

Final Phase 3 Ex Ante Review Findings

Table Error! No text of specified style in document.-1: Project Information

IOU	PG&E
Application ID	2K12079864
Application Date	2/8/12
Program ID	PGE21011
Program Name	Customized Calculated Incentive Program
Program Year	2012
Itron Project ID	X068
IOU Ex Ante Savings Date	2/8/12
ED Measure Name	Replace Chiller
Project Description	Chiller Retrofit
Date of ED Review(s)	3/8/12, 8/24/12, and 4/16/13
Primary Reviewer and Firm	Keith Rothenberg/Energy Metrics
Review Supervisor and Firm	Joseph Ball/Itron
Type of Review (Desk, On-site, Full M&V, Tool)	On-Site
ED Recommendation	The ED-approved ex ante savings are 576,326 kWh and 58.8 kW, which are the average between ED's estimate and the IOU's final estimate.

Measure Description

The facility has a central chiller plant that produces and distributes chilled water throughout the campus. The chiller plant has 12 large capacity water cooled centrifugal chillers of various vintages. Each chiller has a nominal capacity in the 1,200- 1,500 ton range. Some of the original chillers have been replaced and several are not functioning. The chiller plant load has declined in recent years as the number of buildings on the campus has been reduced. The customer installed a new 1,250 ton capacity water-cooled centrifugal chiller where chiller number 1 (a non-functioning chiller) was located. Note: The installed chiller is not a VFD driven chiller, which is rated higher than minimum efficiency Title 24 chiller.

Summary of Review

A phase 1 ex ante review was performed by ED on 3/8/12. The initial submission from the customer characterized the project as involving the removal of four chillers and the installation of one new chiller as a replacement. The customer's final plan was to remove one non-functioning chiller and install a new high efficiency chiller in its place.

A phase 2 ex ante review was provided for this project in August 2012. The phase 2 review included comments on the IOU's final calculations, submitted 8/16/12, which estimated the impacts of the project to be 56 kW demand reduction and 634,207 kWh annual energy savings with an incentive of \$40,987.50. ED prepared a separate analysis of the project impacts and estimated the project will reduce demand by 61.6 kW and save 518,445 kWh annually. ED's estimate is within +/-20% of the IOU's final estimate and the average of the two estimates is the approved ex ante value for this project. The ED-approved ex ante savings claims for this project are energy savings of 576,326 kWh and peak demand reduction of 58.8 kW.

ED notes that the IOU recent installation report has not modified the project savings impacts to match those approved by ED. (Phase 2 disposition, August 2012).

Review Conclusion

The ED approves the final ex ante savings claim for this project as follows: Annual energy savings of 576,326 kWh and peak demand reduction of 58.8 kW.

Summary of ED Requested Action by the IOU

1. ED recommends that PG&E revise the savings impact claim for this project to match the ED approved ex ante values.

Table 1-2: Project Overview

Description	IOU Proposed Ex Ante Data	ED Recommendations
Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures)	Replace on burnout	Replace on burnout
Project Cost Basis (Full Cost, Incremental Cost)	Incremental Cost	Incremental Cost
RUL (Early retirement projects only, otherwise N/A (not applicable))	NA	NA
EUL	TBD	20 years
First Year kWh Savings	634,207	518,445
First Year Peak kW Savings	56	61.6
First Year Therms Savings	0	0
kWh Savings (RUL Period)	NA	NA
Peak kW Savings (RUL Period)	NA	NA
Therms Impact (RUL Period)	NA	NA
kWh Savings (EUL thru RUL Period)	634,207	518,445
Peak kW Savings (EUL thru RUL Period)	56	61.6
Therms Savings (EUL thru RUL Period)	0	0
Annual Non-IOU Fuel Impact (RUL Period)	NA	NA
Annual Non-IOU Fuel Impact (EUL thru RUL Period)	NA	NA
Net-to-Gross Ratio	Not provided	<i>Assessment not completed</i> 0.55

Table 1-3: Detailed Review Findings

Reviewed Parameter	Analysis
Project Gross Savings Baseline (for early retirement projects only, include RUL through EUL baseline)	IOU Proposal: Replace on burnout
	ED Assessment: Correct
	ED Recommendation: None
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Incremental cost as determined from DEER 2005
	ED Assessment: Correct cost basis, method acceptable
	ED recommendation: None
RUL (required for early retirement projects only, otherwise n/a)	IOU Proposal: N/A.
	ED Assessment: N/A
	ED recommendation: N/A
EUL	IOU Proposal: Not provided
	ED Assessment: 20 years based on DEER 2008
	ED Recommendation: 20 years
Savings Assumptions	IOU Proposal: Annual load profile generated from 11 months of chiller log data provided by the customer. Chiller performance data obtained from the manufacturer, baseline chiller performance curves from Statewide Customized Offering Procedures manual. New chiller expected to operate as the lead chiller, energized continuously.
	ED Assessment: Reasonable approach; allow 7 days for annual chiller maintenance.
	ED Recommendation: ED performed an independent calculation to estimate the savings impact for this project.
Calculation Methods/Tool review	IOU Proposal: Spread sheet model and analysis
	ED Assessment: Reasonable approach.
	ED Recommendation: Approved.
Pre- or Post-Installation M&V Plan	IOU Proposal: Post installation verification required.
	ED Assessment: Reasonable approach.

Reviewed Parameter	Analysis
	ED Recommendation: Verify: chiller installation, new chiller operating as the lead chiller for 30 days, and that chiller performance data used in the analysis matches the model of chiller installed.
Net-to-Gross Review	IOU Proposal: Not addressed
	ED Assessment: <u>NTG Summary: The most important program factors were working with program and utility staff to get suggestions on how to get a rebate and the specifics of which equipment to install. The most important non-program factors were the payback (which the rebate was not a significant factor) and previous experience with the measure. TBD</u>
	ED Recommendation: <u>This project received a NTG score of 0.55. None</u>