

Benchmarking 2014-2015 Demand Side Management Results for Vermont **STUDY SUMMARY**

INTRODUCTION

The “*Process and Administration of an Energy Efficiency Utility Order of Appointment*” document (P&A), which is approved by the VT Public Utilities Commission sets forth the procedural and administrative framework for all Energy Efficiency Utility (EEU) Orders of Appointment. The P&A requires the Department to assess an EEU's performance relative to the performance of other entities conducting similar efficiency resource acquisition efforts in other jurisdictions every three years. It also specifies that such comparisons shall normalize for program maturity, funding, demographics, and other important variables.

This report benchmarks the three current Vermont EEUs against other efficiency program administrators (PAs) in the Northeast and Mid-Atlantic states for the years 2014 and 2015. The benchmarking analysis was commissioned by the Department in 2017. At the time, 2016 EEU program final reports were not yet available so the two most recent program years (2014 and 2015) were selected. In a previous benchmarking analysis the Department assessed program years 2011 and 2012 found https://publicservice.vermont.gov/energy_efficiency/eeu_evaluation .

METHODOLOGY AND SCOPE

Efficiency Vermont (EVT) and City of Burlington Electric Department (BED) were benchmarked against 17 PAs and Vermont Gas Services (VGS) was benchmarked against 16 PAs. (Note that in 2014 and 2015 VGS was not an EEU and its efficiency program reporting was not subject to the same level of regulatory review as it currently is. For example, savings claims were not evaluated by a third party.) VGS was appointed an EEU in 2016 and after a two-year transition period became full-fledged EEU.

Benchmarked PAs were selected for the comparison group based on their level of efficiency activity, geographic proximity to Vermont, size, and organizational structure.

Data Sources

Program administrator data from 2014 and 2015 was collected from publicly available sources supplemented with follow-up emails and phone calls. PA energy savings and budget data were obtained from the Regional Energy Efficiency Database (REED) maintained by the Northeast Energy Efficiency Partnerships (NEEP).¹ However, not all PAs reported the full set of data used to develop the benchmarking values in the report, for example not all PAs reported lifetime savings in REED. Electric baseline sales and revenue for utilities were collected from the Federal Energy Regulatory Commission (FERC) Form 861 posted on the Energy Information Administration website.² Low-income program spending and some energy savings data were not available for the VT EEUs in REED so they were obtained directly from the EEUs. Additional VT EEU data was obtained from regulatory filings and verified by discussions with EEU staff.

Adjustments made to VT EEU Program Cost Data

In 2014-15, budgets for EVT and BED were allocated into two main categories: Resource Acquisition (RA) costs, which are defined as costs for services that directly achieve energy savings; and Non-Resource

¹ <https://reed.neep.org/>

² www.eia.doe.gov

Acquisition (NRA) costs, which are defined as services that provide necessary support for the operation of the EEU's, but do not directly achieve energy savings. Although EVT and BED only reported RA costs to REED, in this study their NRA costs were added to achieve the total spending amount to put their costs on par with other PAs, which don't have a separate NRA cost category (they are included with their RA and/or administrative costs). Some NRA costs were considered administrative and were allocated to the administrative cost category.

Considerations in using PA Benchmarking data

There are a number of factors to consider in using benchmarking data to compare the performance of different PAs. These include, but are not limited to:

- Program Administrator Size - Economies of scale may be attained due to the size of the organization and/or amplified, through statewide program implementation, including coordinated statewide electric and gas program delivery.
- Program Maturity - Well established programs may have lower administrative costs compared to a PA that is still ramping up their efficiency efforts. However, they may also have higher costs of savings as programs mature, since inexpensive "low-hanging fruit" savings may represent a smaller portion of their program activities.
- Provision of Account Management and Technical Services - For C&I customers, particularly larger ones, providing focused account management and technical services may allow a PA to attain significant savings at potentially lower incentive costs.
- Support of delivered fuel efficiency activities - Many PAs in the Northeast use electric efficiency funds to support delivered fuel efficiency efforts. These activities will raise the electric cost of savings as a portion of their program budget is expended for activities that do not yield electricity savings.
- Annual vs. Lifetime savings - Annual cost of energy savings metrics can be skewed by measures with short measure lives.
- Low-income program activity - The extent of low-income program funding may have an impact on cost of energy savings as incentives are typically at or near full measure cost. As a result, low-income programs have a high cost of saved energy compared to other programs.
- Residential vs. C&I program spending - Residential programs usually have higher costs of energy savings given higher per participant transaction costs and lower hours of use compared to commercial programs and measures.
- Depth of Savings - Deeper energy savings may require higher incentives (as a percent of incremental cost) to induce greater participation and measure uptake.
- Presence of residential behavioral programs - these programs typically have low annual (but high lifetime) costs of energy savings. For some PAs, these programs represent a significant portion of their residential sector annual energy savings, potentially lowering portfolio-level costs of annual saved energy.
- Differences in how energy savings are determined - Program administrators in different jurisdictions may claim different savings for the same measure. Some of these differences may be due to variations in parameters, like hours of use or heating and cooling degree days. However, some of the differences may be driven by the level of evaluation activity and how recently a given measure has been evaluated.

Administrative Cost and Efficiency & Deeper Dives

In addition to the quantitative benchmarking at the portfolio, C&I and Residential sector levels, additional research was done to examine specific topics in greater depth. These included the

development of an Administrative Cost and Efficiency report and a set of Deeper Dives on delivered fuel efficiency programs, job impacts, and low- income programs. The Deeper Dives leveraged a variety of data sources, including a set of PA staff interviews. In addition, a standalone Compensation Benchmarking analysis was performed to assess PA compensation above and beyond the cost of service.

2014 AND 2015 ELECTRIC AND GAS OVERALL BENCHMARKING RESULTS

The following tables show the overall benchmarking results for the VT EEU in comparison to the other PAs for the following metrics:

- Overall Energy Efficiency Spending as % of Utility Revenue
- Energy Efficiency Savings as % of Utility Sales
- Summer Peak Demand Savings as a % of Peak Demand
- Cost of saved energy (\$/kWh or \$/therm)
- Total cost per annual or lifetime energy (kWh or therm) saved

2014 Electric Overall Benchmarking Results

	Spending as % of Revenue	Energy Savings as % of Sales	Summer Peak Demand Savings as % of Peak Demand	Retail Cost of Energy \$/kWh	Cost of First Year Savings \$/kWh	Levelized Cost of Energy Savings \$/kWh	Cost of Lifetime Savings \$/kWh
All Benchmarked Median	4.9%	1.1%	0.8%	\$0.11	\$0.39	\$0.05	\$0.04
EVT	6.3%	1.8%	1.3%	\$0.15	\$0.52	\$0.05	\$0.04
BED	5.4%	1.6%	1.3%	\$0.14	\$0.47	\$0.07	\$0.06

2015 Electric Overall Benchmarking Results

	Spending as % of Revenue	Energy Savings as % of Sales	Summer Peak Demand Savings as % of Peak Demand	Retail Cost of Energy \$/kWh	Cost of First Year Savings \$/kWh	Levelized Cost of Energy Savings \$/kWh	Cost of Lifetime Savings \$/kWh
All Benchmarked Median	4.4%	1.3%	1.1%	\$0.12	\$0.36	\$0.04	\$0.03
EVT	6.6%	2.1%	1.6%	\$0.14	\$0.45	\$0.04	\$0.04
BED	5.1%	1.8%	1.0%	\$0.14	\$0.41	\$0.04	\$0.03

2014 Gas Overall Benchmarking Results

	Spending as % of Revenue	Energy Savings as % of Sales	Retail Cost of Energy \$/Therm	Cost of First Year Savings \$/Annual therm	Levelized Cost of Energy Savings \$/Therm	Cost of Lifetime Savings \$/Therm
All Benchmarked Median	3.7%	0.8%	\$1.07	\$5.22	\$0.46	\$0.36
VGS	2.0%	0.9%	\$1.05	\$2.46	\$0.19	\$0.15

2015 Gas Overall Benchmarking Results

	Spending as % of Revenue	Energy Savings as % of Sales	Retail Cost of Energy \$/Therm	Cost of First Year Savings \$/Annual Therm	Levelized Cost of Energy Savings \$/Therm	Cost of Lifetime Savings \$/Therm
All Benchmarked Median	3.9%	0.6%	\$0.99	\$5.38	\$0.48	\$0.40
VGS	2.0%	0.7%	\$0.94	\$2.72	\$0.19	\$0.14

ADMINISTRATIVE COST AND EFFICIENCY BENCHMARKING

Using a subset of the larger benchmarking analysis the three Vermont EEs were benchmarked against other Northeast and Mid-Atlantic energy efficiency program administrators (PAs) on a number of metrics related to administrative costs. This benchmarking allows for comparison of how different program administrators in the region allocate program costs in their delivery of efficiency services.

Summary of Administrative Efficiency Metrics for Vermont Electric EEs

In 2014 and 2015 both Efficiency Vermont and Burlington Electric spent above average on administrative costs as a percent of total efficiency spending compared to the average of comparison Northeast and Mid-Atlantic PAs.

In 2014, Burlington Electric's non-incentive spending as a percent of total spending was average, while Efficiency Vermont's non-incentive spending was above average compared to other PAs benchmarked. In 2015, Burlington Electric's non-incentive spending was below average and EVT's was above average compared to other PAs benchmarked.

Efficiency Vermont and Burlington Electric had costs of saved energy (\$/annual kWh saved) that were above average. These results suggest that there may be opportunities for Burlington Electric and Efficiency Vermont to reduce administrative and non-incentive costs to reduce their total cost of saved energy.

Vermont Gas had above average administrative and non-incentive costs as a percent of total spending in 2014 and 2015 when compared to other gas PAs in the region. However, VGS had below average costs of saved energy (\$/annual therm saved) relative to comparison gas PAs.

This suggests that although Vermont Gas's administrative costs were above average, they were not necessarily a clear indicator that program funding was spent inefficiently. As previously mentioned, VGS savings numbers were not verified in years 2014 and 2015. Therefore, these results may not be directly comparable with other PAs that did have verified savings.

DEEPER DIVE FINDINGS

To provide greater insights into a set of selected topics, several focused research efforts were undertaken as part of this study. Deeper dive topics included:

- Compensation benchmarking
- Delivered fuel efficiency programs
- Job impacts
- Low-income programs

Compensation Benchmarking

Compensation is typically tied to performance relative to a prescribed set of goals. In some cases, PAs may have goals that are structured in a way that it is not possible to earn all of the available performance incentive.

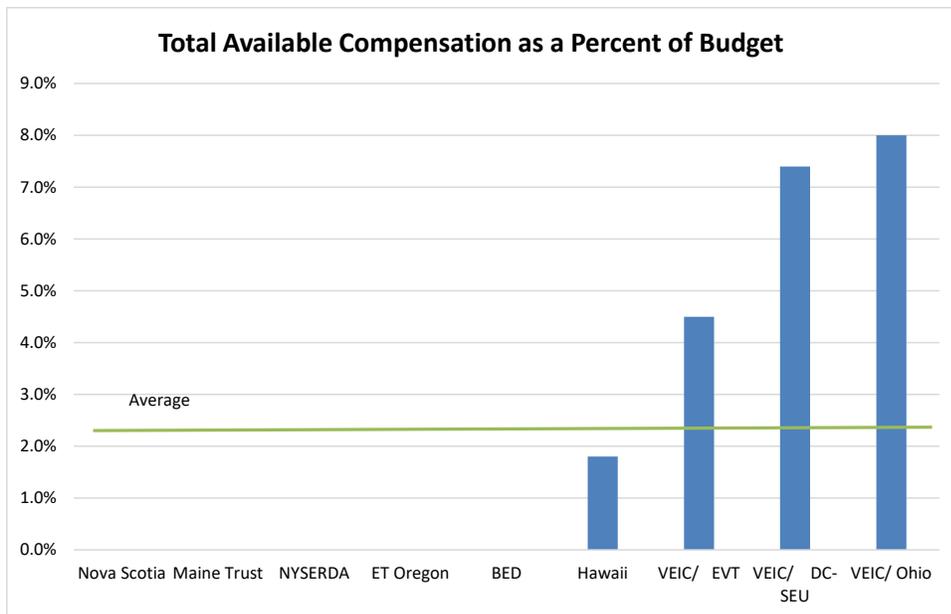
EVT and BED's current compensation mechanism was benchmarked against a number of other PAs. The comparison group was different than that used for the report's other benchmarking efforts in an attempt to include the PAs most like these EEs, and therefore didn't include any Investor Owned Utilities (IOUs), though there was some overlap. To increase the number of organizations similar to the EEs in the comparison group, out of region PAs were included. (Nine PAs/EEs, including EVT and BED, were in the comparison group.)

Including EVT, four of the nine surveyed EEs or their program administrators are eligible to obtain performance-based compensation:

- EVT (Administered by VEIC)
- Efficiency Smart-Ohio (Administered by VEIC)
- DC Sustainable Efficiency Utility (Administered by VEIC)
- Hawaii Energy (Leidos)

The remaining five EEs surveyed did not have performance compensation as part of their structures at the time of the analysis, these included: Efficiency Maine, NYSEERDA, Efficiency Nova Scotia, Energy Trust of Oregon, and Burlington Electric Department.

The bar graph below shows the total available compensation as a percent of the PAs total budget. Information was not collected on how much of the total available compensation was actually earned by the PAs.



The average total potential compensation rate for all of these non-IOU administrators is 2.4%. EVT’s potential compensation rate of 4.5% is 2.1 percentage points greater than the average potential compensation rate relative to these non-IOU entities.

When just looking at the group of most similar non-IOU program administrators based on scale, level of activity, and administrative model (DC SUE, Efficiency Nova Scotia, Hawaii Energy, Efficiency Smart-Ohio, and BED), the average potential compensation rate is 3.6%. Compared to this smaller, most similar group of program administrators, EVT’s potential compensation rate is 0.9 percentage points larger.

Delivered fuel efficiency programs

Several PAs indicated that they provided delivered fuel-targeted *measures*, mostly focused on residential and low-income activities. However, most did not have specific programs, budgets or goals, though fossil fuel savings contributed to benefits goals and shareholder performance metrics.

There was some, limited reporting of delivered fuel savings in REED, but data was not always tied to the year of reporting. Tracking delivered fuel savings may be complicated as PAs pursue fuel switching activities, e.g., heat pump electrification.

Job Impacts

Job impacts are not routinely tracked or reported by PAs. Only ETO tracked economic development indicators. (They used an economic multiplier study to track economic impacts and jobs at a macro level for the entire Energy Trust.) CT includes estimates of job impacts in its annual Legislative Report leveraging DOE analyses. RI’s cost-effectiveness framework assigns a monetized non-energy impact value to job creation based on energy savings.

Low-Income Programs

One difficulty in comparing low-income programs is that the definition of who is eligible are different for each PA. Below are some PAs eligibility for their programs:

- NYSERDA: <80% of Area/State Median Income

- ETO: Target moderate-income households at 80-120% of State median income. Allow lower income customers to participate but try to steer towards Weatherization Assistance Program.
- BG&E: ≤200% of the federal poverty
- National Grid: ≤ 60% of Area Median income
- EVT & BED: 80% or less of state median household income

Multifamily Low-Income program eligibility and offerings are also different for each PA. Below is what PAs reported on their programs:

- ETO: No distinct low-income multifamily offering
- BG&E: Must be rental housing for low to moderate income households. Program funds 100% of the cost of qualified energy conservation measures with Savings to Investment Ratio (SIR) at or above 1.5; or Cost Effectiveness Ratio (CER) at or above 1.0.
- National Grid: ≤ 60% of State median income
- EVT & BED: 50% or more of the units in the buildings have to serve low income residents

In 2015 EVT, BED and several other Northeast PAs had, in regulation or in practice, minimum low-income spending requirements. Including the following:

- MA - at least 10% of total electric efficiency spending and 20% of gas energy efficiency spending must be invested in comprehensive low-income residential demand-side management and educational programs (legislative requirement).
- CT - spending is typically at or above parity, i.e., the low-income budget as a percent of total efficiency spending is at or above the percent of low-income revenue collections.
- VT - has minimum low-income spending requirements. EVT must spend a minimum of \$10.5 million on low-income services for the 2015-2017 period. BED has a minimum low-income spending requirement equal to 70% of the low-income sector share of total resource-acquisition spending. VGS has the same requirement as BED for the 2018-2020 performance period.
- NH - requires a minimum low-income share of the overall energy efficiency budget of 17%.
- ME - requires that Efficiency Maine target at least 10% of funds for electricity conservation collected or \$2.6M, whichever is greater, to programs for low-income residential consumers.
- PA - requires each utility to obtain a minimum of 5.5% of their total consumption reduction target from the low-income sector.

CONCLUSIONS

Caveats to Comparative Benchmarking

As discussed previously, care must be taken in comparing benchmarking metrics across PAs because there are real and significant differences in the ways they operate programs and measure savings, including:

- Estimating and assigning measure lives for the same measures
- Defining administrative costs
- Pursuing residential vs. commercial sector savings opportunities (commercial savings can typically be procured at a lower cost)
- Dedicating electric funding to support delivered fuel efficiency measures.

All of these can have large effects on the values that PAs report out for annual and lifetime savings and for overall and incentive program spending.

Summary of VT EEU results

Efficiency Vermont compared to its benchmarked peers had:

- Higher energy efficiency savings at the overall Portfolio and sector levels.
- Higher Portfolio level summer demand savings.
- Above median spending as a % of revenues at the Portfolio and sector levels.
- Higher annual cost of saved energy.
- Lifetime cost of saved energy that were:
 - Similar at Portfolio level
 - Higher at C&I sector
 - Lower at Residential sector

BED compared to its benchmarked peers had:

- Higher energy efficiency savings at the Portfolio and sector levels.
- Higher Portfolio level summer demand savings.
- Above median spending as a % of revenues at the Portfolio and sector levels.
- Annual cost of saved energy that were:
 - Higher at Portfolio and C&I sector
 - Similar at Residential sector
- Lifetime cost of saved energy that were:
 - Similar at Portfolio and C&I sector
 - Lower at Residential sector

VGS compared to its benchmarked peers had:

- Energy efficiency savings that were:
 - Higher at the Portfolio level
 - Similar (2014) or lower (2015) at the C&I sector
 - Similar at the Residential sector
- Lower median spending as a % of revenues.
- Lower annual cost of saved energy at Portfolio and C&I sector
- Lower Lifetime cost of saved energy at Portfolio and C&I sector

Considerations for Future Benchmarking

Recommendations for future benchmarking studies included to explore additional metrics such as all fuel MMBtu savings and cost of savings as well as savings and spending per household (possibly broken out by single family, multifamily, and low-income).

Potential challenges and opportunities include the following:

- Inclusion of winter demand savings
- Growing percentage of efficiency funds earmarked for “other” activities
- Growth of demand response activities and whether these should be tracked and reported separately from efficiency activities
- Inclusion of fuel switching activities in efficiency programs