

## **Ex Ante Review Findings**

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

<b>IOU</b>	PG&E
<b>Application ID</b>	2K1277405C
<b>Application Date</b>	12/21/2011
<b>Program ID</b>	TBD
<b>Program Name</b>	2010-2012 UC/CSU/IOU Partnership Program
<b>Program Year</b>	2012
<b>Itron Project ID</b>	TBD
<b>IOU Ex Ante Savings Date</b>	12/21/2011
<b>ED Measure Name</b>	TBD
<b>Project Description</b>	Install one new 2 MBTU heating hot water boiler rated at 85% efficiency, and install new steam boilers with a total 2 MBTU capacity.
<b>Date of ED Review(s)</b>	3/15/2012
<b>Primary Reviewer and Firm</b>	Keith Rothenberg/Energy Metrics
<b>Review Supervisor and Firm</b>	Joseph Ball/Itron
<b>Type of Review (Desk, On-site, Full M&amp;V, Tool)</b>	Desk
<b>ED Recommendation</b>	Unable to assess pending fulfillment of data request.

## **Measure Description**

The facility has a central chiller, hot water and steam plant serving the campus. The customer proposes to install a new 85% efficient, 2 MBTU hot water boiler, with sufficient turndown to efficiently serve campus hot water loads and also to install new steam boilers with a total 2 MBTU capacity.

## **Summary of Review**

The documentation reviewed includes an application dated 12/21/2011, a memo prepared by a consultant summarizing DOE 2 modeling analysis and recommended measures, and the model results.

The documentation provided is high level, lacking important details about the proposed project. There are several measures shown in the analysis but none are described in depth and ED is unable to fully comprehend the scope of the project.

The baseline for the measures is unclear and ED is unable to determine how each proposed measure will reduce energy consumption. There is no description of the existing system for each measure and how the proposed measures will integrate into the existing systems. Proper baseline determination will dictate the requirements for analysis and the cost basis. No details have been provided regarding important assumptions used in the modeling for the project.

The incentive application documents an annual savings impact of 147,614 therms with an incentive amount of \$147,614. The estimated project cost is \$651,596.

## **Review Conclusion**

From the lack of information provided, the ED does not approve this project, pending submission of additional data requested.

## **Summary of ED Requested Action by the IOU**

In order to complete an ex ante review the ED requests that the IOU submit the following documentation due on 04/05/2012:

- Clearly define the baseline and describe details of both the baseline and the enhanced (proposed) case for each measure part of the project. Also provide a description of how each measure saves energy. Discuss any electrical impacts associated with the project - pumping energy, boiler fan energy, or changes in control equipment.
- Describe the existing heating hot water boiler and steam systems, including installed capacity, sequencing of equipment, operating temperatures, pressures, control strategies, hours of operation, etc. Provide single line schematics as appropriate.

- Describe the proposed heating hot water boiler and steam systems, including installed capacity, sequencing of equipment, operating temperatures, pressures, control strategies, hours of operation, etc. Provide single line schematics as appropriate.
- If early replacement is the baseline claim for either measure, provide the RUL, vintage, condition, and maintenance schedule of the pre-existing equipment; additionally provide analysis of the impacts for the RUL period and the RUL thru EUL period.
- Provide a description of how each measure will be integrated into the existing heating hot water system and steam system. Describe if existing boilers for each measure are being replaced or supplemented.
- Provide the proposed cost basis (full cost, incremental cost) for each measure and justification for each choice.
- Provide more information regarding the modeling of the two measures-the baseline operation and the post implementation operation and assumptions used in the model. ED may request model input and output files, a description of the baseline and proposed systems, assumed and measured parameter inputs. Define the modeled parameters that will be important to verify to ensure the energy impacts are achieved.
- ED recommends that the post implementation verification include an assessment of whether the assumptions regarding the operation of the boilers agree with the assumptions used in the model. The assumptions have not been provided. IOU to provide a list of parameters to be verified in the post implementation inspection.

**Table 1-2: Project Overview**

Description	IOU Proposed Ex Ante Data	ED Recommendations
<b>Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures)</b>	TBD	TBD
<b>Project Cost Basis (Full Cost, Incremental Cost)</b>	Full cost	Incremental cost may be appropriate.
<b>RUL (Early retirement projects only, otherwise N/A (not applicable))</b>	NA	TBD
<b>EUL</b>	20	20
<b>First Year kWh Savings</b>	0	TBD
<b>First Year Peak kW Savings</b>	0	TBD
<b>First Year Therms Savings</b>	147,614	TBD
<b>kWh Savings (RUL Period)</b>	TBD	TBD
<b>Peak kW Savings (RUL Period)</b>	0	TBD
<b>Therms Impact (RUL Period)</b>	0	TBD
<b>kWh Savings (RUL thru EUL Period)</b>	NA	TBD
<b>Peak kW Savings (RUL thru EUL Period)</b>	NA	TBD
<b>Therms Savings (RUL thru EUL Period)</b>	NA	TBD
<b>Annual Non-IOU Fuel Impact (RUL Period)</b>	NA	NA
<b>Annual Non-IOU Fuel Impact (RUL thru EUL Period)</b>	NA	NA
<b>Net-to-Gross Ratio</b>	Not provided	Assessment not completed

**Table 1-3: Detailed Review Findings**

Reviewed Parameter	Analysis
<p><b>Project Gross Savings Baseline</b> (for early retirement projects only, include RUL through EUL baseline)</p>	<p>IOU Proposal: The application documents do not clearly state the baseline nor do they describe the pre-existing equipment and condition for each proposed measure</p>
	<p>ED Assessment: ED is unable to determine the proposed baseline for each measure from the documents provided</p>
	<p>ED Recommendation: IOU to concisely describe the baseline for each measure</p>
<p><b>Project Cost Basis</b> (for early retirement projects only, include RUL through EUL cost basis treatment)</p>	<p>IOU Proposal: Full cost</p>
	<p>ED Assessment: Incremental cost is likely to be the correct basis, pending definition of the baseline for each measure.</p>
	<p>ED recommendation: IOU to provide cost basis for each measure and justification for each choice. Wherever early retirement of in situ equipment is claimed, then also provide incremental cost estimates, project quotes, vendor proposals, or actual invoices.</p>
<p><b>RUL</b> (required for early retirement projects only, otherwise n/a)</p>	<p>IOU Proposal: N/A</p>
	<p>ED Assessment: At this time it is not clear what the proposed baseline is for each measure. ED cannot determine how each measure will be integrated into the existing system from the documentation provided.</p>
	<p>ED recommendation: Provide a description of how each measure will be integrated into the existing heating hot water system and steam system. Describe if existing boilers for each measure are being replaced (and removed from site) or supplemented.</p>
<p><b>EUL</b></p>	<p>IOU Proposal: 20 years</p>

<b>Reviewed Parameter</b>	<b>Analysis</b>
	ED Assessment: 20 years (DEER 06-07)
	ED Recommendation: 20 years
<b>Savings Assumptions</b>	IOU Proposal: DOE 2.2 model used, assumptions not stated
	ED Assessment: Unable to determine with available documentation
	ED Recommendation: IOU needs to provide more information regarding the modeling of the two measures - the baseline operation and the post implementation operation and assumptions used in the model
<b>Calculation Methods/Tool review</b>	IOU Proposal: DOE 2.2 model
	ED Assessment: Method appropriate, but model input and output files not provided
	ED Recommendation: ED may request input files for review at the post-implementation stage.
<b>Pre- or Post-Installation M&amp;V Plan</b>	IOU Proposal: None
	ED Assessment: None
	ED Recommendation: Post implementation verification should include an assessment of whether the actual boiler operating parameters agree with the assumptions used in the model. The assumptions have not been provided. IOU to provide a list of parameters to be verified in the post implementation inspection.
<b>Net-to-Gross Review</b>	IOU Proposal: None

*Ex Ante Review and Lower Rigor Findings Report Template*

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<b>Reviewed Parameter</b>	<b>Analysis</b>
	ED Assessment: None
	ED Recommendation: Not addressed