

CPUC Staff Ex Ante Review

CPUC Staff Project ID Number	PGE-16-T-I-0046_2K1600059214+ Multiple_Pump Repair		
CMPA Directory Link	https://deeresources.info/cmpa/projects/12216		
PA	PG&E		
PA Application ID	2K1600059214 (WISE-088-001 through WISE 088-034)		
PA Application Executed Date	2/2/2016		
PA Program ID	PGE20172		
PA Program Name	Custom -Water Infrastructure & system efficiency program		
PA Program Year	2016		
CPUC Staff Review Number (1, 2, 3 etc.)	2		
Dates of CPUC Staff Review:			
First Review	4/22/2016		
Second Review	8/18/2017		
PA CMPA Upload Dates Included in this review:			
First PA Upload	3/10/2016		
Second PA Upload	6/10/2016		
PA Measure Description(s):			
Measure 1	Refurbish thirty (30) existing pumps used by a water authority to as-installed original equipment manufacturer (OEM) pumping efficiency condition. 5 year EUL, RCx/REA measure type.		
PA Project Description:	The project proposes to overhaul 30 pumps used by a water authority, returning them to as-installed original equipment manufacturer (OEM) pumping efficiency. The refurbishment work required is unknown for a particular pump until it is removed from the wells, but could include a repair of the existing pump or pump components; replacement of impellers, bowls and/or bowl assembly (bowls plus impellers); repair/replacement of pump motor; or complete pump replacement.		
PA Ex Ante kW Demand Reduction			418.0
PA Ex Ante Annual kWh Impacts			8,056,719
PA Ex Ante Annual Therm Impacts			-
PA Ex Ante Proposed Incentive \$	\$		966,810
PA Proposed Total Payment to Implementer \$ (not to include the above incentive to customer)			
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	Jeff Hirsch		
CPUC Staff Review Supervisor Firm	James J. Hirsch and Associates		
PA Primary Reviewer Name	Chazrick Branson		
PA Primary Reviewer Firm	AESC		
CPUC Staff Project Manager	[REDACTED] / 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		
X	Application approved as noted		
	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	<p>The PA provided a more complete project background and timeline and revised and resubmitted the documentation to match the proposed ER measure type. Commission staff accepts that the repair/replacement for most of the pumps associated with this project are Early Retirement measure types with supporting documentation meeting that described in the ProjectBasis_EULRUL_Evidencev1July172014.pdf document. However, in the description of the incremental measure cost, the PA notes that, on average, the water authority overhauls 6 pumps per year as part of their normal business practice. The six pumps with the highest saving impacts are assumed to be the pumps which would be refurbished in the first year absent the influence of the program and must be removed from the savings claims. Additionally staff note that the final 6 out of 30 pumps which would be refurbished in the fifth year of the project would have reached the end of the estimated 5 year RUL and would require refurbishment anyway and therefore no savings can be claimed for these pumps. The first six pumps have a zero years RUL, the second group of six pumps has a one year RUL, the third group of six pumps has a two year RUL, ect. As such, the savings associated with these 12 pumps (the first six pumps and the last six pumps) are to be removed from the project claims.</p> <p>The total project savings estimates must be revised and resubmitted based upon exclusion of these 12 pumps as demonstrated in the example shown in the supplemental files provided with this disposition (PGE-16-T-I-0046 CPUC Staff Savings Calc example 2017-08-17.xlsx).</p>	Calculation method	14 days after receipt of this disposition.
2	<p>The calculation methodology must be revised so that the ex ante savings impacts over the Early Replacement RUL period are calculated as the average annual lifetime savings for the 30 pump project. An example of the calculations has been provided separately in the supplemental files provided with this disposition.</p>	Calculation method	14 days after receipt of this disposition.
3	<p>In response to the previous EAR, the PA claims that a demand impact would occur that is related to a re-ordering of pump operation and provides an estimate of this potential impact based on pre and post-OPE values and an adjustment factor. No background information is provided as to the source of the adjustment factor, nor is any data provided that would substantiate a reordering of pump operation. As such, the alternative approach suggested for a demand estimate is not accepted.</p> <p>All demand impact claims must be based on pre and post refurbishment pump tests. Post installation pump tests must be in situ and at similar operating conditions- e.g. flow rate and pressure. The PA should execute a billing analysis that includes pre and post demand values for all water authority utility meters that include a ground-water pump as a load to verify the total savings impacts. The calculation methodology and M&V plan must be revised to reflect these requirements. Ex ante demand reduction impacts are to be set to zero pending verification from the pre and post installation pump tests.</p>	Calculation method	14 days after receipt of this disposition.
4	<p>The PA's response to the energy calculation approach required from the first EAR that it was a calculation based upon a fixed pump runtime was incorrect. In fact, the required energy savings analysis is based upon a fixed pump productivity (pre-repair volumetric flow multiplied times the pump runtime). A review of past pump overhaul projects where post-measure tests are available suggest the flow provided by the pump increased significantly after the overhaul, leading to an anticipated reduction in pump runtime. The use of equivalent productivity values is standard practice in the evaluation of processes for custom projects. There may be a claimed increase in productivity for a measure, in which case both pre and post-measure nominal energy consumption is prorated to the higher productivity values. However, for this project where no productivity changes are explicitly noted, Commission staff directs the PA to base energy savings on the pre-measure pump annual water delivery rate in its savings calculations. This may also be cross checked through a review of utility meter 15 minute interval data.</p>	Calculation method	14 days after receipt of this disposition.
5	<p>The response document included an incremental measure cost (Table 5 on pp 67 of the response document). The description of what is entailed in the incremental cost was not clear. A review of invoices from other PG&E-funded pump overhauls suggest the most common pump overhaul activity includes a bowl and impeller replacement. If this remains the case for this project, Commission staff is unclear as to why a non-program participant bowl and impeller replacement cost would differ from a program-funded bowl and impeller replacement cost.</p> <p>Commission staff directs the PA to provide the specific tasks that would differ in a non-project pump overhaul in comparison to a project funded pump overhaul and how those differences would impact the pump's OPE. The incremental cost used in the TRC calculation is to be set to zero until specific cost evidence is provided that directly relates the incremental cost to an increase in post measure OPE.</p>	Measure cost	14 days after receipt of this disposition.
6	<p>Action item 7 in the first EAR document provided a revised mechanism for determining pump runtime used in savings calculation via a comparison of the pump test pump motor kW to the most recent 5 months of metered electric demand for the meter associated with the pump. The PA noted that, "In the overall project calculations, there is only 3% average variance from the average kW peak demand derived from the pump test compared to the previous 5 months of billing history". The initial Item 7 applied to the calculation of specific pump runtime based on the demand from the electric meter associated with that (those) pump(s). The 3% difference associated with the overall calculations is not relevant in this case as the Item 7 requirement applies on a pump-by-pump basis. CPUC Staff require that the PA follow the direction provided in Item 7 of the First EAR in establishing the runtime for each pump in the project.</p>	Calculation method	14 days after receipt of this disposition.
7	<p>The response document notes that post-measure pump tests will be provided on ALL pumps included in the project. If the PA accepts demand and energy savings as directed in this and the first EAR then this would suffice to establish post measure savings based upon pre-measure pump operation (total annual water delivery rate). A one month billing analysis would not be acceptable as meter data provided to support this project indicates potentially significant month-to-month variation in pump usage. Any billing analysis suggested in an M&V effort must begin with an analysis of the variation of billed energy used for the pumps associated with this project to establish a billing analysis evaluation period that would provide an acceptable level of uncertainty in the results.</p> <p>As a default, the PA may follow the initial guidance that post-repair pump test be taken on all pumps associated with this project. Additionally, the PA billing analysis M&V cross check effort should include at least six months of post-repair pump operation. A revised M&V plan must be resubmitted meeting all requirements in this disposition.</p>	M&V plan	14 days after receipt of this disposition.

8	<p>CPUC staff have performed an analysis of the cost effectiveness of the measures proposed in this application. Various scenarios analyzed by staff have failed to provide a cost effective result. However the analysis shows that the customer's normal pump refurbishment activity (refurbishing six pumps per year) is highly cost effective for the customer to continue with on their own without ratepayer support. If the customer accelerated the pump refurbishment on their own, the return on investment is very attractive for the customer without ratepayer support. The analysis has been previously provided to PG&E. For the ratepayers, paying incentives to the customers and performance payments to the implementer is highly non-cost effective.</p> <p>Staff also performed a TRC analysis of the composite measure methodology directed above using average RUL savings resulting in a TRC of 0.68. This method further demonstrates that the project is not cost effective.</p> <p>The PA must address the lack of cost-effectiveness of this program as represented by the proposed project.</p>	Eligibility	14 days after receipt of this disposition.
Note or Instruction Number:	CPUC Staff Notes or Instructions:	Instruction Category	Due Date
1	For future projects where the ER measure type with an in situ baseline is claimed, the PA must provide the data/information and analysis that supports a preponderance of evidence determination of early retirement using the previously mentioned guidance document.	ER preponderance of evidence	From previous guidance. Implement immediately.
2	<p>CPUC Staff note that CPUC Decision 16-08-019 which is effective on 1/1/2017 specifically addresses measures which simply restore equipment to its original operating efficiency. Pump refurbishment as proposed for this project clearly falls into this category. This type of measure is now named "Behavioral, Retrocommissioning, and Operational" with the acronym "BRO". Decision 16-08-019 clearly states that BRO measures have a 3 year EUL, the measures should be in Programs targeting BRO measures, these measures must provide multi-year (at least two years) savings, and there is an expectation that ratepayer funding (incentives) for this type of measure should be lower than those for other types of measures. As of 1/1/2017, all measures which simply restore equipment to its original operating efficiency must comply with CPUC Decision 16-08-019.</p> <p>The findings and actions required described in this disposition also apply to pump refurbishments proposed in other PA programs (PG&E APEP Program and other EE programs in the commercial, industrial or agricultural market sectors.)</p>	CPUC Policy	Implement immediately.
3	The findings and actions required described in this disposition also apply to the WISE program being implemented by the same implementer in other IOU territories. This disposition will be provided to other IOUs at the same time it is provided to PG&E.	Staff guidance	From previous guidance. Implement immediately.
4	<p>CPUC Staff reject the PA's underlying assumption that the customer would not perform pump overhauls in the absence of the PA's program, or would wait until pumps fail before performing a refurbishment. For each application that involves pump overhauls, the PA must assess the customer's standard practice in identifying and overhauling pumps, and only offer ratepayer incentives only to accelerate the normal practice. The baseline for each project must be the customer's normal practice for refurbishment.</p> <p>For this project Staff accept that the customer would normally perform 6 pump overhauls on average per year. Staff would expect that the PA's program would only pay to accelerate the refurbishment of the remaining refurbishment candidates that provide multi-year (at least two years), savings. Savings impacts for the EUL-RUL period are zero unless the PA can demonstrate that the refurbished pump efficiency exceeds the OEM pump efficiency. The incremental cost used in the TRC cost calculation (referred to as the ERC by the PA) must be set to zero unless the PA can demonstrate that the program causes additional refurbishment measures which increase efficiency to be installed that would not be installed as standard practice.</p>	Baseline	60 days after receipt of this disposition.
5	CPUC Staff find that the pump refurbishment measure has been offered by the PA for many years in other Programs at a much lower cost to the ratepayers. All future pump refurbishments must go through the Core program and its successor programs. This measure may no longer be offered in the WISE Program in its current structure. CPUC Staff advise the PA that its portfolio of programs should be working together in a manner that is most cost effective for the ratepayers.	Staff guidance	Implement immediately.
6	The PA shall upload to the corresponding CMPA folder the Claim IDs for these applications when they become available.	Claim ID	When available.
7	Continue to upload project documentation to the corresponding CMPA Project Files folder as it becomes available.	Continue Document Upload	When available.

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.

