



Verification of the 2019 Efficiency Savings  
Claim of the Natural Gas Energy Efficiency  
Utility operated by Vermont Gas Systems

# Vermont Gas Systems EEU Savings Verification Report

Public Service Department

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## Introduction

This report describes the result of a two-step review process undertaken by the Department to assess the performance of the Energy Efficiency Utility (EEU) operated by Vermont Gas Systems during 2019, the second year of the 2018 – 2020 performance period. First, with the assistance of its contractor, NMR Group, Inc. (NMR), the Department verified the reported savings of the VGS EEU for the 2019 program year (PY 2019). Using that data, the Department then assessed the degree to which the natural gas EEU operated by VGS made progress toward the three-year quantifiable performance indicators (QPIs) and minimum performance requirements (MPRs) in the PUC order of October 12, 2017 as well as qualitative obligations and included in the recently updated *Process and Administration of an Energy Efficiency Utility Order of Appointment*.

The Department has determined that in 2019, VGS made satisfactory progress toward all MPRs and other non-quantifiable obligations described in the Commission’s October 12, 2017 order. After an independent third-party impact evaluation and the application of the resulting realization rates, VGS has also made satisfactory progress toward achieving the four QPIs. As evidenced by the high realization rates resulting from this third-party verification, VGS has shown continued improvements in program implementation and savings estimation since being appointed an EEU and is on track to achieve all QPIs and MPRs in the current three-year performance period.

## Scope of Evaluation

This report, which focuses on the second year of the 2018 – 2020 three-year performance period, is the fulfillment of the Department’s obligation to perform annual savings verifications of the natural gas EEU pursuant to Sections II.5.E and II.5.H (c) of the “Process and Administration of an Energy Efficiency Utility Order of Appointment,” (revised November 26, 2019) and Section III.6.B of the “Order of Appointment for Vermont Gas Systems, Inc.,” issued by the Public Utility Commission on April 17, 2015.

To carry out these verification activities the Department retained the services of a consultant, NMR Group (NMR), to provide expert review and analysis of the VGS 2019 savings claim for the Commercial and Industrial (C&I) sector programs as well as the Residential New Construction program and Custom Residential Retrofit program. NMR also assisted Department staff in verifying the savings claim for the Residential Equipment Replacement (RER) program as well as the other smaller programs in the residential sector.

The objective of savings verification is to calculate annual and peak day savings realization rates (RRs) at the program and sector levels while leveraging information garnered during the verification process to inform future program design and budgeting. Evaluation activities include review of the full database of measure data and sampled project files to accomplish the following:

- Verify that savings assumptions have been applied appropriately and calculations performed correctly
- Calculate verified savings
- Establish realization rates on a program and sector level

To accomplish these goals, this report draws upon and supplements the findings of the attached NMR report entitled: *Verification of Vermont Gas Systems’ 2019 Savings Claims*.

## Summary of Results

The Department has reviewed the results of the savings verification with VGS staff and concurs with the findings of NMR contained in the attached report entitled: *Verification of Vermont Gas Systems' 2019 Savings Claims*. The results of the 2019 savings verification are summarized in Table 1:

**Table 1. VGS Sector- and Portfolio-Level Certified Verified Savings for PY\* 2019**

Sector	VGS Reported Annual Mcf	Verified Annual Mcf	2019 Annual Mcf Realization Rate	VGS Reported Peak Day Mcf	Verified Peak Day Mcf	2019 Peak Day Realization Rate
Residential Sector total	34,665	33,162	96%	346	330	95%
C/I sector total	27,763	26,241	95%	200	183	92%
<b>Portfolio Total</b>	<b>62,428</b>	<b>59,403</b>	<b>95%</b>	<b>546</b>	<b>513</b>	<b>94%</b>

\* Program Year

The Department certifies the VGS verified savings for 2019 as shown in Table 1, above. The certified commercial and industrial (C&I) sector and residential sector verified savings at the program level are presented in Table 2, below.

**Table 2. C&I and Residential PY 2019 Reported and Verified Savings**

Program	2019 VGS Reported Annual Mcf	2019 Verified Annual Mcf	2019 Annual Mcf Realization Rate	2019 VGS Reported Peak Day Mcf	2019 Verified Peak Day Mcf	2019 Peak Day Realization Rate
Commercial Equipment Replacement (CER)	4,265	4,046	94.9%	42.9	39.7	92.6%
Commercial Retrofit (CSR)	13,216	12,997	98.3%	52.4	51.5	98.4%
Commercial New Construction (CNC)	10,282	9,199	89.5%	104.3	91.9	88.1%
<b>C/I sector total</b>	<b>27,763</b>	<b>26,241</b>	<b>94.5%</b>	<b>199.6</b>	<b>183.1</b>	<b>91.8%</b>
Program	2019 VGS Reported Annual Mcf	2019 Verified Annual Mcf	2019 Annual Mcf Realization Rate	2019 VGS Reported Peak Day Mcf	2019 Verified Peak Day Mcf	2019 Peak Day Realization Rate
Residential New Construction (RNC)	11,872	11,860	99.9%	133.6	133.9	100.2%
Residential Equipment Replacement (RER)	18,825	17,336	92.1%	163.5	146.7	89.7%
Custom Residential Retrofit (RIR)	3,967	3,966	100.0%	49.1	49.0	99.8%
<b>Residential total</b>	<b>34,664</b>	<b>33,162</b>	<b>95.7%</b>	<b>346.2</b>	<b>329.6</b>	<b>95.2%</b>
<b>Portfolio total</b>	<b>62,427</b>	<b>59,403</b>	<b>95.2%</b>	<b>545.8</b>	<b>512.7</b>	<b>93.9%</b>

The residential sector verified savings are further broken out into sub-programs in Table 3.

**Table 3. VGS Residential Sector Certified Verified Savings for PY 2019**

Program	2019 VGS Reported Annual Mcf	2019 Verified Annual Mcf	2019 Annual Mcf Realization Rate	2019 VGS Reported Peak Day Mcf	2019 Verified Peak Day Mcf	2019 Peak Day Realization Rate
Residential New Construction EVT (RNC-EVT)	968	968	100.0%	12.1	12.1	100.0%
Custom Multifamily Residential New Construction (RNC-MF Custom)	10,904	10,892	99.9%	121.5	121.8	100.2%
<b>Residential New Construction (RNC) total</b>	<b>11,872</b>	<b>11,860</b>	<b>99.9%</b>	<b>133.6</b>	<b>133.9</b>	<b>100.2%</b>
Residential Equipment Replacement (RER)	18,553	17,070	92.0%	161.3	144.6	89.6%
Custom Multifamily Residential Equipment Replacement	272	265	97.4%	2.2	2.1	97.6%
<b>Residential Equipment Replacement (RER)</b>	<b>18,825</b>	<b>17,336</b>	<b>92.1%</b>	<b>164</b>	<b>146.7</b>	<b>89.7%</b>
Residential Retrofit (RIR)	2,052	2,052	100.0%	28.4	28.4	100.0%
Residential Home Retrofit (RIR-Custom)	150	149	99.3%	1.9	1.8	99.3%
Home Performance with Energy Star (RIR-HPWS)	447	447	100.0%	6.3	6.3	100.0%
Low Income Residential Home Retrofit (RIR-LI)	422	422	100.0%	5.9	5.9	100.0%
Residential Direct Install (RIR-SLAM)	662	662	100.0%	3.3	3.3	100.0%
Residential Retrofit Condominium (RIR-Condo)	234	234	100.0%	3.3	3.3	100.0%
<b>Residential Home Retrofit (RIR) total</b>	<b>3,967</b>	<b>3,966</b>	<b>100.0%</b>	<b>49.1</b>	<b>49.0</b>	<b>99.8%</b>
<b>Residential Sector total</b>	<b>34,664</b>	<b>33,162</b>	<b>95.7%</b>	<b>346.2</b>	<b>329.6</b>	<b>95.2%</b>

As is noted in the attached report, the high realization rates demonstrate that “VGS has incorporated recommendations from the PY2018 evaluation into practice and has showed increased attention to detail in PY2019.” VGS is employing TRM-based calculation approaches for several measures ... [and] incorporating billing data analysis into savings calculations.”

For the Residential sector, the realization rate of 96% is within the desired range on either side of the 100% target and shows continued improvement in implementing and estimating the impact of the residential programs.

The Commercial and Industrial (C&I) sector realization rate of 94.5% is similarly an indication of consistent and accurate project characterization and savings estimation. The NMR report notes that “VGS program staff members displayed in-depth technical understanding of natural gas equipment operation and engineering principles surrounding energy efficiency savings calculations.” Unlike the 2018 evaluation, there were few anomalous project savings claims in 2019, which is further evidence of improvement in the delivery and administration of VGS EEU programs.

## Quantifiable Performance Indicators

Section II.5.E of the *Process and Administration of an Energy Efficiency Utility Order of Appointment* requires the Department to annually certify to the Board that the natural gas EEU operated by VGS has satisfactorily achieved the performance metrics known as Quantifiable Performance Indicators (QPIs) that have been developed to assess whether the EEU is meeting established savings goals on the schedule and at the levels set by the Commission in its Order of October 12, 2017 in Docket EEU-2016-03.

Specifically, the Department is obligated to determine:

- (a) Whether VGS has made appropriate interim progress toward achieving QPIs;
- (b) Whether VGS is satisfactorily executing those of its responsibilities that are not directly measured by QPIs; and
- (c) Whether VGS' performance relative to its QPIs is consistent with the portion of the three-year budget that has been expended.

As detailed in the PUC order of October 12, 2017, VGS is responsible for meeting six Quantifiable Performance Indicators (QPI) and seven Minimum Performance Requirements (MPR). Based on a review of VGS' savings claims including the savings verification activities described in the attached reports, the Department concludes that VGS has made satisfactory progress toward achieving the PUC ordered QPI targets for the three-year performance period. Tables 4, 5 and 6, below summarize VGS' performance in 2019 with respect to QPI #1: Annual Incremental Gas Savings, QPI #2: Total Resource Benefits, and QPI #3: Peak Day Gas Savings, respectively.

**Table 4. PY 2019 Performance vs. Goals – QPI #1: Annual Incremental Mcf Savings**

Program	QPI #1 Annual Incremental Mcf Savings			
	2018-20 Annual Mcf Three-Year Goal	PY 2018 Verified Annual Mcf	PY 2019 Verified Annual Mcf	Verified Savings Progress Toward Three-Year Goal
Residential Home Retrofit (RIR)	12,920	4,461	3,966	65%
Residential New Construction (RNC)	21,596	12,457	11,860	113%
Residential Equipment Replacement (RER)	32,849	13,092	17,336	93%
<b>Residential Sector Total</b>	<b>67,365</b>	<b>30,010</b>	<b>33,162</b>	<b>94%</b>
Commercial Retrofit (CSR)	49,506	15,468	12,997	57%
Commercial New Construction (CNC)	30,015	8,962	9,199	61%
Commercial Equipment Replacement (CER)	48,941	8,068	4,046	25%
<b>C&amp;I Sector Total</b>	<b>128,462</b>	<b>32,498</b>	<b>26,242</b>	<b>46%</b>
<b>Portfolio Total</b>	<b>195,827</b>	<b>62,508</b>	<b>59,403</b>	<b>62%</b>

**Table 5. PY 2019 Performance vs. Goals – QPI #2: Total Resource Benefits**

Program	QPI #2a Total Resource Benefits			QPI #2b Lifetime Mcf Savings			Two-Year Verified vs. Goal
	2018-20 Three-Year TRB Goal	PY2019 Verified TRB	PY 2019 Verified TRB	2018-20 Three-Year Lifetime Savings Goal	PY2018 Verified Lifetime Savings	PY2019 Verified Lifetime Savings	
Residential Home Retrofit (RIR)	\$2,705,181	\$1,143,323	\$931,058	233,063	85,727	78,399	77%
Residential New Construction (RNC)	\$4,043,794	\$2,757,068	\$2,296,256	389,554	260,560	251,421	125%
Residential Equipment Replacement (RER)	\$6,171,197	\$2,452,692	\$3,356,424	592,542	251,174	358,417	94%
<b>Residential Sector Total</b>	<b>\$12,920,172</b>	<b>\$6,353,083</b>	<b>\$6,583,738</b>	<b>1,215,159</b>	<b>597,461</b>	<b>688,237</b>	<b>100%</b>
Commercial Retrofit (CSR)	\$7,905,879	\$3,035,145	\$2,288,975	741,752	240,811	196,697	67%
Commercial New Construction (CNC)	\$5,359,833	\$1,910,722	\$1,857,983	509,681	158,703	172,559	70%
Commercial Equipment Replacement (CER)	\$8,280,048	\$1,849,420	\$849,969	782,172	182,298	92,212	33%
<b>C&amp;I Sector Total</b>	<b>\$21,545,760</b>	<b>\$6,795,288</b>	<b>\$4,996,928</b>	<b>2,033,606</b>	<b>581,813</b>	<b>461,468</b>	<b>55%</b>
<b>Portfolio Total</b>	<b>\$34,465,932</b>	<b>\$13,148,371</b>	<b>\$11,580,667</b>	<b>3,248,764</b>	<b>1,179,274</b>	<b>1,149,705</b>	<b>72%</b>

**Table 6. PY 2019 Performance vs. Goals – QPI #3: Peak Day Mcf Savings**

Program	QPI #3 Peak Day Mcf Savings			
	2018-20 Peak Day Mcf Three-Year Goal	PY 2018 Verified Peak Day Mcf	PY 2019 Verified Peak Day Mcf	Two-Year Verified vs. Three-Year Goal
Residential Home Retrofit (RIR)	155	44.2	49.0	60%
Residential New Construction (RNC)	238	138.1	133.9	114%
Residential Equipment Replacement (RER)	263	112.7	146.7	99%
<b>Residential Sector Total</b>	<b>656</b>	<b>295.0</b>	<b>329.6</b>	<b>95%</b>
Commercial Retrofit (CSR)	99	38.8	51.5	91%
Commercial New Construction (CNC)	60	63.8	91.9	260%
Commercial Equipment Replacement (CER)	98	34.3	39.7	76%
<b>C&amp;I Sector Total</b>	<b>257</b>	<b>136.9</b>	<b>183.1</b>	<b>125%</b>
<b>Portfolio Total</b>	<b>913</b>	<b>431.9</b>	<b>512.7</b>	<b>103%</b>

QPI #4 is intended to ensure that VGS’ residential single-family energy efficiency initiatives are designed and implemented to acquire comprehensive savings rather than just the most cost-effective measures. QPI #4 is divided into two parts. The first part sets a performance goal for conversion of energy audits into energy saving improvements. The target set by the PUC for the 2018-2020 performance period was an overall 30% conversion rate. VGS achieved a 36% conversion rate in PY 2019, which is 31% better than the goal.

The second part of QPI #4 sets a target percentage of all cost-effective measures as well as those measures recommended by the audit that are installed by the customer within 12 months of the audit. The PUC set a goal of 70% of auditor recommended cost-effective measures installed within a year of the initial audit. VGS achieved an average of 85%, which is 20% better than the target set by the PUC.

VGS’ achievements regarding QPIs #1 through #4 are summarized in Table 7, below.

**Table 7. PY 2019 QPIs #1 through #4 - Verified Performance vs. Three-Year Goals**

QPI #	Title	Performance Indicator	2018-2020 Three-Year Target	PY 2018 Achieved	PY 2019 Achieved	Achieved vs. Three-Year Target
1	Natural Gas Savings	Annual incremental net Mcf savings	195,827	62,508	59,404	62%
2	Lifetime Natural Gas Savings	a. Present worth of lifetime natural gas avoided costs	\$34,465,931	\$13,148,371	\$ 11,580,667	72%
		b. Lifetime Mcf savings	3,248,764	1,179,274	1,149,705	72%
3	Peak Day Natural Gas Savings	Peak day incremental Mcf savings	913	432	513	103%
4	Residential Single-Family Comprehensiveness	a. Percent of home energy audits converted to a measure installation within 12 months	30%	43%	36%	Ahead of target after two years
		b. Average percentage of auditor-recommended cost-effective measures that are installed by the customer within 12 months	70%	84%	85%	Ahead of target after two years

### Progress Toward QPI Goals Compared with Expenditures

Table 8, below, compares the progress toward the three-year performance period targets for QPIs #1-3 with the percentage of the budget expended by program and sector. For the residential sector, expenditures for the first two years of the performance period were 61 percent of the three-year

performance period budget, while the verified performance for QPIs #1, #2 and #3 were 94%, 100% and 95% of the three-year goal, respectively. For the Commercial and Industrial sector, expenditures in 2018 - 2019 were only 60% of the three-year budget and performance vs. goals for QPIs #1, and #2 were 46% and 55% of the three-year goal, respectively. The two-year verified Peak Day savings in the C&I sector, however, was 125% of the three-year QPI #3 goal. This is due to a greater than expected proportion of firm rate commercial and industrial customers participating in 2019, as opposed to interruptible rate customers, which don't accrue any peak day savings by virtue of having their gas supply subject to interruption during peak events.

Overall, expenditures for PY 2018 - 2019 were under budget (60% of the three-year budget after two years) while the verified performance for QPI #1 was below target for the C&I sector (46%), and well ahead of target for the Residential sector (94% of the three year target). PY 2019 performance for the residential sector is also well ahead of the two-year target for QPIs #2 and #3. The C&I sector performance is behind schedule for QPI #2 with only 55% of the goal achieved after two years, but VGS has already exceeded its three-year goal for Peak Day savings in the C&I sector by 25%.

**Table 8. PY 2019 Expenditures vs. Budget and Performance vs. Goals QPIs #1, #2 and #3**

Program	Budget and Expenditures				QPI #1: Annual Incremental Mcf Savings	QPI #2: Lifetime Natural Gas Savings	QPI #3: Peak Day Mcf Savings
	2018-20 Three-Year Budget	PY 2019 Expenditures	PY 2019 Expenditures	Two-Year Expenditures as % of Three-Year Budget	PY 2019 Incremental Mcf Savings as % of Three- Year Goal	PY 2019 Lifetime NG Savings as % of Three- Year Goal	PY 2019 Peak Day Mcf Savings as % of Three-Year Goal
Residential Home Retrofit	\$3,216,277	\$836,315	\$888,694	54%	65%	77%	60%
Residential New Construction	\$982,751	\$297,610	\$266,450	57%	113%	125%	114%
Residential Equipment Replacement	\$2,680,231	\$928,643	\$997,608	72%	93%	94%	99%
<b>Residential Sector Total</b>	<b>\$ 6,879,259</b>	<b>\$ 2,062,567</b>	<b>\$ 2,152,752</b>	<b>61%</b>	<b>94%</b>	<b>100%</b>	<b>95%</b>
Commercial Retrofit	\$893,410	\$268,820	\$266,272	30%	57%	67%	91%
Commercial New Construction	\$625,387	\$162,904	\$199,949	26%	61%	70%	260%
Commercial Equipment Replacement	\$536,046	\$179,479	\$152,411	33%	25%	33%	76%
<b>C&amp;I Sector Total</b>	<b>\$2,054,844</b>	<b>\$611,203</b>	<b>\$618,631</b>	<b>60%</b>	<b>46%</b>	<b>55%</b>	<b>125%</b>
<b>Portfolio Total</b>	<b>\$ 8,934,103</b>	<b>\$ 2,673,770</b>	<b>\$ 2,771,383</b>	<b>61%</b>	<b>62%</b>	<b>72%</b>	<b>103%</b>

### Addison County-Specific QPIs

Pursuant to the Commission order dated August 30, 2018 in Docket 7676, "VGS shall include the following information in its report due May 1, 2020: (1) Addison County specific results for existing QPIs 4a, 4b, and 6; (2) VGS's assessment of Addison County data; and (3) VGS's recommendations for

Addison County-specific comprehensiveness QPIs.” VGS included the Addison Specific results for QPI’s 4a, 4b, and 6 in its May 1 filing, which are reproduced in Table 9, below.

**Table 9. Addison County PY 2019 Verified Performance for QPIs #4a, #4b, and 6**

QPI #	Title	Performance Indicator	2018-2020 Three-Year Target	2018 Claimed	2019 Claimed	Performance vs. Requirement
4	Residential Single Family Comprehensiveness	a. Percent of home energy audits converted to a measure installation within 12 months	30%	29%	36%	Satisfactory
		b. Average percentage of auditor-recommended cost-effective measures that are installed by the customer within 12 months	70%	87%	78%	Significantly better than requirement
6	Business Comprehensiveness of Savings	Diversity of measures implemented in commercial retrofit projects	A minimum of measures installed during the prior 12-months will be: 10% control-related, 20% heating systems, heat recovery or domestic hot water systems, 10% process-related and 30% shell or other-related	0% control-related, 48% heating systems, heat recovery or domestic hot water systems, 19% process-related and 32% shell or other-related	7% control-related, 34% heating systems, heat recovery or domestic hot water systems, 7% process-related and 52% shell or other-related	Satisfactory, except for the proportion of control-related measures, which is below target

## Minimum Performance Requirements

According to the PUC order of October 12, 2017, VGS is also responsible for meeting certain Minimum Performance Requirements for the three-year performance period as described in Table 10. The Department has determined that VGS has satisfied each of these MPRs including MPR # 13 - Addison County Aggressive DSM, which exceeded the target of 30% participation in VGS energy efficiency programs in the Addison County after having fallen well short of that goal in 2018. The Department will continue to monitor progress on this important metric. VGS did fall short in one facet of MPR #6, Business Comprehensiveness of Savings, installing only 7% control-related measures at commercial customers, while the MPR requires 10%. Variability in such measure distributions is expected in a mature program with a relatively small population of commercial customers, however the Department will monitor the status of this metric and work with VGS to improve performance in the final year of the performance period.

**Table 10. PY 2019 Performance vs. 2018-20 Three-Year Minimum Performance Requirements**

MPR #	Title	Performance Indicator	2018-2020 Three-Year Requirement	2018 Verified Performance	2019 Verified Performance	Performance vs. Requirement
5	Long-term Market Transformation	Offer energy efficiency training for contractors.	One per year	One Completed	One Completed	Satisfactory
6	Business Comprehensiveness of Savings	Diversity of measures implemented in commercial retrofit projects	A minimum 10% control-related, 20% heating systems, heat recovery or domestic hot water systems, 10% process-related and 30% shell or other-related measures installed during the prior 12 months	9% control-related, 48% heating systems, heat recovery or domestic hot water systems, 9% process-related and 34% shell or other-related measures installed	7% control-related, 53% heating systems, heat recovery or domestic hot water systems, 12% process-related and 28% shell or other-related	Satisfactory, except for the proportion of control-related measures, which needs to be increased.
7	Minimum Natural Gas Benefits (Equity for All Natural Gas Ratepayers)	Total natural gas energy efficiency benefits divided by total utility costs	Equal or greater than 1.2 cost benefit ratio	4.92	4.18	Significantly better than requirement
8	Equity for Residential Ratepayers	A minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to residential customers	\$4,291,087	\$ 2,062,568	\$ 2,152,752	98% of 3-year requirement
9	Equity for Low-income Customers	A minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to Low-income customers	\$116,472	\$102,332	\$90,323	165% of 3-year requirement

10	Equity for Small Business Customers	Percent of commercial (non-residential) installed end uses that are classified as Rate G1 or G2 (use 600 Mcf/yr. or less)	30%	44%	53%	Significantly better than requirement
11	Administrative Efficiency	Meet determined milestones on schedule, including: * Defining all Administrative costs, incentive and other costs. * By July 31, 2018, submit a proposal on how these costs will be tracked and reported, including a metric on the ratio of incentive costs to non-incentive costs and total administrative costs as a percent of total budget for the current performance period.	Track the ratio of incentive to non-incentive costs and report as a percent of total budget by July 31, 2018	Reported	-	Achieved
12	Total Resource Benefits	In consultation with the Department, file a status update on the feasibility and cost/benefit analysis of tracking water and delivered fuel resource benefits	Status update by July 31, 2018	Status update filed June 28, 2019	-	Achieved
13	Addison County Aggressive DSM	Meet minimum energy efficiency program participation rate for customers in Addison County	Achieve 30% energy efficiency participation in Addison County by Year 3	23%	32%	Satisfactory

### Satisfaction of Non-Quantifiable Responsibilities of the EEU

As described in its Order of Appointment, the VGS EEU is required to meet certain other responsibilities beyond QPIs or MPRs. The Department’s qualitative assessment of the performance of the natural gas EEU, conducted through our review of reports and communications between staff and the EEU during 2018 and 2019, confirms that VGS is also satisfactorily meeting those responsibilities. The PSD review has concluded that VGS has met each of the following non-quantifiable responsibilities described in its Order of Appointment:

- Assist other Vermont Utilities in connection with the performance of Distributed Utility Planning and transmission planning.
- Provide technical support and training regarding the development and implementation of state energy codes and standards.
- Implement marketing to promote customer participation in and market awareness of EEU services and initiatives; increase consumer demand for energy-saving products and services; and affect consumer decision-making in consumer-driven energy efficiency choices.
- Provide: a toll-free number for its customers; a web page describing services available to customers; and effective customer response and referral procedures.
- Provide general information to the public to:
  - Increase consumer awareness and understanding of the benefits of reducing energy use;
  - Inform consumers of the best technologies available to them; and
  - Refer consumers to information and service resources other than the EEU
- Assist the PUC and/or the Department in developing and implementing any Self-Administered or Managed Energy Efficiency Programs for eligible gas EEU customers.

## Findings and Recommendations

The Department concurs with the findings and recommendations included in the attached report prepared by NMR, *Verification of Vermont Gas Systems' 2019 Savings Claims*. Among the findings that are important to reiterate here are:

- VGS program staff members displayed in-depth technical understanding of natural gas equipment operation and engineering principles surrounding energy efficiency savings calculations.
- VGS has incorporated recommendations from the PY2018 evaluation into practice and has showed increased attention to detail in PY2019.
- VGS program staff members also expressed an ongoing commitment to maintaining positive customer relationships and improving program offerings.
- VGS has increasingly employed TRM-based calculation approaches for several measures including boiler, furnace, and hot water heater replacements. VGS is also incorporating billing data analysis into savings calculations.
- VGS's project documentation can be challenging for an outside observer to piece together. Assumptions included in savings estimates are frequently undocumented. These factors pose challenges to evaluators but can also pose internal hurdles during project handoffs between VGS staff.

In addition to specific updates to savings algorithms, the NMR report includes the following recommendations:

- Expand and Standardize Project Documentation Practices
  - Include a standardized project summary document in each project file
  - Note the source(s) behind all key parameters driving energy savings estimates
  - For prescriptive measures, include inspection reports and invoices to more thoroughly document project scope.

- Additional Internal QC Processes
  - consider adding an internal QC process or expanding existing processes to include a comprehensive final review of project documentation and savings calculations at the time of project closeout especially for large-sized projects
  - Add internal QC review for high impact measure savings calculations and include scrutiny of vendor-submitted savings calculation.
  - Develop process to ensure that final savings calculations are stored, and final savings values are entered in tracking database.

## Conclusion

VGS has continued to improve program delivery, service quality and the accuracy of savings estimates as evidenced by the consistent and high realization rates across programs. VGS is currently reviewing their analytical tools and overall processes in preparation for expansion of their programs. This includes standardizing measure analysis and documentation and expanding the VGS TRM, all of which should enable VGS to further improve efficiency and consistency in delivering EEU programs and streamline the evaluation process. The Department concludes that the spending by VGS on EEU activities during PY 2019 was appropriate and proportional to the goals set by the PUC. The results of the PY 2019 Savings Verification have given the Department confidence that VGS is on track to achieve all its three-year performance metrics within budget.