

Verification of
Burlington Electric Department's
Energy Efficiency Portfolio
for the ISO-NE
Forward Capacity Market

Final Report

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1 Introduction

In 2006, the Independent System Operator of the New England electric grid (ISO-NE) created a Forward Capacity Market (FCM) to ensure that the region has sufficient capacity to meet its peak demand needs. This market-based initiative allows for demand resources, including energy efficiency, to compete directly with generation resources to provide capacity. In order to participate in the market, providers of energy efficiency resources must demonstrate that their efficiency savings are verified in compliance with the ISO-NE standards established for this purpose.¹

Efficiency Vermont (EVT) and Burlington Electric Department (BED) bid their respective efficiency program portfolios into the forward capacity market, and submitted detailed measurement and verification (M&V) plans that delineated how the evaluation process in Vermont will comply with ISO-NE standards. In both evaluation plans, the Vermont Department of Public Service (Department) was charged with conducting the independent evaluation required by the ISO-NE standards.

The methods available to the Department to evaluate EVT and BED's FCM claims are circumscribed by both the ISO-NE standards and the EVT and BED M&V plans. These standards are designed to result in a high degree of reliability for the resources purchased through the forward capacity market and represent a far more rigorous type of evaluation than has previously been conducted on Vermont's efficiency portfolios.

West Hill Energy and Computing was retained by the Department to provide independent verification of the custom commercial and industrial (C&I) efficiency initiatives for EVT and BED within the context of the FCM. With the assistance of three engineering firms, Cx Associates, GDS Associates and Lexicon Energy Consulting, West Hill Energy implemented the M&V Plan, including providing statistical analysis, site-specific M&V and overall impact evaluation of BED's efficiency portfolio. This report describes the evaluation of BED's FCM bid and the results of this verification process. It also provides the documentation to support the Annual Certification of Accuracy of Measurement and Verification Documents, as specified Section 14.2 in the ISO Manual (M-MVDR, October 1, 2007) and in Section 14.2 of BED's M&V Plan (June 15, 2008).

The evaluation was designed to determine the appropriate realization rates to be applied to the BED estimated savings. When applied, the resulting savings represent BED's verified savings. The realization rates given in this document will be used to adjust BED's savings reported to NE-ISO for the FCM from July 1, 2010 until the completion of the next evaluation cycle.

The remainder of this report is divided into the following sections: process, methods, results and conclusions. The components of BED's portfolio are described in BED's 2007 and 2008 Annual Reports.²

¹ ISO New England Manual for Measurement and Verification of Demand Reduction Value from Demand Resources Manual M-MVDR, Revision: 1, Effective Date: October 1, 2007, pg. INT-3

² Burlington Electric Department 2007 Energy Efficiency Annual Report, and Burlington Electric Department 2008 Energy Efficiency Annual Report.

2 Process

BED's M&V plan identified the Department as the entity responsible for conducting independent assessment of BED's FCM claims. BED, EVT, the Department, and the Public Service Board Contract Administrator engaged in lengthy discussions to determine the scope of the work and the division of responsibilities among parties. These initial meetings were the forum for developing the structure of overall verification plan, and were followed by further conversations between the Department and BED to develop a sampling plan and verification strategy appropriate to BED's portfolio.

Due to the small population of C&I projects, the sampling approach was relatively simple and a census sample of both the medium and large projects (along with a random sample of small projects) was selected for the verification. BED assumed the primary responsibility for metering small and medium projects, in addition to the two projects in the large strata. The Department maintained overall management of the verification process as envisioned in BED's M&V plan. The West Hill Energy evaluation team reviewed the project documentation and BED's metering plans where appropriate, analyzed the metered data or developed alternative strategies as needed, and calculated the verified savings. BED conducted metering of projects and provided the metered data to the Department for analysis. As appropriate, recent studies meeting the NE-ISO standards were used to establish the coincidence factors for specific projects in the sample.

The verified savings were independently calculated for each project (large, medium and small) in the sample. Site-specific project reports were developed, and provided to BED to provide an opportunity for clarification and a final check for errors and omissions. The project reports were then finalized. A list of the realization rates by project are provided in Appendix A and the project-specific reports are attached as Appendix C.

3 Methods

Burlington Electric bid its entire portfolio of energy efficiency initiatives into the FCM. The different initiatives and the verification approach are summarized in Table 1. Residential space heat fuel switches represent a small part of BED's portfolio and a substantial hurdle in meeting ISO-NE's FCM requirements. Since the savings for space heat fuel switches are calculated using house-specific inputs, verification would require selecting a sample and then conducting site visits for the sample. Since the electric space heat had already been removed, there was no possibility of metering the electric use and no clear approach to calculating peak demand savings. Consequently, savings from these initiatives are not considered verified for the FCM claim. It is important to note that these initiatives do save energy and demand. They were not included because the difficulty in determining the savings in a manner that meets the ISO-NE standards.

Table 1: FCM Sampling Strategy by BED Initiative

BED Initiative	FCM Verification Sampling Strategy	ISO M&V Option
<i>C&I</i>		
Retrofit, NC and MOP	Sample selected per ISO standards	Options A through D
<i>Residential</i>		
Prescriptive Lighting	Prescriptive assumptions, no sampling necessary	Option A
Prescriptive HVAC	Prescriptive assumptions, no sampling necessary	Option A
Prescriptive Other eShapes	Prescriptive assumptions, no sampling necessary	Option A
Prescriptive Other non-eShapes	Prescriptive assumptions, no sampling necessary	Option A
Custom	Savings not verified for FCM	None

West Hill Energy and Computing, Inc. conducted the evaluation of the custom C&I sector. The verified residential sector savings were prescriptive and used assumptions that have been reviewed by the DPS and are included in EVT’s “Technical Reference Manual” (TRM), which is also used by BED. With the application of the coincident factors from the recent studies by RLW Analytics, the residential prescriptive measures met the standard described in BED’s M&V plan.

3.1 Sampling

The sampling plan for the C&I sector was developed through collaboration between BED and the Department. Sample sizes were designed to support stratified ratio estimation. The sampling was conducted from BED’s list of completed projects from January 1, 2007 through December 31, 2008. Given the time frame required to be able to complete the metering and site-specific M&V, the parties agreed to base the realization rates on projects completed during program years 2007 and 2008. (The next evaluation cycle will focus on projects complete during program year 2009). The realization rates presented in this report for the custom C&I sector will be applied until new values are developed through the next evaluation cycle.

The sampling unit for this verification is the location as defined by BED’s location ID. All measures installed during program years 2007 and 2008 were considered for each location, and specific locations were selected for review. This approach was selected due to the availability of interval meter (IM) data for many of BED’s large projects. To be able to use the IM data, the program activity was aggregated to reflect all measures installation at the location.

Measures may have been installed through the retrofit, MOP or NC programs, and measures were installed under multiple programs in some locations, i.e., a participant at a selected location may have installed measures under both the retrofit and MOP programs. The sampling frame included all C&I projects (both prescriptive and custom). Multifamily projects were found to be a small part of the portfolio and were verified under the residential sector.

Size categories were used to ensure that the sample is representative of the population. The stratification variable for determining the size was the higher of the two coincident peak

values, referenced as "max kW" throughout the rest of this document. Location ID's with an estimated maximum peak reduction of below the specified limit were omitted from the sample as too small to evaluate.

The initial round of sampling was conducted using the complete sample frame of 07/08 participants. Projects with a max kW greater than or equal to 0.8 kW and less than 10.0 kW were classified as small, projects equal to or greater than 10.0 kW and less than 100.0 kW were classified as medium, and projects with maximum demand savings of 100.0 kW or higher were classified as large. A random selection of six small projects was chosen and a census of nine medium and large projects was added to the sample.

After the project review process was underway, the evaluation team discovered that the stratification variable (max kW) was calculated incorrectly and did not properly account for the number of items installed. Consequently, a second round of sampling was conducted to include the projects that were inadvertently excluded as too small to meter in the first round. Two projects were added to the sample of small projects and two to the medium/large census stratum.

Table 2 shows the distribution of savings in the size categories and the savings associated with the completed reviews. The completed sample covered about 72% of the total kWMax savings claimed by BED.

Table 2: Savings by Size Strata

Size Stratum	Total # of Locations	# in Sample	# Completed	Total kWMax	Completed Sample kWMax
Tiny	113	0	0	51.785	0.000
Small	39	9	6	213.769	26.555
Medium	9	9	9	272.918	272.918
Large	2	2	2	324.420	324.420
Totals				862.892	623.893

As is common in conducting field work, some projects were selected through the sampling process but could not be verified for a variety of reasons. As can be seen in Table 2, six(6) out of nine (9) small locations were verified. Three projects were dropped due to the inability to meter the installations within the appropriate time frame, i.e., during the summer peak period. All of the medium and large projects were reviewed.

One of the ramifications of aggregating activity by location ID was that some projects covered a wide range of projects and measures and not all of the measures could be metered or verified by other means. For the max kW, the FCM verification covered 85% or more of the total BED claimed savings for 15 of the 17 projects. One of the remaining projects involved the installation of lighting measures, a hot water fuel switch and a VFD installed on a heating pump on a hot water loop at a church. The lighting measures were a large proportion of the total savings; the lighting was not metered and could not be verified due to the high variability of lighting use in this type of building. The other project was expected to be verified through the use of the IM data, but subsequent review suggested that this approach was not sufficient given the site-specific issues; some measures, but not all, could be verified through alternative methods.

4 Results

To determine the realization rates and calculating relative precision, BED's portfolio was divided into components based on the verification strategy and source of the coincident peak factors. Each of these components is defined below.

Custom NC/MOP/Retrofit: Projects associated with BED's retrofit initiatives in the business and multifamily sectors. Peak demand savings were determined through sampling and verified by the Department of Public Service as part of the C&I custom evaluation. Measures in which stipulated coincidence factors from the RLW lighting study could be applied were removed from the sample frame.

C&I Measures Not Sampled: These are the very small C&I custom projects (winter and summer peak kW of less than 0.80 kW). Given that these projects in aggregate represented a small percentage of BED's portfolio (6%) and would be just as costly to verify as other projects, they were excluded from the C&I sample frame. The realization rate from the C&I Retrofit/NC/MOP components was used for these measures. Since these savings are such a small part of the portfolio, this assumption will not affect the results for the overall portfolio.

Residential Prescriptive Lighting: This component represents the lighting products sold through the Efficient Products Program. The source of the coincidence factors is the RLW Analytics lighting study (2007).

Residential Prescriptive Lighting with cooling bonus: This component represents the percentage of lighting products sold through the Efficient Products Program that purchased by commercial establishments. The source of the coincidence factors is the RLW lighting study (2007) and the RLW residential HVAC study (2008).

Residential Prescriptive HVAC: Efficient air conditioners are also offered through the Efficient Products initiatives. The source of the coincidence factors is the RLW Analytics residential HVAC study.

Residential Prescriptive Other eShapes: The Efficient Products initiative also includes a range of other Energy Star appliances and electronics, including dishwashers, clothes washers, and refrigerators. In addition, some prescriptive measures are installed through the residential custom initiatives, including hot water conservation measures and fuel switches. For these measures, the coincidence factors were developed from Itron's eShapes, discussed in more detail below.

Residential Prescriptive Other non-eShapes: These measures include a few other miscellaneous products offered through the Efficient Products initiative (such as dehumidifiers), as well as a limited number of items installed through the residential custom initiatives, such as DHW pipe insulation and tank wraps. These coincidence factors were based on engineering estimates, as discussed further below.

The realization rates and relative precision for all components of BED's portfolio are provided in Table 3 and Table 4. The ISO standards require sampling precision at the 80/10 confidence/precision level for the entire portfolio. The relative precision of the verified savings in BED's portfolio is 10.2% for winter peak kW reduction and 9.1% for the summer peak, which meets the ISO requirement.

Table 3: Realization Rates and Sampling Precision for Winter Peak kW Reduction

	Original BED Claimed Peak kW Reduction	Realization Rate	Savings as % of Total Portfolio	Relative Precision
C&I and Multifamily				
Custom	756	86.2%	40%	12.5%
C&I Custom Not Sampled	48	86.2%	3%	100.0%
Residential				
Prescriptive Lighting	821	104.0%	43%	15.8%
Prescriptive HVAC	2	0.0%	0%	0.0%
Prescriptive Other eShapes	191	95.5%	10%	50.0%
Prescriptive Other non-eShapes	3	100.2%	0%	100.0%
Custom	70	0.0%	4%	0.0%
Totals	1,892	90.3%	100%	10.2%

Table 4: Realization Rates and Sampling Precision for Summer Peak kW Reduction

	Original BED Claimed Peak kW Reduction	Realization Rate	Savings as % of Total Portfolio	Relative Precision
C&I				
C&I Custom	664	83.1%	49%	5.3%
C&I Custom Not Sampled	51	83.1%	4%	100.0%
Residential				
Prescriptive Lighting	517	90.6%	39%	17.6%
Prescriptive HVAC	1	307.1%	0%	10.4%
Prescriptive Other eShapes	103	95.5%	8%	50.0%
Prescriptive Other non-eShapes	6	101.0%	0%	0.0%
Custom	0	0.0%	0%	0.0%
Totals	1,342	87.2%	100%	9.1%

For the C&I custom sample, the relative precision was calculated from the sample. The two studies done by RLW Analytics (lighting and residential HVAC) specified the relative precision for the coincidence factors. In some cases, the relative precision was estimated based on the available information, as discussed below.

- The coincident factors for a variety of small residential measures were based on Itron's eShapes 8760 load profile data, developed from audits of approximately 20,000 homes in

the 1990's.³ While the load profiles are based on older data, the extensive nature of the data collection would be extremely costly to reproduce for measures that represent less than 10% of BED's portfolio. The relative precision could not be determined, so a proxy value of 0.50 was used. Given the large sample size, this proxy value is assumed to be substantially larger than the actual relative precision.

- For a few other residential measures, the load profiles were based on engineering assumptions and the relative precision could not be determined. These coincident factors were reviewed and found to be within a reasonable range. Since no sampling was conducted, there is no sampling error associated with these measures. These measures constitute a very small percentage of BED's overall portfolio (less than 1%).

For the residential prescriptive lighting products, the reduction in Watts and in-service rates are based on the results of a market research conducted by Nexus Marketing Research.⁴ This was a regional study prepared for the New England Energy Efficiency Partnership (NEEP). Verified lighting coincidence factors were based on the recent RLW lighting study (2007).

Thus, the residential lighting savings are composed of three components with values derived from two different studies (NMR, 2004 and RLW, 2007). Each component has a relative precision associated with it. The overall precision was calculated using the method described in BED's M&V Plan.⁵ The in-service rate (ISR) and delta Watts were estimated from the same sample, and thus the worst-case precision was estimated as if the factors were perfectly correlated, i.e., the combined precision was additive. The RLW and NMR studies were samples were independent, allowing the combined precision from the NRM and RLW studies to be calculated by the following formula:

$$p = \sqrt{(P_{NMR}^2 + P_{RLW}^2)}$$

The relative precision in the NMR study was report at the 90% confidence level. These values were assumed to be a worst case scenario for the FCM requirement of precision at the 80% confidence level. The NMR precision values are the same as used in BED's M&V Plan submitted to ISO-NE.⁶

The combined precision for the ISR and delta Watts from the NRM study was 10.8%. The precision for the RLW coincidence factors was reported to be 4.5% and 6.1% at the 80% confidence level for winter and summer, respectively.⁷ Thus, the combined relative precision for

³ About half of the roughly 20,000 audits were conducted on site, with the remainder based on a mail survey. Building simulations were performed based on the data collected through the audits to determine the load profiles. Overall, the audits were distributed throughout the country, although some states and utilities had more audit activity than others.

⁴ *Impact Evaluation of the Massachusetts, Rhode Island, and Vermont 2003 Residential Lighting Programs*. Nexus Market Research and RLW Analytics, 2004

⁵ *Vermont Efficiency Portfolio: Plan for Measurement and Verification of Demand Reduction Value from Energy Efficiency Resources*. Prepared by the Vermont Energy Investment Corporation for submission to ISO New England. June 15, 2007. Pages 7-4 to 7-5.

⁶ As noted in Efficiency Vermont's M&V Plan (page 7-4), in some cases a single value was selected where the NMR report had the results broken out into segments by technology. The selected value was chosen as a conservative estimate of the precision for the combined applications.

⁷ RLW Lighting Study, 2007, pages 13 and 14.

the prescriptive residential lighting was calculated to be 15.8% and 17.6% for winter and summer peak demand reductions.

4.1 Cross-Program Issues

The realization rates incorporate corrections to a number of systematic errors that affect multiple programs, as listed below.

- The assumed impact of lighting power reduction on air conditioning loads in the commercial lighting included as part of the Efficient Products program was modified to reflect current A/C efficiencies and be consistent with the method described in the RLW Analytics lighting study. Please refer to Appendix B for the assumptions used in the calculation of the Department's verified savings.
- Incorrect measure assumptions for some residential prescriptive measures were found to have been applied in 2007 and 2008.

These and other minor errors were corrected and are reflected in the realization rates presented above.

In addition, measures installed before June 30, 2007 had a coincident peak factors applied that were based on winter and summer peak hour definitions that were not consistent with the ISO peak periods. BED recalculated the winter and summer kW savings comply with the ISO-NE winter and summer peak period definitions. The Department understands that BED has made these corrections prior to applying the realization rates given in this report.

4.2 C&I Results

Tables 5 and 6 provide the realization rates and population for the projects in the BED portfolio. Stratum 1 contains the smallest projects that were sampled and Stratum 3 the largest. The realization rates in the final row (Total) reflect the overall realization for the C&I custom projects and are also provided in Tables 3 and 4 above. (Please refer to Section 3.1 for the definition of the size categories.)

Table 5: Realization Rates by Size for C&I for Winter kW Peak

Size Stratum	Total # of Projects	Projects in Sample	Mean of BED Claimed kW	Mean of DPS Verified kW	Realization Rate
1	40	6	5.47	6.35	1.16
2	9	9	24.26	15.25	0.63
3	2	2	167.75	137.48	0.82
Total	51	17			0.86

Table 6: Realization Rates by Size for C&I for Summer kW Peak

Size Stratum	Total # of Projects	Projects in Sample	Mean of BED Claimed kW	Mean of DPS Verified kW	Realization Rate
1	40	6	6.03	6.04	1.00
2	9	9	19.54	11.60	0.59
3	2	2	139.98	116.40	0.83
Total	51	17			0.83

As can be seen from these tables the realization rates range from a low of 59% to a high of 116% across the size strata. Some of the common reasons for the difference in realized savings are listed below.

- The equipment was not operating as expected.
- Operating schedules were found to be different from what the participant reported to BED.
- Assumptions about the use of baseline equipment were found to be different than expected.
- The recent economic downturn reduced or eliminated the use of installed measures.

Other than the possible impact of the recent economic turmoil these types of adjustments are not an unusual outcome for an impact evaluation. The evaluation was not designed to directly measure the economic effects of recent events on BED savings portfolio. However it can be assumed that as the economy improves equipment installed through the program may see increased use. To the extent this occurs, there may be some understatement of actual savings.

4.3 Residential Results

Generally, the realization rates for the residential prescriptive measures are close to 1.0. The assumptions for these measures are documented in the TRM and applied to the specific measures by BED. Thus, discrepancies are usually due to errors in applying the TRM values. As shown in Table 3 and Table 4, an exception is the prescriptive HVAC category, with a winter peak RR of 0% and a summer peak of over 300%. This result is due to the few measures in this category and an apparent error in the selection of the load profile for three measures. While the measures are clearly identified as residential cooling, the heating load profile was incorrectly applied.

Residential prescriptive lighting has a winter peak realization rate of 104% and summer peak of about 91%. These variations are due to changes in the load profiles and estimation of the cooling bonus for commercial CFL's. BED assumes that a percentage of the CFL's purchased through the Efficient Products program are installed in commercial locations, and the cooling bonus is applied to these purchases. For these purchases, the load profiles were modified to be consistent with the blended commercial lighting profile developed by EVT from the RLW 2007 study and the cooling bonus was modified to reflect current A/C efficiencies and to be consistent

with the method described in the RLW Analytics lighting study. (Please refer to Appendices B and C.)⁸

Assumptions for the other prescriptive residential measures are described in the TRM. A few minor errors in the application of the prescriptive assumptions were identified, and these corrections were incorporated into the realization rates.

4.4 Compliance with ISO-NE Standards

This section covers the compliance of the verification results with the ISO-NE standards. For the residential prescriptive measures, the assumptions are supported by recent, statistically sound studies. For the custom C&I projects, an individual M&E plan was developed for each project that was consistent with the ISO requirements. Most of the ISO requirements are directly relevant to the C&I custom sample and are discussed in that context. The ISO requirements are listed in reference to the section in the manual.

Section 6, Establishing Baseline Conditions: As specified in the manual, the baseline conditions for retrofit projects are the pre-existing conditions. If the pre-existing conditions could not be determined, then the applicable state code, federal product efficiency standard or standard practice (if more stringent than the state or federal requirement) should be used. For market opportunity projects, the baseline is the applicable state code, federal product efficiency standard or standard practice (if more stringent than the state or federal requirement).

These principles were consistently applied to the custom C&I projects and documented in the individual project reports. In a few cases, there was no clear code or standard. In these situations, the Department's evaluation team researched the standard practice and developed the baseline using the best available information.

Section 7, Statistical Significance: For engineering-based, direct measurement, the ISO manual required strategies to control for bias, such as the accuracy and calibration of the measurement tools, sensor placement bias, and sample selection bias or non-random selection of equipment and/or circuits to monitor. The site-specific M&V plans described the relevant issues for each project and discussed the methods used to mitigate bias. These issues are described in more detail in the site-specific project reports.

In Section 7.2, the manual requires that the overall portfolio meet the 80/10 confidence/precision standard. As discussed above, the verification of BED's portfolio meets that standard with a precision of 10.4% and 9.4% for winter and summer peak reduction, respectively.

⁸ The blended commercial coincidence factors were based on the types of businesses installing lighting measures through EVT's initiatives. Since there is no site-specific information about the commercial establishments purchasing CFL's through the Efficient Products program and EVT's programs reach a broad spectrum of Vermont businesses, EVT's blended ratio was assumed to be the best available estimate for the coincidence factors.

This section also discussed the need to minimize bias. Bias relating to the three components of BED's portfolio that make up 90% or more of the peak kW reduction is explored briefly below.

- In the C&I sector, the cool weather during the summer and early fall of 2009 created difficulties in metering measures with savings occurring during warm periods (such as air conditioning). This situation resulted in the removal of three projects from the sample; in addition, a limited number of measures among the completed projects could not be verified. However, 70% of BED's summer peak savings were included in the sample and were verified by the DPS, suggesting that the removal of these projects and measures is unlikely to create a bias in the realization rate for the summer peak savings. For winter peak savings, the sample covered almost 75% of BED's peak savings and the verification process did not encounter challenges that would suggest any specific source of bias.
- The estimated savings for residential prescriptive lighting are unlikely to be biased since the deemed savings are based on recent market studies.
- The use of the RLW coincidence factors to some C&I lighting measures is appropriate since the RLW sample included a broad range of applications and the coincidence factors represent average values for these specific types of businesses. Thus, the application of the RLW coincidence factors would not be expected to introduce a bias.

Section 10, Measurement Equipment Specifications: The Department used RLW's *Review of ISO New England Measurement and Verification Equipment Requirements* (April 24, 2008) to identify the ISO-compliant metering equipment. In one case for the C&I projects, the metering was not conducted by the Department's evaluation team and some useful details regarding the metering were not recorded. In other situations, approved metering equipment was used at the lower boundary of the range of kW or current as there was no alternative equipment that met the ISO standard.

In these cases, the Department's evaluation team carefully reviewed the results and assessed the validity of the data to decide whether or not the project could be verified. If the evaluator concluded that the data could be used to develop reliable estimates without introducing an unacceptable level of uncertainty to the results, the project was kept in the sample. These situations are clearly discussed in the individual project reports.

Section 5, Acceptable Measures and Verification Methodologies: This section describes the specific allowable methods, Options A through D. Engineering algorithms are permitted if supplemented with on-site data collection. Verifiable load shapes may be applied if based on "actual metering, load research, and/or simulation modeling" (Section 5.4.2).

For the residential prescriptive measures, Option A was applied, using verifiable load shapes and assumptions based on recent, statistically sound studies as discussed above. The recent RLW studies for lighting and HVAC prepared for NEEP cover the vast majority of the residential prescriptive savings. The other measures used either Itron's

eShapes or engineering estimates, as described in above in this section. While the Itron eShapes are based on data that is over five years old, they also represent a highly detailed survey of residential use that would be impossible to duplicate within a reasonable time frame and budget. The kW reduction estimated by the use of engineering algorithms account for less than 1% of the total portfolio, and thus the greater uncertainty associated with the load profiles was considered to be acceptable.

5 Conclusions

The Department completed its independent verification of BED's peak demand reduction. BED's M&V plan as submitted to ISO-NE was the foundation for the sampling plan and verification activities conducted by the Department. The M&V plan was followed and the results of the evaluation are consistent with the ISO standards, as specifically discussed in this document. The realization rates are based on BED's activity in program years 2007 and 2008.

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