

DPS Verification of Vermont Gas Systems 2018 Energy Efficiency Savings Claim

Executive Summary

The Department of Public Service has completed its annual verification of the savings claims and evaluation of the performance of VGS energy efficiency programs for 2018, the first year of its three-year performance period, and the first evaluation since achieving full EEU status. An independent third-party evaluation has verified that VGS has made satisfactory progress toward achieving the four quantifiable performance indicators (QPIs) set out in the PUC’s October 12, 2017 order, which established the three-year performance goals for VGS and the other energy efficiency utilities (EEUs). The Department has also found that VGS has made satisfactory progress toward all other QPIs, minimum performance requirements (MPRs) and other non-quantifiable obligations described in VGS’ *Order of Appointment*. As evidenced by the high realization rates resulting from the third-party verification, VGS has shown noticeable improvements in program implementation and savings estimation that bode well for achieving all QPIs and MPRs in the current three-year performance period.

For this year’s savings verification, the Department retained the services of a consultant, NMR Group, Inc. (NMR), to provide expert review and analysis of the VGS 2018 savings claim for the Commercial and Industrial (C&I) sector programs as well as the Residential New Construction program, the Residential Equipment Replacement program and Custom Residential Retrofit program. Department staff also verified the savings claims for the other Residential sector programs that had not been evaluated in other studies.

The objective of savings verification is to calculate savings realization rates (RRs) which are simply the percentage of claimed energy savings that can be verified after careful review of the full database of measure data and a more in-depth engineering review of a representative sample of project files. The results of the NMR and PSD verification are summarized in Table 1, below:

Table 1. VGS C&I and Residential 2018 Reported and Verified Savings

Program	2018 VGS Reported Annual Mcf	2018 Verified Annual Mcf	2018 Annual Mcf Realization Rate	2018 VGS Reported Peak Day Mcf	2018 Verified Peak Day Mcf	2018 Peak Day Realization Rate
Commercial Equipment Replacement (CER)	7,372	8,068	109%	34.7	34.3	99%
Commercial Retrofit (CSR)	14,959	15,468	103%	29.2	38.8	133%
Commercial New Construction (CNC)	7,489	8,962	120%	60.3	63.8	106%
C/I sector total	29,819	32,498	109%	124.1	136.9	110%
Program	2018 VGS Reported Annual Mcf	2018 Verified Annual Mcf	2018 Annual Mcf Realization Rate	2018 VGS Reported Peak Day Mcf	2018 Verified Peak Day Mcf	2018 Peak Day Realization Rate
Custom Residential New Construction (RNC)	11,950	12,457	104%	132.6	138.1	104%
Residential Equipment Replacement (RER)	13,207	13,092	99%	113.6	112.7	99%
Residential Retrofit (RIR)	4,495	4,461	99%	44.2	44.2	100%
Residential sector total	29,652	30,010	101%	290.3	295.0	102%
Portfolio total	59,471	62,508	105%	414.4	431.9	104%

Table 2, below presents the Residential sector programs in greater detail, including breakouts of the various sub-program verified savings and realization rates.

Table 2. VGS Residential Sector Certified Verified Savings for PY 2018

Program	2018 VGS Reported Annual Mcf	2018 Verified Annual Mcf	2018 Annual Mcf Realization Rate	2018 VGS Reported Peak Day Mcf	2018 Verified Peak Day Mcf	2018 Peak Day Realization Rate
Residential New Construction EVT (RNC-EVT)	2,200	2,200	100%	27.4	27.4	100%
Custom Multifamily Residential New Construction (RNC-MF Custom)	9,750	10,257	105%	105.2	110.7	105%
Residential New Construction (RNC) total	11,950	12,457	104%	132.6	138.1	104%
Residential Equipment Replacement (RER) total	13,207	13,092	99%	113.6	112.7	99%
Residential Retrofit (RIR)	1,990	1,990	100%	26.7	26.7	100%
Residential Home Retrofit (RIR-Custom)	1,110	1,076	97%	0.0	0.0	-
Home Performance with Energy Star (RIR-HPWS)	237	237	100%	3.3	3.3	100%
Low Income Residential Home Retrofit (RIR-LI)	599	599	100%	8.4	8.4	100%
Residential Direct Install (RIR-SLAM)	202	202	100%	0.7	0.7	100%
Residential Retrofit Condominium (RIR-Condo)	359	359	100%	5.1	5.1	100%
Residential Home Retrofit (RIR) total	4,495	4,461	99%	44.2	44.2	100%
Residential Sector total	29,652	30,010	101%	290.3	295.0	102%

Table 3 presents VGS' 2018 certified savings on the sector and portfolio level.

Table 3. VGS Sector- and Portfolio-Level Certified Verified Savings for PY 2018

Sector	2018 VGS Reported Annual Mcf	2018 Verified Annual Mcf	2018 Annual Mcf Realization Rate	2018 VGS Reported Peak Day Mcf	2018 Verified Peak Day Mcf	2018 Peak Day Realization Rate
Residential Sector total	29,652	30,010	101%	290.3	295.0	102%
C/I sector total	29,819	32,498	109%	124.1	136.9	76%
Portfolio Total	59,471	62,508	105%	414.4	431.9	104%

Quantifiable Performance Indicators

VGS is responsible for meeting five Quantifiable Performance Indicators (QPI) and seven Minimum Performance Requirements (MPR) ordered by the PUC for the 2018 to 2020 performance period. After careful review, the Department found that VGS made satisfactory progress in 2018 toward meeting the PUC-ordered QPI targets for the three-year Performance Period. As evidenced by the high realization rates resulting from this third-party verification, VGS has shown noticeable improvements in program implementation and savings estimation since being appointed an EEU that bode well for achieving all QPIs and MPRs in the current three-year performance period.

Table 4, below, compares the first-year performance for QPIs #1-3 and first year expenditures with the three-year QPI goals and budget. Expenditures for 2018 were slightly below budget for both the Residential and C&I sectors (30% of the three-year budget spent in the first year) while the verified performance for QPI #1 was below target for the C&I sector (25%), and well ahead of target for the Residential sector (45%). Verified 2018 performance was ahead of, or on schedule for QPIs #2 and #3 in both the Residential and C&I sectors.

Table 4. PY 2018 Expenditures vs. Budget and Performance vs. Goals for QPIs #1, #2 and #3

Program	Budget and Expenditures			QPI #1: Incremental Mcf	QPI #2: Lifetime Natural Gas Savings	QPI #3: Peak Day Mcf
	2018-20 Three-Year Budget	2018 Expenditures	Expenditures as % of Three-Year Budget	2018 Incremental Mcf Savings as % of Three-Year Goal	PY 2018 Lifetime NG Savings as % of Three-Year Goal	2018 Peak Day Mcf Savings as % of Three-Year Goal
Residential Home Retrofit	\$3,216,277	\$836,315	26%	35%	42%	28%
Residential New Construction	\$982,751	\$297,610	30%	58%	68%	58%
Residential Equipment Replacement	\$2,680,231	\$928,643	35%	40%	40%	43%
Residential Sector Total	\$ 6,879,259	\$ 2,062,567	30%	45%	49%	45%
Commercial Retrofit	\$893,410	\$268,820	30%	31%	38%	39%
Commercial New Construction	\$625,387	\$162,904	26%	30%	36%	106%
Commercial Equipment Replacement	\$536,046	\$179,479	33%	16%	22%	35%
C&I Sector Total	\$2,054,844	\$611,203	30%	25%	32%	53%
Portfolio Total	\$ 8,934,103	\$ 2,673,770	30%	32%	38%	47%

QPI #4 is intended to ensure that VGS' residential single-family energy efficiency programs acquire comprehensive savings rather than just the most cost-effective measures. QPI #4 is divided into two parts. The first part sets a performance target of 30% conversion rate energy audits into energy saving improvements within a year. VGS achieved a 43% conversion rate in 2018, which is 43% better than the PUC-ordered goal.

The second part of QPI #4 sets a target of 70% of all measures recommended by the auditor that are installed by the customer within a year of the audit. VGS achieved an average of 77%, which is 10% better than the target set by the PUC.

VGS' achievements regarding QPIs #1 through #4 are summarized in Table 5, below.

Table 5. QPIs #1 through #4 – 2018 Verified Performance vs. 2018-2020 Performance Period Goals

QPI #	Title	Performance Indicator	2018-2020 Three-Year Target	PY 2018 Verified	2018 Performance vs. Three-Year Target
1	Natural Gas Savings	Annual incremental net Mcf savings	195,827	62,508	32%
2	Lifetime Natural Gas Savings	a. Present worth of lifetime natural gas avoided costs	\$34,465,931	\$13,148,371	38%
		b. Lifetime Mcf savings	3,248,764	1,179,274	36%
3	Peak Day Natural Gas Savings	Peak day incremental Mcf savings	913	427	47%
4	Residential Single-Family Comprehensiveness	a. Percent of home energy audits converted to a measure installation within 12 months	30%	43%	143%
		b. Average percentage of auditor-recommended cost-effective measures that are installed by the customer within 12 months	70%	84%	120%

Minimum Performance Requirements

VGS is also responsible for meeting certain Minimum Performance Requirements for the three-year Performance Period as described in Table 6. The Department's review has shown that VGS is on track to meet each of these MPRs.

Table 6. PY 2018 Performance vs. 2018-20 Three-Year Minimum Performance Requirements

MPR #	Title	Performance Indicator	2018-2020 Three-Year Target	2018 Verified	Achieved vs. Target
5	Long-term Market Transformation	Offer energy efficiency training for contractors.	One per year	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	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 benefit cost ratio	4.92	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	48% 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	88% 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%	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	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%	Below requirement

VGS is required to meet certain other responsibilities to its customers beyond QPIs or MPRs. The Department’s qualitative assessment of the performance of the natural gas EEU confirms that VGS is also meeting those responsibilities. including:

- Assisting other Vermont Utilities in connection with Utility Planning and transmission planning.
- Providing technical support and training with the development and implementation of state energy codes and standards.
- Promoting customer participation in and market awareness of EEU services and initiatives; increasing consumer demand for energy-saving products and services; and influencing consumer decision-making in energy efficiency choices.
- Providing a toll-free number for its customers; a web page describing services available to customers; and effective customer response and referral.
- Providing 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.

Conclusion

VGS made significant improvements compared to previous years regarding spending and performance in an effort to meet the three-year goals established by the Commission. VGS has made adjustments to program design and implementation based on recommendations and lessons learned from the savings verification process over the past two years, as evidenced by the superior realization rates and verified progress toward the Commission-established QPIs and MPRs. Based on this evaluation, VGS is well positioned to meet its 2018 – 2020 performance period goals.