

VERIFY™ M&V SOFTWARE FOR NORMALIZED METERED ENERGY CONSUMPTION (NMEC) PROGRAMS

This white paper highlights how Power TakeOff's Automated M&V software, Verify, is specifically engineered to meet the requirements of PG&E's Normalized Metered Energy Consumption (NMEC) site and population level programs, leveraging advanced M&V techniques.

Key Capabilities for NMEC Compliance

Verify is built to support the most robust M&V methods, particularly those used in pay-for-performance and NMEC frameworks:

- **Normalized Operating Conditions Regression Model (IPMVP Option C):** Verify provides a powerful tool for developing and applying a normalized operating conditions regression model, which is the standard approach for whole-facility M&V under International Performance Measurement and Verification Protocol (IPMVP) Option C (Whole Facility). This approach accurately models energy consumption against key independent variables (like weather, production, or occupancy) to establish credible normalization to a set of standard conditions for savings calculations.
- **90% Confidence Level for Savings Uncertainty:** NMEC programs require transparent and conservative reporting of savings uncertainty. Verify automatically calculates and outputs an NMEC-compliant 90% confidence level for savings uncertainty directly in the model workbooks. This calculation ensures that the reported savings meet the required precision standards and provides a reliable measure of the predicted savings' statistical validity.
- **Fitness Metric Reporting:** To satisfy all compliance requirements, Verify reports critical statistical fitness metrics to quantify the accuracy of models:
 - **Fractional Savings Uncertainty (FSU):** This represents the percentage uncertainty of the expected or calculated savings value.
 - **CV(RMSE):** The Coefficient of Variation of the Root Mean Square Error is used to check how good the model is at predicting actual consumption and expresses the typical prediction error as a percentage of average energy use.
 - **R2:** This metric scores how well the variables used in the model (like weather or occupancy) do in accounting for why the energy consumption goes up or down.
- **Peak Demand (kW) Reduction Modeling**
 - DEER (Database for Energy Efficient Resources) Peak demand reduction calculations accommodate CPUC regulations.
 - Normalized peak demand savings are defined as the average peak period normalized baseline energy use minus the average peak period normalized reporting energy use. Utilizing the DEER specified 15 hours for a facility's climate zone we isolate these fifteen hours in our regression model to calculate the peak savings.

M&V Scalability and Adoption

Verify's robust and automated modeling capabilities and design support the efficient scaling of NMEC portfolios across various program types and regions. Our software is currently modeling and monitoring 11 NMEC projects, demonstrating its capacity to manage and process a significant volume of metered data, provide customized, timely, alerts and generate reliable savings reports.

The energy efficiency initiatives modeled are collectively tracking to claim nearly **1,300,000 kWh** in verified energy savings, validating Verify's ability to handle high-value M&V requirements. This ongoing integration highlights the platform's suitability for **rapid deployment and standardization** across large-scale NMEC programs, providing a uniform, defensible M&V methodology across a growing portfolio.

Power TakeOff's knowledge and implementation of NMEC protocols stems from deep industry involvement. As the contracted site-specific NMEC service provider for PG&E's On-Bill Financing (OBF) program Power TakeOff has;

- Modeled over 30 facilities to prescreen projects for 3+ GWh of estimated savings.
- Developed NMEC compliant savings packages for 7 GWh of claimed kWh savings with associated gas and peak demand (kW) savings of 128,000 therms and 1000 kW respectively.
- Provided deeper understanding of 22 PopNMEC projects which are key to PG&E strategic development.



Power TakeOff designed, built, and operates the industry's leading energy efficiency support platform to measure and prove savings achieved from energy efficiency projects across the U.S. and Canada. Power TakeOff's M&V platform has been field-tested by thousands of third-party evaluated IPMVP Option C models.

Learn more at powertakeoff.com.