



Verification of Vermont Gas Systems 2020
Efficiency Savings Claim and Assessment of
Performance During the 2018 – 2020
Performance Period

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 2020 and over the three-year 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 2020 program year (PY 2020). Using those results, the Department then assessed how the VGS EEU performed with respect to the three-year quantifiable performance indicators (QPIs) and minimum performance requirements (MPRs) in the PUC order of October 12, 2017, as well as its qualitative obligations included in the PUC-issued *Process and Administration of an Energy Efficiency Utility Order of Appointment*.

The Department has determined that in the 2018 – 2020 performance period, VGS met 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 achieved all six QPI targets except for QPI #1 – annual incremental natural gas savings – for which VGS fell less than one percentage point below target. As evidenced by the high realization rates found during the third-party verification, VGS has shown continued improvements in program implementation and savings estimation since being appointed an EEU.

Scope of Evaluation

This report, which focuses on the final year of the 2018 – 2020 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 2020 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 subprograms 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’ 2020 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' 2020 Savings Claims*. The results of the 2020 savings verification are summarized in Table 1:

Table 1. VGS Sector- and Portfolio-Level Certified Verified Savings for PY* 2020

Sector	2020 VGS Reported Annual Mcf	2020 Verified Annual Mcf	2020 Annual Mcf Realization Rate	2020 VGS Reported Peak Day Mcf	2020 Verified Peak Day Mcf	2020 Peak Day Realization Rate
Residential Sector total	23,337	22,386	96%	211	207	98%
C/I sector total	50,809	49,505	97%	239	189	79%
Portfolio Total	74,146	71,891	97%	450	396	88%

* Program Year

The Department certifies the VGS verified savings for 2020 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 2020 Reported and Verified Savings

Program	2020 VGS Reported Annual Mcf	2020 Verified Annual Mcf	2020 Annual Mcf Realization Rate	2020 VGS Reported Peak Day Mcf	2020 Verified Peak Day Mcf	2020 Peak Day Realization Rate
Commercial Equipment Replacement (CER)	4,971	4,720	95.0%	54	51	94.7%
Commercial Retrofit (CSR)	35,516	34,677	97.6%	85	45	52.7%
Commercial New Construction (CNC)	10,321	10,108	97.9%	100	93	93.0%
C/I sector total	50,809	49,505	97.4%	239	189	79.0%
Program	2020 VGS Reported Annual Mcf	2020 Verified Annual Mcf	2020 Annual Mcf Realization Rate	2020 VGS Reported Peak Day Mcf	2020 Verified Peak Day Mcf	2020 Peak Day Realization Rate
Residential New Construction (RNC)	3,182	3,149	99.0%	36	35	98.5%
Residential Equipment Replacement (RER)	15,447	14,460	93.6%	116	113	97.3%
Custom Residential Retrofit (RIR)	4,708	4,777	101.5%	59	59	100.0%
Residential total	23,337	22,386	96%	211	207	98.3%
Portfolio total	74,146	71,891	97%	450	396	87.5%

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 2020

Program	2020 VGS Reported Annual Mcf	2020 Verified Annual Mcf	2020 Annual Mcf Realization Rate	2020 VGS Reported Peak Day Mcf	2020 Verified Peak Day Mcf	2020 Peak Day Realization Rate
Residential New Construction EVT (RNC-EVT)	198	198	100.0%	2.5	2.5	100.0%
Custom Multifamily Residential New Construction (RNC-MF Custom)	2,984	2,951	98.9%	33.1	32.6	98.4%
Residential New Construction (RNC) total	3,182	3,149	99.0%	35.6	35.1	98.5%
Residential Equipment Replacement (RER)	14,961	13,407	89.6%	110.8	107.6	97.1%
Custom Multifamily Residential Equipment Replacement	486	495	101.9%	5.6	5.7	101.9%
Residential Equipment Replacement (RER)	15,447	14,460	93.6%	116.4	113.3	97.3%
Residential Retrofit (RIR)	1,972	1,972	100.0%	26.7	26.7	100.0%
Residential Home Retrofit (RIR-Custom)	150*	219	146.4%	0.8	0.8	100.0%
Home Performance with Energy Star (RIR-HPWS)	299.7	299.7	100.0%	4.2	4.2	100.0%
Low Income Residential Home Retrofit (RIR-LI)	559.2	559.2	100.0%	7.9	7.9	100.0%
Residential Direct Install (RIR-SLAM)	533.3	533.3	100.0%	3.4	3.4	100.0%
Residential Retrofit Condominium (RIR-Condo)	1,193.6	1,193.6	100.0%	16.0	16.0	100.0%
Residential Home Retrofit (RIR) total	4,708	4,777	101.5%	59.0	59.0	100.0%
Residential Sector total	23,337	22,386	95.9%	211.0	207.3	98.3%

*During the evaluation, it was discovered that one custom measure was inadvertently dropped from the VGS claim for the RIR custom program. That savings was included in the NMR report but is excluded here so that the reported savings matches the claim filed with the PUC.

As is noted in the attached report, the high realization rates demonstrate that VGS has incorporated recommendations from previous evaluations into practice and has showed increased attention to detail in PY2020. “VGS employed a number of TRM-based and other calculators in a consistent manner, with noted improvements over prior years.”

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 Residential Equipment Replacement (RER) program which accounts for 83% of the sector savings and a realization rate of about 94% was the primary driver of the overall sector level realization rate of 96%.” The RER program realization rate, in turn was largely driven by one project that had a low

realization rate of 18%, due to two heating-only boilers being reported as combination domestic hot water and heating boilers. The deduction of the DHW savings resulted in the low RR for this project.

The Commercial and Industrial (C&I) sector realization rate of 97.4% is similarly an indication of consistent and accurate project characterization and savings estimation. The NMR report notes that “VGS employed a number of TRM-based and other calculators in a consistent manner, with noted improvements over prior years.” Continuing the improvements from the 2019 evaluation, there were few anomalous project savings claims in 2020, which is further evidence of improvement in the delivery and administration of VGS EEU programs.

The C&I sector realization rate would have been higher were it not for the fact that the VGS savings algorithm for space heating incorrectly used the input capacity instead of the output capacity for commercial furnaces and boilers. Using the corrected capacity, the verified savings decreased between 4- 6% for the space heating measures.

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 QPIs and seven Minimum Performance Requirements (MPR). Based on a review of VGS' savings claims including the savings verification activities described in the attached report, the Department concludes that VGS has shown satisfactory performance in achieving the PUC ordered QPI targets for the three-year performance period. Tables 4, 5 and 6, below summarize VGS' performance in 2020 and over the three-year performance period with respect to QPI #1: Annual Incremental Gas Savings, QPI #2: Total Resource Benefits, and QPI #3: Peak Day Gas Savings, respectively. It should be noted that individual programs in each sector may underperform with respect to the program-level target, while other programs may overperform. The PUC goal is set at the portfolio level. In the case of the Commercial Equipment Replacement (CER) program, for instance, the verified savings was 34 percent of the three-year goal due to inherent variability in participation for VGS' small commercial customer base. The COVID-19 pandemic likely suppressed participation in 2020 as well.

Table 4. PY 2020 and Three-Year Performance vs. Goals – QPI #1: Annual Incremental Mcf Savings

Program	QPI #1 Annual Incremental Mcf Savings			
	2018-20 Annual Mcf Three-Year Goal	PY 2020 Verified Annual Mcf	2018 – 2020 Three-Year Verified Annual Mcf	Three-Year Verified Savings v. Three-Year Goal
Residential Home Retrofit (RIR)	12,920	4,777	13,204	102%
Residential New Construction (RNC)	21,596	3,149	27,466	127%
Residential Equipment Replacement (RER)	32,849	14,460	44,888	137%
Residential Sector Total	67,365	22,386	85,558	127%
Commercial Retrofit (CSR)	49,506	34,677	63,142	128%
Commercial New Construction (CNC)	30,015	10,108	28,269	94%
Commercial Equipment Replacement (CER)	48,941	4,720	16,834	34%
C&I Sector Total	128,462	49,505	108,245	84%
Portfolio Total	195,827	71,891	193,803	99%

Table 5. PY 2020 and Three-Year Performance vs. Goals – QPI #2: Total Resource Benefits

Program	QPI #2a Total Resource Benefits				QPI #2b Lifetime Mcf Savings			
	2018-20 Three-Year TRB Goal	PY2020 Verified TRB	2018 - 2020 Three-Year Verified TRB	Three-Year Verified vs. Goal	2018-20 Three-Year Lifetime Savings Goal	PY2020 Verified Lifetime Savings	2018 - 2020 Three-Year Verified Lifetime Savings	Three-Year Verified vs. Goal
Residential Home Retrofit (RIR)	\$2,705,181	\$1,140,775	\$3,215,156	119%	233,063	98,162	262,288	113%
Residential New Construction (RNC)	\$4,043,794	\$598,876	\$5,652,200	140%	389,554	67,502	579,484	149%
Residential Equipment Replacement (RER)	\$6,171,197	\$2,867,478	\$8,676,594	141%	592,542	293,450	903,041	152%
Residential Sector Total	\$12,920,172	\$4,607,129	\$17,543,950	136%	1,215,159	459,114	1,744,813	144%
Commercial Retrofit (CSR)	\$7,905,879	\$6,304,684	\$11,628,804	147%	741,752	442,664	880,172	119%
Commercial New Construction (CNC)	\$5,359,833	\$1,837,753	\$5,606,458	105%	509,681	194,241	525,503	103%
Commercial Equipment Replacement (CER)	\$8,280,048	\$936,075	\$3,635,464	44%	782,172	104,547	379,057	48%
C&I Sector Total	\$21,545,760	\$9,078,511	\$20,870,727	97%	2,033,606	741,451	1,784,732	88%
Portfolio Total	\$34,465,932	\$13,685,640	\$38,414,677	111%	3,248,764	1,200,565	3,529,545	109%

Table 6. PY 2020 and Three-Year 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 2020 Verified Peak Day Mcf	2018 - 2020 Three-Year Verified Peak Day Mcf	Three-Year Verified vs. Three-Year Goal
Residential Home Retrofit (RIR)	155	59.0	152.2	98%
Residential New Construction (RNC)	238	35.1	307.1	129%
Residential Equipment Replacement (RER)	263	113.3	372.7	142%
Residential Sector Total	656	207.3	832.0	127%
Commercial Retrofit (CSR)	99	45.0	134.9	136%
Commercial New Construction (CNC)	60	92.9	248.6	414%
Commercial Equipment Replacement (CER)	98	51.1	116.4	119%
C&I Sector Total	257	189.0	500.0	195%
Portfolio Total	913	396.3	1,331.9	146%

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 37% conversion rate in PY 2020 and a 38% conversion rate for the three-year performance period, eight percentage points above 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 92% install rate for recommended cost-effective measures in PY 2020 and an 88% install rate for the three-year performance period, which is 18 percentage points 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 Three-Year Overall Performance vs. Three-Year Goals

QPI #	Title	Performance Indicator	2018-2020 Three-Year Target	PY 2020 Achieved	2018-2020 Three-Year Achieved	Achieved vs. Three-Year Target
1	Natural Gas Savings	Annual incremental net Mcf savings	195,827	71,891	193,803	99%
2	Lifetime Natural Gas Savings	a. Present worth of lifetime natural gas avoided costs	\$34,465,931	\$13,685,640	\$38,414,677	111%
		b. Lifetime Mcf savings	3,248,764	1,200,565	3,529,545	109%
3	Peak Day Natural Gas Savings	Peak day incremental Mcf savings	913	396	1,332	146%
4	Residential Single-Family Comprehensiveness	a. Percent of home energy audits converted to a measure installation within 12 months	30%	37%	38%	Exceeded target by 8%
		b. Average percentage of auditor-recommended cost-effective measures that are installed by the customer within 12 months	70%	92%	88%	Exceeded target by 18%

QPI Goals: Performance Compared with Expenditures

Table 8, below, compares performance on the three-year QPI #1 - #3 goals with the percentage of the budget expended by program and sector over the performance period. For the residential sector, expenditures for the three-year performance period were just over 100 percent of the three-year budget, while the verified performance for QPIs #1, #2 and #3 were 127%, 144% and 127% of the three-year

goals, respectively. For the Commercial and Industrial sector, expenditures for 2018 - 2020 were only 96% of budget and performance vs. goals for QPIs #1, and #2 were 84% and 88% of the three-year goal, respectively. The three-year verified peak day savings in the C&I sector, however, was 195% of the three-year QPI #3 goal. This is in part due to a greater than expected proportion of firm rate commercial and industrial customers that participated 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.

In 2020 for QPI #1, performance was slightly below the budgeted yield for the residential sector, where 39% of three-year sector budget was spent to achieve 33% of the three-year QPI #1 savings goal. In the C&I sector, spending of 36.4% of the three-year budget yielded 38.5% of the three-year sector goal for QPI #1, slightly above the budgeted yield. Yields for QPI #2b (lifetime Mcf savings) were similar to QPI #1 in both sectors. For QPI #3, peak day Mcf savings, the residential sector slightly underperformed based on spending, while the C&I sector significantly overachieved in peak day savings compared to spending levels.

Overall, expenditures for PY 2018 - 2020 were 99% of the three-year budget with C&I spending at 96% of budget and residential sector spending essentially on budget. The verified performance for QPI #1 was below target for the C&I sector (84% of the goal), and well ahead of target for the Residential sector (127% of target). Three-year performance for the residential sector also exceeded the target for QPIs #2 and #3. The C&I sector performance was 12% below the target for QPI #2 (lifetime gas savings) but VGS nearly doubled its goal for Peak Day savings in the C&I sector in achieving 195% of the three-year goal.

Table 8. PY 2020 and Three-Year 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 2020 Spending	2018 -2020 Three-Year Spending	Three-Year Spending as % of Three- Year Budget	2018-2020 Three-Year Incremental Mcf Savings as % of Goal	2018-2020 Three-Year Lifetime NG Savings as % of Goal	2018-2020 Three-Year Peak Day Mcf Savings as % of Goal
Residential Home Retrofit	\$3,216,277	\$1,288,924	\$3,013,933	94%	102%	113%	98%
Residential New Construction	\$982,751	\$234,139	\$798,199	81%	127%	149%	129%
Residential Equipment Replacement	\$2,680,231	\$1,153,079	\$3,079,329	115%	137%	152%	142%
Residential Sector Total	\$ 6,879,259	\$2,676,141	\$6,891,461	100%	127%	144%	127%
Commercial Retrofit	\$893,410	\$392,772	\$927,864	74%	128%	119%	136%
Commercial New Construction	\$625,387	\$216,151	\$579,004	61%	94%	103%	414%
Commercial Equipment Replacement	\$536,046	\$139,085	\$470,975	59%	34%	48%	119%
C&I Sector Total	\$ 2,054,844	\$748,008	\$1,977,842	96%	84%	88%	195%
Portfolio Total	\$ 8,934,103	\$3,424,149	\$8,869,304	99%	99%	109%	146%

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 2020 and Three-Year Verified Performance for QPIs #4a, #4b, and 6

QPI #	Title	Performance Indicator	2018-2020 Three-Year Target	2020 Achieved	2018-2020 Achieved	Performance vs. Requirement
4	Residential Single Family Comprehensiveness	a. Percent of home energy audits converted to a measure installation within 12 months	30%	19%	29%	Satisfactory
		b. Average percentage of auditor-recommended cost-effective measures that are installed by the customer within 12 months	70%	58%	78%	Exceeds Target
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	36% control-related, 36% heating systems, heat recovery or domestic hot water systems, 0% process-related and 27% shell or other-related	10% control-related, 49% heating systems, heat recovery or domestic hot water systems, 10% process-related and 40% shell or other-related	Satisfactory

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. Of particular note, VGS surpassed the minimum 30% participation rate in Addison County as required by MPR # 13.

VGS had some difficulty meeting the exacting requirements of MPR #6, “Business Comprehensiveness of Savings,” installing only the minimum number of control-related measures, and just above the minimum requirement for process-related measures. In a mature program with a relatively small population of commercial customers, variability in such measure distributions is expected. This may explain why it was difficult to achieve such minimums in the 2018 - 2020 performance period.

Accordingly, the minimum requirements for those two measure categories have been reduced for the current 2021 -2023 performance period.

Table 10. PY 2020 and Three-Year Performance vs. 2018-20 Three-Year Minimum Performance Requirements

MPR #	Title	Performance Indicator	2018-2020 Three-Year Requirement	2020 Verified Performance	2018-2020 Three-Year Verified Performance	Performance vs. Requirement
5	Long-term Market Transformation	Offer energy efficiency training for contractors.	One per year	One Completed	One Completed per Year	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	13% control-related, 46% heating systems, heat recovery or domestic hot water systems, 13% process-related and 28% shell or other-related measures installed	10% control-related, 49% heating systems, heat recovery or domestic hot water systems, 11% process-related and 30% shell or other-related	Satisfactory
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	3.96	4.32	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	\$ 2,676,141	\$ 6,891,460	161% 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	\$123,849	\$316,504	272% 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%	51%	49%	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	34.1%	34.1%	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 the three-year period, 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' 2020 Savings Claims*. Among the findings that are important to reiterate here are:

- “Overall, the verified savings estimations were aligned with the evaluation framework, followed proper custom site-specific activities, applied TRM protocols correctly, and that the verified savings are generally accurate.”
- “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 and PY2019 evaluation into practice and has showed increased attention to detail in PY2020.”
- “VGS’s consistency in Mcf/MMBtu conversion factors has greatly improved for PY2020 compared to PY2018 and PY2019.”
- “VGS program staff members also expressed an ongoing commitment to maintaining positive customer relationships and improving program offerings.”
- “VGS is employing TRM-based calculation approaches for several measures including boiler, furnace, and hot water heater replacements.”
- “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.”

It should be noted that the final bullet above is identical to the 2019 evaluation report finding. To address that issue as well others encountered during the evaluation, the NMR report includes the following recommendations:

- VGS should consider increasing the amount of information documented for each type of project. By revamping the analytical tools, VGS will be able to consistently gather and document additional information such as:

- Include a project summary document in text form that describes the installed energy efficiency measure(s) including baseline conditions, equipment operating conditions, project timeline, and project invoices.
- Note the source(s) behind all key parameters driving energy savings estimates in the calculation spreadsheets.
- For prescriptive measures, include inspection reports and invoices to more thoroughly document project scope.
- NMR recommends that VGS makes changes to their TRM algorithm for space heating measures by changing the wording of “capacity” in their algorithm to “output capacity”.
- VGS should 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. Items that could be relevant for the final QC checklist are:
 - QC review of savings calculation,
 - documentation of differences between contracted and finalized project scope,
 - demarcation of final savings calculations,
 - consistent unit conversions between natural gas volume and energy quantities
- 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.

The Department concurs with the above recommendations and notes that these recommendations are quite similar to the recommendations in the 2019 savings verification report. The Department proposes to work with VGS and NMR over the next few months to bring these recommendations to fruition.

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. With the help of NMR, VGS has developed analytical tools for common measures to standardize measure analysis, improve efficiency and ensure the accuracy of savings claims. These improvements, along with expanding the VGS TRM should enable VGS to further improve consistency in delivering EEU programs and streamline the evaluation process if they are used routinely and consistently.

The Department concludes that VGS met all its QPI targets with the minor exception of falling one percentage point below target for QPI#1. VGS also satisfactorily met all of its MPR and exceeded those requirements by a wide margin for low-income, small business and residential equity metrics. The Department also concludes that the spending by VGS on EEU activities during the three-year performance period was appropriate and proportional to the goals set by the PUC.