

Phase I Ex Ante Review Findings

Table 1-1: Project Information

IOU	PG&E
Application ID	2K13160750
Application Date	01/02/2013
Program ID	PGE21031
Program Name	Agricultural Calculated Incentives
Program Year	2013
Itron Project ID	X298
IOU Ex Ante Savings Date	TBD
ED Measure Name	Heat Recovery
Project Description	Installation of new blowdown heat recovery system to preheat the boiler make up water.
Date of ED Review(s)	06/10/2013
Primary Reviewer / Firm	Kunal Desai / Itron
Review Supervisor / Firm	Joseph Ball / Itron
ED Project Manager	[REDACTED]
ED Policy Authorization (as needed)	TBD
Type of Review (Desk, On-site, Full M&V, Tool)	Desk
ED Recommendation	The project is conditionally approved subject to valid boiler permit, post-implementation verification and savings true-up.

Measure Description

The measure is to install a blowdown heat recovery system on the existing boilers and use the heat to preheat the makeup water. Boiler water is blown down to control the amount of total dissolved solids (TDS) in the boiler. This water is pressurized, hot and dirty, creating large volumes of flash steam and possible disposal problems. A new heat recovery system will reclaim large amounts of energy during this essential process.

Summary of Review

The Investor Owned Utility (IOU) submitted the following documents for Data Request (DR) 2689 on 06/03/2013 for this Phase I review:

- Transmittal Memorandum for DR 2689;
- Project application,
- Energy Audit Report,
- Specifications,
- Live energy savings calculation spreadsheet and,
- IOU's review template.

This project proposes to install a new blowdown heat recovery system on the existing boilers to heat the makeup water. There are three boilers at this facility. Two boilers are required in constant operation and one boiler is used as back up. The facility is slated to run for 24 hours a day, 7 days a week, and for 48 weeks a year. This facility is expected to be down for maintenance for 4 weeks in a year.

ED requested the IOU to provide boiler tests for the previous two years along with the current boiler permit certificate. ED received IOU's response on 6/3/2013 stating that they have not received the requested information from the site contact. ED would like to inform the IOU that in absence of the permit documentation, validity of the project is not assured. No supporting documentation was provided earlier to support the boiler pressure, boiler efficiency, flash steam recovery and boiler load factor claim. This information was also requested in ED's subsequent data request. The IOU's inspector conducted a site visit on 3/26/2013 and collected all the data by 4/29/2013 for ED review. The boiler efficiency claim was revised from 80% to 85%, flash pressure was revised from 10% to 5%, the continuous blowdown estimate was also revised from 10 to 5%, and the boiler pressure was also revised from 120 psig to 85 psig based on site visit observations. IOU's amended numbers have reduced the energy savings estimates by 30%.

Preliminary energy savings estimate of this project is 115, 928 therms. The estimated incentive for this project is \$33,750. The estimated project cost is \$67,500. It is likely that the project incentive will be capped at 50% of capital cost.

Review Conclusion

The project is conditionally approved subject to valid boiler permit, post-implementation verification and savings true-up.

Summary of ED Requested Action by the IOU

ED requests that the IOU undertake the recommended steps and submit the following information due on **07/15/2013** (or 14 days from submittal date to IOU):

1. Provide post installation M&V plan for ED review. Post Installation M&V plan should include the M&V time period and detail the M&V points.
2. Provide all three boiler permit certificates

At the time of post-install IOU inspection, ED requests the following documents:

1. Provide the PA application, the IR report, post-install logger files, and any revised, “live” spreadsheet calculations after installation.
2. Provide production data at this facility for the last five years, normalize the production data using one full of year of pre-production date, and monitor the production levels during the two-week post-install M&V period to adjust energy savings after project installation is complete.
3. Provide invoices to support the project cost when installation is complete.
4. Provide boiler tests for last two years.

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: Add On Measure
	ED Assessment: Add On Measure
	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
	ED Assessment: In Situ
	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 - \$67,500
	ED Assessment: Full Cost
	ED recommendation: None
RUL (required for early retirement projects only, otherwise N/A)	IOU Proposal: N/A
	ED Assessment: N/A
	ED recommendation: N/A
EUL (for each measure)	IOU Proposal: Not Provided
	ED Assessment: 14 years based on DEER 2008 for heat recovery measures
	ED Recommendation: 14 years
Savings Assumptions	IOU Proposal: IOU assumes that the facility will run for 24 hours a day, 7 days a week for 48 weeks in a year. IOU also assumed that the boiler is code compliant and has a boiler efficiency of 85%. Boiler loading was also assumed to be 80%.
	ED Assessment: In the absence of permit documentation, validity of the project is not assured. From boiler logs or boiler trend data verify that the maintenance downtime is correctly estimated.
	ED Recommendation: Boiler loading needs to be verified from the post installation trend data. Boiler efficiency should be verified from the boiler test

Reviewed Parameter	Analysis
	report of 2012 or 2013. Obtain boiler permit certificate for project validity.
Calculation Methods/Tool review	IOU Proposal: Custom energy savings calculation spreadsheet was submitted for ED review
	ED Assessment: Calculation methodology acceptable
	ED Recommendation: None
Pre- or Post-Installation M&V Plan	IOU Proposal: Post Installation M&V plan was not submitted for ED review
	ED Assessment: Not reviewed
	ED Recommendation: Post installation M&V plan should be submitted for ED review Post Installation M&V plan should include the M&V time period and detail the M&V points
Net-to-Gross Review	IOU Proposal: Not provided
	ED Assessment: Not assessed
	ED Recommendation: NTG interview may be warranted

Table 1-3 Energy Savings Summary

Description	IOU Ex Ante Claim	ED Recommendations
First Year kWh Savings	N/A	N/A
First Year Peak kW Savings	N/A	N/A
First Year Therms Savings	115,928	TBD
kWh Savings (RUL Period)	N/A	N/A
Peak kW Savings (RUL Period)	N/A	N/A
Therms Impact (RUL Period)	N/A	N/A
kWh Savings (RUL thru EUL Period)	N/A	N/A
Peak kW Savings (RUL thru EUL Period)	N/A	N/A
Therms Savings (RUL thru EUL Period)	115,928	TBD
Annual Non-IOU Fuel Impact (RUL Period)	N/A	TBD
Annual Non-IOU Fuel Impact (RUL thru EUL Period)	N/A	TBD