

CPUC Staff Ex Ante Review

CPUC Staff Project ID Number	PGE-16-T-I-0123 2K1600072642 Pump Sequencing	
CMPA Directory Link	https://deeresources.info/cmpa/projects/14380	
PA	PG&E	
PA Application ID	PRJ - 00094779 (formerly 2K1600072642)	
PA Application Executed Date	10/5/2016	
PA Program ID	PGE210135	
PA Program Name	Water Infrastructure & system efficiency program	
PA Program Year	2016	
CPUC Staff Review Number (1, 2, 3 etc.)	1	
Dates of CPUC Staff Review:		
First Review	3/29/2016	
PA CMPA Upload Dates Included in this review:		
First PA Upload	2/10/2017	
PA Measure Description(s):		
Measure 1	<p>Automating the sequencing the well pump operation for a water agency based on individual pump energy intensity (kWh/Acre-foot). Full Measure Cost: \$836,318 EUL: 15 years (PFS) Measure Type: Not provided</p>	
PA Project Description:	<p>Three zones of a water company are served by 57, 14 and 10 pumps respectively. Currently, there is no established sequence for the operation of the pumps. Pumps are brought online depending on demand and operators' preference. According to the customer multiple considerations may affect the operation of the system, which include minimum pressure requirements, tank turn over to maintain water quality and blending requirements.</p> <p>The project proposes to develop a sequencing strategy for the well pumps. It is proposed to install power monitoring for each individual pump so energy intensity (kWh/acre-foot) can be calculated on a real-time basis and tied into the SCADA system. The proposed control strategy of the pumps is dynamic and automatic sequencing based on energy intensity . An algorithm utilizing flow and power information will be developed for the pumps listed above with their operation prioritized based on the lowest energy intensity.</p>	
PA Ex Ante kW Demand Reduction		-
PA Ex Ante Annual kWh Impacts		2,529,606
PA Ex Ante Annual Therm Impacts		-
PA Proposed Incentive \$ (to Customer)	\$	202,368
PA Proposed Total Payment to Implementer \$ (not to include the above incentive to customer)	\$	551,454
CPUC Staff Approved Ex Ante kW Demand Reduction	NA	Estimated by CPUC Staff
CPUC Staff Approved Ex Ante Annual kWh Impacts	NA	
CPUC Staff Approved Ex Ante Annual Therm Impacts	NA	
CPUC Staff Primary Reviewer Name	Keith Rothenberg	

CPUC Staff Primary Reviewer Firm	Energy Metrics		
CPUC Staff Review Supervisor Name	Leonel Campoy		
CPUC Staff Review Supervisor Firm	Itron		
PA Primary Reviewer Name	Glen LaPalme		
PA Primary Reviewer Firm	PL Energy		
CPUC Staff Project Manager	██████████ / California Public Utilities Commission, Energy Division		
CPUC Staff Policy Authorization (as needed)			
CPUC Staff Recommendation Marked "X":			
	Application waived from further Staff review		
	Application approved without exception		
	Application approved as noted		
X	Application not approved, revise and resubmit as noted		
	Application rejected.		
	Other (Describe)		
Action Number:	Summary of CPUC Staff Required Action by the PA:	Action Category	Due Date
1	The customer has contacted CPUC management expressing frustration about the length of time to complete the project review. The PA must explain why there has been a 5 month gap between the date of the project selection (September 2016) by CPUC Staff with the technical review completed 6 months ago (August 2016) and the upload of the documents to the CMPA for CPUC Staff review (February 2017).	Streamlining the ex ante review process	14 days after receipt of this disposition.
2	Explain why the technical review has been provided in such an abbreviated format. The review lacks critical information such as the approved measure type and EUL for the project. The measure type must be provided. The proposed EUL has been provided in the PFS but an approved measure type and EUL is not included in the PA technical review documents. The technical review document should summarize all pertinent approved project parameters (eligibility, free ridership, measure type, baseline, EUL/RUL, assessment of calculation methodology, savings impacts, incentives, verification/M&V plan, etc.) CPUC Staff requests that PA Technical Reviews for all custom projects address the items outlined below in Item 2 of the CPUC Staff Notes section.	Missing required information	14 days after receipt of this disposition.
3	The PA technical review refers to several issues that the PA technical reviewer addressed with the implementer which were resolved in "the pre-installation report and/or on chatter in Energy Insight (EI)". CPUC staff are unclear if this information is included in the PA's submission since CPUC Staff have similar concerns with the implementer's submitted documentation to those raised by the PA technical reviewer. The PFS provided to CPUC Staff is dated March 30, 2016, while the PA technical review is dated August 11, 2016. CPUC Staff do not find any information which appears to be "chatter in Energy Insight (EI)". The PA must verify that it has provided the most recent and updated information in its submittal to the CMPA, and also include all information which is relevant to the project.	Missing required information	14 days after receipt of this disposition.

4	Provide the approved measure type.	Missing required information	14 days after receipt of this disposition.
5	Provide the approved EUL for the project.	Missing required information	14 days after receipt of this disposition.
6	<p>While the concept of the project is described it is unclear exactly what work is required to implement the project. There is reference to a SCADA system but it is unclear how the SCADA system is currently used and how it will be modified. It is unclear if the proposal is to install a control system provided by an outside vendor, or if the customer will program the existing SCADA to control the pumping systems. It is unclear if the customer has one SCADA system for each pumping district or one SCADA system which controls all districts described in the project documentation.</p> <p>The PA must provide a more detailed description of the SCADA system and how it will be used to implement the project and verify the project impacts. The PA should provide information on other customers who have installed this measure and the savings impacts, and the persistence of savings associated with those projects.</p>	Missing required information	14 days after receipt of this disposition.
7	The documentation states that the annual hours of operation for each pump are based on data from pump tests performed in 2008. Explain how pump test data were used to determine the baseline hours of operation for each pump, and the relevance of 2008 data to operations nearly 10 years later. Explain what data are available to verify the baseline annual hours of operation for each pump.	Analysis assumptions	14 days after receipt of this disposition.
8	Documentation refers to pump tests which were used in the analysis. The pump tests have not been provided. The PA must provide the pump test documentation.	Analysis assumptions	14 days after receipt of this disposition.
9	The project refers to an existing SCADA system, however there are no data in the documentation indicated to have been provided from the SCADA system to support any aspect of the analysis. The PA must describe what the function of the customer's SCADA system is and what data are available from the SCADA to support any aspect of the analysis of the baseline or post installation parameters for this project.	Missing required information	14 days after receipt of this disposition.

10	<p>Where M&V is proposed, the M&V plan should provide concise descriptions including measurement points, measurement period, measurement interval, measurement equipment, system diagrams, discussion of the accuracy measurement equipment and uncertainty associated with the results.</p> <p>For example, the M&V plan submitted with the IOU documentation of this project lack any specificity regarding point names, measurement intervals, system diagrams, etc. This level of documentation leaves the project vulnerable to having significant uncertainty in the savings analysis if all data required for the analysis have not been comprehensively conceived and clearly defined before the project is approved to proceed to implementation. The PA technical review states "Final verification of pre and post pump performance will be based on measurements of post pump efficiency (kWh/AF), baseline flows (12 months prior to installation), post flow (one month post monitoring to verify pump sequencing) and hydraulic modeling to annualize the results (compare apples-to-apples)." There is no description in the PA documentation about how the 12 month baseline data will be collected, at what interval the data will be collected. One month of post installation data is likely inadequate. The PA must provide analysis of the annual water demand for each system as supporting documentation for the proposed post installation monitoring period.</p> <p>The PA must provide a detailed calculation methodology and M&V plan for this project.</p>	M&V plan	14 days after receipt of this disposition.
11	<p>CPUC Staff note that the PFS states "Demand savings are expected from this measure, however due to insufficient data, these savings will be verified with the use of advanced tools such as the District's hydraulic model. As such, demand savings are expected to be claimed post-implementation of the measure."</p> <p>Demand savings for this project may not be claimed without CPUC Staff review and approval of the proposed calculation method and verification plan.</p>	Calculation method	14 days after receipt of this disposition.
12	<p>The project documentation does not provide any analysis of the baseline IOU electric meter data for the pumping systems. CPUC Staff's experience is that many pumps for this type of customer are individually metered and that historical information regarding hours of operation can be derived from these data.</p> <p>The PA must explain why metered data are not included in the analysis for this project and how the baseline operation for the pumping system will be established.</p>	Missing required information	14 days after receipt of this disposition.
13	<p>CPUC Staff have run a preliminary cost effectiveness test for this project using the PA's estimated energy savings impacts, project cost, customer incentive, estimated 3P implementer performance payment, and a 5 year EUL. The TRC for this project is 0.64.</p> <p>The PA must address the low cost effectiveness of this project.</p>	Cost effectiveness	14 days after receipt of this disposition.

Note or Instruction Number:	CPUC Staff Notes or Instructions:	Instruction Category	Due Date
1	<p>CPUC Staff have found that the PA's M&V efforts for this project exhibit a lack of critical thought and planning. The purpose of M&V is to reduce the uncertainty of the savings impact analysis and increase the reliability of the savings estimates. The PA failed to identify the critical uncertain factors for this project and design an M&V plan to reduce or eliminate the uncertainty associated with those factors. Projects must not be approved to proceed to implementation until a well-conceived M&V plan has been designed, documented, reviewed and approved. The PA reviewers must be diligent in reviewing the implementer's projects and ensure that all reasonable efforts are made to increase the reliability of the savings estimates.</p>	M&V plan	Implement immediately.
2	<p>CPUC Staff expects that a PA Technical Review would cover many of the questions and points outlined in the Ready for Review Checklist. The following items should be provided in a single Word document that is clearly labeled as the PA's Technical Review for the project:</p> <ol style="list-style-type: none"> (1) Primary Technical Reviewer Name and Firm, QC Reviewer Name and Firm, (2) Provide a concise, overall summary description of the project. (3) Summarize the approved ex ante savings for each measure along with their estimated individual incentive. If the overall incentive amount is capped, indicate so and explain how the cap was determined and applied. (4) Complete eligibility assessment for each measure that encompasses not only the applicable program rules, but state and/or federal code requirements, industry standard practice, CPUC policies and guidance as well. Determine overall eligibility for each fuel source savings by the status of the customer's ongoing payment of PPP charges. (5) For each claimed measure, identify the assigned Measure Type. For measures classified as Early Retirement (ER), include supporting preponderance of evidence (POE) documentation with the submittal and cite it in the Technical Review. (6) Both the eligibility and the measure type classification combine to determine the technical baseline for each measure. Certain measures may require additional consideration of health and safety regulations, ordinances, industry specific regulations, 	Missing required information	Implement immediately.

2 (cont.)	<p>(7) For each measure, a detailed description of the baseline operating parameters and conditions, including a complete description of the system boundaries, on-site generation, plant and equipment age and maintenance conditions. If the measure type is ER, describe both the first and second baselines.</p> <p>(8) Provide the measure EUL values and cite the data sources. If the DEER is the data source, cite the DEER version and DEER EUL ID. For measures classified as ER, provide the RUL value too.</p> <p>(9) Provide the full and/or incremental measure costs as applicable, ensuring that only allowable costs are included. Note that if the measure type is ER, TRC costs are used for the first baseline and IMC for the second baseline.</p> <p>(10) Delineate the approved ex ante savings calculations along with the key assumptions and parameters for each proposed measure. If the measure type is ER, both first and second period impacts are required. Provide the unlocked savings calculation workbooks, simulation models, raw trend data, etc. that the savings rely upon. Describe your detailed examination and adjustments to the savings calculations that lead to the approved ex ante impacts that are being claimed. If the savings rely upon a calculation tool that has not undergone prior CPUC Staff review, describe how the PA vetted and verified the tool's accuracy and limitations. Provide the financial incentive calculations as well. If on-site generation is present, provide an hourly net electric grid impact analysis following current CPUC staff guidance.</p>		
2 (cont.)	<p>(11) Describe the pre- and post- M&V plans if applicable. If a separate M&V plan document was submitted, cite it within the Technical Review and indicate how the pre-M&V data was used to establish each measure baseline and how the post-M&V data will be used to true-up the final ex ante estimates.</p>		

CPUC Staff Recommendation Definitions	
CPUC Staff Recommendation	Required PA Response
Application waived from further Staff review	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.
Approved 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.
Approved 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.
Application not approved, revise and resubmit as noted	The application is not approved as submitted. The PA must respond to Staff's comments, make revisions or changes as noted in CPUC Staff's review comments. The PA will resubmit application documents to the CMPA directory within 2 weeks after receipt of this review. The PA may NOT approve the project before receiving CPUC Staff's response to resubmitted documentation.
Application rejected	CPUC Staff reject the application. The PA may NOT offer ratepayer funded incentives for this project.