2016 Annual Report

DECEMBER 2017

Efficiency Vermont

This report is submitted to the Vermont Public Utility Commission and to the Vermont Public Service Department, in fulfillment of the regulatory requirement for submitting Efficiency Vermont's Annual Report 2016.

A message from Liz Gamache, Director, Efficiency Vermont [1]

A More Affordable, Economically Strong Vermont

In 2016, we were privileged to help more than 81,900 Vermonters lower their energy bills and make their buildings more comfortable and more affordable. Together, these Vermonters cut their yearly energy costs by over $17.9 million.

It was gratifying work for all of us at Efficiency Vermont, and here's why: All those energy savings add up to a more affordable, economically strong Vermont, for everyone. That means more viable downtowns and farms; schools and municipal buildings operating at less cost to taxpayers; employers with lower overhead; and quality housing that costs less to live in. It also means green jobs at local businesses that Vermonters turn to for efficient goods and services.

Just as important to us all is the fact that **less power has to be generated when Vermonters save electricity. That lowers the need for costly new power infrastructure**. Less generation also translates to less power-plant pollution, safeguarding our state's environment for future generations, protecting farmland, and maintaining the natural beauty that draws tourism dollars to our state.

In the pages that follow, you'll see the stories of just a few of the people and places we served in 2016. On behalf of everyone at Efficiency Vermont, I'm very pleased to present this 2016 overview of our work in service to all Vermonters.

[1] Liz Gamache was Director of Efficiency Vermont during the period covered by this report.

How Efficiency Vermont Helped Strengthen Our State in 2016

130,678 MWh[2] of electricity saved

131,562 MMBtu[3] of thermal energy saved

$75,100,000

Net lifetime value of efficiency investments Vermonters made in 2016

Avoided pollutants

871,602 tons
Carbon dioxide

415 tons
Nitrogen oxides

918 tons
Sulfur oxides

Every $1 invested in efficiency = $2 saved[4]

[2] Megawatt Hours.
[3] Million British thermal units of heat output.
[4] Investments are Efficiency Vermont's and participants' 2016 costs. Savings are participants' lifetime savings from 2016 investments. Customer Credit is not included.

Bringing Savings & Quality Home

2016 was the year Kathryn Roosa, of Barnet, took control of her high heating bills and chilly rooms. She called a local contractor in Efficiency Vermont's statewide Home Performance with ENERGY STAR® network. Kathryn now enjoys a cozy home that saves her more than $500 per year on energy because of new insulation and a water heater upgrade. Kathryn's low-interest Heat Saver Loan, from a Vermont credit union, and financial incentives from Efficiency Vermont brought this cost-effective project into financial reach.

Home improvement was just one of the ways that Vermonters saved energy through Efficiency Vermont's residential services in 2016. Energy-saving appliances and lighting products were easy to find in stores thanks to Efficiency Vermont's partnerships with retailers. Homeowners built high-performance houses because of Efficiency Vermont's technical support for architects and builders. And renters had lower energy bills and more comfortable housing thanks to Efficiency Vermont's services to rental property owners.

73,554

Households served

$9,088,392

Saved by households

Kathryn Roosa is saving over $500 per year on energy in her Barnet home.

"The house is dramatically more comfortable year-round and the project reduced heating-season energy use by 50%. **I am grateful for the role of Efficiency Vermont in helping this house**, built early in the 19th century, to continue as a livable home amid the energy challenges of the 21st century!"

Kathryn Roosa, Barnet

McKnight Lane was developed by Addison County Community Trust. Partners included Cathedral Square Corporation, the Vermont Housing & Conservation Board, Pill-Maharam Architects of Shelburne, and modular home manufacturer Vermod of Wilder.

"Zero-energy modular homes are incredibly inexpensive to operate. They not only provide superior energy performance, comfort, air quality, and livability but also represent a homeownership asset built for long-term resiliency and value."

Craig Peltier, Director of Asset Management and Project Design, Vermont Housing & Conservation Board

Cutting Costs for Low-Income Vermonters

In 2016, the town of Waltham became the site of a pioneering approach to affordable housing. On the grounds of a former mobile home park, a new neighborhood was built, consisting entirely of rental homes with zero energy costs. The McKnight Lane community features 14 superinsulated, sturdy modular homes designed to be comfortable in any season. Efficiency Vermont provided technical guidance in the design and installation of these Vermont-built homes that use very little energy, thanks to efficient lighting, appliances, heating, and ventilation systems, and an airtight shell. The units are designed to produce as much energy as they use each year, via rooftop solar panels. At the close of 2016, 50 zero-energy or zero-energy-ready modular homes were owned or rented by Vermonters throughout the state.

Two in 10 Vermonters–125,000 people–live in fuel poverty, spending more than 10% of their income on energy.[5] Fuel poverty can mean choosing between staying warm in the winter and having enough food. That's why Efficiency Vermont works with affordable housing and service providers to help build energy-saving new homes and to improve the efficiency of existing homes for low-income Vermonters.

$497,427

Saved by low-income Vermonters

[5] *Energy Costs and Burdens in Vermont: Burdensome for Whom?* The Institute for Energy and the Environment at Vermont Law School, December 2014.

8,341

Businesses served

$8,798,715

Saved by businesses

Strengthening Vermont Employers

In 2016, Rutland manufacturer Questech Corporation cut its annual energy costs by more than $20,000 by tackling a big electricity user: Its oversized dust collection system. Working with Efficiency Vermont to identify the most cost-effective solution, Questech significantly downsized the system and installed innovative controls. These controls save energy by turning the system on only when needed and adjusting speeds to match varying dust-collection needs.

This cost-saving improvement is just the latest that Questech has made over the years with the help of a designated account manager from Efficiency Vermont. Questech's account manager stays aware of the company's priorities over time, giving objective advice on the best approaches for its needs and guidance for long-term energy management. Efficiency Vermont provides these customized solutions for the largest energy users in the state—such as manufacturers, hospitals, and colleges—as well as services to meet the particular needs of Vermont's small and medium-sized businesses. Efficiency Vermont also lends its expertise to help cut energy use in specialized processes such as dairy farming, maple sugaring, snowmaking, commercial food preparation, and others.

Doug Croteau, senior engineer for Questech Corporation, where 55 Vermonters are employed in the manufacture of decorative cast stone and metal tiles in Rutland.

"Efficiency Vermont provides the expertise and tools to help us make the right decisions at the right time, and they assist us throughout the project process. **Without Efficiency Vermont, there is a high likelihood that these projects would not have been implemented**. Our energy savings from those projects are paying for other process improvements, making us even more competitive."

Doug Croteau, senior engineer,
Questech Corporation

Boosting Community Revitalization

When Efficiency Vermont put out a call for towns to join a new community-wide energy-saving effort, Randolph was among the first to sign on. In the ensuing months, Efficiency Vermont delivered on-site energy consultations, workshops, and public presentations to Randolph business operators, residents, and contractors. By the end of 2016, efficiency projects were expected to cut annual energy costs in the Randolph area by $33,000. And community members had a new level of awareness of how to deepen their savings going forward.

Designed to benefit towns and surrounding farms engaged in economic revitalization, this initiative also served the Barre, Bennington, and Hartford/White River Junction areas in 2016. Thanks to the successful launch of this approach, Efficiency Vermont will expand to additional communities in 2017.

"The availability and affordability of energy is a vital part of a community's economic vitality, from the role it plays in the comfort and affordability of housing to the operating costs of local businesses. We are very excited to be working to help raise awareness of what Efficiency Vermont has to offer our community."

Julie Iffland, Executive Director,
Randolph Area Community Development Corporation

Vermonters engaged in workshops and events in Efficiency Vermont's community-wide initiatives.

Helping to Build Vermont's Green Economy

People in Derby have known for years that they can turn to store owner-operators Richard and Jesica Counter for quality goods at the local Sears. What the Counters' customers might not know is that this store is at the cutting edge of Vermont's growing green economy. The Derby Sears is one of Efficiency Vermont's partnering retailers, distinguishing the Counters and their staff as knowledgeable sellers of the best in efficiency at affordable prices.

Efficiency purchases give a competitive edge to retailers, wholesalers, and service providers throughout the state. Efficiency Vermont coordinates with these businesses to lower consumer prices, delivers promotional support, and provides technical information about efficient technologies. It's a winning formula for everybody, as Vermonters can easily find the efficiency resources they need while benefitting trusted local businesses.

693
Equipment suppliers

303
Retailers

937
Contractor companies

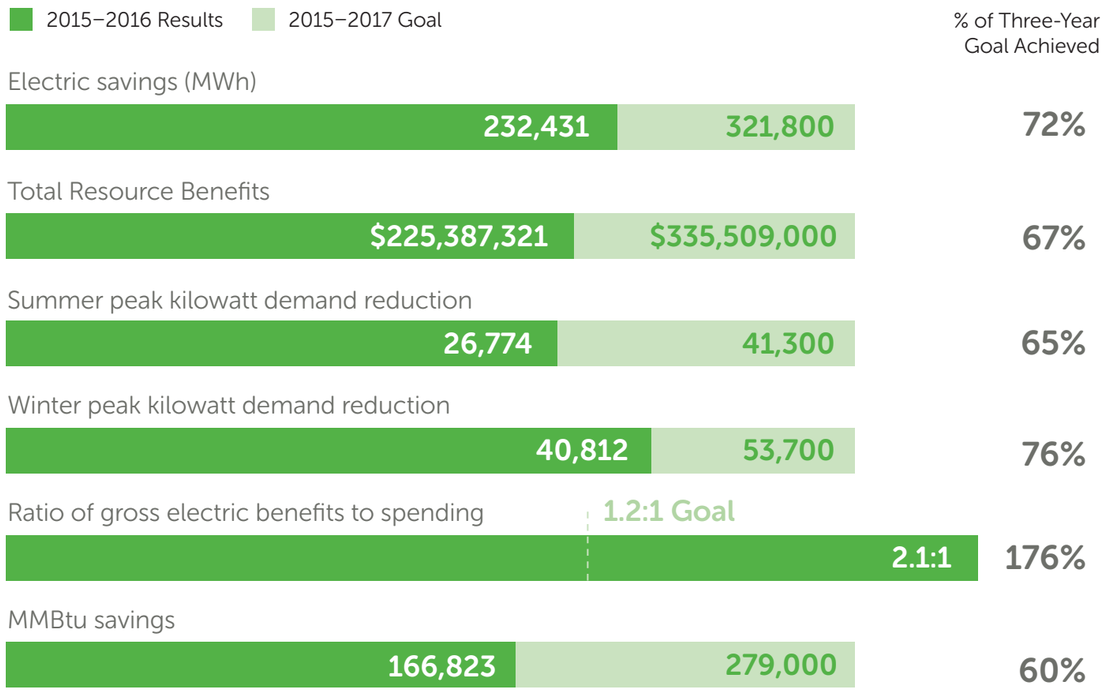
164
Building design firms

"We know we're stocking the best when Efficiency Vermont puts their name on it. Efficiency Vermont does the legwork, they know which products do the job. **The Efficiency Vermont name is like a stamp of quality for the product and for my business."**

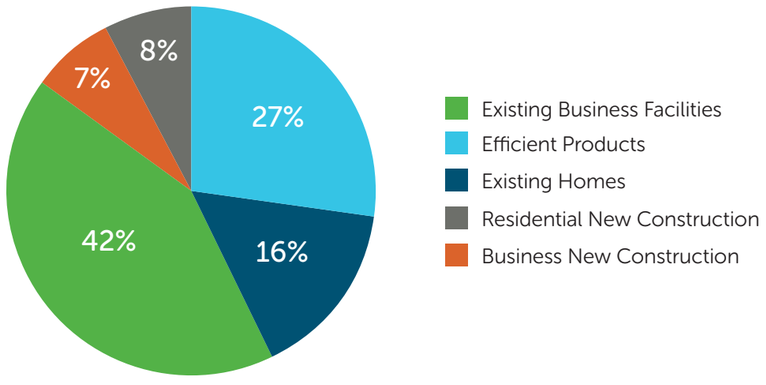
Richard Counter, Owner-Operator, Sears, Derby

Efficiency Vermont partnering retailers Richard and Jesica Counter, Sears, Derby

Progress Toward 2015–2017 Goals[6]



2016 Budget Breakdown by Major Market



The Saving Power of Efficiency

2.4¢/kWh[7]

Cost of saving electricity with efficiency

VS

9.5¢/kWh

Cost of supplying electricity

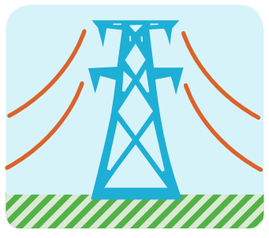
$14.90/MMBtu[8]

Cost of saving fossil fuel with efficiency

VS

$17.83/MMBtu

Cost of supplying fossil fuel



Percentage of Vermont's 2016 electric needs met by efficiency[9]

15.5%

[7] This is the levelized net resource cost of electric efficiency, taking into account participating customers' costs and savings as well as Efficiency Vermont's cost of delivery, which was 4.2 cents/kWh.

[8] This is the levelized net resource cost of thermal energy and process fuel efficiency, taking into account participating customers' costs and savings as well as Efficiency Vermont's cost of delivery, which was $5.52/MMBtu.

[9] This shows the lasting impact of efficiency savings from Efficiency Vermont's 2000 launch through 2016. This figure includes results from Efficiency Vermont, Burlington Electric Department, Customer Credit, the Green Mountain Power Energy Efficiency Fund, and the Green Mountain Power Community Energy & Efficiency Development Fund.

Annual Report 2016

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2. 2016 SERVICES

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In 2016, 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.

2.1 THERMAL ENERGY AND PROCESS FUEL EFFICIENCY SERVICES

Efficiency Vermont provided both electric efficiency and thermal energy and process fuel (TEPF) efficiency services. TEPF services were provided through the following:

- Efficiency Vermont's statewide Efficiency Excellence Network, providing training to contractors with expertise in these areas of focus: electrical systems, heating / ventilation / air conditioning (HVAC), refrigeration, heat pumps, home construction, and commercial and residential thermal-shell improvements
- Technical information and financial incentives for high-efficiency residential and commercial heating equipment, including biomass systems and certain efficient oil and propane systems
- Coordination with affordable housing providers, 3E Thermal, and Vermont's Weatherization Program in service 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).

2.2 SERVICES TO EXISTING BUSINESS FACILITIES

Existing Vermont businesses, institutions, and municipalities working with Efficiency Vermont in 2016 saved an approximate total of 53,000 megawatt hours (MWhs) and 46,000 million British thermal units (MMBtus) from 3,400 projects, delivering Total Resource Benefits of $52.4million to approximately 2,300 customers. The average anticipated return on investment for efficiency improvements in existing commercial facilities in 2016 was 43% per year. Highlights of efforts in existing buildings follow.

2.2.1 VERMONT'S LARGEST ENERGY USERS

To serve the state's 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 are detailed below.

Account Management
Designated Efficiency Vermont staff 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 served 193 businesses through Account Management, garnering a combined expected annual savings of $4.27 million from measures completed in 2016. 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
- Provided energy usage data analysis and helped customers in assessing and utilizing their own energy usage data
- Assisted customers with peak electricity use management and system optimization
- Supported businesses in understanding and utilizing best practices in energy use management
- Helped businesses engage in continuous energy improvement (CEI)[10], which helps customers look holistically at their energy use to obtain sustainable energy savings
- Organized Best Practices Exchange events delivering industry-specific energy savings information and providing customers with opportunities to learn from their peers in Vermont
- Facilitated energy Kaizen events, applying continuous quality improvement practices to energy management.

2.2.2 Small and Medium-Sized Businesses

Efficiency Vermont designed and implemented services addressing the particular needs of Vermont businesses using up to 1,000 MWh per year that are not served under Efficiency Vermont's targeted market initiatives (discussed in Section 2.2.3). Efficiency Vermont provided:

- Direct customer engagement and Account Management to help businesses identify and prioritize savings opportunities, to provide guidance through the course of energy-saving projects, and to help businesses manage energy use over time.
- 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.
- Engagement through the Efficiency Vermont Efficiency Excellence Network of contractors (discussed in Section 2.4.3).
- Education through strategic outreach via numerous avenues, including direct mail, media placements, Efficiency Vermont's *Business Solutions* newsletter, chambers of

[10] CEI efforts in 2016 were delivered as a pilot service, described in Section 2.4.10 Resource Acquisition Research & Development.

commerce, business associations, trade associations, planning commissions, economic development groups, business-focused events, and utility partners.

2.2.3 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. A sample of 2016 activities in selected targeted markets follows:

- State Buildings: The State Energy Management Program completed its first year. This is a partnership between Efficiency Vermont and the Vermont Department of Buildings and General Services, bringing energy savings to State-managed facilities.
- Hospitals: Efficiency Vermont's long-standing work in this sector resulted in a hospital achieving ENERGY STAR certification, bringing the total number of Vermont hospitals with this distinction to three.
- Ski Areas: Several resorts adopted the Snowmaking Energy Index, collecting real-time data in order to inform equipment optimization and energy management.
- Agriculture: More than 50 maple producers installed reverse osmosis systems, greatly reducing the energy needed to create maple syrup.
- Municipalities: More than 25 towns completed conversions of municipal streetlights to LEDs.

2.2.4 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's 2016 activities included the below.

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 high-quality, efficient indoor and outdoor lighting equipment and approaches, including: 1) light-emitting diode (LED) technologies, 2) lighting controls, and 3) efficient lighting design
- 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 to lighting designers and to contractors through the Efficiency Excellence Network
- 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 (CEE), Design Lights Consortium, ENERGY STAR, Northeast Energy Efficiency Partnerships (NEEP), and U.S. Department of Energy.

Heating, Ventilation, Air Conditioning, and Refrigeration
Efficiency Vermont's 2016 efforts included both direct customer and upstream partnering activities designed to increase the installation of high-efficiency equipment and the optimization of entire systems. Targeted technologies included high-performance circulator pumps, motors, refrigeration, variable frequency drives, and heating systems, including heat-pump water heating and space heating / cooling. Efficiency Vermont collaborated with Green Mountain Power (GMP) in the promotion of heat pump technologies in GMP's service territory. A discussion of ongoing upstream efforts can be found in Section 2.4.4.

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; engagement with small and medium-sized industrial businesses; supply chain partnerships designed 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 intended to deepen market knowledge, to further develop internal processes, and to increase customer engagement and savings. In 2016, Efficiency Vermont launched an initiative designed to increase the adoption of variable frequency drives by simplifying the customer experience.

2.3 SERVICES TO HOMES

2.3.1 EXISTING MARKET-RATE HOMES

Single-Family Homes
In 2016, the U.S. Environmental Protection Agency honored Efficiency Vermont with the ENERGY STAR Partner of the Year—Sustained Excellence award, recognizing leadership in energy efficiency and ongoing support of Home Performance with ENERGY STAR.

Each year, Efficiency Vermont supports a network of between 65 and 70 independent Home Performance with ENERGY STAR contractors, who are trained and certified to perform energy efficiency home improvements. In 2016, Efficiency Vermont provided:

- Tiered financial incentives, and financing through lending institutions, for homeowners who completed projects with certified contractors

- Financial incentives to contractors for audit reporting
- Coordination with VGS and BED regarding Home Performance with ENERGY STAR projects in their respective service territories
- Support by phone to help customers 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
- Contractor services, discussed in Section 2.4.3.

Efficiency Vermont also delivered community-based initiatives, such as the 2016 statewide Button Up campaign, designed to motivate home weatherization and adoption of energy-efficient products. This effort was undertaken in partnership with BED, GMP, Washington Electric Cooperative (WEC), Vermont Electric Cooperative (VEC), Capstone Community Action, Vermont Energy & Climate Action Network, Neighborworks of Western Vermont, and local retailers. Further discussion of community-based activities can be found in Section 2.4.6.

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.

2.3.2 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 2016, 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
- Distribution of efficient lighting through multiple partners, including the Vermont Foodbank, Northeast Kingdom Council on Aging, Northeast Kingdom Human Services, Lamoille County Mental Health Services, 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
- Increased 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).

2.4 ACTIVITIES IN SERVICE TO MULTIPLE CUSTOMER SECTORS

While serving specific markets, as described above, 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, 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.

2.4.1 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 construction tradespeople. Efficiency Vermont also engaged in efforts targeting developers,

equipment suppliers, installation contractors, commissioning agents, appraisers, lenders, and real estate agents. Lastly, Efficiency Vermont worked with 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. Efficiency Vermont recognized and publicized exceptional achievement in new construction through its annual *Best of the Best* awards.

Business New Construction
Efficiency Vermont delivered services to encourage a comprehensive approach to efficient design, integrating energy efficiency decisions and including energy goals as part of the overall construction strategy from the earliest stages of a project. Services included:

- Technical assistance throughout design, construction, and post-construction phases
- Tiered services for specific building performance levels, including net zero
- Post-occupancy engagement with building owners to identify ongoing savings opportunities.

Residential New Construction
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 in meeting and exceeding Vermont Residential Building Energy Standards while promoting low-load and net-zero building practices, Efficiency Vermont provided services in support of the construction of homes meeting specific levels of energy performance:

- Efficiency Vermont Certified: Homes exceeding Vermont code requirements and meeting Efficiency Vermont prescriptive requirements for energy efficiency. ENERGY STAR certification and home energy ratings were offered as options.
- 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.

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 2.5.1.

2.4.2 Retail Efficient Product Services

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. 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, appliances, heating and cooling equipment, dehumidifiers, pool pumps, and electronics. Efficiency Vermont also provided services to encourage buyers of heat pump technologies to purchase efficient models. Further discussion of activities supporting adoption of heat pump equipment, for residential and commercial use, is in Section 2.4.4.

Support included rebates, buy-downs and markdowns at the manufacturer and retail level, point-of-purchase information, advertising, and promotional and public information activities. 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. Efficiency Vermont continued to play a role in regional and national efforts regarding efficient product specification and emerging products of benefit to Vermont through its engagement with NEEP, CEE, and the U.S. Environmental Protection Agency's Retail Products Platform teams.

2.4.3 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 2.5.1). Efficiency Vermont recognized and publicized exceptional achievement by certified contractors through its annual *Best of the Best* awards for efficient retrofit projects.

Efficiency Vermont also continued to coordinate and expand the Efficiency Excellence Network (EEN) of residential construction contractors and commercial and residential electrical, HVAC, refrigeration, Home Performance with ENERGY STAR, and heat pump contractors. Through the EEN, contractors received technical training that enabled them to identify and promote efficiency opportunities for their customers. By the close of 2016, the network included 137 contractor companies encompassing 167 company branches.

2.4.4 Services to Equipment Supply-Chain Partners and Technicians

In 2016, Efficiency Vermont continued:

- 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
- Creation of opportunities to earn education credits for HVAC system designers, equipment installers, and service technicians through Efficiency Vermont's Better Buildings by Design Conference (see Section 2.5.1)
- Training for commercial and residential contractors through the EEN (described in Section 2.4.3).

2.4.5 Trade Association Partnerships

In addition to engaging in direct customer interaction, Efficiency Vermont worked with 30 professional and trade member organizations representing a wide range of constituents. Efficiency Vermont was able to inform business customers about best practices via these trusted channels and with targeted messaging resonating with each market's particular priorities.

2.4.6 Community-Based Activities

Throughout the state, Efficiency Vermont engaged with Vermonters in their communities, in efforts to reduce energy use in their businesses, homes, institutions, and municipal facilities. Efforts included:

- Targeted Communities, a community-wide, cross-market pilot initiative in an initial four towns, in coordination with the Vermont Department of Housing and Community

Development, community development corporations, local municipalities, schools, and businesses. The results from these activities are reported in 5.2.1.

- Evolve Panton, in collaboration with GMP, focusing on municipal, commercial, agricultural, and home energy use reductions
- Vermont Community Energy Partnership grants, enabling service providers to help their low-income clients reduce energy use
- Services in coordination with town energy committees, local organizations, and businesses to increase the impact of existing local energy-saving efforts or to support interest in new efforts. Offered services included planning guidance, promotions, educational workshops, and volunteer training.

2.4.7 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 2016.

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 were: 1) negotiated cooperative promotions that provided 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 lending institutions to ensure the availability of cost-effective financing that includes energy savings in the repayment formula. 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, which customers acquired through lending institutions:

- Business Energy Loan: Increasing businesses' opportunities to finance efficiency projects.

- 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.
- Heat Saver Loan / EEN Partnership: Financing for heating system replacements and comprehensive thermal efficiency projects through Efficiency Vermont's EEN and in partnership with the Vermont Department of Public Service (DPS).
- Property Assessed Clean Energy (PACE): Home loans secured by a property lien. Participation was very low in 2016; contractors and homeowners showed a strong preference for the Heat Saver Loan over PACE. Efficiency Vermont launched an evaluation of the offering.
- Agricultural Energy Efficiency Loan: Providing agricultural facilities with low-interest financing.
- Energy Efficiency Loan Guarantee Program: loans made by financial institutions to Vermont businesses for energy efficiency improvements, in partnership with the Vermont Economic Development Authority. This offering was discontinued in 2016 due to lack of participation.

Financing Education and Analysis

To enable Vermonters to be aware of, understand, and make decisions regarding financing options, Efficiency Vermont provided information through community workshops, by phone, through its website, and in media placements. Efficiency Vermont also continued to provide financial analysis for custom projects, tools helping retrofit contractors to present financing options to their customers, and to make discussion of cost-effective financing a standard part of service to customers lacking capital for beneficial upgrades.

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 2.5.5.

2.4.8 Coordination with Distribution Utilities

In 2016 Efficiency Vermont:

- Executed shared services agreements with BED and VGS to ensure coordination in the implementation of efficiency services and special initiatives.
- Contracted with 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.
- With distribution utilities, filed a joint proposal to the Vermont Public Utility Commission (Commission or PUC), with recommendations regarding implementation of Renewable Energy Standard, Tier 3—Energy Transformation Projects. The proposal

emphasized a collaborative and cooperative approach among distribution utilities and energy efficiency utilities.

- Acted as the administrator for the Tier 3 Technical Advisory Group through a collection of individual contracts with each participating electric distribution utility.
- Executed an individual Memorandum of Understanding with VEC outlining collaboration and coordination on a Renewable Energy Standard, Tier 3—Energy Transformation to increase the use of cold-climate heat pumps.
- Continued its coordination with WEC.

2.4.9 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 NEEP, the New Buildings Institute, CEE, the Construction Specifications Institute, 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.

2.4.10 Resource Acquisition Research & Development

In 2016, Efficiency Vermont continued 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 2016 activities follow.

Home Energy Reports (HERs)

The HERs pilot initiative provided 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 2016, Efficiency Vermont engaged in evaluation and redesign to improve the customer experience.

Continuous Energy Improvement (CEI) Pilot

CEI was undertaken as an approach to reducing energy intensity over time for large commercial and industrial customers through behavioral and operational changes. The pilot entered 2016 with two cohorts: 1) large commercial and industrial facilities, hospitals, and ski areas; and 2) a cohort focused on industrial ammonia refrigeration. Efficiency Vermont provided participants with training, software tools, and metering equipment for real-time energy use feedback and management, and assessments of energy-saving opportunities. A third-party evaluation of Cohort 1 efforts showed that the pilot proved cost-effective only for a measure life of three years or more, which is the time period in which most program costs have already been incurred. Efficiency Vermont established plans for a second evaluation and began the identification of candidates for a third cohort—made up of manufacturers in southern Vermont—to be launched in 2017. Results from 2016 activities were expected to be available in 2017.

Research into Behavior Savings in New Markets

To identify and test methods of capturing behavior savings, Efficiency Vermont focused on three research initiatives:

- CEI Lite—researching the cost-effectiveness, for small and medium-sized businesses, of lower-cost versions of approaches proven successful with the state's largest energy users. At year-end, initiative design was on target toward early 2017 implementation with an identified treatment group of 5,000 customers.
- Realizing Behavior Changes in Multifamily Buildings—partnering with up to five housing authorities to deliver energy efficiency services to renters with limited resources. In 2016, the scope of the initiative was drafted and housing organizations were selected. Set to begin in early 2017, the pilot initiative will use new measurement and verification approaches. Some homes will be equipped with in-home displays, which will enable researchers to compare savings in these homes to results in non-equipped homes.
- Digital Engagement—measuring the efficacy of engagement platforms and fitting them into overall Efficiency Vermont data strategies. In 2016, Efficiency Vermont incorporated digital engagement into all behavioral efforts, developed a tool providing account managed business customers with usage-based recommendations for conservation measures, and investigated a customer-facing knowledge platform providing customized energy-saving education to businesses.

Data Analytics

Using Efficiency Vermont's integrated data storage and analytics platform, this research aimed to develop and implement streamlined processes in order to deliver recommendations and savings estimates, and to verify results with customers. Efficiency Vermont also investigated the power of this information—and the power of the tools developed to understand it—to enhance customer engagement, motivate customer action, and capture energy savings. In 2016, after investigation and incorporation of new tools, Efficiency Vermont utilized the analytics platform to successfully measure response rates for a direct-mail marketing campaign and to determine savings opportunities in a smart-thermostat

initiative. Owing to the unavailability of advanced metering infrastructure data from the data warehouse vendor during a month of the fourth quarter, progress was delayed in regard to several tools and services. Efficiency Vermont's ongoing efforts to integrate customer data were planned to continue in 2017.

2.5 DEVELOPMENT AND SUPPORT SERVICES

Efficiency Vermont engaged in efforts that built customer awareness and knowledge, helped shape energy and efficiency policies, and identified 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, institutions, and communities.

2.5.1 EDUCATION AND TRAINING

Codes and Standards Support—Residential and Commercial / Industrial
Efficiency Vermont provided technical support and information about Vermont's commercial and residential energy codes to Vermont construction tradespeople, building design professionals, property owners, municipal officials, and building supply firms. Information was provided through training sessions held throughout the state—including workshops on Vermont's Building Energy Standards supported by a $20,000 grant from the Vermont DPS—code handbooks and materials such as the *Municipal Guide for Vermont Energy Codes*, and through conversations with callers to the Energy Code Assistance Center. Efficiency Vermont also provided input to the DPS and the Vermont Natural Resources Board on commercial code "stretch" guidelines for Act 250 projects.

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 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. 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.

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 2016 included:

- Provision of information and 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 a range of events, including home shows, community events, fairs, and trade shows.

Better Buildings by Design Conference

Efficiency Vermont presented its annual Better Buildings by Design Conference in February. This two-day gathering is the Northeast'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 energy-efficient techniques and technologies for new and renovated high-performance residential and commercial buildings, mechanical systems, and lighting. 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 and services for the design / build industry.

Customer Support

Vermonters continued to have easy access to expert guidance and information 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.

2.5.2 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 2016, Efficiency Vermont:

- Launched a collaboration with the U.S. Department of Energy's Lawrence Berkeley National Laboratory, to test weather-normalization models measuring savings through the analysis of whole building data
- Assessed customer interactions with the Customer Support Department to optimize customer education and outreach by identify trending issues and topics by year and season
- Developed and implemented a prototype sub-metering data analysis application, initially focusing on compressed air systems
- Developed a prototype application for predicting future electricity usage
- Developed a customer-level analytics tool and transitioned its use into resource acquisition activities
- Engaged in the development, refinement, and exploration of multiple applications, methods, and tools.

Technology Demonstrations

Efficiency Vermont engaged in activities intended 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 2016 activities follows.

Pump Efficiency Testing—measuring the costs and benefits of ceramic epoxy coatings in preventing the notable electricity waste caused by centrifugal pump corrosion. In the second quarter of 2016, Efficiency Vermont determined that a meaningful study was not practical, owing to limited available funding.

Air-to-Water Heat Pump Evaluation—investigating the feasibility of air-to-water heat pumps in HVAC and hot water applications for high-performance modular homes. In the third quarter, the equipment manufacturer informed Efficiency Vermont that the product intended for this evaluation would not be produced. This project was terminated, with an intention to revisit discussion of the effort in 2017.

Energy Management Systems for Dairy Farms—exploring how energy management systems (typically used in processing and manufacturing facilities) may be integrated with herd management systems and other monitoring equipment for optimal energy performance and herd health. Preliminary research showed the systems to be too costly and the market to be insufficiently interested to justify pursuit of this research. However, initial efforts led to additional conversations with dairy equipment manufacturers, resulting in the development of a pilot initiative for 2017, involving energy-saving controls for dairy barn ventilation systems.

Greenhouse Alternative Heating Study—determining the cost-effectiveness and savings potential of such heating methods as biomass and heat pump technologies in year-round Vermont greenhouses. Through the pursuit of this research, Efficiency Vermont learned that thermostats, which could potentially have a significant impact on fuel use, were not widely used by growers. As a result, Efficiency Vermont determined that basic guidance and education about thermostat use was a necessary precursor to a study of alternative heating technologies. The study was put on hold. Benefits of the research undertaken include the creation of a new intake form that will enable Efficiency Vermont to have more informed conversations with customers.

Low-Income Solar Plus Battery Storage—testing the hypothesis that solar-plus-storage systems offer a cost-effective approach to providing added resiliency to low-income housing and to reducing peak usage. The study aimed to assess installation cost and complexity, verify homes' resiliency in power outages, and verify related distribution utility interactive capability regarding peak-use reduction. Efficiency Vermont, in collaboration with GMP, Clean Energy Group, Cathedral Square, and Addison County Community Trust, installed battery-storage and occupant-accessed energy management systems in 14 new, high-performance modular homes in Waltham. Each home was a low-income rental unit equipped with a solar roof system. The batteries will be remotely accessible to GMP, which will manage battery usage as needed to lower peak demand. Efficiency Vermont will remotely monitor battery performance. Efficiency Vermont launched this project with funding initially slated for the Pump Efficiency Testing study, which was found to be impractical to pursue with available funding.

Green Home Pilot—working to create a low-cost, simplified pathway to a Vermont-specific green building standard for new homes. Drawing upon existing green building standards, external stakeholder input, and internal resources, researchers created a standard called Eco Homes. This standard targets reduced embodied energy, operating energy, water usage, and environmental impacts, while setting the stage for a healthful indoor environment. Designed as an add-on option to Efficiency Vermont's residential new construction services, Eco Homes was launched as a pilot initiative. Uptake was lower than expected—one project was expected to be completed in 2016—so Efficiency Vermont obtained feedback, adapted requirements, and shifted focus to education and outreach, focusing on occupant health. Efficiency Vermont created a presentation on the health impact of construction practices and initiated a study of ventilation and indoor air quality for the 2016–2017 heating season.

Aligning Modern Wood Heating and Strategic Electrification with Geographic Realities—determining whether the integration of a sustainable biomass strategy into broader strategic energy planning might help address the costs incurred from rapid thermal and vehicle electrification in areas without adequate grid structure. Step one of this study was to determine the feasibility of mapping Vermont's electric distribution system loads, to identify constraints or excesses. Step two was intended to be a targeted effort to promote adoption of the non-fossil-fuel heating technology most beneficial under a given load condition. Research was concluded in June of 2016, owing to insufficient availability of statewide

distribution system capacity data. Efforts revealed that although the idea of gathering and analyzing system-wide capacity data is gaining interest in numerous areas in the Northeast, it may be premature in Vermont, where views are mixed about the speed at which electrification, and associated distribution-level planning needs, will grow. Insights gained through this effort, including elements needed for successful completion of this analysis, informed a research project planned for 2017.

Electric Transportation Efficiency Study—developing a foundation for electrified transportation efficiency in anticipation of robust growth in electric vehicle (EV) use in Vermont. This study was undertaken to: create a baseline of electrified transportation energy usage in Vermont; develop forecast scenarios of electrified transportation over the next 10 years; monitor the development of ENERGY STAR products associated with electrified transportation; generate a prioritized list of transportation efficiency program measures, with initial savings estimates; and provide a venue for discussion and development of electrified transportation efficiency programs. Research revealed that: 1) Vermont's transportation sector is not yet sufficiently electrified to justify development of an electric transportation efficiency program; 2) to determine when the market is ready for broader programs, it will be important to track EV adoption rates, penetration levels, and electricity consumption from EVs; and 3) based on today's market realities, EV efficiency measures would not pass the level of cost-effectiveness screening used by Vermont energy efficiency utilities. This may change with expected reductions in battery prices and increases in EV availability in coming years.

Predictive Control Strategies for Building Management Systems—creating and measuring the impact of energy-saving predictive control sequences for building management systems, using forecasted outdoor temperatures to determine when a heating system comes on. Efficiency Vermont applied historical weather data for nine medium-sized and large commercial buildings to measure the energy savings potential of a predictive control sequence. Efficiency Vermont also analyzed preliminary results of modeling undertaken by an engineering firm for a large building and found a promising forecast of savings in the 4–6% range. A second phase of this study will take place in 2017.

Thermal Envelope Monitoring in High-Performance Modular Homes—evaluating the performance of high-performance modular homes to determine whether super-insulated assemblies accumulate moisture over time. Efficiency Vermont installed data loggers in 10 homes to enable remote monitoring, in real time, of building performance, temperature, humidity, and wood moisture content. By the end of 2016, none of those homes showed accumulation of moisture in the exterior sheathing, and the moisture levels were well within the safe range. Over the next two years, Efficiency Vermont will evaluate the data to assess the performance of each thermal envelope detail.

Integrated Lighting Controls Study—determining the validity, in Vermont market conditions, of lighting-control manufacturers' claims about savings, ease of use, ease of commissioning, and customer satisfaction. This study was designed to survey customers, engage with installation contractors, and meter light output before and after installation to determine

accurate savings. The newness of the technology presented numerous challenges. For example, the time frame of product availability was longer than manufacturers originally projected. Also, stocking and shipping patterns tended to accommodate high-volume cities; low-volume sellers were challenged to justify using shelf space for slow-moving lighting controls rather than less expensive products. The sample set from which the study was to draw data was limited. The study shifted focus to the state of the market and next steps for research. This effort set the groundwork for additional research on this technology to take place in 2017.

Horticultural Energy Systems Study—identifying best practices to reduce the high energy burden in indoor horticultural operations in Vermont. The methods for this study were engaging with the Design Lights Consortium to understand the lighting component of these operations; benchmarking a few of the existing indoor growing facilities in Vermont; and creating a best practices guide to enable an integrated energy-efficient design. Major findings: 1) the number of Vermont indoor growing operations is low; 2) energy efficiency efforts are primarily focused on lighting, which accounts for less than half of energy use at these facilities; and 3) there is no consensus as to what the baseline should be for grow lights, and most energy savings calculations are completed on an individual basis even in states where indoor growing is popular. This study revealed limited energy savings opportunities through efficiency efforts in indoor horticultural operations in Vermont under current market conditions.

2.5.3 Planning and Reporting

Annual Plans and External Reporting

Efficiency Vermont prepared and submitted required documents to the Vermont PUC, 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.

- 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 (DRP)
In 2016, Vermont Energy Investment Corporation (VEIC), as administrator of Efficiency Vermont, engaged with the DPS, PUC, and other Vermont Energy Efficiency Utilities (EEUs) in planning and improvement efforts for the next DRP. VEIC initiated modeling of scenarios defined by a PUC order and engaged in collaborative modeling review and development with the DPS and PUC.

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 2016, Efficiency Vermont participated in VSPC's four subcommittees: Coordinating, Forecasting, Geographic Targeting, and Public Participation.

Independent System Operator–New England (ISO-NE) 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 94.2 megawatts of peak capacity savings from Efficiency Vermont activity in the FCM in 2016. This led to approximately $3.55 million in revenues that provided funds for investment in thermal efficiency services. Efficiency Vermont's 2016 FCM commitments represented Vermont's single largest peak capacity provider, increasing grid capacity by lowering demand.

2.5.4 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—performing 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 2016, Efficiency Vermont assessed data for 2014 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—working 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: 8 seconds.
     - Average percentage of calls answered by a live agent during normal business hours: 86%.
     - Average percentage of abandoned calls: 3%.
  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: Two complaints out of 81,934 participants.
     - Percentage of complaints closed within 12 business days of initial complaint: 100%.

2.5.5 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 Comprehensive Energy Plan goals, and other relevant energy policy goals, and included:

- Working as a resource for policy makers, regulators, businesses, and community organizations
- 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 wanting 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.

Regulatory Affairs (Non-Demand Resources Plan)

In 2016, 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
- Coordinate with Vermont's other EEUs and weatherization agencies to provide seamless, cost-effective statewide energy efficiency services
- 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
- 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
- Participate in PUC proceedings with 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

- Participate in New England Power Pool discussions on the integration of markets and public policy
- Research regulatory policies to support best practices for efficiency programs
- Ensure regulatory compliance of Efficiency Vermont internal policies.

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 greater levels of new resources without additional ratepayer investment.

In 2016, Efficiency Vermont:

- Engaged in development of new financing products, and improvement of existing financial products, for Vermont's homeowners and businesses. Received a grant of $20,000 from the DPS to support energy code training for contractors of residential and business new construction.
- 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.

2.5.6 Information Technology

Efficiency Vermont continued to align technical and information technology staff in a Data and Technical Services division. This division consisted of staff of Strategic Technology Services; Reporting and Analytics; and Evaluation, Measurement, and Verification groups for the purpose of common management of key data-related processes. Efforts were focused in three areas:

1. Reporting and Analytics—maintaining a long-standing focus on database management, data warehousing, data quality, and business intelligence development and support to meeting Efficiency Vermont's regulatory, operational, program, and financial reporting needs.
2. Strategic Technology Services—deepening Efficiency Vermont's ability to serve Vermonters through software development, data analytic tools, data acquisition, and integration, as well as continuing best practice data stewardship to ensure customer privacy, security, and alignment with customer data usage preferences.

3. Portfolio Screening Tool—development of a forecasting and screening tool application to replace the existing portfolio screening tool. This application will leverage other development efforts—including those connected to the new state screening tool, the TRM application, and the calculation engine—and will support future planning and forecasting needs as well as the DRP Proceeding.

2.5.7 General Administration

In support of the efforts discussed in this report, Efficiency Vermont continued to focus on key activities across the organization, including preparing for and conducting general staff meetings, the coordination of service implementation across different functions; and management, monitoring, and internal communication of overall performance and spending.

3. RESOURCES AND DEVELOPMENT AND SUPPORT SERVICES RESULTS

The tables presented in this section contain information on results from both Resource Acquisition and Development and Support Services 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	$50,968,728	$5,976,168	$44,415,803	$576,757
Annual Budget Estimate[2]	$51,606,280	$6,781,875	$43,327,505	$1,496,900
Unspent Annual Budget Estimate	$637,552	$805,707	($1,088,298)	$920,143
% Annual Budget Estimate Unspent	1.2%	11.9%	-2.5%	61.5%
Other Costs and Commitments				
Participant Costs Year to Date	$41,149,981	$12,099,548	$29,038,459	$11,975
Third Party Costs Year to Date	$108,362	$243,202	($134,840)	$0
Savings Results				
MWh Year to Date	130,678	-3,812	127,433	7,057
MWh Cumulative starting 1/1/15	236,777	-4,673	232,431	9,019
Winter Peak Coincident kW Savings Results				
Winter Coincident Peak kW Year to Date	21,901	-740	22,624	17
Winter Coincident Peak kW Cumulative Starting 1/1/15	40,365	-787	40,812	340
Summer Peak Coincident kW Savings Results				
Summer Coincident Peak kW Year to Date	14,709	-198	14,889	17
Summer Coincident Peak kW Cumulative Starting 1/1/15	26,856	-258	26,774	340
TRB Savings Results				
TRB Year to Date	$133,951,744	$19,898,486	$113,527,659	$525,599
TRB Cumulative Starting 1/1/15	$265,161,395	$37,412,671	$225,387,321	$2,361,403
MMBtu Savings Results				
MMBtu Year to Date	131,562	119,810	11,752	0
MMBtu Cumulative Starting 1/1/15	224,261	166,823	57,439	0
Participation				
Partic.w/ installs Year to Date	81,936	4,029	77,906	1
Partic.w/ installs Cumulative starting 1/1/15	170,030	6,663	163,366	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 2016[1]	Actual Current Year 2016	%	Budget 2015-2017	Actual 2015-2017	%
RESOURCE ACQUISITION						
Electric Efficiency Funds Activities						
Business Sector	$ 20,440,100	$ 22,177,977	109%	$ 81,805,167	$ 43,879,365	54%
Customer Credit	$ 1,496,300	$ 575,810	38%	$ 3,027,960	$ 1,078,129	36%
Residential Sector	$ 19,400,000	$ 19,205,316	99%	$ 45,561,683	$ 39,469,446	87%
Research & Development	$ 2,721,300	$ 2,247,326	83%	$ 5,004,067	$ 3,323,935	66%
Total Electric Efficiency Funds Activities	**$ 44,057,700**	**$ 44,206,429**	**100%**	**$ 135,398,877**	**$ 87,750,875**	**65%**
Thermal Energy and Process Fuels Funds Activities						
Business Sector	$ 1,665,490	$ 1,147,600	69%	$ 5,050,671	$ 1,702,289	34%
Residential Sector	$ 4,996,470	$ 4,722,899	95%	$ 15,152,012	$ 9,466,266	62%
Total Thermal Energy and Process Fuels Funds Activities	**$ 6,661,960**	**$ 5,870,499**	**88%**	**$ 20,202,683**	**$ 11,168,555**	**55%**
TOTAL RESOURCE ACQUISITION	**$ 50,719,660**	**$ 50,076,928**	**99%**	**$ 155,601,560**	**$ 98,919,430**	**64%**
DEVELOPMENT & SUPPORT SERVICES						
Education and Training	$ 687,638	$ 587,061	85%	$ 1,996,880	$ 1,211,937	61%
Applied Research and Development	$ 417,848	$ 410,384	98%	$ 1,217,000	$ 773,298	64%
Planning and Reporting	$ 569,201	$ 529,515	93%	$ 1,535,690	$ 880,500	57%
Evaluation	$ 812,892	$ 823,219	101%	$ 2,492,000	$ 1,630,773	65%
Policy and Public Affairs	$ 565,894	$ 569,295	101%	$ 1,998,000	$ 1,422,887	71%
Information Technology	$ 1,627,671	$ 1,591,713	98%	$ 4,368,000	$ 2,918,744	67%
General Administration	$ 257,060	$ 239,665	93%	$ 772,830	$ 497,516	64%
TOTAL DEVELOPMENT & SUPPORT SERVICES	**$ 4,938,203**	**$ 4,750,852**	**96%**	**$ 14,380,400**	**$ 9,335,655**	**65%**
Smart Grid (2014 Carryover)	**$ -**	**$ -**	**0%**	**$ 18,652**	**$ 18,652**	**100%**
Operations Fee	$ 1,001,800	$ 986,900	99%	$ 3,060,100	$ 1,948,871	64%
SUB-TOTAL COSTS (prior to Performance-Based Fee)	**$ 56,659,663**	**$ 55,814,680**	**99%**	**$ 173,060,712**	**$ 110,222,608**	**64%**
Performance-Based Fee	$ -	$ -	0%	$ 4,507,758	$ -	0%
TOTAL COSTS (including Performance-Based Fee)	**$ 56,659,663**	**$ 55,814,680**	**99%**	**$ 177,568,470**	**$ 110,222,608**	**62%**

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

In accordance with both statutory and Vermont Public Service Board 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). 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—bid these expected demand savings into the FCM on behalf of the State of Vermont. 2016 FCM activities are discussed in Section 2.5.3.

3.3 Electric Performance Indicators & Minimum Requirements

QPI#	Title	Performance Indicator / Milestone	Target	Status	%
1	Electricity Savings	Annual incremental net MWh savings	321,800	232,431	72%
2	Total Resource Benefits	Present worth of lifetime electric, fossil, and water benefits	$335,509,000	$225,387,321	67%
3	Statewide Summer Peak Demand Savings	Cumulative net summer peak demand (kW) savings	41,300	26,774	65%
4	Statewide Winter Peak Demand Savings	Cumulative net winter peak demand (kW) savings	53,700	40,812	76%
5	Business Comprehensiveness	Savings as a % of baseline year usage for Companies who complete Business Existing Facilities efficiency projects	11.0%	8.4%	76%
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%	20%	48%
7	Market Transformation Business	Number of energy efficiency measure supply chain partners linked to at least three (completed) projects	500	485	97%

MPR#	Title	Minimum Requirement	Minimum	Status	%
8	Minimum Electric Benefits	Total electric benefits divided by total costs	1.2	2.1	176%
9	Threshold (or minimum acceptable) Level of Participation by Residential Customers	Total residential sector spending	$32,500,000	$40,179,843	124%
10	Threshold (or minimum acceptable) Level of Participation by Low-Income Households	Total low-income single and multifamily services spending	$10,500,000	$7,136,786	68%
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	2,790	140%
12	Geographic Equity	TRB for each geographic area is greater than values shown on Geo-Equity Table	12	10	83%
13	Program Efficiency	Meet all pre-determined milestones on schedule	6	4	67%
14	Service Quality	Achieve 92 or more metric points	92	55	60%
15	Resource Acquisition Performance Period Spending	Total spending for a three-year performance period (including applicable operations fees) is less than threshold	$136,181,694	$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	$14,788,290	$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	$11,626,982	121%
Bennington	$11,755,268	$17,171,762	146%
Caledonia	$7,381,188	$14,666,045	199%
Chittenden	$34,376,179	$61,291,433	178%
Essex/Orleans	$8,700,557	$10,727,641	123%
Franklin	$14,422,521	$11,268,225	78%
Grand Isle/Lamoille	$9,155,602	$10,414,653	114%
Orange	$5,985,825	$6,733,687	112%
Rutland	$19,819,855	$20,991,425	106%
Washington	$16,412,881	$26,942,918	164%
Windham	$16,951,229	$16,855,973	99%
Windsor	$16,433,720	$16,696,576	102%
Total	$170,964,610	$225,387,321	132%

[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	Annual incremental net MMBtu savings	279,000	166,823	60%
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%	60%	136%
		c. Percent of households (premises) with both shell measures and heating system measures installed, within contiguous calendar years	16%	13%	81%

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%	84.8%	136%
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%	20.0%	118%
5	Performance Period Spending	Total spending for a three-year performance period (including applicable operations fees) is less than threshold	$20,818,062	$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	Points Earned % of Total Possible
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	8	12	67%
4	Average answer time shall be ≤ 15 seconds per call	quarterly	8.0	1	8	12	67%
5	Average percentage of calls answered shall be ≥ 85%	quarterly	86.0%	1	8	12	67%
6	Average percentage of abandoned calls shall be ≤ 3%	quarterly	3.0%	1	8	12	67%
7	Percentage of complaint follow-up call attempted by end of next business day shall be ≥ 95%	quarterly	100.0%	1	8	12	67%
8	Percentage of complaints closed within 12 business days of initial complaint call shall be ≥ 95%	quarterly	100.0%	1	7	12	58%
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	0.002%	4	8	12	67%
	Totals			**13**	**55**	**108**	**51%**

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	$42,714,391	$42,137,633	$22,586,621	$19,551,012	$3,395,333	$19,191,288	$3,649,817	$12,504,217	$3,396,978	$576,757
Annual Budget Estimate[1]	$42,059,100	$40,557,200	$20,808,000	$19,749,200	$3,054,000	$17,754,000	$3,054,000	$12,826,800	$3,868,400	$1,501,900
Unspent Annual Budget Estimate	($655,291)	($1,580,433)	($1,778,621)	$198,188	($341,333)	($1,437,288)	($595,817)	$322,583	$471,422	$925,143
% Annual Budget Estimate Unspent	-2%	-4%	-9%	1%	-11%	-8%	-20%	3%	12%	62%
Savings Results										
MWh Year to Date	134,490	127,433	62,604	64,829	9,559	53,044	3,135	59,691	2,002	7,057
MWh Cumulative starting 1/1/15	241,450	232,431	112,177	120,254	20,468	91,709	5,175	110,572	4,506	9,019
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	72%	51%	120%	68%	48%	91%	131%	47%	nap
Winter Coincident Peak kW Year to Date	22,642	22,624	9,927	12,697	1,346	8,581	684	11,605	408	17
Winter Coincident Peak kW Cumulative starting 1/1/15	41,152	40,812	16,973	23,840	3,049	13,923	1,098	21,795	946	340
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	76%	55%	105%	87%	50%	100%	110%	56%	nap
Summer Coincident Peak kW Year to Date	14,907	14,889	8,646	6,243	1,523	7,124	370	5,722	151	17
Summer Coincident Peak kW Cumulative starting 1/1/15	27,113	26,774	15,139	11,635	3,386	11,753	586	10,719	330	340
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	65%	54%	86%	75%	50%	84%	90%	37%	nap
TRB Year to Date	$114,053,258	$113,527,659	$58,444,309	$55,083,350	$13,954,683	$44,489,626	$9,030,620	$44,571,059	$1,481,670	$525,599
TRB Cumulative starting 1/1/15	$227,748,725	$225,387,321	$122,346,903	$103,040,418	$42,199,030	$80,147,873	$16,227,185	$83,126,182	$3,687,051	$2,361,403
3-Year TRB Goal	nap	$345,132,000	$242,954,968	$102,177,033	$49,086,842	$193,868,126	$28,915,966	$62,639,252	$10,621,815	nap
% of 3-Year TRB Goal	nap	65%	50%	101%	86%	41%	56%	133%	35%	nap
Associated Benefits										
MMBtu Year to Date	11,752	11,752	2,967	8,785	10,006	(7,039)	18,191	(8,567)	(839)	0
MMBtu Cumulative starting 1/1/15	57,439	57,439	43,424	14,015	50,107	(6,683)	31,184	(16,462)	(708)	0
Participation										
Partic.w/ installs Year to Date	77,907	77,906	8,073	69,833	273	7,800	1,838	66,184	1,811	1
Partic.w/ installs Cumulative starting 1/1/15	163,368	163,366	10,049	153,317	507	9,542	3,101	144,441	5,775	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 2016	Cumulative starting 1/1/15	Cumulative starting 1/1/12
# participants with installations	87,026	77,907	163,367	294,461
Operating Costs				
Administration	$3,896,867	$3,963,324	$7,860,191	$13,967,320
Programs and Implementation	$5,313,289	$4,883,591	$10,196,880	$24,486,751
Strategy and Planning	$1,462,919	$1,510,748	$2,973,667	$7,626,601
Subtotal Operating Costs	**$10,673,075**	**$10,357,663**	**$21,030,738**	**$46,080,672**
Technical Assistance Costs				
Services to Participants	$5,958,546	$5,615,040	$11,573,586	$25,169,761
Services to Trade Allies	$978,234	$1,493,664	$2,471,898	$4,768,365
Subtotal Technical Assistance Costs	**$6,936,779**	**$7,108,704**	**$14,045,483**	**$29,938,126**
Support Services				
Business Development	$14,044	$0	$14,044	$65,109
Business Solutions Group	$0	$256,683	$256,683	$256,683
Consulting	$231,691	$217,085	$448,776	$1,360,058
Customer Support	$188,417	$150,517	$338,934	$1,126,446
Evaluation, Monitoring & Verification	$143,815	$132,340	$276,155	$792,592
Information Technology	$3,286	$10,521	$13,807	$96,218
Marketing	$1,380,143	$1,255,447	$2,635,590	$8,608,696
Policy & Public Affairs	$57,034	$10,493	$67,526	$266,543
Public Relations and Internal Communications	$0	$35,328	$35,328	$35,328
Targeted Implementation	$16,289	$1,032	$17,321	$23,312
Transportation	$2,060	$13,520	$15,580	$20,203
Subtotal Support Services Costs	**$2,036,778**	**$2,082,965**	**$4,119,743**	**$12,651,186**
Incentive Costs				
Incentives to Participants	$23,528,095	$22,641,515	$46,169,610	$102,893,356
Incentives to Trade Allies	$57,362	$523,543	$580,905	$745,879
Subtotal Incentive Costs	**$23,585,457**	**$23,165,058**	**$46,750,515**	**$103,639,235**
Total Efficiency Vermont Costs	**$43,232,091**	**$42,714,390**	**$85,946,480**	**$192,309,220**
Total Participant Costs	$22,743,166	$29,050,434	$51,793,603	$99,426,170
Total Third Party Costs	($72,989)	($134,840)	($207,829)	$2,914,209
Total Resource Acquisition Costs	**$65,902,268**	**$71,629,984**	**$137,532,254**	**$294,649,598**
Annualized MWh Savings	106,959	134,490	241,450	533,513
Lifetime MWh Savings	1,374,091	1,412,913	2,787,004	6,175,179
TRB Savings (2015 $)	$113,695,467	$114,053,258	$227,748,724	517,404,236
Winter Coincident Peak kW Savings	18,511	22,642	41,152	96,413
Summer Coincident Peak kW Savings	12,207	14,907	27,113	63,875
Annualized MWh Savings/Participant	1.229	1.726	1.478	1.812
Weighted Lifetime	12.8	10.5	11.5	11.6

Annualized MWh Savings (adjusted for measure life)	518,528
Winter Coincident Peak kW Savings (adjusted for measure life)	94,294
Summer Coincident Peak kW Savings (adjusted for measure life)	61,238

3.9 Electric Resource Acquisition excluding Customer Credit

	Prior Year	Current Year 2016	Cumulative starting 1/1/15	Cumulative starting 1/1/12
# participants with installations	87,025	77,906	163,366	208,999
Operating Costs				
Administration	$3,842,344	$3,912,725	$7,755,069	$13,723,001
Programs and Implementation	$5,277,871	$4,883,591	$10,161,461	$24,404,816
Strategy and Planning	$1,455,019	$1,510,748	$2,965,767	$7,616,970
Subtotal Operating Costs	**$10,575,234**	**$10,307,064**	**$20,882,298**	**$45,744,787**
Technical Assistance Costs				
Services to Participants	$5,910,978	$5,612,087	$11,523,065	$25,056,105
Services to Trade Allies	$972,533	$1,493,664	$2,466,196	$4,745,339
Subtotal Technical Assistance Costs	**$6,883,511**	**$7,105,751**	**$13,989,262**	**$29,801,444**
Support Services				
Business Development	$13,572	$0	$13,572	$63,998
Business Solutions Group	$0	$256,683	$256,683	$256,683
Consulting	$228,684	$217,085	$445,769	$1,352,920
Customer Support	$184,933	$150,517	$335,450	$1,119,300
Evaluation, Monitoring & Verification	$141,699	$132,340	$274,039	$787,061
Information Technology	$3,191	$10,521	$13,712	$95,572
Marketing	$1,364,099	$1,255,447	$2,619,546	$8,570,317
Policy & Public Affairs	$55,294	$10,493	$65,787	$258,485
Public Relations and Internal Communications	$0	$35,328	$35,328	$35,328
Targeted Implementation	$15,755	$1,032	$16,787	$22,744
Transportation	$2,023	$13,520	$15,543	$20,130
Subtotal Support Services Costs	**$2,009,252**	**$2,082,965**	**$4,092,216**	**$12,582,539**
Incentive Costs				
Incentives to Participants	$23,201,255	$22,641,515	$45,842,770	$99,910,626
Incentives to Trade Allies	$57,362	$338	$57,700	$222,662
Subtotal Incentive Costs	**$23,258,617**	**$22,641,853**	**$45,900,470**	**$100,133,289**
Total Efficiency Vermont Costs	**$42,726,613**	**$42,137,633**	**$84,864,246**	**$188,262,058**
Total Participant Costs	$22,585,458	$29,038,459	$51,623,920	$99,817,125
Total Third Party Costs	($72,989)	($134,840)	($207,829)	$2,914,209
Total Resource Acquisition Costs	**$65,239,082**	**$71,041,252**	**$136,280,337**	**$290,993,392**
Annualized MWh Savings	104,998	127,433	232,431	519,338
Lifetime MWh Savings	1,352,631	1,404,006	2,756,637	6,070,075
TRB Savings (2015 $)	$111,859,662	$113,527,659	$225,387,321	$509,677,382
Winter Coincident Peak kW Savings	18,188	22,624	40,812	95,289
Summer Coincident Peak kW Savings	11,884	14,889	26,774	62,753
Annualized MWh Savings/Participant	1.207	1.636	1.423	2.485
Weighted Lifetime	12.9	11.0	11.9	11.7

Annualized MWh Savings (adjusted for measure life)	504,353
Winter Coincident Peak kW Savings (adjusted for measure life)	93,170
Summer Coincident Peak kW Savings (adjusted for measure life)	60,115

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.	1,515	2,072	1,894	30,360	106	350	33	$2,946,272	$567,095	$687,707
Behavior Change	1	175	156	873	0	0	0	$38,048	$1,000	$50
Cooking and Laundry	3,321	879	776	10,486	202	150	1,745	$2,290,131	$362,838	$678,049
Design Assistance	166	966	853	17,249	113	141	6,836	$2,310,349	$861,268	$1,442,374
Electronics	2,994	1,973	1,722	11,267	212	187	0	$804,438	$156,881	-$63,439
Hot Water Efficiency	2,598	3,421	2,781	44,097	515	280	-4,049	$2,288,726	$1,189,873	$917,286
Hot Water Fuel Switch	18	50	63	1,455	8	4	-185	$59,330	$6,823	$17,525
Industrial Process Eff.	82	8,365	8,342	85,031	1,536	1,005	995	$6,782,610	$1,007,970	$3,334,368
Lighting	66,284	86,879	72,174	888,765	15,688	9,998	-28,039	$63,538,524	$11,758,684	$15,171,044
Motors	1,656	7,064	6,693	87,189	1,167	1,725	2,243	$8,910,676	$1,263,954	$1,845,994
Other Efficiency	1,350	190	178	5,094	24	24	0	$385,231	$370,419	-$168,765
Other Fuel Switch	161	162	179	4,384	40	24	-550	$259,084	$15,515	$15,844
Other Indirect Activity	227	0	0	0	0	0	0	$0	$2,366,114	-$28,721
Refrigeration	3,368	4,480	4,212	54,129	532	612	0	$4,180,361	$1,032,554	$686,885
Space Heat Efficiency	2,071	9,217	8,893	136,694	2,289	193	23,695	$15,243,391	$1,538,498	$3,611,291
Space Heat Fuel Switch	12	471	508	14,136	87	0	-686	$676,807	$32,000	$360,059
Ventilation	1,319	1,082	980	12,773	109	198	9,714	$2,542,647	$109,874	$511,877
Water Conservation	4	-13	-13	23	-1	-2	0	$271,033	$156	$19,031
Totals		127,433	110,392	1,404,006	22,624	14,889	11,752	$113,527,659	$22,641,515	$29,038,459

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	248	297	251	3,400	52	25	-62	$224,183	$70,461	$54,952
Burlington	6	21	20	269	4	2	2	$20,094	$3,183	$2,531
Enosburg Falls	458	877	773	9,970	149	101	-173	$733,400	$398,063	$200,540
Green Mountain	64,483	105,061	90,887	1,150,903	18,476	11,871	12,978	$93,002,137	$18,468,462	$23,561,804
Hardwick	942	871	722	10,130	177	80	-168	$717,365	$173,540	$274,683
Hyde Park	428	557	465	6,114	102	66	-141	$459,683	$81,306	$104,327
Jacksonville	46	100	86	1,044	17	15	-38	$78,908	$15,611	$15,106
Johnson	246	273	227	2,941	55	26	-105	$192,815	$41,932	$41,781
Ludlow	547	2,293	2,067	26,110	635	654	572	$2,886,381	$616,889	$1,186,494
Lyndonville	937	1,316	1,138	14,024	232	173	428	$1,212,522	$250,097	$356,471
Morrisville	1,198	1,676	1,435	17,580	296	178	-311	$1,264,934	$221,462	$318,821
Northfield	259	658	582	7,846	97	82	-6	$603,556	$126,503	$60,309
Orleans	184	208	174	2,137	39	24	-65	$159,428	$40,335	$43,116
Stowe	881	2,255	1,961	23,194	387	335	-320	$1,952,293	$273,758	$517,223
Swanton	858	1,278	1,162	15,042	221	136	-236	$1,082,697	$227,251	$275,261
VT Electric Coop	5,005	8,361	7,303	99,297	1,424	979	-809	$7,608,949	$1,389,329	$1,717,445
Washington Electric	1,180	1,332	1,139	14,005	261	143	206	$1,328,317	$243,334	$307,595
Totals	77,906	127,433	110,392	1,404,006	22,624	14,889	11,752	$113,527,659	$22,641,515	$29,038,459

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	3,317	6,522	5,777	77,964	1,076	806	-578	$6,138,195	$1,225,058	$1,368,327
Bennington	6,609	10,387	8,794	116,791	1,875	1,163	-1,808	$8,672,546	$1,461,513	$2,106,403
Caledonia	3,012	3,651	3,126	39,646	647	425	1,173	$3,362,076	$670,657	$955,322
Chittenden	23,923	35,362	30,410	389,858	5,939	4,194	6,980	$32,116,415	$6,712,938	$9,062,562
Essex	511	642	539	8,592	120	60	-126	$587,676	$122,918	$237,338
Franklin	4,303	7,443	6,674	77,291	1,209	783	328	$6,339,944	$1,490,978	$1,432,788
Grand Isle	576	786	688	8,910	141	88	44	$727,982	$140,617	$210,194
Lamoille	3,572	5,748	4,943	59,246	1,013	724	-1,044	$4,614,985	$786,183	$1,133,117
Orange	2,747	3,610	3,049	42,147	627	405	-721	$3,102,899	$571,801	$544,244
Orleans	3,106	5,371	4,651	64,369	907	649	-1,170	$4,710,667	$760,071	$971,253
Rutland	8,725	15,064	13,096	161,569	2,592	1,611	64	$12,227,563	$2,301,766	$3,234,576
Washington	7,984	14,994	13,043	161,179	2,950	1,621	9,378	$14,678,017	$2,767,932	$3,730,209
Windham	4,191	8,765	7,700	94,330	1,698	897	-419	$7,223,570	$1,642,472	$1,430,746
Windsor	5,330	9,087	7,904	102,115	1,831	1,464	-348	$9,025,125	$1,986,613	$2,621,382
Totals	77,906	127,433	110,392	1,404,006	22,624	14,889	11,752	$113,527,659	$22,641,515	$29,038,459

3.13 Electric Resource Acquisition Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$106,511,945
Fossil Fuel Savings (Costs)	$64,279	$4,978,980
Water Savings (Costs)	$133,247	$2,036,735
Total	**$197,526**	**$113,527,659**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**110,392**	**112,109**	**127,433**
Winter on peak	43,717	44,424	50,998
Winter off peak	34,164	34,591	38,846
Summer on peak	18,052	18,350	21,102
Summer off peak	14,460	14,745	16,499
Coincident Demand Savings (kW)			
Winter	19,979	20,327	22,624
Shoulder	0	0	0
Summer	13,340	13,390	14,889

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**48,178**	**44,416**	**249,310**
Annualized fuel savings (increase) MMBtu Total	**13,687**	**11,752**	**523,103**
LP	4,475	4,231	112,784
NG	13,417	14,036	286,810
Oil/Kerosene	(12,515)	(14,475)	(52,503)
Wood	8,644	8,297	179,546
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$3,159,133**	**$3,369,278**	**$37,598,620**

Net Societal Benefits	$144,385,356

3.14 Electric Business Energy Services Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	2,710	8,073	10,049
Operating Costs			
Administration	$1,900,330	$2,132,621	$4,032,950
Programs and Implementation	$1,872,583	$1,791,171	$3,663,754
Strategy and Planning	$1,201,646	$1,219,488	$2,421,134
Subtotal Operating Costs	**$4,974,558**	**$5,143,280**	**$10,117,838**
Technical Assistance Costs			
Services to Participants	$4,406,159	$3,915,356	$8,321,514
Services to Trade Allies	$600,036	$868,858	$1,468,894
Subtotal Technical Assistance Costs	**$5,006,195**	**$4,784,214**	**$9,790,408**
Support Services			
Business Development	$10,164	$0	$10,164
Business Solutions Group	$0	$140,413	$140,413
Consulting	$95,426	$81,539	$176,965
Customer Support	$75,710	$36,800	$112,510
Evaluation, Monitoring & Verification	$95,064	$75,145	$170,209
Information Technology	$2,070	$5,978	$8,048
Marketing	$346,486	$251,489	$597,975
Policy & Public Affairs	$38,202	$5,338	$43,541
Public Relations and Internal Communications	$0	$17,207	$17,207
Targeted Implementation	$11,515	$586	$12,101
Transportation	$793	$6,413	$7,206
Subtotal Support Services Costs	**$675,431**	**$620,908**	**$1,296,339**
Incentive Costs			
Incentives to Participants	$11,389,887	$12,037,881	$23,427,768
Incentives to Trade Allies	$51,711	$338	$52,049
Subtotal Incentive Costs	**$11,441,598**	**$12,038,219**	**$23,479,817**
Total Efficiency Vermont Costs	**$22,097,782**	**$22,586,621**	**$44,684,403**
Total Participant Costs	$18,404,076	$18,148,624	$36,552,702
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$40,501,857**	**$40,735,244**	**$81,237,105**

Annualized MWh Savings	49,573	62,604	112,177
Lifetime MWh Savings	660,197	718,491	1,378,688
TRB Savings (2015 $)	$63,902,594	$58,444,309	$122,346,903
Winter Coincident Peak kW Savings	7,046	9,927	16,973
Summer Coincident Peak kW Savings	6,492	8,646	15,139
Annualized MWh Savings/Participant	18.293	7.755	11.163
Weighted Lifetime	13.3	11.5	12.3

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.	129	1,584	1,429	23,433	73	259	33	$2,396,397	$289,054	$678,355
Behavior Change	1	175	156	873	0	0	0	$38,048	$1,000	$50
Cooking and Laundry	24	47	43	606	7	8	328	$109,777	$10,513	$34,297
Design Assistance	111	966	853	17,249	113	141	6,836	$2,310,349	$859,953	$1,442,374
Electronics	12	83	74	831	9	12	0	$63,798	$17,684	$13,358
Hot Water Efficiency	13	60	55	747	11	6	168	$83,398	$8,780	$45,679
Hot Water Fuel Switch	1	3	4	51	1	0	-11	$1,244	$0	$500
Industrial Process Eff.	81	8,364	8,342	85,027	1,536	1,005	995	$6,782,217	$1,007,645	$3,334,368
Lighting	7,664	36,902	32,605	418,870	5,490	5,229	-18,818	$29,993,832	$5,908,221	$8,931,276
Motors	145	5,838	5,616	71,015	1,026	1,218	2,208	$7,121,230	$859,553	$1,585,783
Other Efficiency	10	190	178	5,094	24	24	0	$385,231	$39,271	$159,435
Other Fuel Switch	5	70	67	1,620	14	6	-208	$71,528	$856	$4,752
Other Indirect Activity	68	0	0	0	0	0	0	$0	$2,220,777	$109,866
Refrigeration	211	3,932	3,631	48,918	481	548	0	$3,806,218	$592,828	$736,980
Space Heat Efficiency	46	3,121	3,068	22,579	1,011	18	5,113	$2,517,922	$123,402	$445,066
Space Heat Fuel Switch	2	394	441	11,834	47	0	-439	$601,771	$32,000	$316,650
Ventilation	70	889	809	9,736	85	175	6,762	$1,891,512	$66,187	$292,656
Water Conservation	2	-16	-16	8	-2	-2	0	$269,835	$156	$17,179
Totals		62,604	57,353	718,491	9,927	8,646	2,967	$58,444,309	$12,037,881	$18,148,624

3.16 Electric Residential Energy Services Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	84,315	69,833	153,317
Operating Costs			
Administration	$1,942,015	$1,780,105	$3,722,119
Programs and Implementation	$3,405,288	$3,092,420	$6,497,707
Strategy and Planning	$253,373	$291,259	$544,633
Subtotal Operating Costs	**$5,600,676**	**$5,163,784**	**$10,764,459**
Technical Assistance Costs			
Services to Participants	$1,504,819	$1,696,732	$3,201,551
Services to Trade Allies	$372,497	$624,806	$997,303
Subtotal Technical Assistance Costs	**$1,877,316**	**$2,321,538**	**$4,198,853**
Support Services			
Business Development	$3,408	$0	$3,408
Business Solutions Group	$0	$116,270	$116,270
Consulting	$133,258	$135,546	$268,804
Customer Support	$109,223	$113,717	$222,940
Evaluation, Monitoring & Verification	$46,635	$57,195	$103,830
Information Technology	$1,121	$4,543	$5,664
Marketing	$1,017,613	$1,003,958	$2,021,571
Policy & Public Affairs	$17,092	$5,154	$22,246
Public Relations and Internal Communications	$0	$18,121	$18,121
Targeted Implementation	$4,241	$446	$4,686
Transportation	$1,231	$7,107	$8,337
Subtotal Support Services Costs	**$1,333,821**	**$1,462,057**	**$2,795,878**
Incentive Costs			
Incentives to Participants	$11,811,368	$10,603,634	$22,415,002
Incentives to Trade Allies	$5,651	$0	$5,651
Subtotal Incentive Costs	**$11,817,019**	**$10,603,634**	**$22,420,653**
Total Efficiency Vermont Costs	**$20,628,832**	**$19,551,012**	**$40,179,843**
Total Participant Costs	$4,181,382	$10,889,835	$15,071,218
Total Third Party Costs	($72,989)	($134,840)	($207,829)
Total Resource Acquisition Costs	**$24,737,225**	**$30,306,007**	**$55,043,232**
Annualized MWh Savings	55,424	64,829	120,254
Lifetime MWh Savings	692,434	685,515	1,377,949
TRB Savings (2015 $)	$47,957,068	$55,083,350	$103,040,418
Winter Coincident Peak kW Savings	11,142	12,697	23,840
Summer Coincident Peak kW Savings	5,392	6,243	11,635
Annualized MWh Savings/Participant	0.657	0.928	0.784
Weighted Lifetime	12.5	10.6	11.5

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.	1,386	487	464	6,927	33	91	0	$549,874	$278,041	$9,352
Cooking and Laundry	3,297	832	733	9,880	194	142	1,418	$2,180,354	$352,325	$643,752
Design Assistance	55	0	0	0	0	0	0	$0	$1,315	$0
Electronics	2,982	1,890	1,648	10,436	202	175	0	$740,640	$139,197	-$76,797
Hot Water Efficiency	2,585	3,361	2,726	43,350	504	274	-4,217	$2,205,328	$1,181,093	$871,607
Hot Water Fuel Switch	17	47	60	1,403	7	4	-174	$58,086	$6,823	$17,025
Industrial Process Eff.	1	0	0	4	0	0	0	$392	$325	$0
Lighting	58,620	49,977	39,569	469,894	10,198	4,769	-9,221	$33,544,692	$5,850,462	$6,239,768
Motors	1,511	1,226	1,078	16,174	140	507	35	$1,789,446	$404,402	$260,211
Other Efficiency	1,340	0	0	0	0	0	0	$0	$331,148	-$328,200
Other Fuel Switch	156	92	113	2,765	26	18	-342	$187,556	$14,659	$11,092
Other Indirect Activity	159	0	0	0	0	0	0	$0	$145,337	-$138,587
Refrigeration	3,157	548	581	5,212	51	65	0	$374,143	$439,726	-$50,095
Space Heat Efficiency	2,025	6,095	5,824	114,115	1,277	175	18,582	$12,725,470	$1,415,096	$3,166,225
Space Heat Fuel Switch	10	77	68	2,302	40	0	-246	$75,036	$0	$43,409
Ventilation	1,249	193	172	3,037	24	23	2,952	$651,135	$43,687	$219,222
Water Conservation	2	3	3	16	0	0	0	$1,197	$0	$1,852
Totals		64,829	53,039	685,515	12,697	6,243	8,785	$55,083,350	$10,603,634	$10,889,835

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	$5,976,168	$1,168,257	$4,807,911	$114,647	$1,053,610	$7,999	$668,803	$4,131,109
Annual Budget Estimate[1]	$6,781,875	$1,695,469	$5,086,406	$27,107	$1,668,362	$2,552	$432,682	$4,651,172
Unspent Annual Budget Estimate	$805,707	$527,212	$278,495	($87,540)	$614,752	($5,446)	($236,122)	$520,063
% Annual Budget Estimate Unspent	12%	31%	5%	-323%	37%	-213%	-55%	11%
Savings Results								
MMBtu Year to Date	119,810	61,073	58,737	8,420	52,653	213	37,028	21,496
MMBtu Cumulative starting 1/1/15	166,823	77,139	89,684	9,719	67,420	1,571	44,482	43,631
3-Year MMBtu Goal	279,000	171,300	107,700	28,400	142,900	2,300	14,700	90,700
% of 3-Year MMBtu Goal	60%	45%	83%	34%	47%	68%	303%	48%
Associated Electric Benefits								
MWh Year to Date	(3,812)	286	(4,099)	114	172	(0)	(4,584)	486
MWh Cumulative starting 1/1/15	(4,673)	323	(4,996)	113	210	(1)	(5,565)	571
Winter Coincident Peak kW Year to Date	(740)	41	(781)	7	34	(0)	(1,026)	245
Winter Coincident Peak kW Cumulative starting 1/1/15	(787)	67	(854)	6	61	(0)	(1,141)	287
Summer Coincident Peak kW Year to Date	(198)	21	(219)	10	11	0	(218)	(1)
Summer Coincident Peak kW Cumulative starting 1/1/15	(258)	22	(279)	10	12	0	(276)	(3)
Participation								
Partic.w/ installs Year to Date	4,029	308	3,721	46	262	71	1,101	2,549
Partic.w/ installs Cumulative starting 1/1/15	6,663	559	6,104	62	497	72	1,359	4,673

[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 2016	Cumulative starting 1/1/15
# participants with installations	3,031	4,029	6,663
Operating Costs			
Administration	$387,133	$591,111	$978,244
Programs and Implementation	$1,289,173	$909,649	$2,198,822
Strategy and Planning	$156,481	$136,353	$292,834
Subtotal Operating Costs	**$1,832,787**	**$1,637,113**	**$3,469,900**
Technical Assistance Costs			
Services to Participants	$421,649	$381,294	$802,943
Services to Trade Allies	$89	$32,320	$32,409
Subtotal Technical Assistance Costs	**$421,738**	**$413,614**	**$835,352**
Support Services			
Business Development	$1,324	$0	$1,324
Business Solutions Group	$0	$40,279	$40,279
Consulting	$111,191	$83,407	$194,598
Customer Support	$90,617	$122,684	$213,302
Evaluation, Monitoring & Verification	$10,315	$4,647	$14,962
Information Technology	$893	$320	$1,213
Marketing	$372,098	$449,129	$821,227
Policy & Public Affairs	$5,759	$1,283	$7,042
Public Relations and Internal Communications	$0	$4,898	$4,898
Targeted Implementation	$1,500	$313	$1,813
Transportation	$418	$228	$646
Subtotal Support Services Costs	**$594,116**	**$707,189**	**$1,301,305**
Incentive Costs			
Incentives to Participants	$2,519,761	$3,185,052	$5,704,813
Incentives to Trade Allies	$25,000	$33,200	$58,200
Subtotal Incentive Costs	**$2,544,761**	**$3,218,252**	**$5,763,013**
Total Efficiency Vermont Costs	**$5,393,402**	**$5,976,168**	**$11,369,570**
Total Participant Costs	$10,549,169	$12,099,548	$22,648,717
Total Third Party Costs	$162,796	$243,202	$405,998
Total Resource Acquisition Costs	**$16,105,367**	**$18,318,918**	**$34,424,285**
Annualized MMBtu Savings	47,013	119,810	166,823
Lifetime MMBtu Savings	823,610	1,704,282	2,527,892
TRB Savings (2015 $)	$17,514,185	$19,898,486	$37,412,671
Annualized MMBtu Savings/Participant	15.511	29.737	25.037
Weighted Lifetime	17.5	14.2	15.2

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	51	3	3	39	0	1	779	$155,349	$32,923	$73,426
Design Assistance	6	0	0	0	0	0	0	$0	$89,740	$78,512
Hot Water Efficiency	686	-926	-741	-12,043	-140	-75	9,420	$1,155,092	$317,903	-$115,385
Hot Water Fuel Switch	7	1	1	9	0	0	62	$15,137	$0	$11,850
Industrial Process Eff.	38	-25	-24	-250	0	0	12,785	$1,335,342	$251,251	$485,889
Motors	6	164	160	2,459	17	13	6,054	$1,246,097	$9,991	$170,056
Other Efficiency	864	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	85	0	0	0	0	0	0	$0	$337,290	-$246,839
Space Heat Efficiency	3,308	-2,891	-2,950	-39,841	-527	-143	77,668	$12,854,582	$1,997,782	$10,217,033
Space Heat Fuel Switch	94	-217	-205	-3,438	-97	0	5,884	$1,753,816	$74,481	$1,046,333
Ventilation	127	79	70	934	7	7	6,011	$1,136,305	$54,693	$322,673
Water Conservation	1	0	0	0	0	0	1,149	$246,766	$19,000	$56,000
Totals		-3,812	-3,686	-52,131	-740	-198	119,810	$19,898,486	$3,185,053	$12,099,548

3.21 Thermal Energy and Process Fuels Resource Acquisition
Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	($3,441,769)
Fossil Fuel Savings (Costs)	$1,999,024	$23,296,461
Water Savings (Costs)	$1,466	$43,794
Total	**$2,000,490**	**$19,898,486**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(3,686)**	**(3,359)**	**(3,812)**
Winter on peak	(1,509)	(1,372)	(1,576)
Winter off peak	(1,694)	(1,521)	(1,708)
Summer on peak	(257)	(249)	(286)
Summer off peak	(226)	(217)	(243)
Coincident Demand Savings (kW)			
Winter	(749)	(665)	(740)
Shoulder	0	0	0
Summer	(188)	(178)	(198)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**514**	**489**	**5,073**
Annualized fuel savings (increase) MMBtu Total	**131,039**	**119,810**	**1,704,282**
LP	43,059	39,790	566,334
NG	6,270	5,519	82,696
Oil/Kerosene	64,997	58,737	907,190
Wood	12,217	11,762	133,275
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$11,029**	**$9,523**	**$138,644**

Net Societal Benefits	$15,453,758

3.22 Thermal Energy and Process Fuels
Business Energy Services Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	266	308	559
Operating Costs			
Administration	$60,171	$151,586	$211,757
Programs and Implementation	$20,731	$1,589	$22,320
Strategy and Planning	$23,353	$68,873	$92,227
Subtotal Operating Costs	**$104,255**	**$222,048**	**$326,303**
Technical Assistance Costs			
Services to Participants	$34,666	$89,408	$124,074
Services to Trade Allies	$46	$918	$964
Subtotal Technical Assistance Costs	**$34,711**	**$90,326**	**$125,037**
Support Services			
Business Development	$379	$0	$379
Business Solutions Group	$0	$1,794	$1,794
Consulting	$2,423	$6,463	$8,885
Customer Support	$13,651	$8,869	$22,520
Evaluation, Monitoring & Verification	$2,309	$2,466	$4,775
Information Technology	$76	$37	$113
Marketing	$12,932	$17,879	$30,811
Policy & Public Affairs	$1,402	$310	$1,712
Public Relations and Internal Communications	$0	$440	$440
Targeted Implementation	$430	$84	$514
Transportation	$30	$29	$59
Subtotal Support Services Costs	**$33,631**	**$38,371**	**$72,003**
Incentive Costs			
Incentives to Participants	$392,075	$817,511	$1,209,586
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$392,075**	**$817,511**	**$1,209,586**
Total Efficiency Vermont Costs	**$564,673**	**$1,168,257**	**$1,732,930**
Total Participant Costs	$1,896,857	$2,554,617	$4,451,474
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$2,461,530**	**$3,722,874**	**$6,184,404**
Annualized MMBtu Savings	16,066	61,073	77,139
Lifetime MMBtu Savings	276,681	756,115	1,032,796
TRB Savings (2015 $)	$5,635,450	$10,207,257	$15,842,707
Annualized MMBtu Savings/Participant	60.398	198.288	137.994
Weighted Lifetime	17.2	12.4	13.4

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	39	3	3	39	0	1	779	$155,349	$32,923	$70,534
Design Assistance	6	0	0	0	0	0	0	$0	$89,740	$78,512
Hot Water Efficiency	20	0	0	0	0	0	923	$167,406	$21,691	$36,333
Industrial Process Eff.	38	-25	-24	-250	0	0	12,785	$1,335,342	$251,251	$485,889
Motors	5	164	160	2,459	17	13	6,052	$1,245,840	$9,991	$169,506
Other Efficiency	45	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	2	0	0	0	0	0	0	$0	$7,295	$5,435
Space Heat Efficiency	195	132	123	2,374	46	0	29,880	$4,959,840	$304,447	$1,211,700
Space Heat Fuel Switch	8	-66	-58	-1,065	-29	0	3,627	$987,607	$26,481	$267,053
Ventilation	19	79	70	934	7	7	5,879	$1,109,107	$54,693	$173,655
Water Conservation	1	0	0	0	0	0	1,149	$246,766	$19,000	$56,000
Totals		286	273	4,491	41	21	61,073	$10,207,257	$817,511	$2,554,617

3.24 Thermal Energy and Process Fuels
Residential Energy Services Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	2,765	3,721	6,104
Operating Costs			
Administration	$326,962	$439,525	$766,487
Programs and Implementation	$1,268,442	$908,060	$2,176,502
Strategy and Planning	$133,127	$67,479	$200,607
Subtotal Operating Costs	**$1,728,532**	**$1,415,065**	**$3,143,596**
Technical Assistance Costs			
Services to Participants	$386,984	$291,885	$678,869
Services to Trade Allies	$43	$31,403	$31,445
Subtotal Technical Assistance Costs	**$387,026**	**$323,288**	**$710,314**
Support Services			
Business Development	$945	$0	$945
Business Solutions Group	$0	$38,485	$38,485
Consulting	$108,769	$76,944	$185,713
Customer Support	$76,966	$113,815	$190,781
Evaluation, Monitoring & Verification	$8,006	$2,181	$10,187
Information Technology	$817	$283	$1,100
Marketing	$359,166	$431,250	$790,417
Policy & Public Affairs	$4,357	$973	$5,330
Public Relations and Internal Communications	$0	$4,458	$4,458
Targeted Implementation	$1,070	$229	$1,299
Transportation	$388	$199	$588
Subtotal Support Services Costs	**$560,485**	**$668,818**	**$1,229,303**
Incentive Costs			
Incentives to Participants	$2,127,686	$2,367,541	$4,495,227
Incentives to Trade Allies	$25,000	$33,200	$58,200
Subtotal Incentive Costs	**$2,152,686**	**$2,400,741**	**$4,553,427**
Total Efficiency Vermont Costs	**$4,828,729**	**$4,807,911**	**$9,636,641**
Total Participant Costs	$8,652,312	$9,544,930	$18,197,243
Total Third Party Costs	$162,796	$243,202	$405,998
Total Resource Acquisition Costs	**$13,643,837**	**$14,596,044**	**$28,239,881**
Annualized MMBtu Savings	30,947	58,737	89,684
Lifetime MMBtu Savings	546,929	948,167	1,495,096
TRB Savings (2012$)	$11,878,734	$9,691,229	$21,569,963
Annualized MMBtu Savings/Participant	11.192	15.785	14.693
Weighted Lifetime	17.7	16.1	16.7

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	12	0	0	0	0	0	0	$0	$0	$2,892
Hot Water Efficiency	666	-926	-741	-12,043	-140	-75	8,497	$987,686	$296,212	-$151,718
Hot Water Fuel Switch	7	1	1	9	0	0	62	$15,137	$0	$11,850
Motors	1	0	0	0	0	0	2	$257	$0	$550
Other Efficiency	819	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	83	0	0	0	0	0	0	$0	$329,995	-$252,274
Space Heat Efficiency	3,113	-3,022	-3,072	-42,215	-573	-143	47,788	$7,894,743	$1,693,335	$9,005,334
Space Heat Fuel Switch	86	-151	-147	-2,373	-68	0	2,256	$766,209	$48,000	$779,280
Ventilation	108	0	0	0	0	0	132	$27,198	$0	$149,018
Totals		-4,099	-3,959	-56,622	-781	-219	58,737	$9,691,229	$2,367,541	$9,544,930

4. MAJOR MARKET RESOURCE ACQUISITION RESULTS

4.1 Electric Business New Construction Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	243	273	507
Operating Costs			
Administration	$276,255	$303,188	$579,443
Programs and Implementation	$215,578	$217,762	$433,340
Strategy and Planning	$249,901	$298,717	$548,618
Subtotal Operating Costs	**$741,733**	**$819,668**	**$1,561,401**
Technical Assistance Costs			
Services to Participants	$848,454	$741,744	$1,590,198
Services to Trade Allies	$76,104	$130,142	$206,246
Subtotal Technical Assistance Costs	**$924,558**	**$871,886**	**$1,796,444**
Support Services			
Business Development	$1,118	$0	$1,118
Business Solutions Group	$0	$16,017	$16,017
Consulting	$30,714	$24,152	$54,866
Customer Support	$8,470	$8,995	$17,465
Evaluation, Monitoring & Verification	$6,161	$7,535	$13,696
Information Technology	$228	$894	$1,121
Marketing	$38,120	$37,604	$75,724
Policy & Public Affairs	$4,133	$730	$4,862
Public Relations and Internal Communications	$0	$2,560	$2,560
Targeted Implementation	$1,267	$88	$1,354
Transportation	$87	$959	$1,046
Subtotal Support Services Costs	**$90,296**	**$99,534**	**$189,830**
Incentive Costs			
Incentives to Participants	$1,707,860	$1,604,196	$3,312,056
Incentives to Trade Allies	$11,458	$50	$11,508
Subtotal Incentive Costs	**$1,719,318**	**$1,604,246**	**$3,323,564**
Total Efficiency Vermont Costs	**$3,475,905**	**$3,395,333**	**$6,871,238**
Total Participant Costs	$3,524,012	$3,607,145	$7,131,157
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$6,999,917**	**$7,002,478**	**$14,002,395**
Annualized MWh Savings	10,909	9,559	20,468
Lifetime MWh Savings	160,751	144,276	305,027
TRB Savings (2015 $)	$28,244,347	$13,954,683	$42,199,030
Winter Coincident Peak kW Savings	1,703	1,346	3,049
Summer Coincident Peak kW Savings	1,863	1,523	3,386
Annualized MWh Savings/Participant	44.893	35.016	40.372
Weighted Lifetime	14.7	15.1	14.9

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.	67	809	711	12,397	40	174	0	$1,580,594	$165,100	$325,427
Cooking and Laundry	15	40	36	496	6	6	243	$81,089	$6,461	$13,994
Design Assistance	13	675	592	14,699	98	136	6,733	$2,132,481	$223,002	$897,864
Electronics	2	6	6	64	1	1	0	$5,942	$250	$250
Hot Water Efficiency	7	6	5	85	1	0	168	$35,026	$907	$30,099
Hot Water Fuel Switch	1	3	4	51	1	0	-11	$1,244	$0	$500
Industrial Process Eff.	5	85	85	1,065	9	17	0	$97,276	$68,065	$199,975
Lighting	254	5,854	5,150	86,597	840	887	-3,264	$6,403,486	$886,033	$1,268,522
Motors	22	512	450	6,623	71	86	5	$576,378	$156,499	$463,701
Other Efficiency	1	2	2	71	1	0	0	$4,908	$504	$996
Other Fuel Switch	3	22	19	659	4	3	-83	$18,262	$1	$1,332
Other Indirect Activity	5	0	0	0	0	0	0	$0	$22,500	-$22,500
Refrigeration	28	1,081	953	14,676	159	140	0	$1,151,913	$38,134	$132,827
Space Heat Efficiency	22	182	161	2,791	71	17	2,534	$856,901	$14,930	$151,999
Space Heat Fuel Switch	1	0	0	0	0	0	53	$112,323	$2,000	$13,750
Ventilation	35	279	246	3,976	45	55	3,629	$894,856	$19,652	$128,331
Water Conservation	1	2	2	25	0	0	0	$2,004	$156	$79
Totals		9,559	8,421	144,276	1,346	1,523	10,006	$13,954,683	$1,604,196	$3,607,145

4.3 Electric Business New Construction Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$11,994,465
Fossil Fuel Savings (Costs)	$104,327	$1,462,299
Water Savings (Costs)	$15,658	$497,919
Total	**$119,985**	**$13,954,683**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**8,421**	**8,409**	**9,559**
Winter on peak	2,982	2,974	3,414
Winter off peak	2,386	2,385	2,678
Summer on peak	1,755	1,752	2,014
Summer off peak	1,298	1,298	1,452
Coincident Demand Savings (kW)			
Winter	1,210	1,209	1,346
Shoulder	0	0	0
Summer	1,372	1,370	1,523

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**5,220**	**5,219**	**77,626**
Annualized fuel savings (increase) MMBtu Total	**10,019**	**10,006**	**202,028**
LP	1,443	1,444	23,630
NG	2,557	2,552	41,003
Oil/Kerosene	691	535	8,244
Wood	5,585	5,732	131,797
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$39,470**	**$39,433**	**$588,399**

Net Societal Benefits	$16,157,657

4.4 Electric Business Existing Facilities Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	2,467	7,800	9,542
Operating Costs			
Administration	$1,624,075	$1,829,432	$3,453,507
Programs and Implementation	$1,657,005	$1,573,409	$3,230,414
Strategy and Planning	$951,745	$920,771	$1,872,516
Subtotal Operating Costs	**$4,232,825**	**$4,323,613**	**$8,556,438**
Technical Assistance Costs			
Services to Participants	$3,557,705	$3,173,611	$6,731,316
Services to Trade Allies	$523,932	$738,717	$1,262,648
Subtotal Technical Assistance Costs	**$4,081,637**	**$3,912,328**	**$7,993,965**
Support Services			
Business Development	$9,046	$0	$9,046
Business Solutions Group	$0	$124,396	$124,396
Consulting	$64,713	$57,386	$122,099
Customer Support	$67,240	$27,805	$95,045
Evaluation, Monitoring & Verification	$88,903	$67,610	$156,514
Information Technology	$1,842	$5,084	$6,926
Marketing	$308,366	$213,885	$522,251
Policy & Public Affairs	$34,070	$4,608	$38,678
Public Relations and Internal Communications	$0	$14,647	$14,647
Targeted Implementation	$10,248	$498	$10,746
Transportation	$706	$5,454	$6,160
Subtotal Support Services Costs	**$585,134**	**$521,374**	**$1,106,509**
Incentive Costs			
Incentives to Participants	$9,682,027	$10,433,685	$20,115,712
Incentives to Trade Allies	$40,253	$288	$40,541
Subtotal Incentive Costs	**$9,722,280**	**$10,433,973**	**$20,156,253**
Total Efficiency Vermont Costs	**$18,621,876**	**$19,191,288**	**$37,813,164**
Total Participant Costs	$14,880,064	$14,541,478	$29,421,545
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$33,501,941**	**$33,732,766**	**$67,234,710**
Annualized MWh Savings	38,664	53,044	91,709
Lifetime MWh Savings	499,445	574,216	1,073,661
TRB Savings (2015 $)	$35,658,247	$44,489,626	$80,147,873
Winter Coincident Peak kW Savings	5,342	8,581	13,923
Summer Coincident Peak kW Savings	4,630	7,124	11,753
Annualized MWh Savings/Participant	15.673	6.801	9.611
Weighted Lifetime	12.9	10.8	11.7

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.	62	776	718	11,036	33	85	33	$815,803	$123,955	$352,927
Behavior Change	1	175	156	873	0	0	0	$38,048	$1,000	$50
Cooking and Laundry	9	8	7	109	1	2	85	$28,688	$4,052	$20,304
Design Assistance	98	291	261	2,550	16	5	104	$177,868	$636,951	$544,510
Electronics	10	77	68	768	9	10	0	$57,856	$17,434	$13,108
Hot Water Efficiency	6	55	50	662	10	6	0	$48,372	$7,873	$15,580
Industrial Process Eff.	76	8,279	8,257	83,962	1,527	988	995	$6,684,941	$939,579	$3,134,393
Lighting	7,410	31,047	27,455	332,273	4,650	4,343	-15,554	$23,590,346	$5,022,188	$7,662,754
Motors	123	5,326	5,165	64,392	956	1,132	2,203	$6,544,853	$703,054	$1,122,083
Other Efficiency	9	188	176	5,023	22	24	0	$380,323	$38,767	$158,439
Other Fuel Switch	2	48	48	961	11	3	-125	$53,266	$855	$3,420
Other Indirect Activity	63	0	0	0	0	0	0	$0	$2,198,277	$132,366
Refrigeration	183	2,851	2,678	34,242	322	408	0	$2,654,305	$554,695	$604,153
Space Heat Efficiency	24	2,939	2,908	19,789	940	1	2,579	$1,661,020	$108,472	$293,068
Space Heat Fuel Switch	1	394	441	11,834	47	0	-492	$489,447	$30,000	$302,900
Ventilation	35	609	563	5,760	40	120	3,133	$996,656	$46,535	$164,324
Water Conservation	1	-18	-18	-18	-2	-2	0	$267,831	$0	$17,100
Totals		53,044	48,932	574,216	8,581	7,124	-7,039	$44,489,626	$10,433,685	$14,541,478

4.6 Electric Business Existing Facilities Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$44,775,731
Fossil Fuel Savings (Costs)	($111,785)	($710,471)
Water Savings (Costs)	$87,505	$424,366
Total	**($24,280)**	**$44,489,626**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**48,932**	**46,642**	**53,044**
Winter on peak	19,907	18,998	21,809
Winter off peak	14,332	13,596	15,269
Summer on peak	8,360	8,001	9,201
Summer off peak	6,333	6,047	6,767
Coincident Demand Savings (kW)			
Winter	8,102	7,710	8,581
Shoulder	0	0	0
Summer	6,727	6,406	7,124

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**32,770**	**29,168**	**42,893**
Annualized fuel savings (increase) MMBtu Total	**(6,398)**	**(7,039)**	**(35,072)**
LP	576	492	5,223
NG	(1,760)	(1,592)	(28,390)
Oil/Kerosene	(7,754)	(8,176)	(46,576)
Wood	2,613	2,316	35,559
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$1,237,013**	**$1,228,111**	**$13,236,755**

Net Societal Benefits	$51,061,089

4.7 Electric Residential New Construction Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	1,366	1,838	3,101
Operating Costs			
Administration	$171,798	$271,421	$443,219
Programs and Implementation	$525,297	$392,126	$917,423
Strategy and Planning	$31,172	$33,050	$64,222
Subtotal Operating Costs	**$728,268**	**$696,597**	**$1,424,865**
Technical Assistance Costs			
Services to Participants	$1,193,764	$1,252,686	$2,446,450
Services to Trade Allies	$15,393	$31,712	$47,105
Subtotal Technical Assistance Costs	**$1,209,157**	**$1,284,398**	**$2,493,555**
Support Services			
Business Development	$367	$0	$367
Business Solutions Group	$0	$7,188	$7,188
Consulting	$35,146	$38,464	$73,611
Customer Support	$17,898	$16,229	$34,127
Evaluation, Monitoring & Verification	$4,262	$6,043	$10,306
Information Technology	$143	$708	$851
Marketing	$91,201	$56,769	$147,970
Policy & Public Affairs	$2,707	$578	$3,285
Public Relations and Internal Communications	$0	$3,241	$3,241
Targeted Implementation	$796	$70	$866
Transportation	$398	$760	$1,157
Subtotal Support Services Costs	**$152,918**	**$130,050**	**$282,968**
Incentive Costs			
Incentives to Participants	$926,257	$1,538,772	$2,465,029
Incentives to Trade Allies	$3,000	$0	$3,000
Subtotal Incentive Costs	**$929,257**	**$1,538,772**	**$2,468,029**
Total Efficiency Vermont Costs	**$3,019,600**	**$3,649,817**	**$6,669,417**
Total Participant Costs	$1,046,447	$1,463,785	$2,510,232
Total Third Party Costs	$57,975	$71,385	$129,360
Total Resource Acquisition Costs	**$4,124,022**	**$5,184,987**	**$9,309,009**
Annualized MWh Savings	2,040	3,135	5,175
Lifetime MWh Savings	36,070	54,200	90,270
TRB Savings (2015 $)	$7,196,565	$9,030,620	$16,227,185
Winter Coincident Peak kW Savings	414	684	1,098
Summer Coincident Peak kW Savings	216	370	586
Annualized MWh Savings/Participant	1.493	1.706	1.669
Weighted Lifetime	17.7	17.3	17.4

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.	366	277	244	4,606	22	35	0	$335,840	$242,768	-$64,024
Cooking and Laundry	870	66	58	874	22	14	380	$232,291	$41,858	$66,983
Design Assistance	55	0	0	0	0	0	0	$0	$1,315	$0
Hot Water Efficiency	898	12	11	183	2	1	1,527	$188,005	$1,602	$16,104
Lighting	1,690	1,534	1,402	20,464	314	155	-231	$1,508,734	$752,577	-$46,542
Motors	55	39	35	589	3	4	0	$40,695	$5,083	-$1,033
Other Efficiency	212	0	0	0	0	0	0	$0	$326,700	-$326,700
Other Fuel Switch	149	84	105	2,513	24	17	-318	$170,601	$8,189	$14,287
Other Indirect Activity	137	0	0	0	0	0	0	$0	$103,750	-$97,000
Refrigeration	914	58	62	957	6	7	0	$71,021	$7,735	$22,769
Space Heat Efficiency	703	911	771	21,599	272	119	13,881	$5,876,670	$31,532	$1,651,831
Ventilation	956	153	137	2,416	20	19	2,952	$606,765	$15,663	$227,110
Totals		3,135	2,824	54,200	684	370	18,191	$9,030,620	$1,538,772	$1,463,785

4.9 Electric Residential New Construction Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$4,287,060
Fossil Fuel Savings (Costs)	$266,228	$4,638,179
Water Savings (Costs)	$3,128	$105,381
Total	**$269,356**	**$9,030,620**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**2,824**	**2,762**	**3,135**
Winter on peak	1,037	1,015	1,165
Winter off peak	1,068	1,055	1,184
Summer on peak	365	351	404
Summer off peak	354	342	382
Coincident Demand Savings (kW)			
Winter	629	615	684
Shoulder	0	0	0
Summer	343	333	370

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**988**	**1,043**	**13,327**
Annualized fuel savings (increase) MMBtu Total	**17,466**	**18,191**	**401,298**
LP	4,703	4,919	116,133
NG	11,613	12,106	261,392
Oil/Kerosene	343	348	6,858
Wood	807	817	16,916
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$65,851**	**$63,346**	**$897,723**

Net Societal Benefits	$9,087,689

4.10 Electric Efficient Products Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	78,824	66,184	144,441
Operating Costs			
Administration	$1,487,565	$1,248,618	$2,736,183
Programs and Implementation	$1,320,803	$1,719,406	$3,040,209
Strategy and Planning	$159,373	$201,084	$360,457
Subtotal Operating Costs	**$2,967,741**	**$3,169,108**	**$6,136,849**
Technical Assistance Costs			
Services to Participants	$138,089	$221,543	$359,632
Services to Trade Allies	$332,067	$554,122	$886,189
Subtotal Technical Assistance Costs	**$470,156**	**$775,665**	**$1,245,821**
Support Services			
Business Development	$1,852	$0	$1,852
Business Solutions Group	$0	$46,636	$46,636
Consulting	$42,948	$43,935	$86,882
Customer Support	$54,239	$57,242	$111,481
Evaluation, Monitoring & Verification	$10,394	$24,037	$34,431
Information Technology	$377	$2,862	$3,239
Marketing	$557,489	$541,549	$1,099,038
Policy & Public Affairs	$9,237	$2,500	$11,737
Public Relations and Internal Communications	$0	$10,365	$10,365
Targeted Implementation	$2,098	$281	$2,379
Transportation	$468	$4,683	$5,151
Subtotal Support Services Costs	**$679,101**	**$734,089**	**$1,413,190**
Incentive Costs			
Incentives to Participants	$9,339,863	$7,825,355	$17,165,218
Incentives to Trade Allies	$2,159	$0	$2,159
Subtotal Incentive Costs	**$9,342,022**	**$7,825,355**	**$17,167,377**
Total Efficiency Vermont Costs	**$13,459,020**	**$12,504,217**	**$25,963,237**
Total Participant Costs	$2,605,576	$9,399,785	$12,005,361
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$16,064,596**	**$21,904,002**	**$37,968,598**

Annualized MWh Savings	50,880	59,691	110,572
Lifetime MWh Savings	619,562	609,638	1,229,201
TRB Savings (2015 $)	$38,555,123	$44,571,059	$83,126,182
Winter Coincident Peak kW Savings	10,191	11,605	21,795
Summer Coincident Peak kW Savings	4,997	5,722	10,719
Annualized MWh Savings/Participant	0.645	0.902	0.766
Weighted Lifetime	12.2	10.2	11.1

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.	890	202	213	2,209	10	53	0	$202,758	$30,675	$69,229
Cooking and Laundry	2,319	639	564	8,239	156	116	1,008	$1,791,197	$219,490	$526,927
Electronics	2,698	1,857	1,619	10,304	199	171	0	$730,571	$130,477	-$75,252
Hot Water Efficiency	1,090	2,890	2,312	37,558	436	235	-5,288	$1,651,918	$809,395	$876,680
Lighting	55,495	47,649	37,457	443,147	9,702	4,565	-8,987	$31,596,661	$4,911,471	$6,261,056
Motors	1,426	1,176	1,034	15,470	135	502	0	$1,737,222	$396,729	$260,481
Other Efficiency	207	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	4	0	0	0	0	0	0	$0	$41,550	-$41,550
Refrigeration	1,781	206	268	2,203	19	24	0	$157,029	$90,255	-$70,442
Space Heat Efficiency	1,174	5,072	4,955	90,508	948	56	4,700	$6,703,703	$1,195,313	$1,592,656
Totals		59,691	48,420	609,638	11,605	5,722	-8,567	$44,571,059	$7,825,355	$9,399,785

4.12 Electric Efficient Products Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$43,944,551
Fossil Fuel Savings (Costs)	($179,991)	($214,830)
Water Savings (Costs)	$21,845	$841,338
Total	**($158,146)**	**$44,571,059**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**48,420**	**52,531**	**59,691**
Winter on peak	19,138	20,796	23,874
Winter off peak	15,721	16,909	18,988
Summer on peak	7,343	8,021	9,224
Summer off peak	6,217	6,806	7,615
Coincident Demand Savings (kW)			
Winter	9,667	10,426	11,605
Shoulder	0	0	0
Summer	4,761	5,145	5,722

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**7,481**	**7,282**	**101,786**
Annualized fuel savings (increase) MMBtu Total	**(6,469)**	**(8,567)**	**(27,082)**
LP	(1,914)	(2,291)	(26,705)
NG	1,361	1,231	20,286
Oil/Kerosene	(5,650)	(7,037)	(17,625)
Wood	(264)	(470)	(3,038)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$1,786,758**	**$2,008,603**	**$22,610,281**

Net Societal Benefits	$68,063,780

4.13 Electric Existing Homes Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	4,125	1,811	5,775
Operating Costs			
Administration	$282,651	$260,066	$542,717
Programs and Implementation	$1,559,187	$980,888	$2,540,075
Strategy and Planning	$62,828	$57,125	$119,953
Subtotal Operating Costs	**$1,904,666**	**$1,298,078**	**$3,202,745**
Technical Assistance Costs			
Services to Participants	$172,966	$222,502	$395,468
Services to Trade Allies	$25,037	$38,972	$64,009
Subtotal Technical Assistance Costs	**$198,003**	**$261,474**	**$459,478**
Support Services			
Business Development	$1,189	$0	$1,189
Business Solutions Group	$0	$62,446	$62,446
Consulting	$55,164	$53,147	$108,311
Customer Support	$37,086	$40,246	$77,332
Evaluation, Monitoring & Verification	$31,979	$27,115	$59,094
Information Technology	$601	$973	$1,574
Marketing	$368,923	$405,641	$774,563
Policy & Public Affairs	$5,148	$2,076	$7,225
Public Relations and Internal Communications	$0	$4,515	$4,515
Targeted Implementation	$1,346	$95	$1,442
Transportation	$365	$1,664	$2,029
Subtotal Support Services Costs	**$501,801**	**$597,918**	**$1,099,720**
Incentive Costs			
Incentives to Participants	$1,545,248	$1,239,507	$2,784,755
Incentives to Trade Allies	$492	$0	$492
Subtotal Incentive Costs	**$1,545,740**	**$1,239,507**	**$2,785,247**
Total Efficiency Vermont Costs	**$4,150,211**	**$3,396,978**	**$7,547,189**
Total Participant Costs	$529,359	$26,266	$555,625
Total Third Party Costs	($130,964)	($206,225)	($337,189)
Total Resource Acquisition Costs	**$4,548,606**	**$3,217,019**	**$7,765,625**
Annualized MWh Savings	2,504	2,002	4,506
Lifetime MWh Savings	36,802	21,677	58,479
TRB Savings (2015 $)	$2,205,381	$1,481,670	$3,687,051
Winter Coincident Peak kW Savings	538	408	946
Summer Coincident Peak kW Savings	179	151	330
Annualized MWh Savings/Participant	0.607	1.106	0.780
Weighted Lifetime	14.7	10.8	13.0

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.	130	9	8	112	1	3	0	$11,276	$4,598	$4,147
Cooking and Laundry	108	127	112	767	16	12	30	$156,866	$90,977	$49,842
Electronics	284	33	29	132	3	4	0	$10,070	$8,720	-$1,545
Hot Water Efficiency	597	458	404	5,609	66	38	-456	$365,405	$370,096	-$21,177
Hot Water Fuel Switch	17	47	60	1,403	7	4	-174	$58,086	$6,823	$17,025
Industrial Process Eff.	1	0	0	4	0	0	0	$392	$325	$0
Lighting	1,435	794	709	6,283	181	49	-3	$439,297	$186,414	$25,253
Motors	30	11	9	115	3	1	35	$11,530	$2,589	$764
Other Efficiency	921	0	0	0	0	0	0	$0	$4,448	-$1,500
Other Fuel Switch	7	8	7	252	2	2	-23	$16,955	$6,470	-$3,195
Other Indirect Activity	18	0	0	0	0	0	0	$0	$37	-$37
Refrigeration	462	284	251	2,052	26	34	0	$146,093	$341,736	-$2,422
Space Heat Efficiency	148	112	99	2,008	58	0	0	$145,097	$188,251	-$78,262
Space Heat Fuel Switch	10	77	68	2,302	40	0	-246	$75,036	$0	$43,409
Ventilation	293	40	35	621	4	5	0	$44,370	$28,024	-$7,888
Water Conservation	2	3	3	16	0	0	0	$1,197	$0	$1,852
Totals		2,002	1,794	21,677	408	151	-839	$1,481,670	$1,239,507	$26,266

4.15 Electric Existing Homes Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$1,510,137
Fossil Fuel Savings (Costs)	($14,501)	($196,197)
Water Savings (Costs)	$5,113	$167,730
Total	**($9,388)**	**$1,481,670**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**1,794**	**1,765**	**2,002**
Winter on peak	652	641	735
Winter off peak	657	647	726
Summer on peak	229	225	259
Summer off peak	257	253	283
Coincident Demand Savings (kW)			
Winter	372	367	408
Shoulder	0	0	0
Summer	138	136	151

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**1,719**	**1,704**	**13,679**
Annualized fuel savings (increase) MMBtu Total	**(930)**	**(839)**	**(18,069)**
LP	(334)	(334)	(5,497)
NG	(354)	(262)	(7,481)
Oil/Kerosene	(145)	(146)	(3,403)
Wood	(97)	(97)	(1,688)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$30,042**	**$29,785**	**$265,462**

Net Societal Benefits	$15,139

4.16 Thermal Energy and Process Fuels
Business New Construction Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	16	46	62
Operating Costs			
Administration	$2,037	$12,491	$14,528
Programs and Implementation	$124	$300	$424
Strategy and Planning	$304	$770	$1,074
Subtotal Operating Costs	**$2,465**	**$13,561**	**$16,026**
Technical Assistance Costs			
Services to Participants	$902	$2,066	$2,968
Services to Trade Allies	$0	$164	$164
Subtotal Technical Assistance Costs	**$902**	**$2,230**	**$3,132**
Support Services			
Business Development	$12	$0	$12
Business Solutions Group	$0	$39	$39
Consulting	$77	$139	$216
Customer Support	$90	$106	$196
Evaluation, Monitoring & Verification	$54	$792	$847
Information Technology	$2	$1	$3
Marketing	$413	$386	$800
Policy & Public Affairs	$44	$7	$51
Public Relations and Internal Communications	$0	$10	$10
Targeted Implementation	$14	$2	$16
Transportation	$2	$1	$3
Subtotal Support Services Costs	**$708**	**$1,483**	**$2,191**
Incentive Costs			
Incentives to Participants	$14,503	$97,372	$111,875
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$14,503**	**$97,372**	**$111,875**
Total Efficiency Vermont Costs	**$18,577**	**$114,647**	**$133,224**
Total Participant Costs	$498,773	$348,881	$847,654
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$517,350**	**$463,528**	**$980,878**
Annualized MMBtu Savings	1,298	8,420	9,719
Lifetime MMBtu Savings	27,009	152,409	179,418
TRB Savings (2015 $)	$1,407,979	$2,256,296	$3,664,275
Annualized MMBtu Savings/Participant	81.153	183.045	156.750
Weighted Lifetime	20.8	18.1	18.5

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	4	2	2	28	0	0	174	$46,186	$3,123	$1,226
Hot Water Efficiency	10	0	0	0	0	0	410	$85,937	$5,941	$16,853
Motors	3	20	18	305	4	4	291	$92,109	$2,191	$8,309
Space Heat Efficiency	30	59	52	887	12	0	3,304	$1,128,087	$28,074	$100,583
Space Heat Fuel Switch	2	-41	-37	-619	-16	0	418	$203,138	$12,481	$123,607
Ventilation	12	74	65	864	7	6	3,823	$700,840	$45,563	$98,302
Totals		114	100	1,465	7	10	8,420	$2,256,296	$97,372	$348,881

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

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$96,338
Fossil Fuel Savings (Costs)	$113,968	$2,139,901
Water Savings (Costs)	$641	$20,058
Total	**$114,608**	**$2,256,296**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**100**	**100**	**114**
Winter on peak	35	35	41
Winter off peak	32	32	36
Summer on peak	14	14	17
Summer off peak	19	19	21
Coincident Demand Savings (kW)			
Winter	6	6	7
Shoulder	0	0	0
Summer	9	9	10

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**219**	**214**	**2,336**
Annualized fuel savings (increase) MMBtu Total	**8,421**	**8,420**	**152,409**
LP	8,345	8,140	148,205
NG	0	0	0
Oil/Kerosene	26	26	641
Wood	50	254	3,563
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$825**	**$702**	**$10,524**

Net Societal Benefits	$2,928,292

4.19 Thermal Energy and Process Fuels
Business Existing Facilities Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	250	262	497
Operating Costs			
Administration	$58,133	$139,095	$197,228
Programs and Implementation	$20,607	$1,289	$21,896
Strategy and Planning	$23,050	$68,103	$91,153
Subtotal Operating Costs	**$101,790**	**$208,487**	**$310,277**
Technical Assistance Costs			
Services to Participants	$33,764	$87,342	$121,106
Services to Trade Allies	$46	$754	$800
Subtotal Technical Assistance Costs	**$33,810**	**$88,096**	**$121,906**
Support Services			
Business Development	$367	$0	$367
Business Solutions Group	$0	$1,755	$1,755
Consulting	$2,346	$6,323	$8,670
Customer Support	$13,561	$8,764	$22,325
Evaluation, Monitoring & Verification	$2,255	$1,674	$3,929
Information Technology	$74	$36	$111
Marketing	$12,518	$17,493	$30,011
Policy & Public Affairs	$1,357	$304	$1,661
Public Relations and Internal Communications	$0	$430	$430
Targeted Implementation	$416	$82	$498
Transportation	$28	$28	$56
Subtotal Support Services Costs	**$32,923**	**$36,888**	**$69,812**
Incentive Costs			
Incentives to Participants	$377,572	$720,139	$1,097,711
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$377,572**	**$720,139**	**$1,097,711**
Total Efficiency Vermont Costs	**$546,095**	**$1,053,610**	**$1,599,705**
Total Participant Costs	$1,398,084	$2,205,736	$3,603,820
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$1,944,180**	**$3,259,346**	**$5,203,526**
Annualized MMBtu Savings	14,767	52,653	67,420
Lifetime MMBtu Savings	249,672	603,706	853,378
TRB Savings (2015 $)	$4,227,471	$7,950,961	$12,178,432
Annualized MMBtu Savings/Participant	59.070	200.965	135.654
Weighted Lifetime	16.9	11.5	12.7

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	35	1	1	11	0	0	605	$109,163	$29,800	$69,308
Design Assistance	6	0	0	0	0	0	0	$0	$89,740	$78,512
Hot Water Efficiency	10	0	0	0	0	0	512	$81,468	$15,750	$19,480
Industrial Process Eff.	38	-25	-24	-250	0	0	12,785	$1,335,342	$251,251	$485,889
Motors	2	144	142	2,154	13	10	5,761	$1,153,731	$7,800	$161,197
Other Efficiency	45	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	2	0	0	0	0	0	0	$0	$7,295	$5,435
Space Heat Efficiency	165	72	71	1,487	34	0	26,576	$3,831,753	$276,373	$1,111,116
Space Heat Fuel Switch	6	-25	-21	-446	-13	0	3,209	$784,469	$14,000	$143,446
Ventilation	7	5	5	69	0	1	2,056	$408,267	$9,130	$75,353
Water Conservation	1	0	0	0	0	0	1,149	$246,766	$19,000	$56,000
Totals		172	173	3,025	34	11	52,653	$7,950,961	$720,139	$2,205,736

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

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$183,165
Fossil Fuel Savings (Costs)	$786,145	$7,762,214
Water Savings (Costs)	$124	$5,582
Total	**$786,269**	**$7,950,961**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**173**	**151**	**172**
Winter on peak	75	66	75
Winter off peak	57	49	55
Summer on peak	28	25	29
Summer off peak	13	12	13
Coincident Demand Savings (kW)			
Winter	35	31	34
Shoulder	0	0	0
Summer	11	10	11

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**47**	**41**	**699**
Annualized fuel savings (increase) MMBtu Total	**59,132**	**52,653**	**603,706**
LP	21,944	19,681	224,385
NG	0	0	0
Oil/Kerosene	25,212	21,754	307,604
Wood	7,480	7,216	56,929
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$11,716**	**$10,003**	**$150,042**

Net Societal Benefits	$9,569,244

4.22 Thermal Energy and Process Fuels
Residential New Construction Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	1	71	72
Operating Costs			
Administration	$430	$1,070	$1,500
Programs and Implementation	$199	$15	$214
Strategy and Planning	$5	$22	$27
Subtotal Operating Costs	**$634**	**$1,107**	**$1,741**
Technical Assistance Costs			
Services to Participants	$0	$987	$987
Services to Trade Allies	$0	$13	$13
Subtotal Technical Assistance Costs	**$0**	**$1,000**	**$1,000**
Support Services			
Business Development	$0	$0	$0
Business Solutions Group	$0	$3	$3
Consulting	$0	$9	$9
Customer Support	$282	$821	$1,102
Evaluation, Monitoring & Verification	$0	$1	$1
Information Technology	$0	$0	$0
Marketing	$624	$1,564	$2,189
Policy & Public Affairs	$0	$0	$0
Public Relations and Internal Communications	$0	$1	$1
Targeted Implementation	$0	$0	$0
Transportation	$0	$0	$0
Subtotal Support Services Costs	**$906**	**$2,399**	**$3,305**
Incentive Costs			
Incentives to Participants	$3,500	$3,493	$6,993
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$3,500**	**$3,493**	**$6,993**
Total Efficiency Vermont Costs	**$5,040**	**$7,999**	**$13,039**
Total Participant Costs	$28,703	$63,510	$92,213
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$33,743**	**$71,508**	**$105,251**
Annualized MMBtu Savings	1,358	213	1,571
Lifetime MMBtu Savings	33,224	4,463	37,687
TRB Savings (2015 $)	$554,739	$120,657	$675,397
Annualized MMBtuSavings/Participant	1,358.169	2.999	21.820
Weighted Lifetime	24.5	21.0	24.0

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	62	0	0	0	0	0	171	$53,102	$1,493	$15,510
Space Heat Fuel Switch	9	0	0	-5	0	0	42	$67,555	$2,000	$48,000
Totals		0	0	-5	0	0	213	$120,657	$3,493	$63,510

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

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	($296)
Fossil Fuel Savings (Costs)	$8,784	$120,954
Water Savings (Costs)	$0	$0
Total	**$8,784**	**$120,657**

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	**213**	**213**	**4,463**
LP	102	102	2,558
NG	0	0	0
Oil/Kerosene	585	585	9,019
Wood	(474)	(474)	(7,114)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$145**	**$145**	**$2,168**

Net Societal Benefits	$164,571

4.25 Thermal Energy and Process Fuels
Efficient Products Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	329	1,101	1,359
Operating Costs			
Administration	$42,729	$69,039	$111,768
Programs and Implementation	$0	$13,174	$13,174
Strategy and Planning	$1,427	$1,611	$3,037
Subtotal Operating Costs	**$44,155**	**$83,824**	**$127,980**
Technical Assistance Costs			
Services to Participants	$2,919	$2,221	$5,140
Services to Trade Allies	$0	$904	$904
Subtotal Technical Assistance Costs	**$2,919**	**$3,125**	**$6,044**
Support Services			
Business Development	$40	$0	$40
Business Solutions Group	$0	$166	$166
Consulting	$250	$5,702	$5,952
Customer Support	$290	$461	$751
Evaluation, Monitoring & Verification	$176	$437	$613
Information Technology	$9	$3	$12
Marketing	$1,394	$22,815	$24,210
Policy & Public Affairs	$145	$29	$174
Public Relations and Internal Communications	$0	$40	$40
Targeted Implementation	$44	$8	$52
Transportation	$3	$3	$6
Subtotal Support Services Costs	**$2,352**	**$29,664**	**$32,016**
Incentive Costs			
Incentives to Participants	$349,932	$552,190	$902,122
Incentives to Trade Allies	$0	$0	$0
Subtotal Incentive Costs	**$349,932**	**$552,190**	**$902,122**
Total Efficiency Vermont Costs	**$399,358**	**$668,803**	**$1,068,162**
Total Participant Costs	($209,423)	$406,330	$196,907
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$189,935**	**$1,075,134**	**$1,265,068**
Annualized MMBtu Savings	7,454	37,028	44,482
Lifetime MMBtu Savings	97,263	532,366	629,629
TRB Savings (2015 $)	1,895,545	$3,028,247	$4,923,792
Annualized MMBtu Savings/Participant	22.656	33.631	32.732
Weighted Lifetime	13.0	14.4	14.2

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	465	-924	-739	-12,010	-140	-75	8,005	$887,099	$295,690	-$227,148
Space Heat Efficiency	642	-3,660	-3,668	-54,989	-887	-143	29,023	$2,141,148	$256,500	$633,478
Totals		-4,584	-4,407	-66,999	-1,026	-218	37,028	$3,028,247	$552,190	$406,330

4.27 Thermal Energy and Process Fuels
Efficient Products Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	($4,457,499)
Fossil Fuel Savings (Costs)	$661,202	$7,483,637
Water Savings (Costs)	$104	$2,110
Total	**$661,307**	**$3,028,247**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(4,407)**	**(4,039)**	**(4,584)**
Winter on peak	(1,823)	(1,669)	(1,916)
Winter off peak	(2,020)	(1,829)	(2,054)
Summer on peak	(302)	(290)	(334)
Summer off peak	(262)	(251)	(281)
Coincident Demand Savings (kW)			
Winter	(1,020)	(922)	(1,026)
Shoulder	0	0	0
Summer	(208)	(196)	(218)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**35**	**35**	**244**
Annualized fuel savings (increase) MMBtu Total	**40,069**	**37,028**	**532,366**
LP	6,735	6,365	88,886
NG	6,255	5,505	82,568
Oil/Kerosene	22,584	21,277	301,946
Wood	4,495	3,882	58,966
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$0**	**$0**	**$0**

Net Societal Benefits	$3,153,419

4.28 Thermal Energy and Process Fuels
Existing Homes Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	2,435	2,549	4,673
Operating Costs			
Administration	$283,803	$369,416	$653,219
Programs and Implementation	$1,268,243	$894,871	$2,163,114
Strategy and Planning	$131,696	$65,847	$197,543
Subtotal Operating Costs	**$1,683,742**	**$1,330,134**	**$3,013,876**
Technical Assistance Costs			
Services to Participants	$384,065	$288,678	$672,742
Services to Trade Allies	$43	$30,486	$30,528
Subtotal Technical Assistance Costs	**$384,107**	**$319,163**	**$703,270**
Support Services			
Business Development	$905	$0	$905
Business Solutions Group	$0	$38,316	$38,316
Consulting	$108,518	$71,233	$179,751
Customer Support	$76,395	$112,534	$188,928
Evaluation, Monitoring & Verification	$7,831	$1,743	$9,573
Information Technology	$808	$280	$1,088
Marketing	$357,148	$406,871	$764,018
Policy & Public Affairs	$4,212	$944	$5,156
Public Relations and Internal Communications	$0	$4,417	$4,417
Targeted Implementation	$1,026	$221	$1,247
Transportation	$385	$197	$581
Subtotal Support Services Costs	**$557,228**	**$636,754**	**$1,193,982**
Incentive Costs			
Incentives to Participants	$1,774,254	$1,811,858	$3,586,112
Incentives to Trade Allies	$25,000	$33,200	$58,200
Subtotal Incentive Costs	**$1,799,254**	**$1,845,058**	**$3,644,312**
Total Efficiency Vermont Costs	**$4,424,331**	**$4,131,109**	**$8,555,440**
Total Participant Costs	$8,833,033	$9,075,091	$17,908,123
Total Third Party Costs	$162,796	$243,202	$405,998
Total Resource Acquisition Costs	**$13,420,159**	**$13,449,402**	**$26,869,561**
Annualized MMBtu Savings	22,135	21,496	43,631
Lifetime MMBtu Savings	416,442	411,338	827,779
TRB Savings (2015 $)	$9,428,450	$6,542,325	$15,970,775
Annualized MMBtu Savings/Participant	9.090	8.433	9.337
Weighted Lifetime	18.8	19.1	19.0

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	12	0	0	0	0	0	0	$0	$0	$2,892
Hot Water Efficiency	201	-2	-2	-33	0	0	492	$100,587	$522	$75,430
Hot Water Fuel Switch	7	1	1	9	0	0	62	$15,137	$0	$11,850
Motors	1	0	0	0	0	0	2	$257	$0	$550
Other Efficiency	819	0	0	0	0	0	0	$0	$0	$0
Other Indirect Activity	83	0	0	0	0	0	0	$0	$329,995	-$252,274
Space Heat Efficiency	2,409	638	596	12,774	313	0	18,594	$5,700,493	$1,435,341	$8,356,346
Space Heat Fuel Switch	77	-151	-147	-2,369	-68	0	2,215	$698,653	$46,000	$731,280
Ventilation	108	0	0	0	0	0	132	$27,198	$0	$149,018
Totals		486	448	10,382	245	-1	21,496	$6,542,325	$1,811,858	$9,075,091

4.30 Thermal Energy and Process Fuels
Existing Homes Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$736,524
Fossil Fuel Savings (Costs)	$428,925	$5,789,756
Water Savings (Costs)	$596	$16,045
Total	**$429,522**	**$6,542,325**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**448**	**428**	**486**
Winter on peak	204	195	224
Winter off peak	238	227	255
Summer on peak	2	2	3
Summer off peak	4	4	4
Coincident Demand Savings (kW)			
Winter	229	220	245
Shoulder	0	0	0
Summer	(1)	(1)	(1)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**214**	**199**	**1,794**
Annualized fuel savings (increase) MMBtu Total	**23,204**	**21,496**	**411,338**
LP	5,933	5,503	102,300
NG	15	14	128
Oil/Kerosene	16,590	15,095	287,979
Wood	666	884	20,930
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**($1,657)**	**($1,325)**	**($24,089)**

Net Societal Benefits	($361,768)

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

Commercial and industrial customers that meet the following criteria are eligible for this program:

1. The customer has never accepted financial incentives from a Vermont energy efficiency utility-or distribution utility sponsored Demand Side Management (DSM) program; and

2. The customer has demonstrated a commitment to pursuing cost-effective energy efficiency on its own by:
    a. Certification under ISO (International Standards Organization) standard 14001; and
    b. Describing their energy efficiency plan, either already established and/or negotiated with the Department of Public Service (Department), that shows a commitment to implementing cost-effective energy efficiency measures in the customer's facility or facilities.

5.1.1 Customer Credit Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations	1	1	1
Operating Costs			
Administration	$54,523	$50,599	$105,122
Programs and Implementation	$35,419	$0	$35,419
Strategy and Planning	$7,900	$0	$7,900
Subtotal Operating Costs	**$97,841**	**$50,599**	**$148,441**
Technical Assistance Costs			
Services to Participants	$47,568	$2,953	$50,520
Services to Trade Allies	$5,701	$0	$5,701
Subtotal Technical Assistance Costs	**$53,269**	**$2,953**	**$56,221**
Support Services			
Business Development	$471	$0	$471
Business Solutions Group	$0	$0	$0
Consulting	$3,007	$0	$3,007
Customer Support	$3,484	$0	$3,484
Evaluation, Monitoring & Verification	$2,115	$0	$2,115
Information Technology	$95	$0	$95
Marketing	$16,044	$0	$16,044
Policy & Public Affairs	$1,739	$0	$1,739
Public Relations and Internal Communications	$0	$0	$0
Targeted Implementation	$534	$0	$534
Transportation	$36	$0	$36
Subtotal Support Services Costs	**$27,527**	**$0**	**$27,527**
Incentive Costs			
Incentives to Participants	$326,840	$0	$326,840
Incentives to Trade Allies	$0	$523,205	$523,205
Subtotal Incentive Costs	**$326,840**	**$523,205**	**$850,045**
Total Efficiency Vermont Costs	**$505,477**	**$576,757**	**$1,082,234**
Total Participant Costs	$157,708	$11,975	$169,683
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$663,185**	**$588,731**	**$1,251,916**
Annualized MWh Savings	1,961	7,057	9,019
Lifetime MWh Savings	21,460	8,906	30,367
TRB Savings (2015 $)	$1,835,805	$525,599	$2,361,403
Winter Coincident Peak kW Savings	323	17	340
Summer Coincident Peak kW Savings	322	17	340
Annualized MWh Savings/Participant	1,961.170	7,057.427	9,018.597
Weighted Lifetime	10.9	1.3	3.4

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	$12,932	$0
Industrial Process Eff.	1	7,057	6,221	8,906	17	17	0	$525,599	$510,273	$11,975
Totals		7,057	6,221	8,906	17	17	0	$525,599	$523,205	$11,975

5.1.3 Customer Credit Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$525,599
Fossil Fuel Savings (Costs)	$0	$0
Water Savings (Costs)	$0	$0
Total	**$0**	**$525,599**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**6,221**	**6,221**	**7,057**
Winter on peak	1,972	1,972	2,264
Winter off peak	2,171	2,171	2,438
Summer on peak	989	989	1,137
Summer off peak	1,089	1,089	1,218
Coincident Demand Savings (kW)			
Winter	16	16	17
Shoulder	0	0	0
Summer	16	16	17

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

The Designated Downtowns Initiative is described in Section 2.4.6 in the "Targeted Communities" description.

5.2.1 Designated Downtowns Summary

Benefits to Designated Downtowns, New Town Centers and Growth Centers, Cumulative Starting 1/1/2015

Area	Annual Net MWh Saved	Lifetime Net MWh Saved	Net Total Resource Benefits Delivered[3]
Designated Downtowns[1]			
Barre City	193	2,959	$302,248
Bellows Falls	49	706	$62,945
Bennington	24	326	$116,880
Bradford	7	96	$5,638
Brandon	643	9,124	$526,512
Brattleboro	336	3,977	$990,887
Bristol	65	939	$165,695
Middlebury	271	3,670	$682,370
Montpelier	402	5,166	$702,021
Morrisville	Not Available	Not Available	Not Available
Newport City	Not Available	Not Available	Not Available
Poultney	53	790	$72,977
Randolph	126	1,815	$197,363
Rutland City	122	1,732	$132,989
Saint Albans	413	4,631	$325,139
Saint Johnsbury	419	7,439	$726,275
Springfield	28	369	$106,906
Vergennes	6	75	$28,540
Waterbury	131	1,983	$181,415
White River Junction	80	1,283	$123,582
Wilmington	3	36	$7,047
Windsor	62	677	$79,040
Winooski	344	3,402	$489,110
Totals:	**3,775**	**51,197**	**$6,025,577**
New Town Centers[1]			
Colchester	4	25	$2,093
South Burlington	49	691	$45,693
Totals:	**54**	**717**	**$47,786**
Growth Centers[1]			
Bennington	3,983	59,763	$5,052,801
Colchester	4	25	$2,093
Hartford	874	10,245	$2,598,936
Montpelier	794	9,728	$1,974,779
Saint Albans	1,186	15,840	$1,106,950
Williston	931	11,917	$797,620
Totals:	**7,772**	**107,518**	**$11,533,180**

[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 dependent 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

6.1 DOCUMENTS, CORRESPONDING MARKETS, AND 2016 STATUS

#	Document Name / Title	Major Market	Status	Date
101	Baselines and Savings Claims for Heat Pumps	RES, BES, MF	Implemented	9/1/2016
105	Upstream Cold Climate Heat Pump	C&I/RES	Implemented	9/1/2016
111	Low Income Multi-Family New Construction determination process	LIMF	Implemented	4/1/2016
112	EVT Lighting ISR	RES/C&I	Abandoned	4/25/2016
113	Variable Frequency Drives (VFDs) Initiative	C&I/MF	Implemented	7/1/2016
114	CCHP Retrofit	RES/C&I	Abandoned	7/14/2016

Key:

RES	Residential
LI	Low Income
LIMF	Low Income Multi-Family
BES	Business Energy Services
MF	Multi-Family
C&I	Commercial & Industrial

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, 2016, through December 31, 2016. Similarly, measure savings are for measures installed during the period January 1, 2016, through December 31, 2016.

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's) 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- 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.

7.2 DEFINITIONS AND REPORT TEMPLATE

The table templates that appear in the Efficiency Vermont Savings Claim Summary and 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, utility and county 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 2016	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				
Business Development	(13)			
Business Solutions Group	(14)			
Consulting	(15)			
Customer Support	(16)			
Evaluation, Monitoring & Verification	(17)			
Information Technology	(18)			
Marketing	(19)			
Policy & Public Affairs	(20)			
Public Relations & Internal Communications	(21)			
Targeted Implementation	(22)			
Transportation	(23)			
Subtotal Support Services Costs	(24)			
Incentive Costs				
Incentives to Participants	(25)			
Incentives to Trade Allies	(26)			
Subtotal Incentive Costs	(27)			
Total Efficiency Vermont Costs	(28)			
Total Participant Costs	(29)			
Total Third Party Costs	(30)			
Total Resource Acquisition Costs	(31)			

Annualized MWh Savings	(32)			
Lifetime MWh Savings	(33)			
TRB Savings (2015 $)	(34)			
Winter Coincident Peak kW Savings	(35)			
Summer Coincident Peak kW Savings	(36)			
Annualized MWh Savings/Participant	(37)			
Weighted Lifetime	(38)			

	Prior Year	Current Year 2016	Cumulative starting 1/1/15	Cumulative starting 1/1/12
	(1)	(2)	(3)	(4)
Annualized MWh Savings (adjusted for measure life)			(39)	
Winter Coincident Peak kW Savings (adjusted for measure life)			(40)	
Summer Coincident Peak kW Savings (adjusted for measure life)			(41)	

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 Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)

Definitions for the fields in the report table templates:

(1) Activity for the prior reporting year.

(2) Activity for the current reporting year. For savings, the figures reported are estimated savings for measures actually implemented for the current reporting period. Savings are reported 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, 2016.

(4) Data reported starting January 1, 2012 through December 31, 2016.

(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 apartment units. Beginning in 1/1/2015 a new methodology is used to count Efficient Products (EP) lighting buy down participants. For all Efficient Products (EP) lighting buy down 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 buy down participants, this is 12 lighting units per participant and for Commercial it 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. Administration costs also include the 1.8% operations fee (margin) and corporate indirect charges that were applied to (25) Incentives to Participants[1].

(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 Business Development division.

(14) Costs related to support provided by the VEIC Business Solution Group division.

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

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

(17) Costs related to support provided by the VEIC Evaluation, Monitoring & Verification division.

(18) Costs related to support provided by the VEIC Information Technology division.

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

(20) Costs related to support provided by the VEIC Policy & Public Affairs division.

(21) Costs related to support provided by the VEIC Public Relations & Internal Communications division.

(22) Costs related to support provided by the VEIC Targeted Implementation division.

(23) Costs related to support provided by the VEIC Transportation division.

(24) Total cost of Support Services.

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

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

(27) Subtotal reflecting total incentive costs: (25) + (26).

[1] All costs for fields 6 through 28 include a 1.8% operations fee (or margin) paid to VEIC as administrator of Efficiency Vermont. Other than the 1.8% mark-up, VEIC is reimbursed at cost for the administration of Efficiency Vermont.

(28) Total costs incurred by Efficiency Vermont. All costs are in nominal dollars: (9) + (12) + (24) + (27).

(29) 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.

(30) 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.

(31) Total cost of Resource Acquisition: (28) + (29) + (30).

(32) 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.

(33) Lifetime estimated MWh savings for measures installed during the current reporting year, at generation and net of all approved adjustment factors. Prior to 2016, this value is calculated by multiplying estimated annualized savings by the life of the installed measure. Beginning on 1/1/2016 a new lifetime calculation methodology was implemented for all lifetime electric and fuel savings fields in Efficiency Vermont's Reporting Warehouse. During and after 2016 this value is calculated by adding up estimated annualized savings for each year of the life of the installed measure, taking into account partial years and mid-life savings adjustments at the measure level if appropriate.
Inclusion of these midlife adjustments results in increased accuracy of lifetime savings estimates and impact reporting. This change also results in better alignment and consistency of all reporting systems, software and tools. Tools such as Tracker Custom, Navigator, etc. already included these adjustments.

(34) Total Resource Benefits (TRB) savings for measures installed during the current reporting period. TRB includes gross electric benefits, fossil fuel savings, and water savings. TRB is stated in 2015 dollars throughout the report.

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

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

(37) Annualized MWh savings per participant, net at generation: (32) ÷ (5).

(38) Average lifetime, in years, of measures weighted by savings: (33) ÷ (32).

(39) Adjusted annualized MWh savings at generation and net of all approved adjustment factors (e.g., free riders, spillover, line loss) 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.

(40) Adjusted impact of measures at time of winter system peak, at generation, net of 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.

(41) Adjusted impact of measures at time of summer system peak, at generation, net of 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.

(42) 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.

(43) 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. This is the same number as reported on line (32).

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

(45) 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 (33).

(46) Estimated impact of measures at time of winter system peak, at generation, net of adjustment factors. This is the same number as that reported on line (35).

(47) Estimated impact of measures at time of summer system peak, at generation, net of adjustment factors. This is the same number as that reported on line (36).

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

(49) Total Resource Benefits (TRB) savings for measures installed during the current reporting period. TRB includes gross electric benefits, fossil fuel savings, and water savings. TRB is stated in 2015 dollars throughout the report. This is the same number as that reported on line (34).

(50) 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 (25).

(51) Costs incurred by participants and related to Efficiency Vermont or utility activities. This is the same number as that reported on line (29).

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