

# Site-Specific Evaluation

## Background

BPA, in partnership with its customer utilities, conducted an impact evaluation to assess savings and cost-effectiveness for custom projects and lighting calculators from 2012 and 2013. The evaluation was broken into nine major categories – by utility option, sector and measure type.

$$\frac{\text{Evaluation Savings}}{\text{Reported Savings}} = \text{Realization rate}$$

Realization rates greater than 1 mean that we found **more savings** than was reported

Realization rates less than 1 mean **fewer savings** were found

From the population of 7,500 measures, the evaluation randomly sampled 210, representing approximately 28% of savings with less than 3% of the population's measures. Several utilities funded additional sample in their service areas, accounting for one-third of the evaluated measures.

The impact evaluation included activities such as document review, phone interviews, site visits, metering, and re-estimation of savings. Throughout the process, the evaluation worked closely with BPA and utility staff and gained

reviews of the evaluation plan, communication protocols, new models, site-specific results, and report.

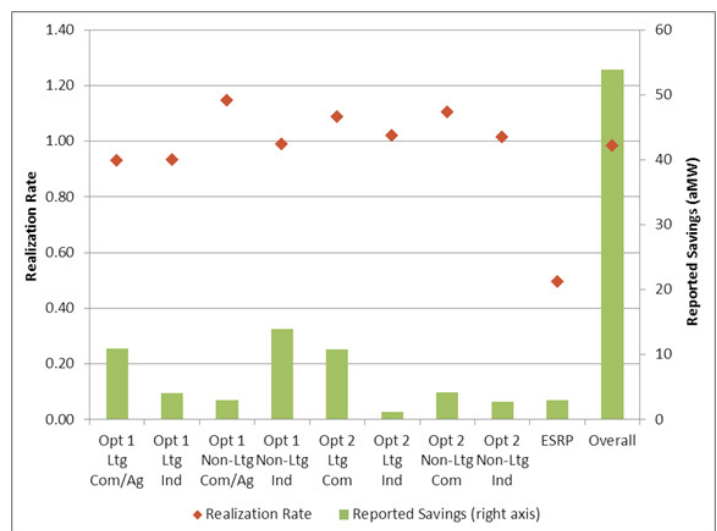
In addition to the results below, the evaluation provided data to BPA utility COTRs for their oversight process and to the RTF for informing the regional standard protocol for non-residential lighting.

## Key Findings

### 1.

The evaluation verified that the savings for the portfolio were cost-effective and nearly the same as reported.

Portfolio realization rate is 0.98 and most domains are close to 1.0. The TRC benefit/cost ratio for the portfolio is 2.68.



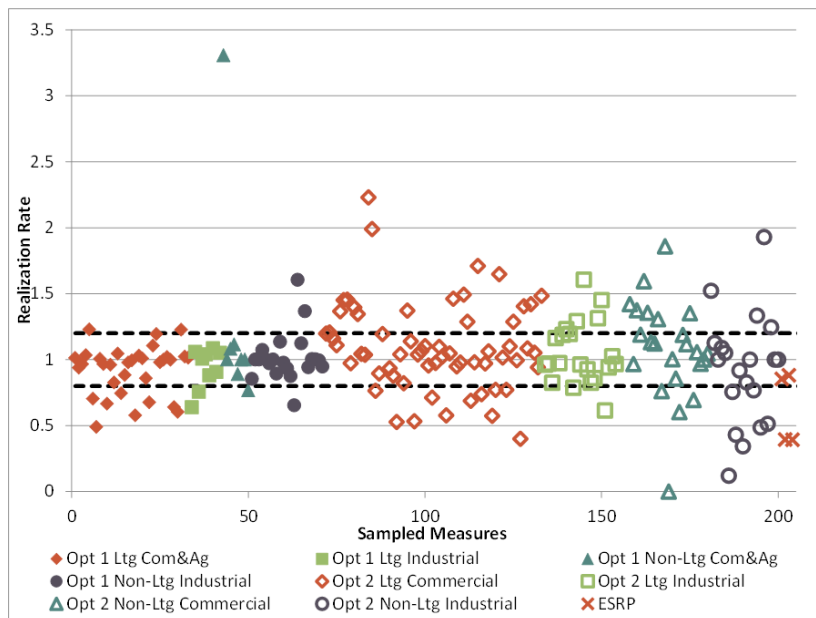
# More Key Findings

2. Combining domains, into similar categories provides additional insight. Sectors and measure types have very similar realization rates, while larger differences are found for Option 1 and Option 2:

**Measure:** Realization rate for Lighting is 1.0 and Non-lighting is 1.03

**Sector:** Realization rate for both Commercial and Industrial are 0.98.

**Option:** Realization rate for Option 1 is 0.98 and Option 2 is 1.08



3.

There is considerable variation in realization rates among evaluated measures. In total, 20% of measures had high realization rates and 20% had low realization rates. Option 2 measures have more high and low results than Option 1. We found some other patterns within the sample: one option 2 utility is using embedded realization rates, metering found hours of operation for lighting to be slightly overestimated, the evaluation found more savings for commercial non-lighting measures.

4. The evaluation also had findings related to adherence to protocols. Compliance with the BPA M&V protocol selection guide was highest with Option 1 measures and lowest with Option 2- Commercial measures. Most measures complied with IM documentation requirements, except for some missing contractor invoices in ESRP, Option 1 lighting and non-lighting projects.

## Recommendations

1. BPA can improve reliability of savings estimates by clarifying BPA M&V protocols (e.g., first-year vs typical savings and current practice baseline), improve the quality control of ESRP projects, avoid embedded realization rates and improve the lighting calculator.
2. BPA should explore how to simplify and reduce reporting effort. BPA can improve documentation by requiring working M&V models, improving compliance with contractor invoice documentation and having consistent measure coding. For each project, it would be best to list the M&V protocol used, the project engineer, the project specifications, the project milestone dates.
3. For future evaluations, BPA should align evaluation protocols with the (clarified) BPA M&V protocols, consider faster or real-time evaluation to minimize time delays, and improve the end-user contact protocols.