

Ex Ante Review Findings

Project Information

IOU	PGE
Application ID	2K1170141C
Application Date	09/07/2011
Program ID	N/A
Program Name	UC/CSU/IOU Partnership Program
Program Year	2011
Project ID	
IOU Ex Ante Savings Date	TBD
ED Measure Name	TBD
Project Description	Multiple lighting measures
Date of ED Review	02/15/2012
Primary Reviewer and Firm	Kunal Desai/Itron
Review Supervisor and Firm	Joseph Ball/Itron
Type of Review	Desk Review
ED Recommendation	Not Approved. Additional Information required.

Measure Description

This EAR application consists of eight (6) lighting measures and (2) controls measures. Measure descriptions are as follows:

1. Retrofit T12 Elevator lighting to T8 LED
2. Retrofit HID wall packs to bi-level LED
3. Retrofit HID pathway lights to bi-level LED
4. Retrofit interior PAR lighting with LED (halogen lighting retrofit)
5. Retrofit HID lighting to induction (Gym)
6. West Remote lighting retrofit/New external LED pole mounted
7. Elevator fan motor controls – HVAC retrofit/new exhaust ventilation
8. Occupancy sensors in elevators & EFH – New interior controls - occupancy sensors

Majority of the lighting measures included in this project are retrofits. High Intensity discharge (HID), Parabolic aluminized reflector (PAR), and High Pressure Sodium (HPS) fixtures are retrofitted with LED fixtures. There are two control measures which include installation of motion and occupancy sensors in elevators.

Summary of Review

The initial application submitted included (4) lighting and (1) control measure. These measures were reorganized post IOU review noted an increase in the scope of the project. The final application included (6) lighting measures and (2) controls measure. The energy savings calculations initially submitted to IOU were revised after the IOU reviewer audited the site during

which he performed random sampling of the fixtures, and finally revised energy savings resulted in savings and incentive greater than the submitted amounts.

The initial savings estimate was 623,577 kWh, 174 kW and with the incentive \$149,658. The revised estimate made by the reviewer was 733,297 kWh, 26.66 kW and upgraded incentive amount of \$175,991.28.

Calculation spreadsheets were not provided for proper analysis.

Review Conclusion

Review not completed at this time pending fulfillment of requested data and subsequent opportunity for ED to re-evaluate program eligibility and the savings analyses following the completion of post-implementation M&V for the project.

Summary of ED Requested Action by the IOU

ED requests the following data in order to complete of this review:

1. "Live", fully functioning calculation spreadsheets
2. Remaining useful life (RUL) of the existing light fixtures
3. EUL of new light fixtures, occupancy and motion sensors as applicable
4. Pre- and post-installation trend or EMS data for lighting schedule
5. Consider HVAC interactive effects and include in the analysis

Description	IOU Proposed Ex Ante Data	ED's Recommendations
Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion)	Early Replacement	TBD. Provide RUL for existing light fixtures
Project Cost Basis (Full Cost, Incremental Cost)	Full cost – \$691,997	TBD; if early replacement claim is applicable, then full and incremental costs should be provided
RUL (Early retirement projects only, otherwise n/a)	Not Provided	TBD; provide RUL & condition of in situ equipment; documentation must be provided that would support any early replacement claim
EUL	Not Provided	Based on DEER database 8 years for

Description	IOU Proposed Ex Ante Data	ED's Recommendations
		occupancy / motion sensors. Average lifetime hours from specifications for LED lights (Range 40,000 - 45,000 hours) divided by 4,100 (hours of usage in the facility) yielded EUL of 9.8 years
First Year kWh Savings	733,297	Calculation spreadsheet requested
First Year Peak kW Reduction	26.6	Calculation spreadsheet requested
First Year Therms Savings	N/A	TBD; may have a therm penalty
Total kWh Savings (RUL Period)	N/A	TBD; information not provided + additional cooling savings
Peak kW Reduction (RUL Period)	N/A	TBD; information not provided + additional cooling savings
Total Therms Impact (RUL Period)	N/A	TBD; possible HVAC interactive effects
Total kWh Savings (EUL – RUL Period)	N/A	TBD; information not provided + additional cooling savings
Peak kW Reduction (EUL – RUL Period)	N/A	TBD; information not provided + additional cooling savings
Total Therms Savings (EUL – RUL Period)	N/A	TBD; may have a therm penalty
Total non-IOU Fuel Impact (RUL Period)	N/A	N/A

Description	IOU Proposed Ex Ante Data	ED's Recommendations
Total non-IOU fuel Impact (EUL – RUL Period)	N/A	N/A
Net-to-Gross Ratio	Not provided	Not assessed

Detailed Review Findings

Reviewed Parameter	Analysis
Project Gross Savings Baseline (for early retirement projects only, include RUL through EUL baseline)	IOU Proposal: Not provided
	ED Assessment: Appears to be an early retirement of the existing lighting. Need RUL, age, and condition of pre-existing equipment.
	ED Recommendation: Further documentation needed to establish baseline
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Full measure cost
	ED Assessment: Appears to be full project cost; need incremental cost breakdown for further assessment. Cost basis cannot be determined at this time, pending baseline clarification
	ED recommendation: Further documentation needed to establish baseline
RUL (required for early retirement projects only, otherwise n/a)	IOU Proposal: Not Provided
	ED Assessment: Cannot be determined at this time, pending baseline clarification
	ED recommendation: Further documentation needed to establish baseline
EUL	IOU Proposal: Not Provided
	ED Assessment: Based on DEER database 8 years for occupancy / motion sensors. Average lifetime hours from specifications for LED lights (Range 40,000 - 45,000 hours) divided by 4,100 (hours of usage in the facility) yielded EUL of 9.8 years.
	ED Recommendation: 8 years for occupancy sensors and 9.8 years for LED lights
Savings Assumptions	IOU Proposal: Saving calculation spreadsheet not provided
	ED Assessment: The calculations provided (in PDF format) appear to be reasonable. Additional data requested to complete evaluation
	ED Recommendation: Provide "live" fully functioning savings calculations that include all assumptions and their associated sources

Reviewed Parameter	Analysis
Calculation Methods/Tool review	IOU Proposal: Not provided
	ED Assessment: Assessment could not be performed
	ED Recommendation: Provide “live” fully functioning calculations
<ul style="list-style-type: none"> • Pre- or Post-Installation M&V Plan 	IOU Proposal: Not provided
	ED Assessment: An assessment could not be performed
	ED Recommendation: Provide any pre- M&V data collected; provide billing data, EMS data post retrofit.
Net-to-Gross Review	IOU Proposal: TBD
	ED Assessment: Assessment not completed
	ED Recommendation: An ex ante NTG interview may be warranted