PUBLIC UTILITIES COMMISSION

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Date: August 2, 2016

To: Southern California Edison Company (SCE)

From: CPUC Ex Ante Review Staff

Cc: R.12-01-005 and R.13-11-005 Service Lists

Subject: Mid-Year 2016 Efficiency Savings and Performance Incentive Ex Ante Review Performance Feedback

Pursuant to Decision (D).13-09-023, California Public Utilities Commission (CPUC) staff and consultants are providing mid-year feedback on the Program Administrators (PAs) respective ex ante activities for 2016. Qualitative feedback is provided per each of the metrics identified in Attachment 7 of D.13-09-023. The mid-year feedback focuses on specific issues and concerns identified in dispositions issued so far during 2016 and in ongoing workpaper and custom project ex ante reviews and collaboration activities. CPUC staff translated the identified review issues and concerns into qualitative feedback for the specified metric to give the PAs a sense of how each can improve its respective activities.

Custom Projects

SCE has made a good effort to comply with the CMPA Bi-monthly list submission process that was implemented at the end of 2015. The SCE bi-monthly CMPA list submissions have improved in quality and completeness. Although there are still areas for improvement, the progress is evident. As discussed below, SCE's use of the CPUC checklist has greatly reduced the issues associated with incomplete PA documentation submissions.

The Ex Ante Review dispositions touched fourteen projects (application number 0500752020 has two associated applications which were selected for review and application number 0500816868 has three associated applications which were selected for review) between January 1, 2016 and June 30, 2016. In early 2016, staff updated the custom project ex ante review disposition template to include a categorization of the actions that staff requires the PA to implement for the project under review. The categorization allows more specific identification of problem areas which need to be addressed by the PA. Note that each action in a disposition has only one category assigned. However, if there are multiple issues found with a particular aspect of the project- such an M&V plan for example, there could be multiple actions categorized as "M&V" for a single project. Each action would be described and categorized individually. Table 1 below summarizes the results of the categorization analysis for eleven dispositions issued through June 30, 2016. The eleven dispositions issued in 2016 are in the new format and are included in the summary below.

Table 1 Summary of Categorized Action Items

Action Category	Total number	% of total
Analysis assumptions	4	6.3%
Baseline	3	4.8%
Calculation method	7	11.1%
CPUC guidance	1	1.6%
Eligibility	3	4.8%
EUL/RUL	7	11.1%
Incentive calculation	5	7.9%
M&V	6	9.5%
Measure cost	4	6.3%
Measure type	2	3.2%
Missing documents	3	4.8%
Missing required information	7	11.1%
PA program rules	1	1.6%
Program influence	2	3.2%
Project scope unclear	3	4.8%
Revise to match CPUC savings estimate	5	7.9%
	63	100.0%

CPUC staff observes that SCE needs to make more effort to improve its calculation methodologies. Seven action items equaling 11.1% of all action items cited by staff were related to calculation methodology issues. Five action items equaling 7.9% of all action items cited by staff were related to SCE revising its analysis to match CPUC savings estimates. M&V and analysis assumptions issues make up another 9.5% and 6.3% of the actions; respectively. Staff continues to find that many M&V plans are generic and do not provide adequate specificity about measurement points, measurement intervals, and how measured data will be used to derive the final ex ante savings impacts. Staff have provided detailed guidance on this issue in the past but the guidance does not seem to have penetrated very deeply into the implementation team's processes as similar observations of inadequate documentation have been made by Staff for several years. These four categories are related and account for approximately 35% of all actions required by CPUC Staff. These four categories have a direct effect on the reliability and accuracy of the savings impacts.

Seven action items equaling 11.1% of all action items cited by staff were related to EUL/RUL issues. Staff expects that the topics of EUL/RUL have been exhaustively discussed with SCE and that there should fewer issues with this category.

Staff identified missing documents and missing information in approximately 16% of the action items (10 total). Staff believes that this is a good improvement over previous years and feels SCE's use of the CPUC document checklist has assisted in reduction of these issues, but finds SCE still has room for improvement in this area.

Staff identified four action items associated with measure cost, equal to 6.3% of the action items.

Although the remaining action item categories (program influence, baseline, and program rules) individually equaled less than 5% of the total action items, we consistently raised these issues in past ESPI ex ante performance memos. SCE staff reviewers must pay attention to these items in their internal reviews.

CPUC staff is disappointed with SCE staff's handling of Project 500738120. Discussions on this project is on-going at the time of the writing of this memo. SCE staff did not bring this project with over 22 million kWh savings to CPUC staff's attention for an early opinion review until the customer's expectation was already set by the third-party (3P) implementer. CPUC staff has raised the issue that setting customer's incentives expectations prior to a utility, or CPUC staff if a project has been selected for ex ante review, having an opportunity for review is inappropriate many times in the past. After interviews with the customer, CPUC staff discovered that SCE staff nor the 3P implementer had any identifiable impact on the development and design of this project and that the customer was unlikely to pursue a design different from what was eventually decided. This was in fact a load-building business development project which adopted a design incorporating energy efficiency aspects that staff determined would have happened as standard practice. However, SCE review staff had difficulty recognizing either standard practice or free-rider aspects for this project. It once again placed the CPUC staff in the difficult position to conduct the project review and issue a disposition.

In Project 500189909, CPUC staff is troubled that SCE staff did not follow the Commission's process for a customer incentive increase request. SCE staff increased the customer incentive rate and increased the incremental measures costs cap that exceeded the 50% increase in incentive payments that requires the PA to file an advice letter for approval. CPUC staff learned that this was SCE program staff's strategy to accelerate projects in order to meet its year-end savings goals. Additionally, for this project, SCE issued the customer and implementer a letter that stated four requirements (among others) including dates by which the project must be completed and all invoices must be submitted. SCE staff, however, did not confirm the completion date was met and also continued to accept invoices after this deadline. It is even more troubling that the customer agreement terms were altered for a project selected for review and, thus, the customer incentive expectations were set prior to any review opportunity being provided to Commission staff, as required by D.11-07-030,.

In reviewing Project 500738120, CPUC staff became concerned about the terms of 3P contracts. It does not appear that the 3P contract terms are fully consistent with CPUC policy concerning custom project review. 3P contracts should acknowledge and follow CPUC policy regarding disclosure requirements for all projects in any stage of development on the bi-monthly CMPA list, including any savings and incentive estimates prior to disclosure to a customer. CPUC staff also questions the appropriateness of 3P implementer contract term that provide the implementer a higher compensation, on a dollar per kWh or therm basis, or total payment on a project that is equal or greater than the incentive to the customer. Perhaps this may be necessary on small projects that require significant investigations, savings calculation development work, or M&V plan development. However, those cases would only be expected for projects that represent the

first of many to come where there are "startup" costs that can be amortized across many future projects. This should not be the case for large projects even when they are unique. 3P implementer per project billable costs should be limited or have caps that in most cases should be much smaller than the customer incentive and should never be allowed to grow to many hundreds of thousands or even millions of dollars. This apparent "windfall" nature of 3P potential income from single large projects is not an appropriate use of ratepayer funds.

Based on the above project issues, CPUC staff has concerns about SCE progress towards addressing important issues raised in the past relating to both program implementation approaches as well as internal project review activities. Some of these issues raise questions for Commission staff as to: 1) whether SCE review staff is capable of objectively reviewing projects and overriding program staff and 3P implementer desires; and 2) whether SCE program staff and 3P implementers take seriously CPUC policy and review direction regarding ex ante values and project or measure eligibility.

Although SCE staff continues to bring early opinion requests to CPUC staff, SCE staff needs to do so earlier in the project development and in a manner that makes the SCE internal analysis clear as well as the question being posed on the project for CPUC staff response. In one early opinion review request regarding baseline policy for projects undertaken by a state agency, over the course of questions back and forth between SCE program and review staff, SCE implementation staff, the customer, and CPUC staff, it took six months before CPUC staff fully understood the SCE staff analysis and the proposal for alternate consideration that was being asked. SCE staff had difficulty communicating the intended question to CPUC staff. Asking a high level question, such as SCE staff does not believe Title 24 codes apply to this customer-what do you think, is too broad for CPUC staff to respond.

CPUC staff has identified several high-level issues of concern from these projects. A summary of these issues, taken from the review findings and dispositions issued, is provided in Attachment B of this memo. Attachment B is intended to provide SCE staff with information as to how the issues may potentially impact upward or downward scoring movement in the ESPI scoring metric. Attachment B also lists the CPUC ID numbers associated with each project's disposition. The PA may refer to the individual dispositions for more detailed descriptions of the specific actions CPUC staff required for each application. The qualitative ESPI scoring feedbacks are designated as follows:

- '+' indicates a positive scoring impact on a metric,
- '-' indicates a negative scoring impact on a metric,
- 'Yes' indicates meeting expectation; no scoring impact on a metric,
- 'No' indicates the review feedback is not applicable to a metric.

Workpapers

CPUC staff acknowledges that SCE staff has well-developed processes for updating workpapers. There are several benefits of these processes. For example, SCE staff appears to be able to rapidly implement small changes (such as removal of a building type or update a net-to-gross value) and quickly develop and submit a workpaper revision based on these changes. SCE staff also makes an effort to follow-up with CPUC staff once workpaper reviews have been issued, making attempts to gain further understanding on required corrections and additional direction. SCE staff has taken on a substantial development task for commercial HVAC quality installation, and has recently submitted a research and development plan for that work.

In 2016, SCE staff submitted 81 new or revised workpapers. CPUC staff has waived review on 31 of them. Another 42 are noted by SCE staff as having "no value modifications" since the last version of the workpaper was approved or waived; four of these are statewide workpapers for which PG&E is the lead developer. CPUC staff has issued preliminary reviews on the four PG&E lead workpapers; therefore, the SCE versions of the workpapers will not be approved at least until the PG&E preliminary reviews are resolved. Of the remaining eight workpapers, a preliminary review was issued on one statewide workpaper for which SCE is the lead developer, and CPUC staff issued detailed reviews on seven workpapers. Since December 27, 2015, SCE staff submitted ex ante data for 102 workpapers, and the EAR team has processed 76 of those workpapers and prepared the data for addition to the Preliminary Ex Ante Review database (PEARDB). There are 12 preliminary reviews, issued in 2015, that are awaiting responses from SCE staff

As noted above SCE staff's internal approach to workpaper development and submission has several benefits. However, CPUC staff also sees room for improvement in SCE staff's responsiveness to preliminary reviews, detailed reviews, and other ex ante related direction. Updates to workpapers are often minor and are submitted with large amounts of duplicate ex ante data. For example, SCE may remove a non-DEER building type from its list of available building types, but their submittal includes all previously submitted data with only the data for the ineligible building type removed. A more efficient approach would to notify CPUC that the specific SCE building types would be retired. SCE staff's follow-up to workpaper dispositions and directions often has had the effect of delaying SCE action instead of expediently addressing disposition requirements. This leaves CPUC staff in a difficult position of deciding whether to allow ex ante values to be used for claims long after problems have been identified. For example, SCE delays in research and development of residential HVAC quality installation (QI) measures have prevented the updates to these measures for almost a full year. More detailed information and CPUC staff assessment of SCE staff's deemed ex ante development activities is provided by topic area below.

- **Incorporation of Previous Direction**
  One noticeable revision to all of workpapers is the removal SCE's non-DEER building types. In 2014, CPUC staff directed SCE staff to either provide more supporting research and documentation on these building types or to remove them. CPUC staff acknowledges

that SCE followed CPUC staff direction to either provide supporting research or remove the se building types, however, this same direction was also included in D.12-05-015 with specific requirements to provide M&V data and analysis to support the use of non-DEER building types. SCE never provided the additional M&V data and it wasn't until CPUC staff issued explicit workpaper guidance in the fall of 2014 that SCE chose to remove these building types from their workpapers. CPUC staff notes the following additional examples where SCE needs to improve their efforts to address previous CPUC direction:

- Standard practice research for food service equipment D.11-07-030,
- Uniform statewide costs for screw-in LEDs or performance as directed in the CPUC staff disposition for LED measures issued in 2012
- Baseline and standard practice information for certain package HVAC measures as directed in preliminary reviews issued by CPUC staff in January of 2016.

More information on SCE's activities addressing previous direction can be found in Table 7 of Attachment B. Generally, CPUC staff expects more effort focused on addressing previous direction.

- **Workpaper Reviews**

  SCE staff has submitted 81 new or revised workpapers in 2016. CPUC staff took the following action on those: 1) 31 have had review waived, and thus the workpapers have interim approved status; 2) five have had preliminary reviews issued; 3) seven have had detailed reviews issued; 4) seven were never reviewed because SCE staff have submitted subsequent revisions to those workpapers; and 5) CPUC staff has not taken any action on the remaining 31 workpapers. These remaining 31 workpapers will also be given interim approved status if, under the review requirements directing in D.12-05-015, the time limit for CPUC staff review has passed. Below are some sample CPUC staff observations on interim approved workpapers submitted in 2016 along with how these observations might impact a final ESPI score:

  - "Statewide" workpapers: In 2015, PG&E staff and the California Technical Forum (CalTF) began an effort to identify workpapers that would be used statewide for all PAs. PG&E staff posts to the WPA a table of statewide workpapers, identifying which program administrator (PA) is the lead developer, with all other PAs identified as participants. SCE staff has submitted four participant workpapers that are out of date with the lead PA's version of the workpaper (SCE13RN027, SCE13WP003, SCE13WP007, SCE13CC007). In some cases, CPUC staff issued preliminary reviews on the lead workpapers, but SCE versions of the workpapers are out-of-date and do not address the preliminary review concerns. CPUC staff expects to see better coordination of statewide workpaper development moving forward. Ideally, there should only be one workpaper submitted by the lead developer, with participants only submitting ex ante data for their respective service territories. (negative ESPI score impact)
  - HVAC Quality Installation workpapers: In July of 2015, CPUC staff issued a preliminary review of the residential quality installation (QI) workpaper that

included direction to provide more comprehensive research and support for standard practice assumptions. As of the most recent submission of this workpaper (revision 3, submitted April 4, 2016) SCE staff notes that there have been "no value updates" to the workpaper. On the other hand, SCE staff recently submitted to the Workpaper Project Archive (WPA) for review a research plan for developing a similar workpaper covering commercial QI. As summarized above, this is a more specific example of SCE staff's well developed internal process for carrying out workpaper development activities. However, this process seems largely focused on SCE priorities without priority consideration to addressing CPUC staff direction. (neutral to negative ESPI score impact)

- Aliso Canyon workpapers: CPUC staff and SCE staff recently completed an accelerated effort to develop, review and approve three workpapers intended to address a potential natural gas and related electricity generation shortage due to the recent closing of the Aliso Canyon natural gas storage facility. One workpaper (SCE13WP008 for commercial pool pumps) was waived due to relatively small participation and overall savings potential. The other two were for lighting measures. One workpaper, SCE13LG117, covers tube LED (TLED) replacements and is the first deemed workpaper for TLEDs to be approved (from any PA). CPUC staff note some positive aspects of SCE staff's workpaper development, such as requiring customer documentation that compatible ballasts are used with the TLEDs in order to be eligible for incentives. On the negative side, the pilot study that served as the basis for the workpaper development did not appear to include efforts to accurately identify the installed TLED wattage. This made it difficult to estimate the typical expected savings in a deemed application.
- LED workpapers: CPUC staff recently completed a comprehensive review of all workpapers submitted by SCE and PG&E staff that cover LED lamps and fixtures for workpapers which utilize the DEER wattage reduction ratio (WRR) approach to calculate energy. CPUC staff have some concerns with the savings developments, and one major concern with the formatting of the ex ante data. These concerns have been addressed through a comprehensive disposition. CPUC staff assessment is that these workpapers show minimal acceptable quality, but also that all staff concerns are expected to be easily addressed by SCE staff in future submissions. (neutral ESPI score impact).

A summary of 2016 SCE workpaper submissions is provided in Table 2, a summary of workpaper preliminary reviews is provided in Table 3, and a summary of workpaper detailed reviews is provided in Table 4, all in Attachment B.

- **Ex Ante Database Submittals**

SCE staff has shown progress and improvement in their understanding of the EADB structure and required format for submittals. However, CPUC staff highlights two areas where improvement is needed. If SCE staff is able to address the following two areas of their ex ante data submittals, it would accelerate workpaper and data approval as well as improve ESPI scores:

- Resubmitting data that already exists in the ex ante database: SCE staff continues the practice of resubmitting data that already exists in an approved capacity in the ex ante database. For example, there is no need to submit impacts for most lighting measures as their impacts are calculated within the ex ante database based on the baseline-to-measure wattage reduction and thus those existing measure impacts should be referenced not re-submitted.
- Submitting duplicate measure definitions and implementations that result in identical cost effectiveness values: SCE staff continues to submit implementation records where the only difference is the ID yet expansion of the implementation records results in identical cost effectiveness values. It appears that SCE staff submits a different implementation record when there are slight differences in their program implementations. For example, SCE staff will submit different implementation records for upstream incentives versus downstream rebates even though the SCE staff proposed ex ante values associated with these two implementations are identical. In this example, the incentive mechanism has no influence of the final database expansion to the full set of cost effectiveness values, and, in cases like this, CPUC staff has directed SCE staff to submit only one implementation record.

A summary of data submissions that have been reviewed by CPUC staff so as to allow upload to the PEARdb is provided in Table 6 of Attachment B.

In accordance with D.13-09-023, CPUC staff and consultants will schedule a conference call meeting with SCE staff to discuss the mid-year feedback. CPUC staff will send a Doodle Poll to find an available day and time. If you have any questions or comments in the meantime, please contact Peter Lai (Peter.lai@cpuc.ca.gov).

Metric No.	Metric Description
1a	Timeliness of action in the implementation of ordered ex ante requirements in the pre-submittal/implementation phase: Timing of disclosure in relation to reporting.
1b	Timeliness of action in the implementation of ordered ex ante requirements in the post-submittal/implementation phase: Timing of responses to requests for additional information.
2	Breadth of response of activities that show an intention to operationalize and streamline the ex ante review process.
3	Comprehensiveness of submittals.
4	Efforts to bring high profile, high impact, or existing (with data gaps) projects and/or measures to Commission staff in the formative stage for collaboration or input.
5	Quality and appropriateness of project documentation (e.g., shows incorporation of Commission policy directives).
6a	Depth of IOU quality control and technical review of ex ante submittals: Third party oversight.
6b	Depth of IOU quality control and technical review of ex ante submittals: Clarity of submittals and change in savings from IOU-proposed values not related to M&V.
7	Use of recent and relevant data sources that reflect current knowledge on a topic for industry standard practice studies and parameter development that reflects professional care, expertise, and experience.
8	Thoughtful consideration, and incorporation, of CPUC comments/inputs. In lieu of incorporation of comments/input, feedback on why comments/input were not incorporated.
9	Professional care and expertise in the use and application of adopted DEER values and DEER methods.
10	Ongoing effort to incorporate cumulative experience from past activities (including prior Commission staff reviews and recommendations) into current and future work products.

2016 Ex Ante Review Interim ESPI Performance Feedback — SCE

Table 1 - Summary of SCE Mid-Year 2016 Custom dispositions

CPUC ID	Metric 1a	Metric 1b	Metric 2	Metric 3	Metric 4	Metric 5	Metric 6a	Metric 6b	Metric 7	Metric 8	Metric 9	Metric 10	COMMENTS
SCE_0011	**No**	**No**	**-**	**-**	**No**	**-**	**-**	**-**	**Yes**	**No**	**Yes**	**-**	M2, M3, M5, M6a, M6b, M10: The calculation methodology for the project lacks clarity. CPUC Staff do not feel the proposed M&V will provide reliable savings estimates. CPUC Staff require that the PA provide a more concise, logically sequenced, step by step description of the calculation methodology for this project, which does not require the staff reviewer to hunt through the calculations for this project on a sheet by sheet, cell by cell basis to understand the analysis methodology. Of primary interest is the calculation method proposed to be used to estimate the ex ante savings following the collection of post installation data.
SCE_0013	**-**	**No**	**+**	**No**	**No**	**No**	**-**	**No**	**No**	**No**	**No**	**No**	

SCE_0015	**Yes**	**No**	**No**	**+**	**No**	**Yes**	**-**	**-**	**-**	**No**	**-**	**Yes**	M3, M6a, M6b, M7, M9: PA Technical Review: • changed the DEER Building type to Manufacturing Bio/Tech to maximize lighting HOU and apply HVAC IE from what the implementer had appropriately selected as unconditioned space and Light Manufacturing. • failed to limit the VFD EUL value to the RUL of the host equipment. • lacked sufficient depth and professional care of the submitted calculation methodology and workbooks along with the pre-implementation. • did not demonstrate a clear understanding of how code requirements are to be interpreted and applied in establishing measure eligibility and baselines. • did not consider the measure definition requirements stipulated in the SCE Solutions Directory to help determine measure eligibility. • did not recognize the need to follow a more standardized lighting calculation approach for the de-lamping measure and use approved lighting fixture wattages. • did not use available RTU specifications to review the M&V data and better determine analysis inputs and did not recognize that RTU serial numbers indicate the date of manufacture. The new SCE PA Technical Review workbook makes it difficult to read, even in edit mode, when the Project Summary narrative length exceeds the maximum cell height. Lastly, the hourly net grid impact analysis was performed incorrectly.
SCE_0027	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	M2, M3, M5: Reasonably complete documentation addressing the major required information. M6a: PA tech reviewer accepted most of the 3P implementer's submission. M9: reasonable DEER EULs used. M10: Documentation addresses most of the important areas required.

SCE_0049	+	No	+	-	No	-	-	-	-	No	Yes	-	M1a: Uploaded documents in 14 days. M2 submittals reasonably complete, though flawed. M3 submittal lacking critical information on system controls. M5 included redundant equipment cost in cost analysis- correction likely to significantly reduce incentive cap. M6a-6b, 7: poor QC missed several key items on incentive cap, calculation double counting, weak M&V plan. M9 good assessment of EUL for measure leading to classification of the measure as ROB. M10 Missed several key areas which have been the subject of past reviews, cost, M&V, calculation method.
SCE_0059	No	No	No	Yes	No	Yes	-	No	-	No	No	-	M3: The project is reasonably documented and explained. M5: Submittals cover the key areas however there are some discrepancies in the documentation. M6a, M7, M10: Program influence seems questionable the real drivers for this project are not discussed or questionable and this was not addressed by the PA. The PA still seems to struggle with identifying and declining projects where the EE program has little influence.
SCE_0074	No	No	-	Yes	No	-	-	-	-	No	No	-	M2, M5, M6a, M6b, M7, M10: The 3P implementer has not followed the 2014 Statewide Compressed Air Guidelines, and the PA technical reviewer did not catch and correct these deficiencies. M3: Submittals are reasonably complete.

SCE_0075	**No**	**No**	**Yes**	**-**	**No**	**Yes**	**-**	**-**	**No**	**No**	**No**	**-**	M2: Generally complete submission M3: Some crucial information was not provided regarding the existing and proposed control method, cross referencing of pump numbers to pump tests and an audit that is referred to in the documentation but was not provided. M5: Reasonable quality documentation although deficient in some key areas. M6a, 6b: PA reviewer missed some critical issues such as addressing the seasonality in water usage in the analysis, and the EUL of REA measures. M10: the PA still does not understand the requirements for the EUL of REA measures despite previous guidance.
SCE_0078	**No**	**No**	**No**	**-**	**No**	**No**	**-**	**-**	**No**	**No**	**-**	**-**	M3: Missing incentive calculations and T24 baseline analysis, did not check for possible deemed measures and applicable work papers. M6a, M6b: Did not check 3rd party baseline against outdoor lighting T24 requirements and whether the PA already had applicable deemed savings values for claimed measures. PA did not question 3rd party assumptions. M9: PA did not enforce use of DEER operating hours for outdoor lighting. M10: Inadequate PA QC review of the submitted Technical Review.
SCE_0091	**No**	**No**	**Yes**	**Yes**	**No**	**-**	**Yes**	**Yes**	**No**	**No**	**-**	**-**	M2, M3: reasonably comprehensive and complete submittals. M5, M9, M10: failed to incorporate ex post findings regarding the measure EUL, should not have applied DEER pump EUL to this unique project. M6, M6a: Reasonable review effort however missed some important details on clarification of the calculation method and M&V plans. The documentation seems to largely be "cut and paste" from past projects with slightly different measures, leading to a lack of clarity on some important issues which CPUC Staff have required be clarified in a documentation resubmittal.

SCE_X535	-	No	+	+	No	+	+	No	No	No	No	+	Project is adequately described. M&V plan is insufficient, based on pump curves not power measurements. Considering the placeholder savings impacts (~3.9 MM kWh) more effort needs to be made to verify the impacts. The PA has shown improvements with regard to policy related to measure type and measure life. The PA did not include a signed application for the project. The project was selected more than 1 year before any documents were uploaded to the CMPA.

Table 2 - Summary of SCE Mid-Year 2016 Workpaper Submissions

WP ID	Revision	Title	Date Submitted	PA Stated Scope of Submission	Submission Status
SCE13AP007	2	Recycling of Appliances Preventing Continued Use	3/7/2016	Implementation table (Copy of PG&E's PGECOAPP119.6)	Review waived – Interim approval
SCE13CC001	3	Commercial Reach in Refrigerators and Freezers	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC002	2	Commercial Electric Steamers	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC003	2	Commercial Insulated Holding Cabinets	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC004	2	Commercial Electric Fryers	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC005	3	Commercial Electric Griddles	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC006	2	Commercial Electric Combination Ovens	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC007	2	Commercial Ice Machines	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (based on review of lead statewide workpaper: PGECOFST108)
SCE13CC008	2	Commercial Kitchen Exhaust Hoods Demand Controlled Ventilation	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC011	2	Commercial Convection Oven	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC012	2	Commercial Electric Deck Oven	3/21/2016	Removed SCE building types, no value modifications	Review waived – Interim approval
SCE13CC014	2	Commercial Hand Wrap Machines	4/4/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version
SCE13CC014	3	Commercial Hand Wrap Machines	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13CS002	3	Smart Power Strips	3/21/2016	Removed SCE building types, no value modifications	
SCE13CS003	2	Refrigerated Case Door Aisle Traffic Sensor	3/21/2016	Removed SCE building types, no value modifications	

Attachment B: Custom and Workpaper Performance Feedback

WP ID	Revision	Title	Date Submitted	PA Stated Scope of Submission	Submission Status
SCE13CS004	2	Demand Controlled Ventilation + Demand Based Fan Control	3/21/2016	Template update, no value modifications	
SCE13CS008	2	Energy Star Audio Equipment	4/4/2016	Template update, no value modifications	
SCE13CS009	2	Energy Star Blu-Ray/DVD Players	3/21/2016	Template update, no value modifications	
SCE13HC001	2	Energy Star Room Air Conditioners	3/21/2016	Template update, no value modifications	
SCE13HC002	2	Reflective Window Film	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC005	2	Whole House Fan	3/21/2016	Template update, no value modifications	
SCE13HC007	2	High Efficiency Package Terminal Air Conditioners & Heat Pumps 24kBtu/h (2 tons) and under	4/4/2016	Removed SCE building types, no value modifications	
SCE13HC011	2	Air Filter Alarm	3/21/2016	Template update, no value modifications	
SCE13HC013	2	Direct Evaporative Coolers	4/4/2016	Removed SCE building types, no value modifications	
SCE13HC017	2	Direct-Indirect Evaporative Coolers	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC023	3	Quality Installation For Residential Split Systems and Packaged Units	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete
SCE13HC026	3	Window Evaporative Coolers	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC027	2	Portable Room Air Conditioners	3/21/2016	Template update, no value modifications	
SCE13HC028	4	Brushless Fan Motor for Residential Central AC	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC029	4	Residential HVAC Quality Maintenance	3/21/2016	Template update, no value modifications	Detailed Review of Interim Approved Workpaper - initiated

Attachment B: Custom and Workpaper Performance Feedback

WP ID	Revision	Title	Date Submitted	PA Stated Scope of Submission	Submission Status
SCE13HC030	2	Air-Cooled Packaged Chiller	3/21/2016	Template update, no value modifications	Review waived – Interim approval (EAR team notes: DEER2017 update will not allow the current workpaper approach.)
SCE13HC031	2	Air Handler Variable Speed Motor	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC036	1	Variable Refrigerant Flow Commercial Heat Pumps & Heat Recovery Systems >65kBtu/h	4/4/2016	Revised NTGR and EUL, Added GSIA	
SCE13HC038	1	VFD Demand Control System Retrofit to Parking Structure Exhaust Fan	4/4/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version
SCE13HC038	2	VFD Demand Control System Retrofit to Parking Structure Exhaust Fan	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13HC039	3	VFD Retrofit to Central Plant Systems	3/21/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version
SCE13HC039	4	VFD Retrofit to Central Plant Systems	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13HC043	2	Water-Cooled Chillers	3/21/2016	Template update, no value modifications	Review waived – Interim approval (EAR team notes: DEER2017 update will not allow the current workpaper approach.)
SCE13HC044	3	Economizer Repair for Entertainment Centers	3/21/2016	Template update, no value modifications	
SCE13HC045	2	Enhanced Ventilation for Packaged HVAC Units with Gas Heating and Packaged Heat Pumps	3/21/2016	Template update, no value modifications	
SCE13HC046	3	Commercial Economizer - Packaged DX Unit	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC049	2	Setback Programmable Thermostat Controls	3/21/2016	Removed SCE building types, no value modifications	
SCE13HC050	2	Variable Speed Drive on HVAC Fan Control	3/21/2016	Removed SCE building types, no value modifications	

WP ID	Revision	Title	Date Submitted	PA Stated Scope of Submission	Submission Status
SCE13HC051	2	Prescriptive Window Retrofit	3/21/2016	Template upate, no value modifications	
SCE13HC052	2	Efficient Fan Controller for Residential Air Conditioners and Furnaces	4/4/2016	Added solution code, Template update, no value modifications	Review waived – Interim approval
SCE13HC060	2	Classroom HVAC Occupancy Sensor	3/21/2016	Removed SCE building types, no value modifications	
SCE13LG025	3	Occupancy Sensors, Wall or Ceiling Mounted, Wired, Battery, or Self Powered Wireless	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (LEAD)
SCE13LG052	1	LED Channel Letter Signage (Red)	4/4/2016	Removed SCE building types, no value modifications	
SCE13LG063	1	Low Wattage Cold Cathode Replacing Incandescent Lighting	4/4/2016	Removed SCE building types, no value modifications	
SCE13LG076	3	Integrated Linear Fluorescent Occupancy Sensor	3/21/2016	Removed SCE building types, no value modifications	
SCE13LG098	4	Fluorescent to LED Retrofits in Reach-in Display Cases	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13LG102	1	Exterior Induction Lighting	1/4/2016	Updated building types, DEER2016 values, labor cost and cost IDs	Review Waived – Interim approval
SCE13LG117	0	LED T8 Replacement Lamps UL Type A	7/4/2016	Updated WP based on preliminary comments and the new recommended 8 delta Watts.	
SCE13LG126	0	LED Ambient Commercial Fixtures - Retrofit Kits with T12 Baseline	7/4/2016	Update to 5/23/16 submittal.	Detailed review – resubmit
SCE13OE001	2	Power Management Software for Networked Computers	3/21/2016	Removed SCE building types, no value modifications	
SCE13PR003	2	Agricultural Pump System Overhaul	4/4/2016	Changed building type from Ag to MLI, no value modifications	Review waived – Interim approval
SCE13PR004	2	Agricultural Milk Transfer Pump VSD	4/4/2016	Removed SCE building types, no value modifications	
SCE13PR005	2	Air Compressor VSD	3/21/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version

WP ID	Revision	Title	Date Submitted	PA Stated Scope of Submission	Submission Status
SCE13PR005	3	Air Compressor VSD	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13PR006	2	Industrial Blower Replacing Air Compressor	3/21/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version
SCE13PR006	3	Industrial Blower Replacing Air Compressor	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13PR007	3	Cycling Air Dryers for Compressed Air Systems	4/4/2016	Removed SCE building types, no value modifications	
SCE13PR008	2	Process Fan VFD	3/21/2016	Removed SCE building types, no value modifications	
SCE13RN003	1	Insulation of Bare Refrigeration Suction Lines	4/4/2016	Removed SCE building types, no value modifications	
SCE13RN005	2	Night Covers for Vertical and Horizontal Display Cases (Low and Medium Temperature Cases)	3/21/2016	Removed SCE building types, no value modifications	
SCE13RN009	2	Anti-Sweat Heat (ASH) Control	3/21/2016	Removed SCE building types, no value modifications	
SCE13RN011	2	Evaporator Fan Motors	3/21/2016	Removed SCE building types, no value modifications	
SCE13RN018	2	Low ASH Display Doors	3/21/2016	Removed SCE building types, no value modifications	
SCE13RN023	3	Refrigeration Floating Suction and Head Pressure Controls	3/21/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version
SCE13RN023	4	Refrigeration Floating Suction and Head Pressure Controls	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13RN024	2	Refrigerated Storage Auto Closer	3/21/2016	Removed SCE building types, no value modifications	Revision submitted before EAR review could be performed on this version
SCE13RN024	3	Refrigerated Storage Auto Closer	7/4/2016	Added Small Office building type	Review waived – Interim approval
SCE13RN025	2	Walk-in Cooler Evaporative Fan Cycling Control or VFD Control	4/4/2016	Removed SCE building types, no value modifications	
SCE13RN027	1	Add Doors to Open Medium Temperature Cases	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (based on review of lead statewide workpaper: PGE3PREF116)

Attachment B: Custom and Workpaper Performance Feedback

WP ID	Revision	Title	Date Submitted	PA Stated Scope of Submission	Submission Status
SCE13WH001	3	Heat Pump Water Heaters	4/4/2016	Template update, no value modifications	
SCE13WH003	2	Pipe Wrap	4/4/2016	Template update, no value modifications	
SCE13WP001	3	Residential Variable Speed Swimming Pool Pump	4/4/2016	Updated NTG	
SCE13WP003	1	Farm Sprinkler to Micro Irrigation Conversion	4/4/2016	Changed building type from Ag to MLI, no value modifications	Preliminary Review - Incomplete (based on review of lead statewide workpaper: PGECOAGR111)
SCE13WP004	3	Faucet Aerator and Low Flow Showerhead	4/4/2016	Template update, no value modifications	
SCE13WP007	1	Low Pressure Sprinkler Nozzles	4/4/2016	Changed building type from Ag to MLI, no value modifications	Preliminary Review - Incomplete (based on review of lead statewide workpaper: PGECOAGR112)
SCE13WP008	0	Commercial Variable Speed Swimming Pool Pump	6/6/2016	New work paper based on Commercial Variable Speed Pool Pump Market Characterization and Metering Study ET13SCE1170/ET13SCE1171	Review waived – Interim approval

Table 3 - Summary of SCE Mid-Year Workpaper Preliminary Reviews

WP ID	Revision	Title	Date Issued	PA Stated Scope of Submission	Review Status	Other EAR Notes
SCE13CC007		Commercial Ice Machines	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (PGECOFST108)	Statewide coordination is needed. These workpapers are examples of where that is not happening. Often, the 'lead' workpaper is more recent than the "participant" workpaper.
SCE13LG025		Occupancy Sensors, Wall or Ceiling Mounted, Wired, Battery, or Self Powered Wireless	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (LEAD)	
SCE13RN027		Add Doors to Open Medium Temperature Cases	4/4/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (PGE3PREF116)	
SCE13WP003		Farm Sprinkler to Micro Irrigation Conversion	4/4/2016	Changed building type from Ag to MLI, no value modifications	Preliminary Review - Incomplete (PGECOAGR111)	
SCE13WP007		Low Pressure Sprinkler Nozzles	4/4/2016	Changed building type from Ag to MLI, no value modifications	Preliminary Review - Incomplete (PGECOAGR112)	

Table 4 - Summary of SCE Mid-Year 2016 Workpaper Detailed Reviews

WP ID	Revision	Title	Date Issued	Summary of Issues
SCE13LG103	3	Interior LED Downlight Fixtures	7/22/2016	Primary Ex Ante development concerns: 1. Use of wattage ranges without using the lowest wattage in the range 2. Cost data that seemed to have not been reviewed internally, such as perhaps transposed labor and material costs 3. Fixtures (SCE13LG103, SCE13LG115, SCE13LG119) assume the a WRR without consideration for Title 24 efficacy requirements nor the likelihood that standard practice may include some fraction of high efficacy installations. Primary Ex Ante data concern: SCE submits numerous measures and implementations that result in identical cost effectiveness values (CEVs) with the only difference being slight variations in the IDs. This appears to be a way for SCE to keep track of different funding methods, but is not acceptable for the EADB since it results in identical CEVs.
SCE13LG106	3	MR16, PAR20, PAR30, PAR38, A, Candelabra, Globe Lamps, and Residential LED Lamp Giveaway	7/22/2016	
SCE13LG109	1	Exterior LED Lamp Replacement	7/22/2016	
SCE13LG115	1	Residential LED Interior Fixtures	7/22/2016	
SCE13LG119	0	Residential LED Exterior Fixtures	7/22/2016	
SCE13LG126	0	LED Ambient Commercial Fixtures - Retrofit Kits with T12 Baseline	6/25/2016	Workpaper submitted to support early retirement claims via deemed programs including upstream/midstream incentives. CPUC staff repeated previous concerns about difficulty supporting ER in deemed programs, especially upstream/midstream.
SCE13LG117	0	LED T8 Replacement Lamps UL Type A	6/19/2016	Supporting field work did not appear to adequately verify installed measure power draw. CPUC staff did not accept the proposed use of the emerging technology NTG (0.85). ET budgets funded the research but SCE did not demonstrate that the ET program was instrumental in developing the measure definition or program implementation details.

Table 5 – Summary of SCE Mid-Year 2016 Workpaper Unresolved Preliminary Reviews

WP ID	Revision	Title	Date Issued	Scope of Submission	Review Status	Other EAR Notes
SCE13CC013		Commercial Pressure Fryers	7/3/2015	New Workpaper with corrections based on preliminary review	Preliminary Review - Incomplete	Not resubmitted. SCE notes they are working on ISP and measure is not being offered.
SCE13LG019		Energy Star Ceiling Fan with CFLs	12/15/2015	Changed install type and updated DEER2016 values	Preliminary Review - Incomplete	
SCE13LG116		LED Residential GU-24 Lamps	4/4/2015	New Workpaper	Preliminary Review - Incomplete	
SCE13PR009		Zero Air Loss Condensate Drains for Compressed Air Systems	7/24/2015	This work paper documents the energy savings realized by replacing existing timer operated standard condensate drains with zero loss condensate drains on compressed air systems. Workpaper has been revised to consider results from a recently published ET study.	Preliminary Review - Incomplete	Not resubmitted
SCE13CC015		Commercial High Density Universal Holding Cabinet Systems	7/17/2015	New Workpaper	Preliminary Review - Incomplete	

WP ID	Revision	Title	Date Issued	Scope of Submission	Review Status	Other EAR Notes
SCE13HC012		Unitary Air Cooled Commercial Air Conditioning and Heat Pump Units Uner 65 kBtuh	12/22/2015	Updated DEER2016 values, removed building types, and updated costs	Preliminary Review - Incomplete	No apparent follow-through on additional technical development efforts thatwere direct in review.
SCE13HC023		Quality Installation For Residential Split Systems and Packaged Units	7/21/2015	This workpaper update includes scaling of "DEER update for 2015 Codes" effective January 1, 2015 affecting all DEER HVAC measures based on SEER-rated equipment	Preliminary Review - Incomplete	
SCE13HC025		Water Cooled AC and Residential AC with an Evaporative Condenser	12/22/2015	Updated DEER2016 values	Preliminary Review - Incomplete	
SCE13HC033		Ductless Mini-Split and Multi-Split Air Conditioning and Heat Pumps under 65 kBtu/hr	12/31/2015	Updated DEER2016 values	Preliminary Review - Incomplete	
SCE13HC035		Unitary Air-Cooled Commercial Air Conditioners and Heat Pumps >=65 kBtu/h	1/8/2016	Verified impacts, removed expired building types, updated tier matrix, DEER2016 cost, NTG, EUL and GSI, added DEER IDs	Preliminary Review - Incomplete	
SCE13HC048		Water Source Heat Pumps	12/22/2015	Updated DEER2016 values	Preliminary Review - Incomplete	
SCE13LG090		Interior Induction Lighting	12/18/2015	All savings from READI v2.3.0 and removed DEER2008 costs replaced w/ WO17	Review waived – Interim approval	Measures not updated; expired in June 2016
SCE13CC007		Commercial Ice Machines	4/19/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (PGECOFST108)	Statewide coordination is needed. This workpaper is an example of where that is not happening.
SCE13LG025		Occupancy Sensors, Wall or Ceiling Mounted, Wired, Battery, or Self Powered Wireless	4/19/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (LEAD)	
SCE13RN027		Add Doors to Open Medium Temperature Cases	4/19/2016	Removed SCE building types, no value modifications	Preliminary Review - Incomplete (PGE3PREF116)	

WP ID	Revision	Title	Date Issued	Scope of Submission	Review Status	Other EAR Notes
SCE13WP003		Farm Sprinkler to Micro Irrigation Conversion	4/19/2016	Changed building type from Ag to MLI, no value modifications	Preliminary Review - Incomplete (PGECOAGR111)	
SCE13WP007		Low Pressure Sprinkler Nozzles	4/19/2016	Changed building type from Ag to MLI, no value modifications	Preliminary Review - Incomplete (PGECOAGR112)	

Table 6 - Summary of SCE Mid-Year 2016 Workpaper Reviewed Ex Ante Data

WP ID	Revision	Title	PEARdb Ready?	Reason	Uploaded to EADB?	Ready for upload?	Date Submitted
SCE13CS005	2	Beverage Merchandise Controller	Yes		No	Yes	12/7/2015
SCE13LG108	3	Exterior LED Wall Pack Fixtures	Yes		No	Yes	12/7/2015
SCE13LG098	3	Fluorescent to LED Retrofits in Reach-in Display Cases	Yes		No	Yes	12/7/2015
SCE13PR003	2	Agricultural Pump System Overhaul	Yes		No	Yes	4/4/2016
SCE13PR007	3	Cycling Air Dryers for Compressed Air Systems	Yes		No	Yes	4/4/2016
SCE13LG020	2	Wall Mounted Occupancy Sensors – Multifamily	Yes		No	Yes	12/7/2015
SCE13LG089	2	Interior Bi-Level Stairwell Lighting	Yes		No	Yes	12/7/2015
SCE13LG092	2	Fluorescent Lamp to Fluorescent Lamp	Yes		No	Yes	12/7/2015
SCE13LG086	2	Interior Linear Fluorescent Fixture	Yes		No	Yes	12/7/2015
SCE13LG099	2	Interior Integral Non Dimmable (Screw-in) CFLs	Yes		No	Yes	12/7/2015
SCE13LG114	1	LED Exterior Light with Motion Sensor	Yes		No	Yes	12/7/2015
SCE13HC040	2	Cogged V-Belt Non-Residential HVAC Fans	Yes		No	Yes	12/7/2015

WP ID	Revision	Title	PEARdb Ready?	Reason	Uploaded to EADB?	Ready for upload?	Date Submitted
SCE13LG087	2	Fluorescent-to-Fluorescent Lamp and Ballast Retrofit	Yes		No	Yes	12/7/2015
SCE13LG097	2	LED Street Lighting	Yes		No	Yes	1/4/2016
SCE13LG105	3	LED Exterior Landscape Lighting Fixture	Yes		No	Yes	1/4/2016
SCE13LG017	2	Interior Integral Non Dimmable (Screw-in) CFLs	Yes		No	Yes	1/4/2016
SCE13LG007	1	Pin Based Exterior Compact Fluorescent Lamp (CFL) Fixture	Yes		No	Yes	12/7/2015
SCE13LG075	2	CFL Plug in Lamps	Yes		No	Yes	12/7/2015
SCE13LG111	1	LED High and Low Bay Fixtures	Yes		No	Yes	12/21/2015
SCE13LG085	4	Interior Compact Fluorescent Fixture	Yes		No	Yes	12/21/2015
SCE13WP009	2	Residential Variable Speed Spa and Wading Pool Pump	Yes		No	Yes	12/21/2015
SCE13AP001	3	Energy Efficient Refrigerators	Yes		No	Yes	12/21/2015
SCE13MI001	3	Residential Audits	Yes		No	Yes	12/21/2015
SCE13LG071	2	Led Pool and Spa Lighting	Yes		No	Yes	12/7/2015
SCE13LG070	2	Replace Neon Open Sign with LED Open Sign	Yes		No	Yes	12/7/2015
SCE13CC001	3	Commercial Reach in Refrigerators and Freezers	Yes		No	Yes	3/21/2016
SCE13CC008	2	Commercial Kitchen Exhaust Hoods Demand Controlled Ventilation	Yes		No	Yes	3/21/2016
SCE13CC012	2	Commercial Electric Deck Oven	Yes		No	Yes	3/21/2016
SCE13CS002	3	Smart Power Strips	Yes		No	Yes	3/21/2016
SCE13AP007	2	Recycling of Appliances Preventing Continued Use	Yes	implementation table only	No	Yes	3/7/2016
SCE13CS004	2	Demand Controlled Ventilation	Yes		No	Yes	3/9/2016

WP ID	Revision	Title	PEARdb Ready?	Reason	Uploaded to EADB?	Ready for upload?	Date Submitted
SCE13CS003	2	Refrigerated Case Door Aisle Traffic Sensor	Yes		No	Yes	3/9/2016
SCE13HC002	2	Reflective Window Film	Yes		No	Yes	3/9/2016
SCE13CS009	2	Blu-Ray_DVD_Players	Yes		No	Yes	3/9/2016
SCE13HC005	2	Whole House Fan	Yes		No	Yes	3/9/2016
SCE13HC051	2	Tint Window Retrofit	Yes		No	Yes	3/9/2016
SCE13HC060	2	Classroon HVAC Occupancy Sensor	Yes		No	Yes	3/14/2016
SCE13OE001	2	Power Management Software for Networked Computers	Yes		No	Yes	3/14/2016
SCE13LG076	3	Integrated Linear Fluorescent Occupancy Sensor	Yes		No	Yes	3/14/2016
SCE13HC044	3	Economizer Repair for Entertainment Center	Yes	missing implementations only	No	Yes	3/14/2016
SCE13HC046	3	Commercial Economizer - Packaged DX Unit	Yes		No	Yes	3/14/2016
SCE13HC001	2	Energy Star Room Air Conditioners	Yes		No	Yes	3/21/2016
SCE13HC028	4	Brushless Fan Motor for Residential Central AC	Yes		No	Yes	3/21/2016
SCE13HC039	3	VFD Retrofit to Central Plant Systems	Yes		No	Yes	3/21/2016
SCE13HC011	2	Air Filter Alarm	Yes		No	Yes	3/21/2016
SCE13HC017	2	Direct-Indirect Evaporative Coolers	Yes		No	Yes	3/21/2016
SCE13HC026	3	Window Evaporative Coolers	Yes		No	Yes	3/21/2016
SCE13HC027	2	Portable Room Air Conditioners	Yes		No	Yes	3/21/2016
SCE13PR005	2	Air Compressor VSD	Yes		No	Yes	3/21/2016
SCE13PR006	2	Industrial Blower Replacing Air Compressor	Yes		No	Yes	3/21/2016
SCE13PR008	2	Process Fan VFD	Yes		No	Yes	3/21/2016

WP ID	Revision	Title	PEARdb Ready?	Reason	Uploaded to EADB?	Ready for upload?	Date Submitted
SCE13RN005	2	Night Covers for Vertical and Horizontal Display Cases (Low and Medium Temperature Cases)	Yes		No	Yes	3/21/2016
SCE13RN009	2	Anti-Sweat Heat (ASH) Control	Yes		No	Yes	3/21/2016
SCE13RN011	2	Evaporator Fan Motors	Yes		No	Yes	3/21/2016
SCE13RN018	2	Low ASH Display Doors	Yes		No	Yes	3/21/2016
SCE13RN023	3	Refrigeration Floating Suction and Head Pressure Controls	Yes		No	Yes	3/21/2016
SCE13RN024	2	Refrigerated Storage Auto Closer	Yes		No	Yes	3/21/2016
SCE13CS008	2	Energy Star Audio Equipment	Yes		No	Yes	4/4/2016
SCE13HC007	2	High Efficiency Package Terminal Air Conditioners & Heat Pumps 24kBtu/h (2 tons) and under	Yes		No	Yes	4/4/2016
SCE13HC013	2	Direct Evaporative Coolers	Yes		No	Yes	4/4/2016
SCE13HC023	3	Quality Installation For Residential Split Systems and Packaged Units	Yes		No	Yes	4/4/2016
SCE13HC036	1	Variable Refrigerant Flow Commercial Heat Pumps & Heat Recovery Systems >65kBtu/h	Yes		No	Yes	4/4/2016
SCE13HC038	1	VFD Demand Control System Retrofit to Parking Structure Exhaust Fan	Yes		No	Yes	4/4/2016
SCE13HC052	2	Efficient Fan Controller for Residential Air Conditioners and Furnaces	Yes		No	Yes	4/4/2016
SCE13LG052	1	LED Channel Letter Signage (Red)	Yes		No	Yes	4/4/2016
SCE13LG063	1	Low Wattage Cold Cathode Replacing Incandescent Lighting	Yes		No	Yes	4/4/2016
SCE13PR004	2	Agricultural Milk Transfer Pump VSD	Yes		No	Yes	4/4/2016

WP ID	Revision	Title	PEARdb Ready?	Reason	Uploaded to EADB?	Ready for upload?	Date Submitted
SCE13RN003	1	Insulation of Bare Refrigeration Suction Lines	Yes		No	Yes	4/4/2016
SCE13RN025	2	Walk-in Cooler Evaporative Fan Cycling Control or VFD Control	Yes		No	Yes	4/4/2016
SCE13WH001	3	Heat Pump Water Heaters	Yes		No	Yes	4/4/2016
SCE13WH003	2	Pipe Wrap	Yes		No	Yes	4/4/2016
SCE13WP001	3	Residential Variable Speed Swimming Pool Pump	Yes		No	Yes	4/4/2016
SCE13WP004	3	Faucet Aerator and Low Flow Showerhead	Yes		No	Yes	4/4/2016
SCE13CS005	2	Beverage Merchandise Controller	Yes		No	Yes	12/7/2015

Table 7 - Summary of SCE Mid-Year 2016 Workpaper Additional Ex Ante Activities

WP ID	Description	Summary	Progress
Several Workpapers	Food service and commercial cooking workpapers	11-07-030 directed industry standard practice research.	CPUC staff and EAR team not aware of any PA initiated work in this area.
Statewide	Variable refrigerant flow commercial systems	CPUC staff directed industry standard practice research for both ROB/NR/NC as well as "three pronged test" fuel switching baselines	Draft survey provided to CPUC staff and EAR team for review on 5/4/2016. Comments and recommendations provided on 5/12/2016. No further updates from PG&E
Statewide (Several Workpapers)	Screw-in and MR-16 LED lamps; LED recessed and surface fixtures, pendants and downlights.	2012 LED disposition directed PAs to develop uniform statewide costs.	CPUC staff and EAR team not aware of any statewide efforts to update LED costs or develop flexible cost modeling approaches for these products.

WP ID	Description	Summary	Progress
Statewide (Several Workpapers)	Commercial package HVAC <65 kBtuh split and rooftop high SEER equipment	Develop performance maps for units with SEER > 15. Previous workpapers had "mapped" commercial savings over 15 SEER to similar measures in residential. EAR review rejected this approach for 2016 and directed PAs to develop new performance maps.	CPUC staff and EAR team not aware of any PA initiated work in this area.
Statewide	Commercial ductless mini-split heat pumps and air conditioners	Industry standard practice and performance map research. EAR team directed ISP research (and possible fuel switching research) similar to VRF research. Additionally, preliminary review directed the development of performance maps. Previous workpapers had "mapped" savings to conventional package HVAC results. EAR review rejected this approach for 2016 and directed PAs to develop performance maps.	CPUC staff and EAR team not aware of any PA initiated work in this area.