



December 21, 2012

To: Michelle Ward, Pacific Gas & Electric Company
CC: Gene Thomas, Ecology Action
From: Chris Williams & Amit Kanungo, KEMA
RE: Follow up response for PGE HOTEL001A RCX M&V

A conference call with ED consultants, PG&E, and Ecology Action was arranged for December 14, 2012 to discuss the M&V plans proposed by ED for HOTEL001ARCX on November 30, 2012. This project was splintered from the original project submission, HOTEL001RCX, in order to expedite the implementation of other project measures that had been conditionally approved by ED. The M&V plan that was proposed in the phase II HOTEL001ARCX EAR was largely targeted towards collecting baseline information for a hotel guestroom controls measure¹.

The following issues were raised by PG&E and Ecology Action during the conference call:

1. The M&V plan is not cost effective and will discourage future program participation with hotel guestroom control measures
2. The M&V plan's data collection period spans up to a 12 week period and requires intrusive equipment and occupancy monitoring that may put unnecessary burden on the customer
3. Other IOU projects involving guestroom control measures have not required the extensive M&V data collection as proposed for HOTEL001ARCX
4. The proposed M&V plan may adjust the baseline HVAC load associated with the guestroom controls measure. Since this measure uses an eQuest model, the other conditionally approved measure savings under HOTEL001RCX that utilize the same eQuest model may be indirectly affected by this adjustment.

Hotel/motel guestroom HVAC occupancy controls measure savings can be intrinsically difficult to estimate because the guestroom unit operation and temperature set points are highly dependent on occupant behavior with little to no control from building management. Recent studies have demonstrated the measure's sensitivity to occupant behavior with a wide variation in energy savings and peak demand reduction. These studies have had small sample sizes and varying methodologies. Guestroom occupancy controls have exhibited savings potential but also shown increased usage after retrofit because baseline and occupant behavior data were not captured. Because of such variations in the performance of

¹ The ex ante review (EAR) and guestroom controls measure M&V plan is included in the appendix of this memo

guest room occupancy controls, additional field research is warranted to better understand its potential in CA and assess whether deemed energy savings can be established. A comprehensive statewide evaluation of the guestroom HVAC occupancy controls measure has not yet been conducted and ED has been recommending field studies to gather performance data as part of ex ante reviews. ED has reviewed previous and current guestroom HVAC occupancy control measure projects as part of the ex ante review process and has consistently required that baseline occupancy and HVAC unit scheduling be captured, recommending site-specific approaches as needed.

ED recommends the following options to address the concerns listed above:

1. ED recommends that PG&E follow the M&V plan as proposed in the Phase II ex ante review for HOTEL001ARCX with the following revisions:
 - a. The sampled number of rooms would drop to a total of 20 rooms, down from 27 rooms
 - b. All 20 rooms would be monitored simultaneously and selected on a completely randomized basis, instead of randomly selecting rooms in waves based on floor ranges.
 - c. The monitoring period would last a minimum of six weeks
2. After the weighted monitoring results are integrated in to the eQuest model and the model is recalibrated to building utility data, if changes in the estimated HVAC load is more than 10% then the new HVAC load estimate should be used for the HOTEL001 eQuest model. If the estimated HVAC load after field monitoring is within the 10 percent of the currently assumed load for HOTEL001, then no changes need to be made to the eQuest model for HOTEL0001 that was conditionally approved. ED notes that the conditional approval was granted at PG&E's request in order to expedite implementation by dissociating certain measures from the guest room occupancy control measures. A conditional approval does not negate the need to update models based on post-implementation data.

Appendix



PGE HOTEL001ARCX
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1. Phase II Ex Ante Review Report for PGE HOTEL001A RCX