May 11, 2015

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265


Dear Secretary Chiavetta:

Enclosed for filing are the comments of PPL Electric Utilities Corporation in the above-referenced proceeding. Copies will be provided as indicated on the Certificate of Service.

Respectfully submitted,

Devin Ryan

DTR/jl
Enclosures

cc: Certificate of Service
    Megan G. Good (via e-mail - megagood@pa.gov)
    Kriss Brown (via e-mail - kribrown@pa.gov)
CERTIFICATE OF SERVICE
(M-2015-2469311)

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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Date: May 11, 2015  

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Devon T. Ryan
BEFORE THE
Pennsylvania Public Utility Commission

Docket No. M-2015-2469311

COMMENTS OF
PPL Electric Utilities Corporation

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

I. INTRODUCTION


PPL Electric generally agrees with most of the changes proposed in the Proposed 2016 TRM. However, as detailed in the comments below, the Company has identified some areas that it believes require technical modification, clarification, or both.

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II. COMMENTS ON THE TRM TENTATIVE ORDER AND PROPOSED 2016 TRM

In the following sections, PPL Electric provides its technical comments on proposals contained in the TRM Tentative Order. Most of the comments are suggestions to improve the clarity of a TRM protocol or are corrections. However, PPL Electric does not provide technical comments on every Commission proposal. PPL Electric has organized its technical comments in accordance with the sections of the TRM Tentative Order.

A. APPLICATION OF THE TRM

PPL Electric supports the proposed change to have the 2016 TRM remain in effect for the entirety of Phase III. However, the following statement was removed from the 2015 TRM: “Any newly approved measure, whether in the TRM or approved as an interim protocol, may be applied retrospectively consistent with the EDC’s approved plan.” Proposed 2016 TRM – Redlined Version, p. 10.

PPL Electric recommends adding this statement back into the 2016 TRM so that electric distribution companies (“EDCs”) can implement new measures during the phase and have a clearly-defined method to determine their savings. Otherwise, new measures such as smart thermostats cannot be implemented in Phase III even though their savings potential is included in the SWE’s Energy Efficiency Market Potential Study (“SWE’s EE Study”) and the compliance targets, and customers may strongly desire these measures.

B. GENERAL IMPROVEMENTS

4. Line Loss Guidance

TRM Section 1.14 – Transmission and Distribution System Losses

PPL Electric recommends re-instating the following paragraph, which was removed from the Proposed 2016 TRM but provided useful guidance on the application of line loss factors:
The electric energy consumption reduction compliance targets for Phase III of Act 129 are established at the retail level (i.e. based on forecasts of sales). The energy savings must be reported to the Commission at the customer meter level, which is used to determine if EDCs have met their statutory targets for Phase III. For the purpose of calculating cost-effectiveness of Act 129 programs, the value of both energy and demand savings shall be calculated at the system level. The TRM calculates the energy savings at the customer meter level. These savings need to be increased by the amount of transmission and distribution system losses in order to determine the energy savings at the system level. The electric line loss factors multiplied by the savings calculated from the algorithms will result in savings at the system level.


C. ADDITIONAL RESIDENTIAL EE&C MEASURE PROTOCOLS

The Proposed 2016 TRM introduced two residential insulation measures: crawl space wall insulation and rim joist insulation. PPL Electric agrees with the general form of the energy savings algorithm. However, PPL Electric recommends changes to the baseline R-value for rim joist insulation and crawl space insulation. PPL Electric believes that 2009 ASHRAE Fundamentals, Section 26 provides better citations and support for R-values than currently listed in the TRM (data source 1, pages 207 and 212, ORNL Builders Foundation Handbook).

TRM Section 2.6.7 – Crawl Space Wall Insulation

PPL Electric recommends updating the baseline R-value from 1.00 to 1.73, which includes: interior air film = 0.68, 7” concrete or CMU wall = 0.88, exterior air film = 0.17, consistent with 2009 ASHRAE Fundamentals, Section 26. This update should be made for parameter $R_{base}$ in Table 2-118: Assumptions for Residential Crawl Space Insulation. See Proposed 2016 TRM, Table 2-118, p. 205.

TRM Section 2.6.8 – Rim Joist Insulation

PPL Electric recommends updating the baseline R-value from 1.00 to 2.50, which includes: interior air film = 0.68, 1.5” wooden rim joist = 1.65, exterior air film = 0.17, consistent with 2009
ASHRAE Fundamentals, Section 26. This update should be made for parameter $R_{base}$ in Table 2-124: Default values for algorithm terms, Residential Rim Joist Insulation. See Proposed 2016 TRM, Table 2-124, p. 210.

D. ADDITIONAL C&I EE&C MEASURE PROTOCOLS

PPL Electric has no comments with regard to this proposal.

E. EXISTING RESIDENTIAL EE&C MEASURE PROTOCOLS AND PROCESSES

1. TRM Section 2.1.1 – ENERGY STAR Lighting

In regards to hours of use (“HOU”) and coincidence factors (“CF”), PPL Electric recommends clearly defining “Efficient HOU” and “Efficient CF,” as referenced in Table 2-5 on page 21 of the proposed TRM. Proposed 2016 TRM, Table 2-5, p. 21.

2. TRM Section 2.2.1 – Electric HVAC

PPL Electric recommends adding a heating baseline for New Construction Ground Source Heat Pump in Table 2-11: Residential Electric HVAC Measure Baseline Conditions, because one is provided for the other residential HVAC measures in Table 2-11. See Proposed 2016 TRM, Table 2-11, p. 34.

Additionally, PPL Electric recommends deleting footnote 53 on page 34, which states, “When calculating Net savings, EDCs should review the approach laid out in the Pennsylvania Evaluation Framework.” Proposed 2016 TRM, p. 34 n.53. The TRM provides algorithms and methodologies for calculating gross savings only. As such, this is not the appropriate forum for addressing net savings. Furthermore, footnote 53 does not apply to the statement to which it refers – “De Facto Space Heating: Electric space heaters used as the primary heating source when an oil furnace or boiler has failed beyond repair.” Proposed 2016 TRM, p. 34.

Lastly, PPL Electric recommends that the SWE review the value for “EDSH, Fixed savings per desuperheater” in Table 2-12: Residential Electric HVAC References. Proposed
In Table 2-12, the EDSH value of 567 kWh/yr is described as the fixed savings per desuperheater; however, this value does not match the energy savings calculated using the algorithm on page 36, which results in a value of 534 kWh/yr. Furthermore, the EDSH value is multiplied by “ETDF,” which is described as the “Fixed Energy to Demand Factor per desuperheater.” Proposed 2016 TRM, Table 2-12, p. 40. This implies that the EDSH value should be equivalent to the annual kWh savings from the algorithm on page 36.

3. TRM Section 2.2.3 Ductless Mini-Split Heat Pumps

Similar to TRM Section 2.2.1 – Electric HVAC, PPL Electric recommends deleting footnote 69 on page 50, which states, “When calculating Net savings, EDCs should review the approach laid out in the Pennsylvania Evaluation Framework.” Proposed 2016 TRM, p. 50 n.69. The TRM provides algorithms and methodologies for calculating gross savings only. As such, this is not the appropriate forum for addressing net savings. Furthermore, footnote 69 does not apply to the statement to which it refers – “The baseline heating system could be an existing electric resistance heating, electric space heaters used as the primary heating source when fossil fuel (other than natural gas) heating systems failed (referred to as de facto heating) . . . .” Proposed 2016 TRM, p. 50.

8. TRM Section 2.3.3 – Fuel Switching: Electric Resistance to Fossil Fuel Water Heater and TRM Section 2.3.4 – Fuel Switching: Heat Pump Water Heater to Fossil Fuel Water Heater

PPL Electric recommends updating the default values for “Unit Energy Savings” and “Gas, Fossil Fuel Consumption Increase” in the measure summary table on page 95 to match the “Energy Savings” in Table 2-54 and “Fossil Fuel Consumption” in Table 2-55. See Proposed 2016 TRM, pp. 95, 97-98. The same change was already made to the 2015 TRM through the errata process.
Likewise, PPL Electric recommends updating the default values for “Unit Energy Savings” and “Gas, Fossil Fuel Consumption Increase” in the measure summary table on page 99 to match the “Energy Savings” in Table 2-60 and “Gas Consumption” in Table 2-61. See Proposed 2016 TRM, pp. 99, 103. The same change was already made to the 2015 TRM through the errata process.

11. TRM Section 2.4.3 Refrigerator/Freezer Recycling With and Without Replacement

PPL Electric observes that the default “PART_USE” values listed in the Proposed 2016 TRM are based on Program Year 3 (“PY3”) data for all EDCs, were calculated prior to the release of the Department of Energy’s Uniform Methods Project (“UMP”), and reflect only historical usage rather than prospective usage, as outlined in the UMP. See Proposed 2016 TRM, pp. 141, 145; “The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures,” National Renewable Energy Laboratory, Ch. 7, pp. 13-14 (April 2013), available at http://energy.gov/sites/prod/files/2013/ll/f5/53827-7.pdf. Therefore, PPL Electric recommends updating the “PART_USE” values as appropriate.

F. COMMERCIAL AND INDUSTRIAL EE&C MEASURE PROTOCOLS

1. TRM Section 3.1.1 – Lighting Fixture Improvements

In the TRM Tentative Order, the Commission states the following:

The SWE has reviewed sampled PY5 projects and determined that only 54 C&I projects above 500,000 kWh were recorded statewide. Only a subset of these 54 projects were lighting projects. The Commission sees no evidence that the thresholds for site-specific data collection are overly burdensome to EDCs or their contractors.

In order to justify a sampling precision requirement of 15% at the 85% confidence level and the relatively low resulting sample sizes, the Commission believes that verification approaches used for high-value projects within the sample should be rigorous and meaningful. Therefore, the Commission proposes to maintain
current thresholds and to continue monitoring evaluation results and review thresholds annually.

TRM Tentative Order, p. 24.

PPL Electric agrees that the thresholds for site-specific data collection (i.e., metering thresholds) were not burdensome in PY5. However, the Company recommends instituting a cap on the number of projects that must be metered per Program Year for the reasons cited below.

First, PPL Electric believes that PY5 was an anomaly for all EDCs, resulting in a smaller number of projects, based upon historical Program Year data. The SWE reviewed sampled PY5 projects and determined that 54 Commercial and Industrial ("C&I") projects were metered statewide. Of those 54 C&I projects, PPL Electric had 11 lighting projects alone, which was over 20% of the total projects metered statewide. Since then, PPL Electric has seen a significant increase in the number of jobs that require metering and has had 47 projects to-date in PY6 that required metering. It is reasonable to assume that (at a minimum) 30 lighting projects would be subject to metering over the course of a typical Program Year. The total cost associated with that metering would be approximately $210,000,\textsuperscript{3} which translates to $1.05 million over a five-year phase. By applying a cap of 15 projects, however, the annual cost would be reduced to $105,000. Therefore, PPL Electric believes it would be more prudent to apply the resultant five-year cost savings of $525,000 to other customer incentives, especially when considering that the increase in the savings accuracy from that additional metering would be \textit{de minimus}.

Second, PPL Electric observes that the change in HOU due to metering based upon site-specific HOU has been less than 5% on average, which is well within the tolerance range of 2\textsuperscript{nd}, the SWE approved PPL Electric to meter a sample of one retail (grocery) customer's projects due to similarity. This reduced the number of jobs expected to be metered to 35 even though 47 qualified.

\textsuperscript{3} Approximate cost per job is $7,000 and is based on 3 people x 8 hours (including travel time) x 2 site visits (install & remove) x $100/man-hour = $4,800 for the site visits alone. The costs of the meters, preparation time, and analysis of results by the implementer and the evaluator are additional costs that should be considered.
certainty. This demonstrates that the evaluation process is already rigorous and meaningful without the need for significant metering. The Company also notes that it has experienced a realization rate adjustment of less than 3% when comparing standard evaluation of customer interview hours of use kWh/yr savings to metering hours of use kWh/yr savings due to the thresholds. This further supports the Company’s recommendation that the evaluation process is sufficiently rigorous and that the number of jobs to be metered in a given Program Year should be capped to reduce unnecessary costs.

Third, setting a threshold higher (such as 750,000 or 1,000,000 kWh/yr) could reduce the number of projects metered. However, the number of projects metered still has the potential to be a burden, considering that 33 projects in PY6 alone were over 1,000,000 kWh/yr for PPL Electric.

Given these observations, PPL Electric would like to propose that each EDC’s independent evaluator annually meter a sample of up to 15 lighting projects with reported savings of 500,000 kWh/year or more. If there are 15 or fewer projects in a Program Year, all projects will be metered. If there are more than 15 projects, the evaluator will select a random sample of 15 projects. The estimated HOU will be reported at the 90/10 confidence/precision level. The error ratio will be the value calculated for the previous year’s ex-post kWh/year savings. The sample size will be increased during the Program Year, if needed, to meet the 90/10 criteria.

Utilizing the Company’s recommended metering process will produce accurate and reliable results. In fact, an analysis of the metered HOU for 20 PPL Electric PY6 lighting projects concluded that the HOU was estimated with approximately 2% precision. Therefore, PPL Electric expects to exceed the 10% precision with a sample cap of 15 projects. The attached Exhibit 1 compares PY5 and PY6 and provides a breakdown of metering impact.
In addition, in Table 3-2: Assumed T-8 Baseline Fixtures for Removed T-12 Fixtures on page 223, it is unclear how the values for “Assumed T-8 Baseline Wattage” were derived. Proposed 2016 TRM, Table 3-2, p. 223. Given the impact that C&I lighting savings have on EDCs’ portfolios, PPL Electric requests that the Commission identify the source of these assumed wattages. Also, the 2014, 2015, and proposed 2016 TRM provide that standard T-8s will become the baseline for all T-12 linear fluorescent retrofits beginning June 1, 2016 (i.e., PY8). However, in the SWE’s EE Study, different baseline lamp types and wattages for commercial linear fluorescent lighting were assumed. For instance, in offices, the SWE’s EE Study considered three baselines for the “Premium Efficiency T-8 Lighting Replacements (28W w/LBF)” measure including:

- “One 4’ 40W T-12 w/ Magnetic Ballast” (early replacement only);
- “One 4’ 28W T-5 w/ Normal Ballast Factor” (early replacement, new construction, and replace on burnout); and
- “One 4’ 32W T-8 w/ Normal Ballast Factor” (early replacement, new construction, and replace on burnout).

SWE’s EE Study, Appendix E, p. E-1065. PPL Electric seeks clarification on whether the treatment of baselines for this linear fluorescent measure in the 2016 TRM is consistent with the assumptions in the SWE’s EE Study. It is not clear whether, or what share of lamps, the SWE’s EE Study assigned to T-12s. In the Company’s opinion, if the SWE’s EE Study included T-12s in the baseline, the SWE’s EE Study may be overstating potential.

Furthermore, the language regarding site-specific versus default CF on page 225 is inconsistent. See Proposed 2016 TRM, p. 225. One sentence on page 225 aligns with SWE’s previous guidance on this matter: “In addition, the site-specific CF must also be used to calculate
savings if actual hours are used.” Proposed 2016 TRM, p. 225 (emphasis added). However, the last sentence in the same paragraph appears to make site-specific CF optional: “To the extent that operating schedules are known based on metered data, site-specific coincidence factors may be calculated in place of the default coincidence factors provided in Table 3-5 and Table 3-6.” Proposed 2016 TRM, p. 225 (emphasis added). PPL Electric recommends resolving this inconsistency by changing the words in the latter sentence from “may be” to “must be.”

Finally, the Company seeks clarification on Table 3-8: Interactive Factors for All Bulb Types. See Proposed 2016 TRM, Table 3-8, p. 227. A new category was added in Table 3-8 for “Comfort Cooled,” which has its Interactive Factors listed in Table 3-9. See Proposed 2016 TRM, Tables 3-8 and 3-9, pp. 227-28. However, the previous category of “Cooled space” still exists with its own Interactive Factors. Further, “Cooled space” no longer appears in Appendix C. Thus, PPL Electric requests clarification on whether “Cooled space” should be removed from Table 3-8.

II. ADDITIONAL COMMENTS

PPL Electric provides these additional changes to the Proposed 2016 TRM that were not addressed in the TRM Tentative Order.

A. UPDATE WEBSITE LINKS

PPL Electric recommends updating any website links that have expired in the Proposed 2016 TRM, such as:

- The link to the “Measure Life Report” in Source 1 on page 70;

- The link in footnote 107 to “Verifying ACCA Manual S Procedures” on page 91;

- The link in footnote 134 to an Aquacraft, Inc. study on page 114; and
• The link to “AO Smith New Product Notification” in Source 3 on page 325.

B. TRM SECTION 3.4.5 – FUEL SWITCHING: HEAT PUMP WATER HEATER TO GAS/OIL/PROPANE

PPL Electric recommends updating Table 3-82: Minimum Baseline Energy Factors Based on Tank Size with the new Federal standards incorporated into the other water heating protocols. See Proposed 2016 TRM, p. 358.

C. TRM SECTION 6.1 – APPENDIX A: MEASURE LIVES

PPL Electric recommends adding ENERGY STAR Ceiling Fans to the “Appliances End-Use” section for the Residential Sector on page 515. See Proposed 2016 TRM, p. 515. The same change was already made to the 2015 TRM through the errata process.

D. REMOVAL OF APPENDIX F: ELIGIBILITY REQUIREMENTS FOR SOLID STATE LIGHTING PRODUCTS IN COMMERCIAL AND INDUSTRIAL APPLICATIONS

PPL Electric requests confirmation that there will no longer be restrictions on C&I LED eligibility, considering that Appendix F, as titled in the 2015 TRM, was removed.

E. TRM SECTION 2.6.3 – RESIDENTIAL NEW CONSTRUCTION

PPL Electric recommends updating values and corresponding sources in Table 2-111: Energy Star Homes – User Defined Reference Home, where necessary, to align with the most recent codes and standards (e.g., the EF algorithms for “Domestic WH Efficiency”). See Proposed 2016 TRM, Table 2-111, p. 191.

F. TRM SECTION 2.6.5 – ENERGY STAR MANUFACTURED HOMES

The reference to “Table 2-111” on page 198 is incorrect and should be replaced with a reference to “Table 2-114.” PPL Electric also recommends updating values and corresponding sources in Table 2-114: ENERGY STAR Manufactured Homes - User Defined Reference Home, where necessary, to align with the most recent codes and standards (e.g., the EF algorithms for
“Domestic WH Efficiency”). See Proposed 2016 TRM, Table 2-114, p. 199. This is the same recommendation made for TRM Section 2.6.3 – Residential New Construction.
III.  CONCLUSION

For all of the reasons stated above, PPL Electric Utilities Corporation recommends that the Pennsylvania Public Utility Commission proceed with development of the 2016 TRM consistent with PPL Electric Utilities Corporation’s comments.

Respectfully submitted,

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Kimberly A. Klock (ID # 89716)
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Of Counsel:
Post & Schell, P.C.

Date: May 11, 2015  Attorneys for PPL Electric Utilities Corporation
Exhibit 1
<table>
<thead>
<tr>
<th>Category</th>
<th>PY5</th>
<th>PY6</th>
<th>Total</th>
<th>Average Change</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Jobs Metered</td>
<td>11</td>
<td>47</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>Cost/ Metered job</td>
<td>$7,000</td>
<td>$7,000</td>
<td>N/A</td>
<td>$7,000</td>
</tr>
<tr>
<td>Total Metering Cost per year</td>
<td>$77,000</td>
<td>$329,000</td>
<td>$406,000</td>
<td>$203,000</td>
</tr>
<tr>
<td>Total Metering Cost per year (with 750,000 kwh lighting threshold)</td>
<td>$49,000</td>
<td>$301,000</td>
<td>$350,000</td>
<td>$175,000</td>
</tr>
<tr>
<td>Total Metering Cost per year (with 1,000,000 kwh lighting threshold)</td>
<td>$49,000</td>
<td>$238,000</td>
<td>$287,000</td>
<td>$143,500</td>
</tr>
<tr>
<td>Total Metering Cost per year (with 15 project per EDC lighting cap)</td>
<td>$77,000</td>
<td>$105,000</td>
<td>$182,000</td>
<td>$91,000</td>
</tr>
<tr>
<td>Total Metered HOU</td>
<td>61,336</td>
<td>243,962</td>
<td>305,298</td>
<td>NA</td>
</tr>
<tr>
<td>Total Interview HOU</td>
<td>64,251</td>
<td>248,921</td>
<td>313,172</td>
<td>NA</td>
</tr>
<tr>
<td>Total TRM HOU</td>
<td>47,255</td>
<td>169,458</td>
<td>216,713</td>
<td>NA</td>
</tr>
<tr>
<td>Total Interview HOU vs. Metered HOU Δ</td>
<td>(2,915)</td>
<td>(4,959)</td>
<td>(7,874)</td>
<td>(3,937.12)</td>
</tr>
<tr>
<td>Interview HOU vs. Logging HOU % Δ</td>
<td>-4.54%</td>
<td>-1.99%</td>
<td>N/A</td>
<td>-3.26%</td>
</tr>
<tr>
<td>Total TRM HOU vs. Logging HOU Δ</td>
<td>14,081</td>
<td>74,504</td>
<td>88,585</td>
<td>44,292</td>
</tr>
<tr>
<td>TRM HOU vs. Logging HOU % Δ</td>
<td>29.80%</td>
<td>43.97%</td>
<td>NA</td>
<td>36.88%</td>
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<tr>
<td>Total Savings From Metering (MWH)**</td>
<td>9,953</td>
<td>73,769</td>
<td>83,722</td>
<td>41,861</td>
</tr>
</tbody>
</table>

Note:
*PY6 data is still being processed and is based upon the available information to date which includes 30 of the 47 projects.
**1 project from PY5 was removed from the Total Savings Category as it was not statistically relevant and had a 75% adjustment to HOU
**1 project from PY6 was removed Total Savings Category as it was not statistically relevant and had a 50% adjustment to HOU

PPL uses site-specific HOU for all jobs above 500,000 kwh
<table>
<thead>
<tr>
<th>Job Id</th>
<th>Metered HOU</th>
<th>Interview Stated Run Hours</th>
<th>Trim HOU</th>
<th>Percent change in HOU (Interview vs. Logging)</th>
<th>Estimated kWh</th>
<th>Comments (easy or difficult issues please describe)</th>
<th>Status of Logging (reserved, logging ongoing, analysis not done, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPL-13-07398</td>
<td>5000</td>
<td>3120</td>
<td>3691</td>
<td>-17.7%</td>
<td>482,124.00</td>
<td>N/A</td>
<td>LOGGERS INSTALLED BUT NOT USED FOR ANALYSIS TO DATE. SOME LOGGERS PLUGGED INTO OUTLET DUE TO SHORT-CIRCUIT SUBMITTED BY CUSTOMER. EXPLOSION WHERE LOGGERS WERE INSTALLED.</td>
</tr>
<tr>
<td>PPL-13-11598</td>
<td>8760</td>
<td>5951</td>
<td>6631</td>
<td>0.0%</td>
<td>825,670.41</td>
<td>N/A</td>
<td>EASY INSTALLATION. CT LOGGERS INSTALLED, HOLD UP ON PAYMENT DUE TO LED SUBSTITUTION NOT DLW.</td>
</tr>
<tr>
<td>PPL-13-10923</td>
<td>8750</td>
<td>8760</td>
<td>6631</td>
<td>0.11%</td>
<td>903,957.14</td>
<td>N/A</td>
<td>HOURS SPENT ON PALF DESIGN FOR ANALYSIS.</td>
</tr>
<tr>
<td>PPL-13-08565</td>
<td>6640</td>
<td>4500</td>
<td>3664</td>
<td>3.52%</td>
<td>1,475,026.07</td>
<td>N/A</td>
<td>NEW ANALYSIS TOOL CREATED FOR NEW CONSTRUCTION W/ SENSORS FOR BASELINE HR AND CONTROL.</td>
</tr>
<tr>
<td>PPL-13-09189</td>
<td>8664</td>
<td>8760</td>
<td>4660</td>
<td>1.10%</td>
<td>953,086.73</td>
<td>N/A</td>
<td>LOGGING TOOK TIME TO DEVISE DUE TO WAY IT WAS SUBMITTED BY CUSTOMER. PRE ANALYSIS NOT COMPLETED.</td>
</tr>
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<td>8664</td>
<td>8760</td>
<td>4660</td>
<td>1.10%</td>
<td>825,670.41</td>
<td>N/A</td>
<td>LIGHTING DESIGN NOT TRANSLATE TO PALF LAYOUT. REMNANT THEIR ARE NOT COMPLETED.</td>
</tr>
<tr>
<td>PPL-13-09216</td>
<td>8664</td>
<td>8760</td>
<td>4660</td>
<td>1.10%</td>
<td>1,252,660.20</td>
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**Notes:**
- **logging**
- **paid**
- **reserved**
- **analysis not done**
- **easy**
- **difficult**
- **simple**

**Job Details:**
- **Project Name:** Lighting Design
- **Location:** Various Sites
- **Start Date:** May 2020
- **End Date:** June 2020
- **Budget:** $2,259,676.53

**Issues:**
- **Lighting Design:** Design not translated to PALF layout.
- **Remnants:** Issues not completed.

**Status:**
- **Port Analysis:** Not complete yet.

**Total Hours:**
- **Estimated:** 2,259,676.53
- **Actual:** 2,259,676.53

**Comments:**
- **Easy Installation:** CT loggers installed.
- **Hold-up:** Payment due to LED substitution not DLW.

**Analysis:**
- **New Analysis Tool:** Created for new construction with sensors for baseline HR and control.

---

**Additional Notes:**
- **Multiple Variations:** "Cut Sheets" used. Complete redesign of PALF based on contractor audits.
- **Punishment:** Time-consuming to log and difficult access to site.
- **Remaining Projects:** 12 projects left for completion.
- **Additional Time:** Not noted here.

---

**Logging Results:**
- **Cumbersome to apply correctly:** 2000 line items PALF with 100+ pre-loggers installed for res amount.
- **Post-meeting:** Before we knew control factor was no longer necessary/massive.

---

**Key Points:**
- **Digital Lumens System:** Created for analysis.
- **Lighting Rebate:** Ever paid $900,000.
- **Site:** Time-consuming to log and difficult access to site.

---

**Project Details:**
- **Pre-loggers:** Installed and coming out next week.
- **Post-meeting:** Before we knew control factor was no longer necessary/massive.
- **Analysis:** Not done yet.

---

**Project Status:**
- **Reserved:** Pending.
- **Analysis Not Done:** Pending.
- **Paid:** In next week.

---

**Total Hours:**
- **Estimated:** 2,259,676.53
- **Actual:** 2,259,676.53

---

**Additional Notes:**
- **Multiple Variations:** "Cut Sheets" used. Complete redesign of PALF based on contractor audits.
- **Punishment:** Time-consuming to log and difficult access to site.
- **Remaining Projects:** 12 projects left for completion.
- **Additional Time:** Not noted here.
<table>
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<th>Job Id</th>
<th>Facility Type</th>
<th>Metered HOU</th>
<th>Interview Stated Run Hours</th>
<th>Change in HOU (Meter vs. Interview)</th>
<th>Percent change in HOU (Interview vs Logging)</th>
<th>Annual kWh Savings</th>
<th>TRM HOU</th>
<th>Change in HOU (Meter vs. TRM)</th>
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