

## RTR Appendix

Southern California Edison, Pacific Gas and Electric, Southern California Gas, and San Diego Gas and Electric (“Joint Utilities” or “Joint IOUs”) 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 Impact Evaluation Report (Final): HVAC—Program Year 2017*** (DNV GL, Calmac ID #CPU0192.01)

The RTR reports demonstrate the Joint Utilities’ plans and activities to incorporate EM&V evaluation recommendations into programs to improve performance and operations, where applicable. The Joint IOUs’ approach is consistent with the CPUC Decision (D.) 07-09-043<sup>1</sup> and the Energy Division-Investor Owned Utility Energy Efficiency Evaluation, Measurement and Verification (EM&V) Plan<sup>2</sup> 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.<sup>3</sup> In cases where reports do not contain a section for recommendations, the Joint IOUs 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 Joint IOUs 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. The Joint IOUs believe this feedback will help improve both programs and future evaluation reports.

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<sup>1</sup> 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.”

<sup>2</sup> 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>.

<sup>3</sup> 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:** Impact Evaluation Report (Final): HVAC—Program Year 2017  
**Program:** HVAC  
**Author:** DNV GL  
**Calmac ID:** CPU0192.01  
**Link to Report:** [http://calmac.org/publications/CPUC\\_Group\\_A\\_HVAC\\_Sector\\_Report\\_.pdf](http://calmac.org/publications/CPUC_Group_A_HVAC_Sector_Report_.pdf)

Item #	Page #	Program or Database	Findings	Best Practice / Recommendations (Verbatim from Final Report)	Recommendation Recipient	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.
1a	65	All Programs	PA tracking data contained incorrect contact information.	Continue to work to ensure that the contact information in the tracking data includes the correct and complete name, phone number, and e-mail address of the end-user's primary contact.	All PAs	Other	For downstream programs, the Statewide (SW) PAs will continue to endeavor to collect accurate end-user contact info, however, continual updating of current end-user contact info post incentive payment would be out of scope.  Upstream and midstream programs are designed to affect behaviors of manufacturers and distributors primarily and gathering detailed end-user contact info is often not included in the program design and/or difficult to obtain.  Overall, it is the SW PAs recommendation that evaluators work with PA account management staff and/or third-party implementers where possible to provide introductions to contacts of accounts selected for inclusion in evaluations.
1b	65	All Upstream & Midstream Programs	PA tracking data contained incorrect contact information.	For upstream and midstream programs, provide more uniformity in reporting the explicit links between distributors/contractors and end users.	All PAs	Other	This will be revisited by the Statewide Upstream and Midstream HVAC Program currently in solicitation. However, current upstream/midstream programs focus on sales/delivery channels that don't always include the end-user's primary contact for EE projects.
2	65	All Programs	PA tracking data showed inconsistent measure types and quantities.	PAs should verify that they all use the same rules for reporting measure parameters in claims.	All PAs	Accepted	This recommendation will largely be addressed by the fact that most of the current HVAC programs are moving to a statewide model.
3	65	All Upstream & Midstream Programs	Upstream and midstream market actors, particularly Quality Maintenance contractors, were difficult to reach for surveys.	Improve the quality of contact information in the tracking databases. Steps to improve the number of completed surveys include increasing sample sizes, asking the PAs to reach out to these market actors to encourage cooperation, planning for longer fielding periods, and offering incentives for participation.	All Evaluators		
4	66	All Programs	Contractors and distributors were not linked to tracking data.	Make contractor contact information (and, for upstream program claims, distributor contact information) part of claim-level tracking data.	All PAs	Rejected	Contractor/distributor contact information is personally identifiable information (PII) and cannot be shared through claims data on CEDARS due to data security reasons.

5	66	Upstream HVAC Programs with Rooftop & Split System Measures	Program design for rooftop and split systems is not strongly influencing distributor behavior.	Conduct a process evaluation to better assess current distributor behavior and if there is room to change, what mechanisms would influence them.	CPUC-ED		
6	66	All HVAC Programs with Rooftop & Split System Measures	Rooftop end-users ranked energy savings as more influential to their specific equipment decisions than non-energy benefits such as decreased maintenance costs or increased productivity.	Examine whether program marketing currently covers non-energy benefits. If not, consider producing and piloting some materials that do cover these benefits.	PG&E, SCE and SDG&E	Accepted	Many, if not all of the current SW HVAC programs highlight non-energy benefits on the various program websites and in program marketing collateral.
7	67	All Midstream HVAC Programs with Furnace Measures	The NTGR revealed that a moderate-to-high level of free-ridership persists for this measure group across the PAs.	<ul style="list-style-type: none"> <li>Consider interviews with contractors and examine multiple causal pathways similar to the methods used for the rooftop and split systems.</li> </ul> Review program design and logic to confirm that the program is intended to accelerate furnace replacements and adjust NTGR methods to stay consistent with program logic.	CPUC-ED and All PAs	Other	All current midstream HVAC programs and the respective logic models will be phased out in 2020 with the launch of the Statewide Upstream and Midstream HVAC Program which will be designed, developed and delivered by a third party. This program is currently in solicitation.
8	67	All HVAC Programs with Maintenance & Controls Measures	Both gross and net realization rates for the thermostat controls measures were low.	PG&E could consider removing the measure while continuing to offer fan controls measures.	PG&E	Accepted	PG&E sunset the Commercial HVAC thermostat controls measure in 2018.
9	67	All HVAC Programs with Maintenance & Controls Measures	Unapproved workpapers were used to claim reported savings.	Ensure that the source of the reported savings claims in tracking data are appropriately catalogued.	All PAs	Accepted	While this recommendation stemmed from data associated with PG&E's measure claims in the evaluation, all PAs will take care to ensure that the source of the reported savings claims in tracking data are appropriately catalogued in DEER.
10	67	All HVAC Programs with Maintenance & Controls Measures	Contractors found it difficult to answer questions about maintenance & controls measures in their quality maintenance offers.	Ask about maintenance & controls offers more generally in future net savings evaluations.	CPUC-ED		
11	67	All HVAC Programs with PTAC Measures	PTAC unit energy savings are highly uncertain estimates.	Consider performing an enhanced rigor evaluation to accurately assess the unit energy savings of this measure.	CPUC-ED		
12	68	All HVAC Programs with Boiler Measures	The response rates were low at 54% (gross data collection) and 15% (net) for the census of PY 2017 boiler participants.	Maintain up-to-date contact information for a variety of facility staff involved with the project at participating facilities, including staff involved in financial decision-making, if possible.	All PAs	Accepted	<p>While this recommendation stemmed from data associated with SoCalGas' measure claims in the evaluation, all PAs appreciate the challenge associated with this recommendation and comment as follows:</p> <p>For downstream programs, the Statewide (SW) PAs will continue to endeavor to collect accurate end-user contact info, however, continual updating of current end-user contact info post incentive payment would be out of scope.</p>

							<p>Upstream and midstream programs are designed to affect behaviors of manufacturers and distributors primarily and gathering detailed end-user contact info is often not included in the program design and/or difficult to obtain.</p> <p>Overall, it is the SW PAs recommendation that evaluators work with PA account management staff and/or third-party implementers where possible to provide introductions to contacts of accounts selected for inclusion in evaluations.</p>
13	68	All HVAC Programs with Boiler Measures	Workpaper NTGR was not used.	Carefully incorporate all active workpaper values, including NTGR, in reported savings.	SCG	Accepted	<p>SoCalGas will continue to review and ensure that our savings calculations utilize the most current and active workpaper values (i.e., NTGR) in our reported savings.</p> <p>SoCalGas would like to note that our reported savings calculations are using the most current NTGR that are found in our workpapers. Specifically, for Claims DNVGL_17012 and DNVGL_17013, the current NTGR used in our savings calculations, are 0.85 and 0.6 respectively as noted in Workpaper WPSCGNRHC120206A-4.</p> <p>Further, the differences observed in the NTGR used by SoCalGas and those reviewed by the Evaluation team is assumed to be due to the market effects adjustment of 0.05 that has been prescribed by D.12-11-015. This market effects adjustment is embedded in the Cost Effectiveness Tool (CET) and applied directly to the results of project claims submitted through the California Energy Data and Report System (CEDARS). SoCalGas feels that the discrepancy noted in this recommendation may be due to a situation where the market effects adjustment was not included when recreating the savings values based off of our claim data, when compared to the values observed from CEDARS.</p>
14	68	All HVAC Programs with Boiler Measures	Incorrect DEER data were used in workpaper.	Update the WPSCGNRHC120206A Revision 4 workpaper to reflect the most recent DEER 2016 boiler measures list and associated efficiency data.	SCG	Accepted	SoCalGas will ensure that the most accurate and up-to-date workpaper values are used in our reported savings calculations.
15	68	All HVAC Programs with Boiler Measures	Incorrect building type was used.	Review and revise (if necessary) the facility type provided in the rebate application to ensure the most accurate reported savings claims as a function of building type.	SCG	Accepted	SoCalGas will ensure that the most accurate building types are used in the savings calculations.
16	69	All HVAC Programs with Boiler Measures	Improper boiler efficiency values were found.	Consider additional research to better characterize and track the installed boiler efficiency.	CPUC-ED and All PAs	Accepted	The appropriate PA's will consider additional research that can be used to better characterize the installed boiler efficiencies.
17	69	All HVAC Programs with Fan VFD Measures	There were misapplied NTGRs.	Update Fan VFD workpapers recommended NTGRs to 0.53 and 0.59 for kWh and kW, respectively.	PG&E, SCE and SDG&E	Accepted	The PAs acknowledge the efforts of the CPUC evaluation teams working to meet the aggressive timelines necessary to complete the 2017 impact evaluations upon completion of the contracting processes. Considering the short turnaround time for final reports, the PAs will use close scrutiny of any findings from these

							reports that would result in significant changes to key measure parameters to ensure that only robust and defensible changes inform workpaper updates.
18	69	All HVAC Programs with Fan VFD Measures	There were low survey response rates.	Maintain up-to-date contact information for a variety of facility staff involved with the project at participating facilities, including staff involved in financial decision-making, if possible.	All PAs	Accepted	For downstream programs, the Statewide (SW) PAs will continue to endeavor to collect accurate end-user contact info, however, continual updating of current end-user contact info post incentive payment would be out of scope.  Upstream and midstream programs are designed to affect behaviors of manufacturers and distributors primarily and gathering detailed end-user contact info is often not included in the program design and/or difficult to obtain.
19	69	All HVAC Programs with Fan VFD Measures	There was a high installation rate.	DNV GL has no recommendations at this time.	-		
20	69	All HVAC Programs with Fan VFD Measures	Motor horsepower was not properly reported.	Update application paperwork and tracking protocols for supply/return fan VFD measure groups to reflect quantities and horsepower for each individual motor in the applications.	SCE	Other	SCE can provide quantities and horsepower information from documentation collected in the application paperwork for the purposes of evaluation studies. However, this information is not currently captured in SCE's Express Program database tracking system (Customer Relationship Management) and SCE is currently undergoing an enterprise system upgrade with system modifications being on hold at this time. SCE will revisit the opportunity to include this information in future system modifications, if warranted.
21	70	All HVAC Programs with Fan VFD Measures	Projects did not claim savings from CAV-to-VAV conversions.	Update the supply/return fan VFD application paperwork to include "Existing HVAC distribution system type" in order to better identify CAV-to-VAV conversions that might have been incorrectly submitted as fan VFD measures.	All PAs	Accepted	The PAs can explore changes to accomplish this, however, any changes to data collection and tracking systems will need to be evaluated for cost-effectiveness and potential program participation barriers. Additionally, the future implementer of the Statewide Upstream and Midstream HVAC Program will similarly need to evaluate this aspect of their program design.
22	70	All HVAC Programs with Fan VFD Enhanced-Ventilation Measures	For enhanced ventilation measures, the affected HVAC packaged unit tonnage differed from tracking data for 17 out of 22 evaluated projects, resulting in differences between evaluated and reported savings.	Urge project implementers to submit accurate information, particularly the capacity of affected equipment.	SCE	Accepted	Although this is true for some claims, it appears that significant project tonnage discrepancies can be explained by the evaluator evaluating the total unit tonnage of the building rather than only the unit tonnage that actually claimed the enhanced ventilation measures. The program will continue to take necessary steps to improve the accuracy of information reported.
23	70		Site interviews revealed lower exhaust fan operating hours than provided in the workpaper assumptions.	Update workpaper assumptions for baseline parking garage exhaust fan operation to reflect the most appropriate operating hours.	All PAs	Rejected	The evaluation report only indicates one parking garage exhaust fan VFD project in the sample that resulted in significantly lower evaluated savings than reporter. A single sample point in one IOU tracking data does not provide enough evidence that a workpaper assumption should be altered. Further research on this topic appears warranted.