## Ex Ante Review and Prospective Review Findings

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

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|---|---|
| **IOU** | PG&E |
| **Application ID** | 1520-01 |
| **Application Date** | 4/17/12 |
| **Program ID** | TBD |
| **Program Name** | Heavy Industry Energy Efficiency Program |
| **Program Year** | 2012 |
| **Itron Project ID** | X108 |
| **IOU Ex Ante Savings Date** | 4/15/12 |
| **ED Measure Name** | TBD |
| **Project Description** | Upgrade [redacted] process line |
| **Date of ED Review(s)** | 5/21/2012 |
| **Primary Reviewer and Firm** | Keith Rothenberg/Energy Metrics |
| **Review Supervisor and Firm** | Joseph Ball/Itron |
| **Type of Review (Desk, On-site, Full M&V, Tool)** | Desk |
| **ED Recommendation** | Ex ante savings estimates are not approved, pending fulfillment of data request for more information. |

## Measure Description

A detailed description of the facility operation has not been provided in the documentation reviewed by ED. The report included in the documentation reviewed indicates that the facility is a rock plant ([redacted]) that is planning to upgrade existing equipment to increase capacity while reducing the kWh/ton of production. Tables in the report and calculations list the existing equipment and the proposed new equipment at the plant. Most of the listed equipment consists of conveyors and crushers. The documentation indicates that the capacity of the plant will increase from 225 tons/hr. to 500 tons/hr. (+122%), while the equipment nominal motor HP increases from 1,530 to 3,575 (+133%), the operating kW increase from 225 to 545 (+142%),and the kWh/ton of production decreases from 1.51 to 0.98 (-35%).

## Summary of Review

The documentation reviewed includes an application dated 4/17/2012, a report dated 4/15/2012 and calculations in an MS Excel™ spreadsheet.

The documentation provided is lacking important details about the proposed project. The report does not describe the existing and proposed operation of the facility in depth and ED is unable to fully comprehend the scope of the project.

It appears that the IOU is claiming the in situ as the baseline for the project. The project appears to be a capacity expansion and the correct baseline for the capacity expansion may be current industry standard practice (ISP). In general, the cost basis for ISP baseline projects is the incremental cost, not the full cost of the project. From the documentation provided, ED is unable to determine how the proposed measure will reduce energy consumption. There is no description of the existing system and how the proposed project will integrate into the existing system. Proper baseline determination will dictate the requirements for energy savings impact analysis and the cost basis. It is unclear if the frozen ex ante impacts for this project will be based upon post installation M&V or calculations alone. Additionally, ED identified calculation discrepancies in the report submitted.

The incentive application documents an annual savings impact of 797,268 kWh, 265.76 kW with an incentive amount of $98,330. The estimated project cost is $901,670.

## Review Conclusion

Due to the lack of information provided, the ED does not approve the ex ante energy savings claims for this project, pending submission of additional data requested.

## Summary of ED Requested Action by the IOU

In order to complete an ex ante review the ED requests that the IOU submit the following documentation due on 06/05/2012 (or 14 days after receipt of this EAR):

1. Provide a detailed description of the facility operation including the age of the plant and the equipment being replaced, products produced, number and description of production lines, description of the existing and proposed process lines affected by this project, and a description of how the new equipment will be integrated into the existing system. Concisely describe how the new equipment will reduce the kWh/ton of products produced, if the kWh/ton varies with products produced, and include an accounting for non production equipment (i.e. lighting, etc) that may also contribute to the facility energy use.
2. Clearly define the project baseline and describe details of both the baseline and the proposed operation of the process line. The project appears to be a capacity expansion. The correct baseline for capacity expansion may be current industry standard practice (ISP). Refer to Section 3.4 of Appendix J of the CADMAC evaluation protocols[1] for a discussion on how to approach calculating energy impacts for projects that have increases in production.
3. If the correct baseline is current ISP, provide a discussion of ISP and how this project exceeds ISP.
4. 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 costs above and beyond ISP).
5. Resubmit calculations. The calculation approach and methodology may need to be revised pending baseline determination, the total number of production lines, variations in the products produced and other factors. All calculations should be peer reviewed prior to resubmission. ED notes that there is a variation of 25% in the annual average kW/ton presented in the baseline calculations over a 5 year period (1.35 kWh/ton-1.69 kWh/ton, calendar years 2006-2010)

[1] http://www.calmac.org/events/APX_J%200698.pdf. *Protocols and Procedures for the Verification of Costs, Benefits, and Shareholder Earnings from Demand-Side Management Programs.* Appendix J. Quality Assurance Guidelines for Statistical, Engineering, and Self-Report Methods for Estimating DSM Program Impacts. Revised March 1998.

6. Provide a more detailed M&V plan including the source and duration of the data collection, adjustments for seasonality in production (if any), adjustments for ISP (if applicable), adjustments for multiple production lines (if applicable), variations in the products produced. Include a statement regarding whether or not the frozen ex ante claims will be based upon the final M&V or engineering calculations alone.
7. ED is likely to request additional information as the details of this project become more clearly defined.
8. ED requests that PG&E continues to keep ED informed of progress and next steps on this project.
9. ED requests to be informed of any future site visits including the post-installation inspection, in case it chooses to send a representative on-site.
10. 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: 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)** | TBD | TBD, CADMAC Capacity Expansion protocol should be reviewed. |
| **Project Cost Basis (Full Cost, Incremental Cost)** | Full cost | TBD, Incremental cost may be appropriate. |
| **RUL (Early retirement projects only, otherwise N/A (not applicable))** | NA | TBD |
| **EUL** | TBD | TBD |
| **First Year kWh Savings** | 797,268 | TBD |
| **First Year Peak kW Savings** | 265.76 | TBD |
| **First Year Therms Savings** | 0 | TBD |
| **kWh Savings (RUL Period)** | | TBD |
| **Peak kW Savings (RUL Period)** | | TBD |
| **Therms Impact (RUL Period)** | | TBD |
| **kWh Savings (RUL thru EUL Period)** | 797,268 | TBD |
| **Peak kW Savings (RUL thru EUL Period)** | 265.76 | TBD |
| **Therms Savings (RUL thru EUL Period)** | NA | NA |
| **Annual Non-IOU Fuel Impact (RUL Period)** | NA | NA |
| **Annual Non-IOU Fuel Impact (RUL thru EUL Period)** | NA | NA |
| **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: The application documents do not clearly state the baseline but it appears to be the existing equipment. |
| | ED Assessment: This project appears to involve capacity expansion. Industry standard practice may be the correct baseline for capacity expansion. |
| | ED Recommendation: IOU to concisely describe the proposed project and how it will reduce the kWh/ton of throughput. Review the CADMAC protocols cited above and provide a discussion of how they apply to this project. (Refer to web link in footnote on page 3 of this EAR) |
| **Project Cost Basis** (for early retirement projects only, include RUL through EUL cost basis treatment) | IOU Proposal: Full cost |
| | ED Assessment: TBD. Incremental cost may be the correct basis for the ISP baseline. Cost basis pending definition of the baseline for the measure. |
| | ED recommendation: IOU to provide cost basis for the measure and justification for the choice. |
| **RUL** (required for early retirement projects only, otherwise n/a) | IOU Proposal: N/A |
| | ED Assessment: TBD. At this time it is not clear what the proposed baseline is for the measure. ED cannot determine how the measure will be integrated into the existing system from the documentation provided. |
| | ED recommendation: Describe in detail how the measure will be integrated into the existing system. |
| **EUL** | IOU Proposal: Not provided |
| | ED Assessment: TBD |
| | ED Recommendation: TBD |
| **Savings Assumptions** | IOU Proposal: Baseline 5 year average kWh calculated from utility bill data- 702,678 kWh/yr. Average throughput listed as 488,652 tons. kWh/ton |

| Reviewed Parameter | Analysis |
|---|---|
| | production calculated to be 1.51 kWh/ton.<br><br>List of proposed plant equipment nominal HP, estimated load factor, estimated motor efficiency compiled to calculate estimated kW for the proposed plant (545.09 kW). Annual operation estimated to be 3,000 hours with 1,500,000 tons/year throughput. Proposed kWh/ton production calculated to be 0.98 kWh/ton. |
| | ED Assessment: There are calculation discrepancies for both the existing and proposed kWh/ton.<br>Existing: 702,678 kWh/488,652 tons = 1.44 kWh/ton, not 1.51 kWh/ton<br>Proposed: 545.09 kW/500 tons/hr. = 1.09 kWh/ton, not 0.98 kWh/ton<br><br>The calculations may need to be revised pending baseline determination and other factors.<br><br>The documentation does not address if the facility produces different products and if the kWh/ton varies with the products produced. |
| | ED Recommendation: Revise and resubmit project calculations. IOU needs to provide more information regarding the measure baseline as described above. The calculation approach and methodology may need to be revised pending baseline determination, the total number of production lines, variations in the products produced and other factors. All calculations should be peer reviewed prior to resubmission. |
| **Calculation Methods/Tool review** | IOU Proposal: Engineering calculations, MS Excel Spreadsheet |
| | ED Assessment: Method appropriate, but may need to be revised pending baseline review and other factors affecting the project. |
| | ED Recommendation: TBD, pending resubmission from IOU. |
| **Pre- or Post-Installation M&V Plan** | IOU Proposal: Pre project kWh/ton calculated based on 5 years of electrical billing data and an unspecified period of production data. Post project kWh/ton to be verified after the installation, measurement period not specified, considerations for seasonality of production not addressed, nor is it |

| Reviewed Parameter | Analysis |
|---|---|
| | specified if the final impacts will be trued up based on this analysis. |
| | ED Assessment:<br>TBD, pending a more detailed M&V plan and responses to other issues raised in this review |
| | ED Recommendation: Resubmit detailed M&V plan. Address baseline issues and ISP; provide proposed duration of post installation measurement period. Address variations of kWh/ton based on different products produced (if applicable), include considerations for seasonality of production. |
| **Net-to-Gross Review** | IOU Proposal: None |
| | ED Assessment: TBD |
| | ED Recommendation: TBD |