CPUC Staff Ex Ante Review

CPUC Staff Project ID Number	SCE_NA_C_I_567 ▮▮▮▮
CMPA Directory Link	https://deeresources.info/cmpa/projects/18765
PA	SCE
PA Application ID	▮▮▮▮
PA Application Executed Date	2/5/2020
PA Program ID	SCE-13-SW-003D
PA Program Name	Industrial Strategic Management Program (SEM)
PA Program Year	2020
Date of CPUC Staff Review:	11/12/2020
PA CMPA Upload Dates Included in this review:	
First PA Upload	9/1/2020
Second PA Upload	10/6/2020
Third PA Upload	N/A
Fourth PA Upload	
Fifth PA Upload	
Sixth PA Upload	
Seventh PA Upload	
Eighth PA Upload	
PA Measure Description(s):	
Measure 1	
Measure 2	
Measure 3	
Measure 4	
Measure 5	
Measure 6	
Measure 7	
Measure 8	
Measure 9	
Measure 10	
PA Project Description:	SEM BRO
Bi-Monthly Upload kW Demand Reduction	
Bi-Monthly Upload Annual kWh Impacts	▮▮▮
Bi-Monthly Upload Therm Impacts	
PA Proposed Incentive $ (to Customer)	▮▮▮
Project Documentation kW Demand Reduction	
Project Documentation Annual kWh Impacts	▮▮▮
Project Documentation Annual Therm Impacts	▮▮▮
CPUC Staff Primary Reviewer Name	▮▮▮
CPUC Staff Primary Reviewer Firm	▮▮▮
CPUC Staff Review Supervisor Name	
CPUC Staff Review Supervisor Firm	▮▮▮
PA Primary Reviewer Name	0.0
PA Primary Reviewer Firm	0.0
CPUC Staff Project Manager	▮▮▮▮▮▮
CPUC Staff Policy Authorization (as needed)	
CPUC Staff Recommendation:	**Advisory**
For rejection, action required:	N/A
M&V Review:	Post M&V Review (M&V Results and Final Calculations) Required

Action Number:	Summary of CPUC Staff Required Action by the PA:	Action Category	Due Date	PA Response	ED Resolution
1	An error in the Hypothesis Model Report was observed regarding the determination of multicollinearity. Table 6 titled "Matrix of Correlation between Variables" represents the Correlation Coefficient (also known as R) between each set of variables, and the text accompanying the table describes the criteria used for assessing multicollinearity as, "An absolute value of bivariate correlation > 0.7 is not an exclusionary criterion, ..." According to Annex C of the CA Industrial SEM MV Guide, however, the criterion for examining collinearity is based on the Coefficient of Determination, or R^2>0.7, rather than the Coefficient of Correlation, R, used in the reports. We suggest examining the variables based on the Coefficient of Determination, R^2, to reassess the multicollinearity and inclusion of variables in the models.	Calculation method	N/A	Thank you for bringing this to our attention. This change makes the independent variable correlation less restrictive. For example, a suggested limit on R-squared of 0.7 is equivalent to a limit on R of 0.84. No variables were excluded based on the Matrix of Correlation using R, so making this less restrictive would also result in no variables being excluded. We propose to update this Matrix using R-squared for future model development and reports. We note that many of the variables in Table 5 (not 6) of the hypothesis model report show high values indicating colinearity. This may mean that some of these variables add little new information to inform the model. There may be a risk of overfitting. The implementer can reassess the independent variables to see if it can reduce the colinearity among the models for the savings report. We note the SEM M&V Guide does not require variables with high colinearity be removed.	No further comment. Note: PI switched from tops down to bottoms up analysis. Issue no longer relevant.

2	The account number on the provided electric bill does not match that in the Data Collection Plan and Energy Data Report, though the address does. Please update accordingly.	Project scope unclear	N/A	Account number has been updated in the attached R3 version of the reports.	Thank you. No further comment
3	Please update Figure 4 of the Hypothesis Model reports, which show time series plots of the actual and predicted usage, to be line charts rather than points, as representation by points make it difficult to properly compare the results.	Calculation method	N/A	This is a matter of preference as line charts can also be difficult to compare in our opinion. The raw data was provided and can be analyzed and graphed in any way desired for a more detailed review. Note Figure 1, the time series of the residuals is our preferred way of visualizing the difference between the predicted and actual.	No further comment. Note: PI switched from tops down to bottoms up analysis. Issue no longer relevant.
4	In the selected electricity model, the impact of the battery storage system is accounted for as an independent variable. According to section 5.0 of the CA Industrial SEM M&V Guide, energy drawn out of storage and added to storage should be accounted for in the calculation of energy consumption. We recommend updating the model to use the battery system kWh/day as an adjustment to the energy consumption, prior to forming the regression model, rather than as an independent variable in the regression.	Analysis assumptions	N/A	The reason we chose to include this information as a variable instead of a correction is that the battery charging and discharging efficiency was not known (but is not 100%). Including it as a variable allowed it to be modeled to determine the average 'round-trip' efficiency for slightly improved accuracy. We propose to deviate from the M&V guide in this instance due to the assumed improved accuracy unless there are other downsides to this approach we have not considered. A comparison of models should be made to show the difference in goodness of fit and accuracy between the two approaches, as well as assess the model for overfitting.	No further comment. Note: PI switched from tops down to bottoms up analysis. Issue no longer relevant.
5	There is a discrepancy between Table 1 and Table 4 of the "Hypothesis Model Report - Natural Gas" in which the stats of the "selected" model do not match. Table 1 represents the model reflected by the data/model review files provided. Please review to determine the reason for the discrepancy, and update the report or model as needed.	Analysis assumptions	N/A	Table 4 contained the incorrect final selected model. The rest of the report is correct and no model changes are needed.	No further comment. Note: PI switched from tops down to bottoms up analysis. Issue no longer relevant.
6	Two potential NREs were unaccounted for 1)Table 1 of the Scoping Report notes an LED lighting project implemented at the end of Q2 2019 that was not included in the baseline electricity model or mentioned in the "Hypothesis Model - Electricity" report. 2). Page 6 of the Scoping Report notes the addiction of two █ hp machines that were installed in the last quarter of 2019, which was not included in the baseline electricity model or mentioned in the "Hypothesis Model - Electricity" report.	Analysis assumptions	N/A	Both of these projects were either an insignificant portion of the total site energy and/or the model had enough data (days) to properly account for them as the CUSUM remains flat well into the performance period until the site began implementing energy savings projects. It's also possible the "█████ Dust Collector Retrofit Indicator" variable captured a portion of these impacts as well. It's even possible the two balanced each other out. However, the two █ hp machines effect should be investigated prior to final selection of the baseline model. Recommend a separate indicator variable and test it for significance.	No further comment. Note: PI switched from tops down to bottoms up analysis. Issue no longer relevant.
7	Potential errors were identified in the accounting of two NREs that were included in the baseline models. 1)The dust collector upgrade is noted in the Scoping Report as occuring in ████ , whereas the "Electricity Model" and "Hypothesis Model Report - Electricity" show a start date of ████ . Please update for consistency and ensure impact is accounted for correctly. 2) The dust collector upgrade is noted in the Scoping Report as consisting of upgrading from 3, ███ hp motors to 3, ███ hp motors with VFDs, whereas the "Hypothesis Model Report - Electricity" describes it as upgrading ██ hp of motors. Please update for accuracy and consistency. 3) The "█████ Furnace Calibration Indicator" is described on Page 3 of the "Hypothesis Model Report - Gas" as being "0" until after implementation on ████ where it goes to "1", however in the model, the reverse is true. Please update the report to match the methodology in the model. 4) Please review the details of the ████ furnace calibration to ensure it should be included as an NRE. For example, how long does the furnace remain calibrated and how often do they perform calibration. If the furnace is calibrated each year, an NRE adjustment may not be appropriate. 5) Section 2.0 of the "Hypothesis Model Report - Gas" states that there were no non-routine adjustments during the baseline period. Please update to include a description of the ████ furnace calibration.	Calculation method	N/A	1) There was some discrepancy from the site itself as to when this project was implemented. The scoping report has been updated to list ███ rather than ███ . 2) The Hypothesis model report described this as "about ██ hp". Updated to match exact language from Scoping Report. 3) Adjusted the language to match the data. 4) We agree this should likely not be an NRE as we now know the furnaces are calibrated somewhat regularly. However, if we remove this indicator variable, the model predicts savings well before any projects were completed in the performance period. In other words, this indicator variable 'flattens' the CUSUM going into the performance period- a noticable inflection occurs in the CUSUM without it. Further exploration with the site uncovered that they went into a shutdown just prior to this CUSUM inflection, and during the shutdown they repaired and performed insulation work on furnaces. We propose to update the variable name to "Pre█████ Furnace Insulation and Improvements Indicator". 5) Added this NRE to Section 2.0.	No further comment. Note: PI switched from tops down to bottoms up analysis. Issue no longer relevant.

8	Data missing in the bimonthly upload measure description, address, and sector.	Missing required information	N/A	Per SCE/CPUC bi-weekly call on 12/3/2020 (Please refer to the meeting notes for more details), CPUC staff and SCE clarified that CPUC staff could have made this comment because CPUC staff didn't realize that there is the updated version with all fields populated per ███ request prior to this package submittal. During this call, we have confirmed that SCE's the latest bi-monthly list (submitted on 09/01/20) there is no missing data. SCE recommends to remove this item from the disposition.	Remove action item
9	Savings from bimonthly upload does not match values in project package	Other - savings do not match bimontly uplload	N/A	Per SCE/CPUC bi-weekly call on 12/3/2020 (Please refer to the meeting notes for more details), CPUC staff and SCE clarified that CPUC staff has requested "rough estimates" for the bi-monthly list with estimates of savings and incentives filled to help CPUC staff selection. During this call, CPUC staff has acknowledged that this comment doesn't apply based on our prior discussions captured in the CMPA message. SCE recommends to remove this item from the disposition	Remove action item
10	Initial savings estimates based on ██% of annual kWh consumption and █% of gas consumption. Please provide documenation supporting the fractional savings estimates.	Analysis assumptions	N/A	The ██% number is in a section of the Scoping Report called "Targeted Savings". Note that the Scoping Report is developed before we have done any work with the site, so the percent target is not based on any documentation. No investigations or treasure hunts have been performed prior to the Scoping study. We have been using ██% in all Scoping Reports to date as a placeholder. Page 63 of the Design Guide asks for the Scoping Report to include "Estimated Savings" but does not specify that any documentation is required. Choosing a target savings value of █% or more is an acceptable practice to understand how accurately the savings may be reported.	█% as a placeholder value seems high and may result in an underestimate of the upfront fractional savings uncertainty for projects using an IPMVP Option C approach. Whole facility savings fractions on the order of 3%-5% are more common for SEM projects. Suggest tracking actual savings fractions from completed projects and updating the ██% assumption as results come in. Note PI switched from tops down to bottoms up analysis. Issue no longer relevant.

Note or Instruction Number:	CPUC Staff Notes or Instructions:	Instruction Category	Due Date	PA Response	ED Resolution

CPUC Staff Recommendation Definitions	
CPUC Staff Recommendation	**Definition**
Application ready to proceed without exception	The PA will continue to upload application documents to the CMPA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. A project is waived from further review at the post-installation stage by CPUC staff, but the PA is responsible for post-installation (IR) review. There will not be conditional approval.
Application ready to proceed with exception(s), as noted	The PA must make revisions or changes as noted in CPUC Staff's review comments. The PA will continue to upload application documents to the CMPA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. If CPUC Staff decides to perform IR review of a project, CPUC Staff will notify the PA. The scope will be limited to determine if the project was carried out consistent with the application and notes provided during pre-installation review and to obtain information pertaining to whether the eligibility criteria or metrics should be revised. Unless the scope of work presented in project application has changed at IR review, the project will not be reviewed again in the areas specified below. Scope change is defined by substantial changes include significant modifications to the proposed equipment type, size, quantity, configuration, the expansion of a project to include additional retrofits, or the splitting of a project into multiple phases. The following areas will not be reviewed again by CPUC Staff • Calculation Tool • Calculation Methodology • M&V Plan • Baseline • Eligibility • EUL/RUL • Measure Type • Program Influence
Application rejected.	The application is rejected as submitted. The PA shall promptly inform the applicant as to the reasons why the project was rejected and the specific recommendations for the conditions under which the project would be approved. CPUC Staff shall provide the reasons for the rejection or request for modification, including each basis as to why the project is rejected, or modification is requested. In addition, CPUC Staff shall provide specific recommendations for the conditions under which the project would be approved. If any party to the project is unsatisfied with the Commission's directions for the project, a dispute resolution process may be initiated by that party. The Commission shall adopt rules for the conduct of the dispute resolution process. – Section 381.2 (g) (3) (F)