

**Benchmarking Utility DSM Delivery Performance:
Results from a Comparative Review of Efficiency Vermont's 2008 Program Delivery Costs
and Energy Savings**

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Abstract

This paper presents the results of benchmarking the electric energy efficiency demand-side management portfolio performance of Efficiency Vermont (EVT) and Burlington Electric Department's (BED) 2008 results. The study focused on a three level analysis across 27 mature energy efficiency portfolios, with each successive analysis fine tuning the benchmark comparison to Vermont. In 2008 Efficiency Vermont saved an equivalent of 2.8% of electric sales, at a cost equivalent to 4.8% of electric revenue. This compares to the median results across 27 utilities which saved an equivalent of 1.0% of electric sales, at a cost equivalent to 1.9% of electric revenue. A substantial portion of EVT's savings came from the residential lighting program. Summary findings confirm that Efficiency Vermont saves more energy than other utilities, yet spends more than other utilities as well. Comparisons to other utilities are normalized based on energy savings as a percent of electric sales and program spending as a percent of electric revenue. The paper concludes with key findings and suggestions for future benchmarking approaches.

Introduction

In 2009 the Vermont Public Service Board approved a change in the structure of energy efficiency service delivery in Vermont, from a competitively solicited performance contract with three year review cycles to a 12 –year “Order of Appointment”, a performance based franchise structured similarly to a Certificate of Public Good. As part of the transition process, an “Overall Performance Assessment” (OPA) of the two incumbent entities (EVT and BED, collectively “Energy Efficiency Utilities”, or “EEUs”) currently delivering efficiency programs was completed. As part of this assessment, the Vermont Department of Public Service (DPS) selected Navigant Consulting (NCI) to benchmark EVT's and BED's 2008 electric energy efficiency service delivery performance relative to other utilities and/or statewide administrators (hereafter referred to as “organizations”) in other jurisdictions. While reported data appeared to show that Vermont EEUs were performing extremely well, the purpose of the benchmarking was to 1) ensure incumbent providers were the appropriate appointees in the new structure, 2) attempt to provide more of an “apples to apples” comparison of results than previous data would allow, and 3) collect and provide comparative information for future OPAs. This paper summarizes the results of this benchmarking study that profile DSM savings and costs of both BED and EVT to a group of 25 other organizations across the Northeast, Midwest, and Western states. The benchmarking results compare program energy and demand savings as a percent of energy and

demand sales, and program costs as a percent of electric revenue. The paper describes a unique component of this benchmarking that sought to address issue number 2: a purposeful three-level approach to normalize the comparative results intended to assist with gauging Vermont program delivery effectiveness relative to other program administrators. The paper concludes with a discussion of the remaining uncertainty surrounding results and highlights areas where underlying data must be improved to allow for a better comparison of programs across jurisdictions.

High-Level Overview of Benchmarking Approach

Navigant Consulting reviewed the 2008 electric energy efficiency demand-side management (DSM) performance of 25 organizations compared to EVT and BED. The selection of organizations included investor-owned utilities, statewide agencies, and municipal utilities, each having run aggressive, large scale DSM programs for at least seven years. This selection provided a broad comparison group of mature DSM programs. Given the selection of organizations, the typical performance of this group is likely not typical of all DSM programs; this group's performance is likely better than the national average. Thus, in this study, when we describe a result as typical, we mean it is typical of this select group.

In some instances, the availability and format of reported DSM data limited the ability to perform preferred in-depth comparison (e.g., NYSERDA). The review was structured into three peer groupings and three levels of analysis, with each level providing a more detailed review and finer normalization to Vermont's EEU service delivery context.

Methodology

The benchmarking methodology was designed to reflect nuances in program maturity, design, and other varying policy guidance provided to program implementers. Ultimately, three levels of review were established. As detailed in Table 1, in the first level, the benchmarking starts with a peer group of 25 other DSM organizations; levels two and three analyze in increasingly greater detail and discrimination to normalize results for each group. By design, each level of analysis narrows the group size. While each level of analysis was intended to further limit the differences between organizations, the inherent variation in organizations' evaluation and reporting practices prevented a perfect "apples-to-apples" comparison. For example, at times it wasn't clear whether utility reports were estimating savings at meter or generator; some utilities' methods for estimating savings may be more precise than other utilities'; the level of verification of savings claims varied by utility; and few distinguish net savings from gross savings. For example, utilities in Iowa and Minnesota, and Efficiency Maine generally report gross savings while organizations in other states perform net-to-gross analysis and report verified net savings. Further, it is important to note that any one metric presented in this report, or even the entire benchmarking result itself, must be considered in the broader policy context including policy choices such as comprehensive treatment of customers, or such initiatives that do not directly result in reported electric savings (e.g. broad based market transformation activities). All the

same, benchmarking reported savings and costs, normalized to electric spending and revenue is one of few ways to compare program results across jurisdictions.

Table 1. DSM Organizations Selected for Review

Region	State Agency or Utility	State	Level 1: Comprehensive Benchmarking	Level 2: Screened Benchmarking	Level 3: Exploratory Benchmarking
<i>Northeast</i>	Efficiency Vermont	VT	X	X	X
	Burlington Electric Dept.	VT	X	X	X
	CL&P	CT	X	X	X
	City of Chicopee Muni	MA	X	X	
	National Grid	MA	X	X	X
	Cape Light Compact	MA	X		
	WMECO	MA	X	X	
	Efficiency Maine	ME	X	X	X
	PSNH	NH	X	X	X
	NYSERDA	NY	X		
<i>Midwest</i>	Interstate Power & Light	IA	X	X	
	MidAmerican Energy	IA	X	X	
	Interstate Power & Light	MN	X	X	
	Minnesota Power	MN	X	X	
	Otter Tail Power	MN	X	X	
	The Triad Municipal 2007	MN	X	X	X
	Jackson Municipal 2007	MN	X	X	X
	Shakopee Muni 2007	MN	X	X	X
	Xcel Energy	MN	X	X	X
	Wisconsin FoE	WI	X	X	
<i>West</i>	Palo Alto Muni	CA	X		
	PG&E	CA	X		
	SCE	CA	X		
	SDG&E	CA	X		
	Xcel Energy	CO	X	X	
	Energy Trust Oregon	OR	X	X	X
	Seattle City Light	WA	X		
TOTAL			27	20	11

The benchmarking data for each organization was prepared as follows:

1. Collected reported DSM program incremental results for 2008:¹ a) Expenditures^{2,3}; b) Energy savings, and; c) Peak demand savings. The sources for almost all of the DSM program data were the organizations' 2008 annual reports submitted to their regulators.

¹ 2007 data are used for some utilities because 2008 data were not available. These utilities are indicated in the graphics with "07."

² Estimates of EEU delivery costs associated with costs incurred outside of the direct control of EVT and BED such as evaluation costs, fiscal agent, etc, were not included in this analysis.

³ Expenditures for load management programs exclude rate discount incentives.

NCI followed up with direct calls to program administrators or utilities commissions to confirm and enhance annual report data as necessary.

2. Collected baseline data for 2008: a) Revenues, b) Energy sales, and c) Peak demand. The main source for the baseline data was FERC Form 861 from the Energy Information Administration's web site (www.eia.doe.gov).⁴
3. Calculated costs of savings on a first year basis: a) Divided DSM expenditures by DSM program energy savings, \$/kWh, first year; and b) Divided DSM expenditures by DSM peak demand savings, \$/kW.
4. Identified medians of normalized spending, savings, and costs of saving.

Level 1- Comprehensive Benchmarking

The Level 1 comprehensive benchmarking analysis reviewed organizations in mature DSM markets across the Northeast, Midwest, and Western states. The review focused on a straight comparison of unmodified reported energy and demand savings and associated DSM total program delivery costs for 2008. DSM savings and spending are then compared with 2008 energy sales, peak demand, and revenue and are presented as “savings as a percentage of sales” and “spending as a percentage of revenue.”⁵ Thus, while the size of DSM program may vary greatly among the comparison group, this approach normalizes to territory sales, peak, and revenue, providing an equal footing for comparing portfolio performance. As the simplest analysis, this Level 1 review makes no attempt to fine-tune the benchmarking performance of Vermont's EEs to peers with respect to DSM portfolio composition or depth and comprehensiveness of savings (reflected in lifetime savings).

Table 2 details the median result for DSM spending, savings, costs, and energy costs over all customer sectors for the Level 1 organizations.⁶ As shown in the following table, EVT spent 4.8% of total electric revenue on DSM and achieved 2.8% energy savings as a percent of baseline sales. This compares to the overall medians of 1.9% spending as a percent of revenue and energy savings of 1.0% as a percent of electric energy sales.

⁴ EIA's "Energy" and "Bundled" values were collected for retail sales and revenue. EIA's "Delivery" values were excluded here. In contrast to this report, EVT, when comparing results to baseline sales, uses a baseline that adds reported sales plus the savings achieved (as what the sales would have been absent the program intervention).

⁵ DSM spending as a percent of revenue by itself, is not an indicator of portfolio performance. This metric is used to normalize across different utilities and compare energy savings and associated costs to achieve savings.

⁶ Given that some of the datasets are skewed or contain outliers, the median is used as it is a better indication of central tendency than the average.

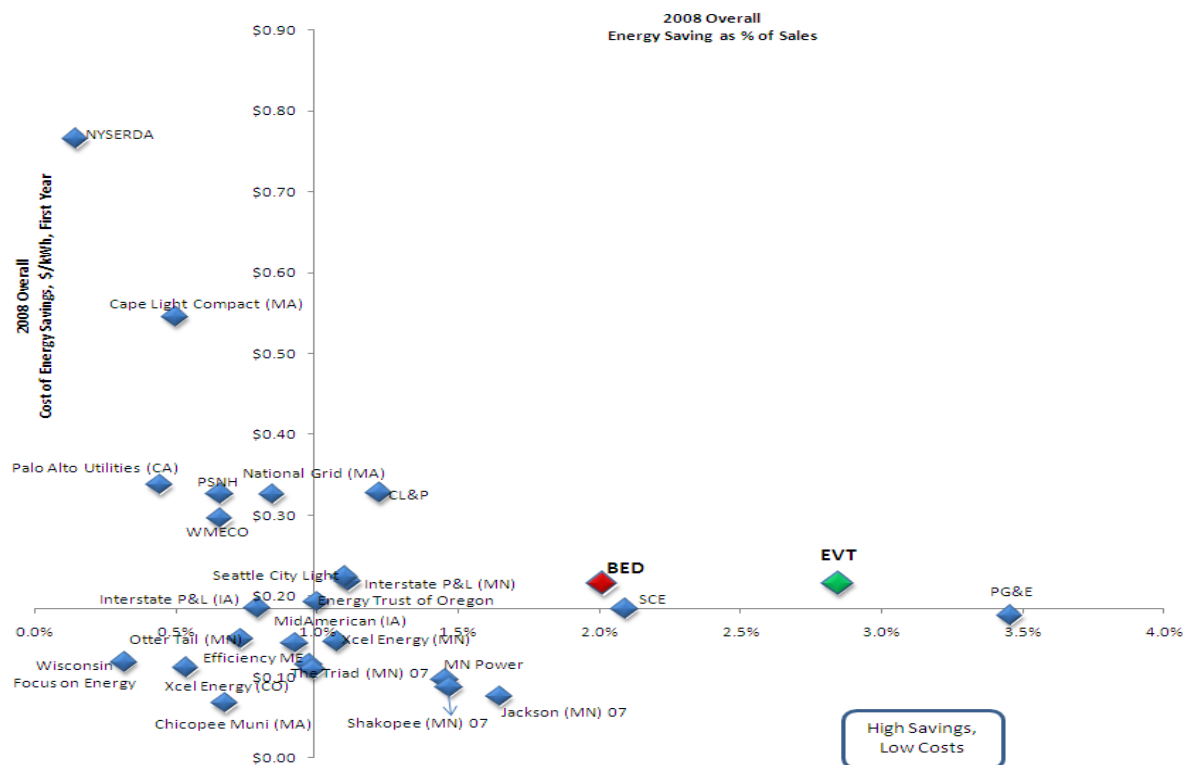
Table 2. Level 1 Comprehensive Benchmarking Medians for Overall 2008 Results

	Spending as % of Revenue	Electric Energy Savings as % of Sales	Peak Demand Savings as % of Peak Demand	Retail Cost of Energy \$/kWh	Cost of First Year Savings	
					\$/kWh	\$/kW
Overall	1.9%	1.0%	1.1%	\$0.09	\$0.18	\$869
EVT	4.8%	2.8%	2.1%	\$0.13	\$0.22	\$1,535
BED	3.4%	2.0%	1.3%	\$0.13	\$0.22	\$1,775

Note: Cost of first year savings should not be confused with a levelized cost of conserved energy. Levelized cost of energy savings for EVT is \$0.033/kWh and \$0.030/kWh for BED.⁷

For the Level 1 organizations, the scatter plot in Figure 1 illustrates where each organization falls relative to median electric energy savings and median costs of savings. Energy savings as a percentage of sales is on the horizontal axis; first year cost of energy savings is on the vertical axis; and the axes are set at the median values. Thus, the organizations in the bottom right quadrant are the ones that achieved above median energy savings and costs below the median, i.e., high savings, low costs.

Figure Error! No text of specified style in document.. Level 1 Comprehensive Benchmarking 2008 Energy Savings and First Year Costs (\$/kWh)



⁷ Because the data required to estimate levelized cost of energy savings are generally not readily available, cost of energy savings is presented here and in the Level 2 analysis in terms of *first year* \$/kWh. Data to estimate levelized cost of energy savings were collected for the Level 3 organizations, and analysis of those lifetime costs are presented in that section.

These Level 1 results show that EVT and BED achieved significantly larger energy savings than almost all of the utilities and agencies benchmarked. However, EVT and BED had first year cost of conserved electricity that is somewhat higher than the median for the benchmarked Level 1 organizations. Based on our benchmarking of DSM programs for previous studies, this performance is typical of organizations that achieve energy savings in the top 15% of the reviewed group: their cost of savings is usually very close to median.

Level 2 - Screened Benchmarking Results Summary

The Level 2 screened benchmarking analysis furthers the normalization in two key ways: 1) Level 2 reviews a subset of Level 1 organizations, excluding organizations in climates very different from Vermont's (e.g., removes the California utilities); and 2) Level 2 excludes all costs and impacts associated with three program types that are either uncommon or whose budget allocations are typically set by legislative mandate rather than by discretionary portfolio design: demand response, low-income, and fuel switching.⁸ This attempts to normalize performance by comparing programs where measure implementation is less likely to be varied (e.g. California's utilities are likely to have a significant amount of savings from residential air conditioning programs, while Vermont's administrators would not), and by measuring programs where the administrator retains discretion in spending.

Table 3 details the median result for DSM spending, savings, costs, and energy costs over all customer sectors for the Level 2 organizations. As shown in the following table, EVT spent 4.6% of revenue and achieved 2.7% energy savings as a percent of sales. This compares to the overall medians of 1.6% spending as a percent of revenue and energy savings of 1.0% as a percent of electric energy sales. Savings are significantly higher, and correspondingly, costs are significantly higher as well.

Table 3. Level 2 Screened Benchmarking Medians for Overall Results

	Spending as % of Revenue	Electric Energy Savings as % of Sales	Peak Demand Savings as % of Peak Demand	Retail Cost of Energy \$/kWh	Cost of First Year Savings	
					\$/kWh	\$/kW
Overall	1.6%	1.0%	0.6%	\$0.09	\$0.13	\$710
EVT	4.6%	2.7%	2.0%	\$0.13	\$0.21	\$1,480
BED	3.3%	2.0%	1.3%	\$0.13	\$0.21	\$1,696

⁸ Some organizations that meet the criteria for Level 2 are not included due to insufficient or incomplete data such as NYSERDA and Cape Light Compact (MA).

For the Level 2 organizations, the scatter plot in Figure 1 illustrates where each organization falls relative to median electric energy savings and median costs of savings.

Figure 1. Level 2 Screened Benchmarking 2008 Energy Savings and First Year Costs (\$/kWh)



The Level 2 savings and cost results are generally quite similar to the Level 1 results. One significant exception is that the Level 2 median cost of first year savings for publicly owned utilities (\$0.08/kWh) is about half the Level 1 median cost of savings (\$0.16/kWh). These decreased costs are primarily due to eliminating these utilities' costs for conducting demand response programs.

The Level 2 overall median cost of first year energy savings is \$0.13/kWh, about 30% less than the Level 1 overall median cost of first year savings, \$0.18/kWh. The EVT and BED Level 2 costs of first year savings (\$0.21/kWh) are about 5% less than their Level 1 cost of first year savings (\$0.22/kWh). Therefore, EVT and BED's Level 2 costs of first year energy savings are farther above the Level 2 medians than was the case for the Level 1 cost of first year savings. This is most clearly shown graphically from comparing Figure Error! No text of specified style in document. and Figure 1.

Level 3 Exploratory Benchmarking Results Summary

Level 3 exploratory benchmarking involves a more detailed analysis of a select group of 11 organizations.⁹ The analysis includes comparison of program-level results, comparison and detailed view of levelized cost of energy savings, comparison of incentive and non-incentive program costs, and a review of regulatory framework and other factors that may affect DSM performance. This analysis is performed on peer organizations and organizations that achieved above median energy savings at median costs or less, a subset of Level 2 organizations. Peer organizations are identified as Level 2 organizations that are state agencies, POUs, or in the Northeast. Organizations with relatively high savings and low costs among Level 2 should be considered to have proven exceptionally good performance, given that only organizations with established and aggressive DSM programs were selected for the initial group of 25 organizations.

Level 3 Exploratory Benchmarking Residential Results

Table 4 details the median result for spending, savings, and costs for the residential sector for Level 3 organizations (where data are available).

Table 4. Level 3 Exploratory Benchmarking 2008 Medians for Residential Results

	Spending as % of Revenue	Electric Energy Savings as % of Sales	Peak Demand Savings as % of Peak Demand	Cost of First Year Savings		Levelized Cost of Energy Savings
				\$/kWh	\$/kW	\$/kWh
IOU and Agency Median	0.9%	0.9%	0.4%	\$0.17	\$1,513	\$0.028
EVT	2.6%	3.6%	2.3%	\$0.11	\$847	\$0.022
POU Median	1.7%	1.0%	1.3%	\$0.20	\$533	\$0.036
BED	5.8%	4.6%	3.1%	\$0.18	\$1,431	\$0.038

As shown in Table 4 for residential results, EVT's 2008 spending amounted to 2.6% of residential revenues and achieved energy savings amounting to 3.6% of sales. This compares to the IOU and agencies' median results of 0.9% spending as a percent of revenue and energy savings of 0.9% as a percent of electric energy sales

These results show that EVT and BED's residential spending as a percentage of revenue and energy savings are much larger than the other Level 3 utilities and agencies. In addition, EVT and BED's residential costs of energy savings are less than the respective medians for the Level 3 investor owned utilities and agencies and publicly owned utilities. Thus, EVT and BED are high savings and low cost organizations as far as residential DSM programs are concerned. EVT

⁹ The Level 3 organizations include Efficiency Vermont, Burlington Electric Department, Connecticut Light and Power, Efficiency Maine, Energy Trust of Oregon, Jackson MN, National Grid, Public Service Company of NH, Shakopee MN, the Triad of Minnesota, and Xcel Energy.

and BED are high savings and low cost organizations for residential savings among Level 1 and Level 2 organizations as well, as is shown in sections three and four of this report.

Lighting programs account for 94% of both EVT and BED's total residential energy savings. This is consistent with many of the Level 3 organizations - Lighting programs account for over 85% of the residential energy savings for seven of the eleven reviewed. However, a few organizations reviewed have more balanced residential DSM portfolios. Public Service Company of New Hampshire achieved about 54% of their residential savings from lighting programs, and the Energy Trust of Oregon achieved about 39% of their residential energy savings from new construction programs. That said, each of these organizations acquired efficiency resources of at least 1% of sales in their territories. The predominance of savings from low cost lighting measures together with EVT's and BED's high percentage of residential DSM spending as a percentage of residential revenue, may explain their achieving the highest rate of energy savings in Level 3 at below median costs.

Level 3 Exploratory Benchmarking C&I Results

Table 5 details the median results for spending, savings, and costs for the C&I sector for Level 3 organizations (where data are available). As shown in Table 1-4 for C&I results, EVT spent 6.3% of 2008 C&I revenues on C&I DSM and achieved 2.1% energy savings as a percent of C&I sales. This compares to the IOU and agencies medians of 2.8% spending as a percent of revenue and energy savings of 1.1% as a percent of electric energy sales.

Table 5. Level 3 Exploratory Benchmarking 2008 Medians for C&I Results

	Spending as % of Revenue	Electric Energy Savings as % of Sales	Peak Demand Savings as % of Peak Demand	Cost of First Year Savings		Levelized Cost of Energy Savings \$/kWh
				\$/kWh	\$/kW	
IOU and Agency Median	2.8%	1.1%	0.5%	\$0.23	\$1,704	\$0.028
EVT	6.3%	2.1%	2.0%	\$0.34	\$2,067	\$0.042
POU Median	1.6%	1.3%	0.9%	\$0.08	\$374	\$0.011
BED	2.4%	1.2%	0.7%	\$0.24	\$2,068	\$0.027

These results show that EVT is achieving the largest C&I energy savings of the Level 3 organizations reviewed, while BED's C&I energy savings are very close to the median for the publicly owned utilities reviewed. EVT's costs of energy savings is higher than the median for the Level 3 IOUs and agencies.

EVT is obtaining slightly more than half (54%) of its C&I energy savings from a direct installation program that focuses on lighting retrofits, where 100% of the measure cost was paid for by EVT in an attempt to quickly acquire peak savings to defer or avoid transmission or

distribution constraints. These tend to be among the higher cost of conserved energy C&I programs. EVT's program costs per kWh for this program, \$0.39 per first year kWh saved, are comparable to the program costs for CL&P (\$0.31 per first year kWh saved) and National Grid (\$0.41 per first year kWh saved). However CL&P obtains only 19% of its total C&I energy savings from this program, while National Grid obtains 15% of its C&I energy savings from this program. This variation of program savings distribution among organizations is partly a reflection of the variation of C&I markets among the organizations' territories (e.g. a territory with C&I energy consumption dominated by small businesses will have a greater potential energy savings share in direct small programs than a territory with many large commercial and large industrial customers). This illustrates another difficulty in benchmarking program performance given differences in customer characteristics, which ultimately is the foundation upon which DSM savings must be achieved.

Conclusion

The Vermont Department of Public Service sought a comparison of Vermont energy efficiency program administrators relative to program administrators in other jurisdictions. With the understanding that different programs have varying customer types, levels of DSM program maturity, and policy directives, the benchmarking effort employed three levels of analysis that incrementally refined the analysis further in an attempt to further normalize peer performance compared to EVT. The benchmarking approach focused on two new methods to selectively screen out certain programs from the portfolios overall results (e.g. low income programs, demand response). The benchmarking of EVT's 2008 performance confirmed that the organization, while spending more than peers, is also achieving energy savings higher than peers. Overall, the comparative findings throughout the three levels of analysis did not change significantly for EVT. The analysis did illustrate that, when normalizing for climate and non-discretionary programs, overall cost/first year kWh for the Level 2 analysis was significantly higher than peer organizations (see comparison of Level 1 and Level 2 analysis in Table 6). However, the magnitude of EVT's savings far exceeds peer organizations. Thus, definitive conclusions of performance on a cost/kWh basis as "expensive" or "inexpensive", relative to other jurisdictions remains elusive.

Table 6. Level 1 & Level 2 Benchmarking Medians for Overall 2008 Results

	Spending as % of Revenue	Electric Energy Savings as % of Sales	Peak Demand Savings as % of Peak Demand	Retail Cost of Energy \$/kWh	Cost of First Year Savings	
					\$/kWh	\$/kW
Level 1 Overall	1.9%	1.0%	1.1%	\$0.09	\$0.18	\$869
Level-1 EVT	4.8%	2.8%	2.1%	\$0.13	\$0.22	\$1,535
Level-2 Overall	1.6%	1.0%	0.6%	\$0.09	\$0.13	\$710
Level -2 EVT	4.6%	2.7%	2.0%	\$0.13	\$0.21	\$1,480

This study found additional factors that compound the difficulties in benchmarking programs across jurisdictions. This benchmarking study produced useful results that enabled policy makers to understand in a general sense the relative status of Vermont's energy efficiency programs in terms of cost/kWh and savings as a percent of load. However, significant uncertainty remains in the benchmarking process. Areas of continued uncertainty are discussed below, along with recommendations as to minimizing such uncertainty.

First, given that DSM activity typically coincides with overall economic activity and/or with targeted and aggressive limited duration promotions/initiatives, selecting a single year and using that as the comparative metric may not be representative of "typical" savings and costs as a general trend. For example, Vermont's direct install lighting retrofit program paid 100% of measure costs in an attempt to defer or avoid specific transmission and distribution upgrades. These higher costs were incurred over much of 2008 and some of 2009 – an analysis over a longer time frame would mitigate the effect of this policy choice on benchmarking results. Thus, it is suggested that benchmarking efforts would benefit from examining an average of DSM savings and costs over a three year period. This approach is especially relevant for programs such as new construction or programs with large custom projects that can take years from initial design planning to project completion and reported savings.

Second, this benchmarking analysis focused exclusively on the savings and costs as reported by the DSM organizations in their annual reports. As described above, there is significant variability in the reporting of savings and costs. For example, in Vermont the evaluation and some other administrative costs incurred by regulators associated with DSM program delivery are not included in reports. In other jurisdictions, evaluation and regulatory administration costs are included. It is recommended that future benchmarking efforts should include all costs associated with program delivery.

The above underscores the reality that utilities account for and report costs in many different ways. Other areas of uncertainty include, but are not limited to, the definition and accounting of net and gross savings, and whether savings are reported at the customer meter or at generation. These represent noticeable changes in reported energy and demand savings. The Northeast Energy Efficiency Partnership's Evaluation, Measurement & Verification Forum has recently

developed through a broad stakeholder process reporting guidelines¹⁰ that outline high-level reporting formats. While differences in program policy directives and sector level results are not addressed by the initial version of these guidelines, the authors of this paper recommend the use of these guidelines as a step in the right direction in terms of consistency across jurisdictions.

Third, uncertainty exists regarding the underlying overall utility sales and revenues that are used in benchmarking as normalization to size of service territory (used in all levels of this analysis). Many states have exemptions from systems benefits charges for large industrial customers – these customers can have a significant effect on the percent of sales achieved or the percent of revenue spent on energy efficiency programs. Unfortunately, information regarding exempted customers is often not readily available and is at times confidential. Future benchmarking should attempt to remove the sales and revenues associated with exempted customers from all analyses, but in order to do so comprehensively will require significant time investment.

Benchmarking can be a valuable and meaningful approach to assess comparative performance, subject to important caveats and awareness of the limitations of the analysis. The screening approaches used in the Vermont analysis were useful normalization techniques to attempt to compare programs on a more equal footing. The benchmarking study, considered in context of specific policy and program implementation directives and other qualitative performance considerations, allowed Vermont regulators to move forward with implementation of the Order of Appointment structure by appointing the incumbent service providers to continue to serve as EEUs. The information gathered in this benchmarking will be used in combination with future efforts in order to continue to understand Vermont EEUs performance relative to other administrators. The recommendations contained in this paper should serve to increase the ability to compare programs usefully and will improve quality of the benchmarking analysis, providing policymakers with more useful tools to understand the performance of energy efficiency program administrators.

¹⁰ “Common Statewide Energy Efficiency Reporting Guidelines” Version 1.0 December 2010. Available at <http://neep.org/uploads/EMV%20Forum/EMV%20Products/A3-NMRCommonEEGuidelinesFinalDraftReportJune2010%20071410.pdf>