

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: Residential HVAC Sector—Program Year 2019 (EM&V Group A) (DNV GL, Calmac ID #CPU0229.01)

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.) 07-09-043¹ 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 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.

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: Impact Evaluation Report: Residential HVAC Sector—Program Year 2019 (EM&V Group A)
Program: HVAC
Author: DNV GL
Calmac ID: CPU0229.01
Link to Report: http://calmac.org/publications/CPUC_Group_A_Residential_HVAC_Impact_Evaluation_Report_PY2019_Final.pdf

Item #	Page #	Findings	Best Practice / Recommendations (Verbatim from Final Report)	Recommendation Recipient	PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
					Disposition	Disposition Notes	Disposition	Disposition Notes	Disposition	Disposition Notes	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.	Choose: Accepted, Rejected, or Other	Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review.	Choose: Accepted, Rejected, or Other	Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review.	Choose: Accepted, Rejected, or Other	Examples: Describe specific program change, give reason for rejection, or indicate that it's under further review.
1	49	NTGRs are higher than claimed. Additional Supporting Information: Ex post NTGRs are higher than ex ante in all cases except the furnace and RCA measure groups. This is likely a product of the program delivery methods going through contractors and via direct install. Most of these measures are things that few end-users think about on their own, so the proactive program delivery method is a key factor in getting people to install the measures.	DNV GL recommends PAs incorporate the direct-install design components of these residential HVAC programs when offering additional energy saving technology that is unfamiliar to most customers, such as the coil cleaning, duct sealing, fan controls, and fan motor replacement measure groups in this evaluation.	All PAs	Accepted	PG&E will consider and encourage 3rd party vendors to consider incorporating these measures in future residential programs with HVAC measures if it is determined that they are cost effective direct install measures to implement.	Accepted	In line with DNVGL recommendation, SCE currently offers duct sealing, fan controls, and fan motor replacement measures through our Residential Direct Install program.	Accepted	SoCalGas will consider and encourage 3rd party vendors to consider incorporating these HVAC measures through our Residential Direct install programs.	Accepted	SDG&E's current Multi-family program is an example of a recently awarded third-party implementer which has a blend of direct install HVAC measures that address the evaluations recommendation. These recommendations will continue to be considered for all future programs that have these offerings.
2	49	Evaluated gross savings of fan controls are very low. Additional Supporting Information: Overall, the kWh, peak kW, and therms GRRs for this measure group are 19%, 13%, and 0%, respectively. The low electricity savings may result from the competing effects of this technology and smart communicating thermostats, both of which are capable of delaying fan turn-off and were often reportedly installed together. The analysis produced no appreciable gas savings for the heating focused SCG fan motor controller technology.	Investigate whether fan controls and Smart Communicating Thermostats fan delay functionality is redundant. We recommend PAs and the ex Ante review team further study whether the Smart Communicating Thermostat technology provides the same delayed- shutoff function as the separate fan controls technology group, and if so, adjust expected savings or eligibility for both technologies.	All PAs	Accepted	Most modern heating and cooling units include fan delay controls as part of their control strategies. New smart devices may also include fan delay as part of their control algorithms. The opportunity here is how to determine the "delay" time to maximize the heat recovery from the evaporator after the compressor shuts off and how to avoid competing technologies interfering with each other. Should the situation arise where both measures are being considered at the same residence, PG&E will investigate how to calculate the effect on savings or eligibility for both.	Accepted	Similar to DNVGL recommendation, SCE recommends for future CPUC sponsored studies to evaluate Smart Communicating Thermostat (SCT) measure savings contributions from both temperature optimization and fan control features relative to measure saving contributions from dedicated fan control technology. These studies will support future improvements on impact evaluation results and savings allocations particularly for DI bundled measures. SCE, as part of future SCT workpaper updates, is planning to include measure eligibility requirements to exclude the installation of fan control technology (particularly for DI offerings with bundled	Accepted	SoCalGas engineering staff will continue to collaborate and evaluate with CPUC ex-ante staff and IOU/PA technical leads on investigating why gas savings for the heating focused SCG fan motor controller technology is low and will adjust expected savings accordingly if necessary.	Accepted	This evaluation recommendation has been discussed internally and statewide with IOU/PA technical leads. SDG&E's technical staff will continue to collaborate with CPUC ex-ante staff and IOU/PA technical leads on investigating fan delay feature for SCT. And if the findings determine that the majority of the SCT manufactured do have this capability, then we will suggest ways to adjust related energy savings. Another alternative may be to restrict measure offerings for SCT if fan delay is implemented at a customer site, to avoid potential savings overlap and system redundancy.

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								measures) for implementations including SCT technology. SCE further recommends for program evaluator to improve measure savings evaluation methods including but not limited to SCT from newly released thermostat optimization algorithms and selection bias.				
3	49-50	Furnaces have low gross savings and net attribution. Additional Supporting Information: Both gross and net savings evaluations produced low savings for the furnace measure group. This gross result is driven partly by the outcome of the analysis of high efficiency central furnaces only realizing slightly less than half of their reported savings and partly by the evaluation team's assigning a GRR of 0% for the gravity wall furnace measures due to inadequate program design and lack of documentation that precludes analysis of these furnaces. The net results are driven by a high percentage of survey respondents claiming the program had no influence on the efficiency level of their furnace.	DNV GL recommends the PAs review their furnace technology offerings for viability. Reported gross savings were not considerably realized—even without considering the wholly unrealized savings from the gravity wall furnace technology. The upstream programs' lower NTGR reflects the programs' lack of influence. The preponderance of claims was for gravity wall furnaces; the incentives for gravity wall furnaces went directly to the manufacturer and had no direct effect on the price they charged their distributors. The manufacturer indicated only a 20% increase in sales of high efficiency gravity wall furnaces result from the program.	SCG, SDG&E					Other	The statewide res HVAC upstream furnace program has been awarded to CLEAResult which includes gravity wall furnaces. The statewide HVAC program design should be able to collect information from the manufacturer, particularly the gravity wall furnace manufacturer, that will offer better substantiated therm savings.	Other	The statewide HVAC program was awarded to CLEAResult and SDG&E collaborates and advises on a regular basis regarding measure technology viability and will continue to advocate for improving program design, cost effectiveness, and overall customer experience.
4	50	RCA measure shows minimal savings. Additional Supporting Information: Overall, the electric consumption (kWh), peak demand (kW), and gas consumption (therms) gross realization rates for this technology are 4%, 2%, and 0%, respectively. The low realization rate is a result of two drivers: the impacts of RCA as modeled are the smallest of any of the technology groups evaluated, and second, total evaluated household savings are smaller than the sum of reported savings. Even though our simulations assumed that the typical system is 12% undercharged (based on studies HVAC 3 and HVAC 5) rather than the 8% assumed by PA workpapers, the savings are lower than reported.	DNV GL recommends the PAs should investigate the savings for the refrigerant charge adjustment (RCA) technology group and consider discontinuing any HVAC maintenance offering that promotes refrigerant charge adjustments, as the evaluation found little impact for this technology group. These results are in line with the 2015 Quality Maintenance (QM) HVAC impact evaluation results where HVAC maintenance programs focusing on RCA provided minimal energy savings with high uncertainty.	SDG&E, PG&E	Accepted	PG&E retired these types of direct install measures at the end of 2019.					Other	The 2023 DEER draft Resolution E-5152 address this recommendation in section E. Updates Based on Review of EM&V Studies, and paragraph E.4 clearly states that refrigerant charge adjustment measures must be discontinued. SCE is the IOU technical workpaper lead for residential Refrigerant Charge Adjustment (RCA) and to our understanding will be sunsetting and retiring the RCA measures by 12/31/2021. Given these circumstances, SDG&E agrees with SCE direction and does not plan to offer residential RCA beyond 12/31/2021.