

ORACLE

# Workshop for the Energy Management Action Network

*Applying technology to demand-side policy*

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# Technology is the key to unlocking underutilized demand side resources



## A broad view of technology...

Technology is more than structural improvements like batteries or heat pumps.



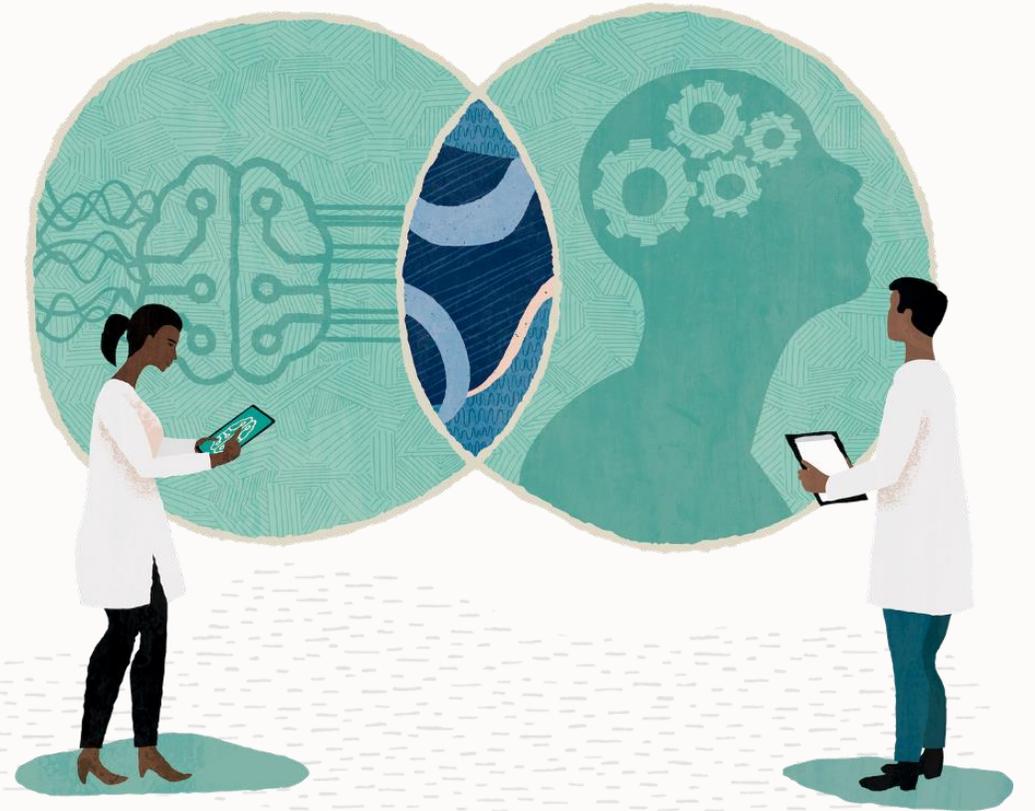
## Applied to existing resources...

High-impact organizations like retail suppliers have a wealth of data that can benefit from new tools.

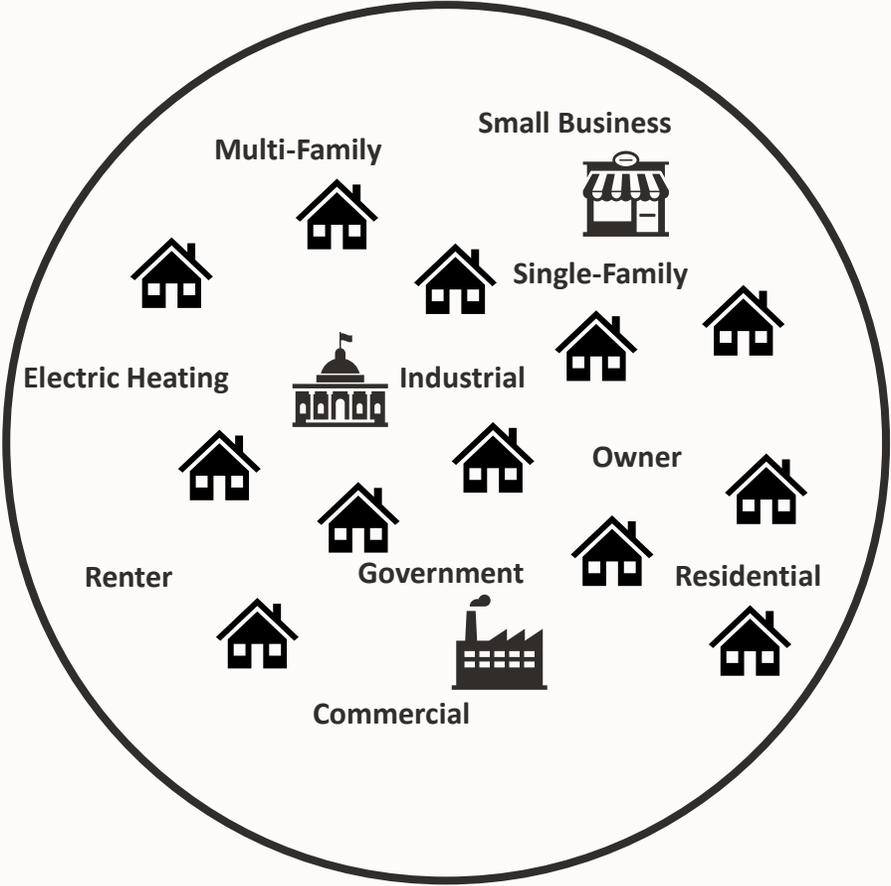


## Can drive meaningful change.

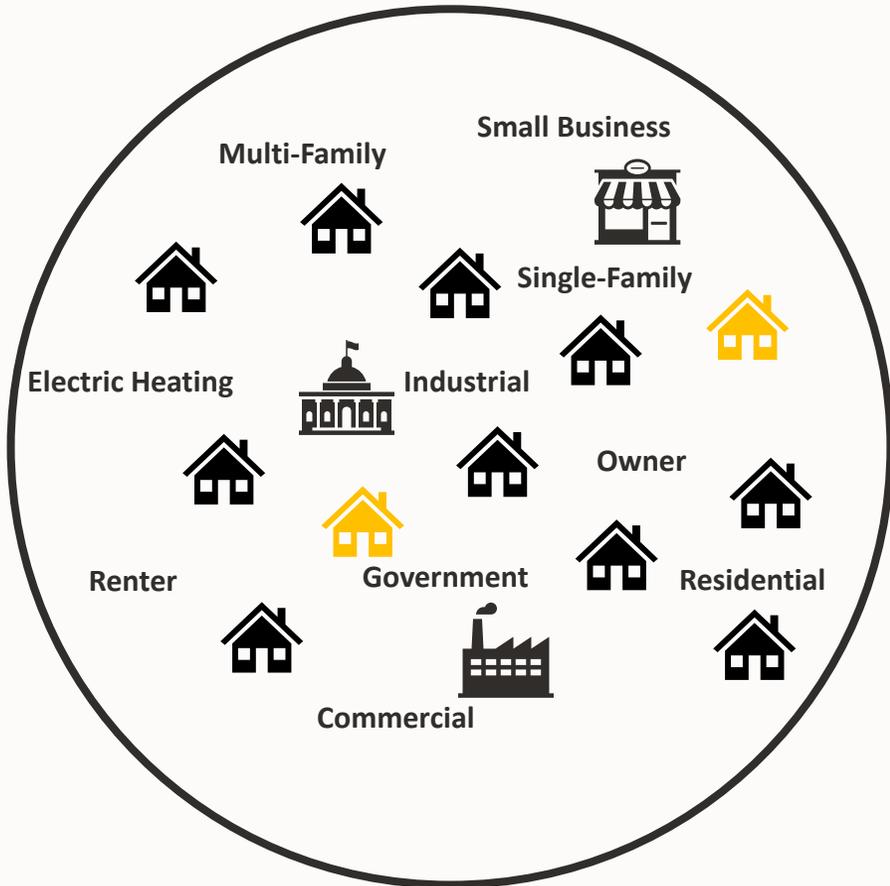
Technology, when paired thoughtfully with behavioral science, can measurably change behavior.



# Energy consumers are a complex, but underutilized, resource



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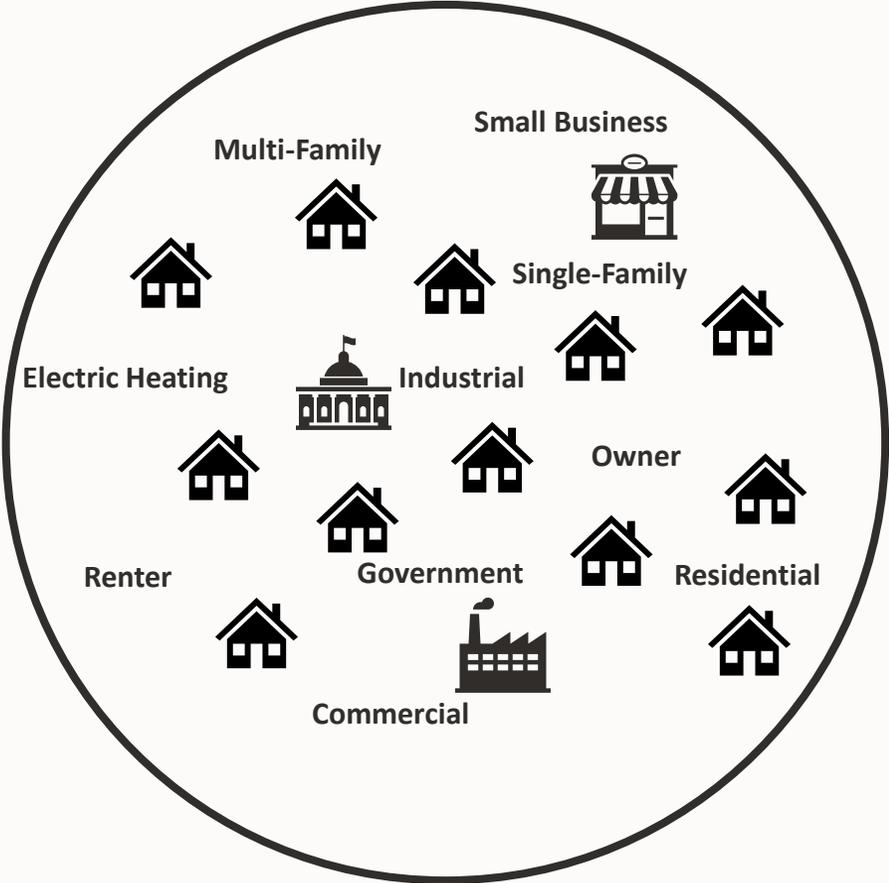


## Utility Demand-Side Management Today

- 1 Demand side programs often reach only the most engaged energy users.
- 2 Less engaged energy users deserve the benefits of technology - and can benefit the grid.
- 3 Technology makes it possible to increase adoption of current programs *and* change energy usage habits for every energy user.



# Personalization is the key to driving measurable changes in energy behavior



## Available Tools

End Use Disaggregation

Applied Behavioral Science

Multivariate Recommendation Engines

Personalized Cost Calculators



# Personalization is the key to driving measurable changes in energy behavior

## Available Tools

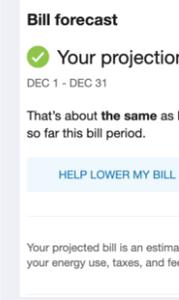
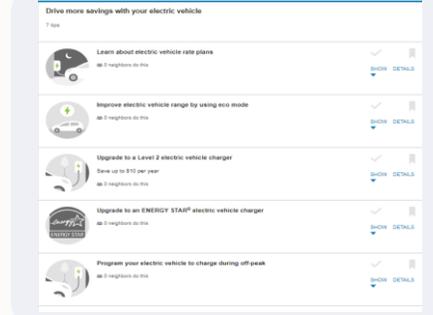
End Use Disaggregation

Applied Behavioral Science

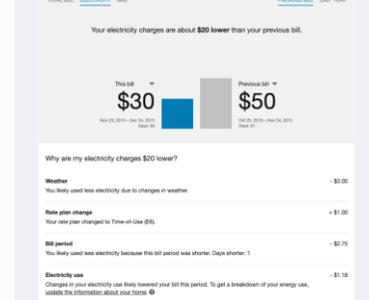
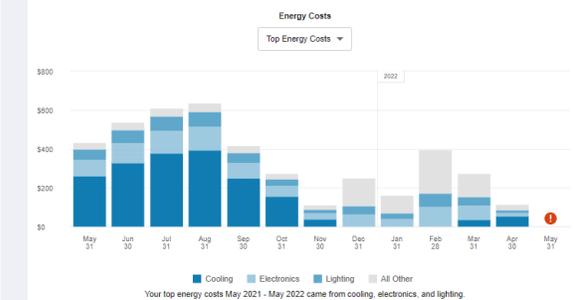
Multivariate Recommendation Engines

Personalized Cost Calculators

**Single Family Homeowner**  
With an electric vehicle



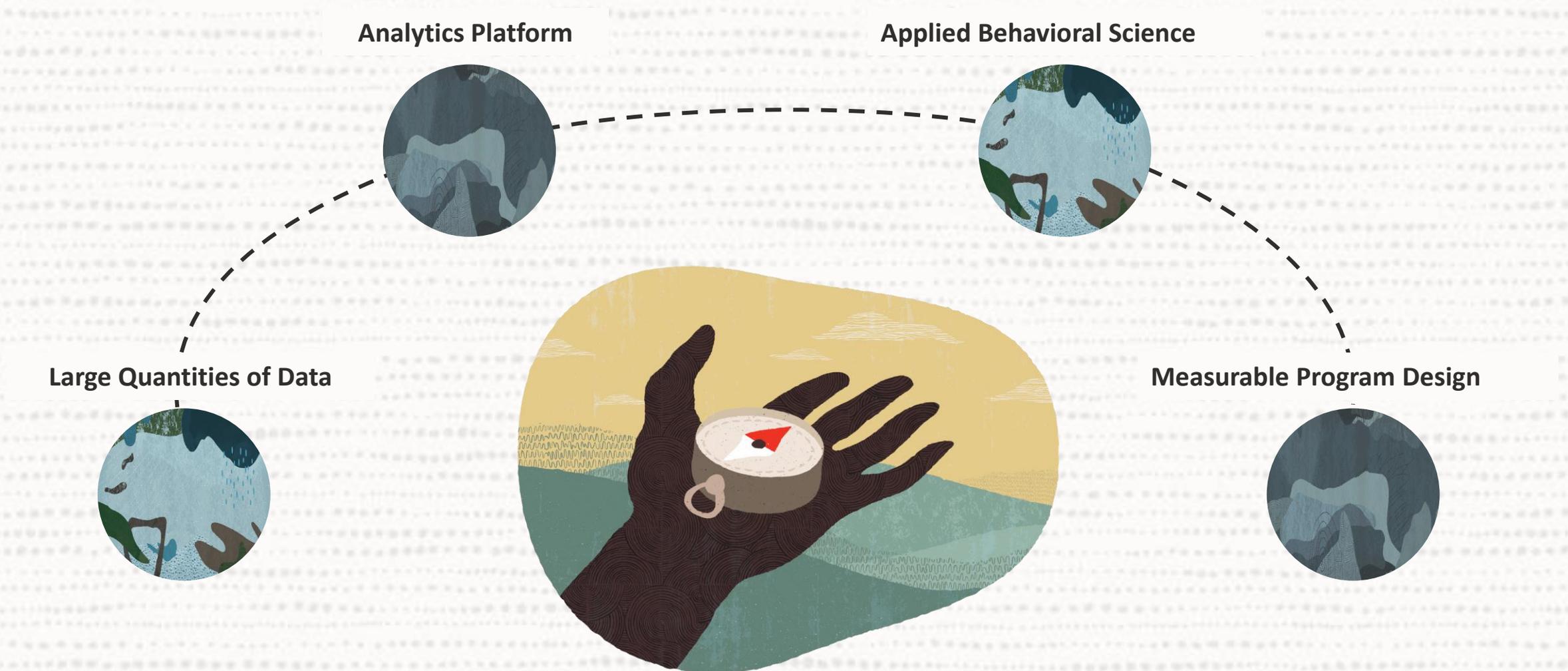
**Limited Income Renter**  
Who isn't very engaged digitally



... And the same personalization for every energy user



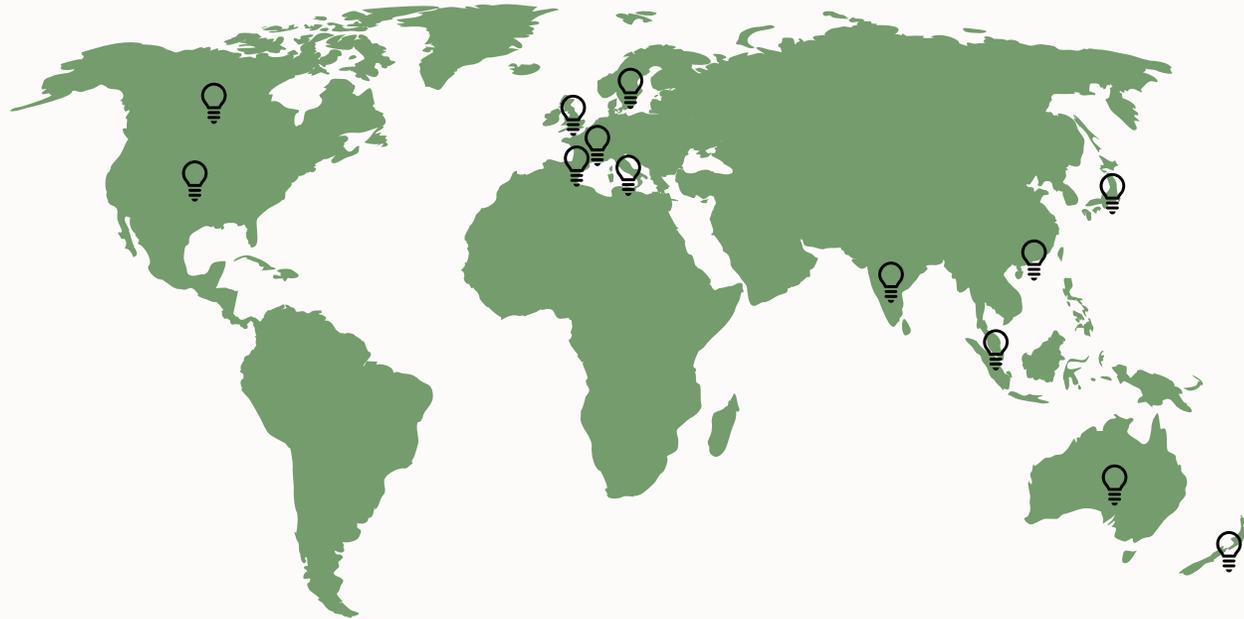
# There is a proven formula for driving demand side behavioral change



# Opower has helped utilities and governments meet demand-side goals



- Canada
- USA
- France
- Spain
- Italy
- Sweden
- United Kingdom

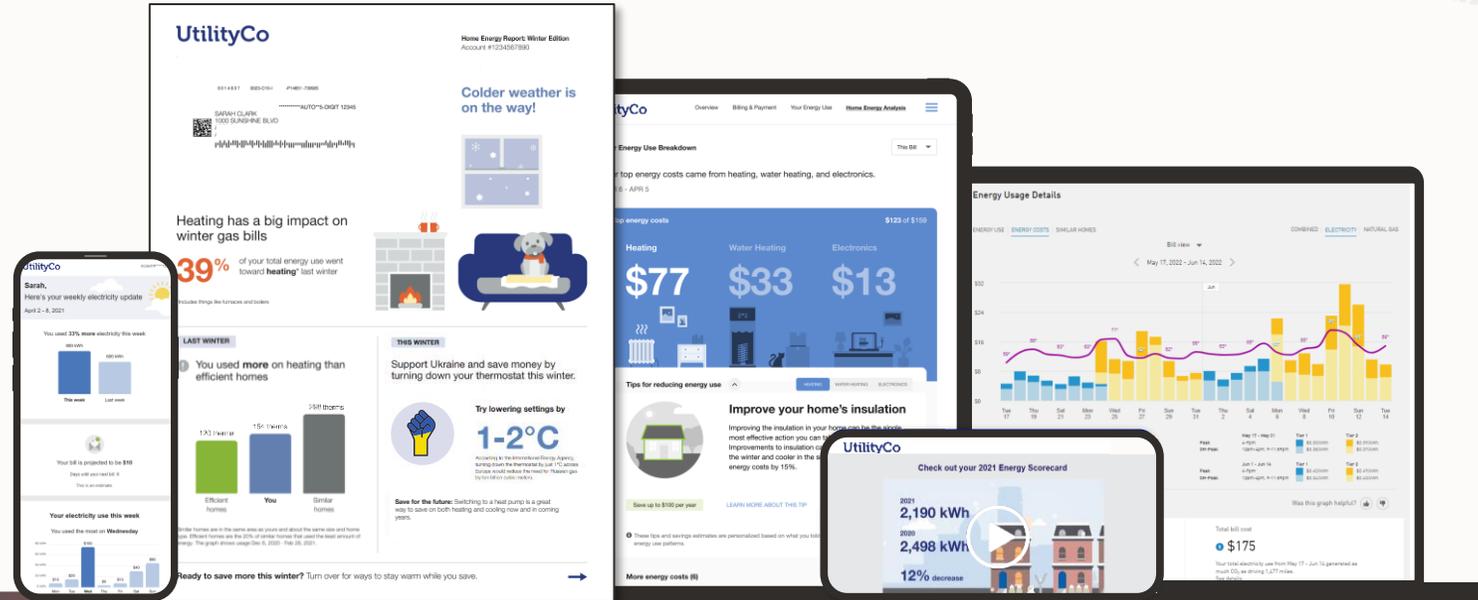


- India
- Japan
- Hong Kong
- Malaysia
- New Zealand
- Australia

Since 2007, Opower has served 175+ utilities in 12 different countries



# Opower has helped utilities and governments meet demand-side goals



>36TWh

Saved with Behavioral Energy Efficiency

418MW

Lower Peak Demand Capacity Resource

up to 5X

Faster Product & Program Adoption

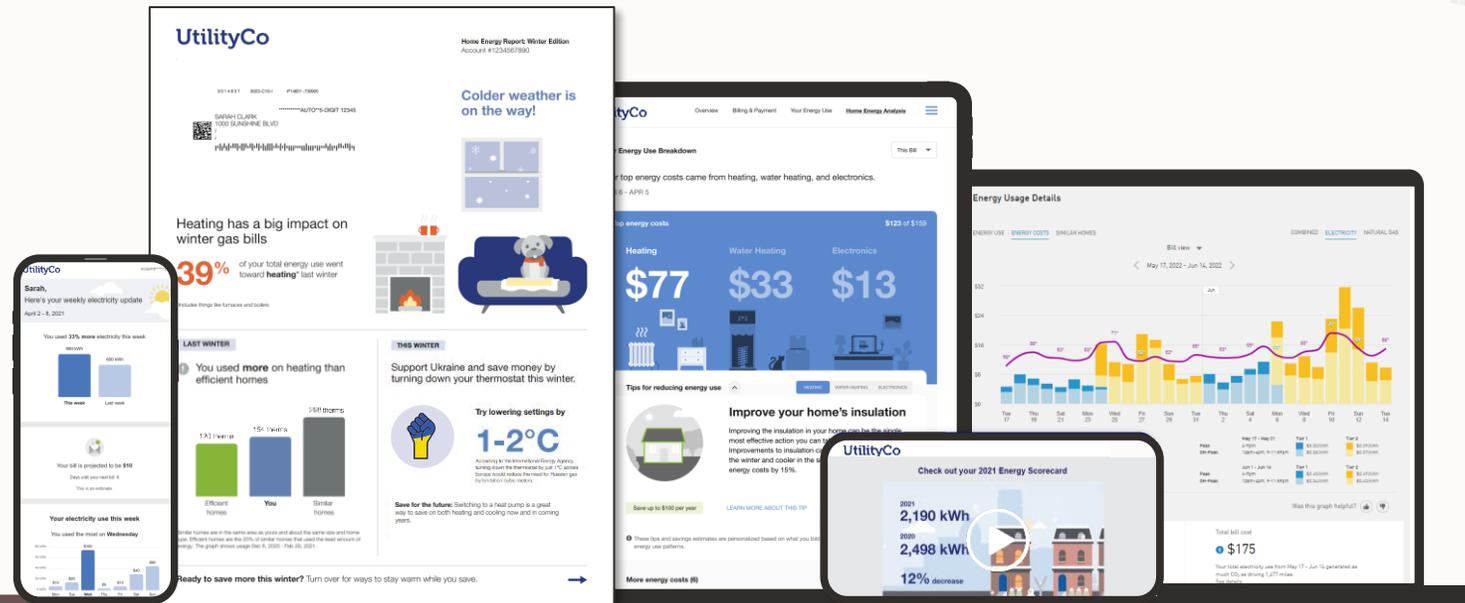
+\$2.7B

Customer Bill Savings

up to 95%

Satisfied Customers

# Opower has helped utilities and governments meet demand-side goals



Change energy usage habits for every energy user...

>36<sup>TWh</sup>

Saved with Behavioral Energy Efficiency

418<sup>MW</sup>

Lower Peak Demand Capacity Resource

Increase adoption of current programs...

up to 5<sup>X</sup>

Faster Product & Program Adoption

# Thoughtfully applied technology is not limited by borders

Opower worked with the Japanese Ministry of the Environment and retailers on an energy-efficiency focused program

Opower's solutions prevented the emission of  
**>100,000 tons**  
of CO2 during that time

**>2%**  
Average energy efficiency savings per  
household across Japan

**5 retailers**

Provided data for a program funded by the  
Ministry of the Environment



# But for technology to succeed, policy must create a nurturing environment

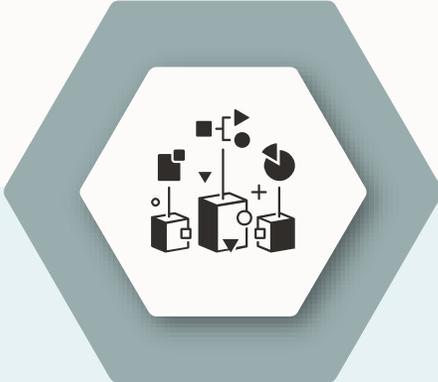
**Align Stakeholder Goals**



**Encourage Measurements & Rewards**



**Support Scalability**



# But for technology to succeed, policy must create a nurturing environment

## Align Stakeholder Goals



Retail utilities have household level relationships.

T&D utilities benefit from demand-side programs.

Governments can bridge the gap.

## Encourage Measurements & Rewards



Scalable demand-side programs often lack measurement mechanisms.

Randomized control trials are one way to accurately measure impact.

## Support Scalability



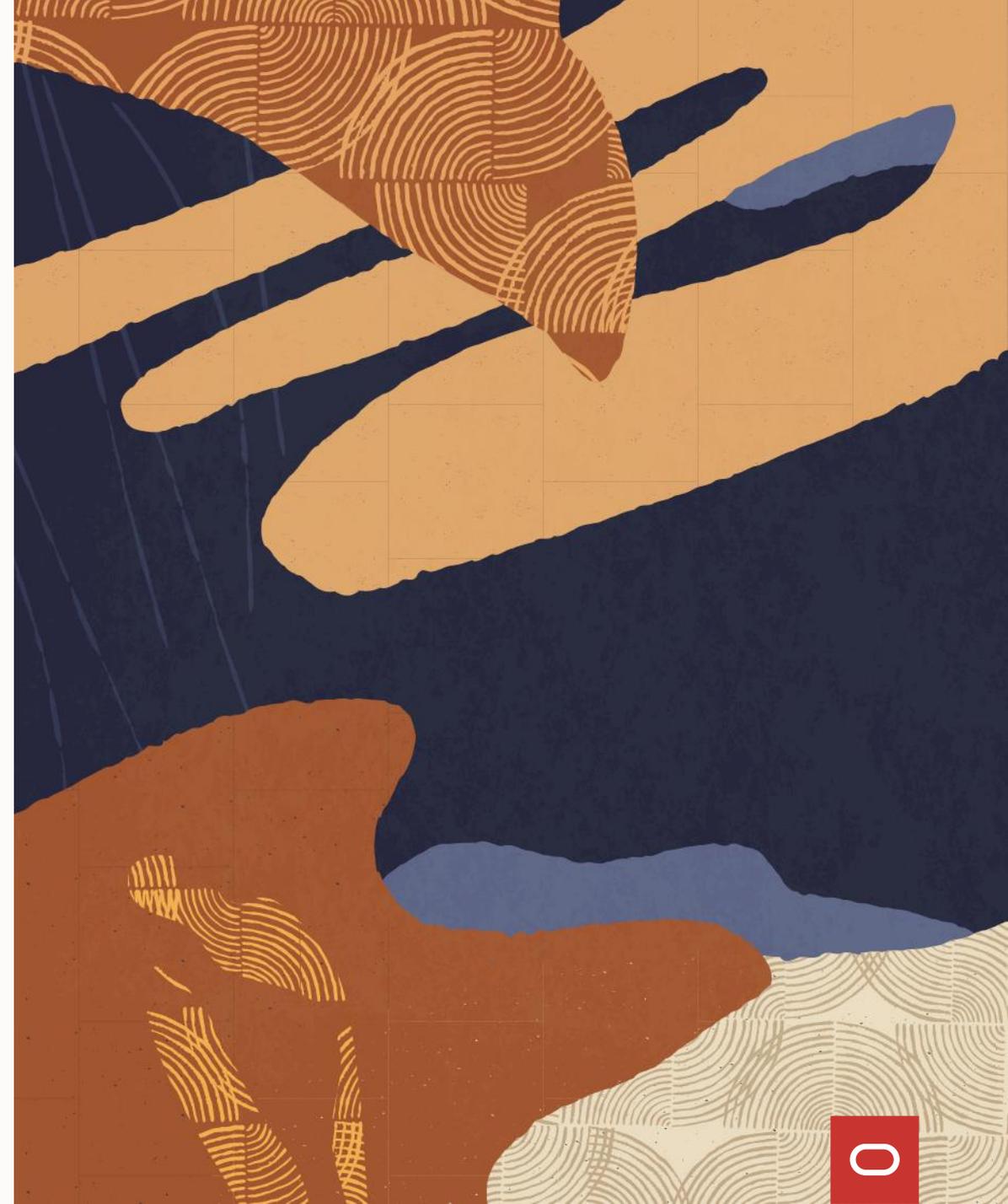
Digital programs increase reach and impact.

Opt-out programs (or clever opt-in design) serve even the least-engaged customers.



# Thank You

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# Appendix

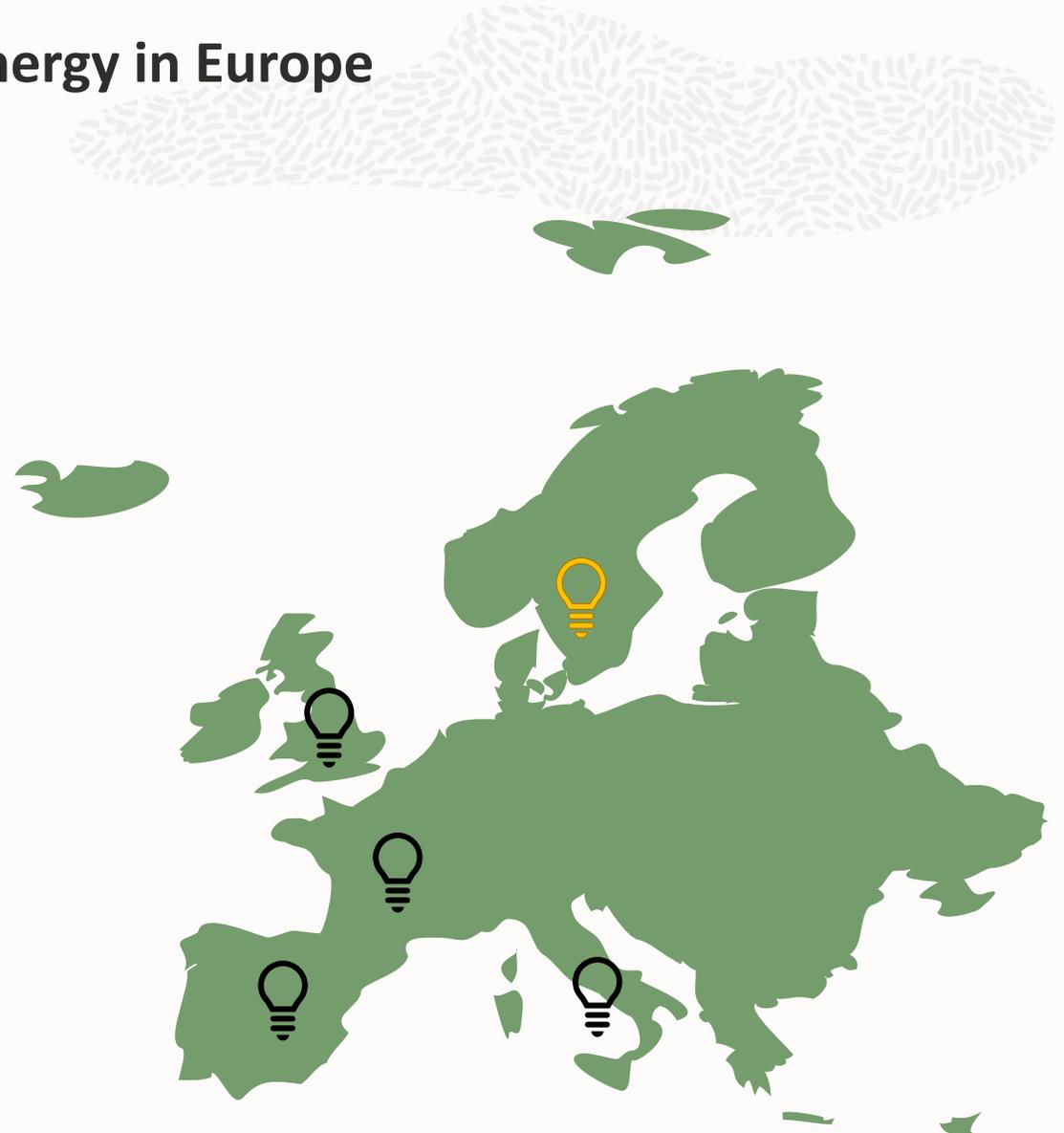
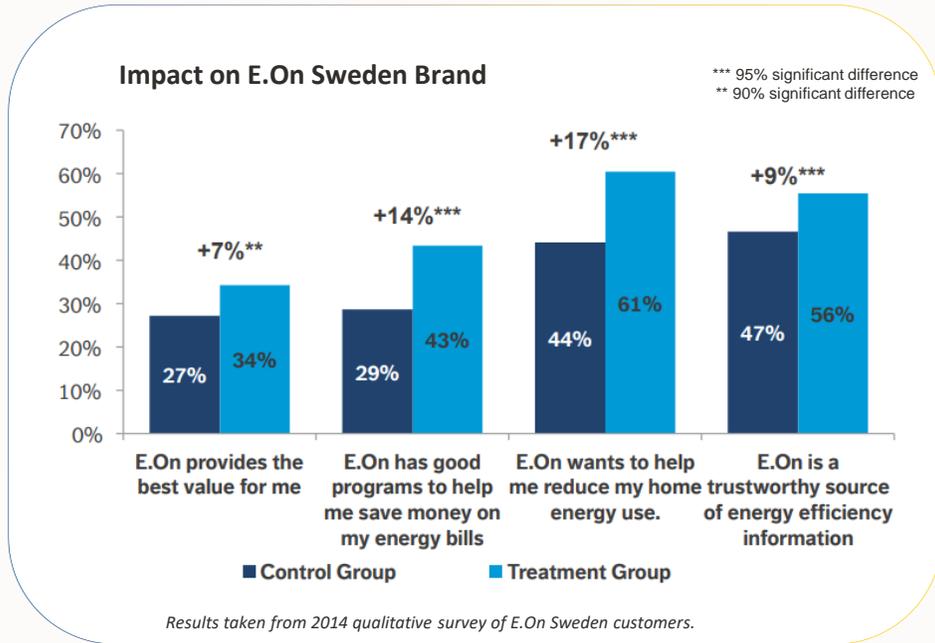


# Opower has a wealth of experience saving energy in Europe

Case Study: E.On Sweden

Program Length	Opower Efficiency Solutions	Electric Savings Rate	Total Electric Savings
2013-2014	<ul style="list-style-type: none"> <li>• HER – Print and Email</li> <li>• Web Portal</li> </ul>	1.12%	12.8 GWH

## Customer Satisfaction Surveys



# A New Model: Opower & MoE approach to Japanese Energy Crisis

Program design



- 2017-2021 programme
- 300,000 households
- Five retailers participated
- Behavioral energy efficiency Home Energy Reports



Funding structure



- Ministry of Energy (MoE) provided funding
- Individual retailers shared data
- Opower delivered home energy report program via retailer



Program results



- 2% average energy efficiency saving
- 2.8% max savings
- 47,000 tons of CO2

