

Pacific Gas and Electric developed Responses to Recommendations (RTR) contained in the evaluation studies of the 2013-2015 Energy Efficiency Program Cycle and beyond. This Appendix contains the Responses to Recommendations in the report:

RTR for the Population-Based NMEC – Program Years 2019 - 2021 (DNV GL, Calmac ID # CPU00365.01, ED WO # GroupA_PopNMEC_YR5 - Group A PY2021 Population Based NMEC Evaluation)

The RTR reports demonstrate PG&E’s plans and activities to incorporate EM&V evaluation recommendations into programs to improve performance and operations, where applicable. PG&E’s approach is consistent with the CPUC Decision (D.) 07-09-043¹ and the Energy Division-Investor Owned Utility Energy Efficiency Evaluation, Measurement and Verification (EM&V) Plan² for 2013 and beyond.

Individual RTR reports consist of a spreadsheet for each evaluation study. Recommendations were copied verbatim from each evaluation’s “Recommendations” section.³ In cases where reports do not contain a section for recommendations, the PG&E attempted to identify recommendations contained within the evaluation. Responses to the recommendations were made on a statewide basis when possible, and when that was not appropriate (e.g., due to utility-specific recommendations), the PG&E’s responded individually and clearly indicated the authorship of the response.

The Joint IOUs are proud of this opportunity to publicly demonstrate how programs are taking advantage of evaluation recommendations, while providing transparency to stakeholders on the “positive feedback loop” between program design, implementation, and evaluation. This feedback loop can also provide guidance to the evaluation community on the types and structure of recommendations that are most relevant and helpful to program managers. PG&E believes this feedback will help improve both programs and future evaluation reports.

¹ Attachment 7, page 4, “Within 60 days of public release, program administrators will respond in writing to the final report findings and recommendations indicating what action, if any, will be taken as a result of study findings as they relate to potential changes to the programs. Energy Division can choose to extend the 60 day limit if the administrator presents a compelling case that more time is needed and the delay will not cause any problems in the implementation schedule, and may shorten the time on a case-by-case basis if necessary to avoid delays in the schedule.”

² Page 336, “Within 60 days of public release of a final report, the program administrators will respond in writing to the final report findings and recommendations indicating what action, if any, will be taken as a result of study findings. The IOU responses will be posted on the public document website.” The Plan is available at <http://www.energydataweb.com/cpuc>.

³ Recommendations may have also been made to the CPUC, the CEC, and evaluators. Responses to these recommendations will be made by Energy Division at a later time and posted separately.

Response to Recommendations (RTR) in Impact, Process, and Market Assessment Studies

Study Title: Population-Based NMEC – Program Years 2019 - 2021
Program(s): P4P – HomeIntel Residential Program (PGE_Res_001b); P4P – Comfortable Home Rebates (PGE_Res_001a); P4P – Home Energy Rewards (PGE_Res_001c); On-Bill Financing Alternative Pathway (PGE210911)
Author: DNV
Calmac ID: CPU00365.01
ED WO: GroupA_PopNMEC_YR5 - Group A PY2021 Population Based NMEC Evaluation
Link to Report: [Group A PY2021 Local Third-Party Impact Evaluation - Final Report CALMAC.pdf](#)

MANAGEMENT APPROVAL AFTER REVIEWING ALL IOU RESPONSES		
Name		Date
PG&E	Claire Braico, Senior Manager	2/20/24
PG&E	Michelle van Tijen, Manager	2/20/24
PG&E	Billy Roderick, Manager	2/21/24

Item #	Page #	Findings	Best Practice / Recommendations (Verbatim from Final Report)	Recommendation Recipient	PG&E	
					Disposition	Disposition Notes
				If incorrect, please indicate and redirect in notes.	Choose: Accepted, Rejected, or Other	Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review.
1	64	<p>Despite the relative newness of population NMEC programs, impact results provide evidence of the potential of the approach. All population NMEC programs faced challenges with at least some aspects of the embedded evaluation methodologies and translating those results into saving claims. However, this evaluation demonstrates that the performance-based programs delivered by the PA were consistent with most NMEC Rulebook expectations and the savings validated for the residential P4P programs were generally better than savings from similar programs implemented recently in California. Furthermore, while there were various challenges, the overarching goal of developing empirically-based savings estimates that minimize ratepayer risk was met. In total, these results represent a successful, if tentative, step to demonstrating the substantial potential of NMEC programs for California.</p> <p>Clarify necessary steps to take population NMEC to the next level. This evaluation considers the first programs developed under population NMEC (or ported over from HOPPS) and looks at a period impacted by the COVID pandemic, a systemic NRE unlike any previously seen. Concurrent with this process, a Working Group provided feedback on the existing NMEC Rulebook v.2.0, and revisions are underway. In the context of these developments, change, and external stresses, it is possible to focus on basic steps that will move NMEC to the next level.</p>	<ul style="list-style-type: none"> Require up-to-date program implementation plans, program M&V plans, and final M&V reports prior to evaluation. Require timely savings claims in CEDARS consistent with internal M&V results. Require a package of internal M&V code and data documented to make evaluator replication straightforward. Offer more explicit guidance on eligibility requirements, for example, no addition of solar generation during the program period. 	PG&E	Accepted	<ul style="list-style-type: none"> Implementation and M&V plans for Residential P4P and On-bill Financing have been updated as of 10/26/2021 and 8/8/2023 respectively. Moving forward, PG&E has established processes to ensure timely savings claims to CEDARS and annual M&V reports. Following the evaluation, we are keeping up to date documentation of our internal M&V code to make replication straightforward for future evaluations. Currently the OBF M&V plan outlines criteria that make a customer a poor fit for population NMEC and should instead enroll in a site-specific or custom workflow. Future versions of the M&V plan will more explicitly state when a project is ineligible in population.

2	64-65	<p>Explore and address possible risks in the NMEC process to ensure reliable and vibrant NMEC programs going forward. Many of the issues identified in this evaluation can be explained by the basic technical challenge of embedding the M&V function as part of the program implementation and the unprecedented challenge to both program implementation and evaluation caused by COVID-19. There remain areas of potential risk that could be problematic for all parties involved that deserve further and ongoing attention.</p>	<p>Rules and the application of rules need to continually evolve to address challenges related to the precision of savings estimates and the potential for misuse of NMEC methods.</p> <ul style="list-style-type: none"> – Programs that use population NMEC methods should demonstrate that they can appropriately address the full range of NRE risks (such as changes in building occupancy) that could lead to potential over- or under-estimation of savings. – Rules that address customer population variability should be in place to address the possibility of large customer NREs that undermine a program’s savings and precision. This may require redefining the FSU calculation for population NMEC. More generally, this includes developing methods for identifying strategic NREs if they occur and addressing them appropriately. – There should also be rules that address new onsite solar during the baseline or performance period for OBF. <p>The suitability of NMEC hourly savings for the application of avoided cost shapes for 2024 needs to be fully vetted.</p> <ul style="list-style-type: none"> – While this evaluation focused on kWh and therm claims, in 2024, all electric claims will be based on hourly results. This shift requires a thorough examination of hourly savings methods and results to determine suitable approaches for the evaluation of total system benefits. – In addition, there ought to be a focus on the appropriate precision level for hourly, including peak demand savings estimates. The precision level should account for the limited number of hours over which peak savings estimates can be made and the portfolio size required to achieve these. 	PG&E	Accepted	<p>Granular profiles:</p> <ul style="list-style-type: none"> • The granular profile method was developed to control for exogenous events such as sector wide changes in building occupancy. We maintain 950 commercial electric granular profiles, 160 residential electric profiles, 240 commercial gas profiles, and 16 residential gas profiles. Each profile includes approximately 250 customers, and their comparison group profile is generated monthly. Commercial electric profiles are defined by 150 NAICS code segments, 2 sizes (small or med/large), and 4 geographic locations (Inland, Coastal, North Central Valley, and South Central Valley). Not all commercial electric NAICS code segments have a GP for both small and med/large. Residential electric profiles are defined by 4 load shapes, 5 usage size bins with one being for electric heating, 4 regions, and solar or non-solar generation. Commercial gas profiles are defined by 80 NAICS code segments and 4 geographic regions. Residential gas profiles are defined by 4 size bins and 4 geographic regions. <p>NREs</p> <ul style="list-style-type: none"> • NREs are minimized in the population by screening for CVRMSE, investigation of sites with high and low percent savings flags, and eligibility requirements based on site type and size. <p>CVRMSE Screenings: CVRMSE is screened for projects with loans over \$250,000 during OBF project enrollment for the baseline to ensure the electric usage can be modeled with weather data. Sites must have a CVRMSE less than 0.50 and sites that fail this screening are not enrolled in the population. CVRMSE is screened again after the performance period. If a site fails the CVRMSE screening at this point, the site moves to assigned savings. Assigned savings use the pre-installation estimate and a realization rate based on the populations other metered projects performance compared to estimates.</p> <p>Percent Savings: OBF projects are investigated for NRE if the savings relative to baseline consumption are in the top and bottom 1% of the population, or if the measured savings have a greater than 50% difference from the estimate.</p> <p>Site Eligibility: Large sites and Industrial sites have a greater NRE risk. The OBF program performs an enrollment screening for projects with a loan greater than \$250,000. Sites are not permitted in the population if they use greater than 8.7 million annual kWh or if they are an industrial site.</p> <p>Customer population variability:</p> <ul style="list-style-type: none"> • Population Variability: OBF is designed maximize participation which, as noted in this evaluation, has led to cohorts with diverse sizes and energy consumption patterns that reduce portfolio accuracy. Conversely, we are aware that overly restrictive screening to ensure greater homogeneity in the population may lead to a cohort that is too small to be statistically valid. We are re-evaluating the OBF CVRMSE requirement based on results from a population size, CVRMSE threshold, and FSU analysis. <p>Rules on solar for OBF:</p> <ul style="list-style-type: none"> • OBF sites with loans over \$250,000 are screened for recent solar installations during the enrollment phase. We are reviewing our screening process for smaller sites going forward. During the 2022-23 cohorts less than 1% of customers were found to have added solar during the project period. <p>Hourly savings:</p> <ul style="list-style-type: none"> • PG&E agrees that the suitability of NMEC hourly savings is an important topic to consider as NMEC continues to develop in our portfolios. The TSB metric which uses a kWh input with standard load shapes has not shifted the need for hourly models. NMEC is still allowed to do daily and even monthly models that meet the model fit criteria that is defined. While developing hourly models is preferable for determining peak reductions and providing impact profiles at an 8760 level, the models cannot always meet the same model fit criteria a
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						<p>daily model can meet. NMEC models that use a non-hourly model can continue to use the existing impact profiles available in the cost effectiveness tool.</p> <p>In addition, there are several technical and policy challenges around using the hourly models to provide impact profiles for calculating total system benefits; these include a lack of ability for the cost effectiveness tool to intake this information and a lack of guidance on how to handle true up claims where the savings estimates did not yet have the actual 8760 impact profile determined. PG&E will continue to work alongside stakeholders at Energy Division, DNV, PAs, CEDARS, and 3P partners to develop capabilities and guidance in these areas.</p>
3	65	<p>Program effectiveness. In general, the P4P programs appear to have delivered notable savings, particularly in light of recent evaluations that indicate lower savings achieved by similar non-P4P programs. Part of their success seems to be due to the more effective targeting of participants likely to maximize savings.</p>	<p>Despite the evident success, customer feedback indicates room for improvement in targeting messages to what is present at a participant's home and what the customer is willing to invest.</p>	PG&E	Accept	<ul style="list-style-type: none"> PG&E will explore more robust targeting methods for P4P.