

Phase I Ex Ante Review Findings

Table 1-1: Project Information

IOU	PGE
Application ID	1773
Application Date	11/29/2012
Program ID	PGE2222
Program Name	Energy Efficiency Services for Oil Production
Program Year	2012
Itron Project ID	X274
IOU Ex Ante Savings Date	11/29/2012
ED Measure Name	New Steam Generator
Project Description	The project entails installing 2 measures: 1) VFDs on new steam generator feedwater pump and combustion air fan, and 2) a split pass design of the steam generator in lieu of the standard single pass configuration.
Date of ED Review(s)	2/1/2013
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	Savings not approved, pending submittal of further requested documentation described in this review

Measure Description

The project consists of two energy savings measures. The first measure is to install an efficient split pass design in the new steam generator over the standard single pass configuration. The second measure is to install two (2) VFDs, one (1) on a new 300 HP steam generator feedwater pump and one (1) on a 150 HP combustion air fan motor.

Summary of Review

Pacific Gas & Electric (PG&E) submitted the following documents to the Energy Division (ED) for the Phase I review process:

- Project Application,
- Third party implementer's project report,
- Live Energy Savings Calculation spreadsheet,
- Email communication between IOU and the site contact
- Cover letter for Data Request #323.

PG&E is claiming energy savings from installation of a new split pass design steam generator. ED assumes that the new steam generator will be serving a new well. In the split pass design, the feedwater is branched into two pipes downstream of the feedwater pump in order to increase heat transfer and reduce pressure losses through the generator, thereby improving efficiency. PG&E has not submitted cut-sheets or submittals of split pass steam generator design for ED review. The baseline method for pumping is to use a recirculation valve to modify flowrate from the positive displacement pump. A VFD is expected to save energy when the system is not running at full capacity. The steam generator is expected to run for 5,151 hours for the first year. Gradually the operation is projected to increase to 8,585 hours by year 5. PG&E's calculation methodology uses a forecasting method to estimate total kWh savings until year 5. CPUC energy manual does not permit forecasting. ED suggests that PG&E revise and submit energy savings kW & kWh estimates to account for only first year savings. The preliminary annual kW & kWh energy savings estimates using the forecasting method are 90.12 and 746,107, respectively. Likewise, the preliminary project cost and incentive is estimated to be \$165,000 and \$76,162 respectively.

Review Conclusion

Project Savings are not approved, 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

ED requests and recommends that in order to complete an ex ante review the ED recommends that the IOU perform the following action:

1. Provide cut-sheets or equipment specifications for the new steam generator and feedwater system schematic or layout that includes all equipment (combustion air fan, associated motors and VFDs) included in the energy efficiency measures for this project.
2. Clarify if other wells at the same site have a similar split pass steam generators installed? If yes, please list the count and vintage.
3. A breakdown of project and measure costs – proposed and baseline, including equipment and labor, supported with contractor quotes or itemized invoices.
4. CPUC energy manual does not permit forecasting. Revise and submit energy savings kW & kWh estimates to account for only first year savings. Include VFD efficiency (~95%) and, belt drive efficiency of 95% per the Data Center Baseline Guidance document in the energy savings calculations. Submit ABB's assumption of the power exponent used in the affinity law. Provide the locations at this site where baseline flow valve has been used for ED's inspection.
5. Submit M&V plan for ED review prior to post-installation inspection

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)	New Construction	New Construction
Project Cost Basis (Full Cost, Incremental Cost)	Incremental Cost	Provide breakdown of equipment + labor
RUL (Early retirement projects only, otherwise N/A (not applicable))	N/A	N/A
EUL	Not Provided	TBD
First Year kWh Savings	746,107	TBD
First Year Peak kW Savings	90.12	TBD
First Year Therms Savings	N/A	N/A
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 (EUL thru RUL Period)	746,107	TBD
Peak kW Savings (EUL thru RUL Period)	90.12	TBD
Therms Savings (EUL thru RUL Period)	N/A	TBD
Annual Non-IOU Fuel Impact (RUL Period)	N/A	N/A
Annual Non-IOU Fuel Impact (EUL thru RUL Period)	N/A	N/A
Net-to-Gross Ratio	Not Provided	To be done

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: New Construction
	ED Assessment: New Construction
	ED Recommendation: TBD
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Incremental cost
	ED Assessment: Increment cost
	ED recommendation: Provide estimated breakdown of equipment + labor costs, for the proposed and baseline equipment.
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: Not provided
	ED Assessment: VFDs on pumps and fan motors is 15 years; design layout configuration measure will need further assessment
	ED Recommendation: TBD
Savings Assumptions	IOU Proposal: A “live” energy savings calculation spreadsheet.
	ED Assessment: IOU expects the plant will operate for 5,151 hours in the first year. Pump efficiency, Operating pressure, GPM, motor & drive efficiency needs to be verified during the post M&V period.
	ED Recommendation: TBD
Calculation Methods/Tool review	IOU Proposal: A live energy savings calculation spreadsheet was provided for ED review.
	ED Assessment: IOU has used forecasting method until year 5 to estimate energy savings.
	ED Recommendation: Revise kW and kWh calculations to include energy savings through the end of year 1 only.
Pre- or Post-Installation M&V Plan	IOU Proposal: M&V plan not provided for ED review.
	ED Assessment: Not assessed
	ED Recommendation: Submit M&V plan for ED review
Net-to-Gross Review	IOU Proposal: Not provided
	ED Assessment: Not assessed
	ED Recommendation: NTG interview will be conducted.