

**Normalized Metered Energy Consumption (NMEC)/Measurement and Verification
(M&V) Working Group Meeting #1
April 30, 2018
9:45 am – 3:30 pm
Pacific Energy Center, 851 Howard St, San Francisco, CA 94103
Final Meeting Summary
Facilitator: Dr. Scott McCreary, CONCUR**

I. OVERVIEW

On April 30, 2018, the California Energy Efficiency Coordinating Committee (CAEECC) convened a meeting at the Pacific Energy Center in San Francisco to discuss the Normalized Metered Energy Consumption (NMEC) approach discussed in the California Public Utilities Commission (CPUC)'s Ruling Seeking Comment on Certain Measurement and Verification (M&V) Issues, Including for Third Party Programs ("Ruling" or "M&V Ruling"), emanating from Decision (D.) 18-01-004, in advance of the May 14, 2018 due date for comments. Participants included CAEECC members, other interested parties, a CPUC Energy Division representative, and the CAEECC facilitation team. Forty-three individuals participated in-person. Sixteen attendees registered in advance as participating remotely, although in fact at least 69 attendees participated in the webinar (only those who registered as participating remotely are listed in Appendix A). Meeting facilitation was provided by Scott McCreary and Meredith Cowart, CONCUR Inc. Meeting materials are provided on the CAEECC website at: <https://www.caeccc.org/4-30-18-working-group-mtg-on-nmec>. A full list of meeting participants is provided in Appendix A.

In this document, the majority of the discussion is captured without attribution. In some cases, the name and/or affiliation of the speaker is identified, because (1) they are presenting on a specific subject or (2) their affiliation is relevant to the comment.

The meeting was composed of two distinct segments: (1) a high level presentation by P. Gruendling (CPUC Energy Division) on the rationale for and intent of the ruling, followed by a question and answer period; and (2) break out groups to discuss the application of NMEC/M&V to three different categories of programs. This document provides a high level summary of P. Gruendling's presentation in section III, a summary of the proposals developed by break out groups in section IV, and a summary of next steps identified in section V. A summary of the question and answer period is provided in Appendix B.

II. WELCOME AND INTRODUCTIONS

R. Chan reviewed safety roles and measures. S. McCreary welcomed participants and asked each participant to state his/her name and affiliation. Following introductions, E. Brooks, Southern California Gas and Electric (SoCalGas) and CAEECC Co-Chair, and M. Vigen, California Efficiency and Demand Management Council (CEDMC) and CAEECC member, reviewed the goals for today's meeting: (1) to provide an opportunity to ask clarifying questions of P. Gruendling (CPUC Energy Division); (2) to better

understand the intentions of the ruling; (3) to better interpret the ruling; and (4) to prepare stakeholders to provide effective comments on the ruling.

III. PRESENTATION - HISTORY AND INTENTION OF THE CPUC'S M&V RULING EMANATING FROM D. 18-001-004

Before opening up the discussion to clarifying questions, P. Gruendling, CPUC Energy Division, provided a brief background on the history and intention of the CPUC's M&V Ruling emanating from Decision 18-01-004. She explained that the NMEC approach was launched within AB 802's guidelines on High Opportunity Projects and Programs (HOPPs) in 2015. The M&V Ruling sunsets the HOPPs ruling, and the NMEC language on HOPPs has been transferred to the M&V ruling with very few additions and clarifications. However, few projects have been established through HOPPs, so there has been limited feedback and lessons learned.

Recognizing that there is a need for a single clearinghouse to host the full range of rules and procedures associated with NMEC, the CPUC Energy Division launched a web page (<http://www.cpuc.ca.gov/general.aspx?id=6442456320>) to include all technical rules and procedures for review and recommendation of NMEC, as well as Business Plans more generally.

Importantly, the intention of the ruling is not to require that all programs or projects using NMEC go through the custom review process, but rather that any building, site or project using NMEC go through the custom review process. The ruling does not apply at the program level for aggregated NMEC approaches, and applies primarily to International Performance Measurement and Verification Protocols (IPMVP) Option C or D. The ruling is only meant to apply to projects associated with specialized calculations and therefore needing to be looked at the project level. These custom projects would continue to be paired with an *ex ante* review process.

Following P. Gruendling's presentation, a question and answer period was held, which is summarized in Appendix B. Questions focused primarily on clarification of the intended application of the proposed rules, the rationale for specific elements of the rule and the broader context of the rules relative to broader M&V and a possible workplan.

At the close of the Q&A session (see Appendix B), P. Gruendling emphasized that the CPUC is seeking comments to help (1) clarify and solidify the language defining when *ex ante* review process should apply for NMEC approaches (and what exceptions are needed) (2) Identify adjustments needed to HOPPs language that has been carried over (3) identify approaches for broader M&V and a possible workplan, and (4) identify any specific timing needs due to solicitation schedules.

IV. SMALL GROUP PROPOSALS ON M&V AND REVIEW FOR THREE TYPES OF NMEC USE CASES:

In the afternoon, participants divided into three groups of NMEC use case types: **(1) Large, complex, non-aggregated; (2) Aggregated; and (3) Smaller, less complex, non-aggregated.**

Each group was asked to (a) better define the use case (b) identify any exceptions to the review process that are needed (c) describe an ideal review process that complies with legislation and which can be consistent across program administrators (PAs), and (d) identify ongoing management strategies.

(1) Report-Out on Large, Complex, Non-Aggregated NMEC Use Cases:

R. Chan reported back from his small group discussion on the review process needed for larger, complex, generally non-aggregated NMEC use cases:

- The focus of this group is on the larger, more complex projects as identified within the scope of the M&V rulebook.
- The review process should be similar (if not identical) to the HOPPs review process.
- However, at the program level, review should occur *before* program launch to iron out details in data collection, taking into account the types of projects and interventions envisioned by the implementer. This level of review may also involve review of the contract language addressing data collection or methods.
- To ensure that the projects adhere to vision laid out in the program-level review, an additional project-level review between the PA and implementer is needed, but one which is less burdensome than custom review. The group did not define the scope of this review.
- After program launch, evaluation is needed by the CPUC needed to ensure the program is following the guidelines and vision outlined prior to program launch.

(2) Report-Out on Aggregated NMEC Use Cases:

M. Golden reported back from his small group discussion on the review process needed for aggregate portfolios:

- It is important to recognize the broader context NMEC context, including the goals set in SB 350 as well as the need to accelerate energy efficiency broadly to meet California's grid-based carbon goals.
- In the future, the review process needs to be conceptualized in terms of time and location, as most current rules don't apply when the calculations are no longer focused on monthly savings.
- The application of rules should be consistent across the PAs.
- There is a need for an ongoing management practice and a data-driven framework that allows for an alignment of incentives across customer, program aggregator, implementer, and CPUC. This allows for a dramatic reduction in regulatory oversight.

- The current pushback to the existing framework has a lot to do with advance payments and deemed savings, which allow for a significant misalignment of incentives.
- For aggregated portfolios, could do a building-level review for projects that in short supply, and a portfolio approach for projects that are in large supply.
- CPUC focus should be on methodological underwriting and approving the calculation methods for the portfolios, allowing the CPUC to disengage at the project level.
- Couple this review with Pay-for-Performance, which aligns the incentive structure (between claimable and payable incentives) and agree to an evaluation strategy for net savings (using traditional evaluation methods or more modern methods).
- Apply ongoing management strategies that become increasingly accurate over time – measures would rely on deemed measures at the start but become more accurate as those measures are tracked over time.

(3) Report-Out on Smaller, Less Complex, Non-Aggregated NMEC Use Cases:

T. Pope reported back from his small group discussion on the review process needed for smaller, less complex, generally non-aggregated NMEC use cases:

- Two types of program types can be exempted from the custom process:
 - (1) Any NMEC programs that are based on deemed measures only, as these are straightforward enough that custom review is not needed.
 - (2) A group of program types with similar projects that can be characterized with high-level certainty (similar groups of customers, intervention types, building types, within similar sub-sectors) (e.g. a program addressing McDonald franchise buildings). M&V would be negotiated with the CPUC at the program level (rather than the project level) and the M&V plan would apply to all projects (individual pre-approval not needed).
- Programs that are exempt from custom review may need to be pre-approved by PAs/CPUC earlier in the program.
- The *ex ante* review process needs to be carried out prior to 6 months into the program, so that PAs can be certain that implementers are following process rules with M&V plans.
- When there is a disposition on review processes, understanding of implications for the other projects in that program is needed (do all stop or just the one project).
- Pay-for-Performance program types would require a custom review.

V. NEXT STEPS:

- Comments are due to the CPUC on the proposed ruling by May 14, 2018, with reply comments due May 30, 2018
- CPUC will consider comments and develop any needed revisions to the proposed ruling. If comments provided to the CPUC merit significant revisions, then most

likely an amended proposal will be released, and the CPUC will work with the ALJ to notice a second workshop to explain the rationale.

- RCT material is posted to the CPUC Rolling Portfolio Webpage (<http://www.cpuc.ca.gov/general.aspx?id=6442456320>), and comments should address this material. This material is purely technical and is not a filing or review rules.
- As new portions of the CPUC website are released on an ongoing basis, the CPUC will open comment windows of appropriate length to provide the opportunity for stakeholder review and comment
- Possible subjects for a follow up workshop were discussed:
 - The rationale and justification for the additions to the HOPPs review process, and to identify any HOPPS guidelines that should be removed.
 - The underlying needs for, and problems addressed by, the proposed rules, so that comments can work to propose alternate solutions that effectively support scaling NMEC and provide necessary CPUC oversight.
 - Big picture explanation as to how these rules will help accelerate the adoption of energy efficiency across CA
- The CalTRACK Process was noted as a possible platform for continued engagement around these issues.
- The CAEECC facilitation team will develop a Meeting Summary (this document) to be posted on the CAEECC website.

Appendix A: Participant List

Participants from CAEECC member organizations present:

Erin Brooks, Southern California Gas (SoCalGas)
Ryan Chan, Pacific Gas and Electric (PG&E)
Mohit Chhabra, Natural Resources Defense Council (NRDC)
Cody Coecklenbergh, Lincus
Sasha Cole, California Public Utilities Commission (CPUC) Office of Ratepayer Advocates (ORA)
Anuj Desai, Southern California Edison (SCE)
Alison Erlenbach, Pacific Gas and Electric (PG&E)
Caroline Francis, Pacific Gas and Electric (PG&E)
Patricia Hurtado, California Efficiency + Demand Management Council (CEDMC)
Joey Lande, Marin Clean Energy (MCE)
Brian Maloney, Southern California Edison (SCE)
Lucy Morris, Pacific Gas and Electric (PG&E)
Loan Nguyen, Southern California Gas (SoCalGas)
Brian Smith, Pacific Gas and Electric (PG&E)
Alice Stover, Marin Clean Energy (MCE)
Michelle Vigen, California Efficiency + Demand Management Council (CEDMC)
Tory Weber, Southern California Edison (SCE)

Registered participants from CAEECC member organizations joining via WebEx:

Shanna Dee, San Diego Gas and Electric (SDG&E)
Lujana Medina, SoCalREN

Other participants joining in person:

Charlie Buck, Oracle
Carmen Best, OpenEE
Nick Brod, CLEAResult
Eric Eberhardt, UC Office of the President
Michael Daukoru, Applied Energy Group (AEG)
Jeremy Eddy, Opinion Dynamics Corporation
Matt Golden, OpenEE
Paula Gruendling, California Public Utilities Commission (CPUC) Energy Division
Jeff Guild, Enovity
David Jump, KW Engineering
Jim Kelsey, KW Engineering
Marshall Keneipp, Tierra Resource Consultants
Al Lutz, AJL Resources LLC
Bruce Mast, Ardenna Energy
Andrew Meiman, ARC Alternatives
Alejandra Mejia, Transcedent Energy

Pam Molsick, Energy Solutions
Ted Pope, 2050 Partners
Derrick Rebello, QUEST
Lisa Schmidt, Home Energy Analytics
Lacey Tan, Frontier Energy
James Russell, CLEAResult
Mike Yim, Tierra Resource Consultants
McGee Young, OpenEE

Other registered participants joining via WebEx:

Mushtaq Ahmad, AECOM
Matt Evans, Southern California Edison (SCE)
Nikhil Gandhi, Strategic Energy Technologies
Donald Gilligan, NAESCO
Tim Guiterman, Energy Savvy
Peter Jacobs, Building Metrics Incorporated
Harrison Kingery, Residential Energy and Water Intelligence Software (Res-Intel)
Peter Lai, California Public Utilities Commission (CPUC)
Allen Lee, Cadmus
Cynthia Mitchell, TURN
Alberto Pezzani, Cascade Energy
Dennis Quinn, JouleSmart Solutions
Briana Rogers, AESC
Brad Simcox, Nexant
Kenneth Williams, Franklin Energy

[Note: An additional 54 individuals not listed above joined via webex but did not register.]

CAEECC facilitation team:

Meredith Cowart, CAEECC Facilitation Team
Scott McCreary, CAEECC Facilitation Team

Appendix B

Following P. Gruendling (CPUC Energy Division)'s presentation on the history and intention of the CPUC's M&V ruling emanating from Decision 18-01-004, participants posed a series of questions regarding the specifics of the ruling, the intention behind various decisions, and the scope of comments desired by the CPUC, among other subjects. The questions asked are summarized in the bullets below, and P. Gruendlings' *responses to the question* follow the question in *italics*. These responses are not part of the record, and are considered to be for information purposes only.

Question and Answer:

- How would the custom review ex ante process be different? *It would be more or less the same. The scope of the review would be to provide feedback on those complex models and adjustments, and to understand how you plan to engage the customer, document savings, the adjustment plan for non-routine events. However we cannot look at every single project, so we would only look at a sample. We're interested in streamlining that process to the extent possible.*
- Applying custom rules to the NMEC process adds expense, complications to the calculations (with multiple baselines, ISPs, etc), and uncertainty of savings. We can calculate grid savings readily, and it would be more effective to apply these rules directly. *Discussions about exceptions that need to apply to NMEC are better discussed in the Track 2 Working Group. Please include any exceptions to NMEC in your comments, as these will be useful to us. From the point of view of regulation, we need to ensure that savings are real and additional, so on this matter the regulators and implementers may need to "agree to disagree".*
- Are there additional criteria beyond the set of custom rules that you think are needed for NMEC specifically? It sounds like there is a set of rules for M&V, some for Custom, and there is some overlap amongst the two, but they are not fully inclusive. *That's what we'd like to understand better. Currently we have deemed, custom and experimental design, and we review methods and values for savings claims based on review at the project level and then work paper and DEER. We are now moving away from that structure and need to understand the best way to approve the savings claim calculation approach. This custom approach is the first one. Even though it seems NMEC is universal, you still need to do adjustments to baseline and for non-routine events, and that's where the calculations become complicated. This is why we are using the LBNL approach, which provides guidelines for tailoring NMEC. We'd like to hear suggestions on what types of programs or review for that approach you would like to propose.*
- What is the CPUC sense of adjustments and baseline, and how those concepts interact? *The rulebook specifies an existing conditions baseline and normal replacement measures so long as normal replacement measures do not exceed 50% of the project savings estimates. It is our sense that if normal replacement*

measures are above 50% you will need to make so many adjustments that NMEC is no longer viable. Suggestions to clarify that concept would be welcome.

- A number of HOPPs programs have been approved and are ramping up – will the programs in ongoing development now be evaluated under the new guidelines? *No, any established HOPPs programs will continue under HOPPs rules. In addition, for new projects that are in the pipeline after the adoption of the Business Plan will have 60 days to be approved and after that time, they need to be evaluated under the Business Plan rules.*
- At the program level, when IOUs receive NMEC program bids, when guidance around the solicitation process ends, we move on to the implementation plan. That doesn't offer staff an approval process or rejection mechanism. What will be the mechanism for understanding how the content matches up with the program design? *That process needs to be put in place. This ruling applies to custom projects, but for the program, how can we establish an ex ante review? This is a subject that we'd like comments on. Should we just review the M&V or a program with a standard approach? The challenge is that we may end up with different uses of NMEC that don't fit our savings review process – they don't use DEER, they don't use work papers. We are open to your comments on how to put the full process in place, although we can't do it all in one ruling.*
- Are you saying that less complicated building projects may not need to go through a custom review? *Please include in your comments the types of projects that should be exempt from custom review, using specific examples, so that we can begin carving out exceptions.*
- Since several important decisions that affect bids will be made in the Track 2 Working Group process, can you clarify the timeline for this process? *I am not involved in this process and can't comment on the timeline. If there are items that need an interim approach, please point these out in your comments.*
- Given that experience with HOPPs programs is limited, so we have little feedback and lessons learned, why does the CPUC feel the need to amend those rules? *The vast amount of rules from HOPPs in fact continue, because we have not had enough experience to evaluate the rules. The few changes are clarifications (e.g. how we will handle the filing and review of projects that need to go through custom review).*
- From the implementer perspective, the changes to the HOPPs rules are in fact significant. *We want to know what concerns you have and why, please include those points in your comments.*
- As an implementer, market participant, or project administrator, it is difficult to respond to this rulebook without understanding more concretely which types of

projects this applies to. *If the application is not clear, please put that in your comments, as we'd like these to be clear.*

- Have other approaches to NMEC review other than the custom process that we could build off of in our comments? *This is uncharted territory for the CPUC. Please provide proposals on how a standardized NMEC approach for non-custom projects might work, and how that review would happen.*
- It sounds like the rulebook is meant to apply to custom projects. Are you open to suggestions or proposals on NMEC outside of custom projects? *Yes, one of the questions in the rulebook asked what else we need to work on.*
- Early on in the Business Plan discussions with PG&E, we developed the concept of platforms, or different ways implementers could look at pathways to savings – including deemed, custom, NMEC, and financing. Was there consideration of how NMEC is sufficiently unique for its own kind of review process and processing criteria? *No, because not all NMEC approaches are equal – they include experimental design, savings at a population level, savings that are custom. This is what we are working towards – creating the right level of oversight depending on the application.*
- Over the last several years there has been a huge shift in how savings are verified as large scale custom projects go through ex ante review. We were excited about NMEC because it aligns verification of savings with what the customer sees as well as grid impact. Applying custom rules to NMEC moves away from this. *The CPUC never intended that NMEC would replace verifications of additionality. The new rulebook does not change significantly over the HOPPs guidelines.*
- Do you disagree that NMEC should be used to show grid impact? *NMEC demonstrates grid impacts, but it also needs to demonstrate incremental savings, which is an important distinction.*
- We have stipulations about payments for delivery of Pay for Performance in the Business Plan and other locations – why did it seem important to include additional language here? *This language was in HOPPs, so it was transferred to the ruling. When the Business Plan is adopted this language may need to be updated to sync up with Business Plan.*
- This ruling seems to counteract the intent of AB802, which was to capture savings from stranded projects and make the process quicker. Putting NMEC methodology into the calculated box or process contradicts this. *Again, the rulebook only applies to the project level, to those projects using NMEC – the ex ante review would still be done at the larger level.*

- I'm still not clear which projects go through custom review under this ruling. We may use NMEC for a single project or multiple, why should one go through NMEC and the other not? *Please add these exceptions to your comments.*
- For projects that go through custom, the custom rules say to use DEER hours – this doesn't make sense. *DEER values may be used for estimations up front, but not for claims.*
- For Pay for Performance, you want to get as accurate of an estimate as possible up front of likely savings in 12 months. *It's useful to implementers, utilities and the customer to get an estimate of savings up front. Part of the savings need to be paid at implementation to provide an incentive and a portion needs to be based on performance. The rulebook does not specify the split.*
- Since this rulebook is meant to apply only to a subset of projects, it would be helpful to have a meta-framework demonstrating what will happen with other types of projects. *We are beginning here, and we will begin defining the M&V review process for other projects after this ruling. Please address the broader framework in your small groups this afternoon, and discuss how to prioritize the issues.*
- From its inception in California, NMEC was meant to capture a different form of net, and to account for additionality either in the forecast or in the savings claim. *When we moved to net based estimates, savings claims, and goals, the concern was that, with a larger focus on the existing conditions baseline, it was important not to double count the forecast. In the view of the CPUC, if we have net goals, we need to tease out the net savings.*
- Regarding your earlier explanation of the existing NMEC approaches in AB 802 and the Potential and Goals study – were you specifically referring to the whole math adjustment factor approach that was used or something else? *NMEC was factored in to the whole building measure. That's where most of the expected savings from NMEC would come from. It's not perfect but was the best we could do at the time.*
- Are SEM programs included in the rulebook, or are these separate? *SEM has its own M&V approach and design guidelines that are on the CPUC website. In the scoping memo that came out last week, the CPUC proposed that most SEM will not go through ex ante review because they are technically in a pilot stage. But if any SEM project that also has capital projects, would go through custom review.*
- From CPUC perspective, what are some advantages that you see of doing NMEC both at the site and the population level? *There are both advantages and disadvantages. One advantage is that NMEC will get at the types of interventions that were difficult to get at with calculated and deemed approaches, especially for multi-measure deemed savings. Another advantage is that as we improve the tool*

and ultimately approaches, the review and EM&V as a whole will become more streamlined. There are disadvantages as well – with multi-measure bundled savings several problems arise, particularly regarding expected useful life (EUL) calculations. Also, when behavior projects are bundled with capital projects, but you are using NMEC to measure savings, you begin losing the measure details that we currently have. Ultimately there will be benefits, but we need to transition slowly and carefully.

- For the challenges with EUL calculations, are these NMEC specific, or do they always arise with these types of projects? *EUL challenges always exist, but they become more challenging with NMEC because you lose measure specific detail, so more approximations are needed.*
- Does this framework represent a shift in the current model, in which payments to customers are up to the discretion of IOUs while claims are regulated by the CPUC? With this custom review process, would a particular type of payment to a customer trigger a custom review depending on the way in which that payment is calculated. *That was not the intention. If you think any clarification is needed, please write this in your comments.*
- When normalizing for net savings in NMEC, what are you normalizing to? Historically net savings were based on measure attribution, but that becomes more difficult with NMEC. Will normalization now be on a population level or measure specific? *Net adjustment will be measure specific. Free ridership is a different adjustment – we will need to monitor whether NMEC improves that measurement.*
- So, for all projects that fall under this NMEC ruling, the expectation is that the NMEC calculation is only capturing changes in energy consumption that are attributable to those measure that were installed? *Yes*
- Regarding the 50% normal replacement threshold, the adopted policy for baseline included a category for normal replacement – is your intent to change the policy guidance under that decision as well? *I don't believe so, but if there is an inconsistency please point that out and we'll make an adjustment.*
- It's important to point out that the up-front estimates lead into the final savings claim that the PA makes in terms of lifetime savings and cost effectiveness. *Yes, the estimate should be as close as possible to the final expectation. The rulebook says that you should document any changes in your approach to calculating the estimate and your approach to calculating savings. It also states that you should carry out the same EUL and ex ante that you used in estimates to your final claim.*
- Is the level of rigor expected for NMEC calculations different from what's currently required as part of the ex ante process? *Not necessarily - but the estimate should be rigorous enough that it can be used in the final post-implementation claim. There is still a lot of responsibility on the PA side to be*

sure that the M&V is robust enough to support the claim at the end of implementation.

- How is NMEC affected by stranded savings? *How NMEC will specifically target stranded savings is up to implementers.*
- Is there an expectation that each project will be reviewed and approved prior to it going forward? *Projects are approved by the PA, not by the PUC.*