NGRID New York Small Business Direct Install (SBDI)

NMR assessed the alignment of different metering technologies and estimates based on reference values in quantifying energy savings from lighting retrofits. We investigated three approaches relying upon advanced metering technologies: (1) monthly billing data, (2) daily and hourly interval meter data, and (3) circuit and subcircuit meter data. We calculated the ratio and root-meansquare- error (RMSE) of savings estimates from these methods against contractor estimates and two different savings baselines in conjunction with site-level wattage figures. We also analyzed the influence, if any, of building end-uses, duration of data collection, and number of fixtures on savings estimates.

Analysis Methods

Pre-retrofit	Post-retrofit Data interval
Utility Data	Monthly
Whole building (WB) meter	Daily & hourly
Subcircuit	Hourly
Lighting loggers	On-off events

Collaboration

Identify opportunities for data collection that could promote near real-time program evaluation. Collaboration with implementers to collect data can:

Identify sites/business types requiring additional attention

Highlight missing data earlier in evaluation workflow

Reduce time spent installing & retrieving monitoring equipment

Decrease frequency of customer outreach/ site visits

Method Alignment

Methods with an average means savings est. ratio closer to 1 are more aligned.

	NY TRM	Project Estimates	Subcircuit	WB Hourly	WB Daily	Monthly
Means Savings Est. Ratio	1.70	1.56	0.97	3.78	4.84	5.12
MAE	0.65	0.58	0.60	3.07	4.08	4.08

Metered Sites

Totals: 32 sites, 10 business types, 10 loggers per site (avg)

- Retail, Small
- Office, Small
- Elem. School
- Auto Repair
- Assembly
- Big Box
- Restaurant
- Fast Food
- Warehouse
- Religious

Additional Study Findings

The following questions should be asked to determine the extent to which existing M&V methods compare with advanced methods:

- Comparison should reflect audience: Are they analysts, portfolio managers, or individual customers?
- Is difference or ratio of savings estimates more appropriate? More accessible?
- Would evaluation data be useful for other efforts?

Metering Period Conclusions

We suggest a 14-day default logging period, in line with NY Technical Resource Manual recommendations, with the need for longer periods determined by building use and conversations with customers about occupancy and production patterns.