Flexible Demand as a Grid Resource
In ISO-NE’s recent auction:

- 4,040 MW of energy efficiency
- 34,839 MW of total capacity

More than 10% of capacity is EE!
Meter Your Savings!
Automatically Meter Energy Savings

Resource Curve

Savings (kWh)

Hour of Day

Annual
Winter
Spring
Summer
Fall
Program Savings are a Distribution

![Electricity Savings Distribution Chart]

- **Avoid**: Percent Savings %) vs Number of Projects
- **Target**: Percent Savings %) vs Number of Projects
Align Incentives with Pay-for-Performance
Business Model:

Enterprise Software as a Service
Millions of Meters Analyzed
Our Competition
Open Source Methods and Code

- Standard Calculation Methods for Energy Efficiency and Electrification
- Monthly, Daily, and Hourly
- Public 60 Stakeholders Empirical Process
- www.CalTRACK.org

- Python CalTRACK Engine
- Open Source Apache 2.0
- How It Works: https://goo.gl/mhny2s
- Code Repo: https://goo.gl/qFdW4P
Methods

STATUS QUO: Deemed savings & disconnect with grid impacts or performance

2014
PG&E Whole Building Demo tests models/software

2015
Expect EM&V (approve tests)

2016
9 HOPPS proposals - applications of NMEC and regulatory feedback and approval for specific approaches

2017
CPUC Ruling – Normalized Metered Energy Consumption (CPUC) M&V Framework for HOPPS

2018
3P proposals include meter based savings

Policies

CPUC issues guidelines for custom applications of NMEC

CPUC 3P Guidance (60% of portfolio) + call out for embedded evaluation + performance

PG&E defines Meter-Based-Savings guidelines for 3P programs

LBNL with CPUC and SCE released separate Option C guidelines

Detailed M&V Plan Reviews of HOPPS (publicly available)

PG&E Whole Building Demo tests models/software reliability of estimates billing regression v. engineering models

CALTRACK 2.0 methods building qualification

CALTRACK 1.0 methods developed in residential home upgrade context

Draft Evaluation Plan for PG&E Res P4P

BayREN M&V plan for SMB P4P

VISION: Meter-based savings & performance drives investment in grid impacts

SB350 / AB802 – Normalized Metered Energy Consumption (CA Legislation)

9 HOPPS proposals - applications of NMEC and regulatory feedback and approval for specific approaches
Regulatory Foundations

California Legislature:
- SB 350
- AB 802

CPUC:
- Application 17-01-013

“The energy efficiency savings and demand reduction .... achieving the targets established pursuant to paragraph (doubling of EE by 2030) **shall** be measured taking into consideration the **overall reduction in normalized metered electricity and natural gas consumption** where these measurement techniques are feasible and cost effective.” – SB 350
Meter Your Savings!

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Visibility

Transparency

Accountability