspent Annual Budget Estimate	($2,182,991)	($2,666,913)	$4,338,719	($7,005,632)	($211,005)	$4,549,724	($136,300)	($7,177,120)	$307,789	$483,923
% Annual Budget Estimate Unspent	-5%	-7%	16%	-51%	-6%	20%	-5%	-114%	7%	49%
Savings Results										
MWh Year to Date	106,959	104,998	49,573	55,424	10,909	38,664	2,040	50,880	2,504	1,961
MWh Cumulative starting 1/1/15	106,959	104,998	49,573	55,424	10,909	38,664	2,040	50,880	2,504	1,961
3-Year MWh Goal	nap	321,800	221,900	99,900	29,900	192,000	5,700	84,600	9,600	nap
% of 3-Year MWh Goal	nap	33%	22%	55%	36%	20%	36%	60%	26%	nap
Winter Coincident Peak kW Year to Date	18,511	18,188	7,046	11,142	1,703	5,342	414	10,191	538	323
Winter Coincident Peak kW Cumulative starting 1/1/15	18,511	18,188	7,046	11,142	1,703	5,342	414	10,191	538	323
3-Year Winter Coincident Peak kW Goal	nap	53,700	31,100	22,600	3,500	27,600	1,100	19,800	1,700	nap
% of 3-Year Winter Coincident Peak kW Goal	nap	34%	23%	49%	49%	19%	38%	51%	32%	nap
Summer Coincident Peak kW Year to Date	12,207	11,884	6,492	5,392	1,863	4,630	216	4,997	179	322
Summer Coincident Peak kW Cumulative starting 1/1/15	12,207	11,884	6,492	5,392	1,863	4,630	216	4,997	179	322
3-Year Summer Coincident Peak kW Goal	nap	41,300	27,800	13,500	4,500	23,300	700	11,900	900	nap
% of 3-Year Summer Coincident Peak kW Goal	nap	29%	23%	40%	41%	20%	31%	42%	20%	nap
TRB Year to Date	$113,695,467	$111,859,662	$63,902,594	$47,957,068	$28,244,347	$35,658,247	$7,196,565	$38,555,123	$2,205,381	$1,835,805
TRB Cumulative starting 1/1/15	$113,695,467	$111,859,662	$63,902,594	$47,957,068	$28,244,347	$35,658,247	$7,196,565	$38,555,123	$2,205,381	$1,835,805
3-Year TRB Goal	nap	$336,300,000	$236,737,700	$99,562,300	$47,830,700	$188,907,000	$28,176,000	$61,036,300	$10,350,000	nap
% of 3-Year TRB Goal	nap	33%	27%	48%	59%	19%	26%	63%	21%	nap
Associated Benefits										
MMBtu Year to Date	45,687	45,687	40,457	5,230	40,101	356	12,994	(7,895)	131	0
MMBtu Cumulative starting 1/1/15	45,687	45,687	40,457	5,230	40,101	356	12,994	(7,895)	131	0
Participation										
Partic.w/ installs Year to Date	87,027	87,025	2,710	84,315	243	2,467	1,366	78,824	4,125	2
Partic.w/ installs Cumulative starting 1/1/15	87,027	87,025	2,710	84,315	243	2,467	1,366	78,824	4,125	2

[1] Annual budgets are provided for information purposes only. Efficiency Vermont operates under three-year Board approved budgets.

3.8 Electric Resource Acquisition including Customer Credit

	Prior Year	Current Year 2015	Cumulative starting 1/1/15	Cumulative starting 1/1/12
# participants with installations	54,135	87,026	87,026	218,120
Operating Costs				
Administration	$3,345,878	$3,896,867	$3,896,867	$10,003,996
Programs and Implementation	$5,077,234	$5,313,289	$5,313,289	$19,603,160
Strategy and Planning	$1,537,498	$1,462,919	$1,462,919	$6,115,853
Subtotal Operating Costs	**$9,960,610**	**$10,673,075**	**$10,673,075**	**$35,723,009**
Technical Assistance Costs				
Services to Participants	$3,987,615	$5,958,546	$5,958,546	$19,554,721
Services to Trade Allies	$1,559,789	$978,234	$978,234	$3,274,701
Subtotal Technical Assistance Costs	**$5,547,404**	**$6,936,779**	**$6,936,779**	**$22,829,422**
Support Services				
Transportation	$4,255	$2,060	$2,060	$6,683
Targeted Implementation	$1,407	$16,289	$16,289	$22,280
Consulting	$490,162	$231,691	$231,691	$1,142,973
Marketing	$2,177,538	$1,380,143	$1,380,143	$7,353,248
Evaluation, Monitoring & Verification	$183,942	$143,815	$143,815	$660,252
Policy & Public Affairs	$61,712	$57,034	$57,034	$256,050
Information Technology	$80,913	$3,286	$3,286	$85,697
Customer Support	$400,744	$188,417	$188,417	$975,929
Business Development	$19,090	$14,044	$14,044	$65,109
Subtotal Support Services Costs	**$3,419,764**	**$2,036,778**	**$2,036,778**	**$10,568,222**
Incentive Costs				
Incentives to Participants	$22,831,035	$23,528,095	$23,528,095	$80,251,841
Incentives to Trade Allies	$53,428	$57,362	$57,362	$222,336
Subtotal Incentive Costs	**$22,884,463**	**$23,585,457**	**$23,585,457**	**$80,474,177**
Total Efficiency Vermont Costs	**$41,812,241**	**$43,232,091**	**$43,232,090**	**$149,594,830**
Total Participant Costs	$22,482,896	$22,743,166	$22,743,166	$70,375,733
Total Third Party Costs	$963,025	($72,989)	($72,989)	$3,049,049
Total Resource Acquisition Costs	**$65,258,162**	**$65,902,268**	**$65,902,267**	**$223,019,612**
Annualized MWh Savings	91,159	106,959	106,959	399,022
Lifetime MWh Savings	1,101,613	1,374,091	1,374,091	4,762,266
TRB Savings (2015 $)	$82,129,788	$113,695,467	$113,695,467	403,350,979
Winter Coincident Peak kW Savings	16,519	18,511	18,511	73,772
Summer Coincident Peak kW Savings	10,326	12,207	12,207	48,969
Annualized MWh Savings/Participant	1.684	1.229	1.229	1.829
Weighted Lifetime	12.1	12.8	12.8	11.9

Annualized MWh Savings (adjusted for measure life)	393,463
Winter Coincident Peak kW Savings (adjusted for measure life)	72,770
Summer Coincident Peak kW Savings (adjusted for measure life)	48,319

3.9 Electric Resource Acquisition excluding Customer Credit

	Prior Year	Current Year 2015	Cumulative starting 1/1/15	Cumulative starting 1/1/12
# participants with installations	54,134	87,025	87,025	218,118
Operating Costs				
Administration	$3,251,821	$3,842,344	$3,842,344	$9,810,276
Programs and Implementation	$5,041,412	$5,277,871	$5,277,871	$19,521,225
Strategy and Planning	$1,536,195	$1,455,019	$1,455,019	$6,106,222
Subtotal Operating Costs	**$9,829,427**	**$10,575,234**	**$10,575,234**	**$35,437,723**
Technical Assistance Costs				
Services to Participants	$3,960,700	$5,910,978	$5,910,978	$19,444,017
Services to Trade Allies	$1,550,011	$972,533	$972,533	$3,251,675
Subtotal Technical Assistance Costs	**$5,510,711**	**$6,883,511**	**$6,883,511**	**$22,695,693**
Support Services				
Transportation	$4,219	$2,023	$2,023	$6,610
Targeted Implementation	$1,397	$15,755	$15,755	$21,712
Consulting	$486,521	$228,684	$228,684	$1,135,835
Marketing	$2,164,691	$1,364,099	$1,364,099	$7,314,870
Evaluation, Monitoring & Verification	$182,632	$141,699	$141,699	$654,721
Policy & Public Affairs	$60,970	$55,294	$55,294	$247,993
Information Technology	$80,370	$3,191	$3,191	$85,051
Customer Support	$397,867	$184,933	$184,933	$968,783
Business Development	$18,575	$13,572	$13,572	$63,998
Subtotal Support Services Costs	**$3,397,241**	**$2,009,252**	**$2,009,252**	**$10,499,574**
Incentive Costs				
Incentives to Participants	$22,172,567	$23,201,255	$23,201,255	$77,269,111
Incentives to Trade Allies	$53,416	$57,362	$57,362	$222,324
Subtotal Incentive Costs	**$22,225,983**	**$23,258,617**	**$23,258,617**	**$77,491,436**
Total Efficiency Vermont Costs	**$40,963,363**	**$42,726,613**	**$42,726,613**	**$146,124,425**
Total Participant Costs	$23,125,497	$22,585,458	$22,585,458	$70,778,663
Total Third Party Costs	$963,025	($72,989)	($72,989)	$3,049,049
Total Resource Acquisition Costs	**$65,051,885**	**$65,239,082**	**$65,239,082**	**$219,952,138**
Annualized MWh Savings	91,146	104,998	104,998	391,905
Lifetime MWh Savings	1,101,360	1,352,631	1,352,631	4,666,069
TRB Savings (2015 $)	$82,101,439	$111,859,662	$111,859,662	$396,149,723
Winter Coincident Peak kW Savings	16,514	18,188	18,188	72,665
Summer Coincident Peak kW Savings	10,321	11,884	11,884	47,863
Annualized MWh Savings/Participant	1.684	1.207	1.207	1.797
Weighted Lifetime	12.1	12.9	12.9	11.9

Annualized MWh Savings (adjusted for measure life)	386,345
Winter Coincident Peak kW Savings (adjusted for measure life)	71,663
Summer Coincident Peak kW Savings (adjusted for measure life)	47,214

3.10 Electric Resource Acquisition - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	1,387	3,214	2,956	56,541	169	709	3,070	$5,476,611	$598,456	$1,045,158
Cooking and Laundry	3,468	891	750	12,024	174	130	2,738	$3,714,900	$361,547	$776,215
Design Assistance	197	122	110	527	8	19	951	$212,698	$2,284,029	$2,467,325
Electronics	5,322	3,199	3,372	17,811	326	371	33	$1,219,186	$317,623	$24,137
Hot Water Efficiency	3,963	3,320	2,695	42,732	507	293	-3,045	$2,353,242	$1,152,495	$861,795
Hot Water Fuel Switch	65	162	231	4,871	25	13	-650	$188,175	$36,307	$40,000
Industrial Process Eff.	64	4,379	4,479	51,485	532	424	895	$4,116,080	$529,541	$1,398,002
Lighting	77,483	70,052	64,400	890,134	13,525	8,028	-19,087	$54,212,614	$13,934,333	$9,886,815
Motors	481	7,928	7,522	94,223	1,008	928	1,977	$7,565,090	$840,105	$1,536,107
Other Efficiency	1,289	9	9	281	1	1	0	$19,617	$81,609	-$63,435
Other Fuel Switch	124	279	286	7,018	44	35	147	$443,370	$27,342	$32,059
Other Indirect Activity	107	0	0	0	0	0	0	$0	$156,286	-$142,291
Refrigeration	3,698	4,811	4,556	58,988	636	569	310	$4,144,705	$1,057,639	$1,063,054
Space Heat Efficiency	941	4,577	4,304	86,721	921	165	37,876	$21,047,402	$1,428,738	$2,269,211
Space Heat Fuel Switch	43	322	297	9,626	153	0	-531	$403,656	$43,250	$418,826
Ventilation	1,415	1,705	1,577	19,576	155	199	21,001	$6,688,141	$317,321	$970,743
Water Conservation	7	28	25	74	3	2	0	$54,174	$0	$1,738
Totals		104,998	97,568	1,352,631	18,188	11,884	45,687	$111,859,662	$23,166,622	$22,585,458

3.11 Electric Resource Acquisition - Utility Breakdown

Utility	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Barton	276	253	235	3,397	48	20	45	$246,253	$90,541	$31,151
Enosburg Falls	475	728	668	9,503	134	63	-304	$577,676	$108,160	$78,569
Green Mountain	71,829	86,127	80,260	1,103,532	14,774	9,869	27,397	$86,014,356	$18,640,365	$18,582,791
Hardwick	1,192	854	790	10,676	166	89	-104	$714,547	$215,451	$40,538
Hyde Park	450	289	280	3,411	60	33	-12	$240,817	$69,232	$18,878
Jacksonville	35	87	77	1,134	14	11	205	$150,129	$23,433	$40,050
Johnson	291	345	322	4,602	64	35	25	$339,948	$80,131	$45,829
Ludlow	805	1,035	941	10,763	189	96	-106	$877,869	$208,970	$40,124
Lyndonville	1,260	2,202	2,004	32,889	441	262	14,551	$9,174,633	$382,169	$887,569
Morrisville	1,382	1,423	1,349	16,706	249	166	-163	$1,170,145	$288,760	$164,001
Northfield	614	744	680	9,108	132	113	-10	$720,121	$174,800	$154,871
Orleans	144	121	110	1,450	22	11	-20	$88,420	$57,398	$7,526
Stowe	675	1,415	1,261	17,278	236	164	699	$1,568,002	$486,601	$328,166
Swanton	1,287	1,102	1,060	14,075	194	106	-241	$857,189	$219,307	$171,298
VT Electric Coop	4,973	7,053	6,449	97,840	1,232	720	3,739	$8,022,279	$1,784,135	$1,786,090
Washington Electric	1,337	1,219	1,082	16,267	233	127	-12	$1,097,278	$337,169	$208,008
Totals	87,025	104,998	97,568	1,352,631	18,188	11,884	45,687	$111,859,662	$23,166,622	$22,585,458

3.12 Electric Resource Acquisition - County Breakdown

County	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Addison	3,932	5,413	4,943	71,763	1,011	695	685	$5,488,787	$1,244,159	$997,055
Bennington	8,269	9,166	8,348	116,707	1,643	1,088	611	$8,499,217	$1,688,431	$1,105,423
Caledonia	3,963	4,771	4,374	67,678	917	520	13,904	$11,303,970	$962,576	$1,383,052
Chittenden	23,652	27,075	25,135	350,739	4,662	3,383	17,913	$29,175,018	$5,218,272	$5,590,375
Essex	489	525	462	7,240	76	63	800	$805,137	$128,488	$127,956
Franklin	5,816	5,783	5,493	74,849	1,010	582	-765	$4,928,281	$1,386,402	$1,116,110
Grand Isle	746	830	751	11,114	155	71	-75	$736,335	$205,393	$95,819
Lamoille	3,804	4,486	4,178	56,349	849	488	454	$4,335,352	$1,159,942	$765,304
Orange	3,241	2,890	2,579	37,900	545	302	2,153	$3,630,789	$701,658	$481,185
Orleans	2,899	4,101	3,798	56,207	669	431	2,984	$4,624,161	$931,239	$966,103
Rutland	9,637	10,474	9,967	129,420	1,752	981	1,415	$8,763,862	$1,988,690	$2,259,156
Washington	9,577	12,867	12,118	171,235	2,204	1,384	1,703	$12,264,901	$2,619,381	$3,142,007
Windham	4,079	9,425	9,067	108,932	1,442	1,175	245	$9,632,403	$3,026,112	$3,462,432
Windsor	6,921	7,193	6,357	92,499	1,253	722	3,659	$7,671,451	$1,905,880	$1,093,481
Totals	87,025	104,998	97,568	1,352,631	18,188	11,884	45,687	$111,859,662	$23,166,622	$22,585,458

3.13 Electric Resource Acquisition Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$90,963,009
Fossil Fuel Savings (Costs)	$811,188	$18,228,291
Water Savings (Costs)	$179,635	$2,668,362
Total	**$990,823**	**$111,859,662**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**97,568**	**92,402**	**104,998**
Winter on peak	37,280	35,311	40,538
Winter off peak	30,398	28,760	33,462
Summer on peak	16,265	15,425	15,425
Summer off peak	13,624	12,905	14,441
Coincident Demand Savings (kW)			
Winter	17,612	16,342	18,188
Shoulder	0	0	0
Summer	11,388	10,687	11,884

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**23,446**	**24,119**	**310,412**
Annualized fuel savings (increase) MMBtu Total	**46,496**	**45,687**	**998,840**
LP	35,159	34,593	655,144
NG	21,132	21,549	393,751
Oil/Kerosene	(9,309)	(9,065)	(63,270)
Wood	(923)	(1,025)	15,899
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$4,633,331**	**$4,536,293**	**$49,357,341**

Net Societal Benefits	$161,139,668

3.14 Electric Business Energy Services Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	2,489	2,710	2,710
Operating Costs			
Administration	$2,044,812	$1,900,330	$1,900,330
Programs and Implementation	$2,124,418	$1,872,583	$1,872,583
Strategy and Planning	$1,445,550	$1,201,646	$1,201,646
Subtotal Operating Costs	**$5,614,780**	**$4,974,558**	**$4,974,558**
Technical Assistance Costs			
Services to Participants	$3,079,666	$4,406,159	$4,406,159
Services to Trade Allies	$1,141,879	$600,036	$600,036
Subtotal Technical Assistance Costs	**$4,221,545**	**$5,006,195**	**$5,006,195**
Support Services			
Transportation	$901	$793	$793
Targeted Implementation	$1,073	$11,515	$11,515
Consulting	$237,672	$95,426	$95,426
Marketing	$860,847	$346,486	$346,486
Evaluation, Monitoring & Verification	$107,651	$95,064	$95,064
Policy & Public Affairs	$28,544	$38,202	$38,202
Information Technology	$1,585	$2,070	$2,070
Customer Support	$227,459	$75,710	$75,710
Business Development	$1,500	$10,164	$10,164
Subtotal Support Services Costs	**$1,467,232**	**$675,431**	**$675,431**
Incentive Costs			
Incentives to Participants	$13,941,464	$11,389,887	$11,389,887
Incentives to Trade Allies	$38,446	$51,711	$51,711
Subtotal Incentive Costs	**$13,979,910**	**$11,441,598**	**$11,441,598**
Total Efficiency Vermont Costs	**$25,283,468**	**$22,097,782**	**$22,097,782**
Total Participant Costs	$16,301,197	$18,404,076	$18,404,076
Total Third Party Costs	$9,100	$0	$0
Total Resource Acquisition Costs	**$41,593,765**	**$40,501,857**	**$40,501,857**
Annualized MWh Savings	55,667	49,573	49,573
Lifetime MWh Savings	717,433	660,197	660,197
TRB Savings (2015 $)	$52,129,294	$63,902,594	$63,902,594
Winter Coincident Peak kW Savings	8,741	7,046	7,046
Summer Coincident Peak kW Savings	6,138	6,492	6,492
Annualized MWh Savings/Participant	22.365	18.293	18.293
Weighted Lifetime	12.9	13.3	13.3

3.15 Electric Business Energy Services - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	159	2,975	2,704	53,448	158	665	3,070	$5,239,121	$482,936	$1,032,233
Cooking and Laundry	14	82	76	1,060	16	17	583	$354,481	$13,702	$26,828
Design Assistance	142	122	110	527	8	19	951	$212,698	$2,267,089	$2,467,325
Electronics	12	279	247	3,613	32	32	33	$262,910	$50,680	$127,920
Hot Water Efficiency	19	105	98	1,284	46	57	1,664	$771,052	$17,094	$60,607
Industrial Process Eff.	64	4,379	4,479	51,485	532	424	895	$4,116,080	$529,541	$1,398,002
Lighting	2,269	28,330	25,091	386,106	4,443	3,805	-12,591	$24,851,561	$6,557,823	$9,333,589
Motors	130	7,347	7,012	85,359	896	761	1,977	$6,770,068	$575,817	$1,398,994
Other Efficiency	107	9	9	281	1	1	0	$19,617	$787	$17,387
Other Fuel Switch	4	195	187	4,494	23	19	436	$305,781	$15,740	$24,835
Other Indirect Activity	87	0	0	0	0	0	0	$0	$148,810	-$141,091
Refrigeration	220	3,737	3,428	46,703	538	447	310	$3,477,981	$413,992	$1,092,761
Space Heat Efficiency	64	722	662	11,542	222	69	24,666	$11,581,757	$182,126	$753,664
Space Heat Fuel Switch	3	56	62	1,645	20	0	-177	-$3,147	$6,250	$12,958
Ventilation	84	1,233	1,160	12,650	111	176	18,638	$5,893,113	$118,302	$798,064
Water Conservation	2	0	0	0	0	0	0	$49,520	$0	$0
Totals		49,573	45,323	660,197	7,046	6,492	40,457	$63,902,594	$11,380,690	$18,404,076

3.16 Electric Residential Energy Services Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	51,645	84,315	84,315
Operating Costs			
Administration	$1,207,009	$1,942,015	$1,942,015
Programs and Implementation	$2,916,993	$3,405,288	$3,405,288
Strategy and Planning	$90,645	$253,373	$253,373
Subtotal Operating Costs	**$4,214,647**	**$5,600,676**	**$5,600,676**
Technical Assistance Costs			
Services to Participants	$881,034	$1,504,819	$1,504,819
Services to Trade Allies	$408,132	$372,497	$372,497
Subtotal Technical Assistance Costs	**$1,289,166**	**$1,877,316**	**$1,877,316**
Support Services			
Transportation	$3,318	$1,231	$1,231
Targeted Implementation	$324	$4,241	$4,241
Consulting	$248,849	$133,258	$133,258
Marketing	$1,303,844	$1,017,613	$1,017,613
Evaluation, Monitoring & Verification	$74,981	$46,635	$46,635
Policy & Public Affairs	$32,426	$17,092	$17,092
Information Technology	$78,785	$1,121	$1,121
Customer Support	$170,407	$109,223	$109,223
Business Development	$17,075	$3,408	$3,408
Subtotal Support Services Costs	**$1,930,009**	**$1,333,821**	**$1,333,821**
Incentive Costs			
Incentives to Participants	$8,231,103	$11,811,368	$11,811,368
Incentives to Trade Allies	$14,970	$5,651	$5,651
Subtotal Incentive Costs	**$8,246,073**	**$11,817,019**	**$11,817,019**
Total Efficiency Vermont Costs	**$15,679,895**	**$20,628,832**	**$20,628,832**
Total Participant Costs	$6,824,300	$4,181,382	$4,181,382
Total Third Party Costs	$953,925	($72,989)	($72,989)
Total Resource Acquisition Costs	**$23,458,120**	**$24,737,225**	**$24,737,225**
Annualized MWh Savings	35,479	55,424	55,424
Lifetime MWh Savings	383,927	692,434	692,434
TRB Savings (2015 $)	$29,972,145	$47,957,068	$47,957,068
Winter Coincident Peak kW Savings	7,773	11,142	11,142
Summer Coincident Peak kW Savings	4,183	5,392	5,392
Annualized MWh Savings/Participant	0.687	0.657	0.657
Weighted Lifetime	10.8	12.5	12.5

3.17 Electric Residential Energy Services - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	1,228	238	252	3,093	11	44	0	$237,490	$115,521	$12,925
Cooking and Laundry	3,454	809	675	10,964	158	113	2,154	$3,360,419	$347,845	$749,387
Design Assistance	55	0	0	0	0	0	0	$0	$16,940	$0
Electronics	5,310	2,920	3,125	14,199	295	339	0	$956,276	$266,942	-$103,783
Hot Water Efficiency	3,944	3,215	2,596	41,448	461	236	-4,709	$1,582,190	$1,135,401	$801,188
Hot Water Fuel Switch	65	162	231	4,871	25	13	-650	$188,175	$36,307	$40,000
Lighting	75,214	41,722	39,309	504,027	9,082	4,223	-6,497	$29,361,053	$7,376,510	$553,226
Motors	351	581	511	8,864	112	167	0	$795,023	$264,288	$137,113
Other Efficiency	1,182	0	0	0	0	0	0	$0	$80,822	-$80,822
Other Fuel Switch	120	84	100	2,524	21	16	-288	$137,589	$11,602	$7,224
Other Indirect Activity	20	0	0	0	0	0	0	$0	$7,476	-$1,200
Refrigeration	3,478	1,073	1,129	12,285	98	121	0	$666,724	$643,647	-$29,707
Space Heat Efficiency	877	3,854	3,641	75,179	699	95	13,210	$9,465,645	$1,246,613	$1,515,547
Space Heat Fuel Switch	40	266	235	7,981	133	0	-353	$406,803	$37,000	$405,868
Ventilation	1,331	472	417	6,925	43	23	2,363	$795,028	$199,020	$172,679
Water Conservation	5	28	25	74	3	2	0	$4,654	$0	$1,738
Totals		55,424	52,245	692,434	11,142	5,392	5,230	$47,957,068	$11,785,933	$4,181,382

3.18 Thermal Energy and Process Fuels Resource Acquisition Summary

				Business Energy Services		Residential Energy Services		
Services	Efficiency Vermont Services and Initiatives	Subtotal Business Energy Services	Subtotal Residential Energy Services	Business New Construction	Business Existing Facilities	Residential New Construction	Efficient Products	Existing Homes
Costs								
Year to Date Costs	$5,393,402	$564,673	$4,828,729	$18,577	$546,095	$5,040	$399,358	$4,424,331
Annual Budget Estimate[1]	$5,771,538	$1,442,885	$4,328,653	$23,069	$1,419,816	$2,172	$368,222	$3,958,259
Unspent Annual Budget Estimate	$378,136	$878,212	($500,076)	$4,491	$873,721	($2,868)	($31,136)	($466,072)
% Annual Budget Estimate Unspent	7%	61%	-12%	19%	62%	-132%	-8%	-12%
Savings Results								
MMBtu Year to Date	47,013	16,066	30,947	1,298	14,767	1,358	7,454	22,135
MMBtu Cumulative starting 1/1/15	47,013	16,066	30,947	1,298	14,767	1,358	7,454	22,135
3-Year MMBtu Goal	235,000	144,300	90,700	23,900	120,400	1,900	12,400	76,400
% of 3-Year MMBtu Goal	20%	11%	34%	5%	12%	71%	60%	29%
Associated Electric Benefits								
MWh Year to Date	(860)	37	(897)	(1)	37	(0)	(981)	85
MWh Cumulative starting 1/1/15	(860)	37	(897)	(1)	37	(0)	(981)	85
Winter Coincident Peak kW Year to Date	(47)	26	(73)	(0)	27	(0)	(115)	42
Winter Coincident Peak kW Cumulative starting 1/1/15	(47)	26	(73)	(0)	27	(0)	(115)	42
Summer Coincident Peak kW Year to Date	(60)	1	(61)	0	1	0	(58)	(2)
Summer Coincident Peak kW Cumulative starting 1/1/15	(60)	1	(61)	0	1	0	(58)	(2)
Participation								
Partic.w/ installs Year to Date	3,031	266	2,765	16	250	1	329	2,435
Partic.w/ installs Cumulative starting 1/1/15	3,031	266	2,765	16	250	1	329	2,435

[1] Annual budgets are provided for information purposes only. Efficiency Vermont operates under three-year Board approved budgets.

3.19 Thermal Energy and Process Fuels Resource Acquisition

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	3,351	3,031	3,031
Operating Costs			
Administration	$426,546	$387,133	$387,133
Programs and Implementation	$1,130,979	$1,289,173	$1,289,173
Strategy and Planning	$42,615	$156,481	$156,481
Subtotal Operating Costs	**$1,600,141**	**$1,832,787**	**$1,832,787**
Technical Assistance Costs			
Services to Participants	$443,724	$421,649	$421,649
Services to Trade Allies	$496	$89	$89
Subtotal Technical Assistance Costs	**$444,220**	**$421,738**	**$421,738**
Support Services			
Transportation	$670	$418	$418
Targeted Implementation	$77	$1,500	$1,500
Consulting	$159,248	$111,191	$111,191
Marketing	$358,061	$372,098	$372,098
Evaluation, Monitoring & Verification	$21,788	$10,315	$10,315
Policy & Public Affairs	$10,895	$5,759	$5,759
Information Technology	$28,050	$893	$893
Customer Support	$88,170	$90,617	$90,617
Business Development	$4,054	$1,324	$1,324
Subtotal Support Services Costs	**$671,012**	**$594,116**	**$594,116**
Incentive Costs			
Incentives to Participants	$2,577,384	$2,519,761	$2,519,761
Incentives to Trade Allies	$133,462	$25,000	$25,000
Subtotal Incentive Costs	**$2,710,845**	**$2,544,761**	**$2,544,761**
Total Efficiency Vermont Costs	**$5,426,218**	**$5,393,402**	**$5,393,402**
Total Participant Costs	$6,677,720	$10,549,169	$10,549,169
Total Third Party Costs	$284,124	$162,796	$162,796
Total Resource Acquisition Costs	**$12,388,062**	**$16,105,367**	**$16,105,367**
Annualized MMBtu Savings	36,534	47,013	47,013
Lifetime MMBtu Savings	599,349	823,610	823,610
TRB Savings (2015 $)	$11,795,243	$17,514,185	$17,514,185
Annualized MMBtu Savings/Participant	10.902	15.511	15.511
Weighted Lifetime	16.4	17.5	17.5

3.20 Thermal Energy and Process Fuels Services & Initiatives - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Cooking and Laundry	37	4	3	45	1	1	535	$219,714	$24,250	$68,683
Design Assistance	1	0	0	0	0	0	0	$0	$18,150	$1,492
Hot Water Efficiency	476	-975	-781	-12,671	-114	-58	8,660	$2,223,148	$391,892	-$116,674
Hot Water Fuel Switch	4	4	4	118	1	0	-5	$1,678	$0	$6,842
Industrial Process Eff.	56	-15	-15	-229	0	0	9,113	$1,562,766	$127,000	$578,783
Motors	16	0	0	0	0	0	20	$4,559	$0	$1,951
Other Efficiency	838	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	135	0	0	0	0	0	0	$0	$159,753	-$45,172
Space Heat Efficiency	2,442	286	283	5,365	144	-1	25,786	$10,722,648	$1,627,005	$8,304,425
Space Heat Fuel Switch	114	-164	-162	-2,426	-77	-1	2,670	$2,726,913	$71,000	$1,550,672
Ventilation	136	0	0	6	0	0	234	$52,758	$50,000	$198,168
Totals		-860	-668	-9,791	-47	-60	47,013	$17,514,185	$2,469,050	$10,549,169

3.21 Thermal Energy and Process Fuels Resource Acquisition
Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	($447,986)
Fossil Fuel Savings (Costs)	$1,272,833	$17,885,885
Water Savings (Costs)	$5,771	$76,285
Total	**$1,278,603**	**$17,514,184**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(668)**	**(760)**	**(860)**
Winter on peak	(189)	(219)	(252)
Winter off peak	(132)	(158)	(178)
Summer on peak	(89)	(98)	(98)
Summer off peak	(258)	(284)	(318)
Coincident Demand Savings (kW)			
Winter	(25)	(42)	(47)
Shoulder	0	0	0
Summer	(49)	(54)	(60)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**828**	**771**	**8,630**
Annualized fuel savings (increase) MMBtu Total	**50,012**	**47,013**	**823,610**
LP	20,688	19,178	320,011
NG	1	1	5
Oil/Kerosene	33,205	30,211	514,380
Wood	(3,876)	(2,382)	(10,782)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**($867)**	**($554)**	**($19,175)**

Net Societal Benefits	**$11,856,636**

3.22 Thermal Energy and Process Fuels
Business Energy Services Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	249	266	266
Operating Costs			
Administration	$51,786	$60,171	$60,171
Programs and Implementation	$5,246	$20,731	$20,731
Strategy and Planning	$8,573	$23,353	$23,353
Subtotal Operating Costs	**$65,606**	**$104,255**	**$104,255**
Technical Assistance Costs			
Services to Participants	$209,683	$34,666	$34,666
Services to Trade Allies	$0	$46	$46
Subtotal Technical Assistance Costs	**$209,683**	**$34,711**	**$34,711**
Support Services			
Transportation	$236	$30	$30
Targeted Implementation	$65	$430	$430
Consulting	$24,019	$2,423	$2,423
Marketing	$84,753	$12,932	$12,932
Evaluation, Monitoring & Verification	$11,587	$2,309	$2,309
Policy & Public Affairs	$4,900	$1,402	$1,402
Information Technology	$3,586	$76	$76
Customer Support	$39,452	$13,651	$13,651
Business Development	$3,396	$379	$379
Subtotal Support Services Costs	**$171,993**	**$33,631**	**$33,631**
Incentive Costs			
Incentives to Participants	$331,632	$392,075	$392,075
Incentives to Trade Allies	$5,940	$0	$0
Subtotal Incentive Costs	**$337,572**	**$392,075**	**$392,075**
Total Efficiency Vermont Costs	**$784,854**	**$564,673**	**$564,673**
Total Participant Costs	$826,154	$1,896,857	$1,896,857
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$1,611,008**	**$2,461,530**	**$2,461,530**
Annualized MMBtu Savings	11,667	16,066	16,066
Lifetime MMBtu Savings	172,637	276,681	276,681
TRB Savings (2015 $)	$3,645,338	$5,635,450	$5,635,450
Annualized MMBtu Savings/Participant	46.856	60.398	60.398
Weighted Lifetime	14.8	17.2	17.2

3.23 Thermal Energy and Process Fuels Business Energy Services - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Cooking and Laundry	27	4	3	45	1	1	535	$219,714	$24,250	$66,476
Design Assistance	1	0	0	0	0	0	0	$0	$18,150	$1,492
Hot Water Efficiency	16	0	0	0	0	0	894	$201,729	$38,000	$21,891
Industrial Process Eff.	56	-15	-15	-229	0	0	9,113	$1,562,766	$127,000	$578,783
Other Efficiency	57	0	0	0	0	0	0	$0	$0	$0
Space Heat Efficiency	160	50	49	1,254	26	0	5,033	$2,551,206	$174,424	$679,758
Space Heat Fuel Switch	5	-2	-2	-28	-1	0	470	$1,092,747	$7,000	$545,958
Ventilation	1	0	0	6	0	0	22	$7,288	$0	$2,500
Totals		37	36	1,048	26	1	16,066	$5,635,450	$388,824	$1,896,857

3.24 Thermal Energy and Process Fuels
Residential Energy Services Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	3,102	2,765	2,765
Operating Costs			
Administration	$374,760	$326,962	$326,962
Programs and Implementation	$1,125,733	$1,268,442	$1,268,442
Strategy and Planning	$34,042	$133,127	$133,127
Subtotal Operating Costs	**$1,534,536**	**$1,728,532**	**$1,728,532**
Technical Assistance Costs			
Services to Participants	$234,041	$386,984	$386,984
Services to Trade Allies	$496	$43	$43
Subtotal Technical Assistance Costs	**$234,537**	**$387,026**	**$387,026**
Support Services			
Transportation	$434	$388	$388
Targeted Implementation	$13	$1,070	$1,070
Consulting	$135,229	$108,769	$108,769
Marketing	$273,308	$359,166	$359,166
Evaluation, Monitoring & Verification	$10,201	$8,006	$8,006
Policy & Public Affairs	$5,995	$4,357	$4,357
Information Technology	$24,463	$817	$817
Customer Support	$48,718	$76,966	$76,966
Business Development	$658	$945	$945
Subtotal Support Services Costs	**$499,019**	**$560,485**	**$560,485**
Incentive Costs			
Incentives to Participants	$2,245,751	$2,127,686	$2,127,686
Incentives to Trade Allies	$127,522	$25,000	$25,000
Subtotal Incentive Costs	**$2,373,273**	**$2,152,686**	**$2,152,686**
Total Efficiency Vermont Costs	**$4,641,364**	**$4,828,729**	**$4,828,729**
Total Participant Costs	$5,851,566	$8,652,312	$8,652,312
Total Third Party Costs	$284,124	$162,796	$162,796
Total Resource Acquisition Costs	**$10,777,054**	**$13,643,837**	**$13,643,837**
Annualized MMBtu Savings	24,867	30,947	30,947
Lifetime MMBtu Savings	426,712	546,929	546,929
TRB Savings (2012$)	$8,149,904	$11,878,734	$11,878,734
Annualized MMBtu Savings/Participant	8.016	11.192	11.192
Weighted Lifetime	17.2	17.7	17.7

3.25 Thermal Energy and Process Fuels Residential Energy Services - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Cooking and Laundry	10	0	0	0	0	0	0	$0	$0	$2,208
Hot Water Efficiency	460	-975	-781	-12,671	-114	-58	7,766	$2,021,419	$353,892	-$138,565
Hot Water Fuel Switch	4	4	4	118	1	0	-5	$1,678	$0	$6,842
Motors	16	0	0	0	0	0	20	$4,559	$0	$1,951
Other Efficiency	781	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	135	0	0	0	0	0	0	$0	$159,753	-$45,172
Space Heat Efficiency	2,282	236	233	4,111	117	-2	20,753	$8,171,441	$1,452,581	$7,624,667
Space Heat Fuel Switch	109	-162	-160	-2,398	-77	-1	2,201	$1,634,167	$64,000	$1,004,714
Ventilation	135	0	0	0	0	0	212	$45,470	$50,000	$195,668
Totals		-897	-704	-10,840	-73	-61	30,947	$11,878,734	$2,080,225	$8,652,312

4. MAJOR MARKET RESOURCE ACQUISITION RESULTS

4.1 Electric Business New Construction Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	192	243	243
Operating Costs			
Administration	$207,602	$276,255	$276,255
Programs and Implementation	$388,554	$215,578	$215,578
Strategy and Planning	$282,473	$249,901	$249,901
Subtotal Operating Costs	**$878,629**	**$741,733**	**$741,733**
Technical Assistance Costs			
Services to Participants	$772,599	$848,454	$848,454
Services to Trade Allies	$187,498	$76,104	$76,104
Subtotal Technical Assistance Costs	**$960,097**	**$924,558**	**$924,558**
Support Services			
Transportation	$104	$87	$87
Targeted Implementation	$29	$1,267	$1,267
Consulting	$69,195	$30,714	$30,714
Marketing	$37,905	$38,120	$38,120
Evaluation, Monitoring & Verification	$4,508	$6,161	$6,161
Policy & Public Affairs	$2,165	$4,133	$4,133
Information Technology	$1,585	$228	$228
Customer Support	$9,931	$8,470	$8,470
Business Development	$1,500	$1,118	$1,118
Subtotal Support Services Costs	**$126,921**	**$90,296**	**$90,296**
Incentive Costs			
Incentives to Participants	$1,183,579	$1,707,860	$1,707,860
Incentives to Trade Allies	$3,203	$11,458	$11,458
Subtotal Incentive Costs	**$1,186,782**	**$1,719,318**	**$1,719,318**
Total Efficiency Vermont Costs	**$3,152,429**	**$3,475,905**	**$3,475,905**
Total Participant Costs	$2,049,077	$3,524,012	$3,524,012
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$5,201,506**	**$6,999,917**	**$6,999,917**
Annualized MWh Savings	9,401	10,909	10,909
Lifetime MWh Savings	136,174	160,751	160,751
TRB Savings (2015 $)	$11,623,812	$28,244,347	$28,244,347
Winter Coincident Peak kW Savings	1,281	1,703	1,703
Summer Coincident Peak kW Savings	1,368	1,863	1,863
Annualized MWh Savings/Participant	48.963	44.893	44.893
Weighted Lifetime	14.5	14.7	14.7

4.2 Electric Business New Construction - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	64	1,147	1,009	21,049	82	302	1,800	$2,412,718	$214,073	$372,565
Cooking and Laundry	8	68	62	869	10	11	537	$259,763	$10,065	$14,787
Design Assistance	5	0	0	0	0	0	0	$0	$20,660	$14,696
Electronics	1	168	148	2,513	19	19	0	$180,872	$34,500	$83,042
Hot Water Efficiency	7	13	11	152	37	45	1,568	$646,699	$1,015	$43,049
Industrial Process Eff.	2	251	270	2,939	38	39	0	$236,547	$13,934	$97,487
Lighting	209	5,352	4,711	76,446	892	927	-2,674	$5,709,956	$1,003,890	$1,125,310
Motors	33	1,736	1,527	27,338	226	166	4,753	$2,795,000	$141,905	$452,713
Other Efficiency	8	0	0	0	0	0	0	$0	$0	$0
Other Fuel Switch	2	59	52	1,778	9	7	-253	$6,504	$0	$2,585
Other Indirect Activity	15	0	0	0	0	0	0	$0	$15,918	-$15,918
Refrigeration	45	1,514	1,335	19,375	268	268	0	$1,580,190	$164,494	$318,516
Space Heat Efficiency	36	292	257	4,773	78	46	21,882	$10,569,989	$59,471	$493,660
Space Heat Fuel Switch	2	4	3	60	1	0	0	$4,177	$1,528	-$28
Ventilation	39	307	270	3,460	41	33	12,487	$3,792,413	$26,369	$521,548
Water Conservation	2	0	0	0	0	0	0	$49,520	$0	$0
Totals		10,909	9,655	160,751	1,703	1,863	40,101	$28,244,347	$1,707,823	$3,524,012

4.3 Electric Business New Construction Total Resource Benefits

Avoided Cost Benefits	2014	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$13,253,570
Fossil Fuel Savings (Costs)	$770,820	$14,866,481
Water Savings (Costs)	$10,398	$124,296
Total	**$781,219**	**$28,244,347**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**9,655**	**9,598**	**10,909**
Winter on peak	3,475	3,456	3,968
Winter off peak	2,881	2,862	3,214
Summer on peak	1,871	1,862	1,862
Summer off peak	1,428	1,418	1,587
Coincident Demand Savings (kW)			
Winter	1,537	1,530	1,703
Shoulder	0	0	0
Summer	1,682	1,675	1,863

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**1,404**	**1,390**	**13,857**
Annualized fuel savings (increase) MMBtu Total	**40,108**	**40,101**	**769,432**
LP	25,834	25,830	512,804
NG	12,419	12,419	223,026
Oil/Kerosene	2,509	2,509	43,256
Wood	(655)	(655)	(9,661)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$39,667**	**$39,319**	**$502,106**

Net Societal Benefits	$35,543,130

4.4 Electric Business Existing Facilities Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	2,297	2,467	2,467
Operating Costs			
Administration	$1,837,210	$1,624,075	$1,624,075
Programs and Implementation	$1,735,865	$1,657,005	$1,657,005
Strategy and Planning	$1,163,076	$951,745	$951,745
Subtotal Operating Costs	**$4,736,151**	**$4,232,825**	**$4,232,825**
Technical Assistance Costs			
Services to Participants	$2,307,067	$3,557,705	$3,557,705
Services to Trade Allies	$954,381	$523,932	$523,932
Subtotal Technical Assistance Costs	**$3,261,448**	**$4,081,637**	**$4,081,637**
Support Services			
Transportation	$797	$706	$706
Targeted Implementation	$1,044	$10,248	$10,248
Consulting	$168,478	$64,713	$64,713
Marketing	$822,942	$308,366	$308,366
Evaluation, Monitoring & Verification	$103,143	$88,903	$88,903
Policy & Public Affairs	$26,379	$34,070	$34,070
Information Technology	$0	$1,842	$1,842
Customer Support	$217,528	$67,240	$67,240
Business Development	$0	$9,046	$9,046
Subtotal Support Services Costs	**$1,340,311**	**$585,134**	**$585,134**
Incentive Costs			
Incentives to Participants	$12,757,884	$9,682,027	$9,682,027
Incentives to Trade Allies	$35,243	$40,253	$40,253
Subtotal Incentive Costs	**$12,793,127**	**$9,722,280**	**$9,722,280**
Total Efficiency Vermont Costs	**$22,131,038**	**$18,621,876**	**$18,621,876**
Total Participant Costs	$14,252,120	$14,880,064	$14,880,064
Total Third Party Costs	$9,100	$0	$0
Total Resource Acquisition Costs	**$36,392,258**	**$33,501,941**	**$33,501,941**
Annualized MWh Savings	46,266	38,664	38,664
Lifetime MWh Savings	581,258	499,445	499,445
TRB Savings (2015 $)	$40,505,483	$35,658,247	$35,658,247
Winter Coincident Peak kW Savings	7,459	5,342	5,342
Summer Coincident Peak kW Savings	4,770	4,630	4,630
Annualized MWh Savings/Participant	20.142	15.673	15.673
Weighted Lifetime	12.6	12.9	12.9

4.5 Electric Business Existing Facilities - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	95	1,828	1,695	32,399	75	363	1,270	$2,826,404	$268,863	$659,668
Cooking and Laundry	6	15	14	191	6	6	47	$94,718	$3,637	$12,041
Design Assistance	137	122	110	527	8	19	951	$212,698	$2,246,429	$2,452,629
Electronics	11	111	99	1,099	13	13	33	$82,038	$16,180	$44,878
Hot Water Efficiency	12	92	87	1,132	8	11	97	$124,354	$16,079	$17,558
Industrial Process Eff.	62	4,129	4,209	48,547	494	385	895	$3,879,533	$515,607	$1,300,515
Lighting	2,060	22,978	20,380	309,660	3,551	2,877	-9,917	$19,141,605	$5,553,933	$8,208,279
Motors	97	5,612	5,485	58,021	670	596	-2,776	$3,975,068	$433,912	$946,281
Other Efficiency	99	9	9	281	1	1	0	$19,617	$787	$17,387
Other Fuel Switch	2	136	135	2,716	14	12	688	$299,277	$15,740	$22,250
Other Indirect Activity	72	0	0	0	0	0	0	$0	$132,892	-$125,172
Refrigeration	175	2,223	2,093	27,329	270	180	310	$1,897,792	$249,498	$774,245
Space Heat Efficiency	28	431	405	6,769	144	24	2,784	$1,011,768	$122,655	$260,004
Space Heat Fuel Switch	1	53	59	1,584	19	0	-177	-$7,324	$4,722	$12,986
Ventilation	45	926	890	9,190	70	143	6,151	$2,100,699	$91,932	$276,516
Totals		38,664	35,669	499,445	5,342	4,630	356	$35,658,247	$9,672,867	$14,880,064

4.6 Electric Business Existing Facilities Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$35,019,204
Fossil Fuel Savings (Costs)	$16,012	$406,655
Water Savings (Costs)	$15,135	$232,389
Total	**$31,148**	**$35,658,247**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**35,669**	**34,016**	**38,664**
Winter on peak	13,204	12,590	14,453
Winter off peak	10,531	10,037	12,435
Summer on peak	6,630	6,324	6,324
Summer off peak	5,303	5,065	5,668
Coincident Demand Savings (kW)			
Winter	5,008	4,800	5,342
Shoulder	0	0	0
Summer	4,353	4,163	4,630

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**2,228**	**2,024**	**27,220**
Annualized fuel savings (increase) MMBtu Total	**1,330**	**356**	**10,355**
LP	6,078	5,533	62,051
NG	(281)	(343)	(6,359)
Oil/Kerosene	(3,599)	(4,046)	(51,683)
Wood	(742)	(662)	8,317
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$2,063,763**	**$2,058,856**	**$19,957,985**

Net Societal Benefits	$47,192,668

4.7 Electric Residential New Construction Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	1,458	1,366	1,366
Operating Costs			
Administration	$123,801	$171,798	$171,798
Programs and Implementation	$588,417	$525,297	$525,297
Strategy and Planning	$24,914	$31,172	$31,172
Subtotal Operating Costs	**$737,132**	**$728,268**	**$728,268**
Technical Assistance Costs			
Services to Participants	$588,585	$1,193,764	$1,193,764
Services to Trade Allies	$29,815	$15,393	$15,393
Subtotal Technical Assistance Costs	**$618,400**	**$1,209,157**	**$1,209,157**
Support Services			
Transportation	$861	$398	$398
Targeted Implementation	$236	$796	$796
Consulting	$87,685	$35,146	$35,146
Marketing	$309,399	$91,201	$91,201
Evaluation, Monitoring & Verification	$30,655	$4,262	$4,262
Policy & Public Affairs	$17,887	$2,707	$2,707
Information Technology	$13,093	$143	$143
Customer Support	$69,291	$17,898	$17,898
Business Development	$12,397	$367	$367
Subtotal Support Services Costs	**$541,504**	**$152,918**	**$152,918**
Incentive Costs			
Incentives to Participants	$622,766	$926,257	$926,257
Incentives to Trade Allies	$1,537	$3,000	$3,000
Subtotal Incentive Costs	**$624,303**	**$929,257**	**$929,257**
Total Efficiency Vermont Costs	**$2,521,339**	**$3,019,600**	**$3,019,600**
Total Participant Costs	$1,506,929	$1,046,447	$1,046,447
Total Third Party Costs	$61,422	$57,975	$57,975
Total Resource Acquisition Costs	**$4,089,689**	**$4,124,022**	**$4,124,022**
Annualized MWh Savings	1,761	2,040	2,040
Lifetime MWh Savings	30,949	36,070	36,070
TRB Savings (2015 $)	$6,514,558	$7,196,565	$7,196,565
Winter Coincident Peak kW Savings	329	414	414
Summer Coincident Peak kW Savings	190	216	216
Annualized MWh Savings/Participant	1.208	1.493	1.493
Weighted Lifetime	17.6	17.7	17.7

4.8 Electric Residential New Construction - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	156	65	57	972	9	6	0	$67,277	$84,537	-$27,402
Cooking and Laundry	660	47	40	643	18	10	328	$309,174	$36,564	$29,155
Design Assistance	55	0	0	0	0	0	0	$0	$16,940	$0
Hot Water Efficiency	607	4	3	93	1	1	1,202	$317,845	$8	$2,584
Lighting	1,275	1,126	1,044	15,832	210	92	-129	$1,005,272	$409,436	$60,042
Other Efficiency	67	0	0	0	0	0	0	$0	$80,760	-$80,760
Other Fuel Switch	105	67	84	2,011	17	12	-236	$104,450	$1,094	$12,611
Other Indirect Activity	16	0	0	0	0	0	0	$0	$2,736	-$1,200
Refrigeration	670	56	51	949	5	6	0	$67,092	$2,147	$36,114
Space Heat Efficiency	491	572	503	13,937	143	76	10,303	$4,934,746	$280,591	$949,193
Ventilation	789	104	93	1,633	12	12	1,527	$390,709	$11,445	$66,110
Totals		2,040	1,877	36,070	414	216	12,994	$7,196,565	$926,257	$1,046,447

4.9 Electric Residential New Construction Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$2,615,278
Fossil Fuel Savings (Costs)	$230,622	$4,214,406
Water Savings (Costs)	$28,253	$366,881
Total	**$258,875**	**$7,196,565**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**1,877**	**1,798**	**2,040**
Winter on peak	677	648	744
Winter off peak	726	700	786
Summer on peak	228	217	217
Summer off peak	245	233	261
Coincident Demand Savings (kW)			
Winter	392	372	414
Shoulder	0	0	0
Summer	202	194	216

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**3,854**	**3,779**	**41,710**
Annualized fuel savings (increase) MMBtu Total	**12,871**	**12,994**	**290,123**
LP	3,416	3,456	83,733
NG	7,893	7,987	172,259
Oil/Kerosene	95	89	1,274
Wood	1,469	1,461	32,852
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$51,058**	**$48,212**	**$715,228**

Net Societal Benefits	$7,434,540

4.10 Electric Efficient Products Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations[1]	36,990	78,824	78,824
Operating Costs			
Administration	$690,109	$1,487,565	$1,487,565
Programs and Implementation	$1,357,199	$1,320,803	$1,320,803
Strategy and Planning	$14,706	$159,373	$159,373
Subtotal Operating Costs	**$2,062,014**	**$2,967,741**	**$2,967,741**
Technical Assistance Costs			
Services to Participants	$127,855	$138,089	$138,089
Services to Trade Allies	$323,067	$332,067	$332,067
Subtotal Technical Assistance Costs	**$450,922**	**$470,156**	**$470,156**
Support Services			
Transportation	$182	$468	$468
Targeted Implementation	$50	$2,098	$2,098
Consulting	$63,705	$42,948	$42,948
Marketing	$725,434	$557,489	$557,489
Evaluation, Monitoring & Verification	$11,241	$10,394	$10,394
Policy & Public Affairs	$8,745	$9,237	$9,237
Information Technology	$2,769	$377	$377
Customer Support	$48,299	$54,239	$54,239
Business Development	$2,622	$1,852	$1,852
Subtotal Support Services Costs	**$863,045**	**$679,101**	**$679,101**
Incentive Costs			
Incentives to Participants	$6,025,202	$9,339,863	$9,339,863
Incentives to Trade Allies	$12,033	$2,159	$2,159
Subtotal Incentive Costs	**$6,037,235**	**$9,342,022**	**$9,342,022**
Total Efficiency Vermont Costs	**$9,413,216**	**$13,459,020**	**$13,459,020**
Total Participant Costs	$5,002,146	$2,605,576	$2,605,576
Total Third Party Costs	$804,677	$0	$0
Total Resource Acquisition Costs	**$15,220,039**	**$16,064,596**	**$16,064,596**

Annualized MWh Savings	30,551	50,880	50,880
Lifetime MWh Savings	315,383	619,562	619,562
TRB Savings (2015 $)	$20,921,796	$38,555,123	$38,555,123
Winter Coincident Peak kW Savings	6,790	10,191	10,191
Summer Coincident Peak kW Savings	3,688	4,997	4,997
Annualized MWh Savings/Participant	0.826	0.645	0.645
Weighted Lifetime	10.3	12.2	12.2

[1] New methodology for counting lighting buydown participants implemented in 1/1/2015.

4.11 Electric Efficient Products - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	1,052	155	178	1,863	0	32	0	$146,692	$26,325	$36,855
Cooking and Laundry	2,678	626	515	8,426	122	89	1,814	$2,894,664	$225,720	$698,490
Electronics	2,321	2,733	2,950	13,452	276	316	0	$905,856	$199,966	-$106,016
Hot Water Efficiency	431	2,951	2,362	38,373	428	218	-5,741	$999,102	$934,425	$800,404
Lighting	70,180	39,932	37,666	482,233	8,677	4,078	-6,365	$28,004,995	$6,729,911	$529,317
Motors	349	577	507	8,809	111	166	0	$790,410	$264,288	$132,518
Other Efficiency	63	0	0	0	0	0	0	$0	$0	$0
Refrigeration	2,090	703	800	6,390	64	79	0	$441,437	$107,105	-$59,817
Space Heat Efficiency	263	3,202	3,067	60,016	513	19	2,398	$4,371,967	$851,627	$573,825
Totals		50,880	48,045	619,562	10,191	4,997	-7,895	$38,555,123	$9,339,368	$2,605,576

4.12 Electric Efficient Products Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$37,909,357
Fossil Fuel Savings (Costs)	($204,081)	($1,070,621)
Water Savings (Costs)	$107,704	$1,716,387
Total	**($96,377)**	**$38,555,123**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**48,045**	**44,783**	**50,880**
Winter on peak	19,037	17,776	20,407
Winter off peak	15,383	14,323	16,086
Summer on peak	7,270	6,774	6,774
Summer off peak	6,356	5,910	6,615
Coincident Demand Savings (kW)			
Winter	10,171	9,156	10,191
Shoulder	0	0	0
Summer	4,980	4,494	4,997

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**13,453**	**14,425**	**201,610**
Annualized fuel savings (increase) MMBtu Total	**(7,518)**	**(7,895)**	**(50,488)**
LP	(57)	(84)	73
NG	969	945	14,950
Oil/Kerosene	(8,138)	(7,441)	(54,037)
Wood	(801)	(977)	(10,843)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$2,452,290**	**$2,363,236**	**$27,981,205**

Net Societal Benefits	$70,571,377

4.13 Electric Existing Homes Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	13,197	4,125	4,125
Operating Costs			
Administration	$393,099	$282,651	$282,651
Programs and Implementation	$971,377	$1,559,187	$1,559,187
Strategy and Planning	$51,025	$62,828	$62,828
Subtotal Operating Costs	**$1,415,502**	**$1,904,666**	**$1,904,666**
Technical Assistance Costs			
Services to Participants	$164,594	$172,966	$172,966
Services to Trade Allies	$55,250	$25,037	$25,037
Subtotal Technical Assistance Costs	**$219,844**	**$198,003**	**$198,003**
Support Services			
Transportation	$2,275	$365	$365
Targeted Implementation	$39	$1,346	$1,346
Consulting	$97,458	$55,164	$55,164
Marketing	$269,011	$368,923	$368,923
Evaluation, Monitoring & Verification	$33,085	$31,979	$31,979
Policy & Public Affairs	$5,794	$5,148	$5,148
Information Technology	$62,923	$601	$601
Customer Support	$52,818	$37,086	$37,086
Business Development	$2,056	$1,189	$1,189
Subtotal Support Services Costs	**$525,460**	**$501,801**	**$501,801**
Incentive Costs			
Incentives to Participants	$1,583,135	$1,545,248	$1,545,248
Incentives to Trade Allies	$1,400	$492	$492
Subtotal Incentive Costs	**$1,584,535**	**$1,545,740**	**$1,545,740**
Total Efficiency Vermont Costs	**$3,745,340**	**$4,150,211**	**$4,150,211**
Total Participant Costs	$315,225	$529,359	$529,359
Total Third Party Costs	$87,827	($130,964)	($130,964)
Total Resource Acquisition Costs	**$4,148,392**	**$4,548,606**	**$4,548,606**
Annualized MWh Savings	3,167	2,504	2,504
Lifetime MWh Savings	37,595	36,802	36,802
TRB Savings (2015 $)	$2,535,791	$2,205,381	$2,205,381
Winter Coincident Peak kW Savings	654	538	538
Summer Coincident Peak kW Savings	306	179	179
Annualized MWh Savings/Participant	0.240	0.607	0.607
Weighted Lifetime	11.9	14.7	14.7

4.14 Electric Existing Homes - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	20	18	17	259	3	6	0	$23,522	$4,659	$3,472
Cooking and Laundry	116	136	119	1,894	18	14	13	$156,581	$85,561	$21,742
Electronics	2,989	187	175	746	19	23	0	$50,420	$66,976	$2,233
Hot Water Efficiency	2,906	260	230	2,982	32	18	-169	$265,243	$200,968	-$1,800
Hot Water Fuel Switch	65	162	231	4,871	25	13	-650	$188,175	$36,307	$40,000
Lighting	3,759	664	599	5,962	196	53	-3	$350,786	$237,162	-$36,133
Motors	2	4	3	55	2	0	0	$4,613	$0	$4,595
Other Efficiency	1,052	0	0	0	0	0	0	$0	$62	-$62
Other Fuel Switch	15	17	15	513	4	3	-52	$33,139	$10,508	-$5,388
Other Indirect Activity	4	0	0	0	0	0	0	$0	$4,740	$0
Refrigeration	718	314	277	4,946	29	36	0	$158,195	$534,395	-$6,004
Space Heat Efficiency	123	80	71	1,225	43	0	509	$158,933	$114,395	-$7,471
Space Heat Fuel Switch	40	266	235	7,981	133	0	-353	$406,803	$37,000	$405,868
Ventilation	542	368	325	5,293	31	11	836	$404,319	$187,575	$106,569
Water Conservation	5	28	25	74	3	2	0	$4,654	$0	$1,738
Totals		2,504	2,323	36,802	538	179	131	$2,205,381	$1,520,308	$529,359

4.15 Electric Existing Homes Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$2,165,600
Fossil Fuel Savings (Costs)	($2,186)	($188,629)
Water Savings (Costs)	$18,144	$228,409
Total	**$15,959**	**$2,205,381**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**2,323**	**2,206**	**2,504**
Winter on peak	887	842	966
Winter off peak	877	839	942
Summer on peak	266	249	249
Summer off peak	293	278	311
Coincident Demand Savings (kW)			
Winter	504	483	538
Shoulder	0	0	0
Summer	171	161	179

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**2,506**	**2,501**	**26,015**
Annualized fuel savings (increase) MMBtu Total	**(296)**	**131**	**(20,583)**
LP	(110)	(142)	(3,516)
NG	133	540	(10,125)
Oil/Kerosene	(177)	(177)	(2,079)
Wood	(194)	(192)	(4,767)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$26,553**	**$26,670**	**$200,817**

Net Societal Benefits	$397,953

4.16 Thermal Energy and Process Fuels
Business New Construction Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	15	16	16
Operating Costs			
Administration	$2,458	$2,037	$2,037
Programs and Implementation	$412	$124	$124
Strategy and Planning	$819	$304	$304
Subtotal Operating Costs	**$3,688**	**$2,465**	**$2,465**
Technical Assistance Costs			
Services to Participants	$486	$902	$902
Services to Trade Allies	$0	$0	$0
Subtotal Technical Assistance Costs	**$486**	**$902**	**$902**
Support Services			
Transportation	$1	$2	$2
Targeted Implementation	$0	$14	$14
Consulting	$72	$77	$77
Marketing	$256	$413	$413
Evaluation, Monitoring & Verification	$25	$54	$54
Policy & Public Affairs	$15	$44	$44
Information Technology	$11	$2	$2
Customer Support	$57	$90	$90
Business Development	$10	$12	$12
Subtotal Support Services Costs	**$447**	**$708**	**$708**
Incentive Costs			
Incentives to Participants	$7,937	$14,503	$14,503
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$7,937**	**$14,503**	**$14,503**
Total Efficiency Vermont Costs	**$12,559**	**$18,577**	**$18,577**
Total Participant Costs	$47,593	$498,773	$498,773
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$60,151**	**$517,350**	**$517,350**
Annualized MMBtu Savings	1,561	1,298	1,298
Lifetime MMBtu Savings	28,463	27,009	27,009
TRB Savings (2015 $)	$658,927	$1,407,979	$1,407,979
Annualized MMBtu Savings/Participant	104.096	81.153	81.153
Weighted Lifetime	18.2	20.8	20.8

4.17 Thermal Energy and Process Fuels Business New Construction - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Cooking and Laundry	1	0	0	0	0	0	66	$19,215	$1,750	$3,375
Space Heat Efficiency	13	0	0	0	0	0	814	$438,484	$8,753	$27,892
Space Heat Fuel Switch	2	-1	-1	-17	0	0	397	$942,992	$4,000	$465,005
Ventilation	1	0	0	6	0	0	22	$7,288	$0	$2,500
Totals		-1	-1	-11	0	0	1,298	$1,407,979	$14,503	$498,773

4.18 Thermal Energy and Process Fuels
Business New Construction Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$805
Fossil Fuel Savings (Costs)	$110,116	$1,407,175
Water Savings (Costs)	$0	$0
Total	**$110,116**	**$1,407,979**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(1)**	**(1)**	**(1)**
Winter on peak	(0)	(0)	(0)
Winter off peak	(1)	(0)	(1)
Summer on peak	0	0	0
Summer off peak	0	0	0
Coincident Demand Savings (kW)			
Winter	(0)	(0)	(0)
Shoulder	0	0	0
Summer	0	0	0

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**0**	**0**	**0**
Annualized fuel savings (increase) MMBtu Total	**1,369**	**1,298**	**27,009**
LP	9,037	7,812	124,563
NG	0	0	0
Oil/Kerosene	36	36	685
Wood	(7,705)	(6,549)	(98,239)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$634**	**$539**	**$8,080**

Net Societal Benefits	**$2,093,116**

4.19 Thermal Energy and Process Fuels
Business Existing Facilities Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	234	250	250
Operating Costs			
Administration	$49,328	$58,133	$58,133
Programs and Implementation	$4,835	$20,607	$20,607
Strategy and Planning	$7,755	$23,050	$23,050
Subtotal Operating Costs	**$61,918**	**$101,790**	**$101,790**
Technical Assistance Costs			
Services to Participants	$209,197	$33,764	$33,764
Services to Trade Allies	$0	$46	$46
Subtotal Technical Assistance Costs	**$209,197**	**$33,810**	**$33,810**
Support Services			
Transportation	$235	$28	$28
Targeted Implementation	$64	$416	$416
Consulting	$23,947	$2,346	$2,346
Marketing	$84,497	$12,518	$12,518
Evaluation, Monitoring & Verification	$11,561	$2,255	$2,255
Policy & Public Affairs	$4,885	$1,357	$1,357
Information Technology	$3,576	$74	$74
Customer Support	$39,395	$13,561	$13,561
Business Development	$3,386	$367	$367
Subtotal Support Services Costs	**$171,546**	**$32,923**	**$32,923**
Incentive Costs			
Incentives to Participants	$323,695	$377,572	$377,572
Incentives to Trade Allies	$5,940	$0	$0
Subtotal Incentive Costs	**$329,635**	**$377,572**	**$377,572**
Total Efficiency Vermont Costs	**$772,295**	**$546,095**	**$546,095**
Total Participant Costs	$778,561	$1,398,084	$1,398,084
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$1,550,856**	**$1,944,180**	**$1,944,180**
Annualized MMBtu Savings	10,106	14,767	14,767
Lifetime MMBtu Savings	144,174	249,672	249,672
TRB Savings (2015 $)	$2,986,411	$4,227,471	$4,227,471
Annualized MMBtu Savings/Participant	43.186	59.070	59.070
Weighted Lifetime	14.3	16.9	16.9

4.20 Thermal Energy and Process Fuels Business Existing Facilities - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Cooking and Laundry	26	4	3	45	1	1	469	$200,499	$22,500	$63,101
Design Assistance	1	0	0	0	0	0	0	$0	$18,150	$1,492
Hot Water Efficiency	16	0	0	0	0	0	894	$201,729	$38,000	$21,891
Industrial Process Eff.	56	-15	-15	-229	0	0	9,113	$1,562,766	$127,000	$578,783
Other Efficiency	57	0	0	0	0	0	0	$0	$0	$0
Space Heat Efficiency	147	50	49	1,254	26	0	4,219	$2,112,722	$165,672	$651,865
Space Heat Fuel Switch	3	-1	-1	-11	0	0	72	$149,755	$3,000	$80,952
Totals		37	37	1,059	27	1	14,767	$4,227,471	$374,322	$1,398,084

4.21 Thermal Energy and Process Fuels
Business Existing Facilities Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$84,723
Fossil Fuel Savings (Costs)	$265,796	$4,083,700
Water Savings (Costs)	$4,205	$59,048
Total	**$270,000**	**$4,227,471**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**37**	**33**	**37**
Winter on peak	16	14	16
Winter off peak	19	17	19
Summer on peak	1	1	1
Summer off peak	1	1	1
Coincident Demand Savings (kW)			
Winter	27	24	27
Shoulder	0	0	0
Summer	1	1	1

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**598**	**562**	**6,745**
Annualized fuel savings (increase) MMBtu Total	**16,302**	**14,767**	**249,672**
LP	2,877	2,750	53,956
NG	0	0	0
Oil/Kerosene	6,809	6,010	105,876
Wood	6,615	6,007	89,840
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$381**	**$301**	**$4,518**

Net Societal Benefits	$4,080,691

4.22 Thermal Energy and Process Fuels
Residential New Construction Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	16	1	1
Operating Costs			
Administration	$271	$430	$430
Programs and Implementation	$6	$199	$199
Strategy and Planning	$13	$5	$5
Subtotal Operating Costs	**$291**	**$634**	**$634**
Technical Assistance Costs			
Services to Participants	$5	$0	$0
Services to Trade Allies	$0	$0	$0
Subtotal Technical Assistance Costs	**$5**	**$0**	**$0**
Support Services			
Transportation	$0	$0	$0
Targeted Implementation	$0	$0	$0
Consulting	$1	$0	$0
Marketing	$2	$624	$624
Evaluation, Monitoring & Verification	$0	$0	$0
Policy & Public Affairs	$0	$0	$0
Information Technology	$0	$0	$0
Customer Support	$1	$282	$282
Business Development	$0	$0	$0
Subtotal Support Services Costs	**$4**	**$906**	**$906**
Incentive Costs			
Incentives to Participants	$2,107	$3,500	$3,500
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$2,107**	**$3,500**	**$3,500**
Total Efficiency Vermont Costs	**$2,406**	**$5,040**	**$5,040**
Total Participant Costs	$43,827	$28,703	$28,703
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$46,234**	**$33,743**	**$33,743**
Annualized MMBtu Savings	(1)	1,358	1,358
Lifetime MMBtu Savings	(15)	33,224	33,224
TRB Savings (2015 $)	$151,287	$554,739	$554,739
Annualized MMBtuSavings/Participant	(0.063)	1,358.17	1,358.17
Weighted Lifetime	15.0	24.5	24.5

4.23 Thermal Energy and Process Fuels Residential New Construction - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Space Heat Efficiency	1	0	0	0	0	0	1,285	$361,075	$1,500	$2,127
Space Heat Fuel Switch	0	0	0	-7	0	0	73	$193,664	$2,000	$26,576
Totals		0	0	-7	0	0	1,358	$554,739	$3,500	$28,703

4.24 Thermal Energy and Process Fuels
Residential New Construction Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	($426)
Fossil Fuel Savings (Costs)	$42,718	$555,166
Water Savings (Costs)	$0	$0
Total	**$42,718**	**$554,739**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(0)**	**(0)**	**(0)**
Winter on peak	(0)	(0)	(0)
Winter off peak	(0)	(0)	(0)
Summer on peak	(0)	(0)	(0)
Summer off peak	(0)	(0)	(0)
Coincident Demand Savings (kW)			
Winter	(0)	(0)	(0)
Shoulder	0	0	0
Summer	0	0	0

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**0**	**0**	**0**
Annualized fuel savings (increase) MMBtu Total	**1,297**	**1,358**	**33,224**
LP	1,249	1,249	18,735
NG	0	0	0
Oil/Kerosene	0	0	0
Wood	48	109	14,489
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$556**	**$556**	**$8,334**

Net Societal Benefits	$925,404

4.25 Thermal Energy and Process Fuels
Efficient Products Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	338	329	329
Operating Costs			
Administration	$41,594	$42,729	$42,729
Programs and Implementation	$2,444	$0	$0
Strategy and Planning	$542	$1,427	$1,427
Subtotal Operating Costs	**$44,581**	**$44,155**	**$44,155**
Technical Assistance Costs			
Services to Participants	$909	$2,919	$2,919
Services to Trade Allies	$0	$0	$0
Subtotal Technical Assistance Costs	**$909**	**$2,919**	**$2,919**
Support Services			
Transportation	$1	$3	$3
Targeted Implementation	$0	$44	$44
Consulting	$135	$250	$250
Marketing	$483	$1,394	$1,394
Evaluation, Monitoring & Verification	$47	$176	$176
Policy & Public Affairs	$28	$145	$145
Information Technology	$20	$9	$9
Customer Support	$1,298	$290	$290
Business Development	$19	$40	$40
Subtotal Support Services Costs	**$2,033**	**$2,352**	**$2,352**
Incentive Costs			
Incentives to Participants	$347,322	$349,932	$349,932
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$347,322**	**$349,932**	**$349,932**
Total Efficiency Vermont Costs	**$394,845**	**$399,358**	**$399,358**
Total Participant Costs	($248,187)	($209,423)	($209,423)
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$146,658**	**$189,935**	**$735,952**
Annualized MMBtu Savings	6,439	7,454	7,454
Lifetime MMBtu Savings	83,927	97,263	97,263
TRB Savings (2015 $)	1,092,158	$1,895,545	$1,895,545
Annualized MMBtu Savings/Participant	19	22.656	22.656
Weighted Lifetime	13	13.0	13.0

4.26 Thermal Energy and Process Fuels Efficient Products - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Hot Water Efficiency	329	-981	-788	-12,756	-115	-58	7,454	$1,895,545	$348,921	-$209,423
Totals		-981	-788	-12,756	-115	-58	7,454	$1,895,545	$348,921	-$209,423

4.27 Thermal Energy and Process Fuels
Efficient Products Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	($677,236)
Fossil Fuel Savings (Costs)	$218,166	$2,571,777
Water Savings (Costs)	$93	$1,004
Total	**$218,259**	**$1,895,545**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(788)**	**(866)**	**(981)**
Winter on peak	(243)	(267)	(307)
Winter off peak	(193)	(213)	(239)
Summer on peak	(91)	(100)	(100)
Summer off peak	(260)	(286)	(320)
Coincident Demand Savings (kW)			
Winter	(94)	(103)	(115)
Shoulder	0	0	0
Summer	(47)	(52)	(58)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**12**	**12**	**112**
Annualized fuel savings (increase) MMBtu Total	**6,794**	**7,454**	**97,263**
LP	2,191	2,389	31,416
NG	0	0	0
Oil/Kerosene	5,002	5,494	71,485
Wood	(395)	(433)	(5,643)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$0**	**$0**	**$0**

Net Societal Benefits	$2,015,124

4.28 Thermal Energy and Process Fuels
Existing Homes Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	2,748	2,435	2,435
Operating Costs			
Administration	$332,895	$283,803	$283,803
Programs and Implementation	$1,123,283	$1,268,243	$1,268,243
Strategy and Planning	$33,487	$131,696	$131,696
Subtotal Operating Costs	**$1,489,664**	**$1,683,742**	**$1,683,742**
Technical Assistance Costs			
Services to Participants	$233,127	$384,065	$384,065
Services to Trade Allies	$496	$43	$43
Subtotal Technical Assistance Costs	**$233,623**	**$384,107**	**$384,107**
Support Services			
Transportation	$433	$385	$385
Targeted Implementation	$12	$1,026	$1,026
Consulting	$135,093	$108,518	$108,518
Marketing	$272,822	$357,148	$357,148
Evaluation, Monitoring & Verification	$10,153	$7,831	$7,831
Policy & Public Affairs	$5,968	$4,212	$4,212
Information Technology	$24,443	$808	$808
Customer Support	$47,419	$76,395	$76,395
Business Development	$639	$905	$905
Subtotal Support Services Costs	**$496,982**	**$557,228**	**$557,228**
Incentive Costs			
Incentives to Participants	$1,896,323	$1,774,254	$1,774,254
Incentives to Trade Allies	$127,522	$25,000	$25,000
Subtotal Incentive Costs	**$2,023,845**	**$1,799,254**	**$1,799,254**
Total Efficiency Vermont Costs	**$4,244,113**	**$4,424,331**	**$4,424,331**
Total Participant Costs	$6,055,926	$8,833,033	$8,833,033
Total Third Party Costs	$284,124	$162,796	$162,796
Total Resource Acquisition Costs	**$10,584,162**	**$13,420,159**	**$13,420,159**
Annualized MMBtu Savings	18,429	22,135	22,135
Lifetime MMBtu Savings	342,800	416,442	416,442
TRB Savings (2015 $)	$6,906,459	$9,428,450	$9,428,450
Annualized MMBtu Savings/Participant	6.706	9.090	9.090
Weighted Lifetime	18.6	18.8	18.8

4.29 Thermal Energy and Process Fuels Existing Homes - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Cooking and Laundry	10	0	0	0	0	0	0	$0	$0	$2,208
Hot Water Efficiency	131	6	6	85	1	0	312	$125,874	$4,971	$70,858
Hot Water Fuel Switch	4	4	4	118	1	0	-5	$1,678	$0	$6,842
Motors	16	0	0	0	0	0	20	$4,559	$0	$1,951
Other Efficiency	781	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	135	0	0	0	0	0	0	$0	$159,753	-$45,172
Space Heat Efficiency	2,281	236	233	4,111	117	-2	19,468	$7,810,366	$1,451,081	$7,622,540
Space Heat Fuel Switch	109	-162	-160	-2,391	-77	-1	2,128	$1,440,502	$62,000	$978,138
Ventilation	135	0	0	0	0	0	212	$45,470	$50,000	$195,668
Totals		85	84	1,923	42	-2	22,135	$9,428,450	$1,727,804	$8,833,033

4.30 Thermal Energy and Process Fuels
Existing Homes Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$144,149
Fossil Fuel Savings (Costs)	$636,036	$9,268,068
Water Savings (Costs)	$1,473	$16,233
Total	**$637,509**	**$9,428,450**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**84**	**75**	**85**
Winter on peak	39	35	40
Winter off peak	43	38	43
Summer on peak	1	1	1
Summer off peak	1	1	1
Coincident Demand Savings (kW)			
Winter	42	37	42
Shoulder	0	0	0
Summer	(2)	(2)	(2)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**218**	**197**	**1,773**
Annualized fuel savings (increase) MMBtu Total	**24,250**	**22,135**	**416,442**
LP	5,334	4,978	91,341
NG	1	1	5
Oil/Kerosene	21,357	18,671	336,334
Wood	(2,440)	(1,516)	(11,230)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**($2,437)**	**($1,950)**	**($40,107)**

Net Societal Benefits	$2,742,301

5. Special Programs

5.1 Customer Credit Program

5.2 Designated Downtowns Initiative

5.1 Customer Credit Program Narrative

The Customer Credit program (CCP) provides an alternative path for qualified large businesses showing the capability and resources to identify, analyze, and undertake efficiency projects, and to self-implement energy efficiency measures. Approved project costs are reimbursed up to a maximum of 90% of the company's electric Energy Efficiency Charge payments with time-bound limitations.

CCP customers can receive reimbursement for any retrofit or market-driven project that saves electrical energy and passes the Vermont societal cost-effectiveness test. Once a qualifying customer elects to participate in the CCP, that customer is no longer eligible to participate in other Efficiency Vermont programs.

All CCP projects must be initiated by the customer. In addition, the customer or its contractors must complete all technical analysis. Market-driven projects are eligible for incentives equal to 100% of the incremental measure cost. For retrofit projects, customers can receive incentives that reduce the customer payback time to 12 months. If qualifying incentives exceed the net present value of the savings when screened, the incentive is capped at the net present value amount.

Eligible Market

To be eligible for CCP, customers must:

- Never have accepted cash incentives from any Vermont utility Demand Side Management program
- Have ISO 14001 certification

5.1.1 Customer Credit Summary

	Prior Year	Current Year 2015	Cumulative starting 1/1/15
# participants with installations	1	1	1
Operating Costs			
Administration	$94,058	$54,523	$54,523
Programs and Implementation	$35,822	$35,419	$35,419
Strategy and Planning	$1,303	$7,900	$7,900
Subtotal Operating Costs	**$131,183**	**$97,841**	**$97,841**
Technical Assistance Costs			
Services to Participants	$26,915	$47,568	$47,568
Services to Trade Allies	$9,778	$5,701	$5,701
Subtotal Technical Assistance Costs	**$36,693**	**$53,269**	**$53,269**
Support Services			
Transportation	$36	$36	$36
Targeted Implementation	$10	$534	$534
Consulting	$3,641	$3,007	$3,007
Marketing	$12,847	$16,044	$16,044
Evaluation, Monitoring & Verification	$1,310	$2,115	$2,115
Policy & Public Affairs	$743	$1,739	$1,739
Information Technology	$544	$95	$95
Customer Support	$2,877	$3,484	$3,484
Business Development	$515	$471	$471
Subtotal Support Services Costs	**$22,522**	**$27,527**	**$27,527**
Incentive Costs			
Incentives to Participants	$658,468	$326,840	$326,840
Incentives to Trade Allies	$12	$0	$0
Subtotal Incentive Costs	**$658,480**	**$326,840**	**$326,840**
Total Efficiency Vermont Costs	**$848,878**	**$505,477**	**$505,477**
Total Participant Costs	($642,601)	$157,708	$157,708
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$206,277**	**$663,185**	**$663,185**
Annualized MWh Savings	13	1,961	1,961
Lifetime MWh Savings	253	21,460	21,460
TRB Savings (2015 $)	$28,349	$1,835,805	$1,835,805
Winter Coincident Peak kW Savings	5	323	323
Summer Coincident Peak kW Savings	5	322	322
Annualized MWh Savings/Participant	12.719	1961.170	1961.170
Weighted Lifetime	19.9	10.9	10.9

5.1.2 Customer Credit - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Design Assistance	1	0	0	0	0	0	0	$0	$458	$0
Industrial Process Eff.	2	1,477	1,293	16,618	268	268	0	$1,495,059	$220,471	$118,358
Motors	1	484	427	4,843	54	54	0	$340,745	$105,912	$39,350
Totals		1,961	1,720	21,460	323	322	0	$1,835,805	$326,840	$157,708

5.1.3 Customer Credit Total Resource Benefits

Avoided Cost Benefits	2015	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$1,835,805
Fossil Fuel Savings (Costs)	$0	$0
Water Savings (Costs)	$0	$0
Total	**$0**	**$1,835,805**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**1,720**	**1,720**	**1,961**
Winter on peak	789	789	905
Winter off peak	357	357	401
Summer on peak	396	396	396
Summer off peak	179	179	200
Coincident Demand Savings (kW)			
Winter	290	290	323
Shoulder	0	0	0
Summer	290	290	322

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**0**	**0**	**0**
Annualized fuel savings (increase) MMBtu Total	**0**	**0**	**0**
LP	0	0	0
NG	0	0	0
Oil/Kerosene	0	0	0
Wood	0	0	0
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$0**	**$0**	**$0**

5.2 DESIGNATED DOWNTOWNS INITIATIVE NARRATIVE

The Designated Downtowns Initiative is described in Section 2.3.6.

5.2.1 Designated Downtowns Summary

Benefits to Designated Downtowns, New Town Centers and Growth Centers, Cumulative Period to Date

Area	Annual Net MWh Saved	Lifetime Net MWh Saved	Net Total Resource Benefits Delivered[2]
Designated Downtowns[1]			
Barre City	59	1,110	$159,046
Bellows Falls	55	825	$51,920
Bennington	12	164	$14,674
Bradford	6	94	$5,436
Brandon	1	9	$3,162
Brattleboro	203	2,328	$835,258
Bristol	21	246	$28,002
Middlebury	54	580	$253,407
Montpelier	108	1,669	$360,297
Morrisville	Not Available	Not Available	Not Available
Newport City	Not Available	Not Available	Not Available
Poultney	25	365	$21,151
Randolph	96	1,404	$167,028
Rutland City	10	133	$18,252
Saint Albans	236	2,770	$192,563
Saint Johnsbury	257	5,871	$343,637
Springfield	9	147	$73,405
Vergennes	2	23	$23,795
Waterbury	9	131	$14,146
White River Junction	39	589	$59,599
Wilmington	1	9	$644
Windsor	47	505	$36,542
Winooski	27	406	$25,637
Totals:	**1,276**	**19,377**	**$2,687,602**
New Town Centers[1]			
Colchester	0	6	$336
South Burlington	9	134	$8,150
Totals:	**9**	**140**	**$8,486**
Growth Centers[1]			
Bennington	1,645	26,782	$2,057,244
Colchester	0	6	$336
Hartford	471	5,291	$681,109
Montpelier	244	3,568	$1,021,878
Saint Albans	441	6,016	$414,077
Williston	187	2,727	$175,481
Totals:	**2,989**	**44,388**	**$4,350,126**

[1]Vermont Agency of Commerce & Community Development - Department of Housing and Community Development (http://accd.vermont.gov/strong_communities/opportunities/revitalization/downtown)

[2] Present Value of Lifetime Reductions in Electric, Fuel, and Water Costs from all Efficiency Vermont programs and services accomplished through both Energy Efficiency Charge and Thermal Energy and Process Fuels funding.

Reporting is dependant on the ability to map electric utility premises to these designated areas. Efficiency Vermont is coordinating with the affected electric distribution utilities and the Vermont Agency of Commerce and Community Development to receive the data needed to complete the mapping process. Burlington is excluded from reporting because it is not part of Efficiency Vermont service territory.

6. List of Support Documents, by Service

6. List of Support Documents, by Service

6.1 Documents, Corresponding Markets, and 2015 Status

#	Document Name / Title	Major Market	Status	Date
108	Solar Water Heating Initiative	RES	Draft	3/11/2015
109	Low Income Determination Procedures	LI, LIMF	Draft	3/12/2015
110	Retail Product Platform	RES	Draft	5/5/2015

Key:

RES Residential

LI Low Income

LIMF Low Income Multi-Family

7. Definitions and End Notes

7.1 DATA TABLES OVERVIEW

1 – Section **7.2** includes a list of definitions for items in the data tables.

2 – Data items for which data are not available are labeled "nav." Data items for which data are not applicable are labeled "nap" or "NA"

3 – Except where noted, Efficiency Vermont expenditures data in this report were incurred during the period January 1, 2015, through December 31, 2015. Similarly, measure savings are for measures installed during the period January 1, 2015, through December 31, 2015.

4 – Efficiency Vermont Resource Acquisition and Development and Support Services costs include an operations fee of 1.8% and are reported in all applicable cost categories. The operations fees for "Incentives to Participants" are reported with the "Administration" costs.

5 – Data for "Incentives to Participants" in Tables **3.8, 3.9, 3.14, 3.16, 3.19, 3.22 3.24, 4.1, 4.4, 4.7, 4.10, 4.13, 4.16, 4.19, 4.22, 4.25, 4.28,** and **5.1.1** are based on financial data from Vermont Energy Investment Corporation's (VEIC) accounting system. "Participant Incentives Paid" on all other tables are based on data entered in Efficiency Vermont's Knowledge-based Information Technology Tool (KITT) tracking system and exclude non-measure customer incentives.

6 – "Annualized MWh Savings (adjusted for measure life)," "Winter Coincident Peak kW Savings (adjusted for measure life)," and "Summer Coincident Peak kW Savings (adjusted for measure life)" on Tables **3.8** and **3.9** are provided for reference only. These data exclude savings for measures that have reached the end of their specified lifetime.

7.2 DEFINITIONS AND REPORT TEMPLATE

The table templates that appear in the 2015 Efficiency Vermont Savings Claim Summary/Annual Report were developed as a collaborative effort between Efficiency Vermont and the Vermont Public Service Department. Note that there are two major table formats, one for the markets and services summary and the other for breakdowns by end use, county, and utility savings.

The definitions of the data reported in these tables follow. The numbers in parentheses on the template refer to the footnoted definitions that immediately follow.

	Prior Year	Current Year 2015	Cumulative starting 1/1/15	Cumulative starting 1/1/12
	(1)	(2)	(3)	(4)
# participants with installations	(5)			
Operating Costs				
Administration	(6)			
Programs and Implementation	(7)			
Strategy and Planning	(8)			
Subtotal Operating Costs	(9)			
Technical Assistance Costs				
Services to Participants	(10)			
Services to Trade Allies	(11)			
Subtotal Technical Assistance Costs	(12)			
Support Services				
Transportation	(13)			
Targeted Implementation	(14)			
Consulting	(15)			
Marketing	(16)			
Evaluation, Monitoring & Verification	(17)			
Policy & Public Affairs	(18)			
Information Technology	(19)			
Customer Support	(20)			
Business Development	(21)			
Subtotal Support Services Costs	(22)			
Incentive Costs				
Incentives to Participants	(23)			
Incentives to Trade Allies	(24)			
Subtotal Incentive Costs	(25)			
Total Efficiency Vermont Costs	(26)			
Total Participant Costs	(27)			
Total Third Party Costs	(28)			
Total Resource Acquisition Costs	(29)			
Annualized MWh Savings	(30)			
Lifetime MWh Savings	(31)			
TRB Savings (2015 $)	(32)			
Winter Coincident Peak kW Savings	(33)			
Summer Coincident Peak kW Savings	(34)			
Annualized MWh Savings/Participant	(35)			
Weighted Lifetime	(36)			
Annualized MWh Savings (adjusted for measure life)		(37)		
Winter Coincident Peak kW Savings (adjusted for measure life)		(38)		
Summer Coincident Peak kW Savings (adjusted for measure life)		(39)		

X.X.X. Breakdown Report

End Use or Utility or County	# of Participants	Net MWh Saved	Gross MWh Saved	Net Lifetime MWh Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBtu	Net TRB Saved	Participant Incentives Paid	Participant Costs
	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)

Footnotes for the report table templates:

(1) Activity for the prior reporting year.

(2) Activity for the current reporting year. For savings, the figure reported is estimated savings for measures actually implemented for the current reporting period. Savings are reported in at generation and net of all approved adjustment factors, except as otherwise noted.

(3) Data reported for the current performance period (2015-2017) starting January 1, 2015 through December 31, 2015.

(4) Data reported for ALL performance periods (2012 - current) starting January 1, 2012 through December 31, 2015.

(5) Number of customers with installed measures. The "# participants with installations" is counted by summing unique physical locations (sites) where efficiency measures have been installed for the reporting period. For multifamily, the "# of participants with installations" is counted by summing the number of individual rental units. Beginning in 1/1/2015 a new methodology is used to count Efficient Products (EP) lighting buydown participants. For all EP lighting buydown and upstream measures without customer specific data such as name, address, etc., participants are counted using the total quantity of lighting products and/or units sold. For Residential EP buydown the count is 12 lighting units per participant and for Commercial EP buydown the count is 25 lighting units per participant. Under "Cumulative starting 1/1/12" customers are counted once, regardless of the number of times the customer participates in Efficiency Vermont services throughout the period. Whenever Efficiency Vermont works in collaboration with other providers of efficiency services, the same participants may be counted and reported by more than one organization. As a result, total statewide participation might be less than the sum of all the organizations' reported participants.

(6) Costs include Efficiency Vermont senior management, budgeting and financial oversight.

(7) Costs directly associated with the operations and implementation of resource acquisition activities.

(8) Costs related to program design, planning, screening, and other similar strategy and planning functions.

(9) Subtotal of all operating costs detailed in the categories above: (6) + (7) + (8).

(10) Costs related to technical assistance, conducting technical analyses, preparing packages of efficiency measures, contract management, and project follow-up provided to customers.

(11) Costs related to technical assistance, educational, or other support services provided to entities other than individual participants, such as trade allies, manufacturers, wholesalers, builders, and architects.

(12) Subtotal reflecting total technical assistance costs: (10) + (11).

(13) Costs related to support provided by the VEIC transportation division.

14) Costs related to support provided by the VEIC targeted implementation division.

(15) Costs related to support provided by the VEIC consulting division.

(16) Costs related to support provided by the VEIC marketing division.

(17) Costs related to support provided by the VEIC evaluation, monitoring and verification division.

(18) Costs related to support provided by the VEIC policy and public affairs division.

(19) Costs related to support provided by the VEIC information technology division.

(20) Costs related to support provided by the VEIC customer support division.

(21) Costs related to support provided by the VEIC business development division.

(22) Subtotal reflecting total cost support services costs: (13) + (14) + (15) + (16) + (17) + (18) + (19) + (20) + (21).

(23) Direct payments to participants to defray the costs of specific efficiency measures.

(24) Incentives paid to manufacturers, wholesalers, builders, retailers, or other non-customer stakeholders that do not defray the costs of specific efficiency measures.

(25) Subtotal reflecting total incentive costs: (23) + (24).

(26) Total costs incurred by Efficiency Vermont. All costs are in nominal dollars: (9) + (12) + (22) + (25).

(27) Total costs incurred by participants and related to Efficiency Vermont or utility activities. This category includes the participant contribution to the capital costs of installed measures and to specific demand-side-management (DSM)-related services, such as technical assistance or energy ratings.

(28) Total costs incurred by third parties (i.e., entities other than Efficiency Vermont, utilities, and participants) and directly related to Efficiency Vermont or utility DSM activities. This category includes contributions by third parties to the capital costs of installed measures and to specific DSM-related services, such as technical assistance or energy ratings.

(29) Total cost of Resource Acquisition: (26) + (27) + (28).

(30) Annualized MWh savings at generation, net of all approved adjustment factors (e.g., free riders, spillover, line loss) for measures installed during the current reporting period.

(31) Lifetime estimated MWh savings for measures installed during the current reporting year, at generation and net of all approved adjustment factors. (Typically, this value is calculated by multiplying estimated annualized savings by the life of the measure.)

(32) Total Resource Benefits (TRB) savings for measures installed during the current reporting year. TRB includes gross electric benefits, fossil fuel savings, and water savings. TRB is stated in 2015 dollars throughout the report. Whenever Efficiency Vermont works in collaboration with other providers of efficiency services, the same savings

might be counted and reported by more than one organization. As a result, the total statewide savings might be less than the sum of all the organizations' reported savings.

(33) Estimated impact of measures at time of winter system peak, at generation, net of all approved adjustment factors.

(34) Estimated impact of measures at time of summer system peak, at generation, net of all approved adjustment factors.

(35) Annualized MWh savings per participant, net at generation: (30) ÷ (5).

(36) Average lifetime, in years, of measures weighted by savings: (31) ÷ (30).

(37) Adjusted annualized MWh savings at generation and net of all approved adjustment factors for measures installed during the current reporting period. These data include savings for measures that have not yet expired during the reporting period and exclude savings for measures that have reached the end of their specified lifetime.

(38) Adjusted impact of measures at time of winter system peak, at generation, net of all approved adjustment factors. These data include savings for measures that have not yet expired during the reporting period and exclude savings for measures that have reached the end of their specified lifetime.

(39) Adjusted impact of measures at time of summer system peak, at generation, net of all approved adjustment factors. These data include savings for measures that have not yet expired during the reporting period and exclude savings for measures that have reached the end of their specified lifetime.

Items 40-49 reflect installed measures for the current reporting period.

(40) Number of participants with installed measures for the "End Use, Utility and County Breakdown." Whenever Efficiency Vermont works in collaboration with other providers of efficiency services, the same participants may be counted and reported by more than one organization. As a result, total statewide participation might be less than the sum of all the organizations' reported participants.

(41) Annualized MWh savings at generation, net of all approved adjustment factors for measures installed during the current reporting period. This is the same number as reported on line (30).

(42) Annualized MWh savings, gross at the customer meter.

(43) Lifetime estimated MWh savings for measures installed during the current reporting period, at generation and net of all approved adjustment factors. This is the same number as that reported on line (31).

(44) Estimated impact of measures at time of winter system peak, at generation, net of all approved adjustment factors. This is the same number as that reported on line (33).

(45) Estimated impact of measures at time of summer system peak, at generation, net of all approved adjustment factors. This is the same number as that reported on line (34).

(46) MMBtu estimated to be saved (positive) or used (negative) for alternative fuels as a result of measures installed in the end use.

(47) Estimated TRB savings for measures installed during the current reporting period, net of all approved adjustment factors. This is the same number as that reported on line (32).

(48) Incentives paid by Efficiency Vermont to participants for measures installed during the current reporting period. This is the same number as that reported on line (23).

(49) Costs incurred by participants and related to Efficiency Vermont or utility activities. This is the same number as that reported on line (27).

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