

Ex Ante Review Findings

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

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| IOU | PGE |
| Application ID | 2K12079475 |
| Application Date | 1/20/12 |
| Program ID | TBD |
| Program Name | Customized Retrofit - Demand Response |
| Program Year | 2012 |
| Itron Project ID | TBD |
| IOU Ex Ante Savings Date | 2/6/12 |
| ED Measure Name | TBD |
| Project Description | Retrofit Exterior MH w/ T5HO Fluorescent Fixtures |
| Date of ED Review(s) | 3/19/12 |
| Primary Reviewer and Firm | Phani Pagadala/Itron |
| Review Supervisor and Firm | Joseph Ball/Itron |
| Type of Review (Desk, On-site, Full M&V, Tool) | Desk Review |
| ED Recommendation | Energy savings estimates are conditionally approved, pending fulfillment of data request for more information. |

Measure Description

The proposed project consists of replacing existing metal halide (MH) fixtures on the exterior of the theater building and throughout the parking lot with new high output T5 (T5HO) fixtures.

The existing exterior lighting consists of twelve (12) pole-mounted fixtures with 1000W MH lamps that will be replaced with the same quantity of 234W F54 T5HO fixtures; in addition nine (9) wall-mounted fixtures with 250W MH lamps will be replaced with the same quantity of 52W F24 T5HO fixtures. The existing and proposed lighting fixtures are anticipated to operate for 4,100 hours annually. No description of the lighting controls was provided in the project documentation.

A pre-installation inspection was completed on 2/8/2012 by an IOU representative. The savings estimates, as submitted by the installation contractor, were slightly reduced based on the technical review. The IOU reviewer re-calculated the savings estimates using fixture wattages from PGE's 2011 Table of Standard Fixture Wattages (Appendix B) in the 2011 Statewide Customized Offering Procedures Manual.

The Project Application Review claims an annual savings impact of 50,590 kWh with no peak demand reduction. The incentive amount received by the customer is estimated to be \$2,529.50.

Summary of Review

The application documentation received and reviewed included a project application review of the proposed project prepared by an IOU reviewer dated 2/8/2012. Also, included within the application packet were the following: The project application, project application review (excel and PDF versions), photographs of the baseline fixtures and an email pertaining to the participant's rebate eligibility.

The project application review documentation presents a reasonable approach to providing a preliminary estimate of the impacts of the project. However, the ED has identified the following issue(s) concerning this project, and pending clarification and related possible updates to the ex ante impact calculations and estimates, a complete review is not yet possible.

- Information on the RUL, condition, age and controls mechanism of the existing MH fixtures was not provided within the documentation. The ED recommends that pertinent information about the existing equipment conditions be provided to support appropriate project baseline selection and to account for any burn-outs or runtime adjustments. As per the project application review, the baseline fixtures were assumed to be operational based on visual verification during the inspection visit.

Review Conclusion

Conditionally approved – the project may proceed as per plan; however, the energy savings estimates cannot be finalized at this time, pending fulfillment of requested data and subsequent opportunity for ED to re-evaluate the savings estimates.

Summary of ED Requested Action by the IOU

In order to complete an ex ante review the ED recommends that the IOU submit the following documentation due by *4/3/12*:

1. Remaining Useful Life (RUL), age, condition, controls mechanism, maintenance, and replacement schedules of the existing lighting fixtures.

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) | In-situ fixtures. Possible early retirement | TBD; additional information needed on the age, condition and RUL of the existing fixtures to validate baseline selection |
| Project Cost Basis (Full Cost, Incremental Cost) | Full cost | TBD; if early retirement is determined then both full and incremental costs will be required |
| RUL (Early retirement projects only, otherwise N/A (not applicable)) | Insufficient documentation provided | Provide RUL & condition of in situ equipment. |
| EUL | Not provided | 16 years for High Output T-5 fixtures from the CPUC's Energy Efficiency Policy Manual Version 2, dated August, 2003 Table 4.1, Pages 17-18 |
| First Year kWh Savings | 50,590 kWh | TBD; ED requests that the IOU provide more information on the age, condition, controls mechanism and the estimated RUL of the existing fixtures. |
| First Year Peak kW Savings | 0.0 kW; | 0.0 kW; No peak demand reduction due to the nature |

| Description | IOU Proposed Ex Ante Data | ED Recommendations |
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| | | of the measure (dawn-to-dusk) operation. |
| First Year Therms Savings | NA | NA |
| kWh Savings (RUL Period) | Not provided | TBD |
| Peak kW Savings (RUL Period) | NA | NA |
| Therms Impact (RUL Period) | NA | NA |
| kWh Savings (EUL thru RUL Period) | Not provided | TBD |
| Peak kW Savings (EUL thru RUL Period) | NA | NA |
| Therms Savings (EUL thru RUL Period) | NA | NA |
| 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 | 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: In-situ fixtures |
| | ED Assessment: Possible early replacement of existing fixtures; however, no information on the age or RUL of the existing equipment was provided to make an informed recommendation. |
| | ED Recommendation: The ED requests that the IOU provide more information on the age, condition, and the estimated RUL of the existing fixtures. |
| Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment) | IOU Proposal: Total cost with a simple breakdown of costs from the IOU reviewer |
| | ED Assessment: The cost breakdown provided appears to be reasonable. Incremental costs may be needed for the RUL through EUL period. |
| | ED recommendation: The total cost data provided is sufficient for RUL period, however, please provide incremental cost estimates or vendor quotations for the RUL through EUL time frame. |
| RUL (required for early retirement projects only, otherwise n/a) | IOU Proposal: None provided |
| | ED Assessment: Early retirement of the existing fixtures was not verifiable; RUL of the existing equipment is needed to verify the applicability of early retirement. |
| | ED Recommendation: ED recommends that the IOU provide the age, condition and the estimated RUL of the of the existing fixtures. |
| EUL | IOU Proposal: None provided |
| | ED Assessment: EUL not identified in the documentation received. |
| | ED Recommendation: Use 16 years for High Output T-5 fixtures from the CPUC's Energy Efficiency Policy Manual Version 2, dated August, 2003 Table 4.1, Pages 17-18 |
| Savings Assumptions | IOU Proposal: The IOU used 4,100 hours per year as the hours of operation for the external lighting fixtures. The IOU used fixture wattages from the standard fixture wattage tables. |

| Reviewed Parameter | Analysis |
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| | <p>ED Assessment: The IOU hours of operation assumption is acceptable; however, no description of the lighting controls, if any, was provided in the project documentation.</p> <p>ED Recommendation: Appropriations to the hours of operation to account for any controls mechanism(s) are recommended to be utilized in order to accurately estimate the savings.</p> |
| <p>Calculation Methods/Tool review</p> | <p>IOU Proposal: Spreadsheet analysis</p> <p>ED Assessment: Calculations provided for installation of new T5HO fixtures are appropriate.</p> <p>ED Recommendation: None</p> |
| <p>Pre- or Post-Installation M&V Plan</p> | <p>IOU Proposal: Not described</p> <p>ED Assessment: The IOU does not intend to carry out any M&V for this site. There was a pre-installation inspection as part of the Project Application Review process.</p> <p>ED Recommendation: The ED does not find merit in recommending full M&V; however, use of site level information on the controls mechanism, age of the existing fixtures and number of burned out lamps, would be sufficient to revise and improve savings estimates.</p> |
| <p>Net-to-Gross Review</p> | <p>IOU Proposal: None</p> <p>ED Assessment: Not addressed</p> <p>ED Recommendation: None</p> |