

Ex Ante Review Findings

Table Error! No text of specified style in document.-1: 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
Itron Project ID	X 039
IOU Ex Ante Savings Date	TBD
ED Measure Name	TBD
Project Description	Multiple lighting measures
Date of ED Review(s)	02/15/2012
Primary Reviewer and Firm	Kunal Desai/Itron
Review Supervisor and Firm	Joseph Ball/Itron
Type of Review (Desk, On-site, Full M&V, Tool)	Desk Review
ED Recommendation	Unable to verify project baseline and energy savings estimates. 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

ED reviewed the following documentation provided by the IOU; Data response cover letter, PGE review form and live energy savings calculation spreadsheet.

ED had requested RUL and incremental costs for lighting fixtures which were being retrofitted along with a live energy calculation spreadsheet in the phase I EAR and data request. IOU data response provided a live energy savings calculation spreadsheet but no RUL estimates or incremental cost for lighting measures. ED is unable to make a determination on the project baseline due to insufficient data.

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.

Review Conclusion

Unable to verify project baseline and energy savings estimates, pending fulfillment of requested data and subsequent opportunity for ED to re-evaluate the project and the savings analyses.

Summary of ED Requested Action by the IOU

The supporting documents provided were insufficient to substantiate the energy savings estimate of this project. So, ED requests that the IOU submit the following additional data for the completion of the ex-ante review by **April 11, 2012**.

1. Verify if this project is an early replacement claim. Provide supporting evidence for any such claim.
2. Identify the percentage of fixtures that are to be replaced in each lighting area or zone as a result of this project. If more than half of the fixtures are replaced then a Title-24 baseline is applicable. Otherwise a standard practice baseline is applicable, reflecting current market conditions and federal and possibly state standards. For early replacement projects one of these two baselines would apply for the RUL through EUL period.
3. If early replacement is claimed, calculate energy savings for the pre-existing versus proposed fixtures (for the RUL period), and separately for the baseline versus proposed fixtures (for the RUL through EUL period).
4. If early replacement is claimed then identify the claimed RUL and provide documentation supporting the RUL estimate. Use a RUL value equal to 1/3 of the EUL of the new fixtures as a default value if it is not feasible to estimate of the RUL of the pre-existing fixtures, and state why that is the case.
5. Indicate which equipment to be installed, if any, is required to meet Title-24 controls requirements and exclude any savings or rebates associated with such controls. (Note controls appear to have already been installed in this project, but documentation is not complete in this area.)
6. If early replacement is claimed, then report both full cost and increment cost.

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)	Early Replacement	TBD; IOU data response did not provide any RUL estimates for the existing light fixtures for ED to establish baseline
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,	Not Provided	TBD; ED requested RUL & condition of in situ

Description	IOU Proposed Ex Ante Data	ED Recommendations
otherwise N/A (not applicable))		equipment. IOU data response did not provide any response.
EUL	Not Provided	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
First Year kWh Savings	271,717	TBD after post installation M&V
First Year Peak kW Savings	34.42	TBD after post installation M&V
First Year Therms Savings	N/A	N/A
kWh Savings (RUL Period)	TBD	TBD
Peak kW Savings (RUL Period)	TBD	TBD
Therms Impact (RUL Period)	N/A	N/A
kWh Savings (EUL thru RUL Period)	TBD	TBD
Peak kW Savings (EUL thru RUL Period)	TBD	TBD
Therms Savings (EUL thru RUL Period)	N/A	N/A
Annual Non-IOU Fuel Impact (RUL Period)	N/A	N/A
Annual Non-IOU Fuel Impact (EUL thru RUL Period)	N/A	N/A

Ex Ante Review and Lower Rigor Findings Report Template

Description	IOU Proposed Ex Ante Data	ED Recommendations
Net-to-Gross Ratio	Not provided	Assessment not completed

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: Not provided
	ED Assessment: Appears to be an early retirement of the existing lighting. Hours of use for interior spaced use an assumed 4100 hours per year which is probably too high for this educational institution (CBECS data suggests 3197 hours per year). Use hours of use from data loggers from post-installation inspection report. Need actual area-specific hours of use, RUL, age, and condition of pre-existing equipment, and percentage of fixture replaced.
	ED Recommendation: IOU data response did not provide RUL estimate for existing light fixtures. Further documentation needed to establish baseline such as EMS tending or lighting logger data to support hours of use. Use of Title-24 baseline may also be appropriate in some areas.
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: ED requested RUL estimate for existing light fixtures but IOU data response did not provide any RUL estimates.
	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

Reviewed Parameter	Analysis
	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: Energy Savings calculation spreadsheet provided
	ED Assessment: Operating hours claim to be verified in the post installation M&V report but appear to use a constant 4100 hours per year (same as baseline) Assumed 10% savings from motion/occupancy sensor controlled fixtures may be lower than actual.
	ED Recommendation: Collect lighting logger data or EMS trending information to support greater reductions from motion/occupancy sensor controlled fixtures
Calculation Methods/Tool review	IOU Proposal: Energy Savings calculation spreadsheet provided
	ED Assessment: Spreadsheet is acceptable
	ED Recommendation: None
Pre- or Post-Installation M&V Plan	IOU Proposal: Not provided
	ED Assessment: Post installation M&V plan is recommended to true up the savings estimate.
	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

