Ethan Goldman, Director of Customer Solutions

Flexible Demand as a Grid Resource

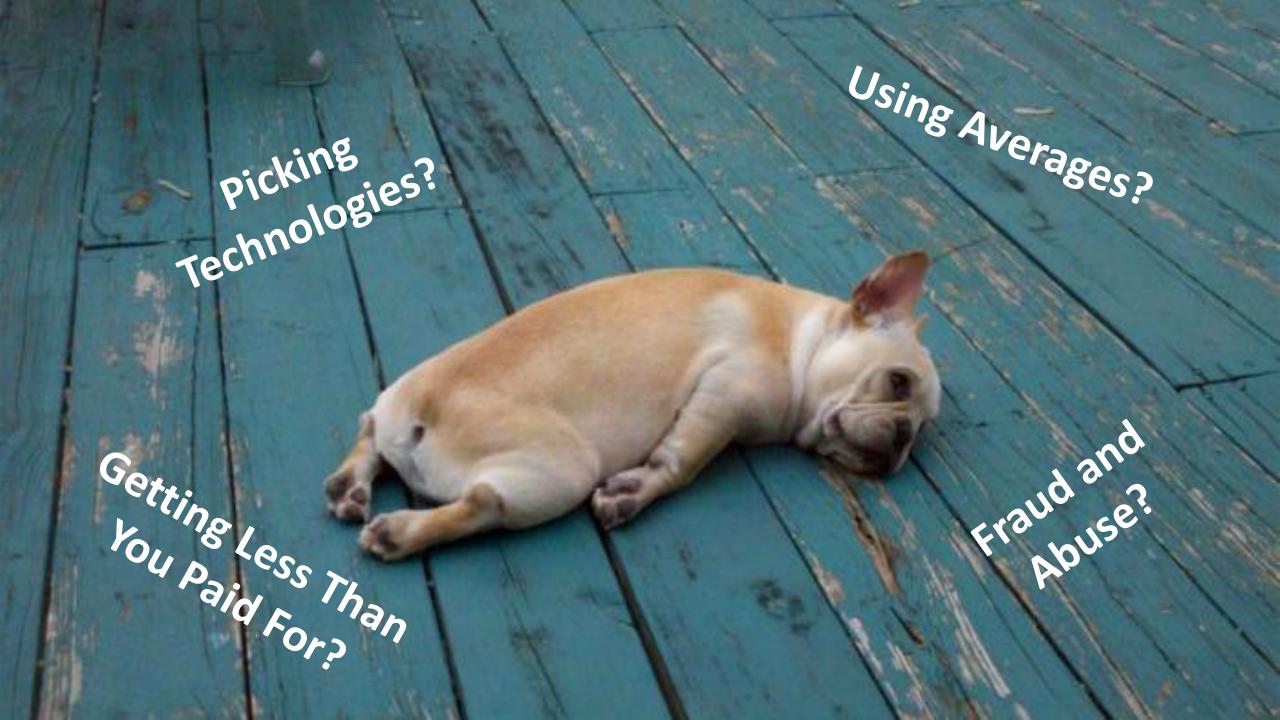


In ISO-NE's recent auction:

4,040 MW of energy efficiency

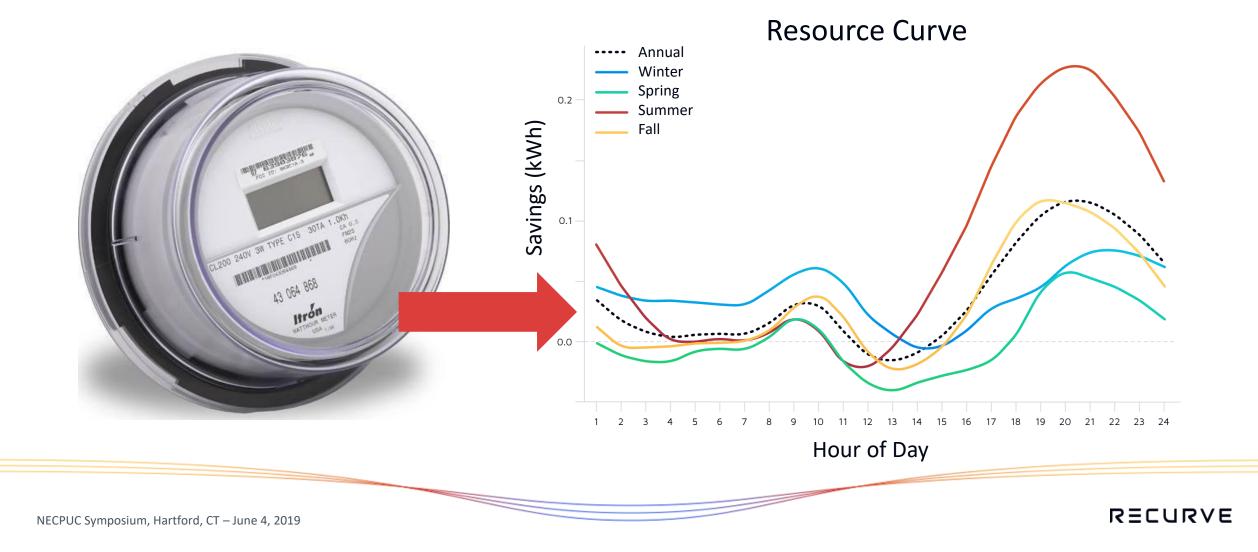
34,839 MW of total capacity

More than 10% of capacity is EE!





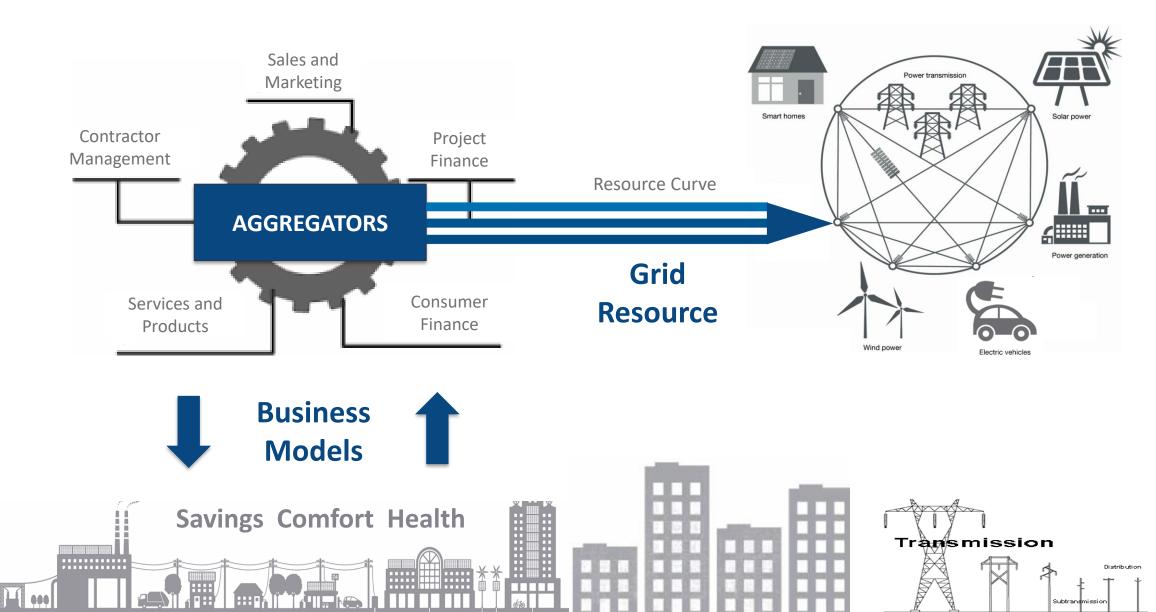
Automatically Meter Energy Savings



Program Savings are a Distribution



Align Incentives with Pay-for-Performance



Business Model:

Enterprise Software as a Service



Millions of Meters Analyzed





BERKELEY LAB







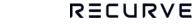




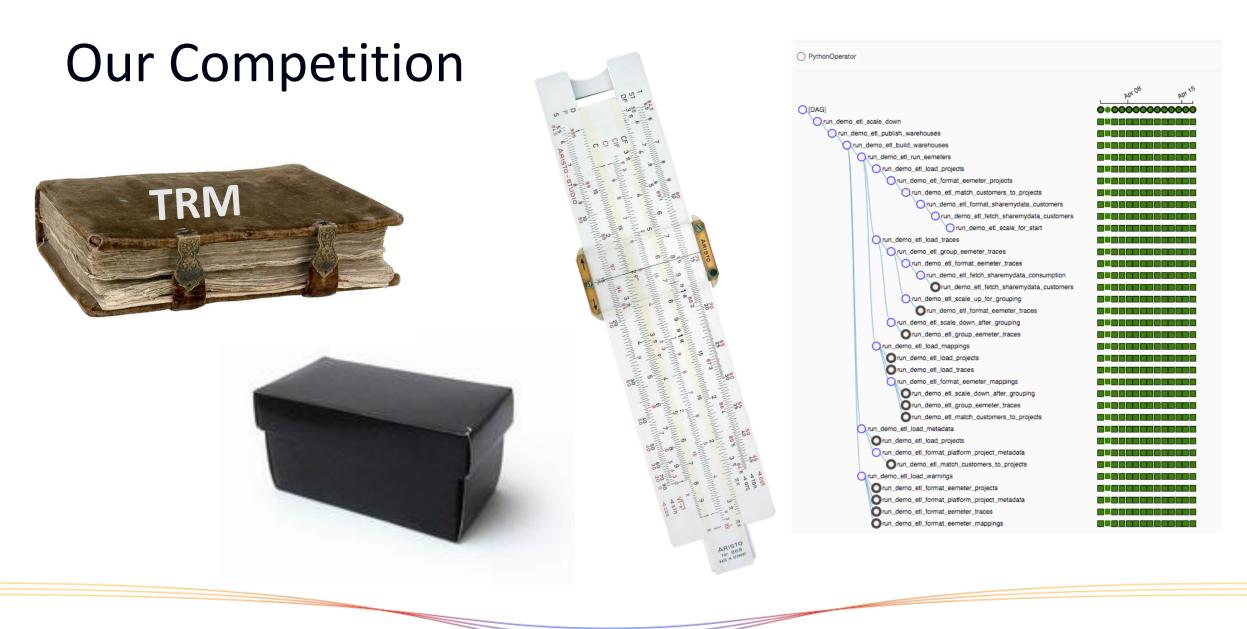
CLEAResult[®]







NECPUC Symposium, Hartford, CT – June 4, 2019



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 <u>Apache 2.0</u>
- How It Works: https://goo.gl/mhny2s
- Code Repo: <u>https://goo.gl/qFdW4P</u>

Methods

CALTRACK 2.0 methods SMB P4P investment in grid impacts building qualification Draft Evaluation Plan for PG&E Res P4P 3P proposals include meter based LBNL with CPUC and SCE savings released separate Option C guidelines 2018 CPUC issues guidelines for custom applications of NMEC Detailed M&V Plan Reviews of HOPPS (publicly available) PG&E defines Meter-Based-Savings guidelines for 3P programs PG&E Whole Building Demo tests 2017 reliability of estimates billing CPUC 3P Guidance (60% of portfolio) + call out for regression v. engineering models embedded evaluation + performance 2016 9 HOPPS proposals - applications of NMEC and regulatory feedback and approval for specific approaches CPUC Ruling – Normalized Metered Energy Consumption

BayREN M&V plan for

CALTRACK 1.0 methods developed in residential home upgrade context

2014

PG&E Whole Building Demo tests models/software

2015

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

(CPUC) M&V Framework for HOPPS

Expect EM&V (approve tests)

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

RECURVE

Policies

VISION: Meter-based savings

& performance drives

Regulatory Foundations

California Legislature: SB 350 AB 802

CPUC: Application 17-01-013

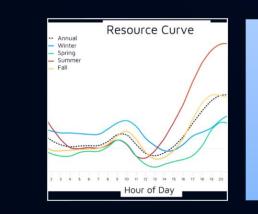
"The energy efficiency savings and demand reduction achieving the targets established pursuant to paragraph (doubling of EE by 2030) shall be measured taking into consideration the **overall reduction** in normalized metered electricity and natural gas consumption where these measurement techniques are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

Meter Your Savings!

Ethan Goldman

Director of Customer Solutions

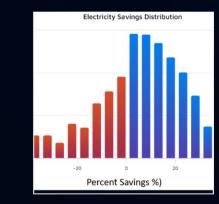
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Visibility

Transparency





Accountability