

Phase II Ex Ante Review Findings

Table 1-1: Project Information

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| IOU | PGE |
| Application ID | 1106-06 |
| Application Date | 11/14/2012 |
| Program ID | PGE2223 |
| Program Name | Heavy Industry Energy Efficiency Program |
| Program Year | 2012 |
| Itron Project ID | X240 |
| IOU Ex Ante Savings Date | TBD |
| ED Measure Name | Bio Filter Bypass |
| Project Description | Install a new Bio Filter Bypass |
| Date of ED Review(s) | 1/17/2013 & 03/31/2013 |
| 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 | ED conditionally approves the project and savings are subject to post M&V true up. ED recommends two weeks M&V for the baseline and proposed time periods. kWh usage for motor and scrubber water pumps should be monitored. Pre and Post M&V data/trends should be submitted for ED review. Removal of the biofilter from the facility is integral for the project to qualify for incentive. |

Measure Description

The facility is changing its resin which was UREA-based and proposing to use a benzene-based resin. The proposed resin will not have any emission problems that were associated with the UREA resin. The result of using this new resin is that the plant will be able to bypass the bio filter that was installed in 2008.

Summary of Review

ED reviewed the following IOU provided documentation for Phase II review: Point Source Report #1&2 (Jan 30th, 2013), November 2012 Preliminary compliance test report, Source test compliance results August 2011. All these report were submitted to ED in a PDF format. This medium density particle board manufacturing facility used a UREA based resin to bind the wood particles in the particle board. The UREA based resin generated formaldehyde, methanol and acetaldehyde gases during the heated curing process. The bio filter was installed in 2008 to treat those harmful gases. The facility proposed to use benzene based resin which will eliminate the emission of those gases and bypass the Bio Filter. Shutting down the Bio Filter plant will save energy used by a 300 HP exhaust blower for the bio filter and two 30HP wet scrubber pumps.

IOU confirmed that there would be no specification changes to the end product. IOU also clarified that the curing time of the board is generally measured in seconds per cycle. Based on the SCADA records, the actual curing time per cycle was approximately 27 seconds with the UREA resin. The average curing time per cycle with the new resin is expected to be 15 seconds.

The source test compliance results report from August 2011 demonstrated that the facility was in compliance with CARB requirements. The Amador air district supervisor confirmed that the facility has to conduct source test every two years and the follow up will be conducted in 2013. The point source test conducted in 2013 with the new raisin binder had significant reduction in Formaldehyde and Methanol content. The mass emission measure at the inlet for Formaldehyde reduced from 1.99 lbs/hr to 0.44 lbs/hr. The Methanol content also reduced from 0.62 lbs/hr to 0.26 lbs/hour. ED requests the production data for the facility be submitted for pre and post installation time periods.

Preliminary estimates of electrical savings are 871,033 kWh/yr. The estimated incentive is \$47,500. The estimated project cost to implement the bypass for the Bio Filter is \$95,000. There are no peak demand savings associated with this project as the plant runs outside of peak electrical periods.

Review Conclusion

ED conditionally approves the project and savings are subject to post M&V true up. ED recommends two weeks M&V for the baseline and proposed time period should be conducted. kWh usage for motor and scrubber water pumps should be monitored. Pre and Post M&V

data/trends should be submitted for ED review. Removal of the biofilter from the facility is integral for the project to qualify for incentive.

Summary of ED Requested Action by the IOU

Prior to equipment removal:

- 1.) Provide M&V plan for ED review. ED recommends two weeks of M&V for the baseline and proposed time period should be conducted. In the pre-removal period, suggest monitoring kWh usage for motor and scrubber water pumps. Submit pre and post M&V data/trends for ED review.
- 2.) Provide RUL for existing bio filter

After equipment removal and IOU true-up:

- 3.) Provide pre-and post-production logs: Annual production logs or records for the pre- and two-weeks for the post.
- 4.) Submit project costs for the proposed project after the installation is complete. Provide itemized breakdown for labor and equipment invoices.
- 5.) Submit SCADA data or logs to support the operating hours assumption in the post M&V phase when available.

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) | System Optimization | Operating practice change |
| Project Cost Basis (Full Cost, Incremental Cost) | Full cost | Full cost |
| RUL (Early retirement projects only, otherwise N/A (not applicable)) | Not Provided | TBD |
| EUL | Not provided | 15 years for new bypass controls |
| First Year kWh Savings | 871,033 | TBD: ED recommends performing two weeks of M&V for both the baseline and proposed time periods. kWh usage for motor and scrubber water pumps should be monitored in the pre-case. Pre and Post M&V data/trends should be submitted for ED review. |
| First Year Peak kW Savings | 0 | TBD |
| First Year Therms Savings | N/A | N/A |
| kWh Savings (RUL Period) | Not Provided | TBD |
| Peak kW Savings (RUL Period) | Not Provided | TBD |
| Therms Impact (RUL Period) | N/A | N/A |

| Description | IOU Proposed Ex Ante Data | ED Recommendations |
|---|----------------------------------|---------------------------|
| kWh Savings (EUL thru RUL Period) | 871,033 | TBD |
| Peak kW Savings (EUL thru RUL Period) | TBD | TBD |
| Therms Savings (EUL thru RUL Period) | N/A | N/A |
| 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 | Assessment not completed |

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: System Optimization |
| | ED Assessment: Operating practice change |
| | ED Recommendation: None |
| Project Cost Basis (for early retirement projects only, include RUL through EUL cost basis treatment) | IOU Proposal: Full Cost provided |
| | ED Assessment: Full Cost |
| | ED recommendation: Provide a breakdown of the project costs once the project is complete |
| RUL (required for early retirement projects only, otherwise n/a) | IOU Proposal: Not provided, |
| | ED Assessment: RUL not provided |
| | ED recommendation: Provide RUL and condition of the bio filters |
| EUL | IOU Proposal: Not provided |
| | ED Assessment: 15 years for new bypass controls |
| | ED Recommendation: 15 years |
| Savings Assumptions | IOU Proposal: Plant was currently operating for 80 hours per week and for 52 weeks per year. Product curing time will be reduced from 27 to an estimated 15 seconds per cycle. |
| | ED Assessment: No supporting data was provided to verify the hours per week assumption |
| | ED Recommendation: Provide SCADA data or logs for both pre and post installation to support the operating hours assumption and to confirm the reduced curing time of 15 seconds/ cycle. |

| Reviewed Parameter | Analysis |
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| Calculation Methods/Tool review | IOU Proposal: A live energy-savings spreadsheet was provided for ED review |
| | ED Assessment: Calculation methodology acceptable |
| | ED Recommendation: None |
| Pre- or Post-Installation M&V Plan | IOU Proposal: Not provided |
| | ED Assessment: M&V is recommended for this project. |
| | ED Recommendation: ED recommends two weeks M&V for the baseline and proposed time period. kWh usage for motor and scrubber water pumps should be monitored. Pre and Post M&V data/trends should be submitted for ED review. The post installation M&V should also verify the installation of the bypass and collect data as available from the automatic controls on the air ducting going into the biofilter to allow for the discharge air going directly to the atmosphere. |
| Net-to-Gross Review | IOU Proposal: Not provided |
| | ED Assessment: Assessment not completed |
| | ED Recommendation: An ex ante NTG interview may be warranted |