

Phase 2 Ex Ante Review Findings

Table -1: Project Information

IOU	PG&E
Application ID	ICRx 034
Application Date	3/29/2012 (Audit report dated 10/8/2012)
Program ID	PGE2228
Program Name	Industrial Recommissioning Program
Program Year	TBD
Itron Project ID	X256
IOU Ex Ante Savings Date	3/29/12
ED Measure Name	Compressed Air System Optimization
Project Description	Compressed air system modifications
Date of ED Review(s)	12/23/12 & 1/28/13
Primary Reviewer and Firm	Keith Rothenberg/Energy Metrics
Review Supervisor and Firm	Joseph Ball/Itron
Type of Review (Desk, On-site, Full M&V, Tool)	Desk
ED Recommendation	Ex ante savings estimates are not approved, pending fulfillment of data request for more information. ED will continue to review this project following receipt of additional information.

Measure Description

The application documents describe five proposed measures to optimize the operation of a compressed air system:

1. Install pressure flow controller and a 5,000 gal dry receiver, 46 kW, 403,105 kWh.
2. Install automation to control compressors and air dryers. 90.8 kW, 795,196 kWh.
3. Reduce air dryer purge rate, 119.1 kW, 1,042,920 kWh.
4. Repair 70 air leaks, 52 kW, 455,424 kWh.
5. Replace 6 timer drains, 1.4 kW, 11,826 kWh.

The total estimated impacts are 309 kW and 2,708,472 kWh with an estimated incentive of \$115,160.

Summary of Review

ED selected this project for ex ante review in December 2012. The IOU provided documentation for the project on December 14, 2012. ED reviewed the IOU supplied information including the IOU's draft pre-installation calculations, the project implementation agreement, audit report, and pre installation monitoring data provided by the IOU including 7 days of air compressor amperage monitoring and system pressure data. ED requested additional information for the project. The IOU responded to the request on January 15, 2013. This is ED's second review for the project.

The IOU has informed ED that the project is currently being implemented. ED would like to perform a site visit at the customer's earliest convenience to observe the pre-installation conditions. Considering that the project implementation is currently underway, ED requests that the IOU expedite providing customer contact information to facilitate this request.

ED will continue to review the project and the ex ante savings will not be frozen until the completion of post installation M&V for the project.

ED requires additional information to verify the estimated energy savings for these measures.

ED requires that the post installation M&V plan measurement period be increased.

ED has previously requested information regarding the data collection capabilities for the pre-project and post project air compressor systems. This information has not been provided. ED will provide a detailed data request after receipt of this information.

Review Conclusion

The ex ante energy savings could not be validated and are not approved pending additional information from the IOU. ED will continue to review this project following receipt of additional information.

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 **2/12/2013** (14 days from submittal date to IOU):

1. ED would like to perform a site visit at the customer's earliest convenience to observe the pre-installation conditions. Considering that the project implementation is currently underway, ED requests that the IOU expedite providing customer contact information to facilitate this request.
2. ED requests that the IOU provide the expected completion date for the project.
3. ED requests that the post installation M&V period be increased to a minimum of three weeks.
4. ED requests that the IOU describe how the repair of air leaks will be verified.
5. ED previously requested that the IOU provide a diagram showing all existing and proposed air compressor system measurement points. The IOU has replied that the locations of the post installation measurement points have not been finalized. ED requests again that the IOU provide a diagram showing all pre project and post project compressor system (kW, flow, pressure) measurement points in the pre-project and post-project systems when this information becomes available. Following receipt of this information ED will make a specific request for pre and post installation measured data.
6. Provide manufacturer's data sheets for the new desiccant dryers.
7. Provide a sequence of operation for the new compressor controls.
8. Submit the post-installation inspection report, data and analysis, when they become available.
9. Provide final cost documentation (itemized paid invoices), when they become available.

ED is likely to ask for further clarifications and additional information as the details of this project become more clearly defined. ED requests that the IOU:

1. Keep ED informed of the progress and next steps on this project.
2. Inform ED of any future site visits including the post installation site visit, in case it chooses to send a representative on-site.

3. Provide sufficient opportunity for ED to review the requested data, analysis and calculations prior to the freezing of ex ante savings impacts for this project.

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)	System Optimization	TBD
Project Cost Basis (Full Cost, Incremental Cost)	Full cost	TBD
RUL (Early retirement projects only, otherwise N/A (not applicable))	NA.	TBD
EUL	5 years.	TBD
First Year kWh Savings	2,708,472	TBD
First Year Peak kW Savings	309.2	TBD
First Year Therms Savings	0	TBD
kWh Savings (RUL Period)	TBD	TBD
Peak kW Savings (RUL Period)	TBD	TBD
Therms Impact (RUL Period)	TBD	TBD
kWh Savings (EUL thru RUL Period)	2,708,472	TBD
Peak kW Savings (EUL thru RUL Period)	309.2	TBD
Therms Savings (EUL thru RUL Period)	0	0
Annual Non-IOU Fuel Impact (RUL Period)	NA	NA
Annual Non-IOU Fuel Impact (EUL thru RUL Period)	NA	NA
Net-to-Gross Ratio	0.70	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
	ED Assessment: in situ is appropriate for retrofit add-on and retro-commissioning projects.
	ED Recommendation: Approved
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Full cost
	ED Assessment: Full cost is appropriate for retrofit add-on and retro-commissioning projects.
	ED Recommendation: Approved.
RUL (required for early retirement projects only, otherwise n/a)	IOU Proposal: NA
	ED Assessment: NA
	ED recommendation: none.
EUL	IOU Proposal: 5 years
	ED Assessment: TBD.
	ED Recommendation: TBD
Savings Assumptions	IOU Proposal: 7 days of compressor amperage data and pressure data from portable loggers installed by the 3PP implementer were used to estimate the baseline compressed air system energy consumption. Manufacturer’s performance data used to estimate the desiccant dryer purge rate. The IOU used a customized compressed air calculator to estimate the baseline and post installation compressed air system performance.
	ED Assessment: TBD
	ED Recommendation: TBD.
Calculation Methods/Tool review	IOU Proposal: The project impacts are calculated using a customized model that was developed by the IOU for specific compressed air project measures.
	ED Assessment: ED has not reviewed this model in detail.
	ED Recommendation: ED will review this model in an effort separate from this project.

Reviewed Parameter	Analysis
Pre- or Post-Installation M&V Plan	IOU Proposal: Post installation data compressor amps and system pressure to be collected.
	ED Assessment: A more robust M&V plan is required. ED will review the data collection points available following the IOU's response to this review
	ED Recommendation: ED will make a data request for this project following receipt of documentation showing the pre and post project data points available for the compressed air system.
Net-to-Gross Review	IOU Proposal: Not addressed
	ED Assessment: TBD
	ED Recommendation: TBD