State of California

M e m o r a n d u m

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Subject: Non-Standard Disposition Rejecting Southern California Gas Company's Universal Audit Tool (UAT) Energy Efficiency workpaper - WPSCGREHC180409 Rev 0

1. Summary:

Southern California Gas Company's workpaper Universal Audit Tool (UAT) workpaper WPSCGREHC180409 Rev 0 is rejected because UAT is a behavioral measure requiring an ex post approach to claiming savings, not a deemed ex ante approach. SCG has the option of submitting a new Phase 2 workpaper for future consideration using the procedural workpaper approach. This workpaper approach is modeled on the Residential Home Energy Report (HER) procedural workpaper which specifies the methods and procedures for determining ex post savings, the frequency of evaluation, the procedure for reporting savings, as well as other required workpaper elements such as the measure application type and the effective useful life (EUL).

2. Background and Discussion

The UAT consists of "an online survey that provides a platform for educating and promoting residential customer engagement with their energy consumption that leads to lasting behavioral change and adoption of energy efficiency improvements." The workpaper further describes the program as follows: "The UAT provides residential customers with advice on energy efficiency, insight into areas of high energy use, and tips and suggestions for saving both energy and money based on responses to an online survey regarding household appliances, occupancy, and other dwelling characteristics".

SCG is classifying the measure as a Behavioral, Retrofit or Operational (BRO) measure with a Net to Gross (NTG) value of 0.85, and EUL of 1 year with savings based on an impact evaluation of the UAT programs during 2014 and 2015 by DNV GL.[1]

[1] http://www.calmac.org/publications/EDRes9_UAT_ResReport_CALMAC_final.pdf .

3. Review of Critical Issues

A methodology that can update program savings claims based on the most recent program evaluation results is better suited for behavioral programs than a fixed deemed approach. Deemed savings approaches are generally used for projects with well-documented savings values, for example appliances, lighting, and computer equipment.[2]

The review of the workpaper reveals these issues:

- Appropriate method for determining savings for a program that clearly encourages behavior change and conservation as its primary source of claimable savings, and
- Measure savings repeatability and stability – source of savings estimates and the difficulty of setting a savings level for any given iteration of the program across 1) target populations, 2) time-frame, and 3) available measures.

3.1. Definition of a Behavioral Measure or Program

The most important aspect of a behavioral measure is the requirement to provide the customer with information which is intended to induce action to produce savings. Savings may include simple behavioral actions (turning off lights, optimizing set-points), other conservation actions (reducing loads of laundry) or installing efficiency measures either through existing programs or independently. Savings only occur with specific action on the part of the customer is motivated by the behavioral measure. The measure does not incentivize or track the installation of a single measure but motivates a range of actions that may or may not have implications for energy savings.

The HER is an example of an existing behavioral program. The HER program is a residential information-based measure that provides usage feedback and comparisons of energy usage to similar residences.

3.2. Approach to Estimating Savings for Behavior-related program

UAT is most suitably categorized as a behavioral measure on par with HER programs, because actions taken by participants are unknown until measured and because these actions can change over time. Language in the 2011-2012 Energy Efficiency Portfolio Evaluation, Measurement & Verification Decision[3] includes a section entitled "Counting Savings from Behavior Based Programs" providing guidance for treatment of behavioral programs which requires ex post evaluation using consumption data analytics to claim savings.

Consumption analytics methods computes savings as the difference between the participant and control group average usage using analytic methods. Ideally, the control group is identified as part of the implementation using randomized control trials to assign potential participants to treatment and control groups. Although the use of randomized control trials is regarded as highly reliable, it not an option for the opt-in UAT program. Opt-in programs require alternate control group designs which includes randomized encouragement design or ex-post methods utilizing a quasi-experimental, after-the-fact, comparison group.

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[2] https://aceee.org/sector/state-policy/toolkit/emv
[3] See Decision 10-04-029, Section 8 page 36.

The DNVGL impact evaluation was conducted retrospectively after the implementation was completed and therefore applied a quasi-experimental design. Savings were estimated at the average household level using consumption data analytics relative to a constructed comparison group baseline. The measure savings reflected the specific set of households included in that analysis, the interfaces at that time, the customers' chosen activities of those available at that time.

3.3. Repeatability and Stability of Ex Post

The workpaper proposes measure savings based on ex post evaluation performed on 2014-2015 participants interacting with UAT platforms from PG&E, SDG&E and SCG. Those savings are unique to the specific population, interface, savings opportunities and timeframe in which the evaluation took place and are expected to change for the following reasons:

- **Characteristics of the opt-in population and the resulting savings will change over time**. The correlation between the motivation to opt into the program and the likelihood of savings indicates that savings patterns are likely to change with participation shifts. As the platform becomes an ongoing part of the utility web presence, the participants will shift away from early adopters. Furthermore, there are other dynamics that may affect the make-up of the UAT participant population. The PAs have energy surveys that are delivered through other channels (phone, mail, in person), and the targeting of these programs can affect the outcomes of the on-line application. The 2010–2012 Home Energy Efficiency Survey (HEES) Impact Evaluation performed by Itron discusses the effects of different targeting strategies on estimated savings of the on-line tools. For instance, targeting of high consumption customers or customers with bill issues to other audit tools, was given as an explanation for savings variation across PAs' on-line savings. In addition, the magnitude of savings from online 2010-12 HEES was much greater (roughly double) than for the 2013-15 UAT impact estimates.
- **The PAs each have unique UAT platforms**. The PA UAT platforms are unique and will evolve over time. The savings promoted by UAT will in part reflect the relative effectiveness of these platforms through time. For example, the evaluation supporting the measure savings in the workpaper did not include SCE's UAT because a new vendor had recently taken over the platform. These variations across platforms and through time point to the need for a more dynamic accounting of UAT savings.
- **Available EE and conservation opportunities change over time**. The accessible, inexpensive activities that are likely to be motivated by a UAT program will evolve over time. For example, LEDs have offered a relatively low cost, low hassle way of reducing consumption that could appear to UAT participants. Aside from the fact that many of these bulbs represent an evaluation challenge to avoid double counting with upstream programs, they also represent a time-varying opportunity for savings. As an increasing percentage of UAT participants that join the platform already have LEDs in place, this particularly easy opportunity for savings will diminish.
- **The surrounding world context within which participants opt into the program will change**. For instance, the earliest HER programs were launched shortly after the onset of the 2008 economic recession. This may be one factor in the relatively higher savings reported by early HER programs compared to later programs, since financially-stressed consumers may more aggressively follow HER energy and money savings tips during a recession than they do in a robust economy. Wider economic or environmental factors have the potential to contribute to the volatility of program outcomes.

These challenges parallel the challenges of quantifying the savings of HER programs. Both HER and UAT offer information on numerous and diverse opportunities for savings, motivated on a volunteer basis with diverse potential savings and persistence which can lead to variability in average savings overtime. Ex post savings are

evaluated annually for the HER program. **The expected variability of UAT savings over time and across cohorts supports the use of a process that measures changes in savings over time (i.e. not a deemed value) for determining program savings claims.** It is unreasonable to assume UAT savings are stable and that only a single ex post evaluation result will be representative of UAT savings over time.

4. Direction

The CPUC concludes that the deemed approach to accounting for UAT measures is inappropriate. UAT is designed to influence customer behavior using information and is therefore classified as a behavioral measure which requires a dynamic ex post evaluation using consumption analytics to determine savings. Due to the expected variability in savings over time, it is unreasonable to use a single ex post evaluation result as deemed average savings. Instead, dynamic, ongoing savings claims for UAT can be made using ex post methods.

An ex-post method similar to the HER model can be used to file a procedural workpaper.

The workpaper will need to specify the methods and procedures for determining ex post savings including:

- The construction of the control group and proposed safeguards to minimize double-counting and self-selection bias (such as a random encouragement model or a quasi-experimental design)
- A rational for an evaluation frequency (which can be less frequent than annually)
- A procedure for reporting savings
- All other required workpaper elements such as the measure application type and the EUL

The CPUC is in the process of developing population-level NMEC program rules that should make this type of program more standardized and easier to propose in the future. If this approach is pursued in the future, communicate with and seek guidance with CPUC staff and the NEMC lead to develop a workplan.