

Behavior-Based Energy Efficiency:

Reliable, Sustainable and Cost-Effective Energy Savings

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Common Misconceptions About Energy Efficiency

Energy Efficiency = Only Structural Improvements **FALSE**

Behavioral Efficiency = Sacrifice in Comfort or Lifestyle **FALSE**

Behavior is Unpredictable and Hard to Sustain **FALSE**

Behavior-Based Energy Efficiency represents the most cost effective and impactful efficiency program to be deployed **TRUE**

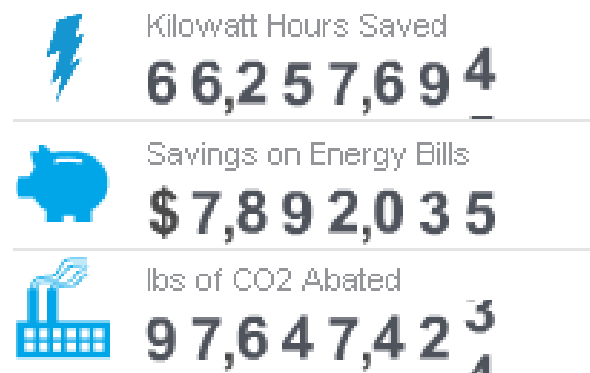
Deployed nationwide, OPOWER's energy reporting system would save enough energy to power more than 3 million homes... today. **TRUE**

OPOWER's Success and Unique Experience

In-Market Experience

- 24 utility clients
- One million report recipients
- Two million customers online
- Nation's longest running behavior-based EE program

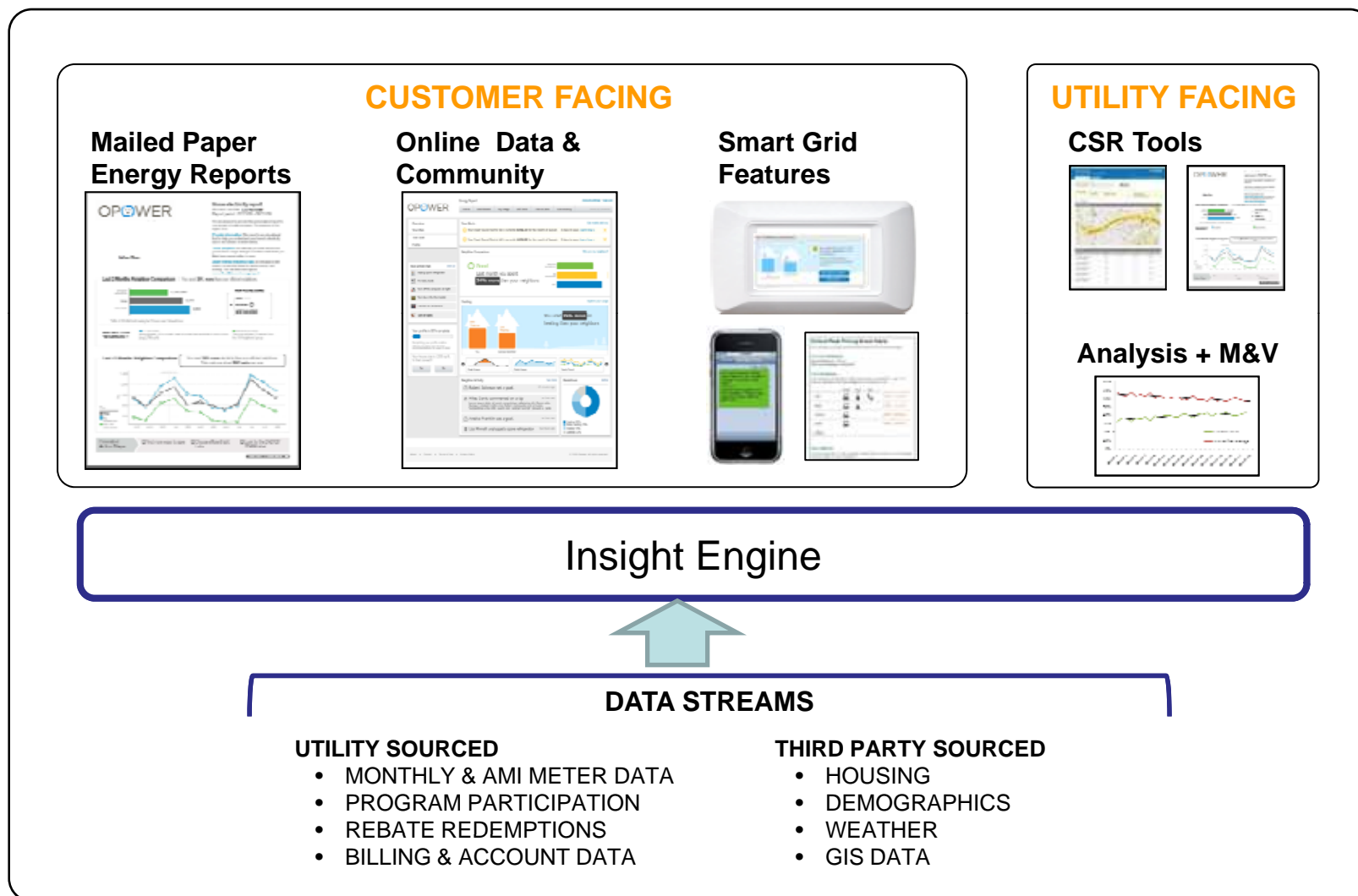
OUR IMPACT



Some of our Utility Partners...



OPOWER's Customer Engagement Platform



Home Energy Report – Key Engagement Mechanism

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

Personal Comparison | How your electricity use this year compares to last year.

About This Graph
This section shows how much electricity you've used so far this year and

Your Progress
So far this year, you've used **38% less** electricity than last year.

★ Great job! You're on pace to use less this year.

Last Month Neighbor Comparison | You used **48% more** than your efficient neighbors.

EFFICIENT NEIGHBORS

Action Steps on Water Heating

Water heating can account for about 20% of total energy use, and even more for large households like yours.

Last 12 Months Neighbor Comparison | You used **45% more** electricity than your neighbors. This costs you about **\$1,029 extra** per year.

Month	YOU	ALL NEIGHBORS	EFFICIENT NEIGHBORS
JUN	1,800	1,200	900
JUL	4,500	2,100	1,000
AUG	5,200	2,200	1,000
SEP	4,000	2,000	1,000
OCT	1,800	1,200	900
NOV	1,700	1,100	900
DEC	3,500	1,800	1,000
JAN	3,400	2,100	1,200
FEB	1,800	1,500	1,000
MAR	1,700	1,200	900
APR	1,000	1,100	900
MAY	1,000	1,100	900

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 ➡

Great investment for long-term

Install efficient showerheads

your shower fills a gallon bucket in less than 20 seconds, you could save with an efficient showerhead. Efficient showerheads help reduce water use while maintaining water pressure.

owering accounts for 50% of your hot water use so using less hot water translates to savings for you.

Next steps Look for showerheads at your local home improvement store.

Save up to

1500

/yr

Great work!

You told us online you already do this

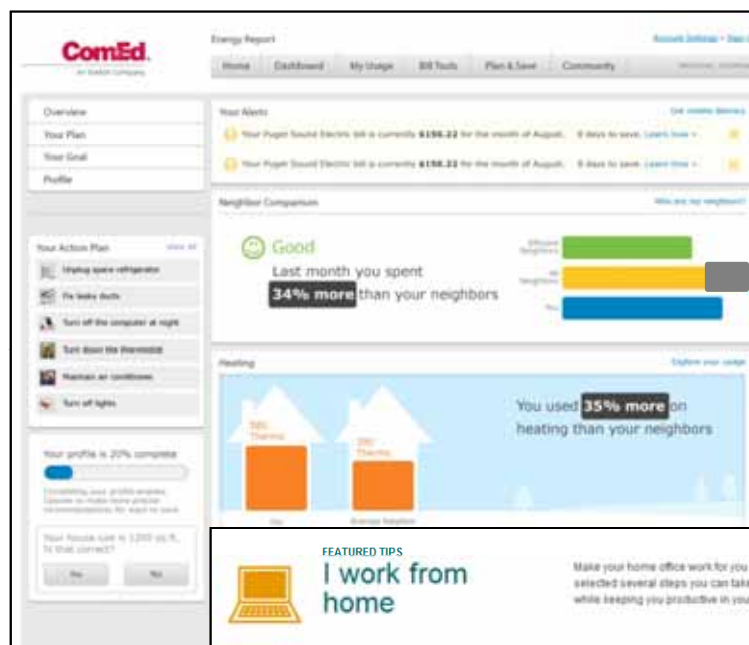
Online Web Portal Drives Deeper Customer Engagement

Standard Features Included:

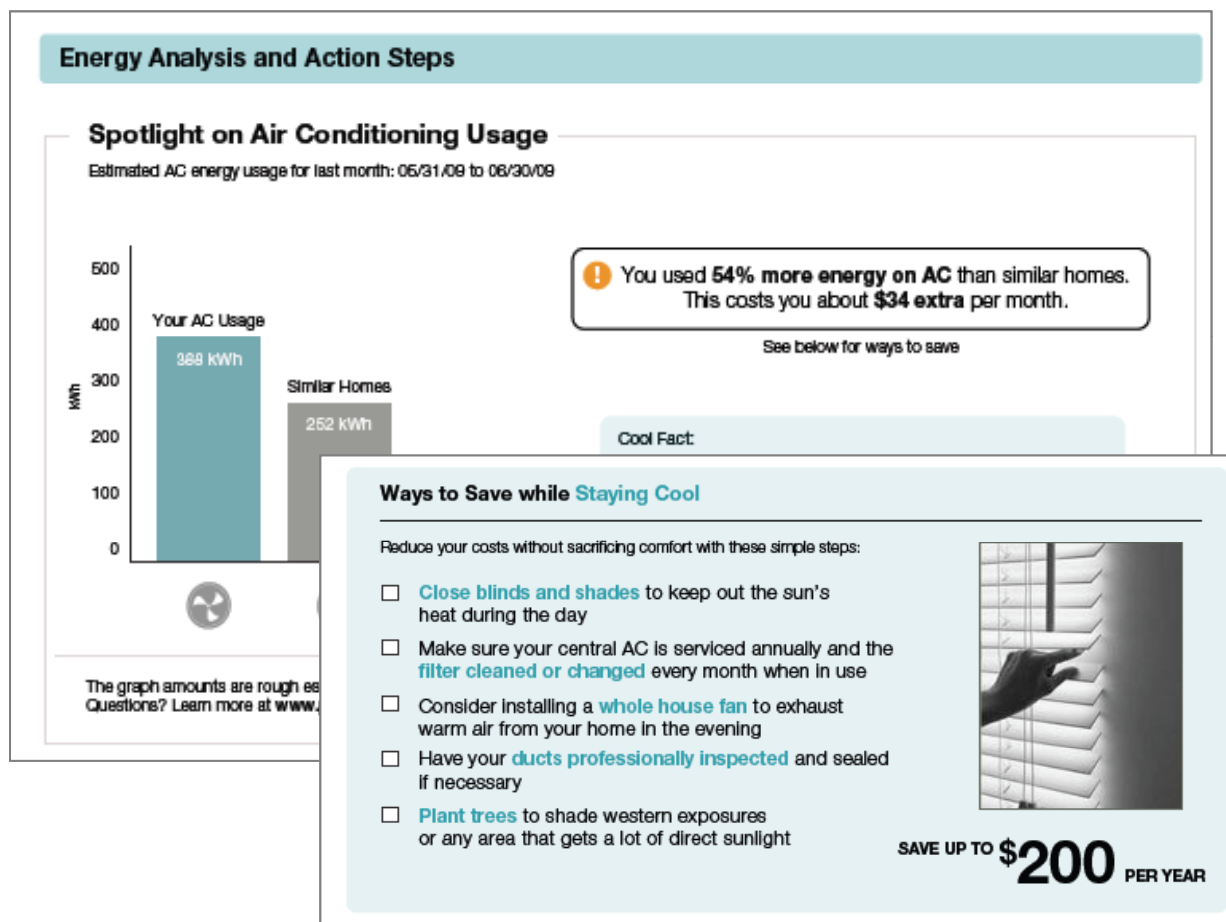
- My Energy Usage
- My Rates
- My Plan
- Ideas and Advice
- Community

User generated content provides value for everyone.

- User-generated content available from day one
- 25,000 active users



AMI-Enabled Insights and Analysis: Usage Disaggregation



- Detailed base-load disaggregation
- Actionable insights for the end-user
- Only company offering neighbor comparisons for specific types of energy use, e.g. AC
- Enables more successfully targeted EE tips, which increases each person's ability to reduce his or her energy consumption

AMI-Enabled Insights and Analysis: Peak Neighbor Comparisons

Smart Energy Report
Account number: 0032015088

The purpose of the report is to:
 * Provide information about your usage
 * Help you track your usage over time
 * Show energy efficiency and peak reduction tips

You are enrolled in: TOU Pricing Plan
 Visit www.sce.com/tou to update your plan.

Last Month Neighbor Comparison | You used **30% MORE** electricity than your neighbors.

Category	kWh
EFFICIENT NEIGHBORS	555 kWh
ALL NEIGHBORS	960
YOU	1,248

HOW YOU'RE DOING:
 You used more than average
 Turn the report over to find ways to save.

Time of Use Plan Pricing Chart

	Off-Peak	Peak	Critical Peak	Your Expected Yearly Cost*
Before February 1				
Current Pricing	25¢	25¢	25¢	\$1143 <small>Last year actual</small>
After February 1				
TOU Pricing (Default Plan starts 2017)	10¢	35¢	35¢	\$1456
Critical Peak Pricing	8¢	30¢	\$1.20	\$1732 \$1023 (With Critical Peak Management)

1 You are currently enrolled in TOU Pricing. If you have flexibility at home to manage Critical Peak, you could cut costs by switching to Critical Peak Pricing.

*We calculated your expected yearly cost based on data from your Smart Meter from 2/1/10 - 12/15/10.

Off-peak | **Peak: Weekdays 1-7pm** | **Off-peak**

Legend: — Your Usage, — Neighbors

Time of day: 12am, 1pm, 7pm, 12am

You used 46% more than your neighbors during peak times.

money on your summer season and help conserve energy by joining California Edison's Summer Discount Plan.

Save up to **\$200** each summer.

For details: www.sce.com/sdp

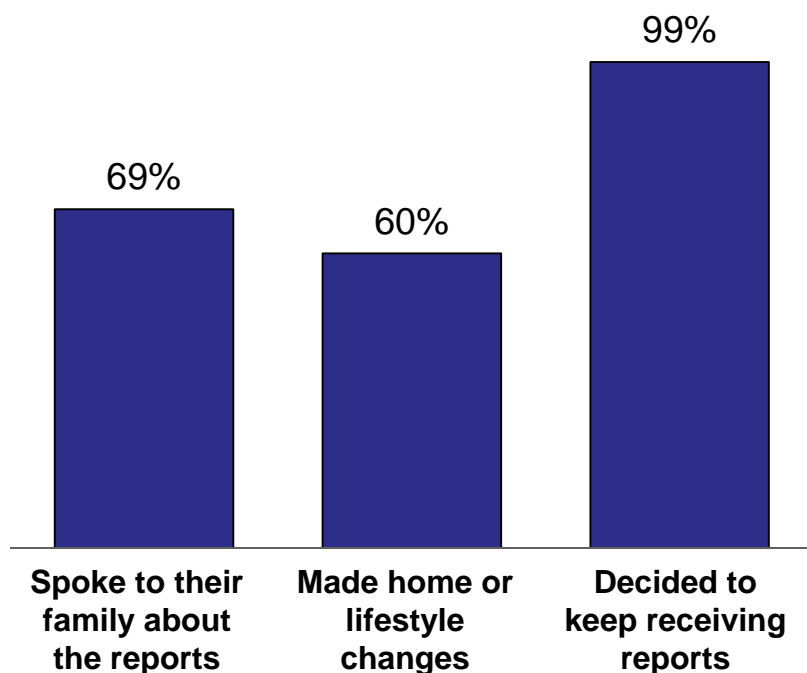
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Results

Customers Feel Empowered by the Reports

Customer Survey

% of Energy Report recipient



"This is the best bad news I've had in a long time. I really appreciate having this information so I can start to make some changes."

- PSE Customer

"It's like SMUD turned the lights on for me. I finally understand how I'm doing and what I can do to improve."

- SMUD Customer

"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!"

- Owatonna Customer

Independent Studies Suggest Persistence of Behavioral Efficiency



February 2009 Electric Power Research Institute Study¹ verifies that 10 out of 12 behavioral programs based upon energy feedback persisted in energy savings during the study period.

Of those 10, 3 registered not just sustained, but increasing levels of conservation throughout the study.



April 2006 Oxford study by Sarah Darby² found persistent savings, so long as feedback was maintained:

“The 3-year trial of informative billing in Oslo found that the effect lasted throughout the trial...the authors of the study state, ‘our impression from the interviews is that after three years the changes people made had become so routine that they had trouble identifying them.’”



April 2009 assessment of OPOWER Home Energy Reports by Franklin Energy,³ presented to the Minnesota Department of Commerce:

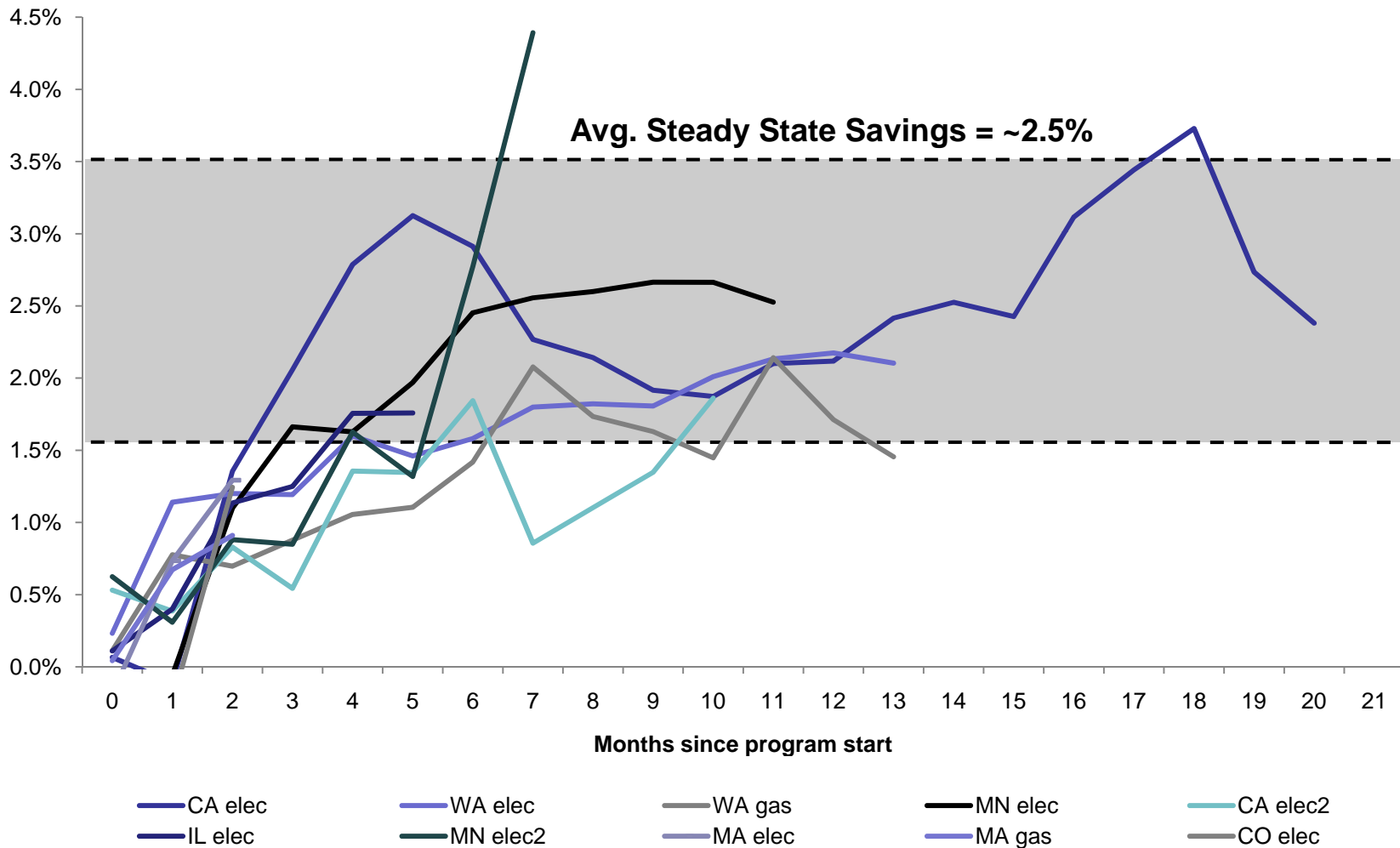
“Additionally, through the first 12 months of the pilot program, the impact has been found to be consistent on a month-over-month basis. In other words, it is not the case that a significant amount of savings was observed in the initial months with a slow deterioration over the course of the program. The sustained reduction in energy consumption points to the persistence of the savings achieved.”

¹ Neena, B. “Residential Electricity Use Feedback: A Research Synthesis and Economic Framework.” Electric Research Policy Institute. Palo Alto. Feb 2009

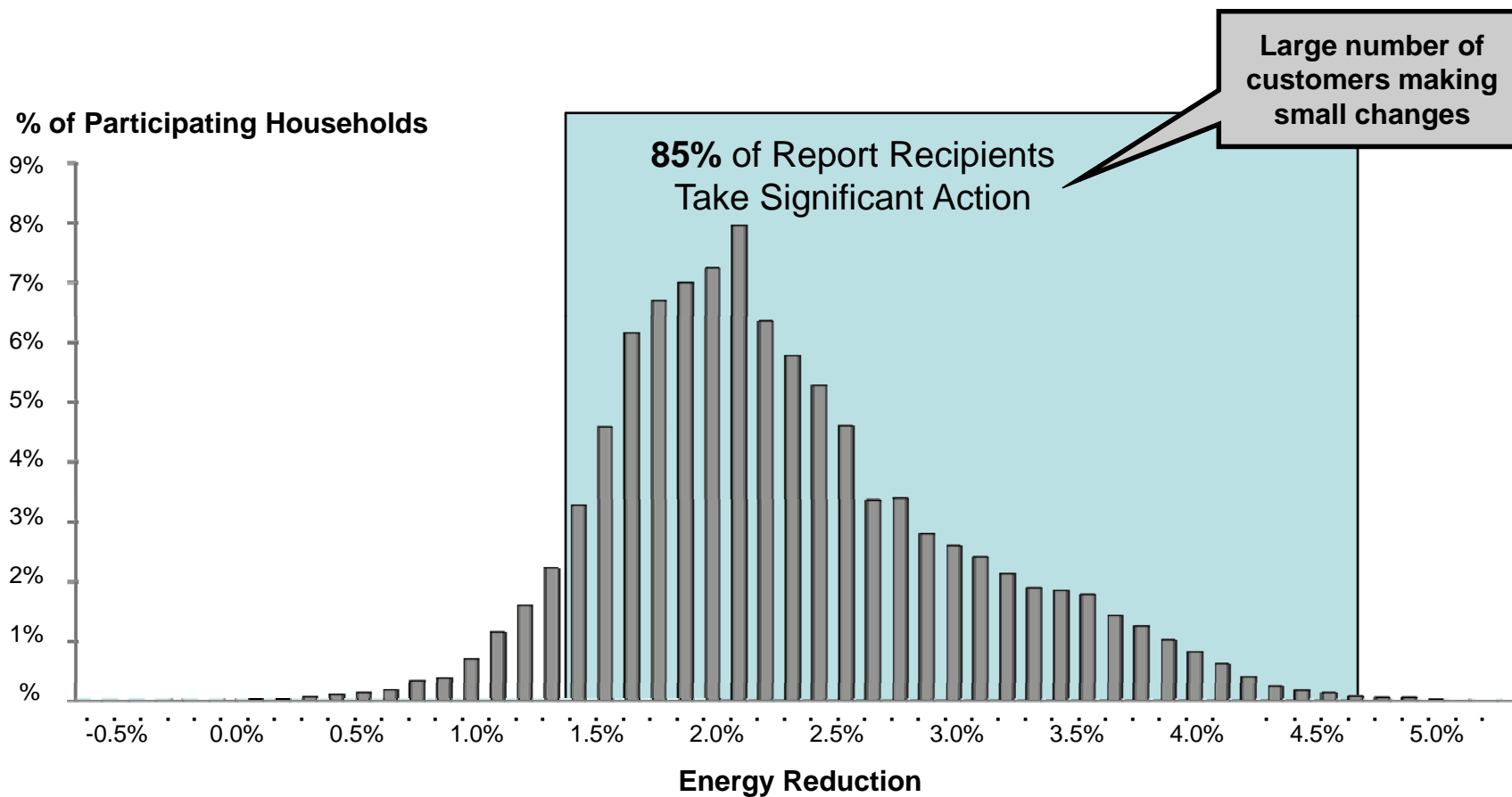
² Darby, Sarah. “The Effectiveness of Feedback on Energy Consumption.” Environmental Change Institute, University of Oxford. Apr 2006

³ Caroll, Ed, et al (Franklin Energy). “Residential Energy use Behavior Change Pilot.” Minnesota Department of Commerce, Office of Energy Security.. Apr 2009

Results Predictable Consistent and Sustained for all Utility Partners



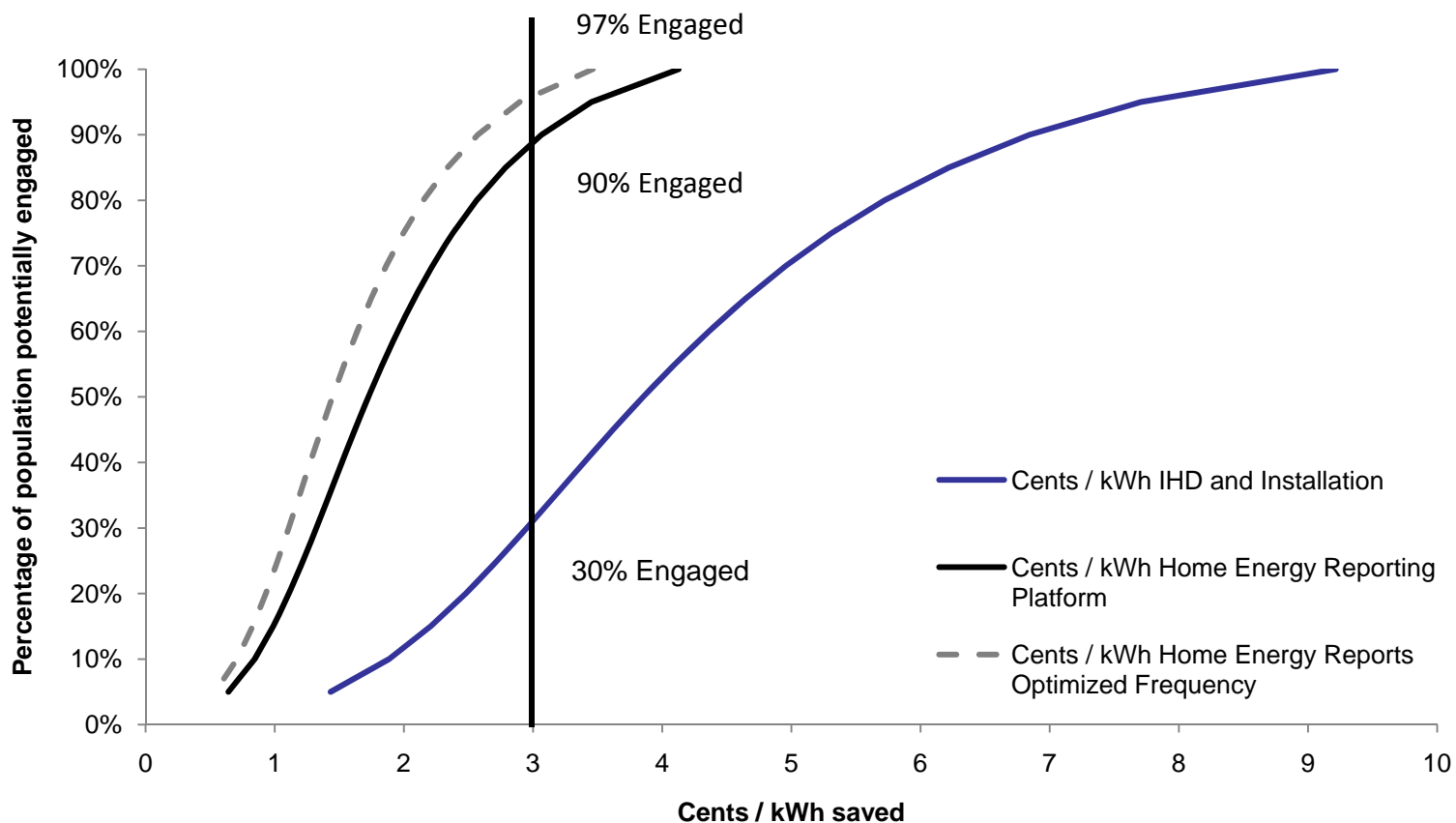
High Participation Rate Drives Large Energy Savings



Independent Verification by Summit Blue Demonstrates High Customer Engagement

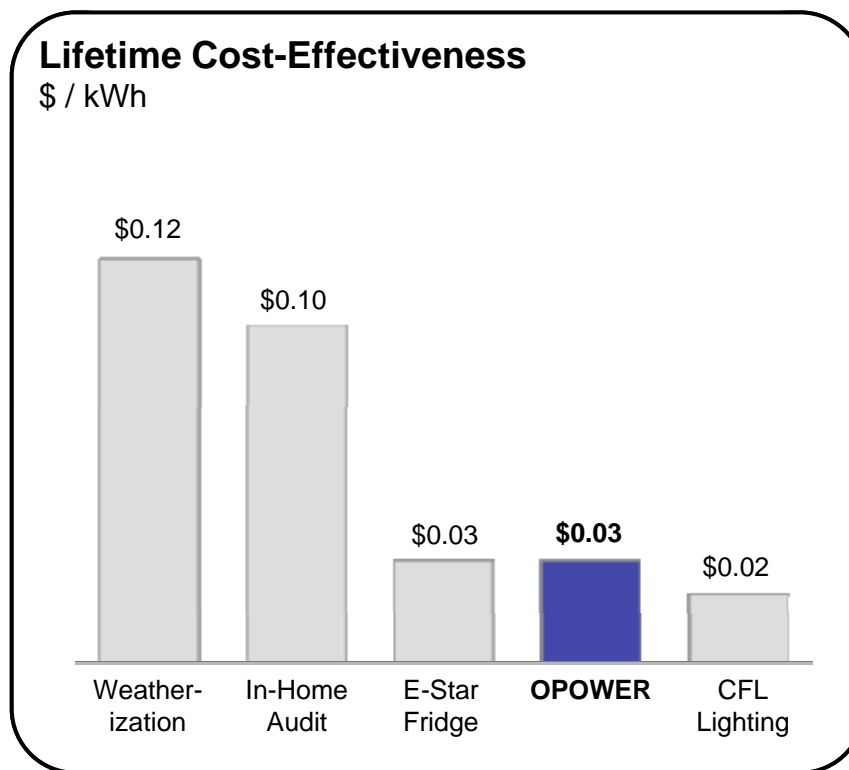
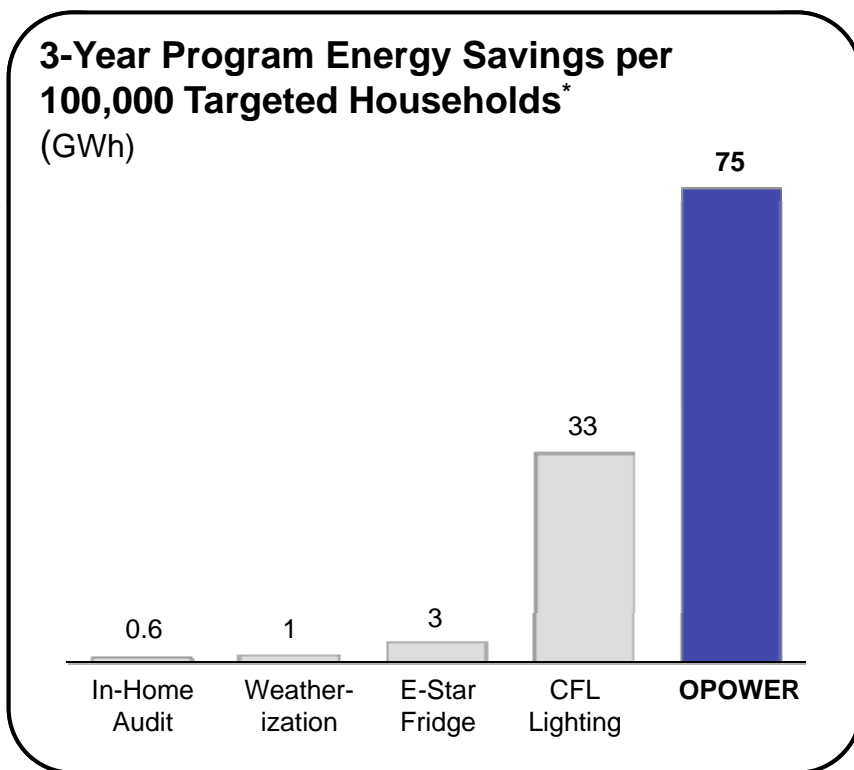


Relative Cost Effectiveness of Home Energy Reporting vs. IHDs



One of the Most Impactful and Cost Effective Efficiency Programs

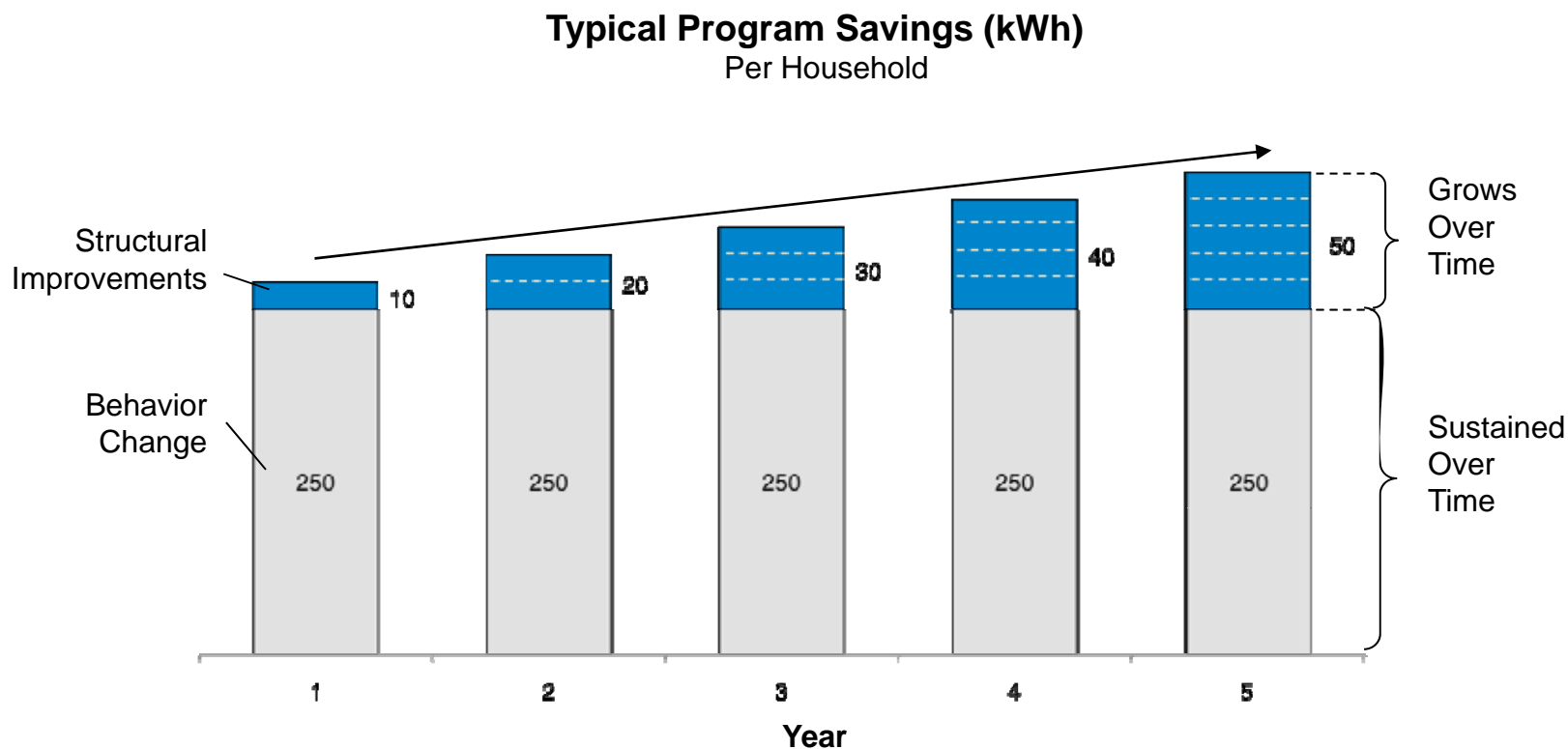
Energy savings verified by ACEEE, Summit Blue and Yale and MIT economists



* CFL & Weatherization from, "National Energy Efficiency Best Practices Study," 2004. Energy Star appliance data from Department of Energy website. Energy Reporting results based on average program impact of 250 kWh per home, validated by Summit Blue and ACEEE

Extra Slides

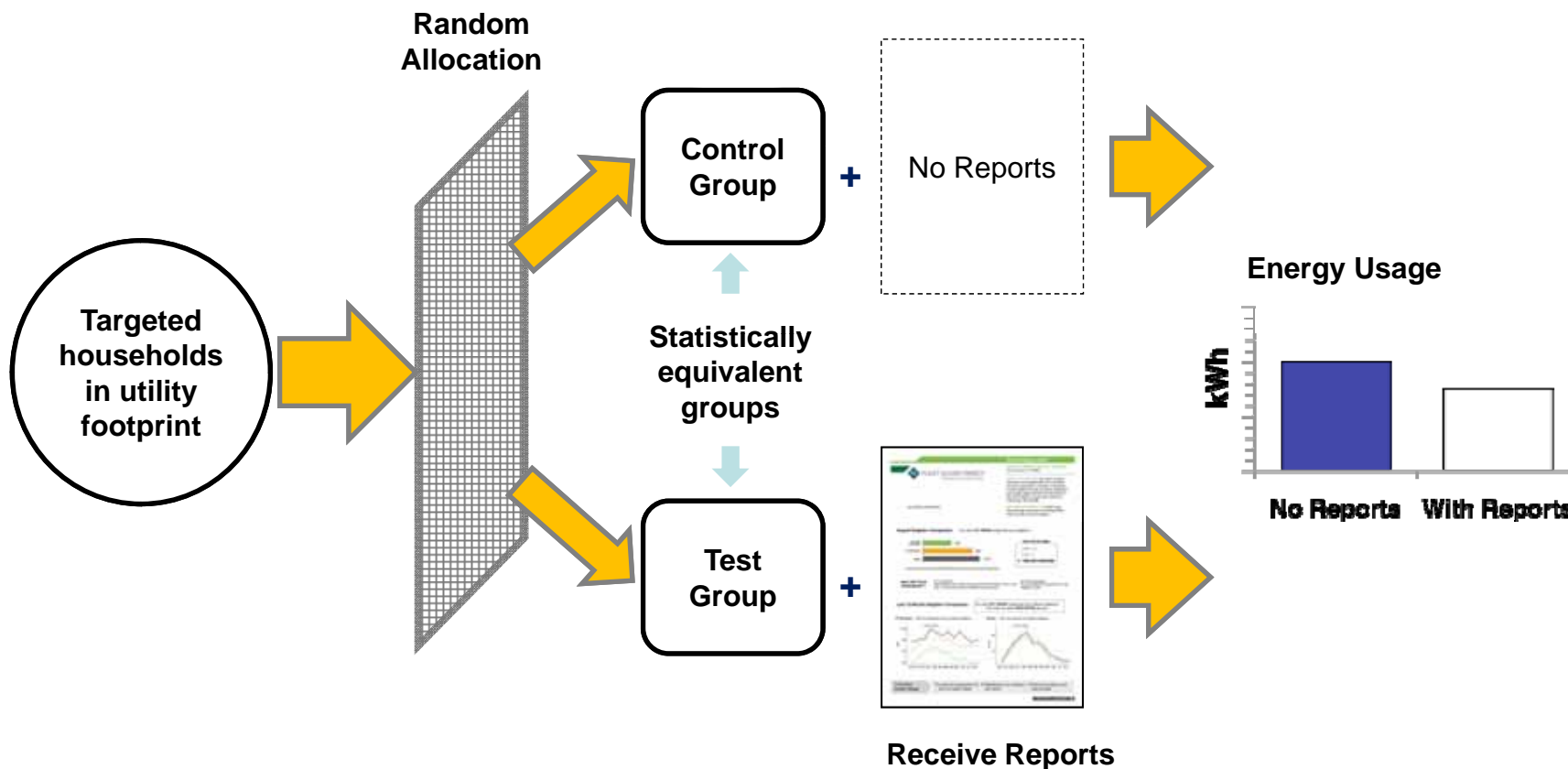
Two Sources of Savings



Home Energy Reports generate savings in two ways

- Driving behavior change over large customer base
- Increasing participation in existing efficiency programs by 15-20% (Lighting, Energy Star appliances, retrofits, etc)

Clearly Defined Measurement and Verification Approach



Large-Scale Data Analysis

- Follows experimental design blueprint
- Clearly isolates impact of reports
- Follows NAPEE guidelines
- Endorsed by ACEEE
- Used in PUC filings in several states



21st National Conference & Expo

January 17-20, 2011 • Hilton Walt Disney Resort

