Phase I Ex Ante Review Findings

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

IOU	PGE
Application ID	PFS-1261-12-701
Application Date	TBD
Program ID	PGE2234
Program Name	Comprehensive Food Processing Audit and Resource Efficiency Program
Program Year	2012
Itron Project ID	X246
IOU Ex Ante Savings Date	TBD
ED Measure Name	Evaporation process upgrade
Project Description	The project involves upgrade of evaporation process. The measure proposes to substitute the traditional evaporation method requiring large amounts of steam with a proprietary mechanical preparation and filtration technique, thus eliminating steam consumption.
Date of ED Review(s)	2/15/2013
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	The project is approved subject to the following conditions: 1. Savings will be finalized based on pre-post M&V results from ED-approved M&V plan. 2. The customer will provide all data and specifications needed to conduct M&V and calculate savings. 3. The existing boiler will be removed from the site when the new process is commissioned.

	4. ED will conduct an engineering-grade review of project costs before final incentives are trued up. Final incentive payment will be based on ED's engineering-grade review of this project's costs.

Measure Description

This measure proposes to substitute the traditional evaporation method in a salt manufacturing facility requiring large amounts of steam with a proprietary mechanical preparation and filtration technique. Energy savings will result from elimination of large quantities of steam used in the traditional evaporation process to produce the same quantity of finished stage product of the same specification using the new process.

Summary of Review

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

- Energy audit report,
- Live energy savings calculation spreadsheet,
- Email communication between IOU and the site contact,
- Monitoring &Verification plan,
- Cover letter for Data Request #12-1261-701.

PG&E is claiming energy savings from substituting the traditional evaporation method in salt manufacturing in this particular facility with a new proprietary mechanical preparation and filtration technique. The conventional refining technology involved energy intensive processes that consumed large amounts of natural gas to produce steam for product evaporation and drying. The proposed propriety process will involve replacing the traditional energy intensive evaporation process with an optimized washing, conveying, sorting, drying, and grinding, mechanism.

ED initially reviewed the project on December 27th, 2012. An ex ante review was performed and additional information was requested from PGE regarding the project. Partial responses were received on January 4th, 2013. Additionally ED representatives conducted a site visit on January 23rd, 2013 to learn more about the details of the proprietary project and the customer's operations. After site visit a data request was made to PG&E who responded to the data request on January 31st 2012.

PGE's response confirmed that steam, which was generated on site with the in-house boiler, was dedicated to the evaporation process. Since the proposed evaporation process design eliminated the use of steam, the boiler would be decommissioned during the project installation phase. The IOU also provided a supplementary list of existing equipment which would be decommissioned along with the boiler. During the site visit ED representatives were not able to find the boiler tests and permit card for 2013 on site. These documents were later provided to ED on January 31st as a part of the DR response. The site contact also confirmed during the site visit that the

anticipated salt production and the end products were expected to remain the same in the post implementation period.

ED is still reviewing the M&V plan for the project and analyzing data provided by the IOU. ED may elect to recommend modifications to the IOU-proposed M&V methodology or suggest an entirely different M&V methodology to determine the savings from this project. ED will request additional data to help finalize M&V in a separate data request.

The preliminary annual savings estimates are 312 KW peak demand, 1,953,183 kWh and 3,458,948 therms., Likewise, the preliminary project cost and incentive is estimated to be $8,000,000 and $3,250,000, respectively.

Review Conclusion

The project is approved subject to the following conditions;

1. Savings will be finalized based on pre-post M&V results from ED-approved M&V plan.
2. The customer will provide all data and specifications needed to conduct M&V and calculate savings.
3. The existing boiler will be removed from the site when the new process is commissioned.
4. ED will conduct an engineering-grade review of project costs before final incentives are trued up. Final incentive payment will be based on ED's engineering-grade review of this project's costs.

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 as it becomes available:

1. ED will specify and request M&V data in a separate data request.

2. Notify ED of and the commencement of the pre- and post-M&V, and completion of the project.

3. Final cost documentation, including cost breakdown of equipment and labor, supported by invoices.

Additional ED requests

1. ED requests that PG&E continue to keep ED informed of progress and next steps on this project.

2. ED requests to be informed of any future site visits for M&V as well as the post-installation inspection, in case it chooses to send a representative on-site.

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)	Early Replacement	Early Replacement
Project Cost Basis (Full Cost, Incremental Cost)	Full Cost	Full Cost. Provide breakdown of equipment + labor invoices when the project installation is complete
RUL (Early retirement projects only, otherwise N/A (not applicable))	Heat Exchangers, Boiler, Dryer 1 & 2 and Evaporators have a useful life of + years	10 + years acceptable
EUL	EUL for new equipment is 20 years	15 years for Centrifuges and pumps, 20 years for Sorter, Grinder, Screener, Conveyor, Washers, Vibrator bin discharge and Elevator
First Year kWh Savings	1,953,183	TBD
First Year Peak kW Savings	312	TBD
First Year Therms Savings	3,458,948	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)	1,953,183	TBD
Peak kW Savings (EUL thru RUL Period)	312	TBD
Therms Savings (EUL thru RUL Period)	3,458,948	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	0.69

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: Early Replacement
	ED Assessment: Early Replacement
	ED Recommendation: None
Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Full Cost
	ED Assessment: Full Cost
	ED recommendation: None
RUL (required for early retirement projects only, otherwise n/a)	IOU Proposal: Heat Exchangers, Boiler, Dryer 1 & 2 and Evaporators have a useful life of 6-7 years
	ED Assessment: 6-7 years acceptable
	ED recommendation: None
EUL	IOU Proposal: EUL for new equipment is 20 years
	ED Assessment: Centrifuges and pumps should be 15 years per DEER 2008 database
	ED Recommendation: 15 years for Centrifuges and pumps, 20 years for Sorter, Grinder, Screener, Conveyor, Washers, Vibrator bin discharge and Elevator
Savings Assumptions	IOU Proposal: A "live" energy savings calculation spreadsheet.
	ED Assessment: IOU expects the plant will operate for 8,323 hours. Gas savings, Pump HP, pump efficiency, motor efficiency, various process related equipment 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: TBD
	ED Recommendation: TBD
Pre- or Post-Installation M&V Plan	IOU Proposal: M&V plan provided for ED review.
	ED Assessment: TBD
	ED Recommendation: TBD
Net-to-Gross Review	IOU Proposal: Not provided
	ED Assessment: The equipment has been implemented before but not in this process configuration. A pilot project was developed by the customer in 2005 and passed scrutiny but wasn't approved based on low gas prices at the time and the new sorting technology was still in its infancy. The project was

Reviewed Parameter	Analysis
	revisited in 2008 when gas prices were high and, but the project was shelved when prices dropped again, and capital was unavailable. In 2011, the program vendor determined that this project would be eligible for a rebate. Also the customer had more capital available in 2012 than it did in '05 and '08. Furthermore, the sorting technology has advanced to a point that the customer is now comfortable making an investment. The primary motivation for the project is not just energy savings, but to simplify the salt refining process in terms of maintenance, staffing, safety and also to pre-emptively address any potential air quality changes that might occur decades into the future. Project Economics: The rebate is estimated at $3.25, with a project cost of $5-8 million. The payback with the incentive is 2.5 years; without incentive 4.5 years. While the project meets the threshold without the rebate, it would have been pushed down to the lowest quartile of qualifying projects, and thus unlikely to have been approved. Without the program, customer would have kept standard practice process, but would have added an economizer. NTGR: This customer received a high NTGR of 0.69. The customer cited the availability of the incentive (9/10) and the payback with the incentive (9/10) as major factors in the decision to pursue this project. Important non-programs were the recommendations made by program vendors (8.5/10) and reduced maintenance (7/10). If an incentive were not available for this project, the customer's actions would have been highly dependent on the price of natural gas. Under the customer's assumption of prices in the $5-$6 range, they would have pursued other less-capital intensive projects such as upgrading the dryers and adding an economizer to the boiler.
	ED Recommendation: NTGR = 0.69