



Considering Custom Evaluations

(a set of slides to discuss specific topics)

Illinois Stakeholder Advisory Group Meeting

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Mary Sutter - Opinion Dynamics Corp

Four points to consider

1. How are custom sites adjusted for a population within an evaluation?
 - Ratio adjustment method
 2. How big an issue is the evaluation adjustment for a population of custom projects?
 - Discussion based on custom results
 3. What can dual baselines provide?
 - EUL / RUL and the certainty of each
 4. For industrial, how can differences in production between ex ante and ex post be handled?
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Point 1 - Custom Site Analysis

- Wide variety of types of measures
 - Lack of homogeneity typically leads to ratio adjustment method as cannot properly stratify for sampling purposes.
 - How well does the ex ante value match the ex post value?
Adjustment based on that ratio
 - Typically use site specific M&V to obtain ex post values for a sample of sites.
 - Sample design based on kWh, not measures or number of sites
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Ex Post Extrapolation to Population (Point 1 cont.)

Evaluation team calculates a gross impact for each site and extrapolates to the population using the ratio adjustment method^[1].

$$I_{EP} = \frac{I_{EPS}}{I_{EAS}} * I_{EA}$$

Where I_{EP} = the ex post population impact
 I_{EA} = the ex ante population impact
 I_{EPS} = the ex post impact from the sample
 I_{EAS} = the ex ante impact from the sample

^[1] Judith T. Lessler and William D. Kalsbeek. Nonsampling Error in Surveys. 1992. p. 269.

Point 2 – Examples of some Gross Realization Rates

- Examples of Custom Program Gross Realization Rates
 - 0.81 – site specific RR from 0% to 189%
 - 0.86 – site specific RR from 0% to 451%
 - 0.93 – site specific RR from 32% to 148%
 - 0.99 – site specific RR from 19% to 332%
 - Sample is weighted by kWh, so if a large customer is significantly different ex ante to ex post, it affects the population (as it should)
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Point 3 - Dual Baseline and EUL/RUL

- Effective Useful Life (EUL)
 - An estimate of the median number of years that the efficiency measures installed under a program are still in place and operable (National Action Plan for Energy Efficiency, CA Protocols, NEEP Glossary)
 - Population value
 - Remaining Useful Life (RUL)
 - No official definition that I could find
 - Gathered through self report or chosen by policy
 - Measure value (not population value)
 - Choices made for RUL in dual baselines in other jurisdictions
 - RUL is 1/3 of EUL (NYSERDA)
 - RUL is 1/3 of EUL (CA)
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Considerations for RUL

(Point 3 cont.)

- On what should RUL be based?
 - Policy
 - Self-report of customer
 - Preponderance of evidence and engineering judgment
 - Does choosing specific RUL allow clarity at the expense of flexibility?
 - If not policy based, at what point does the pursuit of an RUL simply add more subjective judgment and lead to differences of opinion?
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Point 4 - Possible Approach for Industrial Baseline

- The suggestion here does not address all baseline issues discussed
- The treatment of output level in the calculation must reflect the determination of whether the measure caused the post-installation change in output level. There are two possible cases.
- If the measure **caused the change** in output, gross savings are defined to be:
 - (Consumption of the affected systems in the post-installation conditions, assuming that systems were operated to achieve the pre-installation output level) minus (consumption that would have occurred if the unimproved system had been used to achieve the preinstallation output level).
- If the measure **did not cause the change**, gross savings are defined to be:
 - (Consumption of the affected systems in the post-installation conditions at the observed post-installation output level) minus (consumption that would have occurred if the unimproved system had been used to achieve the post-installation output level).