

Phase II Ex Ante Review Findings

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

IOU	PG&E
Application ID	Ecos-295
Application Date	Audit report dated 10/8/2012
Program ID	PGE2224
Program Name	Industrial Compressed Air
Program Year	2012
Itron Project ID	X217
IOU Ex Ante Savings Date	11/20/12
ED Measure Name	Compressed Air Retrofit
Project Description	Compressed air system modifications
Date of ED Review(s)	11/30/12, 10/21/2013
Primary Reviewer / Firm	Keith Rothenberg/Energy Metrics
Review Supervisor / Firm	Joseph Ball/Itron
ED Project Manager	████████████████████ ████████████████████
ED Policy Authorization (as needed)	
Type of Review (Desk, On-site, Full M&V, Tool)	On-Site
ED Recommendation	The following ED-adjusted ex ante savings values are approved: 33.6 kW peak demand reduction and 294,107 annual kWh savings for the RUL period; and 21.2 kW peak demand reduction and 185,518 annual kWh savings for the EUL-RUL period.

Measure Description

Install a new 200 HP, two stage, oil-free rotary screw, variable frequency drive (VFD) controlled air compressor, replace two heatless desiccant dryers with two heated purge desiccant dryers. The new VFD compressor operates as the plant's "trim" air compressor. Place an additional heatless desiccant dryer in standby to reduce purge losses.

Summary of Review

The Investor-Owned-Utility (IOU) submitted the following documents on 9/18/2013 for this Phase 2 review:

- Final Project Report;
- IOU Savings analysis calculations
- Raw Data Collected.

ED reviewed the submitted documents and noted that the IOU's analysis did not conform to the ED approved M&V plan for the project. ED contacted the IOU representatives and requested that the analysis be resubmitted.

The IOU resubmitted the analysis on 10/14/2013. ED notes that the IOU's revised analysis does not conform to the M&V plan-the air flow reduction associated with the installation of the new air dryers was not calculated in accordance with the M&V plan. ED performed its own analysis of the project impacts using compressor performance data provided by the IOU and power data that ED collected during the post project M&V period. ED's revised analysis results in approximately 84,000 kWh reduction in the project's estimated annual impacts. Also, the IOU did not provide analysis for the EUL-RUL period as was requested in the Phase 1 EAR dated 12/4/2012. ED has concluded that there are no claimable savings for the VFD compressor in the EUL-RUL period since this measure appears to be required by the 2013 Title 24 Standards which become effective on 1/1/2014. Exhibit A summarizes the history of the project impact estimates.

Exhibit A Summary of Ex Ante Estimates

	kW	kWh
IOU pre implementation submittal November 2012	56.4	493,904
IOU post implementation submittal September 2013	60.4	529,104
IOU post implementation submittal October 2013	43.2	378,082
ED post implementation analysis October 2013 RUL period	33.6	294,107
ED post implementation analysis October 2013 EUL-RUL period	21.2	185,518

Additionally, the IOU did not provide the EUL or RUL for the project as was requested in the Phase 1 EAR dated 12/4/2012. The proposed incentive for the project and how it is derived is not clearly shown in the documentation.

Review Conclusion

The ex ante savings are approved at the ED estimated values of 33.6 kW peak demand reduction and 294,107 annual kWh savings for the RUL period; and 21.2 kW peak demand reduction and 185,518 annual kWh savings for the EUL-RUL period.

Summary of ED Requested Action by the IOU

ED requests that the IOU undertake the recommended steps and submit the following information **due on 11/7/2013 (or 14 days from submittal date to IOU):**

1. Submit to ED an updated installation report with the corrected ex ante savings impacts, EUL, RUL, and incentive. Clearly show the proposed incentive and how it is derived.

Table 1-2 Review Findings

Reviewed Parameter	Analysis
Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures, Major Renovation) Note: For early retirement projects only, include RUL through EUL baseline)	IOU Proposal: Early retirement
	ED Assessment: Accept
	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 for the air dryers, AIRMaster+ minimum efficiency for the air compressors
	ED Assessment: Accept in situ for the RUL period.
	ED Recommendation: The VFD air compressor impacts for the EUL-RUL period are zero, since this measure appears to be required by the 2013 Title 24 code which becomes effective on 1/1/2014.
Project Cost Basis (Full Incremental, or Both. Note: For early retirement projects, include RUL through EUL cost basis treatment)	IOU Proposal: Full cost of both measures for the RUL period. Full cost of the air dryers only for the EUL-RUL period.
	ED Assessment: Accept
	ED Recommendation: None
RUL (required for early retirement projects only, otherwise N/A)	IOU Proposal: Not provided
	ED Assessment: RUL still not provided as was requested by ED in the Phase 1 EAR dated 12/4/2012.
	ED recommendation: 1/3 of the EUL = 5 years
EUL (for each measure)	IOU Proposal: Not provided
	ED Assessment: EUL still not provided as was requested by ED in the Phase 1 EAR dated 12/4/2012.
	ED Recommendation: 15 years
Savings Assumptions	IOU Proposal: Partial compliance with M&V plan based on measured data stipulated values.
	ED Assessment: The IOU did not precisely follow the approved M&V plan.
	ED Recommendation: The IOU should employ better quality control procedures to ensure M&V plans are properly executed.
Calculation	IOU Proposal: Spreadsheet analysis

Reviewed Parameter	Analysis
Methods/Tool review	ED Assessment: Spreadsheet analysis did not precisely follow the M&V plan, and does not address the EUL-RUL period impacts as was requested by ED in the Phase 1 EAR dated 12/4/2012.
	ED Recommendation: ED has revised the savings analysis for the RUL period to match the M&V plan, and performed impact analysis for the EUL-RUL period.
Pre- or Post-Installation M&V Plan	IOU Proposal: Pre installation monitoring data provided by the IOU including 7 days of air compressor amperage monitoring and system pressure data. 14 days+ post installation monitoring data of air compressor amperage monitoring and system pressure.
	ED Assessment: The M&V plan was proposed by ED and accepted by the IOU following the Phase 1 EAR in December 2012.
	ED Recommendation: None
Net-to-Gross Review	IOU Proposal: Not addressed
	ED Assessment: TBD
	ED Recommendation: TBD

Table 1-3 Energy Savings Summary, Project Costs & Incentive

Description	IOU Ex Ante Claim	ED Recommendations
First Year kWh Savings	378,082	294,107
First Year Peak kW Savings	43.2	33.6
First Year Therms Savings	0	0
kWh Savings (RUL Period)	378,082	294,107
Peak kW Savings (RUL Period)	43.2	33.6
Therms Impact (RUL Period)	0	0
kWh Savings (RUL thru EUL Period)	Not provided	185,518
Peak kW Savings (RUL thru EUL Period)	Not provided	21.2
Therms Savings (RUL thru EUL Period)	0	0
Annual Non-IOU Fuel Impact (RUL Period)	NA	NA
Annual Non-IOU Fuel Impact (RUL thru EUL Period)	NA	NA

Phase II Ex Ante Review Findings

Description	IOU Ex Ante Claim	ED Recommendations
Project Costs for Baseline #1 (RUL or EUL)	\$180,999.52	Accept
Project Costs for Baseline #2 (EUL minus RUL period)	Not provided	\$57,748
Project Incentive Amount	Unclear	IOU should revise and resubmit.