

## Phase I Ex Ante Review Findings

**Table 1-1: Project Information**

<b>IOU</b>	PG&E
<b>Application ID</b>	WEP1031653
<b>Application Date</b>	TBD
<b>Program ID</b>	PGE2236
<b>Program Name</b>	Agriculture and Food Wastewater Energy Program (WEP)
<b>Program Year</b>	2012
<b>Itron Project ID</b>	X344
<b>IOU Ex Ante Savings Date</b>	TBD
<b>ED Measure Name</b>	Wastewater treatment
<b>Project Description</b>	Water recovery, filtration, pump controls, and aeration.
<b>Date of ED Review(s)</b>	6/11/13
<b>Primary Reviewer / Firm</b>	Blake Ringeisen / Itron
<b>Review Supervisor / Firm</b>	Joseph Ball / Itron
<b>ED Project Manager</b>	██████████ / California Public Utilities Commission, Energy Division
<b>ED Policy Authorization (as needed)</b>	
<b>Type of Review (Desk, On-site, Full M&amp;V, Tool)</b>	Desk
<b>ED Recommendation</b>	ED conditionally approves the estimated energy savings for this project, subject to the final determination on the validity of EEM 4, and pending post-installation M&V and IOU true-up.

## **Measure Description**

There are seven measures in this application as described below:

1. Recover a Portion of the MPE Recirculation Water and Send to Clean Unloading Water Pit
2. Recover Water from Diced Tomato Heat Exchanger Collection Tank and Route to Secondary Paste Flume
3. Recover a Portion of the Discharge Water from Paste Flume after Rotary Screen and Offset Elevator Jet Makeup Water
4. Install an Alternative Filtration System for the Pump Seal Flush Water
5. Recover Water from the Pump Seal Flush Systems in Various Areas of the Plant
6. Install Variable Frequency Drives on Central Pit Pumps
7. Install Automatic Dissolved Oxygen Control on the Aerators in Ponds B and C

Measures 1, 2, 3, and 5 are water recovery measures. The facility currently disposes tomato processing wastewater into open fields, and proposes to reuse a portion of the water from several processes. This will save vast amounts of water in addition to pumping energy.

Annual energy savings are estimated to be 308,923 kWh and demand savings are estimated to be 129.3 kW, in addition to water savings of 83,131,576 gallons/yr. Incentive rates of \$0.09/kWh and \$100/kW were used to estimate a project incentive of \$40,733. Using an energy cost of \$0.12/kWh, total cost savings were calculated to be \$37,071/year.

## **Summary of Review**

The Investor-Owned-Utility (IOU) submitted the following documents prior to the Phase I review:

- [Customer Name & Location]\_Draft.pdf, entitled Energy and Water Audit Report

During the parallel review process, the IOU provided ED with the following documents:

- [Customer Name & Location]\_\_Calculations BASE.xlsx
- [Customer Name]\_.xlsx, Billing History
- [Customer Location] Well and Sump Volumes 2011.xlsx

Six of the seven measures are add-on equipment retrofits and are eligible under program rules. ED agrees that the baseline for all measures is the existing equipment and operating conditions. One measure, EEM-4, is a replacement measure, retrofitting an existing reverse osmosis system with an alternative one. The proposed system is claimed to have a 15-year EUL, however, it appears that this may be overstated and that the actual EUL is much less, perhaps only 3-years at best. If this is true, this measure may not be eligible under program rules.

Although the IOU used the term incremental costs, full measure costs apply for add-on measures. The IOU submitted combined estimated full project cost of \$124,600 including installation.

In review of the IOU M&V plan, ED finds that it lacks some details, such as the specific parameters to monitor, logging duration and intervals. ED recommends the installation of quality flow meters for all water recovery measures. Also, pre- and post-production normalization will be necessary to account for variation over time. Does customer plan to install a SCADA system for accurately monitoring water flows and energy consumption?

The assumptions made in the savings calculations for these measures appear acceptable; however, ED will want to ensure certain parameters, such as operating hours and flow rates, are verified during post-installation M&V.

### **Review Conclusion**

Estimated savings are conditionally approved subject to the final determination on the validity of EEM 4: 308,923 kWh; 129.3 kW. These values will be trued-up based on post-installation M&V.

### **Summary of ED Requested Action by the IOU**

ED recommends that the IOU perform the following actions:

1. Provide final invoices broken out by measure, material and labor, when available.
2. ED recommends the implementer to install permanent flow meters on all water recovery pipelines. This will verify the flow estimates used in ex ante calculations and provide data for post-installation adjustments to savings.
3. Modify M&V plan to include more details such as the specific parameters to monitor, logging duration and intervals. In addition to current measurement, voltage and PF readings should also be taken for a minimum of five minutes during normal operation.
4. Provide post-install IR, revised savings calculations, and the flow data obtained from newly installed flow meters from item #2 above.
5. Submit a live spreadsheet showing final proposed savings.
6. Provide additional evidence to demonstrate the eligibility of EEM 4.

ED would like to know the answers to the following questions by June 28, 2013 or sooner. An email submission is acceptable.

7. Will a SCADA system be installed? If so, what parameters will be monitored and at what intervals? Could daily well water usage data be supplied? Could daily flow rates from each reclamation point be supplied?

**Table 1-2 Review Findings**

Reviewed Parameter	Analysis
<b>Project Baseline Type</b> (Early Replacement, Normal Replacement, Capacity Expansion, New Construction, System Optimization, Add-on Measures) Note: For early retirement projects only, include RUL through EUL baseline)	IOU Proposal: All measures (1-7) are add-on measures.
	ED Assessment: Same
	ED Recommendation: None
<b>Project Baseline Technology</b> (in situ equipment, Title 24 (specify year), other code or other efficiency level (specify), industry standard practice - ISP)	IOU Proposal: In situ equipment with current operations
	ED Assessment: Same
	ED Recommendation: None
<b>Project Cost Basis</b> (Full Incremental, or Both. Note: For early retirement projects, include RUL through EUL cost basis treatment)	IOU Proposal: Total incremental cost of \$124,600
	ED Assessment: ED assumes that \$124,600 is full project cost. Full measure costs are acceptable for add-on measures.
	ED recommendation: None
<b>RUL</b> (required for early retirement projects only, otherwise N/A)	IOU Proposal: N/A
	ED Assessment: N/A
	ED recommendation: N/A
<b>EUL</b> (for each measure)	IOU Proposal: 15 years for all measures
	ED Assessment:  For EEM 1, 2, 3, 5, and 6: 15 year EUL based on DEER 2008 database for VFD pumping and pipeline projects  For EEM 4: A 3-year EUL is based on literature review. Measure savings are expected to be available for a period of five years for custom measures. The proposed filters are planned to be installed in parallel with the existing reverse osmosis system which makes the permanency of the proposed measure uncertain. <a href="http://www.eaton.com/Eaton/ProductsServices/Filtration/BagandCartridgeFiltration/FilterBags/DURAGAF/index.htm#tabs-1">http://www.eaton.com/Eaton/ProductsServices/Filtration/BagandCartridgeFiltration/FilterBags/DURAGAF/index.htm#tabs-1</a>
	EEM 7: ED recommends 8 years, based on other sensing device controls in DEER 2008 database
	ED Recommendation: Provide EULs for each measure and a link to source, or apply ED’s EUL’s from assessment above. Please provide an explanation on the eligibility of EEM 4.

Reviewed Parameter	Analysis
Savings Assumptions	<p>IOU Proposal: Many assumptions were made by IOU. Key parameters below can be verified during post-installation M&amp;V.</p> <ol style="list-style-type: none"> <li>1. Facility personnel’s estimates of flow rates leading to recoverable water</li> <li>2. Recommended equipment/systems will be installed</li> <li>3. Operating hours</li> </ol>
	<p>ED Assessment: IOU assumptions seem reasonable. ED recommends the verification of flow rates and hours of operation during post install M&amp;V.</p>
	<p>ED Recommendation: ED recommends the verification of flow rates and hours of operation during post install M&amp;V for all water recovery measures.</p>
Calculation Methods/Tool review	<p>IOU Proposal: Custom spreadsheet analysis</p>
	<p>ED Assessment: Acceptable method</p>
	<p>ED Recommendation: True-up savings after post installation M&amp;V and submit live fully functional spreadsheet</p>
Pre- or Post-Installation M&V Plan	<p>IOU Proposal: The following M&amp;V plan was submitted:</p> <ol style="list-style-type: none"> <li>1. Water consumption will be determined based on metered data for the 2013 season in order to determine water savings. The total energy savings will be calculated based on the normalized water consumption compared to baseline water consumption.</li> <li>2. The installed systems will be inspected. Power measurements will be taken on all installed equipment, if operating during the post-field inspection.</li> <li>3. Current loggers will be installed on the surface turbine aerator motors and the central pit wastewater pumps.</li> </ol>
	<p>ED Assessment: ED reviewed the M&amp;V plan and finds it adequate. ED highly recommends that the customer installs quality flow meters be installed on all recovered water pipelines.</p>
	<p>ED Recommendation: None</p>
Net-to-Gross Review	<p>IOU Proposal: Not addressed</p>
	<p>ED Assessment: Not accessed</p>
	<p>ED Recommendation: TBD</p>

**Table 1-3 Energy Savings Summary**

<b>Description</b>	<b>IOU Ex Ante Claim</b>	<b>ED Recommendations</b>
<b>First Year kWh Savings</b>	308,923	TBD
<b>First Year Peak kW Savings</b>	129.3	TBD
<b>First Year Therms Savings</b>	N/A	N/A
<b>kWh Savings (RUL Period)</b>	N/A	N/A
<b>Peak kW Savings (RUL Period)</b>	N/A	N/A
<b>Therms Impact (RUL Period)</b>	N/A	N/A
<b>kWh Savings (RUL thru EUL Period)</b>	N/A	N/A
<b>Peak kW Savings (RUL thru EUL Period)</b>	N/A	N/A
<b>Therms Savings (RUL thru EUL Period)</b>	N/A	N/A
<b>Annual Non-IOU Fuel Impact (RUL Period)</b>	N/A	N/A
<b>Annual Non-IOU Fuel Impact (RUL thru EUL Period)</b>	N/A	N/A