

Ex Ante Show Stopper Review Findings

Table 1-1: Project Information

IOU	PG&E
Application ID	FPP-1440-13-2200
Application Date	9/30/2013
Program ID	PGE21039
Program Name	Comprehensive Food Processing Audit and Resource Efficiency Program
Program Year	2013
Itron Project ID	X476
IOU Ex Ante Savings Date	12/2/2013
Measure Name	Chiller Retrofit; Plant Controls
Project Description	The customer is replacing a 72-ton, water-cooled, dual compressor, Carrier glycol reciprocating chiller with a new 89-ton, water-cooled, Carrier glycol screw chiller. The customer is also retrofitting their primary and secondary glycol and condenser water pumps with variable speed drives and implementing a condenser water temperature reset control strategy.
Date of CPUC Staff Review	12/30/2013
Primary Reviewer / Firm	Brandon Gill and Chris Williams/ DNV GL
Review Supervisor / Firm	Joseph Ball/ DNV GL
CPUC Staff Project Manager	██████████ / California Public Utilities Commission, Energy Division
CPUC Staff Policy Authorization (as needed)	
Type of Review (Desk, On-site, Full M&V, Tool)	Desk
CPUC Staff Recommendation	The ex ante savings are <i>not approved</i> pending re-submittal of ex ante savings using a normal replacement chiller baseline based on 2008 Title 24 standards or industry standard practice (ISP)

Measure Description

The customer operates a [REDACTED] sqft. process facility that bakes bread. A chiller is needed for cooling and storing raw baking material called “sponge” and batch chilling finished product. The plant providing these functions consists of one dual-compressor, 72-ton reciprocating chiller running NU-22 refrigerant, one 15-hp constant speed primary loop glycol pump, two 20-hp constant speed secondary loop glycol pumps, one 7.5-hp constant speed condenser water pump, a 95.0-ton (@ 86.5 F/75.0 F/66.0 F) cooling tower with a 10-hp variable speed fan motor, and a glycol storage tank. When operational, the chiller delivers 32° F glycol and operates at a fixed refrigerant condensing temperature of 120° F. The chiller uses on/off controls for both of its compressors (the compressors lack unloading capability). The glycol storage tank acts as a capacity buffer, evening out the plant load profile and reducing cycling.

Presently, the pre-existing chiller is non-operational and requires service. A rental chiller has been brought in and hooked up to the rest of the plant. Instead of servicing the existing chiller, the customer plans to replace it with an 88.9-ton Carrier 30HXC126 screw chiller. Additionally, the customer plans to retrofit the glycol pumps (both primary and secondary) and the condenser water pump with variable speed drives. Lastly, the customer intends to implement a condenser water temperature reset strategy, increasing chiller efficiency at the expense of cooling tower fan energy. The customer estimates that their plant operates constantly (24/7) with the exception of approximately five days of down time for holidays and maintenance annually. The customer estimates that the plant currently serves an average load of 40 tons.

Summary of Review

The Investor-Owned-Utility (IOU) submitted the following documents on 12/9/13 for this Show Stopper review:

- Project Description Report
- Signed PPA
- Spreadsheet Savings Analysis
- Proposed Chiller Cut Sheet
- Third Party Review Report

CPUC staff reviewed the submitted documents to identify any issues with eligibility, baseline assumptions, savings analysis methods, claimed measure costs, and proposed M&V.

No eligibility issues were identified upon review, but potential baseline issues were. The implementer specified the existing chiller, plant equipment, and controls as the baseline. The project documentation does not clearly indicate the age of the pre-existing chiller; it only notes that the chiller is assumed to be 10 years old. Further correspondence with the implementer determined that the chiller’s shell and tube assemblies were manufactured in 1977. It was also determined that the existing chiller was unable to be repaired and under practical circumstances,

the existing chiller cannot be repaired at a reasonable cost. Since the chiller is over 20 years old (the 2011 DEER EUL for chillers) and cannot be repaired cost-effectively, **a standard practice (e.g., 2008 Title 24) chiller must be used for the normal replacement equipment baseline.**

CPUC staff next assessed the available project cost data. The implementer's project report includes a project cost estimate of \$295,000, but does not cite the source of this value. Incremental cost documentation, including itemized receipts, is requested for the post-installation CPUC review. Note that incremental cost is requested because the baseline has been determined by CPUC staff to be normal replacement.

Review Conclusion

The ex ante savings are *not approved* pending completion of the activities listed in the "Summary of CPUC Staff Requested Action" section below.

Summary of CPUC Staff Requested Action by the IOU

CPUC staff request that the IOU undertake the subsequent recommended steps and submit the following information:

1. Re-submit documentation and ex ante savings using a normal replacement chiller baseline using 2008 Title 24 standards or industry standard practice (ISP); and
2. Re-submit an estimated *incremental* measure cost analysis.