

*NEW YORK STATE DEPARTMENT OF PUBLIC SERVICE
OFFICE OF MARKETS AND INNOVATION
CLEAN ENERGY GUIDANCE*

Gross Savings Verification Guidance

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Purpose:

This Clean Energy Guidance document provides guidance to the New York electric and gas utilities and the New York State Energy Research and Development Authority (NYSERDA) on the verification of gross savings for reporting performance on energy efficiency programs. This guidance details the implementation of the Verified Gross Savings (VGS) policy and its use for general reporting, as well as Earnings Adjustment Mechanism (EAM) reporting, as applicable.

This document complements the existing Clean Energy Guidance documents, “Evaluation Measurement & Verification (EM&V) Guidance” (hereafter referred to as CE-05 Guidance) and “ETIP/SEEP Guidance” (hereafter, CE-02 Guidance).^{1,2}

All Clean Energy Guidance documents are in effect until revised, rescinded, or superseded.

Background:

This guidance is issued pursuant to the New York Public Service Commission's (Commission) March 15, 2018 Order, “Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020” (Utility EE Order).³ In the Utility EE Order, the Commission found that the wide variability in energy efficiency program realization rates warrants a greater focus on "actual realized savings," and directs the Department of Public Service Staff (DPS Staff) to issue this Gross Savings Verification Guidance in consultation with utilities, NYSERDA, and other interested stakeholders. This document was developed by DPS Staff based on a survey of approaches in other jurisdictions, a review of relevant literature, and input from stakeholders.

RELEVANCE TO EARNING ADJUSTMENT MECHANISMS

The Commission’s May 19, 2016 Order, “Order Adopting a Ratemaking and Utility Revenue Model Policy Framework” (Reforming the Energy Vision (REV) Track Two Order) establishes

¹ CE-05: Evaluation, Measurement & Verification Guidance (issued November 1, 2016).

² CE-02: ETIP/SEEP Guidance (issued December 20, 2018).

³ Case 15-M-0252, In the Matter of Utility Energy Efficiency Programs, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018).

Earning Adjustment Mechanisms (EAMs) as the mechanism for utilities to achieve policy goals through incremental revenues. The Utility EE Order states that any utility EAM based on energy efficiency programmatic performance proposed after March 15, 2018 shall be calculated and awarded based on verified gross savings. The inception date of the relevant rate case proceeding will be used to determine the application of verified gross savings policy to the earning of EAMs.

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Role of Verified Gross Savings

Energy efficiency programs are supporting meaningful contributions to the State’s clean energy policies and goals, as well as becoming increasingly relied upon as viable demand-side solutions for various system needs. The Commission’s authorization of ratepayer funding to support these programs are based on the assumptions that the energy saving targets established and reported against are being realized. To exercise proper fiduciary responsibility over these funds, this guidance outlines a process for verifying gross savings with a reasonable level of certainty while balancing EM&V costs. This process emphasizes EM&V activities that produce results that inform program and portfolio design in a timely manner. While the suite of energy efficiency programs continues to evolve, EM&V activities allow Program Administrators (PA) to document the real value and benefits of the programs. Verified Gross Savings (VGS) supports: (1) the assessment of progress toward key policy objectives, (2) energy demand forecasting and resource planning, and (3) ensuring the payment of utility Earning Adjustment Mechanisms (EAMs), where applicable, are based on realized savings.

Definitions

KEY TERMS AND CONCEPTS

For the purposes of this guidance the following definitions are provided.

- **Program Administrator (PA):** NYSERDA and the investor-owned utilities (IOU) administering ratepayer supported energy efficiency programs as designated by the Commission.
- **Implementation Contractor:** an entity selected and contracted with, or qualified by, a program administrator to provide products and/or services to consumers, either directly or indirectly. Implementation Contractor may be referred to as the “project implementer” “program implementer” or “the implementer.”
- **Independent Evaluator:** an entity that conducts EM&V activities and is designated to be independent of the program administrator and implementation contractor.
- **Evaluation, Measurement and Verification (EM&V):** EM&V is a broadly inclusive description of any activities intended to determine energy efficiency program effectiveness and impacts. The constituent terms evaluation, measurement, and verification are more specific categories of EM&V which are described in this guidance.
- **Quality Assurance/Quality Control (QA/QC):** Internal controls used to ensure the implementation of activities are as specified.
- **Energy Conservation Measure (ECM):** Also called an ‘energy efficiency measure,’ or ‘measure,’ is any individual action taken to reduce the energy consumption by a utility customer, including installation or retrofitting of equipment, subsidization of equipment, or inducements to change energy consumption behaviors. An energy efficiency program can consist of one ECM (or more than one) at one site or many different ECMs at different sites.
- **Energy Efficiency Program:** A program designed to deploy an individual ECM or collection of ECMs, typically organized by ratepayer sector, ECM technology, ECM end-use type (e.g. industry or building type), or programmatic delivery mechanism.

- **Energy Efficiency Portfolio:** The collected set of energy efficiency programs deployed by an organization (e.g., a PA).
- **Energy Savings:** Annual units of energy which are not consumed, compared to a baseline counterfactual (e.g. million British thermal units (MMBTU) or megawatt-hours (MWh), depending on whether the energy conservation measure addresses fuel or electricity consumption).
- **Planned Savings:** Energy savings goals that are specific to each energy efficiency program, calculated prior to implementation of the program.
- **Gross Savings (GS):** energy savings that result directly from program-related actions taken by participants in an energy efficiency program, regardless of why they participated and unadjusted by any significant factors. This is sometimes referred to as program-reported savings and may include some level of refinement such as modeling or adjustments for QA/QC to address sources of uncertainties in Planned Savings, including baseline assumptions or deemed values. Gross Savings is determined prior to an independent evaluation. The term “gross” can be applied to Annual Savings as well as Lifetime Savings.
- **Gross Savings Analysis (GSA):** the analysis performed by an independent evaluator to determine whether reported gross savings have been realized. Gross Savings Analysis methods should be consistent with industry standards and best practices.
- **Verified Gross Savings (VGS):** VGS is the value reported by an independent evaluator as energy efficiency program activities and Gross Savings Analysis are complete.⁴ VGS is distinct from GS in two ways: 1) it is the product of a complete gross savings analysis using methods consistent with industry standard best practices, and 2) it is produced by an independent evaluator, not by the PA.⁵
- **Verified Gross Savings Specification (VGS Specification):** the strategy for how a PA, in consultation with independent evaluator, will calculate VGS, including EM&V methods and approach used to generate and analyze the data and the time frame for calculating VGS. VGS Specifications are determined individually for each energy efficiency program.
- **Realization Rate:** A general term that describes the ratio of energy savings between two methods of calculation, typically expressed as a decimal; realization rate is used in several contexts for comparing one savings estimate to another.
- **VGS Realization Rate (VGS RR):** The ratio of VGS to GS, expressed as a decimal; indicates the performance of a program’s reported GS relative to actual realized savings.⁶

⁴ Definition based on Uniform Methods Project (UMP) definition of “Evaluated Savings,” NREL 2018.

⁵ The Commission’s Utility EE Order states “Verified gross savings are sometimes referred to as evaluated gross savings, adjusted gross savings, or ex-post gross savings,” however for the purposes of this guidance these concepts must be functionally distinct.

⁶ While VGS RR is always applied at the program level, in some instances, such as where an ECM is prevalent across multiple programs, a PA may choose to calculate a VGS RR at the ECM level. In such case the Gross Savings Specification would identify this approach and detail how the ECM level VGS RR(s) will be translated into program level VGS RR(s).

- **Alternative Prospective Realization Rate (AP RR):** A ratio, expressed as a decimal, developed by an independent evaluator, representing the expected realization rate a program would experience from the PA implementing recommended actions detailed in the Gross Savings Analysis.

EM&V Methods and Approaches

This section provides descriptions of the categories of activities which may be considered broadly “EM&V.” EM&V conducted should adhere to industry best practices including the International Performance Measurement and Verification Protocol (IPMVP)⁷ and the Uniform Methods Project (UMP).

VERIFICATION ACTIVITIES

Verification activities include those actions that are taken to verify program assumptions, as well as verifying measures have been installed and are operational, for example ensuring the ECMs are placed into service in accordance with the engineering plan or other assumptions about program use. Verification activities may include:

- **Documentation and project tracking:** Documentation and project tracking is an essential verification activity and should occur for every program and project. Documentation verification includes a review of project eligibility, an audit (or desk review) of engineering plans, inspection reports, and the identification of methods and calculations used to measure savings. For programs with relatively large individual installations, it is recommended that desk reviews occur in 100% of installations. For projects with large numbers of installations, a sampling method may also be appropriate. Project tracking includes using a reliable data collection method to log project performance through the course of EM&V activities. Ensuring data quality is also essential for any subsequent EM&V activities.
- **Site visits:** Site visits are often the most accurate but also the most expensive type of verification activity. Site visits involve visiting an installation site to ensure, at minimum, that the ECM exists, has been correctly installed, and was placed into operation. Site visits can be conducted prior to program implementation to gain additional insight into baseline conditions (especially for ‘existing condition’ baselines or with emerging technologies), or after installation to verify that the exact equipment stated in the engineering plan has been installed. Site visits may also collect data on the operation of a process, or even the quality of an installation. Site visits may be used for every site when the cost of individual installations is high, or at a sampling of sites for programs with large numbers of installations. Site visits may be conducted by project implementers as a part of QA/QC or by independent evaluators as part of gross savings analysis.
- **Surveys:** Surveys may be used to verify elements of program baselines, equipment installation, or operation. Surveys can gather similar data to site visits, but do not provide

⁷ International Performance Measurement and Verification Protocol: Generally Accepted M&V Principles, Efficiency Valuation Organization (EVO), October 2018.

the same level of confirmation as site visits. Similar considerations of sampling apply to surveys as they do to site visits, however due to the lower costs of surveys, surveys may be used more broadly.

MEASUREMENT ACTIVITIES

Measurement activities include any activities that collect data about the energy consumption, use patterns, behavioral changes, or condition of ECMs. Measurement activities may include:

- **Metering:** Metering is any activity that involves recording the real-world usage of installed equipment, including energy consumption (kWh, MMBtu), hours of use, load profile, or any other parameters that require recording equipment. Metering can be accomplished at a variety of levels, including:
 - End-use-level metering of an individual piece of equipment for large loads; end-use-level metering can provide accurate data on energy consumption, hours-of-use, and load profiles.
 - Metering a sampling of like loads (such as lighting throughout a building), when done as part of a large retrofit; metering a subset of lighting loads can improve estimates of hours-of-use where equipment may be used at different hours throughout the day.
 - Branch circuit-level metering of a specific area of interest within a facility (usually within an electric circuit breaker panel); branch circuit-level metering can provide time of use data, as well as improved accuracy for energy consumption (providing reasonably accurate estimates can be made for other equipment on the panel).
 - Sub-system metering of an entire system (such as pumps, fans, and compressors of an HVAC system); sub-system metering of an entire system can aggregate the metering of all loads within a system that may be treated as a single ‘treatment’ by an energy efficiency program.
 - Building-level metering, or billing data analysis, provides the total load of a building for a discrete energy source. This is the simplest and most common type of measurement. Because the meter captures the customer’s total energy consumption, and not just that of the equipment targeted by the energy efficiency program, billing data inherently includes substantial uncertainty, and should only be used as part of a billing analysis that accounts for this uncertainty.
- **Normalized Metered Savings known as Advanced M&V:** Advanced M&V describes new measurement and verification techniques that take advantage of enhanced data analytics and increased data availability for whole-building modeling and analysis. Advanced M&V tools such as Normalized Metered Energy Consumption (NMEC) data, remote data collection, automation, and non-intrusive load monitoring offer capabilities to use these data in ways that are valuable to program administrators and implementers. Additionally, as advanced metering infrastructure (AMI) is implemented, together with other devices such as smart thermostats and various energy management systems, more granular data will become available that may further advance this approach.

- **Surveys:** Surveys are typically associated with verification activities but can include measurement activities when surveys collect quantitative information about equipment use or condition. For example, surveys that collect information about hours of use of specific equipment are generally not as accurate as metering said equipment but may be useful for improving estimated parameters based on deemed values. Surveys may also be used to gather data on behavioral programs.

EVALUATION ACTIVITIES

For purposes of this Guidance, evaluation activities are any actions taken to analyze measurement and verification data to accurately estimate savings.⁸ Evaluation may include activities relevant to estimating the savings both directly and indirectly attributable to a program. Indirect savings include those savings associated with market effects (e.g., spillover, and market transformation), that are essential components of calculating Net Savings. This guidance is focused on VGS, therefore further discussion of Net Savings is provided only for context. A complete discussion of the role of Net Savings and associated evaluation activities can be found in CE-05: Evaluation, Measurement & Verification Guidance (CE-05 Guidance).

Evaluation may incorporate M&V data generated prior to, during, or after implementation of a program. Evaluation activities may include:

- **Experimental designs:** Experimental program designs allow the use of evaluation using randomized control trials (RCTs). RCTs compare two groups of ratepayers in parallel, the treatment group which receives an ECM, and a baseline group which does not. Although costly to implement, experimental designs are one of the most robust approaches to assessing program influence. RCTs can eliminate the sample biases such as self-selection in informational/behavioral programs that affect quasi-experimental designs. Self-selection for participation in voluntary programs may introduce bias to quasi-experimental analyses because participants often differ systematically from non-participants in factors that affect energy savings that cannot be directly observed and controlled for statistically. RCTs overcome these biases by randomly assigning treatments to otherwise similar groups. Experimental designs have been used extensively to evaluate the effect of customer education and information programs.
- **Quasi-experimental designs:** This approach uses well-established quasi-experimental social science research designs to assess and quantify program influence. Common strategies include cross-sectional methods that compare the savings achieved by an ECM in an area or market segment targeted for an ECM against one not targeted, and intertemporal designs that address the change in the same population before and after an ECM is implemented. Statistical modeling is often used to retrospectively apply quasi-experimental approaches to datasets that describe the response of a group of market actors to a given program.
 - Pre-post analysis (also called billing analysis) is one type of quasi-experimental design that utilizes the same participants' meter-level billing data for a sufficient

⁸ Other forms of evaluation exist, such as process evaluations, as described in CE-05 Guidance, but are not a primary focus of this Guidance.

period of pre- and post-installation billing records. For example, nine months pre-installation and nine months after the installation of all measures for both control and treatment groups. Billing analysis requires careful consideration of factors such as weather and other intertemporal consumption trends that may affect post-treatment energy consumption.

- **Regression analysis:** Generally, any activity that includes using regression analysis to derive causal relationships between metered data should be considered evaluation, regardless of the experimental design.
- **Engineering model analysis:** When metering is targeted to specific ECMs, systems/sub-panels, or set of alike loads, an engineering model that formally simulates energy consumption may be used. Modeling analysis is typically applicable only for programs which constitute large, individual ECMs.

Verified Gross Savings Process

DETERMINATION OF GROSS SAVINGS

Under this guidance framework, Gross Savings (GS) is calculated for each energy efficiency program by the PA using the best information available within reasonable time and budget constraints. Currently, a large percentage of the utility program administrators' energy savings utilize the Technical Resource Manual (TRM) as the basis for estimating savings.⁹ Some PAs report updating TRM-calculated energy savings based on results from internal M&V in reporting GS. These results may include updates to baseline conditions, performance and installation verification, installation rates, and revised energy demand and consumption data or hours of use. GS are reported quarterly through the Scorecard and reflected in the Clean Energy Dashboard (CE Dashboard). The Scorecard and CE Dashboard track results from all ratepayer funded clean energy activities.

DETERMINATION OF VERIFIED GROSS SAVINGS & VERIFIED GROSS SAVINGS

REALIZATION RATE

Under this guidance framework, VGS is calculated by an independent evaluator and documented for each energy efficiency program through gross savings analysis.¹⁰ VGS is distinct from GS in two ways: (1) VGS is the product of a complete Gross Savings Analysis using methods consistent with industry standard best practices; and (2) VGS is produced by an independent evaluator, not by the PA. Gross Savings Analysis is used to determine whether program savings estimates have been realized. The ratio of VGS to GS, expressed as a decimal, is the VGS RR. The initial VGS RR shall always be applied retrospectively, to the beginning of the program period analyzed. The VGS RR shall also be applied prospectively,¹¹ unless the PA has elected to utilize an Alternative Prospective Realization Rate (AP RR).

⁹ New York Standard Approach for Estimating Efficiency Programs – Residential, Multi-Family, and Commercial/Industrial, known as the Technical Resource Manual (TRM), Version 7, New York State Joint Utilities, April 15, 2019.

¹⁰ VGS Policy is not applicable to the Innovation & Research component of NYSEERDA's CEF Portfolio.

¹¹ The VGS RR shall be applied prospectively until it is replaced by a new VGS RR. The new VGS RR shall be applied prospectively beginning at the time the Gross Savings Analysis Report is filed.

DETERMINATION AND APPLICATION OF ALTERNATIVE PROSPECTIVE REALIZATION RATE

Under this guidance framework, PAs are expected to improve their gross savings estimation approaches to continually improve VGS. As such, a strict requirement to apply the VGS Realization Rate prospectively has the potential to provide a disincentive to improve saving estimation approaches as savings could, in effect, be adjusted twice. Therefore, this guidance framework allows for the development of an AP RR by an independent evaluator. The AP RR is developed by the independent evaluator based on information gleaned through the Gross Savings Analysis and the demonstrated actions taken by the PA to improve the savings estimates. The AP RR, expressed as a decimal and developed by an independent evaluator, is the expected realization rate that a program would experience from the PA implementing the recommended actions detailed in the Gross Savings Analysis Report.

The use of a specific AP RR must: 1) be limited to an 18-month time frame in which it must be reassessed; and 2) be no greater than 1.0. The AP RR replaces the previously established VGS RR, for reported savings and the calculation of savings for EAM purposes, where applicable, for the 18-month time frame. The 18-month time frame commences at the time the PA verifies the implementation of the Gross Savings Analysis recommendations made by the independent evaluator which would result in the AP RR¹². If the PA does not complete a new Gross Savings Analysis within the 18-month time frame, the previously established VGS RR shall be applied prospectively. If the PA does conduct a new Gross Savings Analysis within the 18-month time frame, the PA must apply either a new VGS RR or a new AP RR prospectively.

VERIFIED GROSS SAVINGS SPECIFICATION

The VGS Specification outlines the strategy for how VGS will be calculated. A VGS Specification is developed individually for each energy efficiency program and is updated based on internal M&V findings and upon completion of the program's Gross Savings Analysis Report. On-going examination of the VGS Specification allows the PA to provide robust and reliable estimates of energy savings.

The VGS Specification includes the following:

- program name;
- a brief program description;
- the planned GS methodology including a description of the key internal steps taken, if any, by the PA in determining Gross Savings;
- the most recent program realization rate with relevant source details and the selected application of the realization rate, if applicable;
- the Planned VGS Approach including:
 - the time frame for calculating VGS; including the program performance period and when the Gross Savings Analysis Report will be completed and issued;

¹² The PA must attest to the implementation of the Gross Savings Analysis recommendations made by the independent evaluator in the ETIP/SEEP quarterly Revision Letter or CEF Implementation Plan or CEF Implementation Plan modification and submit a revised GVS Specification.

- the name of the independent evaluator conducting the Gross Savings Analysis, if known. If unknown, a description and timing of the process to procure the independent evaluator.

An initial VGS Specification should be submitted for each program to identify the PA's overall strategy of calculating VGS for the energy efficiency portfolio with the next ETIP/SEEP/CEF filings and filed annually thereafter with the ETIP/SEEP and CEF Investment Plan filings as described in more detail below. A VGS Specification template is provided as Attachment A to this Guidance.

GROSS SAVINGS ANALYSIS

Traditional impact evaluation approaches have often resulted in substantial time delays between program performance periods and published results. Gross Savings Analysis is intended to emphasize timely and actionable information.

Gross Savings Analysis to calculate VGS must be conducted by an independent evaluator. This guidance does not define a specific methodology or protocol for calculating VGS. Instead, the responsibility to determine appropriate EM&V methodologies is left to the independent evaluators, in consultation with the PA. Independent evaluators must use their professional judgement and rely on industry standard best practices to complete Gross Savings Analysis. In accordance with CE-05 Guidance, details related to the Gross Savings Analysis methodology will be captured in an EM&V Plan and filed in Matter 16-02180.¹³ Results for each Gross Savings Analysis will be documented in its respective Gross Savings Analysis Report. The Gross Savings Analysis Report will adhere to the EM&V Report Guidance, as detailed in CE-05 Guidance, Appendix G. The Gross Savings Analysis Report will include, but not be limited to, the VGS RR (the ratio of VGS to GS, expressed as a decimal), as well as recommendations for improving the VGS RR. In instances where the PA has elected to pursue an AP RR, the Gross Savings Analysis Report must include the specific modifications the PA has committed to undertake and the resultant AP RR the independent evaluator recommends. Upon completion, PAs will file all Gross Savings Analysis Reports in Matter 16-02180.

In the Utility EE Order, the Commission directs utilities to “utilize information gleaned through their EM&V activities to improve assumptions and factors within the TRM as part of their continual improvement of the TRM.”¹⁴ In support of this goal, Gross Savings Analysis must identify and categorize differences identified between Planned Savings derived from TRM-based values and methods and either GS or VGS in their recommendations for improvements. For example, any measurements of specific values (such as hours-of-use) that diverge from TRM-prescribed or other adjustment factor values should be identified.

¹³ Matter 16-02180, In the Matter of Clean Energy Program Evaluation, Measurement and Verification.

¹⁴ Case 15-M-0252, In the Matter of Utility Energy Efficiency Programs, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018), at page 28.

FREQUENCY OF GROSS SAVINGS ANALYSIS

Gross Savings Analysis must be performed for every program in the PA's energy efficiency portfolio at least once in a five-year time frame. The five-year time frame is initiated at the time evaluation study results are reported for those programs that have a previously established realization rate or a VGS RR. A PA may use evaluation results conducted on a program's performance within the preceding five-year period, if the program has not significantly changed and the evaluation results calculated a realization rate consistent with this guidance.

The schedule for when each program undergoes Gross Savings Analysis within the five-year time frame is determined by the PA, in coordination with the independent evaluator, and articulated in the VGS Specification. This flexibility is given to manage PA and EM&V resources however, the expectation is that Gross Savings Analysis will be a continual process with programs contributing high percentages of the PA's portfolio energy savings or those with greater levels of uncertainty being prioritized.

While PAs are required to conduct a Gross Savings Analysis on each program within the five-year period, to the extent Gross Savings Analysis results in lower than expected VGS Realization Rates, it is expected that PAs will incorporate modifications to the VGS Specification that would improve the VGS Realization Rate. As such, PAs are encouraged to conduct additional Gross Savings Analysis to determine if these modifications were effective in improving the VGS Realization Rate.¹⁵ Several options for scheduling Gross Savings Analysis are described below.

- **Annual Analyses:** Conducting a Gross Savings Analysis for each program in each program year is the maximalist approach to EM&V and is not warranted for most programs that feature little year-over-year change. Annual analyses may be appropriate for new programs or technologies, programs with high degrees of uncertainty, programs with high installed cost to program cost ratios, or programs for which metering/measurement is expected to be an essential part of program design. Annual analyses impose significant costs and may include significant delays in producing evaluation results, depending on the EM&V methods used.
- **Periodic Analyses:** Periodic analyses recognize that the interannual change in factors contributing to uncertainty in most energy efficiency programs is likely to be low, providing that initial estimates are already accurate. Using periodic analyses, PAs should expect to complete a Gross Savings Analysis at a pace that ensures accurate assumptions are consistently made in GS. Provided that major sources of uncertainty are sufficiently minimized, sufficiently high VGS Realization Rates should be achievable.
- **Continuous Analyses:** Continuous analyses occur throughout the period of implementation, and therefore provide the earliest reliable VGS results. Continuous analyses require that a program use an experimental design (i.e., RCT) that allows simultaneous comparison between a group of users that implement an ECM (i.e., treatment group) and a similar set of users who do not (i.e., control group). This is

¹⁵ If the PA elects to apply the AP RR, a new Gross Savings Analysis would be conducted within 18 months.

methodologically distinct from annual and periodic analyses. In RCT designs, a complete year of consumption data is not required to evaluate energy consumption differences or address seasonal factors for highly-seasonal programs.

USE OF GROSS SAVINGS ANALYSIS FINDINGS

Upon completion of the Gross Savings Analysis Report, the PA has the following responsibilities:

1. Incorporate the VGS RR and/or AP RR, in accordance with the guidance provided herein, in the subsequent quarter's Scorecard submission and identify this modification in the ETIP/SEEP quarterly Revisions letter or CEF Investment Plan or CEF Investment Plan modifications;
 - a. If AP RR is elected, the PA must attest to the implementation of the recommendations prior to commencing use of the AP RR.
2. File a revised VGS Specification based on the findings of the Gross Savings Analysis Report for the respective program in the ETIP/SEEP Revisions letter or CEF Investment Plan or CEF Investment Plan modifications;
3. Utilize VGS RR or AP RR for claims related to EAMs, if applicable, as described in Appendix B;
4. Take necessary actions to implement the recommendations identified in the Gross Savings Analysis Report, e.g., submit revisions to TRM Management Committee.

SHARING OF GROSS SAVINGS ANALYSIS RESULTS

In addition to the transparency of requiring all VGS Specifications, EM&V Plans and Gross Savings Analysis Reports to be filed publicly, DPS Staff will convene periodic Gross Savings Analysis Results Forums (Forums) to share and compare VGS approaches, analyses results and recommendations, and the effectiveness of the VGS process to inform program and portfolio design in support of overall policy objectives. These Forums will include independent evaluators, PAs and other interested stakeholders. It is anticipated these Forums will be convened annually, however the schedule will be dependent upon the volume of Gross Savings Analyses being completed.

Opportunities for Timely and Targeted VGS

Multiple strategies are available which may aid PAs in improving the accuracy of GS, VGS and the VGS RR while minimizing the associated costs. Strategies include approaches identified in CE-05 Guidance, those utilized in other jurisdictions, as well as recommendations from the Clean Energy Advisory Council's (CEAC) Metrics, Tracking and Performance Assessment (MTPA) Working Group and the TRM Evaluation Measurement & Verification Coordination Report.¹⁶

¹⁶ TRM Management Committee "TRM Evaluation Measurement & Verification Coordination Report," July 12, 2018.

The CEAC Metrics, Tracking & Performance Assessment (MTPA) Working Group *Market Transformation Metrics and EM&V Coordination Report* proposes the use of coordinated evaluation planning among PAs using same or similar programs to reduce the cost burden of evaluation planning on ratepayers.¹⁷ By staggering Gross Savings Analysis and sharing results, multiple PAs can coordinate their EM&V schedules, ensuring that changes in the underlying market are identified quickly. Alternatively, multiple PAs could conduct Gross Savings Analysis on different segments of the market within the same program year, thus dividing the burden. Such strategies would require careful attention to maintaining consistent methods and assumptions and accounting for regional differences. Additional approaches to coordination in EM&V planning include using joint procurement to share costs and coordinating methods to maximize the intercomparability of results. Additionally, in the *TRM Evaluation Measurement & Verification Coordination Report*, the TRM Management Committee recognizes the value of coordination between PA's when planning EM&V studies that may have a direct impact on the TRM.

STRATIFIED EM&V RIGOR LEVELS

States such as Pennsylvania prescribe EM&V rigor levels, based on the size and composition of various energy efficiency programs.¹⁸ Although this guidance does not adopt explicit EM&V rigor levels for VGS, PAs may find that development of formal internal stratified rigor levels may assist in defining consistent, long-term evaluation plans. Use of internal guidelines may facilitate future evaluation planning, and continuous refinement of rigor levels may assist in optimizing the use of EM&V resources across programs. Additionally, coordination of rigor levels with other PA's can help ensure consistent EM&V practices across New York State for similar programs. As an example, Figure 1 conceptually demonstrates stratified rigor levels across two variables: expected energy savings and level of uncertainty.

	Low Expected Savings	High Expected Savings
Low Uncertainty	Lowest Rigor (Verify sample of measures; billing analysis)	Moderate rigor (Verify and meter sample of measures; billing analysis)
High Uncertainty	Moderate rigor (100% verification; billing analysis)	Highest rigor (100% verification and metering)

Figure 1. Example of a conceptual model of stratified EM&V rigor levels based on program characteristics.

¹⁷ CEAC MTPA Working Group “Market Transformation Metrics and EM&V Coordination Report,” July 12, 2018.

¹⁸ Pennsylvania Public Utilities Commission. 2016. “Evaluation Framework for Pennsylvania Act 129 Phase III Energy Efficiency and Conservation Programs.” August 25, 2016. http://www.puc.state.pa.us/Electric/pdf/Act129/SWE_PhaseIII-Evaluation_Framework082516.pdf.

ROBUST DATA QUALITY POLICY

Elimination of data transcription and record-keeping errors is a low-cost approach to ensuring that program implementation data matches evaluated results. Elimination of duplicate or blank entries, incorrect measure data, and other common errors can reduce the risk of low realization rates based on bad data rather than material uncertainty. The Utility EE Order addressed data quality issues in directing utilities to file EE Data Governance Assessment Reports.¹⁹ PAs should ensure that a formal data quality policy is in place in accordance with the recommendations presented in their EE Data Governance Assessment Reports. A data quality policy ensures that industry standard QA/QC methods are in place for program tracking systems, including a process for continuous improvement.

¹⁹ Case 15-M-0252, In the Matter of Utility Energy Efficiency Programs, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018), at page 33.

Appendix A – Verified Gross Savings Specification Template

A Verified Gross Savings (VGS) Specification should be submitted for each energy efficiency program in the Program Administrator’s (PA) portfolio. A Revised VGS Specification should identify any changes made to the VGS Specification resulting from Gross Savings Analysis. The information provided *in italics* in the template is for illustrative purposes only. The PA should provide the following information.

Verified Gross Savings Specification Template	
Date of ETIP/SEEP/CEF filing	
Program Name	<i>Energy Efficiency (EE) Program 1</i>
Program Description	<i>EE Program 1 targets energy savings in the residential sector by providing rebates for appliances.</i>
Gross Savings Methodology	<i>Energy savings calculated using the formulas and factors found in the Technical Resource Manual.</i> <i>Internal QA/QC protocols verify compliance with installation standards. Our independent quality assurance team evaluated the accuracy of site analysis.</i>

Verified Gross Savings Specification Template	
Realization Rate (RR)	<p>Elect one of the following options:</p> <p>Option 1: <i>No RR has been determined for this program within the preceding five-year time frame</i></p> <p><i>OR</i></p> <p>Option 2: <i>The initial VGS RR of 0.80 from impact evaluation of EE Program 1 for program period 2015-2017. <include name of study/Gross Savings Analysis and filing date> This initial VGS RR is applied retrospectively and prospectively until completion of the next Gross Savings Analysis.</i></p> <p><i>Alternative Option 2: The initial VGS RR of 0.80 from impact evaluation of EE Program 1 for program period 2015-2017. <include name of study/Gross Savings Analysis and filing date> This initial VGS RR is applied retrospectively and prospectively until completion of the next Gross Savings Analysis. Based on the independent evaluator's assessment of recommended programmatic changes and savings estimation approaches identified in the GSA Report an AP RR of 0.90 is identified. We are electing to pursue an AP RR and anticipate the recommend changes will be implemented by <insert date>.</i></p> <p><i>OR</i></p> <p>Options 3: <i>The initial VGS RR of 0.80 from impact evaluation of EE Program 1 for program period 2015-2017 is applied retrospectively. <include name of study/Gross Savings Analysis and filing date>. A GSA Report based on the independent evaluator's assessment of programmatic changes and savings estimation approaches identifies an AP RR of 0.9. A <include name of study/Gross Savings Analysis and filing date> confirms that the changes have been implemented and the 0.9 AP RR will be applied going forward for 18 months or until a new Gross Savings Analysis is completed.</i></p>
Planned VGS Approach	<p><i>EE Program 1 will undergo Gross Savings Analysis for program period 2018-2019. Details related to the Gross Savings Analysis methodology will be submitted in an EM&V Plan in Q4 2019. The estimated completion of the Gross Savings Analysis Report is June 2020. Independent evaluator XYZ will perform the Gross Savings Analysis.</i></p>
Exemption from EAM Status:	<p><i>Identify if this program is exempt from applying VGS for EAM purposes and if so, for what time period.</i></p>

Appendix B - Application to Energy Efficiency-Related Earning Adjustment Mechanisms

The details of how Earning Adjustment Mechanisms (EAMs) will be structured and awarded are established through individual utility rate case proceedings taking account of the unique circumstances of the proceeding and the full impact of earning opportunities however, all energy efficiency-related EAMs that rely on programmatic performance will be calculated and awarded based on the VGS policy described herein as required by the Utility EE Order.²⁰

EAM PROPOSALS

The Utility EE Order also requires that any energy efficiency-related EAM proposal that includes a programmatic performance element will be required to provide a schedule detailing the EM&V activities that will be conducted, the time frame the EM&V activities will cover and the expected date by which VGS will be reported to support the awarding of utility incentive payments.

Submission of the VGS Specifications, as outlined in this guidance, will satisfy this requirement.

EAM TARGETS

EAMs include metrics with associated targets designed to align utility shareholder interests with New York State energy policy goals. If the Company meets or exceeds the EAM targets, benefits are achieved, and utility shareholders earn financial rewards. Establishing actual realized savings through the VGS process needs to work in concert with the requirements and implementation of energy efficiency-related EAMs while providing flexibility given the diverse needs of each utility service territory to encourage utilities to develop and test new approaches to improve the performance of a utility's portfolio.

EXEMPTIONS FROM APPLICATION OF VERIFIED GROSS SAVINGS REALIZATION RATE

Utilities may propose exempting a program(s) within their portfolio from the application of the realization rate determined through the verified gross savings process for purpose of energy efficiency-related EAM savings claims.

Utilities must provide a detailed justification for any proposed exemption. As it relates to the EAMs, these exemptions will be considered on a case-by-case basis within each utility rate case proceeding. In all cases, exemptions must be temporary. As the exempted program gains traction and performance history, the utility should be able to comply with the VGS policy.

For each energy efficiency program for which the utility is seeking an exemption, the utility shall provide at a minimum all the information identified below in its rate filing or in a subsequent filing:²¹

- Date of ETIP/SEEP/CEF filing
- Program Name

²⁰ This requirement applies to all EAM proposals made after March 15, 2018, as detailed in the Utility EE Order.

²¹ Pursuant to a process established in the utility rate plan to address additional exemption proposals.

- Program Description
- Justification for Proposed Exemption
- Exemption Period