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: HVAC Sector—Program Year 2018 (EM&V Group A) (DNV GL, Calmac ID #CPU0209.01, ED WO #GroupA_HVAC_Y2)

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[1] and the Energy Division-Investor Owned Utility Energy Efficiency Evaluation, Measurement and Verification (EM&V) Plan[2] 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: HVAC Sector—Program Year 2018 (EM&V Group A)
Program: HVAC
Author: DNV GL
Calmac ID: CPU0209.01
ED WO: GroupA_HVAC_Y2
Link to Report: http://calmac.org/publications/Year2_CPUC_Group_A_HVAC_Report_Final_CALMAC_20200420.pdf

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**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	PA tracking data contained incorrect contact information.	There were a large number of cases where no end user contact information was available, and as a result end-user data collection was not possible. Therefore, the evaluation was unable to spend additional time trying to reach the right contact at each site when the PA provided contact proved incorrect.	PAs should 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. Implementers should also take measures to ensure that project data includes contact information for both the equipment buyer (for evaluating purchasing decisions) and the equipment operator (for obtaining installation characteristics such as schedules, setpoints, installed quantities, and so on). We believe accurate contact information will improve the response rates in at least two ways: • Evaluators will be able to establish their bona fides early through introductory letters or emails, giving later attempts to reach site contacts a better chance of success than cold calls.	All PAs	Accepted	Going forward into new program year (SW starting in 2021) complete end-user and contractor contact and system operational information as recommended can be collected. PG&E can work with the other IOU's to develop a common questionnaire/template for obtaining this data, requiring it on all system sales. While minimum end-customer data is now currently collected this recommendation can be put into place at the start of the new program year.	Other	For the Commercial Upstream Program: Current program design focuses on the sales delivery channels of manufacturers and distributors and does not collect project end-user contact nor equipment buyer and operator contact information. The program will be transitioning to the Upstream HVAC statewide model lead by SDG&E scheduled to launch in early 2021. Data collection requirements would be dependent on the statewide program design.	Accepted	For downstream programs, the 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.	Accepted	• The portion of this impact evaluation relates to the HVAC programs SDGE-3224 and SDGE-3302 for PY2018, with the recommendations to be implemented for PY 2020. The programs referenced are now closed. SDG&E will take the recommendations and apply them as we review the Statewide HVAC proposals for our future third party Statewide HVAC program. • For MFEER (SDGE-3207) and CMHP (SDGE-3279), SDG&E will continue to work closely with our Third Party Implementers so that they will implement better data collection practices to improve future response rates.

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
			• Evaluators will be more likely to reach the best respondent at each site on their first attempt.									
2	PA tracking data showed inconsistent measure types and quantities.	Review of tracking data showed that measure quantities and measure descriptions were inconsistent. For example, we found discrepancies in motor quantities and horsepower between tracking data and participant survey results. Specifically, for SCE programs, we saw that the motor horsepower in tracking data reflected the sum of horsepower for the project rather than the horsepower values associated with each individual motor type.	PAs should verify that they all use the same rules for reporting measure parameters in claims. In general, we see good agreement in data between PAs and believe this may be an isolated case. We would still request that the PAs take time to confirm that they are consistent in reporting measure parameters, thus improving the quality of shared tracking data.	All PAs	Accepted	PG&E supports continued discussions between PAs about ensuring alignment where possible on savings reporting.	Accepted	For the Direct Install Program: Current program data collection includes motor horsepower per individual project. We will continue to endeavor to collect accurate measure data and are able to provide individual motor horsepower for evaluations.	Other	This recommendation will largely be addressed by the fact that most of the current HVAC programs are moving to a statewide model.	Accepted	• SDG&E agrees with the evaluator and suspects that this was an isolated incident but will strive to improve the data integrity for measure types and quantities being reported.
3	Program design elements that were not communicated to evaluators required changes in approach and led to consequent delays.	When we published our workplan and sampling memo we specified which market actors we would need to reach for program evaluation. It wasn't until we received responses to multiple data requests and completed one set of planned surveys that we learned that some programs do not collect data necessary to evaluators.	We recommend PA program and EM&V staff be more involved in critical workplan review. We would also invite PA staff to host webinars where they discuss program aims, targets, and methods. If Informational sessions took place shortly after we publish the list of measures and programs to be evaluated, we could work with the PAs to make sure that our evaluation design and data requirements are consistent with program operations.	All PAs	Other	We agree that there is an opportunity for better collaboration between the IOUs and the evaluators, but we believe it falls onto the evaluators to seek out the information that they need to form a thoughtful methodology. We believe that both the evaluators and the IOUs have already taken steps to improve collaboration for the PY2019 evaluation and hope that this can serve as an example for future evaluations.	Other	The Commercial Upstream program will be transitioning to the Upstream HVAC statewide model lead by SDG&E scheduled to launch in early 2021. We shall seek guidance from the lead PA for coordination efforts.	Other	Current program design follows CPUC approved procedures and methods of data collection. The program will be transitioning to the HVAC statewide model lead by SDG&E scheduled to launch in early 2021. Data collection requirements would be dependent on the statewide program design.	Other	• SDG&E has backfilled key EM&V staff resources absent in 2019. We have started leading early project planning and have included additional program staff to BaseCamp and monthly meetings to receive and hear first-hand the information delivered and discussed by the HVAC PCG. When applicable SDG&E's EM&V staff will invite key Program Operations staff to participate in webinars so to better align evaluation design and data requirements with program operations. SDG&E staff plans to share program aims, targets and methods as part of the program staff interviews. If needed, SDG&E can engage in follow-up discussions.
4	The midstream, distributor-facing design of the rooftop	Rooftop or split systems measure rebates are paid to distributors, who in turn work with contractors to install high-efficiency systems among commercial customers. For approximately 74%	For any measures delivered midstream through distributor rebates, such as the rooftop and split system measure group, PAs must require participating distributors and	All PAs	Accepted	PG&E agrees that the basic end-customer information should be collected from the distributors and contractors to ensure final installation site verification. PG&E can work with the other	Other	For the Commercial Upstream Program: Current program design focuses on the sales delivery channels of manufacturers and distributors and does not collect partnering contractor infor-	Other	The recommendation is not applicable because SoCalGas does not utilize the rooftop or split system measure.	Other	• The portion of this impact evaluation relates to the HVAC programsSDGE-3224 and SDGE-3302 for PY2018, with the recommendations to be implemented for PY 2020. The programs referenced are now closed. SDGE agrees with the evalu-

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
	unit/split system measure group results in inconsistent or incomplete tracking data for all PAs.	of projects in the PY2018 population, the evaluation team did not have sufficient customer contact data to verify equipment installation or quantify evaluated savings. For the 26% of projects with sufficient customer contact data, recruitment for evaluation was challenging, as the customers were often unaware that they had participated in an efficiency program. The measure's midstream design and subsequent data gaps caused the evaluators to fall short of the target evaluation sample count of 85 projects. Data gaps were most prominent for programs administered by PG&E and SCE.	partnering contractors to collaboratively collect and submit basic information for each customer that ultimately receives the rebated equipment.			IOU's to create a common template for this information gathering.		mation. The program will be transitioning to the Upstream HVAC statewide model lead by SDG&E scheduled to launch in early 2021. Data collection requirements would be dependent on the statewide program design.				ators regarding the need to have improved end user customer data for those who received the rebate. SDG&E will take the recommendations and apply them as we review the Statewide HVAC proposals for our future third party Statewide HVAC program.
5	Six of the 59 evaluated projects were determined to result in zero electricity savings due to non-install or ineligibility.	For 5 projects, evaluators determined that the incented rooftop or split systems equipment was never installed or energized. For one project, we found that the facility receives electricity from a municipal utility and is therefore ineligible for PA savings claim. Data collection, transmission, and screening complications, as a result of the rooftop or split systems measure group's midstream design, are the likely culprits for zero savings from these issues. Ineligibility and non-install reduced the RR of rooftop or split systems measures by 7% and were particularly prevalent for programs administered by PG&E and SCE.	The evaluation team recommends PAs to make sure that the incented equipment is installed at the appropriate location. PAs should also perform post inspections on the installed equipment to ensure they are properly installed and operating as intended.	All PAs	Accepted	PG&E does perform post-installation inspections for a percentage of all applications received. In addition, PG&E inspections team reaches out to end-customers when data is available to further ensure that equipment is installed and/or operational onsite. Further, PG&E verifies that the end-customer site is a valid customer of PG&E service.	Other	For the Commercial Upstream Program: Current program design performs random post inspections to ensure incentivized equipment sold for installation is within SCE service territory. The program will be transitioning to the Upstream HVAC statewide model lead by SDG&E scheduled to launch in early 2021. Inspection requirements would be dependent on the statewide program design.	Other	The recommendation is not applicable because SoCalGas does not utilize the rooftop or split system measure.	Other	• The portion of this impact evaluation relates to the HVAC programs SDGE-3224 and SDGE-3302 for PY2018, with the recommendations to be implemented for PY 2020. The programs referenced are now closed. SDGE agrees with the evaluators regarding the need to have improved post inspections to ensure that the installed equipment is operating as intended. SDG&E will take the recommendations and apply them as we review the Statewide HVAC proposals for our future third party Statewide HVAC program.
6	A total of 36% of evaluated projects revealed	In all, 27% of evaluated projects showed differences in equipment quantity, manufacturer, size, or efficiency	For midstream measures, the programs should require that distributors and contractors submit more	All PAs	Accepted	PG&E agrees with the recommended verification requirements specific to distributor sale documentation. PG&E can work with the other IOU's to develop a	Other	For the Commercial Upstream Program: Current program design focuses on the sales delivery channels of manufacturers and distributors and does not collect	Other	The SoCalGas programs had no midstream measures evaluated in the study.	Accepted	• The portion of this impact evaluation relates to the HVAC programsSDGE-3224 and SDGE-3302for PY2018, with the recommendations to be implemented for PY 2020. The programs referenced are

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
	measure-specific inconsistencies between tracking data and field-verified nameplate data.	rating between PA implementation data and field-verified characteristics. 32% of evaluated projects showed differences in equipment model or serial number. Again, data collection and transmission complications due to the RTU/split measures' midstream design have prevented the programs from accurately tracking basic installation information for rebated equipment.	comprehensive installation documentation (e.g., invoices, commissioning reports) and photographs to prove quantity, size, make/model, and efficiency. Such documentation would allow the PAs and/or evaluators to conduct internal audits of a selection of tracked installations to confirm installation and tracking data accuracy.			template of required information to ensure a complete post-installation database. That data can then be required for distributors to provide back to the IOU's for any sale to qualify for equipment incentives.		nor track installation documentation. The program will be transitioning to the Upstream HVAC statewide model lead by SDG&E scheduled to launch in early 2021. Data collection requirements would be dependent on the statewide program design.				now closed. SDGE agrees with the evaluators regarding the need to have distributors and contractors submit more comprehensive installation documentation SDG&E will take the recommendations and apply them as we review the Statewide HVAC proposals for our future third party Statewide HVAC program.
7	The ex post savings were lower than the ex ante estimate.	The overall GRRs are 55% for kWh, 61% for peak kW and 58% for the therm. This difference is primarily due to the overestimation of savings in the ex ante estimate. The ex ante estimate approach claimed savings equivalent to 60% of the total cooling load whereas the evaluation approach produced the savings to be approximately 10% of the total cooling load, which is in line with the efficiency improvement between the standard and high efficiency equipment.	The evaluation team recommends that the PAs model this measure group with appropriate baseline and proposed conditions including the HVAC system efficiencies, fan power index and applicable economizer controls. In that way, the simulation results will reasonably capture the savings attributed only to the efficiency improvement between the Title-24 standard and high efficiency equipment.	All PAs	Other	PG&E can add this recommendation for additional analysis of HVAC operational components to the WP's determinations and review. In addition, PG&E can work with the other IOU's in coordination of these WP's analysis to ensure complete coverage and further 'checks' to the savings outcomes.	Other	Measure evaluation procedures on "Rooftop & split systems" and all EE (deemed) offerings are done using CPUC approved procedures and methods including the proper baselines and building energy (DEER) prototypes. Dynamic economizer control strategies cannot be adequately modeled in current approved building energy simulation tools. DEER prototypes for both base case and measure case are informed by latest saturation studies and impact evaluation assuming findings are statistically significant.	Other	SoCalGas will ensure that the most accurate and current workpaper values in our reported savings calculations are used.	Other	• Section 1.2.1 Rooftop and split systems. The measures definitions and savings impact records were adopted from DEER Measures IDs as stated per SDGE workpapers "WPSDGENRHC023", below 65 kBtuh and "WPSDGENRHC025", 65 kBtuh and above, Residential / Non-Residential HVAC Unitary and Split AC and Heat Pumps. Starting 1/1/2020, these workpaper measure were migrated to statewide workpapers SWHC013-01, 65 kBtuh and above, and SWHC014, below 65 kBtuh, commercial HVAC unitary and split AC and Heat Pumps. The CPUC Ex-Ante team in DEER Resolution E-4952 updated all eQuest DEER building prototypes including all Non-Residential. All savings records starting 1/1/2020 reflect these updated modeling building prototypes. Documentation issues for making adjustments and/or modifications to these new models has been brought up to CPUC staff and Ex-Ante team. SDG&E plans to collaborate with CPUC staff and stakeholders to address modeling issue for PY2021.
8	The rooftop/split system measure group consisted of more than	For many of these, the PAs are claiming the same measure, but the measure descriptions are not consistent across the PAs. This makes the task of grouping the same measures across the	The evaluation team recommends that the PAs adopt a uniform measure description naming convention to homogenize and therefore consolidate the descriptions under this	All PAs	Other	In 2019 all PAs and CalTF worked in coordinating all the workpapers and their measures to create a single measure ID# across PAs. A unique statewide measure ID and associated workpapers	Accepted	The program will be transitioning to the Upstream HVAC statewide model lead by SDG&E scheduled to launch in early 2021. Uniformity in reporting measure group will be addressed through the statewide model.	Other	The recommendation is not applicable because SoCalGas does not utilize the rooftop or split system measure.	Other	• SDG&E agrees that each IOU had their own version of HVAC RTU unitary and split measures. In PY 2018 SDG&E short form workpapers (WPSDGENRHC023 and WPSDGENRHC025) adopted DEER measures as suggested by the CPUC staff and EAR team. Starting 1/1/2020 all

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
	100 unique measure descriptions for PY2018.	PAs more difficult and introduces unnecessary complication and uncertainty.	measure group in order to move towards a statewide focused portfolio and to improve the evaluability of these measures across the PAs.			was created. PAs share their internal measure numbers equivalent to a single statewide measure ID#. This recommendation will be further refined as the program (and measures) goes SW in 2021.						HVAC technology deemed workpapers are IOU statewide.
9	The evaluated savings for kWh was higher than the reported savings whereas the peak kW savings were lower than the expected.	These differences in savings are due to the difference in fan operating hours between the ex ante assumptions and the ex post values. Our analysis found that the ex ante savings appear to result from applying single-family hours of operation to mobile homes and multi-family buildings whereas the eQUEST models showed longer hours of operation for mobile homes and multi-family buildings, resulting in significantly greater evaluated savings than claimed for these building types. The lower peak kW savings are due to differences in thermostat settings between the evaluated and the reported values. The thermostat settings used in the reported savings model was based on older Database Energy Efficiency Resources (DEER) thermostat values, whereas the evaluation savings model used 2017 DEER thermostat values that were higher and allowed the fan to operate at lower loads or not operate during peak hours.	The evaluation team recommends that the PAs should model this measure group with the 3 residential dwelling types (single family, multi-family, and manufactured home) and most up-to-date DEER thermostats schedule to capture the variations in fan operating hours and accurately calculate the kWh and peak kW savings.	All PAs	Accepted	PG&E will work with all stakeholders to make sure a single modeling methodology is used across all PAs including the correct modeling parameters.	Other	Measure evaluation procedures are done using latest CPUC approved procedures and methods including the proper residential building (DEER) prototypes and thermostat schedules. Thermostat schedules are informed by latest Residential Saturation studies. As part of the final measure savings evaluation, these are weighted per corresponding building type and climate zone. Building energy modeling is done in full compliance with CPUC latest approved procedures and methods. Impact evaluation findings (if statistically significant) shall be leveraged for updating and/or expanding saturation studies informing DEER updates.	Other	The recommendation is not applicable to SoCalGas since it referred to fan motor replacement.	Accepted	• SDG&E in 2018 adopted SCE deemed workpaper "SCE17HC028" and all saving records claims were based on respective ExAnte data. Our 2019 claims saving for the given technology also referenced the same ExAnte savings data. Starting 1/1/2020, this workpaper measure was migrated to statewide workpaper SWHC038-01, Central Brushless Fan Motors. The CPUC ExAnte team in DEER Resolution E-4952 updated all eQuest DEER building prototypes including all residential. All savings records starting 1/1/2020 reflect these updated modeling building prototypes. Documentation issues for making adjustments and or modifications to these new models has been brought up to CPUC staff and ExAnte team. SDG&E plans to collaborate with CPUC staff and stakeholders to address modeling issue for PY2021.
10	Attribution was very high.	This was expected considering the program design and the measure involved. The program is delivered via direct install methods, which had relatively high attribution rates across the board (including the residential	If program delivery mechanism remains primarily direct install, consider increasing ex ante NTGRs from 57% to 85%. Under this program delivery mechanism, attribution can be expected to remain high.	PG&E, SCE, SDG&E	Accepted	PG&E will coordinate with CPUC to revise NTGRs values where it makes sense.	Accepted	Future version of the workpaper should be updated to reflect findings/recommendations from Impact Evaluation, which should be reflected in next DEER update requirements. Evaluator should ensure that these recommendations are communicated and formalized with CPUC for inclusion	Other	N/A	Accepted	• SDG&E plans to continue program delivery via Direct Install delivery mechanism for both existing programs and new programs to be adopted and agrees with this finding that higher NTG ratios should be applied to these segments and delivery mechanisms. SDGE will also collaborate with deemed CPUC staff and EAR team on the NTG for direction so that

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
		evaluation) for PY 2018. Furthermore, this program provides a free upgrade to a measure that few people think about.						in future DEER updates. A better approach for consideration perhaps would be to include two NTGs with one specifically for DI which should be higher than 85%.				such changes may be adopted by the annual DEER Resolution.
11	Attribution was very high, which makes sense considering the program is delivered via direct install methods, which had relatively high attribution rates across the board (including the residential evaluation) for PY 2018.	Furthermore, this program provides a free upgrade to a measure that few people think about.	If program delivery mechanism remains primarily direct install, consider increasing ex ante NTGRs from 79% to 95%. Under this program delivery mechanism, attribution can be expected to remain high.	PG&E, SCE, SDG&E	Accepted	PG&E will coordinate with CPUC to revise NTGRs values.	Accepted	Future version of the workpaper should be updated to reflect findings/recommendations from Impact Evaluation, which should be reflected in next DEER update requirements. Evaluator should ensure that these recommendations are communicated and formalized with CPUC for inclusion in future DEER updates. A better approach for consideration perhaps would be to include two NTGs with one specifically for DI which should be higher than 95%.	Other	N/A	Accepted	• SDG&E plans to continue program delivery via Direct Install delivery mechanism for existing programs and agrees with this finding that higher NTG ratios should be applied to these segments and delivery mechanisms. SDGE will also collaborate with deemed CPUC staff and EAR team on the NTG for direction so that such changes may be adopted by the annual DEER Resolution.
12	Both the kWh and kW GRRs for the water-cooled chiller measure group were higher than the reported.	Our evaluation determined the GRRs to be 221% and 179% for the kWh and kW respectively. This means the evaluated kWh savings were more than double the reported kWh savings and the evaluated kW is 79% higher than the reported kW. The primary reason for this large discrepancy is due to the difference in the chiller annual operating hours between the reported assumption and evaluated findings. The PA eQUEST model used a single average “commercial” building type to estimate savings across all their claims that did not capture	Take a closer look at the workpaper assumptions and review the eQUEST model and ensure all the building types are included in the model runs to capture the variations in chiller operating hours across the various building type. Alternatively, we suggest this measure group to use custom calculation approach where the savings should be calculated using site-specific information rather than using a deemed approach via workpaper to claim savings.	SCE	Other	N/A	Other	Measure savings for this program are based on DEER. This is not a Non-DEER workpaper. This is an upstream (midstream) program with incentives to the distributor. Given that in some cases the building type where the equipment is expected to be installed it is unknown, measure savings are reported based on COM. This is consistent with previous commission staff recommendations for building type reporting for HVAC Upstream programs. The impact evaluation analysis on this measure should have been done based on a normalized building type savings, given latest DEER building weight data. The	Other	N/A	Other	• Not Applicable to SDG&E

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
		the variations in chiller operating hours across the various building types.						variation of savings between building types (e.g., COM vs Non-COM) was expected. Impact evaluation's estimated GRR does not constitute a proper evaluation of the program.				
13	Both the kWh and kW GRRs for the water-cooled chiller measure group were higher than the reported.	Our evaluation determined the GRRs to be 221% and 179% for the kWh and kW respectively. This means the evaluated kWh savings were more than double the reported kWh savings and the evaluated kW is 79% higher than the reported kW. The primary reason for this large discrepancy is due to the difference in the chiller annual operating hours between the reported assumption and evaluated findings. The PA eQUEST model used a single average "commercial" building type to estimate savings across all their claims that did not capture the variations in chiller operating hours across the various building types.	Take a closer look at the workpaper assumptions and review the eQUEST model and ensure all the building types are included in the model runs to capture the variations in chiller operating hours across the various building type. Alternatively, we suggest this measure group to use custom calculation approach where the savings should be calculated using site-specific information rather than using a deemed approach via workpaper to claim savings.	SCE	Other	N/A	Other	Measure savings for this program are based on DEER. This is not a Non-DEER workpaper. This is an upstream (midstream) program with incentives to the distributor. Given that in some cases the building type where the equipment is expected to be installed it is unknown, measure savings are reported based on COM. This is consistent with previous commission staff recommendations for building type reporting for HVAC Upstream programs. The impact evaluation analysis on this measure should have been done based on a normalized building type savings, given latest DEER building weight data. The variation of savings between building types (e.g., COM vs Non-COM) was expected. Impact evaluation's estimated GRR does not constitute a proper evaluation of the program.	Other	N/A	Other	• Not Applicable to SDG&E
14	Low NTGR revealed a high level of free-ridership for this measure group.	We determined an NTGR of 19% for this measure group, due to a high number of free-riders as evidenced from interviews with customer decision-makers. About 70% of end-users surveyed had already made the decision to upgrade their boiler, in many cases selecting their energy efficient equipment, prior to learning about rebates available. Their selection of energy efficient boilers was driven more by company policies dictating that they select ef-	PAs should reconsider including boilers as a deemed measure in this program. This measure has previously been offered under the custom program by other PAs, which enables more detailed project screening to better understand customer decision drivers and identify potential free-ridership prior to project approval. As a deemed measure, PAs have limited insight into customer decision-making factors and methods.	SoCalGas	Other	N/A	Other	N/A	Rejected	The SoCalGas whole building program required that boilers along with other installed measures be modeled in order to ascertain potential savings. Boilers are modeled based on their size and the climate zone where they are located. SoCalGas feels that this method delivers a savings potential closer to actual than deemed.	Other	• Not Applicable to SDG&E

					PG&E (if applicable)		SCE (if applicable)		SCG (if applicable)		SDG&E (if applicable)	
Item #	**Findings**	**Additional Supporting Information**	**Best Practice / Recommendations (Verbatim from Final Report)**	**Recommendation Recipient**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**	**Disposition**	**Disposition Notes**
		ficient options when replacing old equipment than by program-provided rebates and information. When the program influenced end-users, it tended to accelerate the timing of boiler installation, but not increase the efficiency of the equipment they selected.										
15	Low NTGR revealed a high level of free-ridership for this measure group.	We determined an NTGR of 19% for this measure group, due to a high number of free-riders as evidenced from interviews with customer decision-makers. About 70% of end-users surveyed had already made the decision to upgrade their boiler, in many cases selecting their energy efficient equipment, prior to learning about rebates available. Their selection of energy efficient boilers was driven more by company policies dictating that they select efficient options when replacing old equipment than by program-provided rebates and information. When the program influenced end-users, it tended to accelerate the timing of boiler installation, but not increase the efficiency of the equipment they selected.	Consider reducing the ex ante NTGR for therms from 65% to 20%. Program free-ridership survey questions indicate that most participants learned about the program after making a decision to install high-efficiency measures. Therefore, the program could not have had a strong effect on those decisions.	SoCalGas	Other	N/A	Other	N/A	Rejected	The SoCalGas whole building program requires that customers install measures that are equal to or exceed building codes. The program works with customers to meet or exceed our minimum savings goals based on the project modeling. Customers are encouraged to install more measures to achieve a deeper energy savings. SoCalGas believes that this results in participating customers doing more than they had planned to do.	Other	• Not Applicable to SDG&E