



# **Utility Data Access: The Utility Role in the Smart Home**

*2019 HPC National Home Performance Conference*

*April 3, 2019*

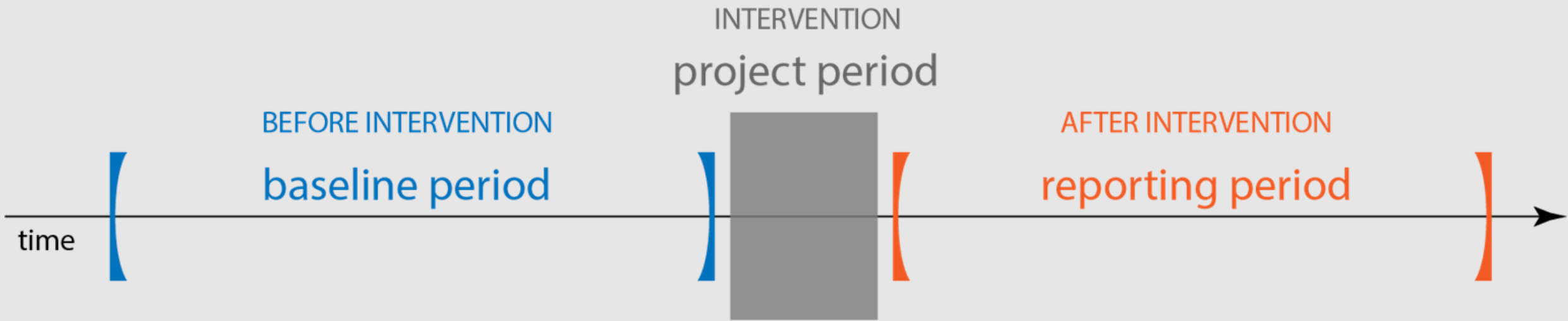


# Open Energy Efficiency

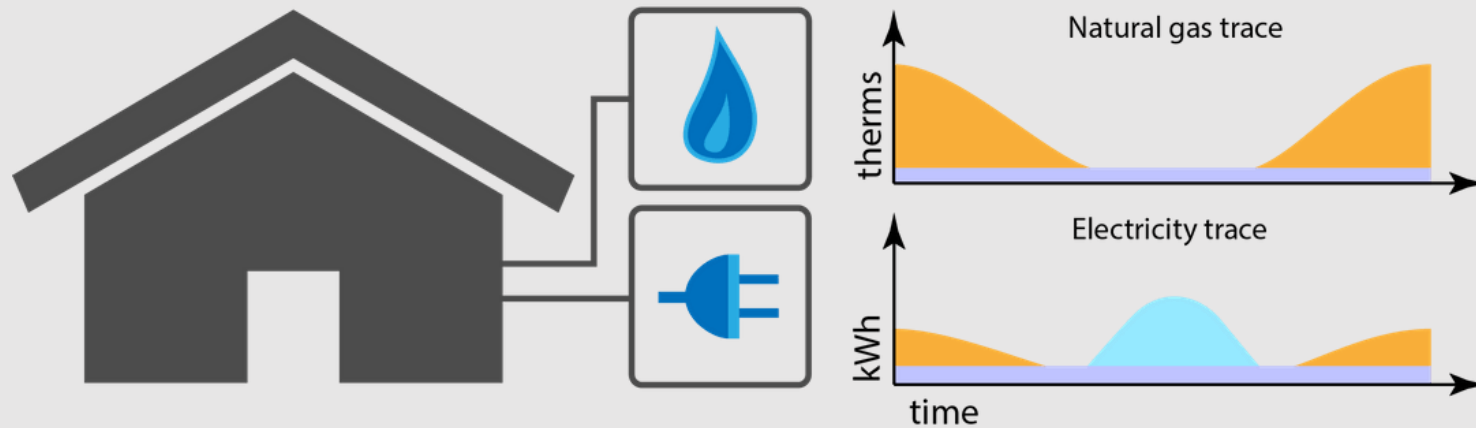
Ethan Goldman, Director of Customer Solutions

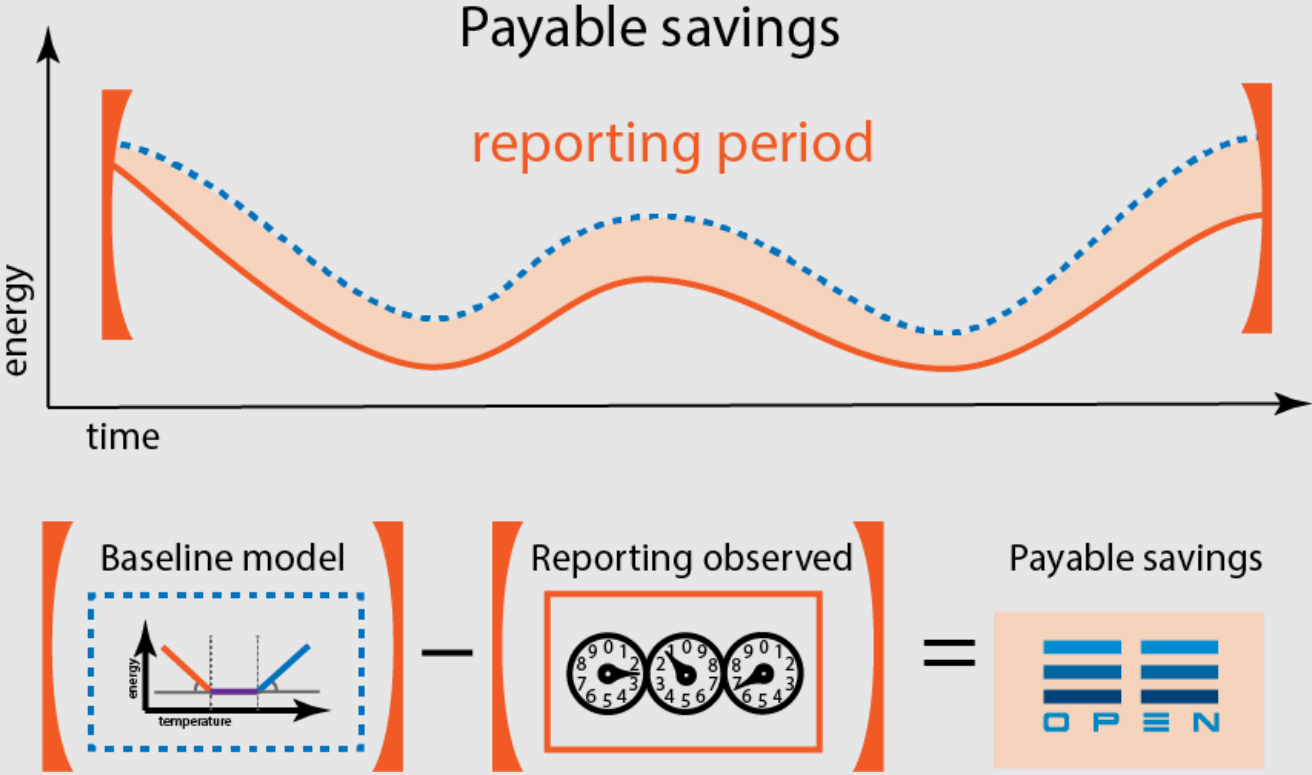
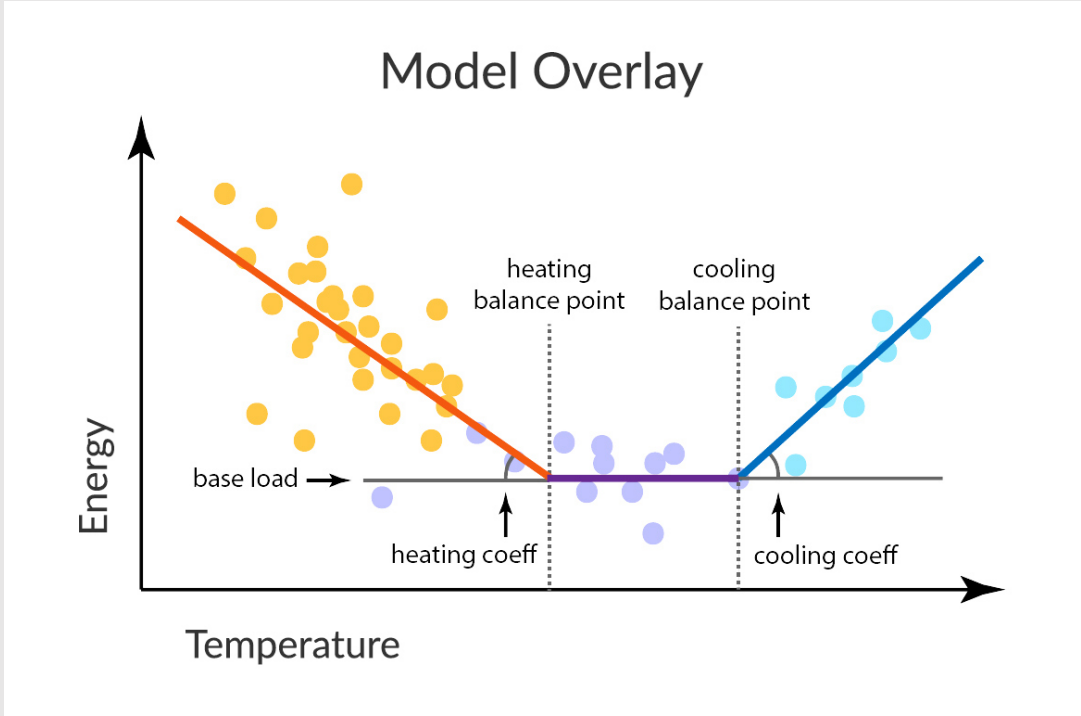
[ethan@openee.io](mailto:ethan@openee.io)

# CalTRACK Savings methodology



Fuels are tracked independently as "traces"

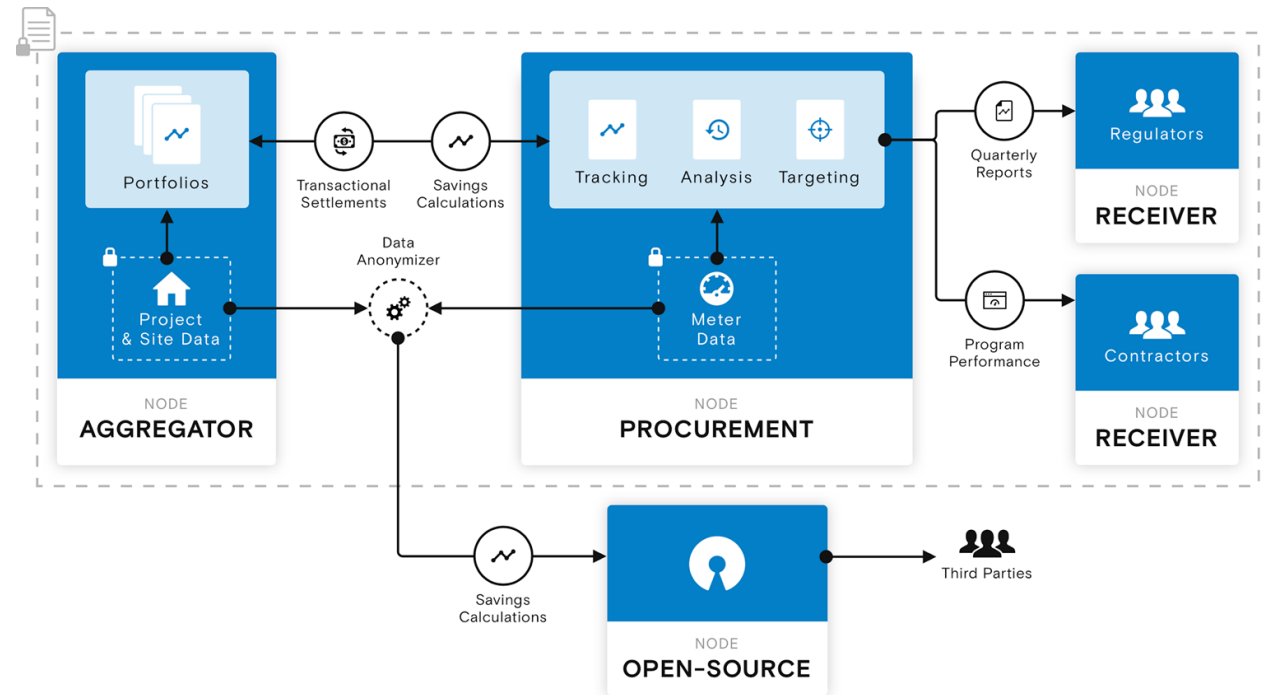






# OpenEE Enterprise Platform

- Program and Procurement System
- Tracking, Targeting, and Analytics
- “OpenEEmeter inside” SaaS
- Data Pipeline (ETL)
- Encryption and Security





# **“Utility Data Access: The Utility Role in the Smart Home”**

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Kara Saul Rinaldi

Vice President of Government Affairs, Policy, and Programs

Home Performance Coalition

# Who is the Home Performance Coalition?

- National research, policy, and conference organization.
- Work with stakeholders to address challenging issues in the residential energy efficiency / home performance industry:
  - Evaluate carbon and energy efficiency policy and recommending methods for utilizing home performance;
  - Seek synergies between weatherization and private sector programs and policies;
  - Support interoperability and reducing program costs through development of national data standards;
  - Work to ensure the value of energy efficient homes is visible in the real estate transaction;
  - Find intersections between smart grid and device technologies and home performance;
  - Reforming cost-effectiveness screening practices; and
  - Educate policymakers, advocating for legislation and regulations that reduce residential energy consumption.

# What is at Stake?

- What is the data that we are discussing and what can it tell about you?
- Energy User Data
  - Directly from the meter, in intervals, energy usage signatures and patterns.
- Beneficial Use?
- Malicious Use?
- Costs/Privacy Concern – Benefits/Convenience





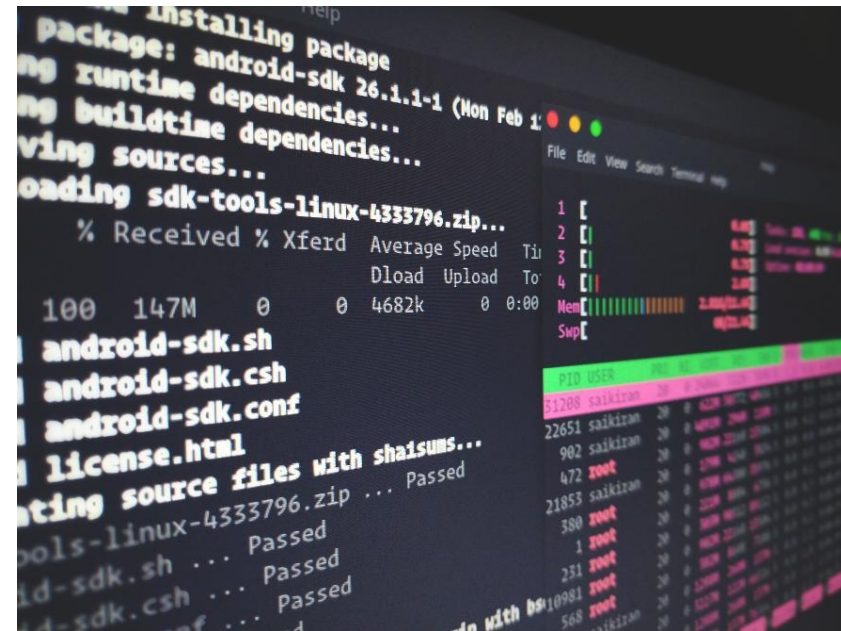
# The home is a part of the grid...



Image credit: Unsplash\_Jens Kreuter, Unsplash\_Naomi Hebert, LG, Philips, Nest, Washington Post

# Whose Data Is it?

- The Customer or The Utility?
- Nations Ahead of the US:
  - Australia, Europe, Switzerland
- Industries Ahead of Energy:
  - Financial Services
  - Healthcare



**Not IF the data should  
be portable but HOW it  
should be portable?**



# Redefining Home Performance in the 21st Century

How the Smart Home Could Revolutionize the Industry and Transform the Home-to-Grid Connection

By: Kara Saul Rinaldi and Elizabeth Bunnan

October 2018



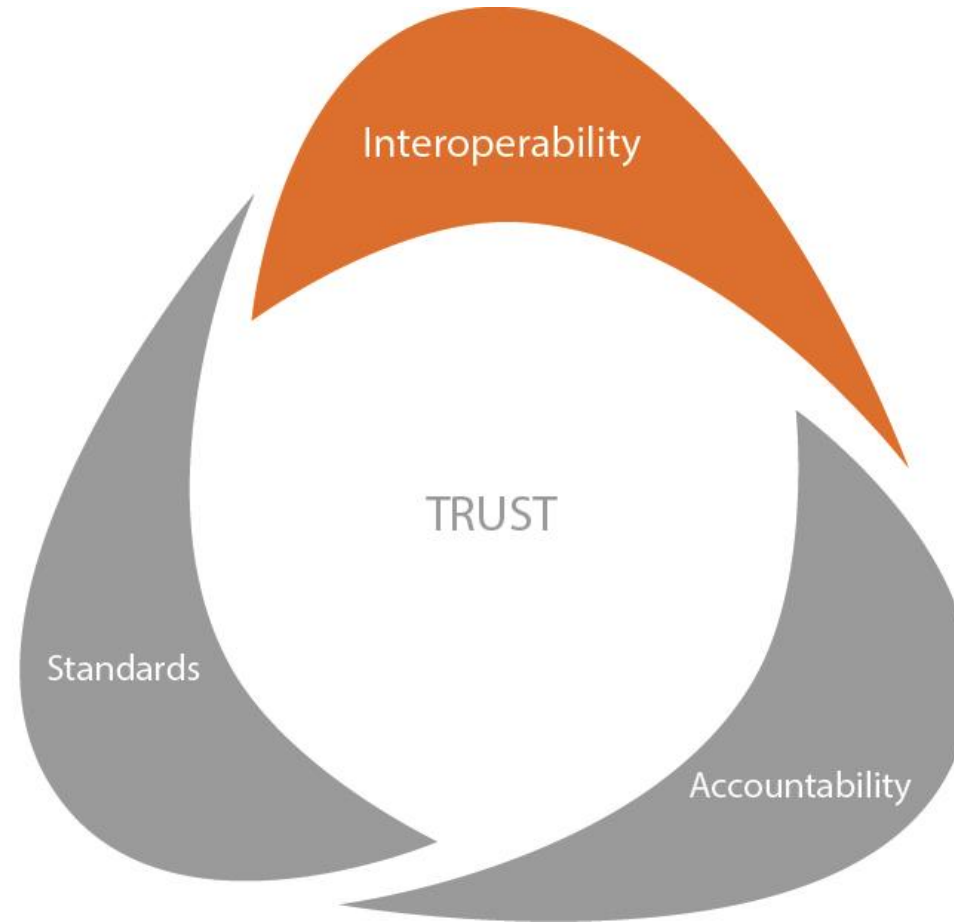
[http://www.homeperformance.org/sites/default/files/HPC\\_Smart-Home-Report\\_201810.pdf](http://www.homeperformance.org/sites/default/files/HPC_Smart-Home-Report_201810.pdf)

## Full Disclosure: Recommendation #5

### Improve Data Access Policies and Increase Data Sharing



# Standards - Interoperability – Accountability





# Data as a Commodity

- Selling Energy (Utility)
- Selling Data (Customer/Utility)
- Ensure User Experience
- 3<sup>rd</sup> Party Access – security, reliable, efficient



# Policy to Advance Utility Data Access



Image credit: Unsplash\_Andy-Feliciotti

- Access to Consumer Energy Information Act or the E-Access Act (114<sup>th</sup> – HR1980/S.1044)
- Open Standards for Utility Transfer
- Green Button and Green Button Connect My Data
- HPXML



## SNAPSHOT OF ENERGY DATA SHARING POLICIES

(as of late 2017)

### CALIFORNIA

11.5 MILLION ELECTRIC METERS

2013: CPUC approves applications for GBC implementation at investor-owned utilities (D.13-09-025)

2017: CPUC approves resolution on the "click-through" process to streamline the customer authorization process (Resolution E-4868)

### COLORADO

1.5 MILLION ELECTRIC METERS  
(XCEL ENERGY)

2017: PUC approves settlement agreement for deployment of advanced meters with GBC to go live in 2020 (16A-0588E)

### HAWAII

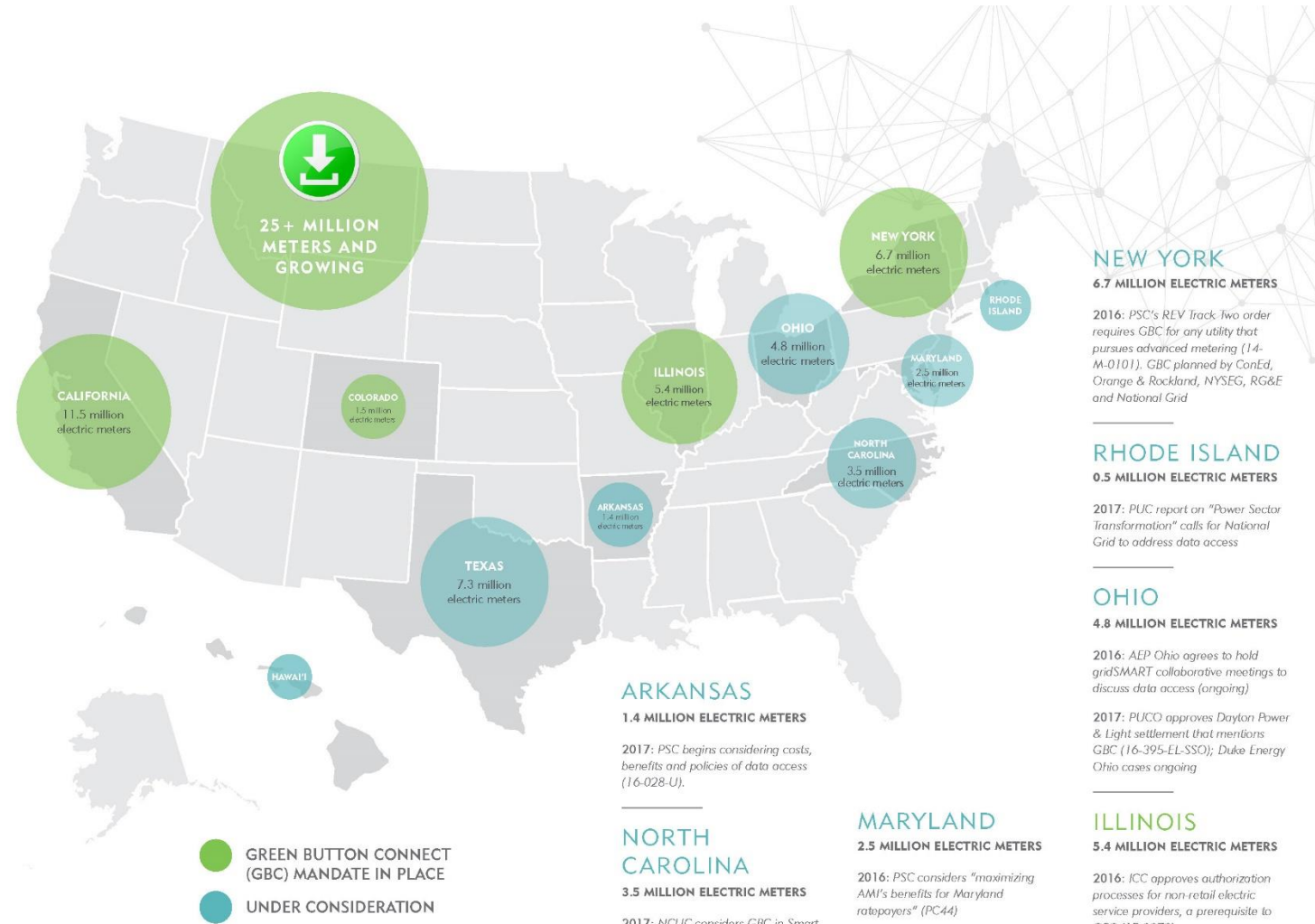
0.4 MILLION ELECTRIC METERS

2017: PUC requires grid modernization plan to address "data access and privacy"; in response, HECO's plan hints at GBC for "customer authorized third parties" (2016-0087)

### TEXAS

7.3 MILLION ELECTRIC METERS  
(ERCOT REGION)

2015-2017: PUCT considers changes to Smart Meter Texas (SMT) to adhere to the GBC standard (46204, 46206, 47472)



### NEW YORK

6.7 MILLION ELECTRIC METERS

2016: PSC's REV Track Two order requires GBC for any utility that pursues advanced metering (14-M-0101). GBC planned by ConEd, Orange & Rockland, NYSEG, RG&E and National Grid

### RHODE ISLAND

0.5 MILLION ELECTRIC METERS

2017: PUC report on "Power Sector Transformation" calls for National Grid to address data access

### OHIO

4.8 MILLION ELECTRIC METERS

2016: AEP Ohio agrees to hold gridSMART collaborative meetings to discuss data access (ongoing)

2017: PUCO approves Dayton Power & Light settlement that mentions GBC (16-395-EL-SSO); Duke Energy Ohio cases ongoing

### ARKANSAS

1.4 MILLION ELECTRIC METERS

2017: PSC begins considering costs, benefits and policies of data access (16-028-U).

### NORTH CAROLINA

3.5 MILLION ELECTRIC METERS

2017: NCUC considers GBC in Smart Grid Technology Plans, saying data access is "essential" but declines to open a rulemaking process (E-100, Sub 147). Duke Energy rate cases underway.

### MARYLAND

2.5 MILLION ELECTRIC METERS

2016: PSC considers "maximizing AMI's benefits to consumers; declares that customer data "belongs to the customer"; draft rules call for GBC implementation (PC44)

2017: PSC cites the benefits of new technologies to consumers; declares that customer data "belongs to the customer"; draft rules call for GBC implementation (PC44)

### ILLINOIS

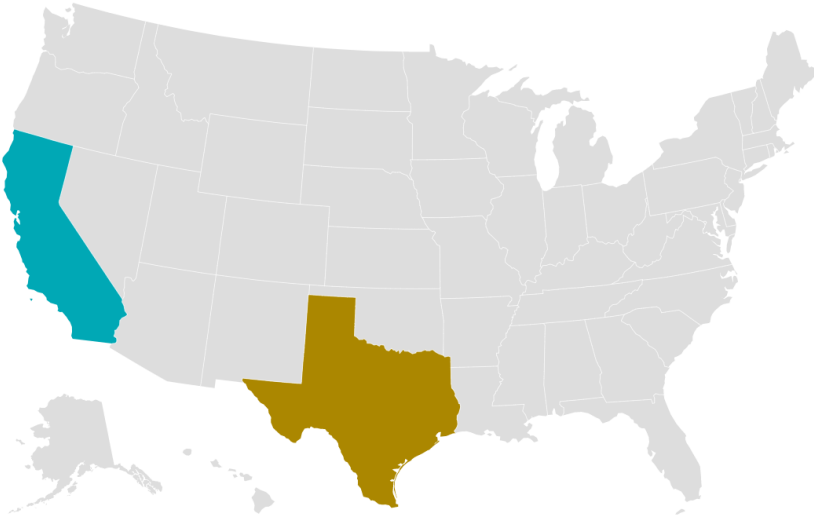
5.4 MILLION ELECTRIC METERS

2016: ICC approves authorization processes for non-retail electric service providers, a prerequisite to GBC (15-0073)

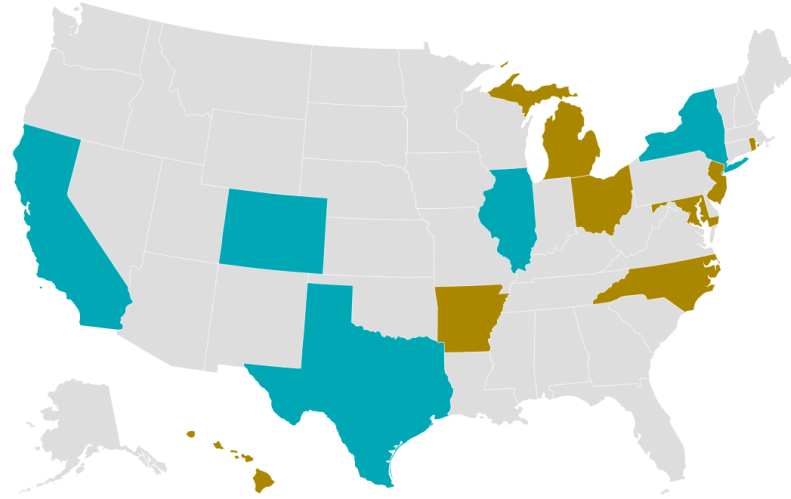
2017: ICC approves Open Data Access Framework in which Ameren Illinois and ComEd agree to implement GBC (14-0507)

## Data Access Policies Are Expanding

# 2014



# 2018



## Data access policy in place



## Under consideration



# 36+ million meters and growing...

Source: Michael Murray, Mission Data <http://www.missiondata.io>



**Thank you!**

**Kara Saul Rinaldi**

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# Utility Data Access

The Utility Role in the Smart Home

April 3, 2019

**nationalgrid**



# National Grid

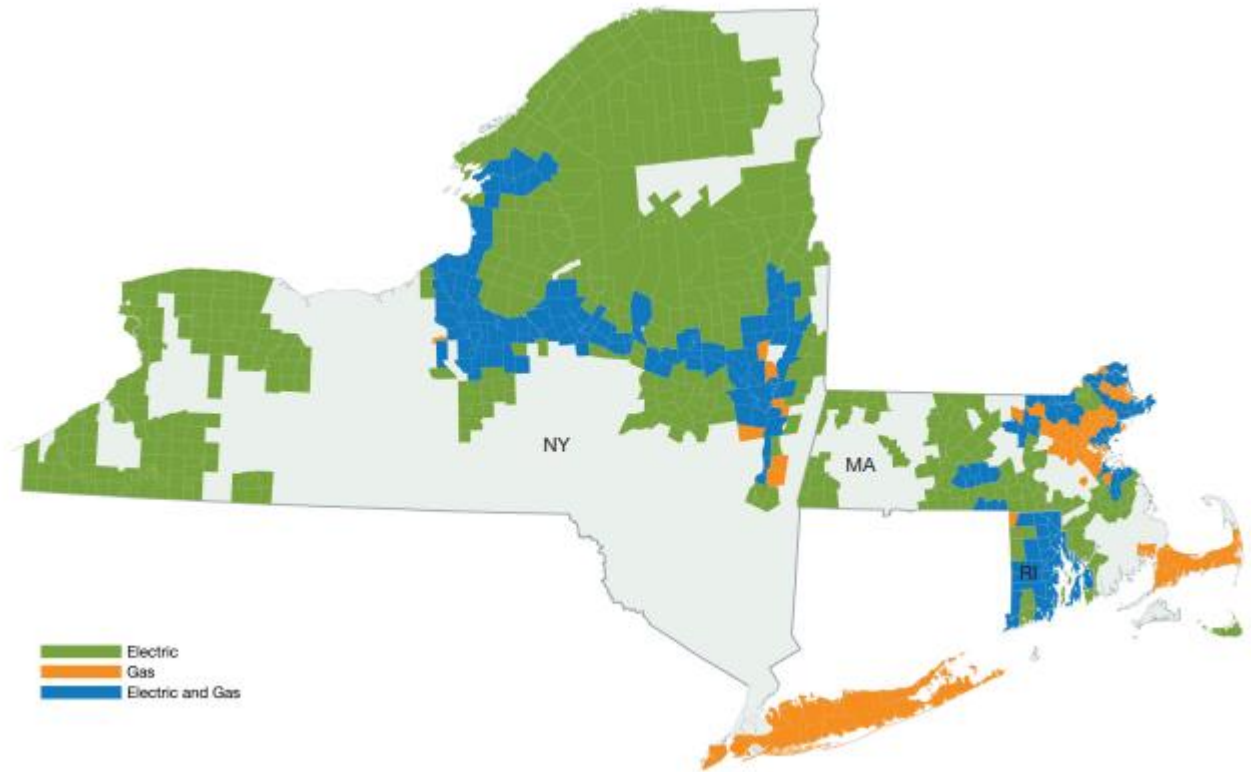
## Electricity & Gas

### Massachusetts, Rhode Island, New York

- 7 million accounts, ~20 million people
- 72,000 miles of electrical distribution wires
- 22,000 miles of natural gas distribution

## US + Europe

- 9,000 miles of electrical transmission wires



# Data Collection

## Meter Data for Billing (meter to cash)

Monthly readings, ~7 million monthly data points (84 million annually)

## Smart Meter Data for Billing

15 minute readings, ~245 billion annual readings

## In-home Device Readings for Grid Optimization

Every Minute, multiple appliances, ~?? petabytes of annual information





# Data Access

Utility interests

Equal access

Regulatory concerns

Socialized cost

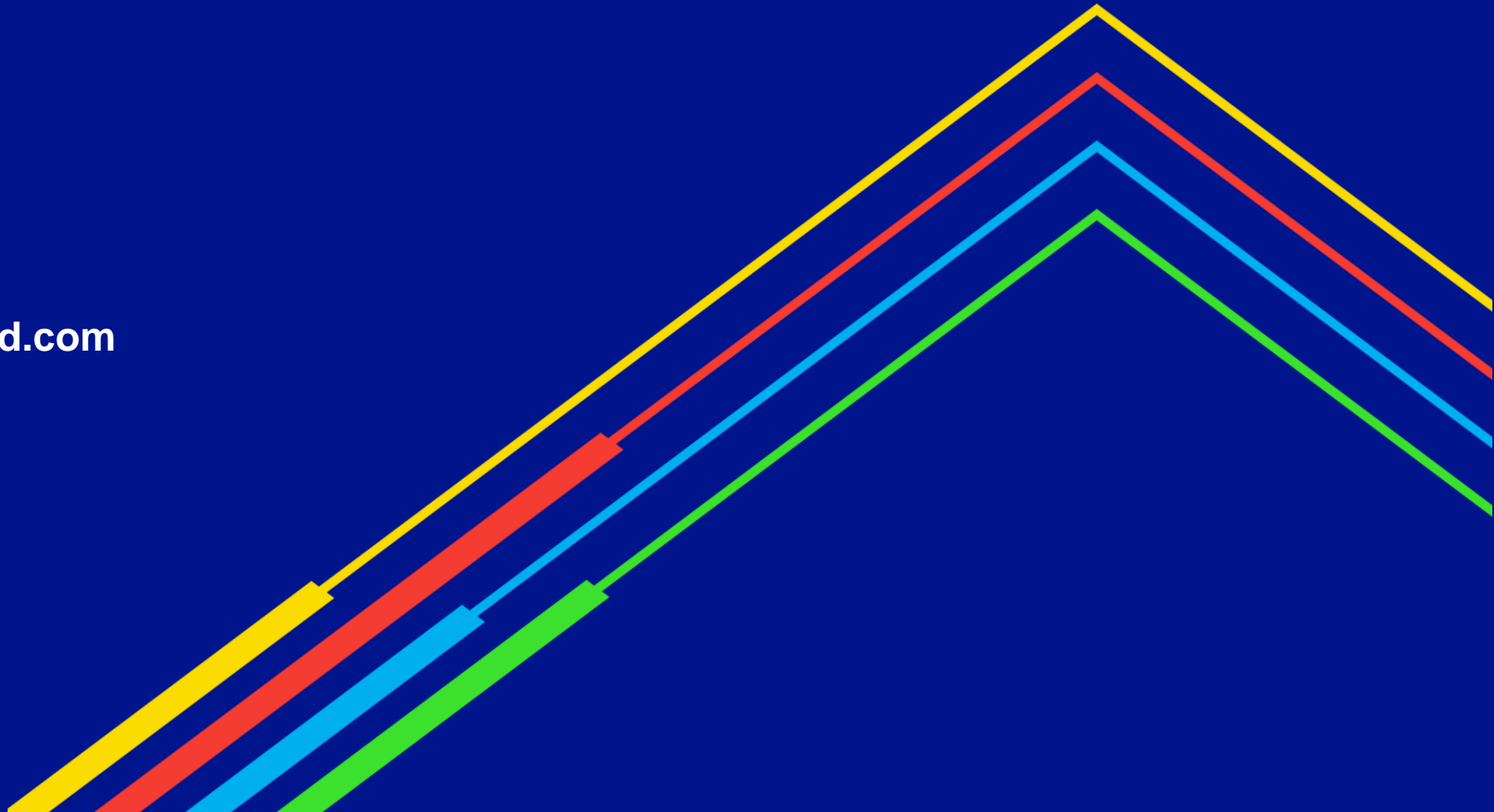
Privacy & Security

New business models/value creation



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The intersection of consumer  
products and utility data



# Sense

## Smart-home energy monitor on the market since 2016

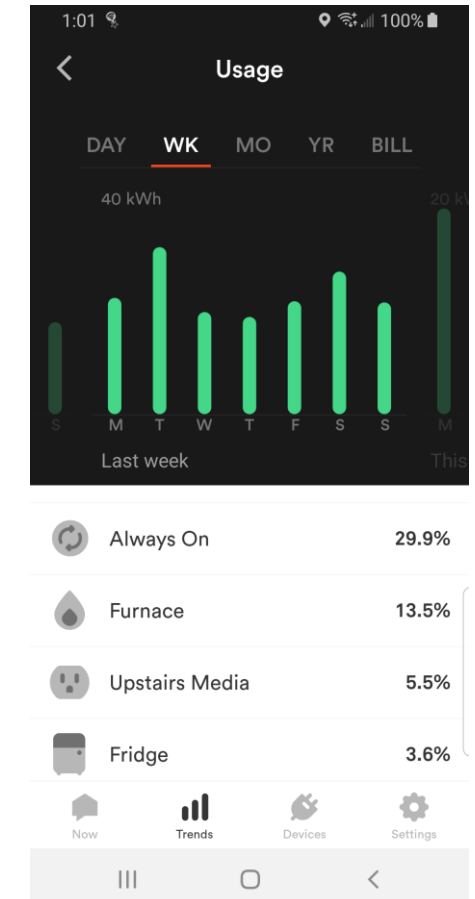
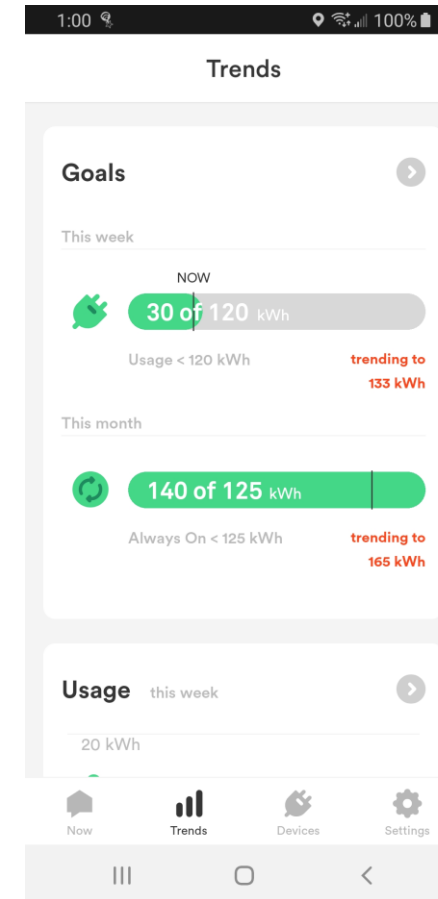


Saving consumers money/energy

Raising awareness of home activity

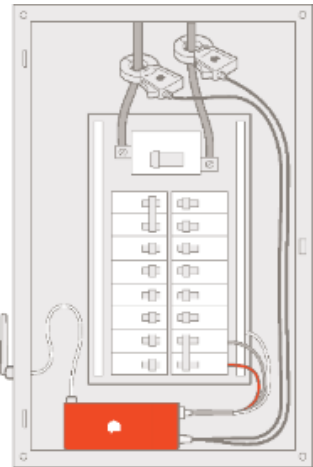
Very high levels of consumer engagement

Real-time, granular measurement of electric usage, solar production, and efficiency for programs and utilities

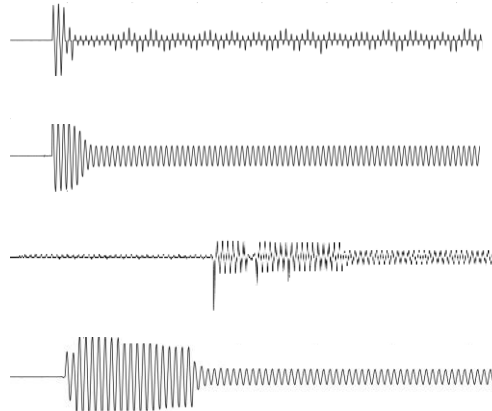


# How does Sense work today?

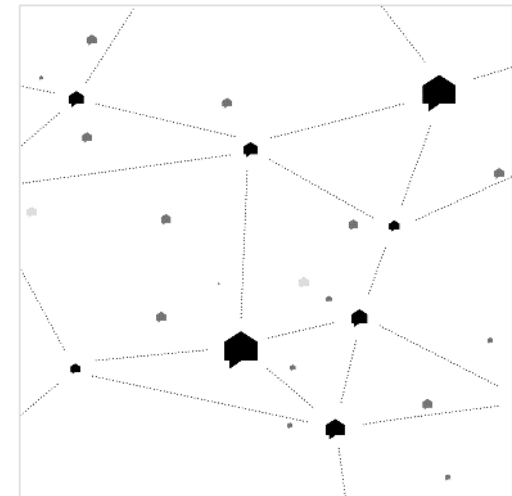
## HIGH-RESOLUTION METERING



## MACHINE LEARNING

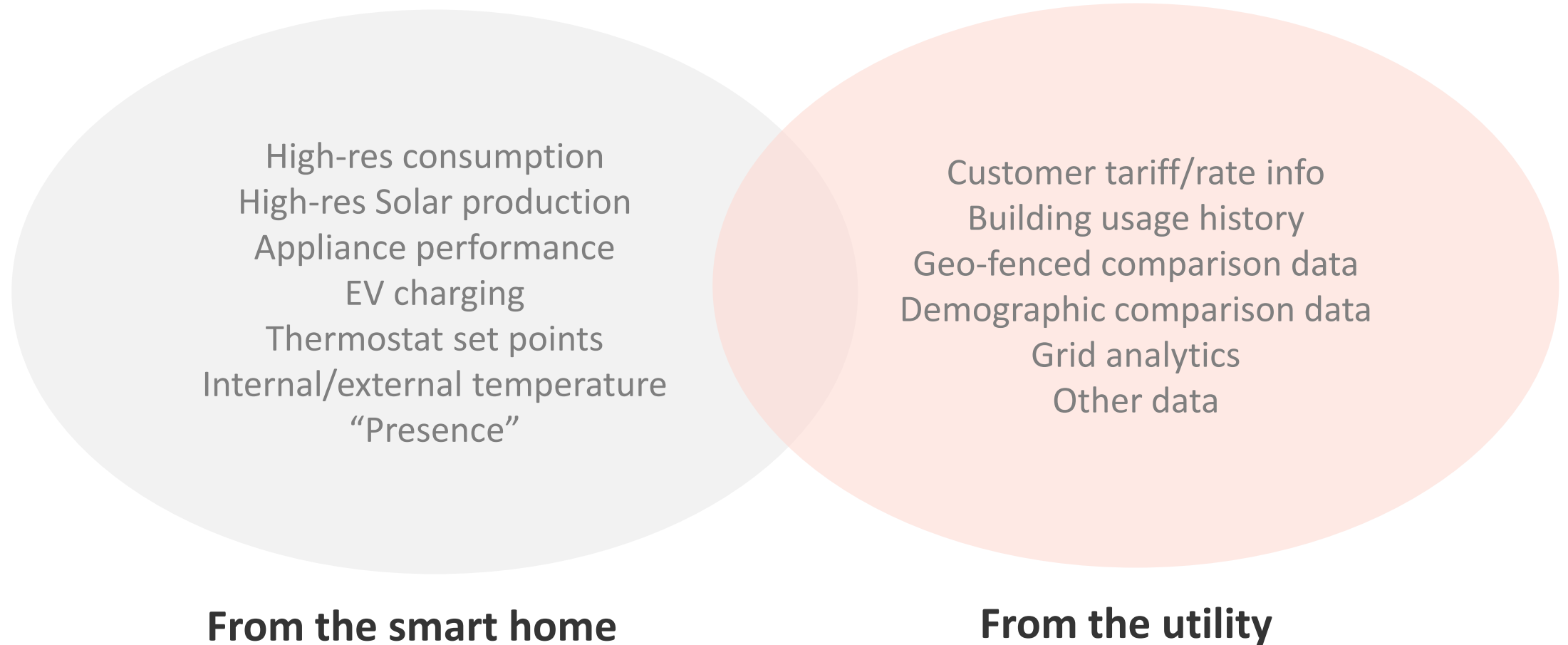


## NETWORK EFFECT



# The intersection of data

Useful to consumers, utilities, and researchers



# Data from the user's perspective

Value

Transparency

Protection of data

How and why will it be shared?

Right to be forgotten

