

Phase II Ex Ante Review Findings

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

IOU	Pacific Gas and Electric
Application ID	1085-01.1
Application Date	07/16/2012
Program ID	Not available
Program Name	Monitoring Based Commissioning Program 2010 - 2012
Program Year	2012
Itron Project ID	X-139
IOU Ex Ante Savings Date	Not available
ED Measure Name	Boiler Replacement
Project Description	Install a new finned-tube feedwater economizer on the newly installed reconditioned low NOx boiler
Date of ED Review(s)	07/16/2012 & 08/27/12
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	ED conditionally approves the savings for the proposed project (PGE 1085-01.1) and requests an opportunity to review savings estimate after post-installation measurements are taken by the IOU. ED also requests IOU to submit contractor's invoice for installation for boiler economizer.

Measure Description

The measure proposes to replace two existing boilers with one reconditioned, low NOx boiler to meet new NOx regulations, Boiler 2 (30,000 PPH) will be replaced with a new 70,000 PPH boiler and existing Boiler 1 (40,000 PPH) will be used as a backup boiler. The new 70,000 PPH boiler is proposed to be installed with a new finned-tube feedwater economizer to improve its combustion efficiency and thereby resulting in gas savings. Installation of the economizer boosts the boiler efficiency from 79 % to 83.5 % and helps the project comply with Title 20 baseline combustion efficiency of 80%. The natural gas savings for this project are a result of the economizer installation only.

Summary of Review

Documents provided for this Phase II review included the following: Energy Audit Report draft version 1, Live energy savings calculation spreadsheet, and IOU response to data request questions in a word document.

The measure is to install a new boiler economizer on the recondition boiler which will replace the existing boiler. Facility is installing a refurbished boiler with a CataStak™ SCR system to reduce NOx emissions and to be in compliance with 2013 BAAQMD requirements. IOU data response stated that RUL of the existing boiler was likely to be between 5 to 10 years depending on operation and routine maintenance. Live energy savings calculation spreadsheet was provided for ED review. Boiler runtime logs were provided in the excel spreadsheet to confirm the run hours. The baseline efficiency used in the calculation spreadsheet was 80% combustion efficiency which equals 79% thermal efficiency for large industrial water tube boiler. The boiler economizer measure is expected to increase the thermal efficiency of the boiler from 79 % to 83.5 %.

IOU's data response clarified that the correct installation cost for boiler economizer is \$45,000 and not \$80,000 as stated in their report. Project quote was not provided in Appendix 5.1 as stated in the data response. Project incentive was also revised from \$40,000 to 25,000. The estimated project savings estimate is 108,000 therms/ yr.

Review Conclusion

ED conditionally approves the savings for the proposed project (PGE 1085-01.1) and requests an opportunity to review savings estimate after post-installation measurements are taken. ED also requests IOU to submit contractor's quote for installation for boiler economizer.

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 on **09/10/2012** (14 days from submittal date to IOU):

1. Provide contractor's invoice for the boiler economizer (material + labor).

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)	Add on Measure	Add on Measure acceptable
Project Cost Basis (Full Cost, Incremental Cost)	Incremental cost – \$45,000	Incremental cost of \$45,000 is acceptable
RUL (Early retirement projects only, otherwise N/A (not applicable))	N/A	N/A
EUL	20 years	20 years for non residential boilers per DEER 2008
First Year kWh Savings	N/A	N/A
First Year Peak kW Savings	N/A	N/A
First Year Therms Savings	108,000 Therms/yr	108,000 Therms/yr is subject to post M&V and savings true up
kWh Savings (RUL Period)	N/A	TBD
Peak kW Savings (RUL Period)	N/A	N/A
Therms Impact (RUL Period)	N/A	N/A
kWh Savings (EUL thru RUL Period)	N/A	TBD
Peak kW Savings (EUL thru RUL Period)	N/A	TBD
Therms Savings (EUL thru RUL Period)	108,000 Therms/yr	108,000 Therms/yr is subject to post M&V and savings true up
Annual Non-IOU Fuel Impact (RUL Period)	N/A	N/A

Description	IOU Proposed Ex Ante Data	ED Recommendations
Annual Non-IOU Fuel Impact (EUL thru RUL Period)	N/A	N/A
Net-to-Gross Ratio	Not provided	TBD; A NTG assessment may be warranted

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: Add on Measure
	ED Assessment: Title 20 code was used as baseline for energy efficiency. Add on Measure baseline is acceptable
	ED recommendation; None
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Incremental cost of \$45,000
	ED Assessment: Incremental cost of \$45,000 is acceptable
	ED recommendation: Provide contractor’s invoice for the boiler economizer labor and material cost.
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: 20 years
	ED Assessment: 20 years for non residential boilers per DEER 2008 database.
	ED Recommendation: None
Savings Assumptions	IOU proposal: Live energy savings calculation spreadsheet is provided for ED review
	ED Assessment: Supporting documentation provided for 4,000 operating hours provided in IOU’s data response.
	ED Recommendation: None
Calculation Methods/Tool review	IOU proposal: Live energy savings calculation spreadsheet is provided for ED review
	ED Assessment: Calculation Methodology acceptable
	ED Recommendation: None

Reviewed Parameter	Analysis
Pre- or Post-Installation M&V Plan	IOU Proposal: M&V plan submitted
	ED Assessment: IOU to conduct onsite inspection to verify proper installation and operation of the measure. Post installation measurement and verification to verify the installed energy savings is also intended to be carried out by the IOU contractor.
	ED Recommendation: None
Net-to-Gross Review	IOU Proposal: Not provided
	ED Assessment: An ex ante interview may be warranted
	ED Recommendation: An ex ante interview may be warranted