

Phase I Ex Ante Review Findings

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

IOU	PG&E
Application ID	FPP 1440-13-2222
Application Date	10/23/2013
Program ID	PGE2234
Program Name	Comprehensive Food Process Audit & Resource Efficiency Program
Program Year	2013
Itron Project ID	X475
IOU Ex Ante Savings Date	11/22/2013
CPUC Staff Measure Name	Food Processing Evaporator System Modifications
Project Description	Replace single effect evaporator system with a three effect evaporator system that includes MVR and TVR.
Date of CPUC Staff Review	12/27/2013
Primary Reviewer / Firm	Keith Rothenberg/Energy Metrics
Review Supervisor / Firm	Joseph Ball/Itron
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	Ex ante calculations not approved, pending fulfillment of data request for more information.

Measure Description

The implementer proposes to replace a single effect evaporator system with a three effect evaporator system including Mechanical Vapor Recompression (MVR) and Thermal Vapor Recompression (TVR).

The existing system is a single effect evaporator which uses steam to reduce the water content of tomato products thereby increasing the tomato concentration. The existing evaporator also includes a steam driven product pump. Evaporated tomato vapor condensate is sent to a condenser and heat is rejected in a cooling tower and the condensate is sent to the drain.

The proposed system is a multi-effect evaporator using MVR and TVR. According to the implementer, the proposed system will operate using the combined MVR and TVR techniques. In MVR, a mechanical compressor compresses the water vapor to higher pressure and temperature and then reuses it in place of steam to heat the tomato product until the desired tomato concentration product is achieved. In TVR, high pressure steam compresses the partial water vapor in thermal compressor and recycles its latent heat. TVR requires reduced steam input along with the compressed water vapor to sustain the evaporation process. The project includes new steam turbine driven and electric motor driven pumps.

The project appears to involve a capacity expansion. The existing product throughput is shown as [REDACTED] pounds per hour (pph) of tomatoes and the proposed product throughput is shown as 62,500 pph of tomatoes.

Summary of Review

The Investor-Owned-Utility (IOU) submitted the following documents on 12/19/2013 for this Phase I review:

- 1440-13-2222 DR_PCP_MVR_TVR.doc-Project description Report by the implementer.
- 1440-13-2222_EE Calcs_PCP_MVR_TVR.xls- ex ante calculations submitted by the implementer.
- Executed Access Agreement.
- 1440-13-2222_EE Calcs_PCP_MVR_TVRrev aesc.xls- ex ante calculations reviewed by IOU reviewer;
- Review of Project Description Report 1440-13-2222.doc-project summary by IOU reviewer.

The CPUC review staff has determined that the project appears to involve a capacity expansion. The existing product throughput is shown as [REDACTED] pounds per hour (pph) of tomatoes and the proposed product throughput is shown as 62,500 pph of tomatoes. The IOU has not properly addressed the proposed capacity expansion in the submitted documents. The M&V plan does not appear to normalize the analysis to the tomato throughput or account for different baselines such as the EUL-RUL period and expanded capacity which may be applicable to this project.

Review Conclusion

The ex ante calculations not approved. CPUC staff will continue to review this project pending fulfillment of the CPUC Staff Requested Action by the IOU.

Summary of CPUC Staff Requested Action by the IOU

CPUC Staff requests that the IOU undertake the recommended steps and submit the following information **due on 1/21/2014 (or 14 days from submittal date to IOU):**

1. Describe the age and condition of the existing evaporator system.
2. Describe if the existing evaporator will be removed or retained after the project is implemented.
3. Provide the project status, has design commenced? Has equipment been ordered? When does the customer anticipate completing the project?
4. Provide the RUL and EUL for the project.
5. The project appears to be a capacity expansion. Describe if the existing evaporator system can process the proposed product throughput (62,500 pph). The correct baseline for capacity expansion may be current industry standard practice (ISP).
6. If the correct baseline is current ISP, provide a discussion of ISP and describe how this project exceeds ISP. Consider that ISP may also pertain to the dual baseline (if applicable).
7. If the correct baseline is current ISP, the cost basis may be the incremental cost, not the full cost of the project. Address the incremental cost (the cost beyond ISP).
8. Describe the applicability of the Fisher Controls algorithms to this project. Are the existing and proposed valves manufactured by Fisher Controls?
9. Resubmit calculations. The calculation approach and methodology may need to be revised pending baseline determination. The analysis methodology should be revised to provide a normalized approach to estimating the impacts for the project, i.e. energy units/production units pre and post project.
10. Provide a diagram showing existing and proposed system measurement points. Provide SCADA graphic screen shots to facilitate CPUC Staff comprehension of the proposed M&V plan.
11. Describe the data archiving capabilities of the SCADA system. Are data archived on Change of Variable (COV) or a based on a time increment? Other parameters?

12. The M&V plan recommends that certain measurement points be incorporated in the proposed system. Describe how the M&V will be executed if the recommended measurement points are not installed by the customer.
13. Provide a more detailed M&V plan including adjustments for ISP and the EUL-RUL period (if applicable). Increase the baseline and post installation measurement periods to one full production season. Include a statement regarding whether or not the frozen ex ante claims will be based upon the final M&V or engineering calculations alone.
14. ED is likely to request additional information as the details of this project become better defined.
15. ED requests that PG&E to continue to keep ED informed of progress and next steps on this project.
16. ED requests the opportunity to review the requested data, analysis and calculations prior to the freezing of ex ante savings impacts for this project.

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: Not provided
	CPUC Staff Assessment: The project appears to involve capacity expansion.
	CPUC Staff Recommendation: The IOU should describe if the existing evaporator system can process the proposed product throughput (62,500 pph).
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
	CPUC Staff Assessment: The project appears to involve capacity expansion.
	CPUC Staff Recommendation: If the project involves a capacity expansion, the IOU should revise the project documentation accordingly.
Project Cost Basis (Full Incremental, or Both. Note: For early retirement projects, include RUL through EUL cost basis treatment)	IOU Proposal: Full cost
	CPUC Staff Assessment: The project appears to involve capacity expansion.
	CPUC Staff Recommendation: If the project involves a capacity expansion, the IOU should revise the project documentation accordingly.
RUL (required for early retirement projects only, otherwise N/A)	IOU Proposal: Not provided
	CPUC Staff Assessment: None
	CPUC Staff Recommendation: The IOU should describe the age and condition of the existing evaporator system.
EUL (for each measure)	IOU Proposal: Not provided
	CPUC Staff Assessment: None
	CPUC Staff Recommendation: The IOU should provide the EUL for the project.
Savings Assumptions	IOU Proposal: Complex analysis using measured values and stipulated values.
	CPUC Staff Assessment: The analysis approach may need to be revised to normalize to product throughput and address capacity expansion and ISP if applicable. The analysis does not address EUL-RUL savings impact which

Reviewed Parameter	Analysis
	may be applicable to this project.
	CPUC Staff Recommendation: IOU should revise and resubmit calculations.
Calculation Methods/Tool review	IOU Proposal: Spreadsheet analysis
	CPUC Staff Assessment: Appropriate approach
	CPUC Staff Recommendation: None
Pre- or Post- Installation M&V Plan	IOU Proposal: Two weeks and pre and two weeks of post data collected in 15 minute intervals.
	CPUC Staff Assessment: The plan may need to be adjusted for capacity expansion considerations, RUL, and the RUL-EUL period. Data collection period should be increased.
	CPUC Staff Recommendation: The M&V period should be increased to a full production season for pre and post implementation. The M&V plan should be revised to include adjustments for ISP and the EUL-RUL period (if applicable). The analysis methodology may need to be revised to provide a normalized approach to estimating the impacts for the project, i.e. energy units/production units pre and post project.
Net-to-Gross Review	IOU Proposal: Not addressed
	CPUC Staff Assessment: TBD
	CPUC Staff Recommendation: TBD

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

Description	IOU Ex Ante Claim	CPUC Staff Recommendations
First Year kWh Savings	160,659	TBD
First Year Peak kW Savings	91.2	TBD
First Year Therms Savings	839,529	TBD
kWh Savings (RUL Period)	Not Addressed	TBD
Peak kW Savings (RUL Period)	Not Addressed	TBD
Therms Impact (RUL Period)	Not Addressed	TBD
kWh Savings (RUL thru EUL Period)	Not Addressed	TBD
Peak kW Savings (RUL thru EUL Period)	Not Addressed	TBD
Therms Savings (RUL thru EUL Period)	Not Addressed	TBD
Annual Non-IOU Fuel Impact (RUL Period)	NA	TBD
Annual Non-IOU Fuel Impact (RUL thru EUL Period)	NA	TBD
Project Costs for Baseline #1 (RUL or EUL)	\$2,500,000	TBD
Project Costs for Baseline #2 (EUL minus RUL period)	Not Addressed	TBD
Project Incentive Amount	\$887,971	TBD