

Phase II Ex Ante Review Findings

Table 1-1: Project Information

IOU	PG&E
Application ID	EFM-101
Application Date	02/01/13
Program ID	PGE2199
Program Name	Energy-Efficient Parking Garage
Program Year	2013
Itron Project ID	X310
IOU Ex Ante Savings Date	TBD
ED Measure Name	Parking Garage Lighting Retrofit
Project Description	Replace manually controlled metal halide fixtures with T8 fixtures
Date of ED Review(s)	06/10/13
Primary Reviewer / Firm	Sepideh Shahinfard/ Itron
Review Supervisor / Firm	Joseph Ball/ Itron
ED Project Manager	██████████ / California Public Utilities Commission, Energy Division
ED Policy Authorization (as needed)	
Type of Review (Desk, On-site, Full M&V, Tool)	Desk Review
ED Recommendation	The ex ante savings of 41,325.30 kWh/yr and peak demand reduction of 4.34 kW are approved.

Measure Description

The project involves replacing the existing 34 manually controlled 175 watt metal halide fixtures with 34 two (2) lamp, 32 watt T8 fixtures in two parking garages. The operating hours of the 27 of the fixtures are 8,760 hours per year, however the perimeter fixtures (total of 9 fixtures) are equipped with photocell control, which are estimated to operate 4380 hours annually.

The annual kWh and kW savings estimated for this project are 41,325.30 kWh/yr and 4.34 kW. The estimated incentives associated with these savings are \$2,066.27 and \$433.50 accordingly. The total implementation cost of the project is \$3,514.52.

Summary of Review

The Investor Owned Utility (IOU) submitted the following documents for Data Request (DR) 3810 on 04/08/2013 for this Phase II review:

- Post install energy Savings Calculations;
- Floor plans;
- Post install project description; and
- Photo of the pre-existing lighting.

The Energy Division (ED) Phase II review focused on the information provided by the IOU in response to ED's phase I review and verifying that the post-install savings calculations are correct. As discussed in phase I review, PG&E early retirement claim and using existing fixtures as the baseline is acceptable. However, ED found that the energy savings calculations for photocells were overestimated and that a 15% operating hours reduction factor and zero kW savings could be used to estimate the savings unless measurement data are obtained to substantiate the actual reduction in hours of use, and as long as the Title 24 mandated controls requirement were separately met. ED is providing guidance to the IOU and their implementer to apply the aforementioned adjustments to lighting projects.

Review Conclusion

The ex ante savings of 41,325.30 kWh/yr and peak demand reduction of 4.34 kW are approved.

Summary of ED Requested Action by the IOU

ED recommends that the IOU undertake the recommended steps for the similar projects going forward:

1. Use 15% reduction factor in operating hours and zero kW savings to estimate the savings unless measurement data are obtained to substantiate the actual reduction in hours of use.
2. Submit itemized contractor invoices for the installed measures breaking out equipment and labor costs to support the incremental measure costs.

3. Provide the estimated EULs for the measures in the calculation spreadsheet using DEER methodology and determine an overall average EUL for the project.

Table 1-2 Review Findings

Reviewed Parameter	Analysis
Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures) Note: For early retirement projects only, include RUL through EUL baseline)	IOU Proposal: Early replacement with non-regressive baseline
	ED Assessment: Acceptable
	ED Recommendation: None
Project Baseline Technology (in situ equipment, Title 24 (specify year), other code or other efficiency level (specify), industry standard practice - ISP)	IOU Proposal: In situ equipment for both RUL and EUL-RUL periods
	ED Assessment: Acceptable
	ED Recommendation: None
Project Cost Basis (Full Incremental, or Both. Note: For early retirement projects, include RUL through EUL cost basis treatment)	IOU Proposal: Full cost
	ED Assessment: Not completed pending submission of more information
	ED recommendation: provide full and incremental project and measure costs supported with itemized contractor invoices
RUL (required for early retirement projects only, otherwise N/A)	IOU Proposal: More than a year
	ED Assessment: 2.66 years per ED calculations based on the DEER RUL estimation approach
	ED recommendation: Use 2.66 years or provide the RUL of the existing fixtures
EUL (for each measure)	IOU Proposal: Not Provided
	ED Assessment: EUL of the proposed T8 fixtures were not provided
	ED Recommendation: Use the calculation spreadsheet to estimate individual line item EUL values using the DEER methodology and determine an overall EUL.
Savings Assumptions	IOU Proposal: The savings calculation spreadsheet used existing fixtures as the baseline. The operating hours are 8,760 hrs/yr for all of fixtures, except the perimeter fixtures, which are equipped with photocell controls. The photocell control savings calculation assumes that the photo cell controls reduce the operating hours from 8,760 hrs/yr to 4,380 hrs/yr.
	ED Assessment: The 15% operating hours reduction factor and zero

Reviewed Parameter	Analysis
	kW savings can be used to estimate the savings unless measurement data are obtained to substantiate the actual reduction in hours of use.
	ED Recommendation: Use 15% operating hours reduction factor and zero kW savings to estimate the savings.
Calculation Methods/Tool review	IOU Proposal: Savings were calculated using an engineering spreadsheet
	ED Assessment: Calculations are mostly acceptable. The spreadsheet estimates peak demand savings for the occupancy sensor control line items. The peak demand impacts should be zeroed unless supported with primary M&V data. A 15% reduction in the operating hours should be used for the savings estimates.
	ED Recommendation: Use 15% reduction in operating hours to estimate the savings for occupancy sensors.
Pre- or Post-Installation M&V Plan	IOU Proposal: Not Provided
	ED Assessment: Not requires
	ED Recommendation: None
Net-to-Gross Review	IOU Proposal: Not Provided
	ED Assessment: Not completed
	ED Recommendation: Not recommended

Table 1-3 Energy Savings Summary

Description	IOU Ex Ante Claim	ED Recommendations
First Year kWh Savings	41,325.30	TBD
First Year Peak kW Savings	4.34	TBD
First Year Therms Savings	N/A	N/A
kWh Savings (RUL Period)	41,325.30	TBD
Peak kW Savings (RUL Period)	4.34	TBD
Therms Impact (RUL Period)	N/A	N/A
kWh Savings (RUL thru EUL Period)	41,325.30	TBD
Peak kW Savings (RUL thru EUL Period)	4.34	TBD
Therms Savings (RUL thru EUL Period)	N/A	N/A
Annual Non-IOU Fuel Impact (RUL	N/A	N/A

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Description	IOU Ex Ante Claim	ED Recommendations
Period)		
Annual Non-IOU Fuel Impact (RUL thru EUL Period)	N/A	N/A