ESI Program's Response
Industrial Custom Option 1 Impact Evaluation: Findings from the FY 2020-21 Evaluation Activities

(July 1, 2022)

General

This memo addresses the key recommendations and findings as found in the 2020-2021 Custom Industrial Impact Evaluation for Option 1 Utilities – Final Report, dated July 1, 2022. BPA appreciates the time the evaluation team devoted to this analysis and welcomes the opportunity to improve its ability to deliver reliable savings to the region.

The Energy Smart Industrial program was pleased that the evaluators confirmed that the program was correctly following the BPA Implementation Manual and M&V protocols, and that the Engineering Calculations with Verification (ECwV) protocol showed good results for small and medium-sized projects. The ESI team was also encouraged that the evaluation study found that although production levels may change, using the best available information at the time of project M&V had a relatively minor effect on realization rates.

The program appreciates the opportunity to respond to the key recommendations.

Recommendation 1: Applicability of ECwV

The Evaluator states: Consider applying ECwV to a wider size range of projects. While the evaluation sample size is not large enough to provide a suggested size level, there is some evidence that the savings threshold for ECwV could be increased. However, at least anecdotally, projects with more interactive effects between different pieces of equipment tend to have lower accuracy ECwV results, so it makes sense to add a brief assessment of the level of risk in savings estimation error due to the simpler protocol with fewer verification requirements. More ECwV projects may reduce overall engineering and administrative load for energy efficiency programs and liberate resources for more energy efficiency projects.

Programs Response: The ESI/BPA engineering working group will consider updating the savings threshold at which the ECwV M&V Protocol can be applied. The opportunity to streamline program work load in this way will need to be focused on projects with a well-substantiated baseline, baseline planning, and reasonable characterization of post-implementation behavior, in accordance with the BPA ECwV M&V protocol.

Recommendation 2: Quality Control Procedures

The Evaluator states: BPA should revisit all quality control procedures leading from the initial savings claim for a project through to final reporting, to see where they can be improved to catch this type of error (and others) in the future. Independently-executable and reviewable model files should be submitted to BPA by project engineers to enable easier in-depth review of project claimed savings. This should apply to all projects, and not just to projects with large savings.

Programs Response: The ESI team has reviewed and updated its internal processes to reduce the probability and impact of aberrant reporting errors. This includes improving the report templates and enhancing internal processes to improve connection between the quality control (QC) team and the M&V implementers.

ESI has begun requesting 'live'/active analysis files for more projects, particularly those with the magnitude to significantly impact the overall program realization rate. The time and workload required for this additional QC activity will be balanced with future benefits. The ESI team will continue to reserve the right to review live analysis files at any time if there is a concern with the underlying analysis.

Recommendation 3: Alignment with RTF Guidelines

The Evaluator states: BPA should consider updating its policy for determining baseline to adhere to RTF guidelines. Additionally, the evaluators recommend that BPA assume that evaporative cooling in potato sheds is current practice or identify a similar measure which represents current practice. RTF guidelines do allow for a melded baseline.

Programs Response: The ESI team will continue to comply with the recommendation for new construction baselines specified in the BPA End-Use Metering Absent Baseline Measurement: An M&V Protocol Application Guide (Section 4.1). Like the 2020 RTF Guidelines, the BPA's M&V Guidelines call for practitioners to develop an industry standard practice/current practice baseline for new construction projects that lack an applicable code. In both documents, the industry standard practice/current practice baseline development can be informed by a variety of sources, including practitioner experience with similar projects, alternative design documents, and end-user and vendor input. There is sufficient alignment between these policies to allow for consistent results.

The ESI team agrees that passive humidification/evaporative cooling has been widely adopted in potato shed design in the Northwest region in the past few years. This regional market transformation was largely influenced by programs such as ESI and a small number of regional distributors that market evaporative cooling products. The ESI/BPA engineering working group will consider the evaluator's recommendation for future potato shed new construction projects. The working group will also more thoroughly evaluate the economics of alternative systems for humidity control (e.g. active humidification via misting systems) to determine whether the market requires continued financial support to sustain this observed market activity.

Recommendation 4: Current Practice Baselines

The Evaluator states: Project engineers should make an explicit statement of the current practice assumed for all lost opportunity projects. This process should reference Regional Technical Forum Guidelines for the Assessment of Energy Efficiency Measures Section 4.3.3 and should be included in planning and completion reports. This step will ensure that project reviewers continuously consider what is current practice and empower them to recommend changes when they find inconsistencies.

BPA could also consider working collaboratively with evaluators and others in the region to establish improved current practice baseline protocols for custom industrial projects. This new industrial current practice baseline working group could develop new protocols that may be used by implementers, utilities and evaluators in the region. When a question arises as to the current practice baseline for a project type that is not covered by existing guidance, the current practice baseline working group could make itself available to provide guidance and add that guidance to the working documentation. This group may also help adapt programs to changes in national efficiency guidelines such as the work done by the Northwest Energy Efficiency Alliance (NEEA) in coordination with the U.S. Department of Energy to develop the Extended Motor Products (XMP) program.

Programs Response: Current practice baselines will continue to be specified in project documentation for lost opportunity projects. ESI will encourage practitioners to more clearly describe the rationale used for the current practice baseline used for these projects.

The ESI/BPA engineering working group has a regular meeting cadence and has added site-specific current practice baseline review to its scope. Project engineers, including both Energy Smart Industrial Partners and Technical Service Providers, will be encouraged to engage with this group if they have questions about the appropriateness of a specific current practice baseline

Recommendation 5: Model Specification

The Evaluator states: Specify models that are well-suited to calculating savings for the project. Engineers specifying a model should make a brief qualitative list of the key features and inputs that are expected to impact savings and then ensure that the model specified accurately addresses each of those features. This step should ensure that project engineers and reviewers consider likely scenarios that may cause a major difference in observed savings for the proposed model. This step would highlight areas of concern before or after the final project M&V and allow the project reviewers to verify that the best possible model was chosen according to best practices and appropriate BPA protocols while still accounting for part load operation and actual equipment performance where possible. This may require choosing different methods prescribed by BPA protocols or modifying existing methods. For example, if a compressed air system operates at low and part loads and follows an ECwV M&V protocol, then the model should allow for part load efficiencies to be specified. A modified version of the Northwest Regional Compressed Air Savings Estimator (NWRCAT) or AIRMaster+ would be acceptable.

Programs Response: The ESI program will continue to specify models that are well-suited

to calculating savings for the project. With the exception of analyses that relied on production data that was not available at the time of the initial analysis, the ESI team did not see large discrepancies between the evaluation team's analyses and submitted project analyses.

In the case of compressed air, the evaluation found a small difference between the part-load performance modeled in their preferred model and the one used by the ESI team; Appendix B of the report has a 100% realization rate for compressed air projects. Most projects informing this recommendation utilized Engineering Calculations with Verification (ECwV), designed to scale M&V resources for small projects. Though the evaluation found 30% higher savings, the program's ECwV estimates were conservative, and no systematic issues were identified. In order to continue to deliver cost-effective savings to the region, model choices may be standardized on tools that provide acceptable accuracy for projects with small savings. The engineering working group will continue to review opportunities to improve accuracy in streamlined tools. The ability to tailor part-load efficiency will be reviewed for addition to the NWRCAT.