

PG&E Manual for Commercial and Public Sector Whole Building Performance Based Retrofit Program Offering

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1. Program Overview

Pacific Gas & Electric's (PG&E) Whole Building Performance Based Program Offering has been designed to leverage smart meter investments while bringing the benefits of Normalized Metered Energy Consumption (NMEC) to Commercial and Public Sector buildings. NMEC represents the next progression in energy efficiency by measuring, tracking, and incentivizing savings delivered at the meter. This Program offering complements the additional goals of the targeted entities by allowing participants to track savings, to ensure the performance of their long-term energy efficiency investments and to support their economic goals and climate action plans. This comprehensive program manual describes the roles, requirements and processes of the Whole Building Performance Based Program Offering.

1.1 Objectives

Normalized metered energy consumption has the potential to capture stranded savings and to improve the quality and reliability of projected energy savings in existing buildings. The Commercial and Public Sectors presents unique characteristics that provide savings opportunities that can be measured through the NMEC approach proposed in AB 802¹. These opportunities include:

- **Help to Ensure Energy Savings Persistence** –The ability to track savings from investments can help ensure these sectors meets their economic objectives. The monitoring component of the Program will provide regular feedback that will quickly shed light on projects that met or exceeded their financial performance requirements. In addition, metering and monitoring provide the feedback to help proactively manage buildings to ensure persistence consistent with the focus on Strategic Energy Management.
- **Reduce the Complexity of Multi-measure Projects for Existing Buildings** – Participants can take a comprehensive approach to energy efficiency, rather than completing applications for RCx, Retrofit, and behavioral programs. The NMEC approach can greatly reduce participant transactions costs, while capturing comprehensive savings. A single point of entry and program process will greatly reduce administrative, implementation, and M&V costs.
- **Improve Delivery Timelines** – Separate applications, separate approvals, and separate processes will be eliminated through a single meter-focused energy savings measurement approach for all aspects of the building use. This will include retrofits, tuning, and any behavioral measures identified through the performance/meter base approach. Pre-installation engineering analysis and review will be more efficient and less exhaustive since savings are derived through NMEC rather than through pre and post- installation calculations.
- **Provide Needed Utility Usage Visibility** – Often, access to energy bills and usage are centralized or siloed meaning that effective visibility is lost. Feedback through existing or new metering can provide the needed visibility to help business owners and managers strategically manage energy on a continual basis.
- **Provide the Opportunity to Participate in Automated Load Management Benefits** – Facilities upgraded with controls and sensors benefit from participation in Peak Day Pricing and Demand Response programs. This participation is over and above energy savings so does not adversely affect business operations. This capability also qualifies customers for Integrated Demand Side Management (IDSM) financial benefits in addition to energy saving benefits.

The shift to NMEC has the potential to yield greater and more permanent savings, making energy efficiency a resource that can be relied upon. PG&E has developed this Program to eliminate barriers, improve transparency, ensure persistence, and increase overall energy savings. Details on how the Program will meet the Commercial and Public Sectors' needs, while delivering cost-effective and persistent energy

1.2 Roles & Responsibilities

A description of the role of each party and Customer are shown in the table below.

Roles	Responsibilities
Customer	An eligible ratepayer that receives energy services from PG&E and pays into the Public Purpose Program (PPP) surcharge.
Program Manager (PM)	The PG&E PM manages all aspects of the Program and makes final decisions.
Account Representative	The PG&E account representative is responsible for making Program presentations and assisting customers with various related Program applications, status reports, or other related assistance.
Trade Pro	<p>The Implementer is a PG&E authorized representative, or is engaged by the Customer and is responsible for:</p> <ul style="list-style-type: none"> • Identifying/Screening projects • Preparing the Energy Audit or list of recommended measures • Preparing project M&V Plans • Verifying measures and completing Project Installation Reports • Tracking energy performance and identifying non-routine events and impacts • Preparing savings reports throughout the performance periods • Responsible for ensuring that all required project documentation is submitted correctly and responding to any concerns in the project review.
NMEC QA/QC	<p>The NMEC QA/QC Reviewer is a designated PG&E representative responsible for:</p> <ul style="list-style-type: none"> • Reviewing the M&V plan, including pre-screening data and analysis, data preparation procedures, and baseline regression model. • Reviewing the Energy Audit, Project Installation Reports, and other project documentation to ensure project viability • Reviewing periodic savings progress reports • Reviewing NMEC Savings Reports
Custom Implementation Team (CIT) QA/QC	The CIT QA/QC Reviewer is a PG&E engineer responsible for assuring NMEC rules and processes are followed.
PG&E Assigned NMEC Technical Reviewer	Reviewer is a PG&E assigned third party engineer responsible for reviewing project scope, savings calculations, and other project documentation to ensure compliance.
Utility Administrator	PG&E administers the Program in its service territory.

1.3 High Level Program Process

The Program process, at its highest level, is shown in the table below.

Step	NMEC Phase	Requirement	Description
1	Baseline	Project Screening	<p>The Account Representative in coordination with the Implementer will:</p> <ul style="list-style-type: none"> Inspect the site and review the Customer's past participation Determine if sub-metering is necessary Pull/compile meter data Identify high level measure list & savings opportunities, including controls-based solutions to qualify as IDSM resources. Note the presence of or potential occurrence of non-routine events throughout the project lifecycle Provide Program participation requirements to the Customer <p>Deliverables:</p> <ul style="list-style-type: none"> Customer Baseline Screen report - Includes ECAM Regression Model and baseline documentation
2	Baseline	Deep Dive Analysis	<p>Once a project passes screening, Implementer will conduct an audit that:</p> <ul style="list-style-type: none"> Identifies measures or measure combinations that are projected to attain a minimum of 10% overall energy savings at the facility Estimates EEM savings and costs Documents individual measure costs Includes building schedule management and controls Develops a weighted average of selected EEMs to create project Effective Useful Life (EUL)
3	Baseline	Project Submission	<p>The Implementer will develop an M&V plan describing measures to be installed, NMEC M&V to be completed, etc. (see Appendix A, PG&E M&V Requirements for Site Level NMEC)</p> <p>Deliverables:</p> <ol style="list-style-type: none"> M&V Plan Audit Report based on Deep Dive Analysis, containing the projected NMEC Payments with customer signature Influence Documentation, including marketing and sales collateral used Three-Year Maintenance Plan Small Business Certification (if applicable) Customer Proposal Custom Application
4	Baseline	Project Review	<p>The PG&E-assigned NMEC Technical Reviewer reviews the Project Submission package. The NMEC reviewer may elect to obtain baseline period data to confirm baseline models and goodness of fit metrics. The NMEC technical reviewer may</p>

Step	NMEC Phase	Requirement	Description
			<p>conduct a pre-installation site inspection to verify existing conditions.</p> <p>The PG&E-assigned Custom Technical Reviewer will review the measures according to established Custom Program processes, project documentation and may conduct a pre-installation on-site visit to verify baseline conditions.</p> <p>The PG&E-assigned Custom Technical Reviewer and PG&E-assigned NMEC Technical Reviewer shall reasonably coordinate site inspections to minimize disruption in customer's operations.</p> <p>Project equipment may not be ordered, purchased, or installed before PG&E has provided its written Project Agreement (Notice of Approval). For facilities requiring sub-metering, pre-trending data will be continually monitored. The Program Manager may approve the Customer to begin procurement of equipment prior to receiving the full 12 months of pre-trending data if good correlation is demonstrated. There is no guarantee of a Notice of Approval and no installation can take place until a Notice of Approval.</p>
5	Baseline	Project Approval	<p>Upon satisfactory completion of the Project Review, PG&E shall issue a Project Agreement Letter as its Notice of Approval. The Project Approval Letter shall include (i) a confirmation of the facility Baseline (Approved Baseline), (ii) a confirmation of the projected energy savings and demand reduction and (iii) provides an Approval to Proceed, subject to terms & conditions set forth in this Manual and the Program Application.</p> <p>Upon receipt of the Project Approval Letter, PG&E funding for NMEC Payments for the facility will be committed, and the Implementer may proceed with installation.</p> <p><i>Projects participating in the Program that are selected for Energy Division review may proceed independent of the Energy Division review once the Project Approval Letter is received. PG&E may issue a Project Approval Letter for projects independent of selection for Energy Division review. PG&E does not require Energy Division approval prior to issuing a Project Approval Letter to a project.</i></p> <p>Deliverables:</p> <ul style="list-style-type: none"> • Project Approval Letter (Notice of Approval)
6	Installation	Project Installation Report(s)	<p>The Implementer submits a Project Installation Report signed by Implementer, to the [Program Manager] after all Project measures have been installed, fully commissioned, and are fully operational. The Project Installation Report Package will include:</p> <ul style="list-style-type: none"> • Documentation of installed measures and correct operation • Customer written acknowledgment of installation. <p>Deliverable:</p> <ul style="list-style-type: none"> • Project Installation Report
7	Installation	Installation Review	<p>After receiving the Project Installation Report from the [Program Manager], the NMEC and Custom Reviewers will evaluate the submittal package and may, in coordination, conduct a post-installation, on-site inspection to verify project installation and ensure the scope of work has not altered from the agreed-upon project.</p> <p>Deliverable:</p>

Step	NMEC Phase	Requirement	Description
			<ul style="list-style-type: none"> Notification of Approved Installation
8	Performance	NMEC Payment	<p>After PG&E issues the Notification of Approved Installation, the Program Implementer or its designated payee becomes eligible for the applicable NMEC Payment. The Program Implementer will monitor and maintain the implemented measure performance, check for NREs, and provide quarterly progress reports on energy savings for three years.</p> <p>The Program Implementer will collect data and calculate energy savings at 3 and 12 months. The Approved Baseline shall be used in the calculation of NMEC achieved savings. The NMEC technical reviewer will review each savings report and advise the PG&E PM whether to pay the NMEC Payments for each submission.</p> <p>Deliverables:</p> <ul style="list-style-type: none"> Energy savings progress reports (Implementer) 3- and 12-month Energy Savings Reports (per M&V plan, Implementer) 3- and 12-month NMEC Payment (PG&E)
9	Baseline, Installation, Performance	Non-Routine Events	<p>During the entire project life, from the beginning of the Baseline period to the end of the post-installation performance periods, the Program Implementer will be required to notify PG&E of significant changes to the building that impact energy consumption.</p> <p>Deliverable:</p> <ul style="list-style-type: none"> Notification of non-routine event (Implementer)

2.1 Program Process Detail

2.1 Eligibility

Customer screening to determine fit with the Program offering is important as it is a departure from past approaches in that performance payments are tied to the persistence of savings over time⁵. Projects considered for the Program offering must include a comprehensive approach including retrofit, load management controls, retro-commissioning and optimization to reach the 10% energy reduction threshold. Less than 10% energy reduction may be allowed on an exception basis by the PG&E Program Manager if documentation includes a rationale and explanation in the project-level M&V Plan of how savings will be distinguishable from normal variations in consumption and is deemed acceptable by PG&E.

Customers with less experience or understanding may not be comfortable with the inherent risks of the NMEC approach. Potential participants, not accompanied by a Program Implementer, will be screened to assist in identifying appropriate buildings and provided with a list of Program Implementers. For a project to be accepted by the Program offering, each facility will undergo the formal Project Screening process.

PG&E has developed this Program Offering with the intention of eliminating barriers, improving transparency, verifying persistence, and increasing overall energy savings. The Program offering's design utilizes the historical success of existing partnership program offerings and integrates metering, controls and feedback to produce a more comprehensive approach focused on savings persistence. Key interventions include:

- Facilitating the availability of technical support by including facility audit costs as an approved component of a project capital cost, to assist resource constrained customers to identify savings and building management opportunities;
- Providing a simplified and streamlined participation process to encourage comprehensive projects;
- Introducing a pay for performance approach that shifts energy efficiency incentives to the actual measured achievement of savings over the detailed up-front savings estimates and payments;
- Facilitating the installation of metering or sub-metering by including these costs as an approved component of a project's capital cost, to provide the data required to determine savings and help business owners maintain performance over time, combined with monitoring, to potentially drive greater energy efficiency by showing the direct ongoing economic impact of measures in existing buildings.

Compensation is provided to assist customers with Program participation costs through a performance payment mechanism (NMEC Payments):

- NMEC Payments are paid at 3 and 12 months after measures have been installed, operational, and verified, with each payment truing up to the estimated savings at each interval
- Customer audit costs for the Program are captured in total project costs
- Ongoing monitoring and feedback of Program related savings from implemented recommendations will extend for a duration of one year, and PG&E may make ad hoc data requests for up to three years following project completion in addition to required quarterly reports.

NMEC Payments will be monitored through the review process to ensure the Program Offering such payments do not exceed the Program cap of 80 percent of project cost. Program tracking and reporting forms that document savings, incentives, and total project costs will demonstrate that Program costs and NMEC Payment thresholds have been satisfied.

2.2 Project Screening

The purpose of the screening process is to confirm eligibility for the Program Offering by confirming that energy savings opportunities and related projections meet or exceed 10 percent savings and that metered energy and other data show a likelihood that savings will be statistically significant (Less than 10% energy reduction is potentially allowable on a case-by case basis provided it is addressed in the Project M&V plan and approved by the PG&E Program Manager).

2.2.1 Project Screening Checklist

The Project Screening Checklist gathers general information to help establish eligibility for the Program Offering. The Implementer will complete the checklist with assistance from the Account Representative and Customer. If the building meets Program requirements, the project will proceed to Screening. If the building does not meet the Program requirements for participation, the PG&E Account Representative will identify a more appropriate program offering. The checklist below highlights the Minimum Requirements that must be met and a set of pre-defined desired characteristics to consider.

Account Representatives, Customers, Program Implementers or Program Managers may want to capture additional attributes that make the project particularly desirable. For example, a building that already has the necessary metering infrastructure in place and can readily gather 12 months of pre-trending data may be helpful to the project's timely completion.

Minimum Requirements

- Install whole building level metering capable of collecting 60-minute interval data
- Agree to participate in a three-year Maintenance Plan

Desired Characteristics

- Systems level of control (e.g. HVAC level controls)
- Majority of the space is conditioned
- More than 2,500 operating hours
- Not designated for major re-design or re-use
- Buildings where some equipment may be beyond its useful life

The Implementer with support from PG&E Account Representative as needed will facilitate gathering customer energy usage data for buildings that have PG&E AMI meters installed. In cases where the data are collected through a customer owned meter, the customer will provide the available data to PG&E for analysis.

2.2.2 Metered Data Requirements

Projects require the collection of Short-Term Energy Monitoring data. Data must be collected for 12 months prior to implementation and at least 36 months following implementation. PG&E may make additional ad-hoc data requests during the 36-month period. Weather and other data correlated with energy usage will also be collected to normalize energy consumption data. Data collection needs will be determined with the Program Implementer or customer during the screening process.

As described in the PG&E M&V Requirements for Site-Level NMEC, Customers that use their own meters for energy baselines and savings estimation must submit the meter manufacturer's specifications, and its

recommended installation and calibration procedures. Customers are also required to submit calibration records that verify the installed meter is generating measurements within the manufacturer’s specifications. Calibration records shall report on the meter’s bias and precision error. The table below provides recommended maximums for bias and precision error for meters anticipated in this program.

Table 4 - Recommended Maximums for Bias and Precision Errors for Meters

Meter Type	Bias Error (%)	Precision (%)
Non-revenue grade building meter	< 0.1	1% full scale
Electric sub-meter	< 0.1	1% full scale
BTU meter (e.g. chilled water)	< 0.5	4% full scale ¹

The quality of data shall be evaluated to ensure it is continuous and contains few outliers or abnormal amounts of zeroes. These erroneous outliers and zeroes can result from data transmission errors or other non-measurement-related factors. All data cleaning and preparation steps shall be documented in the Customer pre-screen report.

2.2.3 Preliminary Measure List & Savings Requirements

During the screening process, Customer will submit a list of measures being considered for further investigation. This preliminary list of measures must demonstrate energy savings of least 10 percent of total usage (unless granted an exception for less than 10% by PG&E, at which point an alternative threshold must be met) and include at least one retrofit with a payback of two years or more. Savings and cost values will be budgetary at best since the audit will provide more detailed and accurate information regarding savings opportunities and their costs. The purpose this requirement is that the applicant understands that they must propose a portfolio of energy efficiency measures that will achieve 10 percent savings or better (unless granted an exception by the PG&E Program Manager). An example of potential Program measures is provided below in Table 3.

Table 3 – Examples of Potential Program Measures

Retrofit Examples	BRO Measure Examples
• Constant to variable air volume in HVAC	• Scheduled Loads
• Building automation system (BAS) Upgrade	• Economizer/Outside Air Loads
• Wireless HVAC Controls	• Control Problems
• Boiler Replacement	• Controls: Set point Changes
• RTU Replacement	• Controls: Reset Schedules
• Demand Control Ventilation	• Equip. Efficiency Improvements / Load Reduction
• Fume Hood Upgrades/Replacement	• Variable Frequency Drives (VFDs)
• AHU Replacement	• Equipment Maintenance
• Steam Trap Replacement	
• Chiller Upgrade	
• Lighting Retrofits	

Other possible behavioral measures could include, but are not limited to the following:

¹ BTU meters generally specify accuracy of flow meter and temperature differential sensors separately. The combined precision will be determined from these specifications.

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- Encourage task lighting rather than overhead
- Turn off monitors
- Power down computers entirely (for security and energy benefits)
- Close windows and/or draw shades
- Occupant thermal feedback smartphone apps (engagement)
- Optimizing building scheduling - open hours, concentrate activity in certain zones
- Improve signage on light and fan switches
- Remove or replace plug loads (hotplates, coffee machines, etc.)

2.2.4 Baseline Screening Evaluation and Goodness of Fit

A facility's energy use patterns will be pre-screened to determine whether baseline energy use models may be developed that may accurately estimate savings within acceptable criteria at the end of the performance period. This requires that a year of short-term energy use data be collected, and concurrent data for independent variables used in the model (usually ambient dry-bulb temperature, building occupancy or operation periods, etc.). A statistical model, usually a regression model, is developed and its goodness of fit metrics are calculated and compared to the Program's acceptance criteria.² When an energy use model meets the criteria, the building passes this screening threshold and confirmation is provided by PG&E.

The data used for pre-screening may not necessarily be from the period that defines the baseline period. The Program Offering requires that at least 12 months of data immediately prior to the start of measure installation will be used to develop baseline energy models. There is usually some delay while agreements are signed, measures are identified and quantified, M&V plans are developed, and measure installations begin. The actual Baseline period is defined once the installation period starts. For the Program Offering, we use a CV(RMSE) of 20%, and an NDBE of 0.005% to determine whether a baseline energy model is accurate. Buildings in which the baseline CV(RMSE) value is greater than 20 percent may need to adjust their models, install more direct metering or consider other EE programs. Pre- screen reports are required to provide:

- Summary of Baseline Screening findings
- Description of the data used, their sources (including weather stations), and a description of data quality (number of missing and erroneous values, methods used to correct data prior to pre-screening, etc.)
- Description of modeling algorithm used, including analysis time interval, model training period start and end dates, independent variables used and any notes to help clarify how the models were developed
- Summary table of model goodness of fit metrics for each model used (may be more than one).
- Supporting charts (time series, scatter charts, etc.) showing how model predictions compare with actual data, including any supporting data, such as from independent variables.

2.3 Project Audit

Once a project has passed Baseline Screening, Program Implementer will proceed to formalize the project scope by completing a Project Audit. The following sections provide an overview of the investigation process and Audit Report requirements.

2.3.1 Building Investigation Requirements

During the investigation, the Program Implementer conducts an onsite investigation and analysis of the building operations, seeking to identify deficiencies and potential optimization of the mechanical equipment,

² See the NMEC Savings Procedures Manual for details about model development and model goodness of fit metrics: CV(RMSE), NDBE, and savings uncertainty.

lighting, and related controls. The Program Implementer determines opportunities for corrective action and other operational and maintenance improvements that reduce energy consumption and demand.

The Program Implementer gathers information to define the Customer's current facility requirements including, but not limited to, building plans/schedules, operational schedules, building controls, and implementation limitations. Through observation, targeted functional testing, and trend data analysis, the Implementer gathers operational and functional performance data to assess equipment operation and to identify deficiencies and measures for improvement.

Energy savings calculations for identified measures will be required as well as a proposed project schedule. The Program Implementer must ensure data collection is robust to produce all required documentation for PG&E review and approval. This may include, but not be limited to, all calculations and assumptions, trend and portable logger data, functional test results, site visit reports, photographs that were used to identify the opportunity.

2.3.2 Measure List & Aggregate Savings

The results of the investigation will be summarized in the Audit Report. These documents will include thorough descriptions of required and recommended measures for implementation, estimated energy savings, estimated costs, measure life, and payback calculations. Documentation supporting measure costs and estimated useful life must be referenced. Each measure is supported by baseline documentation that clearly indicates the deficiency or problem. Baseline documentation may include name plate information, trend or portable logger data plots and files, functional test results, screen shots, site visit reports, and photographs, as appropriate. Energy savings are estimated by the Program Implementer for each measure and/or combination of measures using one of the allowable calculation methods which may include custom spreadsheet calculations or building simulation models.

The final package of improvements is presented to the Customer in the Audit Report. The Audit Report includes the recommended and selected measures and provides information to assist the Customer with implementation, including: energy savings and financial calculations, recommended approach to implement selected measures, estimated costs from contractor(s) for the selected measures, Program Implementer assistance (if chosen by Customer), and appropriate methods for verifying measures. The Audit Report must provide recommendations that are explicit enough for contractors or in-house staff to understand the scope of work.

2.4 Project Submission and Technical Review

As part of the baseline period submission requirements, the Program Implementer will prepare an NMEC Site Level M&V Plan. NMEC savings procedures and documents must follow the guidance and templates provided in the PG&E M&V Requirements for Site-Level NMEC. The Site Level Project M&V Plan shall contain the pre-screening results (also submitted as part of the Project pre-screening), independent variables, description of how the M&V analysis will proceed, when savings reports will be developed, all data sources and data preparation procedures, how baseline models will be updated, goodness of fit and accuracy metrics used, and a description of the contents of the Savings Reports.

Regression models shall be developed in publicly available tools or approved tools that provide transparency to the underlying code. Documentation needed to complete the Pre-Installation Audit Package for PG&E Technical Review and approval to commence include:

- Project Screening Checklist
- Audit Report and interval meter data for the Baseline period.
- Final M&V Plan

- Pre-trending data and regression model
- Project Narrative demonstrating the communications between the Program Implementer and Customer, including initial proposal, related Program information and sales collateral, presentation of the projected NMEC Payments and related benefits, and Project financing, if made available.
- Three-year maintenance plans, either purchased or internal, will help Behavioral, Retro-commissioning, Optimization (BRO) measures persist. Maintenance plans will be scrutinized and must be approved by PG&E to ensure their effectiveness.

PG&E will review the package and will assign it for technical review, which has two components: NMEC Technical and Custom Technical. The NMEC Technical Review will verify that the information submitted is complete and the estimated savings are within targeted levels. Upon review of the package, the NMEC Technical Reviewer will either recommend approval, create a needs requirement document to request more information or clarification, or may recommend declining the project.

PG&E's NMEC Technical Reviewer will review the pre-screen analysis and report. At the Reviewer's discretion, a pre-inspection to verify existing project site conditions may be required. The Reviewer will verify that the model developed from the monitored data follows standard statistical practices. The Reviewer may approve the report as submitted or request changes to the Baseline model and report. If the Program Implementer or Customer is unable to provide a Baseline report sufficient to meet the verification criteria, the reviewer may decline the report or request more information through a needs requirement document.

All capital measures are required to meet the core custom program rules, as described in the recent NMEC ruling from the Commission. The audit report will be submitted to a PG&E Custom Technical Reviewer to assure all requirements are met, including those for influence and free-ridership.

The Customer must receive a Project Approval Letter from PG&E before beginning measure implementation. The Project Approval Letter will serve as notice to the Program Implementer to proceed with implementation.

2.5 Project Approval

Upon receiving Project Approval Letter, the Implementer may begin the Implementation phase of the Program. Implementers should plan on documenting all associated project costs through invoices, receipts, internal hour logs or internal work orders as appropriate. The total amount of project cost will be used to cap the amount of the NMEC Payment a Customer may be eligible to receive over the course of the Program. The PG&E NMEC Payment will be capped at 80% of documented total project costs.

2.6 Project Installation Report

The Program Implementer will report monthly on the progress of Project installation and notify PG&E when the Project is within one month of completion. At Project completion, the Program Implementer shall submit to the PG&E Program Manager, a Project Installation Report and supporting project cost documentation. PG&E may assign technical resources to commence post-installation verification activities.

2.6.1 Installation Report

Implementation and installation of the Program approved project measures is considered complete only after the Program Implementer completes a Project Installation Report, signed by the Customer, along with supporting measure installation documentation. This Report affirms that installation activities have been completed by the Customer and/or their Program Implementer and that the measures are installed and operating properly, with supporting data and documentation, and ready to generate savings. Customer agrees that PG&E may perform an inspection of the installed measures.

2.6.2 Project Cost Documentation

Project cost documentation must be collected and submitted with the Project Installation Report. Project cost documentation must be complete and accurate, including contractor invoices, internal hours, etc. The total amount of project cost will be used to cap the amount of the NMEC Payment, a Project may be eligible to receive under the Program. Behavioral measure costs require pre-approval from the PG&E Program Manager to be considered as part of the project cost cap.

2.6.3 Operation & Maintenance Plan

A 3 Year Maintenance Plan is required regardless of whether maintenance is being implemented by the Customer, Program Implementer or through a contracted third party. In cases where the maintenance is completed by the Customer, Customer must submit a plan that must include the following, at a minimum:

- Description of primary maintenance activities;
- Identification of staff or contractor responsible for completing maintenance activities;
- Schedule for completing maintenance activities; and
- Description of system that will be used log to completion of maintenance activities.

For maintenance plans executed by the Program Implementer, a scope of work for the maintenance plan contract must be submitted. The scope of work should include the above sections.

In all cases, customer shall be given operating manuals and trained as necessary to operate and maintain installed equipment. In cases where the Program Implementer is managing the maintenance, Program Implementer shall provide no less than quarterly reports confirming performance of services and customer satisfaction.

A sample O&M Plan Template is available from Investor Confidence Project (ICP).

2.7 Project Installation Review

The PG&E Program Manager will receive the Project Installation Report and accompanying documentation and will assign it to the NMEC and Custom Technical Reviewers. The Technical Reviewers will verify that the information submitted is complete and follows the Program Offering's rules for both NMEC and Custom processes. A post-installation site inspection may be required, as well as additional data, to assure all requirements have been met. Upon review and or approval of the package, the start of the performance period will be established, and a Notice of Approved Installation will be sent to the Program Implementer or Customer in the case where Customer does not have a Program Implementer.

2.8 NMEC Payments

2.8.1 Three Month NMEC Payment

The commencement of the performance period begins upon PG&E's issuance of the Notice of Approved Installation and ends after twelve months of metered performance (Performance Period). Upon commencement of the Performance Period, the Implementer (or Customer if Customer does not have a Program Implementer) will monitor the Project's energy performance and identify the occurrence of any non-routine events (NREs). This must include at a minimum, (i) collecting energy use no less than monthly, (ii) collecting independent variable, and control system data, and (iii) performing visualization or analysis to check that savings are in fact accruing, and the affected equipment and systems are performing efficiently. Any non-routine events that occur during the Performance Period are to be identified, and their impacts removed from the savings analysis. At three months into the Performance Period, Program Implementers

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must provide a 3-month Savings Report according to the savings calculations described in the Site Level M&V Plan. The Savings Report must include all contents as described in the Site Level M&V Plan, with detailed descriptions of any deviations from the original plan.

The NMEC Technical Reviewer will review the 3-month Savings Report to assure it is consistent with the requirements described in the PG&E M&V Requirements for Site-Level NMEC. All steps in the NMEC procedure from data collection and preparation, assuring enough data was collected and used, analysis procedures, model goodness of fit metrics, and final savings estimates will be reviewed. Particular attention will be paid to how the impacts of NREs are quantified.

The NMEC Technical Reviewer will either recommend approval for the first NMEC Payment, create a needs requirement document to request more information or clarification, or may recommend declining the Project. The Technical Reviewer may approve the 3-month Savings Report as submitted or request changes to the regression model and report. The project cost documentation will be reviewed and judged for reasonableness for the installed measures.

2.8.2 Twelve Month Incentive Payment

Continuing after the initial 3 months of the Performance Period, the Implementer (or Customer if Customer does not have a Program Implementer) will continue to monitor the Project's energy performance and identify the occurrence of any non-routine events (NREs). This must include at a minimum, (i) collecting energy use no less than monthly, (ii) collecting independent variable, and control system data, and (iii) performing visualization or analysis to check that savings are in fact accruing, and the affected equipment and systems are performing efficiently. Any non-routine events that occur during the Performance Period are to be identified, and their impacts removed from the savings analysis. At three months into the Performance Period, Program Implementers must provide a 12-month Savings Report according to the savings calculations described in the Site Level M&V Plan. The Savings Report must include all contents as described in the Site Level M&V Plan, with detailed descriptions of any deviations from the original plan.

The NMEC Technical Reviewer will review the 12-month Savings Report to assure it is consistent with the requirements described in the PG&E M&V Requirements for Site-Level NMEC. All steps in the NMEC procedure from data collection and preparation, assuring enough data was collected and used, analysis procedures, model goodness of fit metrics, and final savings estimates will be reviewed. Particular attention will be paid to how the impacts of NREs are quantified.

The NMEC Technical Reviewer will either recommend approval for the first NMEC Payment, create a needs requirement document to request more information or clarification, or may recommend declining the Project. The Technical Reviewer may approve the 12-Month Savings Report as submitted or request changes to the regression model and report. The project cost documentation will be reviewed and judged for reasonableness for the installed measures.

2.8.3 Continued PG&E Monitoring

PG&E will monitor the energy saving performance of the Project for a period of three years after PG&E's issuance of their Notice of Approved Installation. The Program Implementer (or Customer if Customer does not have a Program Implementer) will perform maintenance as required according to the Maintenance Plan for a period of at least three years. The Program Implementer will meet with PG&E as if requested, to discuss changes to maintenance activities, large changes to building operations and equipment that might require to non-routine adjustments, monitored savings, and if applicable, NMEC Payments.

2.8.4 Notice of Potential Building or Use Change- Non-Routine Events

In the event the building usage changes materially during the post-installation phase of the Project, Program Implementer is required to notify PG&E of any NRE. Program Implementers are required to submit a detailed narrative describing the changes that have occurred and the duration of a NRE. A revised baseline model will be developed to assess any major deviations from the post-installation usage pattern. The NRE identification process and appropriate corrections will be assessed on a case by case basis for projects where an NRE occurs. Any NRE adjustments, and related calculations, will be made available for review by CPUC Energy Division staff.

Examples of NREs include material changes in the following:

- Changes to building size;
- Additions of heating and cooling loads in the building;
- Addition of load such as computers or data processing equipment;
- Longer, or shorter operating hours, or material schedule changes; and
- Changes in building usage such as converting lab space to office space.

Notification of NREs is required as soon as supporting information can be assembled and submitted to the PG&E Program Manager. Program Implementers are required to document the following;

- Describe the change and its impact on energy usage;
- Identify the date the change occurred and expected length;
- Describe the systems that are likely impacted by the change;
- If changing equipment, either adding or subtracting, note the load (kW) of the existing equipment, and the new equipment, if appropriate.

NRE reporting is required through the three-year monitoring period.

3. Payments

This section describes with PG&E NMEC Payments.

3.1 NMEC Payments

NMEC Payments will be determined based on the Project's actual annual kWh savings, permanent kW reduction and therm energy savings as measured according to the Site Level M&V Plan. The most a customer can receive is defined by their Maximum NMEC Payment Amount. The Maximum NMEC Payment Amount is 80% of documented project costs and is shown below.

Incentive Rates:

- \$200 per Gross kW
- \$0.12 per Gross kWh (plus \$0.06 per Gross kWh if load control and ADR is enabled)
- \$1.75 per Gross Therm

Performance Period:

- 3-Month NMEC Payment = $(\$0.12 \times \text{Gross kWh Savings} + \$0.06 \times \text{Gross kWh Savings (for load control$

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and ADR) + \$200 x Gross kW Peak Reduction + \$1.75 x Gross Therm Savings) x 40%

- 12-Month NMEC Payment = (\$0.12 x Gross kWh Savings + \$0.06 x Gross kWh Savings (for load control and ADR) + \$200 x Gross kW Peak Reduction + \$1.75 x Gross Therm Savings) minus the 3-Month Payment

Project Cost Cap: Sum of the 3-Month NMEC Payment and 12-Month Payment must be less than or equal to 80% of Project Costs. At each payment, the total of the NMEC Payments are checked against the Project Cost Cap.

Projects in which the 3-month savings and 12-month savings increase by more than 20 percent over the original projections may receive site visits to ensure savings are related to measure installations and are not related to non-measure activities, such as NREs.