Microgrid as a microcosm

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ACEEE Market Transformation

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ENERGYSAVVY

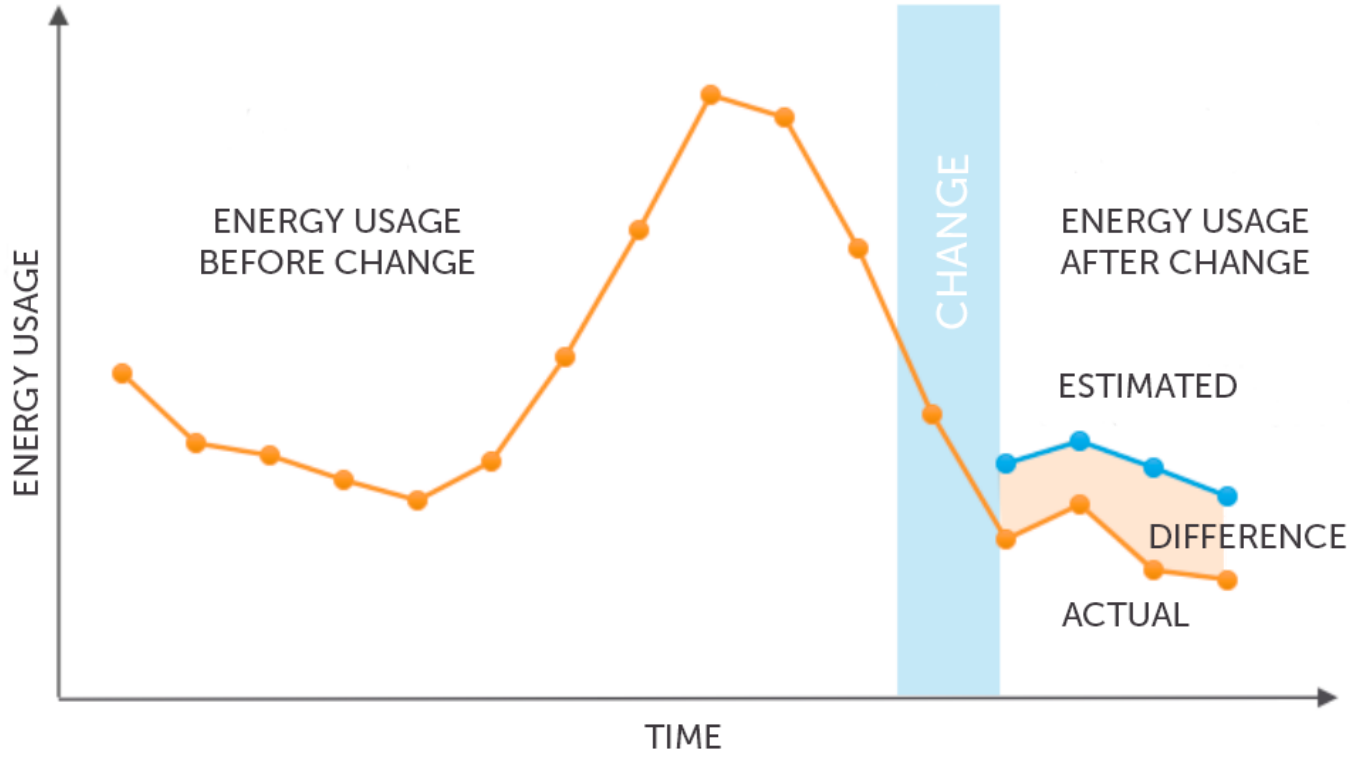
EnergySavvy at a glance

Cloud software for the utility industry

Quick Facts

- 30+ utility/DSM clients
- 100% cloud software
- Seattle & Boston offices
- Founded in 2008

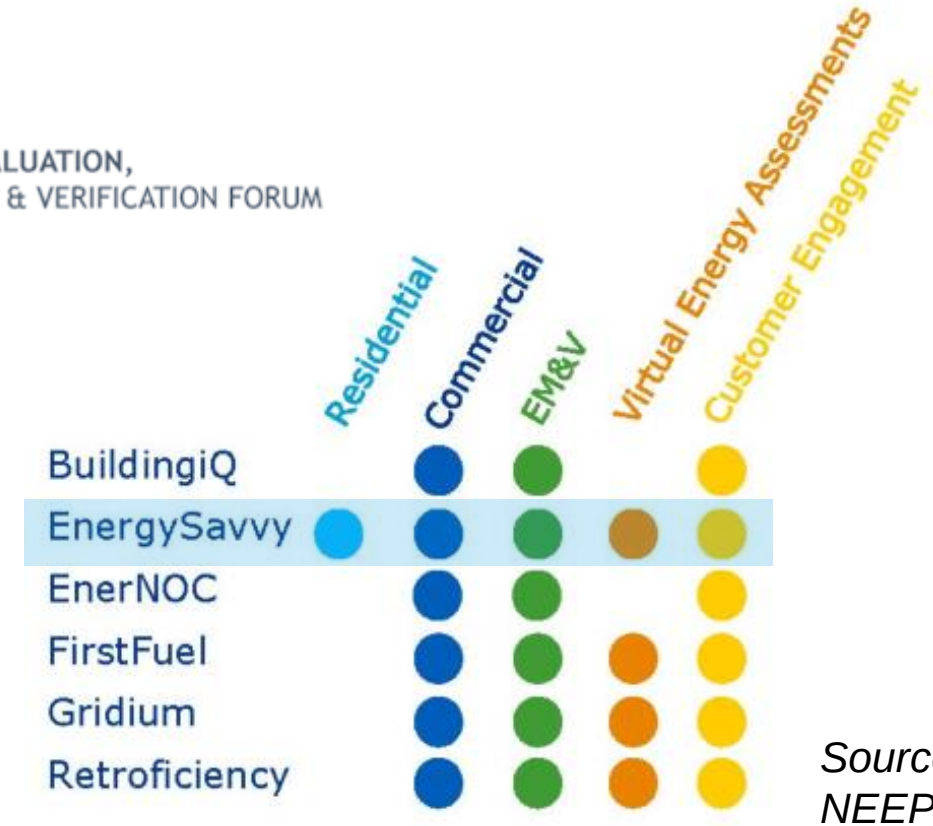
Automated M&V: How it Works



State of the Market

Selected SaaS Providers of Automated M&V

REGIONAL EVALUATION,
MEASUREMENT & VERIFICATION FORUM



Source:
NEEP EM&V Forum Report
Page 39, Figure 4-5

Microgrid Scenario

- 30 MW Microgrid
- 1,700 buildings with 3,000 electric customers
  - 50% of load from residential
- 5 MW of load reductions to be delivered
  - EE and solar to offset 5-10 year load growth (estimated at 10%)
  - 8 MWH battery storage in place
  - More storage easily added
- To offset part or all of this load growth, plan is to continue to target EE programs on the residential and small C&I customers located within the microgrid.

****We have the following questions****

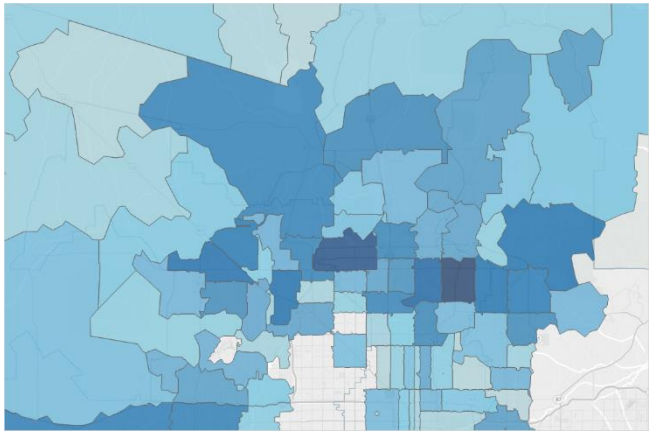
How can this technology be used to understand the EE savings potential that exists for these customers located on the microgrid?

Understanding Customer Potential

	Monthly Billing Data	Interval Data
Weather-normalized models of all premises	X	X
Cooling/Heating/Baseload disaggregation	X	X
Comparative analysis of similar customers	X	X
Automated M&V (billing analysis)	X	X
Identification of savings potential relative to similar customers	X	X
Peak load predictions		X
Time of day usage analytics		X

Targeting and Engagement

1. Identify Potential



How can this technology measure and track savings results?

Track Savings Results

Monitor performance for pro-active management

PROGRAM SAVINGS

156 ± 12.5 / 250 **METERED** (MWh)

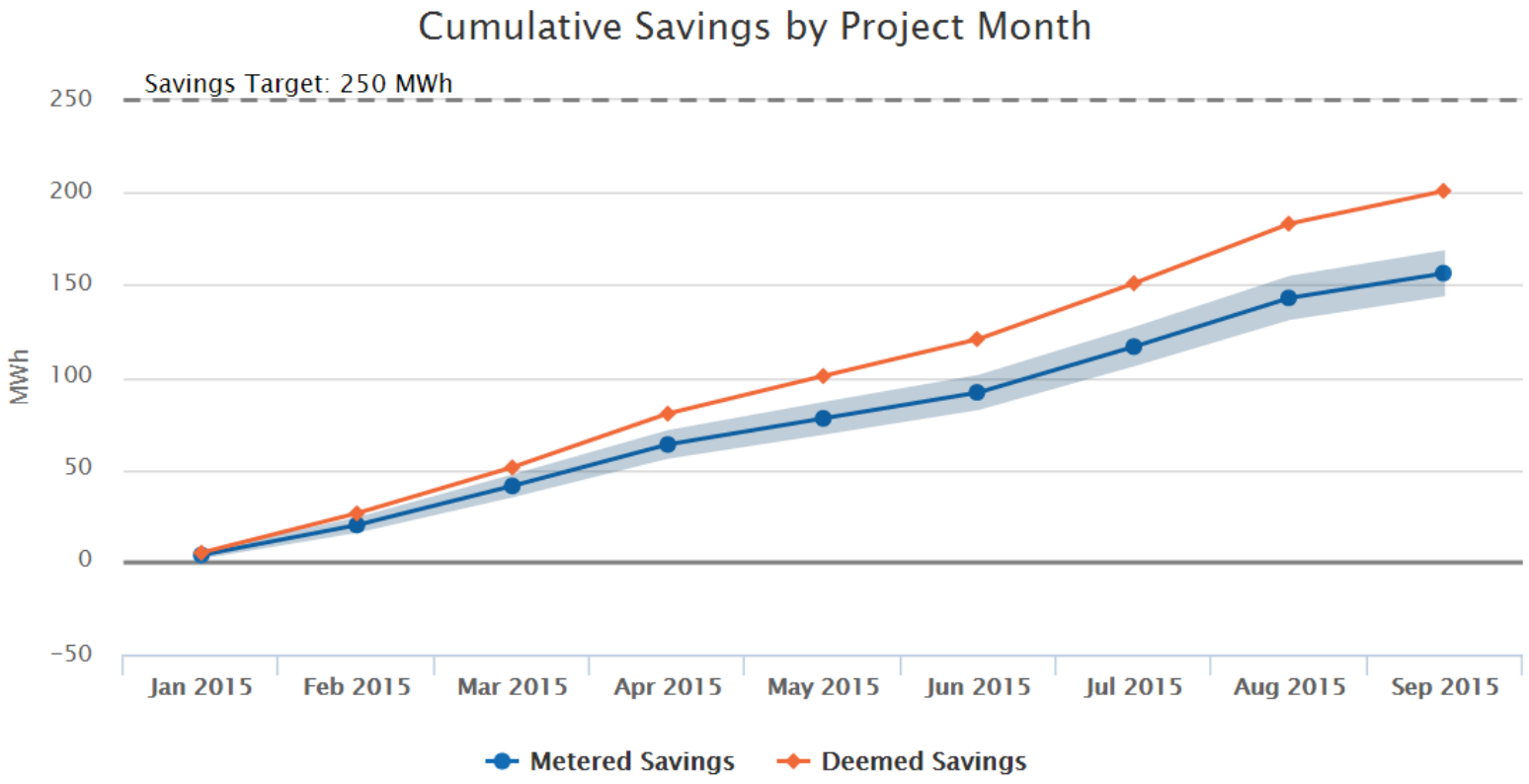
63% ± 5% OF GOAL

78% ± 6% **REALIZATION RATE**

PROGRAM PROGRESS

1,485 / 2,100 **PREMISES TREATED**

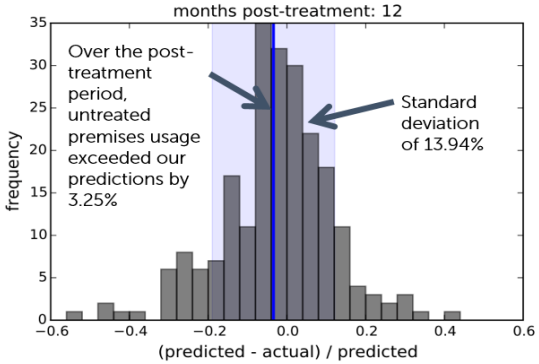
71% OF GOAL

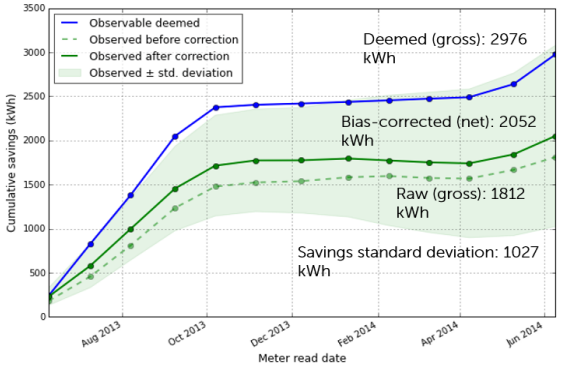


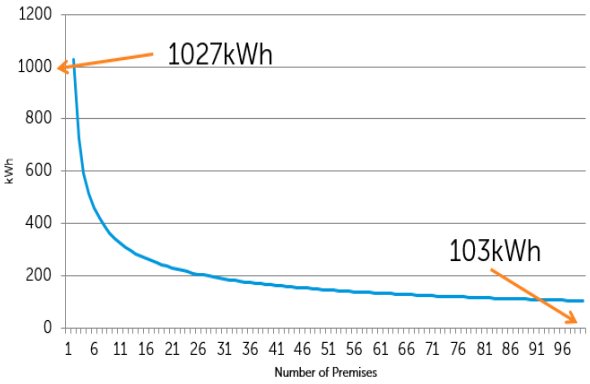
Considerations for a Microgrid

Program design needs to consider measurement

- Opt-in EE programs:
  - Pre-treatment usage is the baseline for each premises
  - Usage is adjusted through bias correction based on observed changes in non-participants (e.g., comparison group)



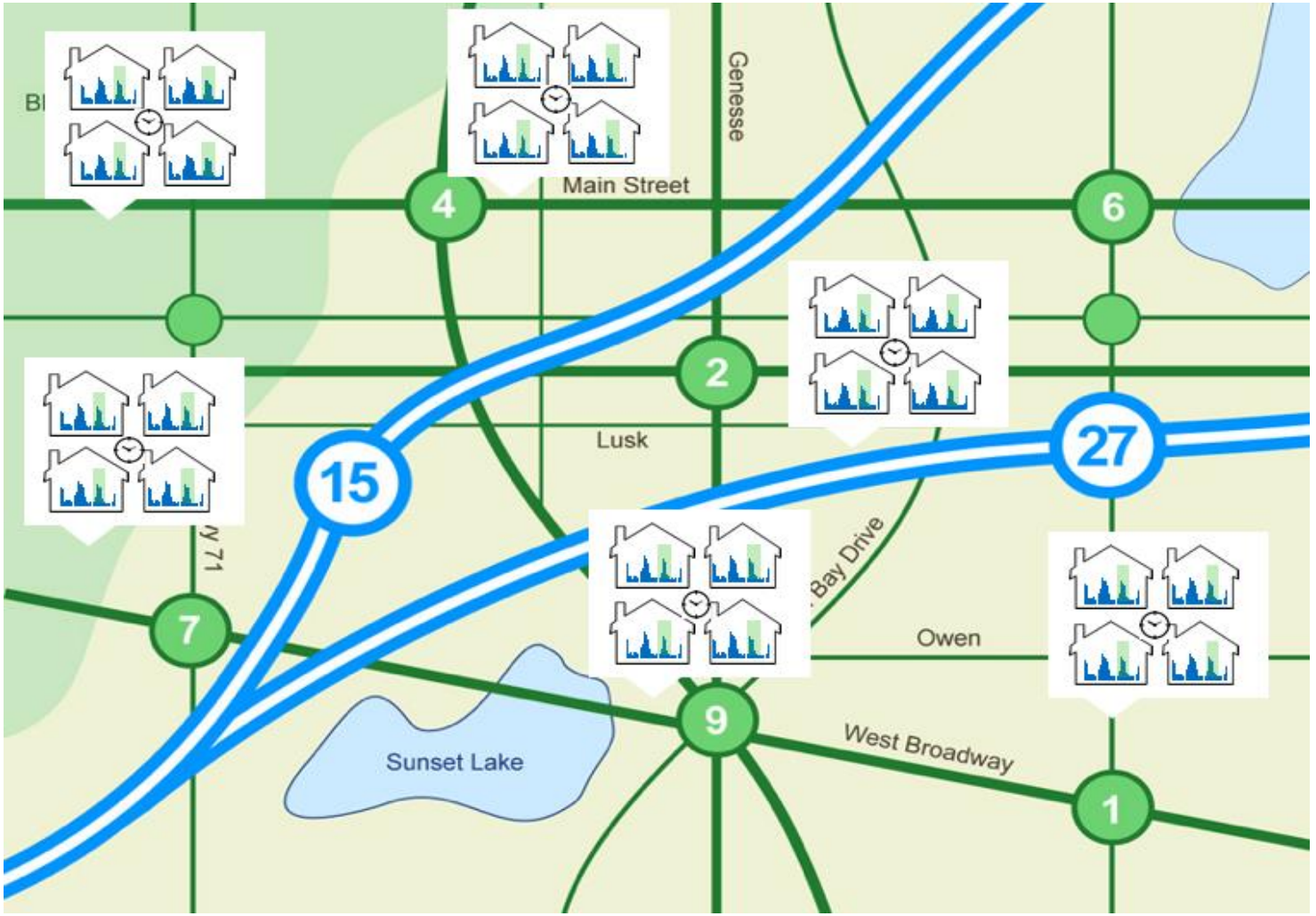




- Opt-out programs:
  - Will the intervention be offered to all customers within the microgrid?
    - How to define a non-participant? Outside of the microgrid? Is that accurate?
  - Will it be randomized control trial?

We plan to install smart metering technology within the microgrid. This will provide interval data in real time. Does this type of data offer benefit to the analysis / technology?

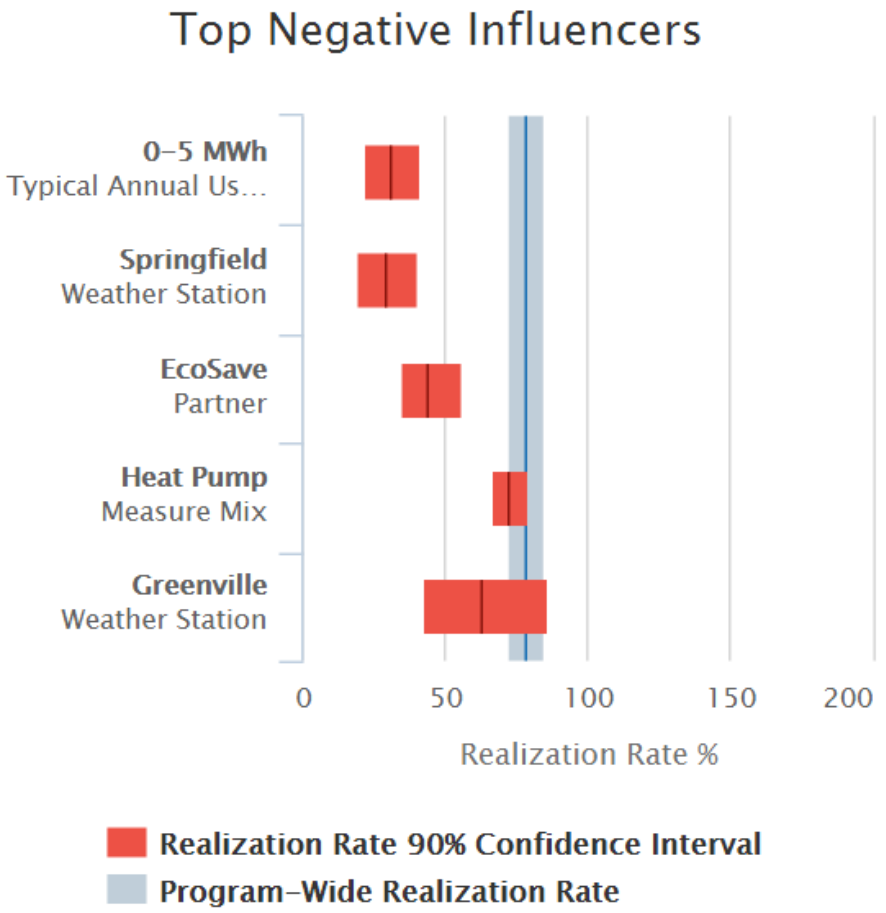
Time and location can be measured continuously

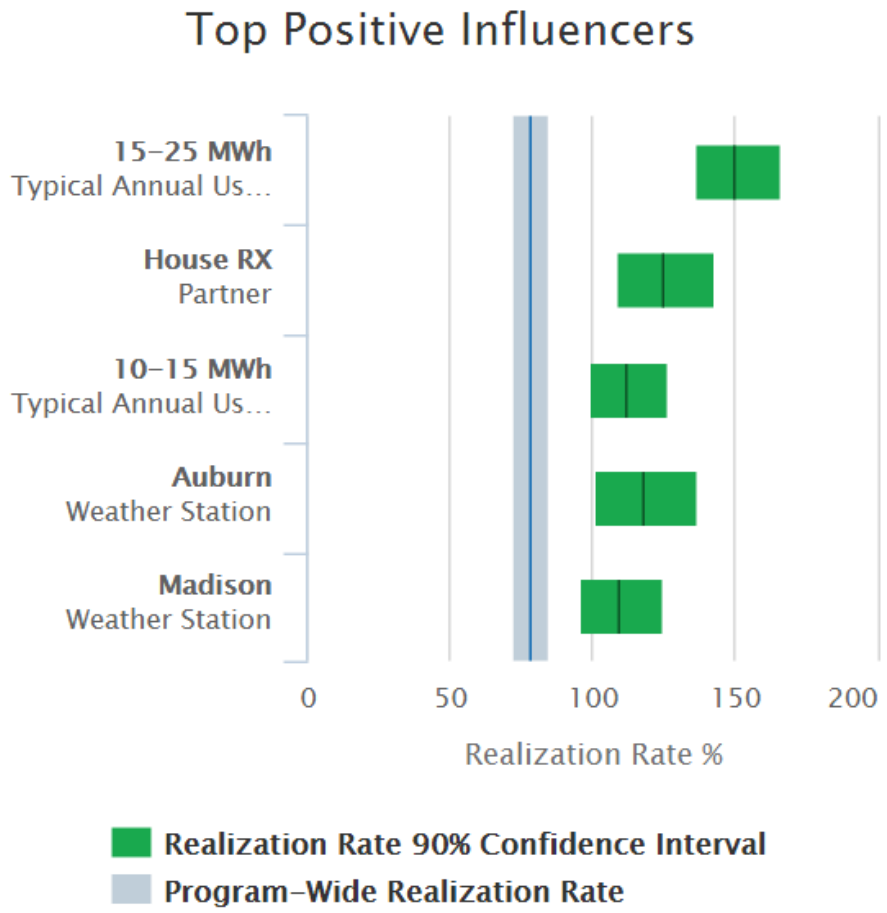


Can this technology deliver savings?

Generate Granular Insights

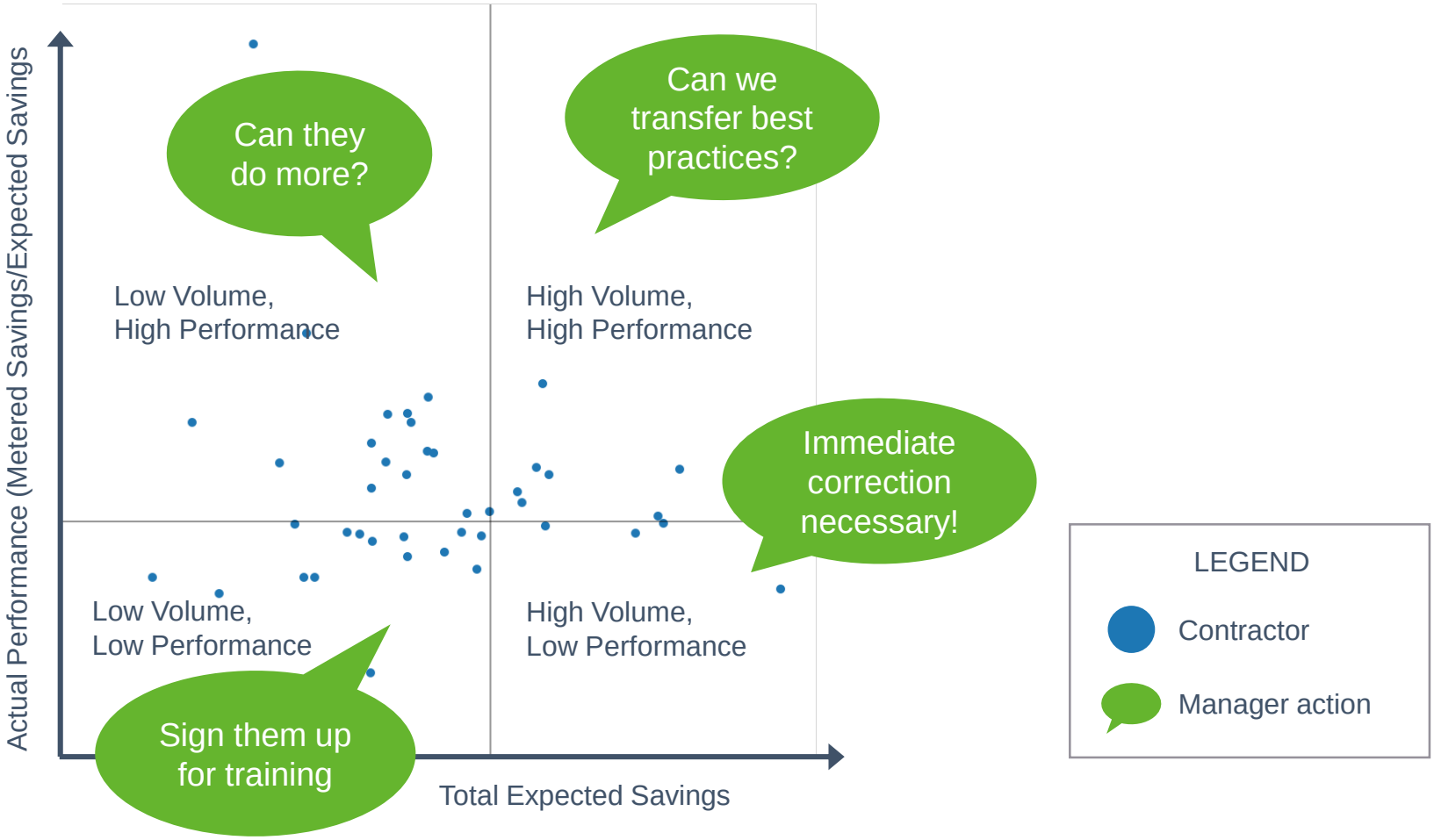
Understanding what's driving savings leads to continuous improvement





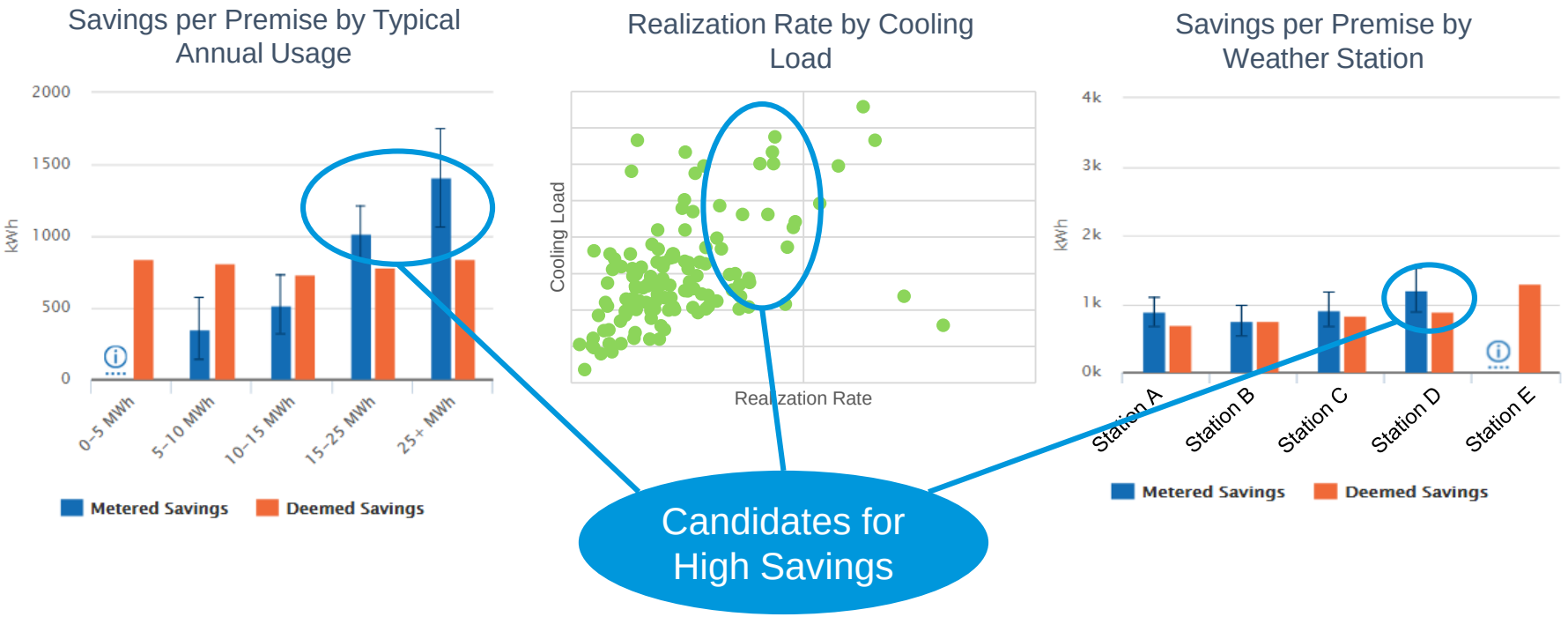
Compare, Rank and Act

Comparing savings at the meter to expected savings reveals good, bad and ugly.



Feedback for Next Round of Targeting

Identify future program candidates based on performance of others



Thank You

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