

## **Phase 2 Ex Ante Review Findings**

**Table 1-1: Project Information**

<b>IOU</b>	PG&E
<b>Application ID</b>	NC0120306
<b>Application Date</b>	9/6/11
<b>Program ID</b>	PGE21031
<b>Program Name</b>	Customized New Construction
<b>Program Year</b>	2011
<b>Itron Project ID</b>	X172
<b>IOU Ex Ante Savings Date</b>	July 2012
<b>ED Measure Name</b>	Winery Expansion
<b>Project Description</b>	<p>Winery Expansion, twelve (12) new construction measures:</p> <p>EEM 1 Low Approach Temperature Evaporator  EEM 2 Double Stack Floatation Solid Separation Device  EEM 3 Install a Desuperheater  EEM 4 Variable Frequency Drives on Hot Glycol Pumps  EEM 5 Variable Frequency Drive on Must Pump  OEEM 1 Insulate Wine Storage Tanks  OEEM 2 High Flow VFD Controlled Destemmers  OEEM 3 Elevated Fermentation Tanks  OEEM 4 High Efficiency Centrifuge  OEEM 5 High Efficiency Pumps  OEEM 6 Two Additional Must Heaters  OEEM 7 Rotovac Vacuum Solids Removal System</p>
<b>Date of ED Review(s)</b>	8/20/2012 & 3/14/2013
<b>Primary Reviewer and Firm</b>	Keith Rothenberg/Energy Metrics
<b>Review Supervisor and Firm</b>	Amit Kanungo/DNV KEMA & Joseph Ball/Itron
<b>Type of Review (Desk, On-site, Full M&amp;V, Tool)</b>	Desk
<b>ED Recommendation</b>	Ex ante savings estimates are not approved, pending fulfillment of data request for more information.

## Measure Description

The application documents twelve (12) energy efficiency measures as part of a capacity expansion at a large winery. The measures are:

- EEM 1 Low Approach Temperature Evaporator
- EEM 2 Double Stack Flootation Solid Separation Device
- EEM 3 Install a Desuperheater for Recovering Heat from Superheated Ammonia to Preheat Boiler Makeup Water
- EEM 4 Variable Frequency Drives on Hot Glycol Pumps
- EEM 5 Variable Frequency Drive on Must Pump
- OEEM 1 Insulate Wine Storage Tanks
- OEEM 2 High Flow VFD Controlled Destemmers
- OEEM 3 Elevated Fermentation Tanks
- OEEM 4 High Efficiency Centrifuge
- OEEM 5 High Efficiency Pumps
- OEEM 6 Two Additional Must Heaters
- OEEM 7 Rotovac Vacuum Solids Removal System

Measure EEM 3 is shown as not being implemented. Measure OEEM 1 is shown to not be eligible for incentives. Measures OEEM 3, 6, and 7 are described as not having any energy savings associated with them.

The IOU has estimated annual savings of 0 therms, 1,056,218 kWh, and 459 kW of peak demand reduction for this project. The incremental cost is estimated to be \$196,025 and the incentive is capped at \$98,012, which is 50% of the incremental cost.

## Summary of Review

Energy Division selected PG&E NC0120306 for ED review in July 2012. PG&E provided documentation for this application in August 2012. In response to ED's follow-up data request, PG&E informed ED that some of the measures originally shown in the application documents had been moved into a third party program and were documented under application number NC0117386. PG&E then informed ED that the post field inspection for NC0117386 had been completed and final internal review was pending for the project, with incentive payment expected by the end of November 2012.

ED elected to waive further review of PG&E NC0117386, and to continue review of the measures documented in NC0120306. ED performed a site visit in December 2012 to gather information about the project. PG&E recently submitted the final calculations for NC0120306. This is ED's second ex ante review report for this project.

ED reviewed the following additional documents as part its review of this project:

- 121011 [CUSTOMER NAME, LOCATION] Winery Capacity Expansion Applica.pdf
- BASE Calculations - EEGA DR 2281 CNC 120306 revised 2-25-2013.xls
- [CUSTOMER NAME ] Eastside Proposal 11-28-11.doc
- Refrigeration Plant Specifications.doc
- week of 0107 processed.xls
- week of 0917 processed.xls

ED reviewed the above files, which included a PDF report detailing the proposed measures and describing the savings calculations. The savings calculations are also included.

ED has elected to review EEM 1 – Low Approach Temperature Evaporator and EEM 2 – Double Stack Floatation Solid Separation Device. These measures account for 76% of the annual kWh savings and 51% of the electric demand reduction in the IOU’s savings analysis. The IOU’s documentation and analysis for the other measures is accepted.

#### EEM 1 – Low Approach Temperature Evaporator

PG&E NC0117386 documented four measures related to the refrigeration system for the project. PG&E NC0120306, which is reviewed in this document, had one refrigeration system measure- EEM-1, Low Approach Temperature Evaporator. PG&E NC0117386 utilized a DOE 2.2 R model to estimate the impacts of the measures documented in that application. ED obtained the DOE 2.2 R model used for the project and used it to estimate the impacts of EEM-1, Low Approach Temperature Evaporator. ED obtained data from the customer’s refrigeration monitoring and control system from September 2012 to February, 2013. The data were analyzed to determine the average hourly total refrigeration plant load, and average approach temperatures. ED utilized these data in the DOE2.2 R model to estimate the savings impacts. The base case evaporator approach was set to 13.5 °F (ED will separately review the ISP for this measure at a future date), while the post case evaporator approach was set to 8 °F (22 °F steady state temperature, SST) during the crush period, and 3 °F (27 °F SST) during non-crush period. The measure values used in the DOE model were based on SST averages from the logged data. ED’s analysis results indicate that EEM-1 Low Approach Temperature Evaporator has an annual savings of 445,006 kWh and 134 kW demand reduction. This is approximately 44% greater for kWh and 32% greater for kW than estimated by the IOU.

EEM 2 – Double Stack Floatation Solid Separation Device

During the site visit, ED representatives discussed the floatation solid separation device with the customer's representatives. The customer explained that floatation solid separation is an old technology that has come in and out of favor over the years. The customer had abandoned this technology after having experienced problems with it in the past due to a loss of experienced personnel. The customer has redeveloped expertise for successfully implementing this technology. There are both significant energy savings and installation cost savings associated with this technology. It is only used for white wine grapes. According to the customer, 4-5 centrifuges, equipment costing \$1 million each, would have been required to perform the same duty as the double stack floatation equipment installed- equipment cost \$700,000.

ED reviewed the cost documentation provided by the IOU for this measure. The IOU indicates the cost of the baseline measure equipment (5 centrifuges) to be \$4,563,195 and the installed measure equipment cost to be \$655,193. ED notes that the IOU incremental cost analysis indicates zero incremental cost for the measure when in fact the incremental cost is in excess of negative 3.9 million dollars - i.e. the baseline equipment cost is significantly greater than the installed measure equipment cost.

The IOU program appears to calculate the project incentive on a total implemented measure basis, where the incremental costs of all measures and the savings of all measures are summed together to arrive at the incentive for the project. Based on the information provided by the IOU, the true incremental cost of this measure is not zero, it is negative 3.9 million dollars. If the actual incremental cost of this measure is added to the incremental cost of the other measures, the total project incremental cost for the project is negative 3.7 million dollars. With a negative 3.7 million dollar incremental cost the incentive would be zero for the project.

ED requests that the IOU either remove this measure from the project or justify why the actual estimated incremental cost for the measure has been set to zero when it is in fact significantly less than zero.

EUL

An EUL for each measure has not been provided.

## **Review Conclusion**

The ex ante energy savings could not be validated and are not approved pending additional information from the IOU.

## **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 *4/2/2013* (14 days from submittal date to IOU):

1. ED requests that the IOU either remove measure EEM-2 Double Stack Flootation Solid Separation Device, from the project or justify why the actual estimated incremental cost for the measure has been set to zero when it is in fact significantly less than zero. Resubmit project impact summary.
2. Provide the proposed EUL for the each measure.
3. 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 1-1: Project Overview**

Description	IOU Proposed Ex Ante Data	ED Recommendations
<b>Project Baseline Type (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures)</b>	New Construction	Approved
<b>Project Cost Basis (Full Cost, Incremental Cost)</b>	Incremental cost	Cost basis approved, cost reported is not correct
<b>RUL (Early retirement projects only, otherwise N/A (not applicable))</b>	NA	NA
<b>EUL</b>	TBD.	TBD
<b>First Year kWh Savings</b>	1,056,218	TBD
<b>First Year Peak kW Savings</b>	459	TBD
<b>First Year Therms Savings</b>	0	TBD
<b>kWh Savings (RUL Period)</b>	TBD	TBD
<b>Peak kW Savings (RUL Period)</b>	TBD	TBD
<b>Therms Impact (RUL Period)</b>	TBD	TBD
<b>kWh Savings (EUL thru RUL Period)</b>	1,056,218	TBD
<b>Peak kW Savings (EUL thru RUL Period)</b>	459	TBD
<b>Therms Savings (EUL thru RUL Period)</b>	0	0
<b>Annual Non-IOU Fuel Impact (RUL Period)</b>	NA	NA
<b>Annual Non-IOU Fuel Impact (EUL thru RUL Period)</b>	NA	NA
<b>Net-to-Gross Ratio</b>	Not provided	TBD

**Table 1-2: Detailed Review Findings**

<b>Reviewed Parameter</b>	<b>Analysis</b>
<b>Project Gross Savings Baseline</b> (for early retirement projects only, include RUL through EUL baseline)	IOU Proposal: New construction
	ED Assessment: Correct
	ED Recommendation: Approved
<b>Project Cost Basis</b> (for early retirement projects only, include RUL through EUL cost basis treatment)	IOU Proposal: Incremental cost
	ED Assessment: Incremental cost is appropriate. Incremental cost reported is not correct. Refer to comments above.
	ED recommendation: IOU to revise cost for EEM-2, or remove it from the project.
<b>RUL</b> (required for early retirement projects only, otherwise n/a)	IOU Proposal: N/A
	ED Assessment: Correct
	ED recommendation: None
<b>EUL</b>	IOU Proposal: Not provided
	ED Assessment: TBD
	ED Recommendation: Provide the EUL for each measure.
<b>Savings Assumptions</b>	IOU Proposal: EEM-1: one week of data during the crush season and one week of data during the non-crush season were analyzed to estimate the impacts of the measure using a spreadsheet analysis. EEM-2: Spreadsheet analysis using the energy consumption and throughput capacity of the baseline and installed measures with consideration for usage during the crush season only.
	ED Assessment: Reasonable approach, more data could have been used in the analysis
	ED Recommendation: None
<b>Calculation Methods/Tool review</b>	IOU Proposal: The project impacts are estimated using spreadsheet analysis.
	ED Assessment: Reasonable approach.
	ED Recommendation: None

Reviewed Parameter	Analysis
<p><b>Pre- or Post-Installation M&amp;V Plan</b></p>	<p>IOU Proposal: EEM-1: one week of data during the crush season and one week of data during the non-crush season were analyzed to estimate the impacts of the measure using a spreadsheet analysis. EEM-2: Spreadsheet analysis using the energy consumption and throughput capacity of the baseline and installed measures with consideration for usage during the crush season only.</p>
	<p>ED Assessment: More data could have been used in the analysis. A DOE 2.2R model was created by a third party for other measures related to this project and could have been used in the analysis.</p>
	<p>ED Recommendation: For future projects, obtain more data when it is readily available and utilize the analysis of other parties where appropriate, as the basis for the analysis of related measures.</p>
<p><b>Net-to-Gross Review</b></p>	<p>IOU Proposal: Not addressed</p>
	<p>ED Assessment: Interview was halted by ED</p>
	<p>ED Recommendation: None</p>