

# Opower: Sustainable & scalable behavioral savings

27 November 2012



# Opower at a glance



**75 Utilities**



**50 MM Homes**



**270 Employees**



**2.3 GWh**



**Program  
marketing**



**Customer  
sentiment**

# How we started: Home Energy Report



An Exelon Company

### Home electricity report

Account number: 1234567890  
Report period: 04/10/09 - 05/08/09

We are pleased to provide this personalized report to you as part of a pilot program. The purpose of the report is to:

**Provide information** This report is an educational tool to help you understand your home's electricity use in the context of other homes.

**Track progress** We will help you learn about how your home's usage changes over time and where you likely have opportunities to save.

**Share energy efficiency tips** On the back of the report, we provide ideas for saving energy and money. You can find more tips at [www.ComEd.com/energyreport](http://www.ComEd.com/energyreport)

JOHN DOE

#### Last Month Neighbor Comparison

You used **48% more** than your efficient neighbors.

EFFICIENT NEIGHBORS	707 kWh*
<b>YOU</b>	1,049
NEIGHBORS	1,333

\* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

**HOW YOU'RE DOING:**

GREAT 😊

**GOOD 😊**

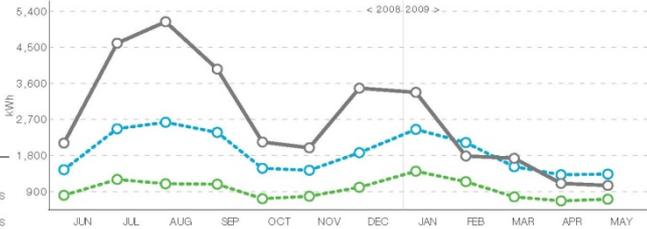
MORE THAN AVERAGE

**WHO ARE YOUR "NEIGHBORS"?**

- ALL NEIGHBORS: Approximately 60 occupied, nearby homes that are similar in size to yours (avg 5,379 sq ft)
- EFFICIENT NEIGHBORS: The most efficient 20 percent from the "All Neighbors" group

#### Last 12 Months Neighbor Comparison

You used **45% more** electricity than your neighbors. This costs you about **\$1,029 extra** per year.



Key: ■ YOU (solid line), ■ ALL NEIGHBORS (dashed line), ■ EFFICIENT NEIGHBORS (dotted line)

Personalized Action Steps

- Set your thermostat for comfort and savings
- Choose efficient light bulbs
- Look for the ENERGY STAR® label

**TURN OVER TO LEARN MORE** ➔

#### Neighbor Efficiency Rank

Your energy efficiency rank out of 100 neighbors:

More Efficient



**Your Rank Last Month**

**#59** out of 100 neighbors  
#1 is the most efficient

★ Your rank is improving. Great job!  
Looking to improve even more?  
[www.ComEd.com/energyreport](http://www.ComEd.com/energyreport)

Your rank is calculated each bill period. See the Neighbor Comparison section for details about your neighbors.

**Action Steps | Personalized tips chosen for you based on your energy use and housing profile**

#### Quick Fixes

Things you can do right now

**Plan for a year of savings**  
Start off this year by talking with your household members, friends and neighbors about saving energy. By making a commitment to a few key things, you can realize significant savings.

For example, agree to turn off lights in unoccupied rooms and use only the light you need. Devise a plan to run only full loads in your dishwasher, clothes washer and dryer.

Finally, set the temperature at an energy-saving level when you are away from home.

#### Smart Purchase

Save a lot by spending a little

**Switch to compact fluorescent bulbs (CFLs)**  
Compact fluorescent light bulbs (CFLs) use 75% less energy and last ten times longer than standard incandescent bulbs, saving you money.

Today's CFLs produce high-quality, warm light and are available in a wide variety of shapes and styles. Illinois state law requires CFLs to be recycled because they contain a small amount of mercury.

We offer a 50% rebate on the bulb or package cost and bulbs may be recycled in our offices.

#### Great Investment

A big idea for big savings

**Get cool savings with a new refrigerator**  
Your refrigerator runs 24 hours a day, seven days a week, so it uses more electricity than most other appliances. You could save 40% or more on its energy costs when you replace an old refrigerator with an ENERGY STAR® unit.

Models with a freezer on the top or bottom are generally more efficient than side-to-side models.

ENERGY STAR refrigerators are eligible for a \$25 rebate—visit our website for details.

SAVE UP TO

**\$200**/yr

Great World  
You told us online  
you already do this

SAVE UP TO

**\$85**/yr

Top 20  
Most Popular Tip  
by ComEd customers

SAVE UP TO

**\$105**/yr

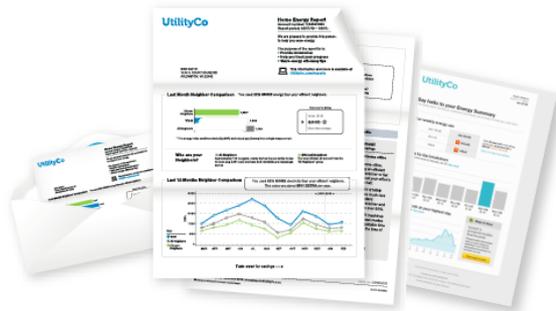
**smart ideas™**

runs on OP@WER

Questions? Comments? 1-888-806-2273 (Press 3, then enter 26633#) | [energy.doctor@comed.com](mailto:energy.doctor@comed.com)  
ComEd.com/energyReport

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# Today: holistic energy interaction platform



Home Energy Reporting



AMI Web, mobile and alerts



CSR Tools



Social energy application



Energy data – driven marketing



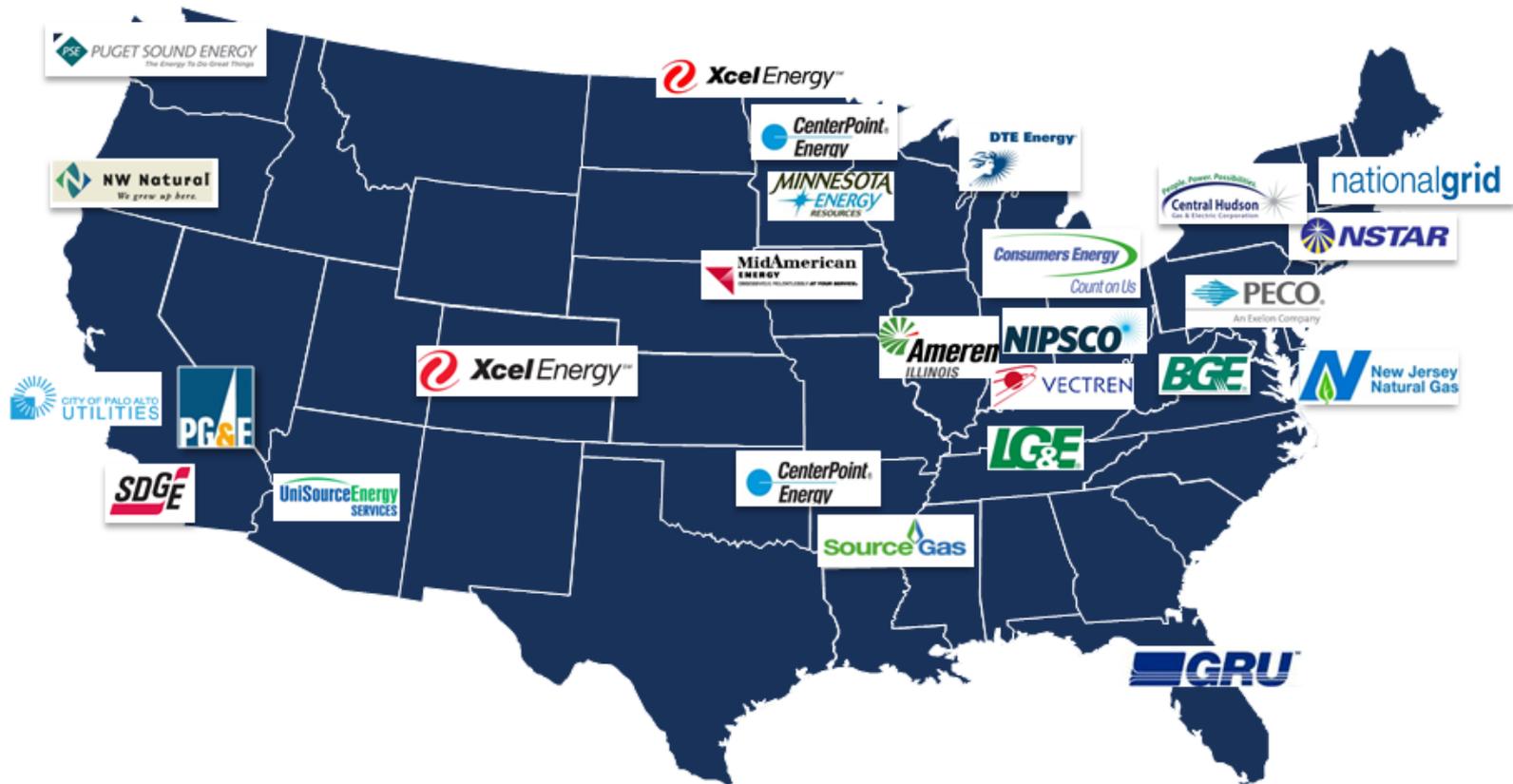
Intelligent Thermostat

# Our partners: 75 utilities globally



# Including gas programs

7 gas-only programs and 20 dual-fuel programs



# Overview of Ex-Post Measurement & Verification



# Opower's approach: *ex-post* experimental design with randomized controlled trials

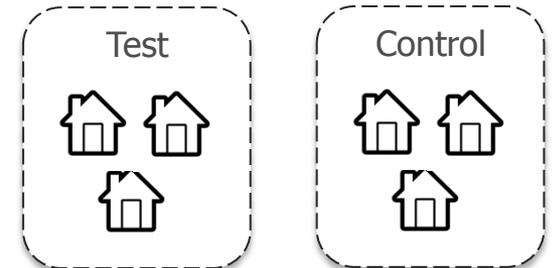
1. Identify eligible households



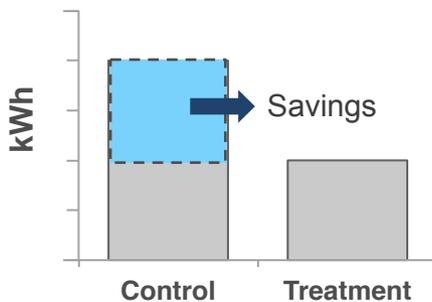
2. Match program size to desired impact



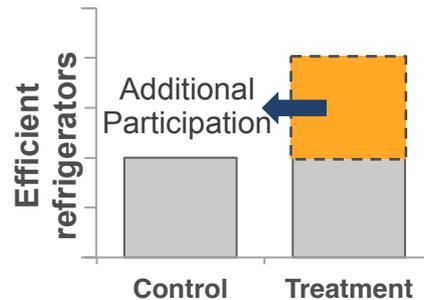
3. Establish statistically equivalent groups using randomization



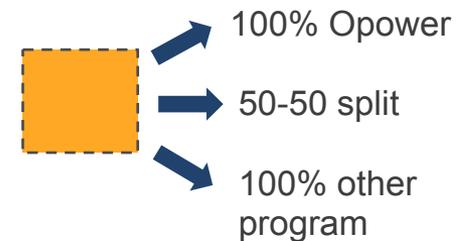
4. Measure program savings



5. Identify participation in other individually-tracked programs



6. Attribute savings from other individually-tracked programs



# This methodology is the gold standard for behavioral energy efficiency programs

## DoE's State Energy Efficiency Action Network:

"We recommend using a randomized controlled trial for behavior-based efficiency programs, which will result in robust, unbiased program savings impact estimates..."<sup>1</sup>

### This approach is consistent with:

- » DOE's National Action Plan for Energy Efficiency Guidelines for M&V
- » The International Performance Measurement and Verification Protocol
- » Pennsylvania's Custom Measure Protocol for Behavior-Based Energy Efficiency
- » Arkansas' TRM EM&V Protocol J for Behavior-Based Program Evaluation
- » Brattle's M&V Principles for Behavior-Based Energy Efficiency Programs
- » Process used by the Food and Drug Administration

## Strong support for this recommendation

### Organizations



### Key advantages:

- » Net savings  $\approx$  gross savings
- » Addresses double counting, no free ridership
- » Rigorously verified energy savings, measured with precision and without bias

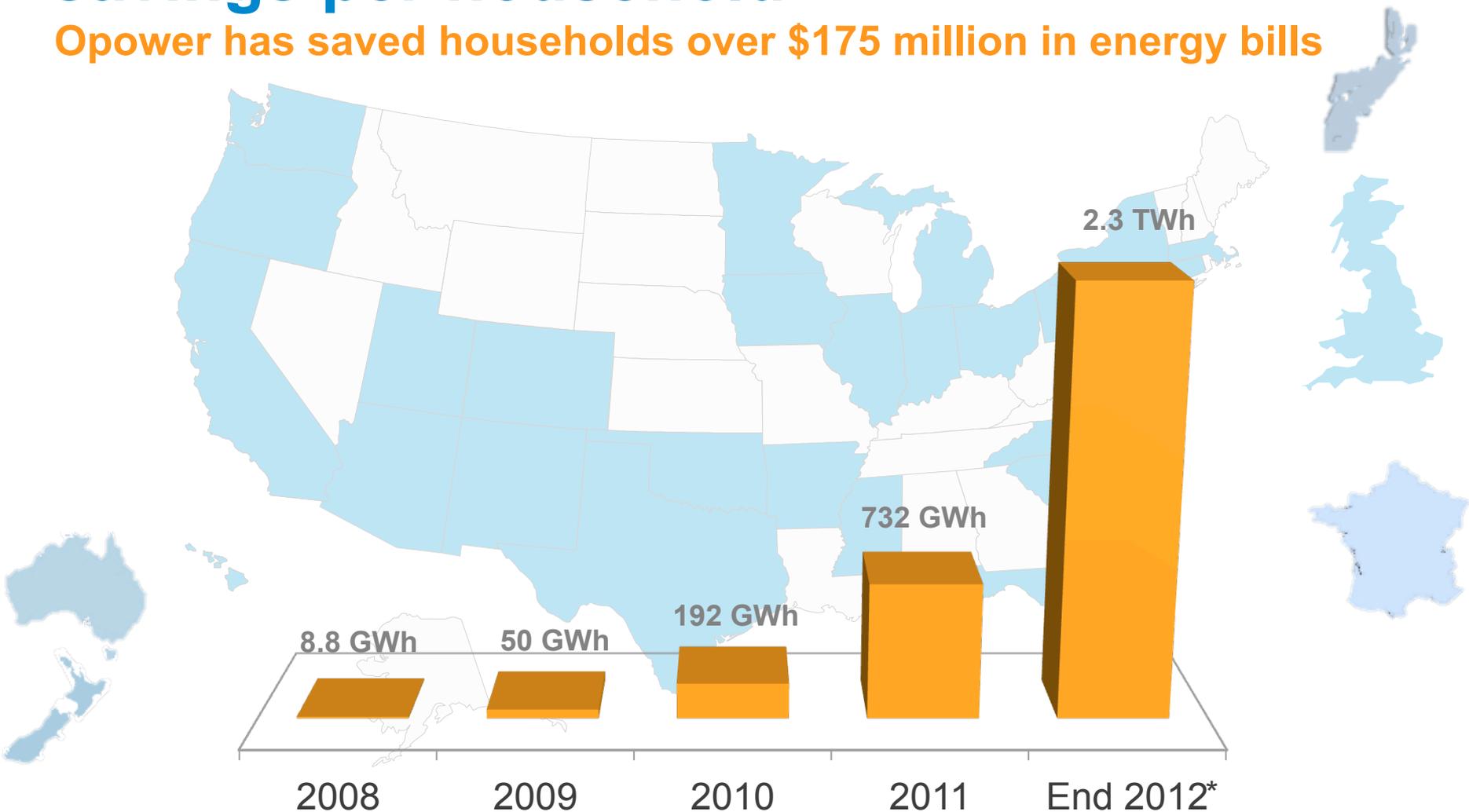
1) State and Local Energy Efficiency Action Network, 2012. *Evaluation, Measurement and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations*. Prepared by A. Todd, E. Stuart, S. Schiller, and C. Goldman, Lawrence Berkeley National Laboratory.

# Results



# Delivering results at scale, 1-3 percent savings per household

Opower has saved households over \$175 million in energy bills

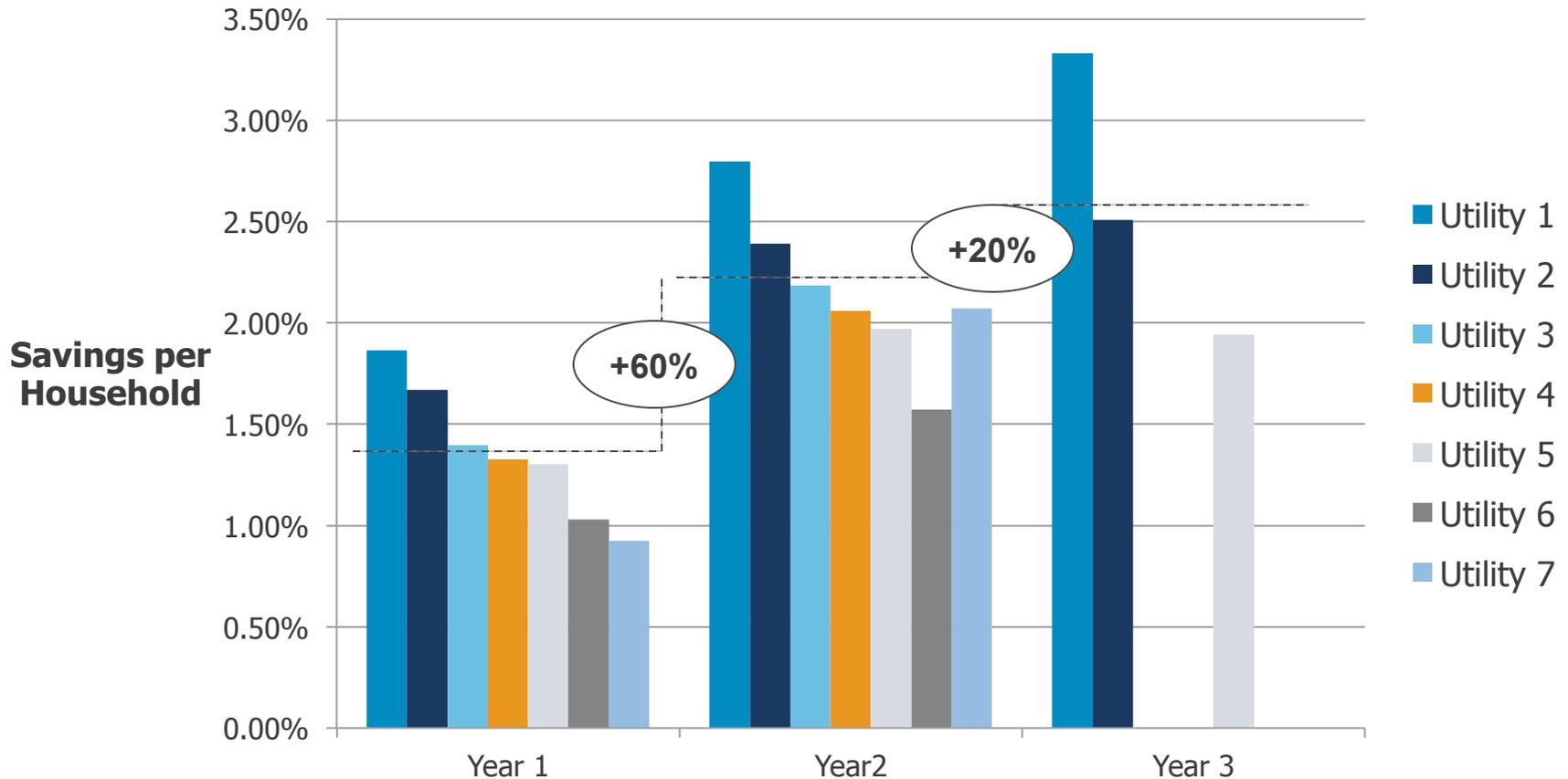


\* Projected savings based on current run-rate

# Results improve over time

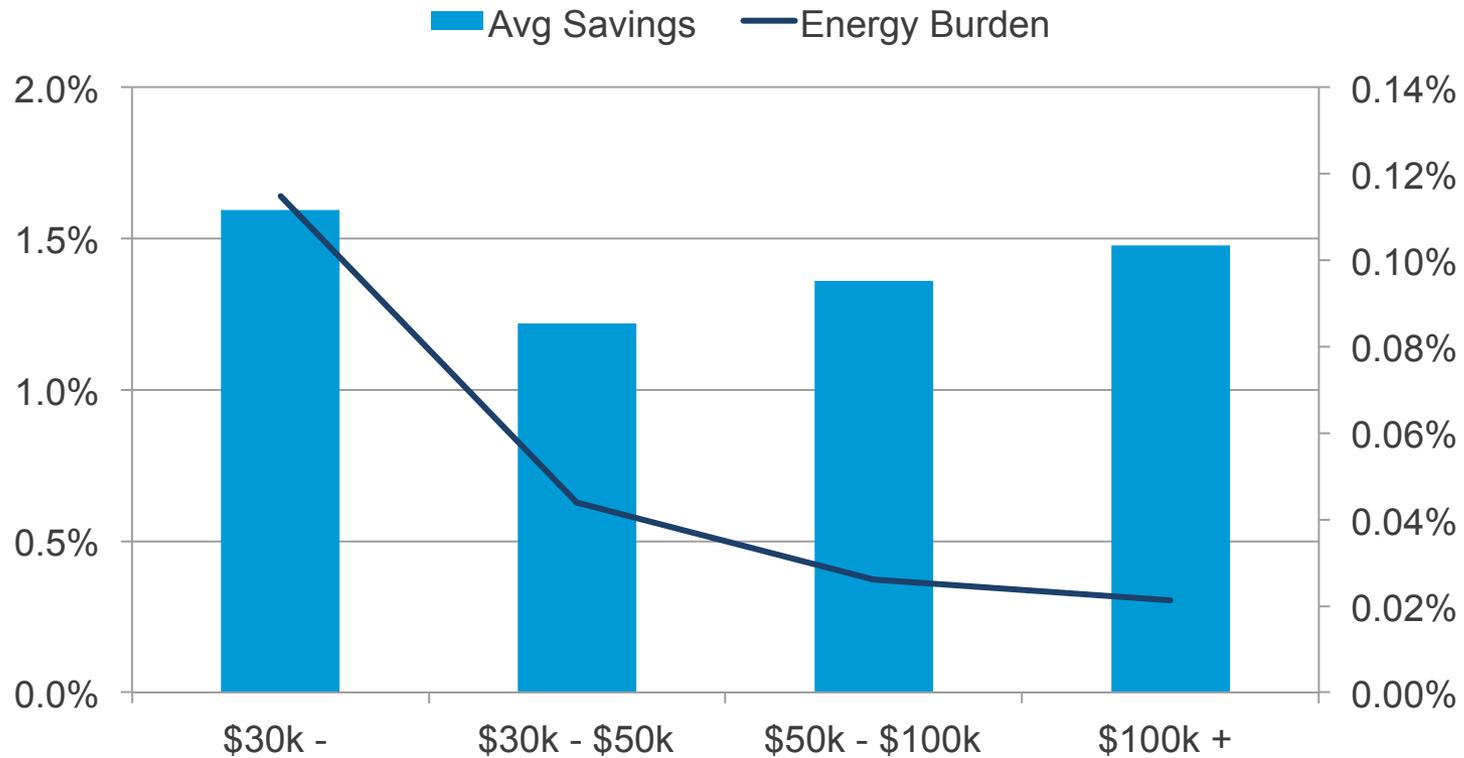
Results from 7 Midwest deployments show consistent improvement from Year 1 to Year 2, and continued improvement in Year 3

## Savings Rates Over Time, Midwest Deployments



# Savings delivered to all households, including most vulnerable. . .

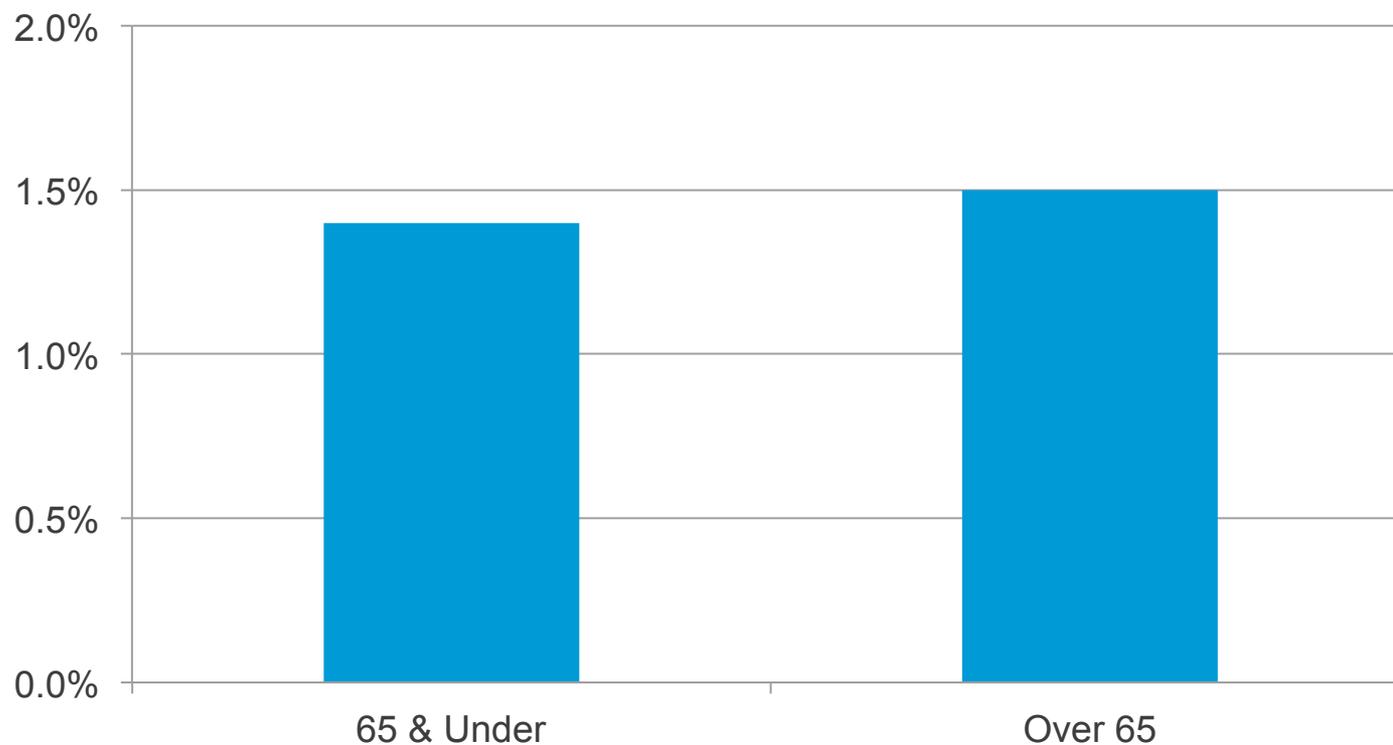
## Savings by Income Band



Source: Analysis of 10 different US programs, representing 58K homes <\$30K annual income

# and is effective for everyone, including senior citizens

## Savings by Age



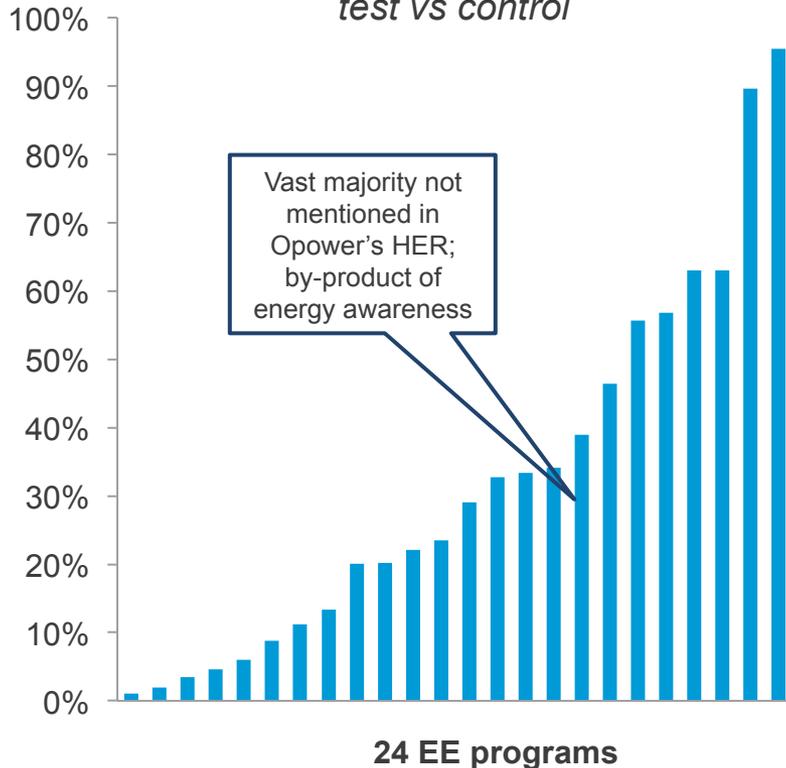
Source: Analysis of 10 different US programs, representing 95K homes with primary resident >65yrs

# Opower increases participation in other efficiency programs

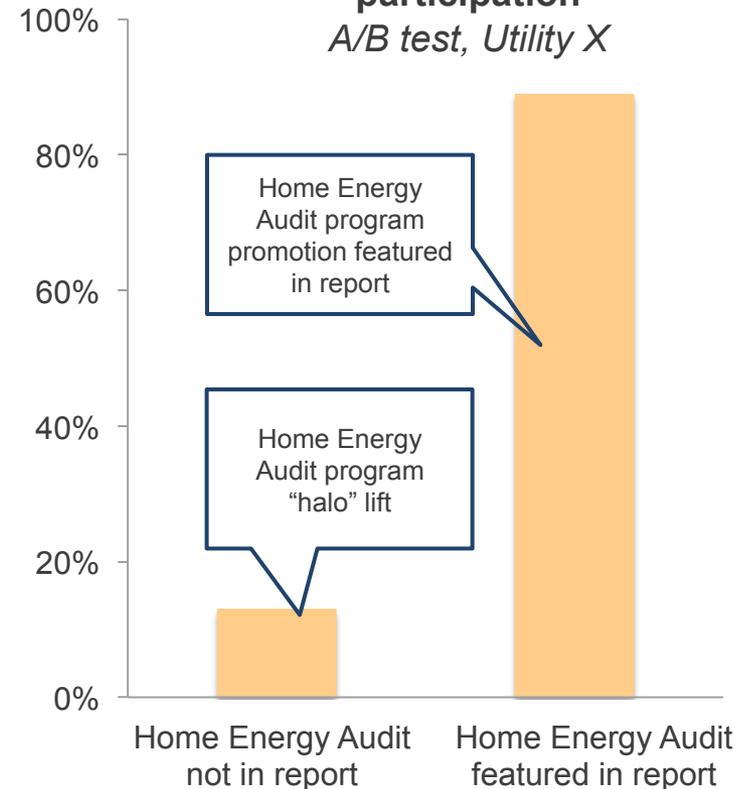
*Opower recipients participate in other EE programs at a higher rate than controls...*

*....and promoting EE programs directly lifts participation further*

**Lift in EE program participation**  
*test vs control*

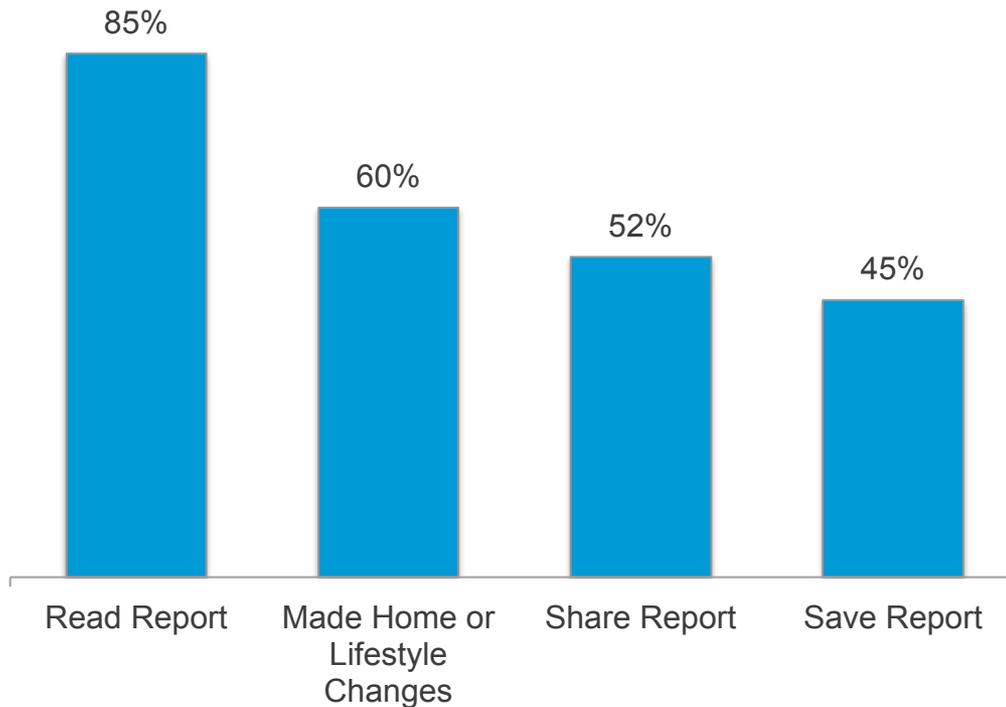


**Lift in Home Energy Audit participation**



# Customers save and share reports

% Customers in Opower Program



*“This is the best thing I have ever seen from an energy company.”*

– Utility Co.

*“Turns out our energy usage is much higher than we thought. We appreciate the wake-up call, and are excited to make changes, so we can be a part of making this world a better place. Thank you – it’s a great idea.”*

– Utility Co.

*“It’s like [UTILITY] turned the lights on for me. I finally understand how I’m doing and what I can do to improve.”*

– Utility Co.

*“I’ve been trying to get the point across with my family that it makes a difference to turn off lights when you leave a room. I think I finally got their attention!”*

– Utility Co.

# Summary of results

Independently verified and accepted

**2%** average savings rate for independently verified programs

**3** years of persistent savings that have been independently verified

**19** states in which Opower is accepted as an efficiency resource

**20** independent evaluations of Opower programs

**1,800,000** participants whose savings have been verified

**25,000,000** meter reads evaluated to calculate these savings

Independently verified by leading industry consultants, academics

