2016 Savings Claim Summary

APRIL 2017

Efficiency Vermont

This report was created in fulfillment of Efficiency Vermont's regulatory requirement to submit an annual Savings Claim Summary. The energy savings cited in this report will be reviewed by the Vermont Department of Public Service in its annual verification process. Any needed adjustments identified in that process will be reflected in an update to this report in the fourth quarter of 2017. Unless otherwise noted, data provided in the overview include results from the Customer Credit program.

A message from Liz Gamache,
Director, Efficiency Vermont

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 $18.9 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.

How Efficiency Vermont Helped Strengthen Our State in 2016

132,826
MWh saved

136,004
MMBtu saved

$82,500,000

Net lifetime value of efficiency investments Vermonters made in 2016

Avoided pollutants

894,251 tons
Carbon dioxide

425 tons
Nitrogen oxides

939 tons
Sulfur oxides

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

[1] 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

$9,154,075

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.[2] 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.

$503,394

Saved by low-income Vermonters

[2] *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

$9,163,543

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 $94,000. 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

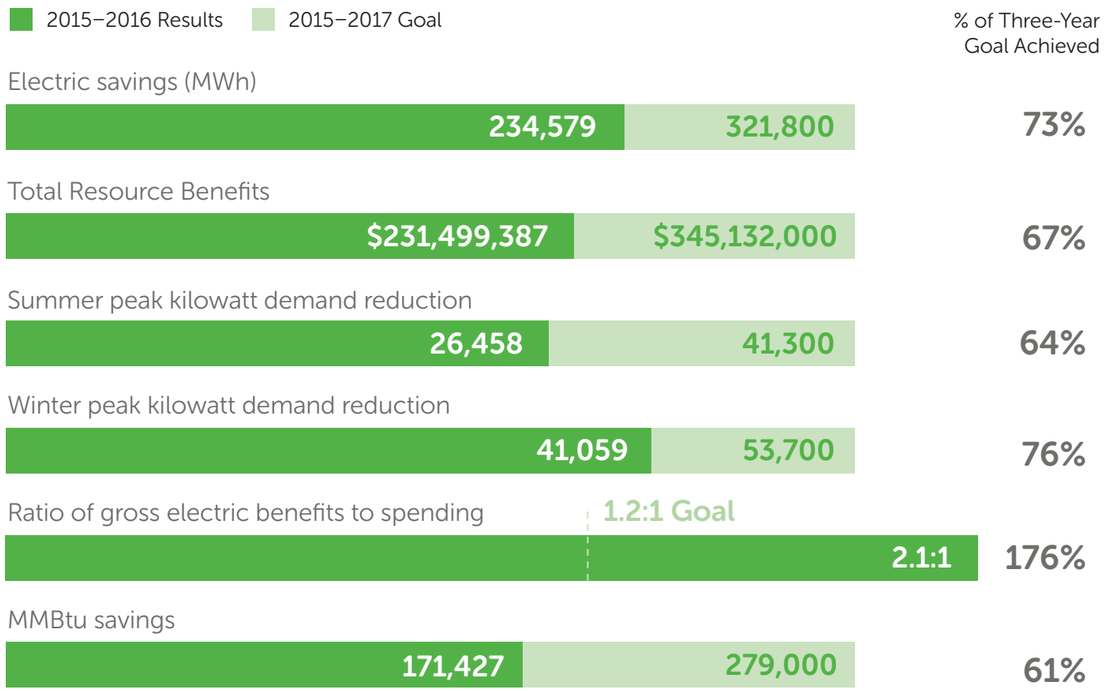
164
Building design firms

"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."**

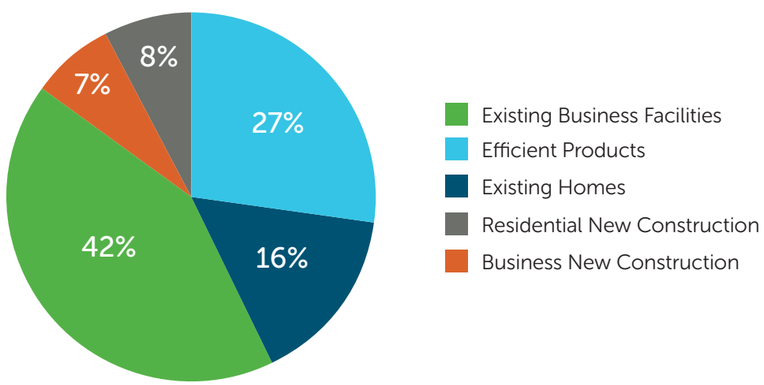
Richard Counter, Owner-Operator, Sears, Derby

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

Progress Toward 2015–2017 Goals[3]



2016 Budget Breakdown by Major Market



[3] Unless otherwise noted, data on pages 13 and 14 do not include results from the Customer Credit program.

The Saving Power of Efficiency

1.9¢/kWh[4]

Cost of saving electricity with efficiency

VS

9.4¢/kWh

Cost of supplying electricity

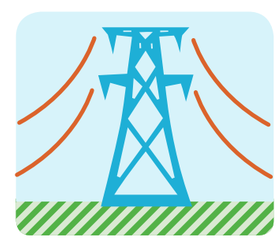
$14.45/MMBtu[5]

Cost of saving fossil fuel with efficiency

VS

$18.25/MMBtu

Cost of supplying fossil fuel



Percentage of Vermont's 2016 electric needs met by efficiency[6]

15.5%

[4] 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 4.1 cents/kWh.

[5] 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 $5.35/MMBtu.

[6] 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.

Savings Claim Summary 2016

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2. 2016 SERVICES

2. 2016 SERVICES

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 54,000 megawatt hours (MWhs) and 49,000 million British thermal units (MMBtus) from 3,400 projects, delivering Total Resource Benefits of $53.3 million to approximately 2,300 customers. The average anticipated return on investment for efficiency improvements in existing commercial facilities in 2016 was 44% 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 $4.7 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)
- [7]
- , 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

[7] 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, Capstone Community Action, Vermont Energy & Climate Action Network, the Energy Action Network's Brighter Vermont initiative, 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.
- 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 Service Board, 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 Vermont Electric Cooperative 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 Washington Electric Cooperative.

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

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

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: Eight 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 PSB 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, for Vermont's homeowners and businesses, from the U.S. Department of Agriculture's Rural Utilities Service's loan funds, which were approved in 2016.
- Received a grant of $20,000 from the DPS to support energy code training.
- 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	$41,149,975	$12,099,548	$29,038,453	$11,975
Third Party Costs Year to Date	$108,362	$243,202	($134,840)	$0
Savings Results				
MWh Year to Date	132,826	-3,813	129,581	7,057
MWh Cumulative starting 1/1/15	238,925	-4,673	234,579	9,019
Winter Peak Coincident kW Savings Results				
Winter Coincident Peak kW Year to Date	22,118	-770	22,871	17
Winter Coincident Peak kW Cumulative Starting 1/1/15	40,582	-817	41,059	340
Summer Peak Coincident kW Savings Results				
Summer Coincident Peak kW Year to Date	14,402	-190	14,574	17
Summer Coincident Peak kW Cumulative Starting 1/1/15	26,548	-249	26,458	340
TRB Savings Results				
TRB Year to Date	$141,383,922	$21,218,599	$119,639,725	$525,599
TRB Cumulative Starting 1/1/15	$272,593,574	$38,732,784	$231,499,387	$2,361,403
MMBtu Savings Results				
MMBtu Year to Date	136,004	124,415	11,590	0
MMBtu Cumulative Starting 1/1/15	228,703	171,427	57,276	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	234,579	73%
2	Total Resource Benefits	Present worth of lifetime electric, fossil, and water benefits	$345,132,000	$231,499,387	67%
3	Statewide Summer Peak Demand Savings	Cumulative net summer peak demand (kW) savings	41,300	26,458	64%
4	Statewide Winter Peak Demand Savings	Cumulative net winter peak demand (kW) savings	53,700	41,059	76%
5	Business Comprehensiveness	Savings as a % of baseline year usage for Companies who complete Business Existing Facilities efficiency projects	11.0%	8.1%	74%
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	429	86%

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	11	92%
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	$11,695,129	122%
Bennington	$11,755,268	$17,282,519	147%
Caledonia	$7,381,188	$14,677,453	199%
Chittenden	$34,376,179	$61,806,335	180%
Essex/Orleans	$8,700,557	$10,833,620	125%
Franklin	$14,422,521	$11,313,564	78%
Grand Isle/Lamoille	$9,155,602	$10,481,106	114%
Orange	$5,985,825	$6,764,150	113%
Rutland	$19,819,855	$21,038,541	106%
Washington	$16,412,881	$31,981,159	195%
Windham	$16,951,229	$16,958,201	100%
Windsor	$16,433,720	$16,667,609	101%
Total	$170,964,610	$231,499,387	135%

[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	171,427	61%
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	$42,714,368	$42,137,610	$22,586,598	$19,551,012	$3,395,333	$19,191,265	$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	($655,268)	($1,580,410)	($1,778,598)	$198,188	($341,333)	($1,437,265)	($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	136,639	129,581	64,511	65,070	10,589	53,922	3,464	59,722	1,884	7,057
MWh Cumulative starting 1/1/15	243,598	234,579	114,085	120,495	21,498	92,586	5,504	110,602	4,388	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	73%	51%	121%	72%	48%	97%	131%	46%	nap
Winter Coincident Peak kW Year to Date	22,888	22,871	10,023	12,848	1,305	8,718	709	11,750	389	17
Winter Coincident Peak kW Cumulative starting 1/1/15	41,399	41,059	17,069	23,990	3,009	14,060	1,123	21,940	927	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%	106%	86%	51%	102%	111%	55%	nap
Summer Coincident Peak kW Year to Date	14,591	14,574	8,273	6,300	1,564	6,710	388	5,773	140	17
Summer Coincident Peak kW Cumulative starting 1/1/15	26,798	26,458	14,766	11,693	3,426	11,339	604	10,770	319	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	64%	53%	87%	76%	49%	86%	91%	35%	nap
TRB Year to Date	$120,165,323	$119,639,725	$63,826,865	$55,812,860	$19,433,846	$44,393,018	$9,588,641	$44,806,413	$1,417,806	$525,599
TRB Cumulative starting 1/1/15	$233,860,790	$231,499,387	$127,729,459	$103,769,928	$47,678,193	$80,051,265	$16,785,206	$83,361,535	$3,623,187	$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	67%	53%	102%	97%	41%	58%	133%	34%	nap
Associated Benefits										
MMBtu Year to Date	11,590	11,590	2,768	8,821	10,118	(7,350)	18,259	(8,596)	(841)	0
MMBtu Cumulative starting 1/1/15	57,276	57,276	43,225	14,051	50,219	(6,994)	31,253	(16,491)	(711)	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	$22,641,492	$46,169,587	$102,893,333
Incentives to Trade Allies	$57,362	$523,543	$580,905	$745,879
Subtotal Incentive Costs	**$23,585,457**	**$23,165,035**	**$46,750,492**	**$103,639,212**
Total Efficiency Vermont Costs	**$43,232,091**	**$42,714,367**	**$85,946,457**	**$192,309,197**
Total Participant Costs	$22,743,166	$29,050,427	$51,793,594	$99,426,161
Total Third Party Costs	($72,989)	($134,840)	($207,829)	$2,914,209
Total Resource Acquisition Costs	**$65,902,268**	**$71,629,955**	**$137,532,222**	**$294,649,566**

Annualized MWh Savings	106,959	136,639	243,598	535,661
Lifetime MWh Savings	1,374,091	1,655,662	3,029,753	6,417,928
TRB Savings (2015 $)	$113,695,467	$120,165,323	$233,860,790	523,516,302
Winter Coincident Peak kW Savings	18,511	22,888	41,399	96,660
Summer Coincident Peak kW Savings	12,207	14,591	26,798	63,560
Annualized MWh Savings/Participant	1.229	1.754	1.491	1.819
Weighted Lifetime	12.8	12.1	12.4	12.0

Annualized MWh Savings (adjusted for measure life)	520,325
Winter Coincident Peak kW Savings (adjusted for measure life)	94,418
Summer Coincident Peak kW Savings (adjusted for measure life)	60,598

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	$22,641,492	$45,842,747	$99,910,603
Incentives to Trade Allies	$57,362	$338	$57,700	$222,662
Subtotal Incentive Costs	**$23,258,617**	**$22,641,830**	**$45,900,447**	**$100,133,266**
Total Efficiency Vermont Costs	**$42,726,613**	**$42,137,610**	**$84,864,223**	**$188,262,035**
Total Participant Costs	$22,585,458	$29,038,453	$51,623,911	$99,817,116
Total Third Party Costs	($72,989)	($134,840)	($207,829)	$2,914,209
Total Resource Acquisition Costs	**$65,239,082**	**$71,041,223**	**$136,280,305**	**$290,993,360**

Annualized MWh Savings	104,998	129,581	234,579	521,486
Lifetime MWh Savings	1,352,631	1,646,756	2,999,387	6,312,825
TRB Savings (2015 $)	$111,859,662	$119,639,725	$231,499,387	$515,789,448
Winter Coincident Peak kW Savings	18,188	22,871	41,059	95,536
Summer Coincident Peak kW Savings	11,884	14,574	26,458	62,437
Annualized MWh Savings/Participant	1.207	1.663	1.436	2.495
Weighted Lifetime	12.9	12.7	12.8	12.1

Annualized MWh Savings (adjusted for measure life)	506,151
Winter Coincident Peak kW Savings (adjusted for measure life)	93,294
Summer Coincident Peak kW Savings (adjusted for measure life)	59,475

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	2,235	2,039	32,976	104	356	32	$7,762,440	$567,095	$687,707
Behavior Change	1	177	158	887	0	0	0	$39,615	$1,000	$50
Cooking and Laundry	3,321	884	780	11,521	203	151	1,743	$2,472,483	$362,838	$678,049
Design Assistance	166	1,053	929	19,093	110	144	6,881	$2,402,770	$861,268	$1,442,374
Electronics	2,994	1,974	1,723	11,284	214	187	0	$807,108	$156,881	-$63,439
Hot Water Efficiency	2,598	3,392	2,756	43,758	523	269	-4,064	$2,464,977	$1,189,873	$917,286
Hot Water Fuel Switch	18	49	63	1,421	8	4	-185	$57,855	$6,823	$17,525
Industrial Process Eff.	82	8,613	8,601	87,923	1,585	909	977	$6,795,075	$1,007,970	$3,334,368
Lighting	66,284	87,864	73,046	1,111,250	15,781	9,925	-28,127	$64,118,482	$11,758,661	$15,171,038
Motors	1,656	7,306	6,919	90,092	1,194	1,608	2,195	$8,864,419	$1,263,954	$1,845,994
Other Efficiency	1,350	204	190	5,492	23	22	0	$402,127	$370,419	-$168,765
Other Fuel Switch	161	175	194	4,755	39	24	-552	$275,021	$15,515	$15,844
Other Indirect Activity	227	0	0	0	0	0	0	$0	$2,366,114	-$28,721
Refrigeration	3,368	4,667	4,383	59,021	531	581	0	$4,237,924	$1,032,554	$686,885
Space Heat Efficiency	2,071	9,369	9,029	139,315	2,363	198	23,687	$15,402,957	$1,538,498	$3,611,291
Space Heat Fuel Switch	12	472	510	14,151	86	0	-689	$685,624	$32,000	$360,059
Ventilation	1,319	1,161	1,052	13,793	108	196	9,691	$2,579,739	$109,874	$511,877
Water Conservation	4	-13	-13	25	-1	-2	0	$271,109	$156	$19,031
Totals		129,581	112,360	1,646,756	22,871	14,574	11,590	$119,639,725	$22,641,492	$29,038,453

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	247	296	250	4,066	52	25	-62	$223,822	$70,335	$54,903
Burlington	6	21	20	270	4	2	2	$20,089	$3,183	$2,531
Enosburg Falls	458	884	780	11,230	151	96	-177	$731,607	$398,063	$200,540
Green Mountain	64,477	106,792	92,470	1,352,867	18,685	11,653	12,700	$98,929,420	$18,465,665	$23,563,186
Hardwick	942	874	725	12,519	180	80	-168	$722,809	$173,540	$274,683
Hyde Park	428	575	481	7,556	101	67	-141	$472,352	$81,306	$104,327
Jacksonville	46	99	86	1,189	17	15	-38	$78,593	$15,611	$15,106
Johnson	246	272	226	3,753	55	26	-105	$192,305	$41,932	$41,781
Ludlow	547	2,334	2,105	28,128	654	580	551	$2,802,011	$616,889	$1,186,494
Lyndonville	937	1,336	1,157	16,976	232	170	413	$1,221,305	$250,097	$356,471
Morrisville	1,198	1,687	1,445	20,733	300	174	-312	$1,272,611	$221,462	$318,821
Northfield	259	691	612	8,979	97	81	-4	$619,741	$126,503	$60,309
Orleans	184	207	174	2,648	39	24	-65	$159,283	$40,335	$43,116
Stowe	881	2,314	2,014	27,033	386	336	-319	$1,994,755	$273,758	$517,223
Swanton	857	1,300	1,189	17,397	223	137	-266	$1,084,424	$226,751	$271,993
VT Electric Coop	5,013	8,560	7,484	114,067	1,432	965	-632	$7,775,759	$1,392,729	$1,719,374
Washington Electric	1,180	1,337	1,143	17,344	262	143	214	$1,338,839	$243,334	$307,595
Totals	77,906	129,581	112,360	1,646,756	22,871	14,574	11,590	$119,639,725	$22,641,492	$29,038,453

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	6,643	5,886	88,558	1,089	777	-584	$6,206,342	$1,225,053	$1,368,326
Bennington	6,609	10,600	8,988	137,835	1,892	1,146	-1,833	$8,783,303	$1,461,510	$2,106,403
Caledonia	3,012	3,682	3,156	47,720	651	419	1,126	$3,373,484	$670,656	$955,321
Chittenden	23,923	35,872	30,877	467,077	5,996	4,147	7,011	$32,631,318	$6,712,936	$9,062,561
Essex	511	645	541	9,633	122	60	-127	$591,181	$122,917	$237,338
Franklin	4,303	7,546	6,779	89,025	1,224	757	323	$6,385,282	$1,490,976	$1,432,787
Grand Isle	576	786	688	10,457	142	86	43	$728,397	$140,617	$210,194
Lamoille	3,572	5,840	5,024	70,458	1,016	722	-1,046	$4,681,022	$786,183	$1,133,116
Orange	2,747	3,658	3,091	49,690	632	400	-723	$3,133,362	$571,799	$544,243
Orleans	3,106	5,555	4,818	75,042	908	644	-1,179	$4,813,142	$760,071	$971,253
Rutland	8,725	15,244	13,264	187,837	2,631	1,560	-26	$12,274,679	$2,301,761	$3,234,575
Washington	7,984	15,350	13,360	189,680	2,984	1,600	9,423	$19,716,258	$2,767,932	$3,730,209
Windham	4,191	8,946	7,865	107,049	1,723	880	-445	$7,325,798	$1,642,471	$1,430,745
Windsor	5,330	9,213	8,023	116,694	1,861	1,377	-373	$8,996,158	$1,986,610	$2,621,381
Totals	77,906	129,581	112,360	1,646,756	22,871	14,574	11,590	$119,639,725	$22,641,492	$29,038,453

3.13 Electric Resource Acquisition Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$107,574,662
Fossil Fuel Savings (Costs)	$61,120	$4,974,482
Water Savings (Costs)	$638,801	$7,088,809
Total	**$699,920**	**$119,639,725**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**112,360**	**114,001**	**129,581**
Winter on peak	44,444	45,122	51,799
Winter off peak	34,737	35,141	40,497
Summer on peak	18,432	18,716	18,716
Summer off peak	14,747	15,023	16,812
Coincident Demand Savings (kW)			
Winter	20,206	20,549	22,871
Shoulder	0	0	0
Summer	13,023	13,106	14,574

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**89,242**	**85,416**	**855,181**
Annualized fuel savings (increase) MMBtu Total	**13,504**	**11,590**	**490,233**
LP	4,460	4,124	112,692
NG	13,444	14,094	287,153
Oil/Kerosene	(12,523)	(14,532)	(85,915)
Wood	8,617	8,264	179,503
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$3,159,097**	**$3,369,171**	**$41,031,253**

Net Societal Benefits	**$151,684,277**

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	$12,037,858	$23,427,745
Incentives to Trade Allies	$51,711	$338	$52,049
Subtotal Incentive Costs	**$11,441,598**	**$12,038,196**	**$23,479,794**
Total Efficiency Vermont Costs	**$22,097,782**	**$22,586,598**	**$44,684,380**
Total Participant Costs	$18,404,076	$18,148,617	$36,552,693
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$40,501,857**	**$40,735,215**	**$81,237,073**

Annualized MWh Savings	49,573	64,511	114,085
Lifetime MWh Savings	660,197	777,561	1,437,758
TRB Savings (2015 $)	$63,902,594	$63,826,865	$127,729,459
Winter Coincident Peak kW Savings	7,046	10,023	17,069
Summer Coincident Peak kW Savings	6,492	8,273	14,766
Annualized MWh Savings/Participant	18.293	7.991	11.353
Weighted Lifetime	13.3	12.1	12.6

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	1,715	1,546	25,507	72	264	32	$7,188,007	$289,054	$678,355
Behavior Change	1	177	158	887	0	0	0	$39,615	$1,000	$50
Cooking and Laundry	24	53	48	676	7	8	330	$159,902	$10,513	$34,297
Design Assistance	111	1,053	929	19,093	110	144	6,881	$2,402,770	$859,953	$1,442,374
Electronics	12	85	76	851	10	10	0	$63,215	$17,684	$13,358
Hot Water Efficiency	13	64	58	799	10	6	169	$139,755	$8,780	$45,679
Hot Water Fuel Switch	1	4	4	57	1	0	-11	$1,507	$0	$500
Industrial Process Eff.	81	8,613	8,601	87,919	1,585	909	977	$6,794,701	$1,007,645	$3,334,368
Lighting	7,664	37,739	33,344	463,477	5,484	5,101	-18,908	$30,308,711	$5,908,199	$8,931,270
Motors	145	6,075	5,837	73,850	1,050	1,095	2,161	$7,055,612	$859,552	$1,585,783
Other Efficiency	10	204	190	5,492	23	22	0	$402,127	$39,271	$159,435
Other Fuel Switch	5	73	70	1,713	15	5	-211	$74,597	$856	$4,752
Other Indirect Activity	68	0	0	0	0	0	0	$0	$2,220,777	$109,866
Refrigeration	211	4,129	3,810	51,448	481	519	0	$3,864,018	$592,828	$736,980
Space Heat Efficiency	46	3,192	3,136	23,256	1,044	19	5,071	$2,531,428	$123,402	$445,066
Space Heat Fuel Switch	2	401	448	12,022	49	0	-442	$618,459	$32,000	$316,650
Ventilation	70	951	865	10,505	84	172	6,718	$1,912,474	$66,187	$292,656
Water Conservation	2	-16	-16	10	-2	-2	0	$269,965	$156	$17,179
Totals		64,511	59,103	777,561	10,023	8,273	2,768	$63,826,865	$12,037,858	$18,148,617

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	65,070	120,495
Lifetime MWh Savings	692,434	869,195	1,561,629
TRB Savings (2015 $)	$47,957,068	$55,812,860	$103,769,928
Winter Coincident Peak kW Savings	11,142	12,848	23,990
Summer Coincident Peak kW Savings	5,392	6,300	11,693
Annualized MWh Savings/Participant	0.657	0.932	0.786
Weighted Lifetime	12.5	13.4	13.0

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	520	493	7,469	32	93	0	$574,433	$278,041	$9,352
Cooking and Laundry	3,297	831	732	10,845	196	144	1,413	$2,312,580	$352,325	$643,752
Design Assistance	55	0	0	0	0	0	0	$0	$1,315	$0
Electronics	2,982	1,889	1,647	10,433	204	177	0	$743,892	$139,197	-$76,797
Hot Water Efficiency	2,585	3,329	2,698	42,960	512	263	-4,234	$2,325,223	$1,181,093	$871,607
Hot Water Fuel Switch	17	45	59	1,364	7	4	-174	$56,348	$6,823	$17,025
Industrial Process Eff.	1	0	0	4	0	0	0	$373	$325	$0
Lighting	58,620	50,125	39,702	647,773	10,297	4,824	-9,219	$33,809,771	$5,850,462	$6,239,768
Motors	1,511	1,231	1,082	16,242	144	512	34	$1,808,806	$404,402	$260,211
Other Efficiency	1,340	0	0	0	0	0	0	$0	$331,148	-$328,200
Other Fuel Switch	156	101	124	3,042	25	19	-341	$200,424	$14,659	$11,092
Other Indirect Activity	159	0	0	0	0	0	0	$0	$145,337	-$138,587
Refrigeration	3,157	538	574	7,572	50	62	0	$373,906	$439,726	-$50,095
Space Heat Efficiency	2,025	6,177	5,894	116,059	1,319	180	18,616	$12,871,529	$1,415,096	$3,166,225
Space Heat Fuel Switch	10	71	63	2,130	38	0	-246	$67,165	$0	$43,409
Ventilation	1,249	210	187	3,288	24	24	2,972	$667,265	$43,687	$219,222
Water Conservation	2	3	3	15	0	0	0	$1,144	$0	$1,852
Totals		65,070	53,257	869,195	12,848	6,300	8,821	$55,812,860	$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	124,415	65,496	58,919	9,269	56,227	235	37,041	21,642
MMBtu Cumulative starting 1/1/15	171,427	81,562	89,865	10,568	70,994	1,593	44,495	43,777
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	61%	48%	83%	37%	50%	69%	303%	48%
Associated Electric Benefits								
MWh Year to Date	(3,813)	286	(4,099)	114	172	(0)	(4,585)	486
MWh Cumulative starting 1/1/15	(4,673)	323	(4,996)	113	210	(1)	(5,566)	571
Winter Coincident Peak kW Year to Date	(770)	41	(811)	7	34	(0)	(1,056)	245
Winter Coincident Peak kW Cumulative starting 1/1/15	(817)	67	(884)	6	61	(0)	(1,171)	287
Summer Coincident Peak kW Year to Date	(190)	21	(210)	10	11	0	(210)	(1)
Summer Coincident Peak kW Cumulative starting 1/1/15	(249)	22	(271)	10	12	0	(268)	(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	124,415	171,427
Lifetime MMBtu Savings	823,610	1,760,975	2,584,585
TRB Savings (2015 $)	$17,514,185	$21,218,599	$38,732,784
Annualized MMBtu Savings/Participant	15.511	30.880	25.728
Weighted Lifetime	17.5	14.2	15.1

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	861	$169,899	$32,923	$73,426
Design Assistance	6	0	0	0	0	0	0	$0	$89,740	$78,512
Hot Water Efficiency	686	-926	-741	-12,045	-144	-73	9,562	$1,178,543	$317,903	-$115,385
Hot Water Fuel Switch	7	1	1	9	0	0	66	$16,564	$0	$11,850
Industrial Process Eff.	38	-25	-24	-250	0	0	13,876	$1,534,462	$251,251	$485,889
Motors	6	164	160	2,459	17	13	6,577	$1,405,733	$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	-39,845	-554	-138	80,666	$13,570,382	$1,997,782	$10,217,033
Space Heat Fuel Switch	94	-217	-205	-3,438	-97	0	4,959	$1,798,538	$74,481	$1,046,333
Ventilation	127	79	70	934	7	7	6,601	$1,262,695	$54,693	$322,673
Water Conservation	1	0	0	0	0	0	1,247	$281,784	$19,000	$56,000
Totals		-3,813	-3,686	-52,137	-770	-190	124,415	$21,218,599	$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	($3,464,645)
Fossil Fuel Savings (Costs)	$2,068,243	$24,640,501
Water Savings (Costs)	$3,577	$42,742
Total	**$2,071,821**	**$21,218,598**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(3,686)**	**(3,359)**	**(3,813)**
Winter on peak	(1,509)	(1,373)	(1,576)
Winter off peak	(1,694)	(1,521)	(1,708)
Summer on peak	(257)	(249)	(249)
Summer off peak	(226)	(217)	(243)
Coincident Demand Savings (kW)			
Winter	(779)	(692)	(770)
Shoulder	0	0	0
Summer	(180)	(171)	(190)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**503**	**478**	**4,981**
Annualized fuel savings (increase) MMBtu Total	**135,974**	**124,415**	**1,760,975**
LP	45,815	42,327	600,478
NG	6,267	5,513	82,666
Oil/Kerosene	68,035	61,400	949,220
Wood	10,993	10,855	112,650
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$11,029**	**$9,523**	**$138,644**

Net Societal Benefits	**$17,641,260**

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	65,496	81,562
Lifetime MMBtu Savings	276,681	808,465	1,085,146
TRB Savings (2015 $)	$5,635,450	$11,375,163	$17,010,613
Annualized MMBtu Savings/Participant	60.398	212.649	145.907
Weighted Lifetime	17.2	12.3	13.3

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	861	$169,899	$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	1,077	$189,564	$21,691	$36,333
Industrial Process Eff.	38	-25	-24	-250	0	0	13,876	$1,534,462	$251,251	$485,889
Motors	5	164	160	2,459	17	13	6,575	$1,405,476	$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	32,717	$5,544,034	$304,447	$1,211,700
Space Heat Fuel Switch	8	-66	-58	-1,065	-29	0	2,685	$1,018,466	$26,481	$267,053
Ventilation	19	79	70	934	7	7	6,458	$1,231,478	$54,693	$173,655
Water Conservation	1	0	0	0	0	0	1,247	$281,784	$19,000	$56,000
Totals		286	273	4,491	41	21	65,496	$11,375,163	$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	58,919	89,865
Lifetime MMBtu Savings	546,929	952,510	1,499,439
TRB Savings (2012$)	$11,878,734	$9,843,436	$21,722,170
Annualized MMBtu Savings/Participant	11.192	15.834	14.722
Weighted Lifetime	17.7	16.2	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	-12,045	-144	-73	8,485	$988,979	$296,212	-$151,718
Hot Water Fuel Switch	7	1	1	9	0	0	66	$16,564	$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	-3,073	-42,219	-600	-138	47,949	$8,026,347	$1,693,335	$9,005,334
Space Heat Fuel Switch	86	-151	-147	-2,374	-68	0	2,274	$780,073	$48,000	$779,280
Ventilation	108	0	0	0	0	0	143	$31,217	$0	$149,018
Totals		-4,099	-3,959	-56,628	-811	-210	58,919	$9,843,436	$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	10,589	21,498
Lifetime MWh Savings	160,751	159,966	320,718
TRB Savings (2015 $)	$28,244,347	$19,433,846	$47,678,193
Winter Coincident Peak kW Savings	1,703	1,305	3,009
Summer Coincident Peak kW Savings	1,863	1,564	3,426
Annualized MWh Savings/Participant	44.893	38.788	42.403
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	904	795	13,860	39	179	0	$6,347,022	$165,100	$325,427
Cooking and Laundry	15	44	40	555	6	6	244	$106,885	$6,461	$13,994
Design Assistance	13	754	662	16,433	94	140	6,780	$2,219,566	$223,002	$897,864
Electronics	2	7	6	71	1	1	0	$6,265	$250	$250
Hot Water Efficiency	7	7	6	95	1	1	169	$89,751	$907	$30,099
Hot Water Fuel Switch	1	4	4	57	1	0	-11	$1,507	$0	$500
Industrial Process Eff.	5	94	93	1,176	9	18	0	$102,090	$68,065	$199,975
Lighting	254	6,463	5,685	95,642	816	909	-3,256	$6,787,688	$886,033	$1,268,522
Motors	22	568	499	7,355	68	88	8	$608,331	$156,499	$463,701
Other Efficiency	1	3	2	79	1	0	0	$5,286	$504	$996
Other Fuel Switch	3	25	22	736	3	3	-83	$21,895	$1	$1,332
Other Indirect Activity	5	0	0	0	0	0	0	$0	$22,500	-$22,500
Refrigeration	28	1,200	1,057	16,317	154	144	0	$1,221,087	$38,134	$132,827
Space Heat Efficiency	22	204	180	3,116	68	18	2,551	$878,419	$14,930	$151,999
Space Heat Fuel Switch	1	0	0	0	0	0	61	$114,790	$2,000	$13,750
Ventilation	35	312	275	4,444	43	56	3,655	$921,137	$19,652	$128,331
Water Conservation	1	2	2	28	0	0	0	$2,129	$156	$79
Totals		10,589	9,328	159,966	1,305	1,564	10,118	$19,433,846	$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	$12,662,400
Fossil Fuel Savings (Costs)	$105,219	$1,491,407
Water Savings (Costs)	$324,992	$5,279,707
Total	**$430,211**	**$19,433,514**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**9,328**	**9,315**	**10,589**
Winter on peak	3,300	3,291	3,778
Winter off peak	2,644	2,643	2,968
Summer on peak	1,945	1,941	1,941
Summer off peak	1,439	1,439	1,610
Coincident Demand Savings (kW)			
Winter	1,173	1,173	1,305
Shoulder	0	0	0
Summer	1,409	1,406	1,564

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**43,453**	**43,448**	**646,833**
Annualized fuel savings (increase) MMBtu Total	**10,133**	**10,118**	**204,044**
LP	1,475	1,477	24,129
NG	2,581	2,579	41,363
Oil/Kerosene	699	541	8,336
Wood	5,635	5,782	132,849
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$39,470**	**$39,433**	**$589,776**

Net Societal Benefits	**$20,731,143**

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	$10,433,662	$20,115,689
Incentives to Trade Allies	$40,253	$288	$40,541
Subtotal Incentive Costs	**$9,722,280**	**$10,433,950**	**$20,156,230**
Total Efficiency Vermont Costs	**$18,621,876**	**$19,191,265**	**$37,813,141**
Total Participant Costs	$14,880,064	$14,541,472	$29,421,536
Total Third Party Costs	$0	$0	$0
Total Resource Acquisition Costs	**$33,501,941**	**$33,732,737**	**$67,234,677**
Annualized MWh Savings	38,664	53,922	92,586
Lifetime MWh Savings	499,445	617,595	1,117,040
TRB Savings (2015 $)	$35,658,247	$44,393,018	$80,051,265
Winter Coincident Peak kW Savings	5,342	8,718	14,060
Summer Coincident Peak kW Savings	4,630	6,710	11,339
Annualized MWh Savings/Participant	15.673	6.913	9.703
Weighted Lifetime	12.9	11.5	12.1

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	811	751	11,647	33	85	32	$840,985	$123,954	$352,927
Behavior Change	1	177	158	887	0	0	0	$39,615	$1,000	$50
Cooking and Laundry	9	9	8	121	1	2	85	$53,017	$4,052	$20,304
Design Assistance	98	298	267	2,659	16	5	101	$183,204	$636,951	$544,510
Electronics	10	78	69	780	9	9	0	$56,950	$17,434	$13,108
Hot Water Efficiency	6	57	52	704	9	6	0	$50,004	$7,873	$15,580
Industrial Process Eff.	76	8,519	8,508	86,743	1,576	891	977	$6,692,611	$939,579	$3,134,393
Lighting	7,410	31,276	27,659	367,835	4,668	4,192	-15,652	$23,521,023	$5,022,165	$7,662,748
Motors	123	5,508	5,338	66,495	982	1,007	2,153	$6,447,282	$703,053	$1,122,083
Other Efficiency	9	201	188	5,412	22	22	0	$396,841	$38,767	$158,439
Other Fuel Switch	2	49	48	976	11	3	-128	$52,702	$855	$3,420
Other Indirect Activity	63	0	0	0	0	0	0	$0	$2,198,277	$132,366
Refrigeration	183	2,929	2,752	35,131	327	375	0	$2,642,931	$554,694	$604,153
Space Heat Efficiency	24	2,988	2,956	20,140	976	1	2,520	$1,653,010	$108,472	$293,068
Space Heat Fuel Switch	1	401	448	12,022	49	0	-503	$503,669	$30,000	$302,900
Ventilation	35	639	590	6,061	41	116	3,064	$991,337	$46,535	$164,324
Water Conservation	1	-18	-18	-18	-2	-2	0	$267,836	$0	$17,100
Totals		53,922	49,775	617,595	8,718	6,710	-7,350	$44,393,018	$10,433,662	$14,541,472

4.6 Electric Business Existing Facilities Total Resource Benefits

Avoided Cost Benefits	2016	Lifetime (Present Value)
Avoided Cost of Electricity	nap	$44,705,550
Fossil Fuel Savings (Costs)	($116,082)	($762,153)
Water Savings (Costs)	$219,669	$447,946
Total	**$103,587**	**$44,391,343**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**49,775**	**47,414**	**53,922**
Winter on peak	20,239	19,300	22,157
Winter off peak	14,569	13,814	16,547
Summer on peak	8,518	8,145	8,145
Summer off peak	6,448	6,154	6,886
Coincident Demand Savings (kW)			
Winter	8,237	7,833	8,718
Shoulder	0	0	0
Summer	6,325	6,034	6,710

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**32,982**	**29,367**	**45,665**
Annualized fuel savings (increase) MMBtu Total	**(6,733)**	**(7,350)**	**(53,445)**
LP	545	463	4,814
NG	(1,806)	(1,633)	(29,119)
Oil/Kerosene	(7,980)	(8,388)	(62,862)
Wood	2,541	2,252	34,563
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$1,236,976**	**$1,228,111**	**$13,863,312**

Net Societal Benefits	**$52,005,367**

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	3,464	5,504
Lifetime MWh Savings	36,070	61,619	97,689
TRB Savings (2015 $)	$7,196,565	$9,588,641	$16,785,206
Winter Coincident Peak kW Savings	414	709	1,123
Summer Coincident Peak kW Savings	216	388	604
Annualized MWh Savings/Participant	1.493	1.885	1.775
Weighted Lifetime	17.7	17.8	17.7

4.8 Electric Residential New Construction - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	366	310	273	5,149	21	36	0	$359,027	$242,768	-$64,024
Cooking and Laundry	870	73	64	969	24	15	382	$362,390	$41,858	$66,983
Design Assistance	55	0	0	0	0	0	0	$0	$1,315	$0
Hot Water Efficiency	898	14	12	201	2	1	1,539	$318,568	$1,602	$16,104
Lighting	1,690	1,697	1,551	24,452	324	162	-230	$1,611,589	$752,577	-$46,542
Motors	55	44	39	659	3	4	0	$43,646	$5,083	-$1,033
Other Efficiency	212	0	0	0	0	0	0	$0	$326,700	-$326,700
Other Fuel Switch	149	94	118	2,809	23	17	-317	$184,513	$8,189	$14,287
Other Indirect Activity	137	0	0	0	0	0	0	$0	$103,750	-$97,000
Refrigeration	914	65	69	1,065	6	8	0	$75,801	$7,735	$22,769
Space Heat Efficiency	703	998	845	23,631	287	126	13,914	$6,009,178	$31,532	$1,651,831
Ventilation	956	171	152	2,683	20	19	2,972	$623,929	$15,663	$227,110
Totals		3,464	3,121	61,619	709	388	18,259	$9,588,641	$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	$4,571,811
Fossil Fuel Savings (Costs)	$267,079	$4,661,223
Water Savings (Costs)	$27,109	$355,606
Total	**$294,188**	**$9,588,640**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**3,121**	**3,052**	**3,464**
Winter on peak	1,145	1,120	1,286
Winter off peak	1,179	1,164	1,307
Summer on peak	405	390	390
Summer off peak	392	379	424
Coincident Demand Savings (kW)			
Winter	651	637	709
Shoulder	0	0	0
Summer	359	349	388

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**3,631**	**3,624**	**41,637**
Annualized fuel savings (increase) MMBtu Total	**17,533**	**18,259**	**402,632**
LP	4,708	4,930	116,222
NG	11,670	12,148	262,518
Oil/Kerosene	344	349	6,873
Wood	811	821	16,991
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$65,851**	**$63,351**	**$940,600**

Net Societal Benefits	**$10,531,596**

4.10 Electric Efficient Products Summary

	Prior Year	Current Year 2016	Cumulative starting 1/1/15
# participants with installations[1]	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	59,722	110,602
Lifetime MWh Savings	619,562	781,148	1,400,710
TRB Savings (2015 $)	$38,555,123	$44,806,413	$83,361,535
Winter Coincident Peak kW Savings	10,191	11,750	21,940
Summer Coincident Peak kW Savings	4,997	5,773	10,770
Annualized MWh Savings/Participant	0.645	0.902	0.766
Weighted Lifetime	12.2	13.1	12.7

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

4.11 Electric Efficient Products - End Use Breakdown

End Use	# of Participants	Net MWH Saved	Gross MWH Saved	Net Lifetime MWH Saved	Net Winter KW Saved	Net Summer KW Saved	Net Other Fuel MMBTU Saved	Net TRB Saved	Participant Incentives Paid	Participant Costs
Air Conditioning Eff.	890	202	213	2,211	11	53	0	$204,463	$30,675	$69,229
Cooking and Laundry	2,319	640	564	8,244	157	118	1,002	$1,797,429	$219,490	$526,927
Electronics	2,698	1,858	1,620	10,308	201	173	0	$734,207	$130,477	-$75,252
Hot Water Efficiency	1,090	2,890	2,312	37,562	449	227	-5,315	$1,661,358	$809,395	$876,680
Lighting	55,495	47,677	37,479	614,629	9,800	4,617	-8,985	$31,774,399	$4,911,471	$6,261,056
Motors	1,426	1,177	1,034	15,475	138	508	0	$1,754,051	$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	2,204	19	24	0	$157,933	$90,255	-$70,442
Space Heat Efficiency	1,174	5,073	4,955	90,514	975	54	4,702	$6,722,572	$1,195,313	$1,592,656
Totals		59,722	48,445	781,148	11,750	5,773	-8,596	$44,806,413	$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	$44,184,749
Fossil Fuel Savings (Costs)	($180,576)	($219,603)
Water Savings (Costs)	$54,466	$841,504
Total	**($126,111)**	**$44,806,650**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**48,445**	**52,559**	**59,722**
Winter on peak	19,147	20,808	23,887
Winter off peak	15,726	16,911	18,991
Summer on peak	7,348	8,028	8,028
Summer off peak	6,225	6,813	7,625
Coincident Demand Savings (kW)			
Winter	9,791	10,557	11,750
Shoulder	0	0	0
Summer	4,803	5,191	5,773

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**7,481**	**7,297**	**101,786**
Annualized fuel savings (increase) MMBtu Total	**(6,496)**	**(8,596)**	**(44,600)**
LP	(1,934)	(2,408)	(27,050)
NG	1,353	1,262	20,237
Oil/Kerosene	(5,435)	(6,882)	(34,852)
Wood	(272)	(495)	(3,193)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$1,786,758**	**$2,008,492**	**$25,311,705**

Net Societal Benefits	**$68,508,666**

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	1,884	4,388
Lifetime MWh Savings	36,802	26,429	63,231
TRB Savings (2015 $)	$2,205,381	$1,417,806	$3,623,187
Winter Coincident Peak kW Savings	538	389	927
Summer Coincident Peak kW Savings	179	140	319
Annualized MWh Savings/Participant	0.607	1.041	0.760
Weighted Lifetime	14.7	14.0	14.4

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	8	8	109	1	3	0	$10,943	$4,598	$4,147
Cooking and Laundry	108	118	104	1,632	15	11	29	$152,762	$90,977	$49,842
Electronics	284	31	27	125	3	4	0	$9,685	$8,720	-$1,545
Hot Water Efficiency	597	425	374	5,196	62	35	-457	$345,297	$370,096	-$21,177
Hot Water Fuel Switch	17	45	59	1,364	7	4	-174	$56,348	$6,823	$17,025
Industrial Process Eff.	1	0	0	4	0	0	0	$373	$325	$0
Lighting	1,435	752	672	8,692	173	45	-3	$423,783	$186,414	$25,253
Motors	30	10	9	108	3	1	34	$11,110	$2,589	$764
Other Efficiency	921	0	0	0	0	0	0	$0	$4,448	-$1,500
Other Fuel Switch	7	8	7	233	2	1	-23	$15,911	$6,470	-$3,195
Other Indirect Activity	18	0	0	0	0	0	0	$0	$37	-$37
Refrigeration	462	268	236	4,303	25	31	0	$140,172	$341,736	-$2,422
Space Heat Efficiency	148	106	94	1,914	56	0	0	$139,779	$188,251	-$78,262
Space Heat Fuel Switch	10	71	63	2,130	38	0	-246	$67,165	$0	$43,409
Ventilation	293	39	34	605	4	4	0	$43,335	$28,024	-$7,888
Water Conservation	2	3	3	15	0	0	0	$1,144	$0	$1,852
Totals		1,884	1,690	26,429	389	140	-841	$1,417,806	$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	$1,450,151
Fossil Fuel Savings (Costs)	($14,520)	($196,392)
Water Savings (Costs)	$12,565	$164,047
Total	**($1,955)**	**$1,417,806**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**1,690**	**1,661**	**1,884**
Winter on peak	613	602	691
Winter off peak	619	609	684
Summer on peak	216	212	212
Summer off peak	242	238	266
Coincident Demand Savings (kW)			
Winter	354	349	389
Shoulder	0	0	0
Summer	127	125	140

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**1,694**	**1,680**	**19,259**
Annualized fuel savings (increase) MMBtu Total	**(933)**	**(841)**	**(18,397)**
LP	(334)	(338)	(5,422)
NG	(354)	(262)	(7,847)
Oil/Kerosene	(151)	(151)	(3,410)
Wood	(98)	(96)	(1,706)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$30,042**	**$29,785**	**$325,859**

Net Societal Benefits	**($92,495)**

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	9,269	10,568
Lifetime MMBtu Savings	27,009	167,620	194,629
TRB Savings (2015 $)	$1,407,979	$2,473,469	$3,881,448
Annualized MMBtu Savings/Participant	81.153	201.503	170.445
Weighted Lifetime	20.8	18.1	18.4

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	193	$49,391	$3,123	$1,226
Hot Water Efficiency	10	0	0	0	0	0	448	$94,064	$5,941	$16,853
Motors	3	20	18	305	4	4	321	$98,585	$2,191	$8,309
Space Heat Efficiency	30	59	52	887	12	0	3,620	$1,240,599	$28,074	$100,583
Space Heat Fuel Switch	2	-41	-37	-619	-16	0	462	$226,548	$12,481	$123,607
Ventilation	12	74	65	864	7	6	4,225	$764,281	$45,563	$98,302
Totals		114	100	1,465	7	10	9,269	$2,473,469	$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)	$123,038	$2,357,073
Water Savings (Costs)	$1,597	$20,058
Total	**$124,635**	**$2,473,469**

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	14
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	**9,270**	**9,269**	**167,620**
LP	9,186	8,959	162,975
NG	0	0	0
Oil/Kerosene	29	29	709
Wood	55	281	3,936
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$825**	**$702**	**$10,524**

Net Societal Benefits	**$3,261,969**

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	56,227	70,994
Lifetime MMBtu Savings	249,672	640,845	890,517
TRB Savings (2015 $)	$4,227,471	$8,901,694	$13,129,165
Annualized MMBtu Savings/Participant	59.070	214.606	142.846
Weighted Lifetime	16.9	11.4	12.5

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	668	$120,508	$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	630	$95,500	$15,750	$19,480
Industrial Process Eff.	38	-25	-24	-250	0	0	13,876	$1,534,462	$251,251	$485,889
Motors	2	144	142	2,154	13	10	6,254	$1,306,891	$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	29,098	$4,303,435	$276,373	$1,111,116
Space Heat Fuel Switch	6	-25	-21	-446	-13	0	2,222	$791,917	$14,000	$143,446
Ventilation	7	5	5	69	0	1	2,232	$467,197	$9,130	$75,353
Water Conservation	1	0	0	0	0	0	1,247	$281,784	$19,000	$56,000
Totals		172	173	3,026	34	11	56,227	$8,901,694	$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)	$839,683	$8,712,948
Water Savings (Costs)	$310	$5,582
Total	**$839,993**	**$8,901,694**

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	25
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**	**42**	**699**
Annualized fuel savings (increase) MMBtu Total	**63,033**	**56,227**	**640,845**
LP	23,805	21,357	242,561
NG	0	0	0
Oil/Kerosene	27,787	23,955	339,351
Wood	6,561	6,572	42,884
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$11,716**	**$10,003**	**$150,042**

Net Societal Benefits	**$11,065,429**

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	235	1,593
Lifetime MMBtu Savings	33,224	4,932	38,156
TRB Savings (2015 $)	$554,739	$132,280	$687,020
Annualized MMBtuSavings/Participant	1,358.169	3.314	22.131
Weighted Lifetime	24.5	21.0	23.9

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	189	$58,340	$1,493	$15,510
Space Heat Fuel Switch	9	0	0	-5	0	0	46	$73,940	$2,000	$48,000
Totals		0	0	-5	0	0	235	$132,280	$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)	$9,708	$132,577
Water Savings (Costs)	$0	$0
Total	**$9,708**	**$132,280**

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	**235**	**235**	**4,932**
LP	113	113	2,827
NG	0	0	0
Oil/Kerosene	646	646	9,969
Wood	(524)	(524)	(7,864)
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$145**	**$145**	**$2,168**

Net Societal Benefits	**$192,116**

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	37,041	44,495
Lifetime MMBtu Savings	97,263	532,540	629,803
TRB Savings (2015 $)	1,895,545	$3,008,186	$4,903,731
Annualized MMBtu Savings/Participant	22.656	33.643	32.741
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	-12,012	-143	-72	8,007	$883,245	$295,690	-$227,148
Space Heat Efficiency	642	-3,661	-3,668	-54,992	-913	-137	29,034	$2,124,941	$256,500	$633,478
Totals		-4,585	-4,407	-67,004	-1,056	-210	37,041	$3,008,186	$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	($4,480,375)
Fossil Fuel Savings (Costs)	$661,623	$7,486,450
Water Savings (Costs)	$260	$2,110
Total	**$661,883**	**$3,008,186**

Electric Energy & Demand Benefits	Savings at Meter		Savings at Generation
	Gross	Net	Net
Annualized Energy Savings (MWh): Total	**(4,407)**	**(4,039)**	**(4,585)**
Winter on peak	(1,823)	(1,669)	(1,916)
Winter off peak	(2,020)	(1,829)	(2,054)
Summer on peak	(302)	(290)	(290)
Summer off peak	(262)	(251)	(281)
Coincident Demand Savings (kW)			
Winter	(1,050)	(949)	(1,056)
Shoulder	0	0	0
Summer	(200)	(189)	(210)

Thermal & Other Benefits	Gross	Net	Lifetime Net
Annualized Water Savings (ccf)	**35**	**35**	**244**
Annualized fuel savings (increase) MMBtu Total	**40,083**	**37,041**	**532,540**
LP	6,740	6,361	88,954
NG	6,252	5,499	82,537
Oil/Kerosene	22,616	21,307	302,221
Wood	4,490	3,898	58,917
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**$0**	**$0**	**$0**

Net Societal Benefits	**$3,176,477**

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	21,642	43,777
Lifetime MMBtu Savings	416,442	415,039	831,480
TRB Savings (2015 $)	$9,428,450	$6,702,970	$16,131,420
Annualized MMBtu Savings/Participant	9.090	8.491	9.368
Weighted Lifetime	18.8	19.2	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	478	$105,734	$522	$75,430
Hot Water Fuel Switch	7	1	1	9	0	0	66	$16,564	$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	18,725	$5,843,066	$1,435,341	$8,356,346
Space Heat Fuel Switch	77	-151	-147	-2,369	-68	0	2,228	$706,133	$46,000	$731,280
Ventilation	108	0	0	0	0	0	143	$31,217	$0	$149,018
Totals		486	448	10,382	245	-1	21,642	$6,702,970	$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)	$434,191	$5,951,454
Water Savings (Costs)	$1,409	$14,992
Total	**$435,601**	**$6,702,970**

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	2
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)	**202**	**188**	**1,702**
Annualized fuel savings (increase) MMBtu Total	**23,353**	**21,642**	**415,039**
LP	5,970	5,537	103,161
NG	15	14	129
Oil/Kerosene	16,956	15,462	296,971
Wood	411	629	14,777
Solar	0	0	0
Other	0	0	0
Annualized savings (increase) in O&M($)	**($1,657)**	**($1,326)**	**($24,089)**

Net Societal Benefits	**($54,731)**

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	989
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	199	3,007	$307,559
Bellows Falls	49	706	$62,877
Bennington	27	370	$117,462
Bradford	7	96	$5,637
Brandon	654	9,275	$523,221
Brattleboro	347	4,099	$995,755
Bristol	69	968	$156,646
Middlebury	290	3,925	$705,500
Montpelier	407	5,201	$710,138
Morrisville	Not Available	Not Available	Not Available
Newport City	Not Available	Not Available	Not Available
Poultney	55	810	$74,563
Randolph	127	1,831	$208,092
Rutland City	133	1,753	$147,406
Saint Albans	423	4,747	$331,839
Saint Johnsbury	427	7,534	$765,712
Springfield	27	358	$109,169
Vergennes	6	81	$29,585
Waterbury	140	2,123	$189,624
White River Junction	84	1,360	$132,599
Wilmington	4	43	$20,618
Windsor	80	879	$97,455
Winooski	360	3,622	$563,558
Totals:	**3,914**	**52,788**	**$6,255,017**
New Town Centers[1]			
Colchester	4	25	$2,087
South Burlington	55	728	$48,259
Totals:	**59**	**753**	**$50,345**
Growth Centers[1]			
Bennington	4,194	62,758	$5,291,767
Colchester	4	25	$2,087
Hartford	901	10,610	$2,766,983
Montpelier	835	10,052	$2,131,327
Saint Albans	1,213	16,210	$1,115,344
Williston	1,087	14,003	$988,169
Totals:	**8,234**	**113,658**	**$12,295,677**

[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)

Footnotes for 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 buydown participants. For all Efficient Products (EP) lighting buydown and upstream measures without customer specific data such as name, address, etc., participants are counted using the total quantity of lighting products and/or units sold. For Residential EP buydown 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 and 9.5% indirect fees that were applied to (25) Incentives to Participants.

(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).

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

(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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