

# Smart Grid Pilot Data “surprises”

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# Current Work

- Regulatory Defense of Marketing: Testing Smart Grid/Behavioral Recruit/Response (Duke, PEPCO, SCE)
- Target marketing / Personal Energy Reports
- Impact from Feedback (EPRI/Cadmus/Duke Energy) and City-Wide Social Marketing (Envision Charlotte)
- Northwest Energy Efficiency Alliance: Behavioral Programs Review (Summit Blue)
- Marketing & Social Marketing Training for Utilities (AESP)
- Advisor on California's Engage 360 & PG&E's mandatory dynamic rate for small commercial customers
- Advisory Board, UN Environment Partner [www.OneChange.org](http://www.OneChange.org) , [www.doyouviv.com](http://www.doyouviv.com) Village Energy, Berkeley Clean Tech Institute



# 3 Key Questions

1. Who are we recruiting into smart grid pilots and “smart” programs?
2. How does that affect results “at scale”?
3. What is the financial implication of getting it (more) right?

# Interpreting smart grid research (with more smarts)

1. Who are we recruiting into smart grid pilots and “smart” programs
  - Data point – 3x variation in offer uptake from modifying “a few words” in recruit offer
  - Expect increases from those that are not price sensitive with ability to “control”
  - Prior participation matters more than we usually admit
2. How does that affect results “at scale”
3. What is the financial implication of getting it (more) right?

# Example of a smart grid pilot recruit



## How much can I save on my electric bill?

This will vary. The amount you save will depend on how much you participate. We can help you better manage your appliances, but you control your comfort and convenience. Your bill will be no more than what it would have been otherwise, so you have nothing to lose. Except wasted energy.

## How long will the program last?

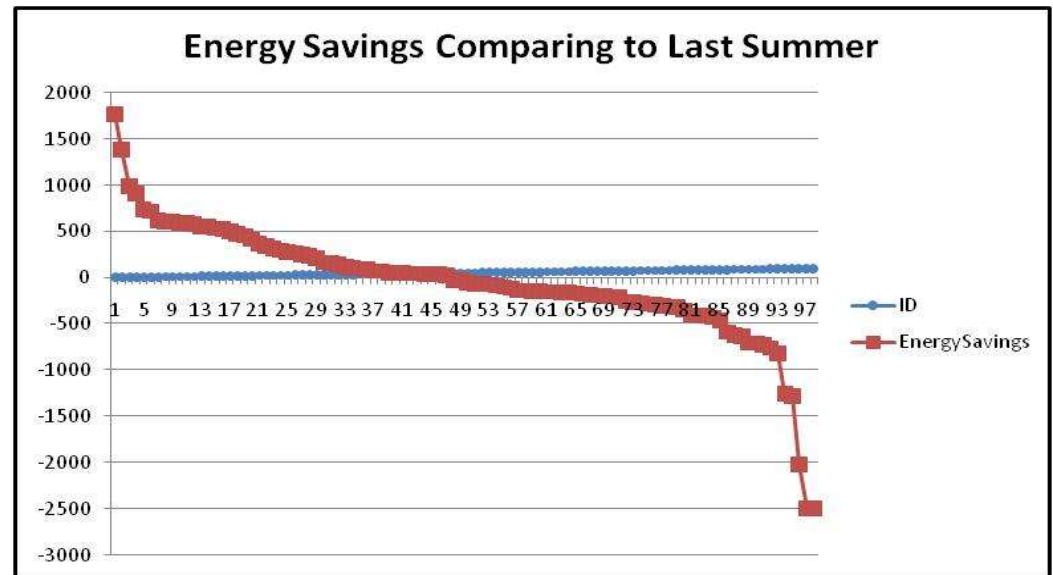
This program will last for about a year. You have the option to be removed from the program at any time.

# What result?

Recruitment message targeted desire to “control” and participants “controlled.”  
Energy increases were just as common as energy reductions.

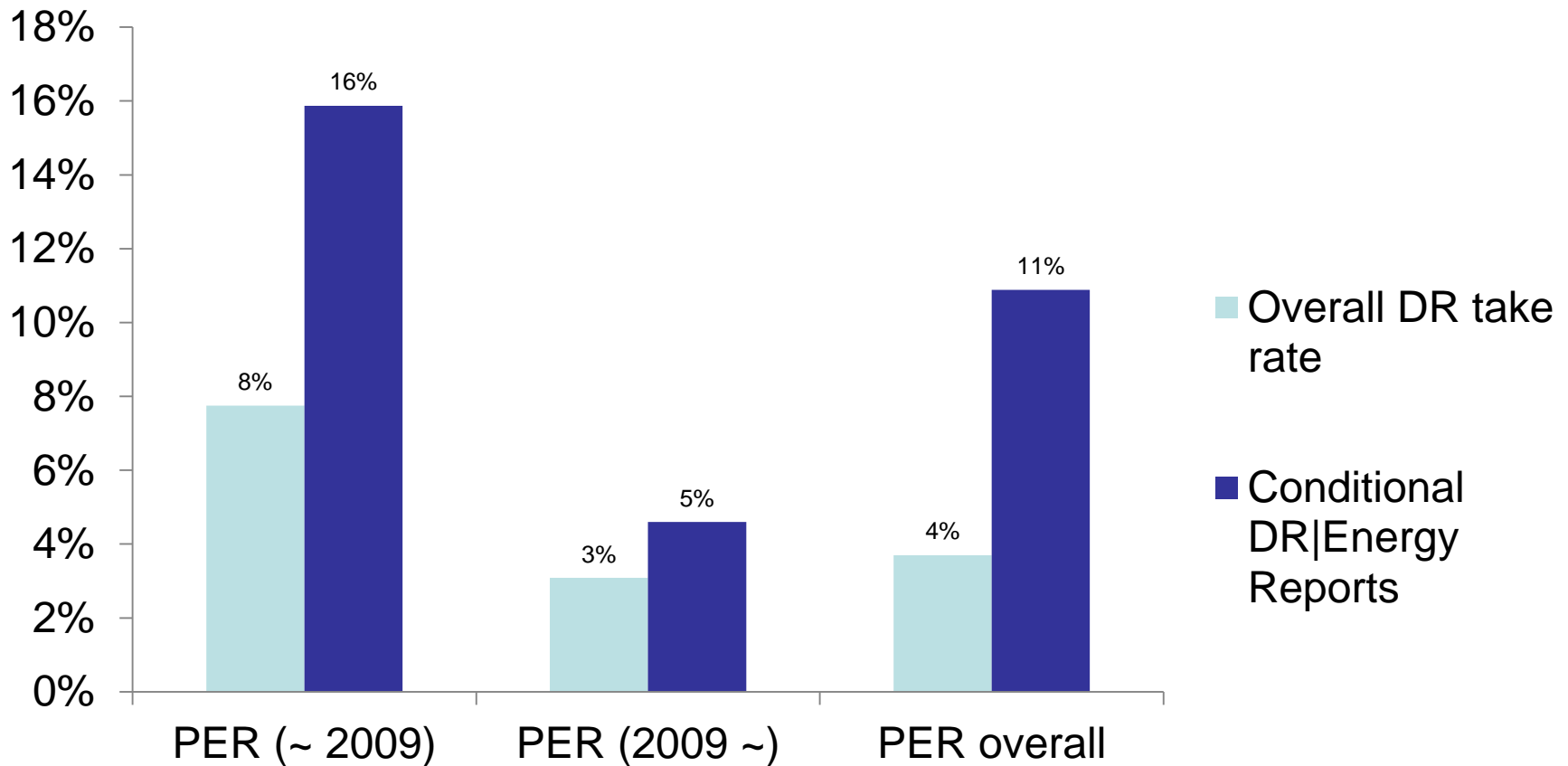
**Clearly, customers differ.  
Need to target different  
solutions to different  
customer segments.**

**Worse – focus group  
respondents  
Demonstrably got their  
savings (or lack of savings)  
wrong.**



*Take away – interpret any kind of self report along with / SAVINGS rates to understand real implication of pilot.*

# Offer priming & interactivity



Overall DR Take Rate vs. Primed by Offsite Audit Program (PER)

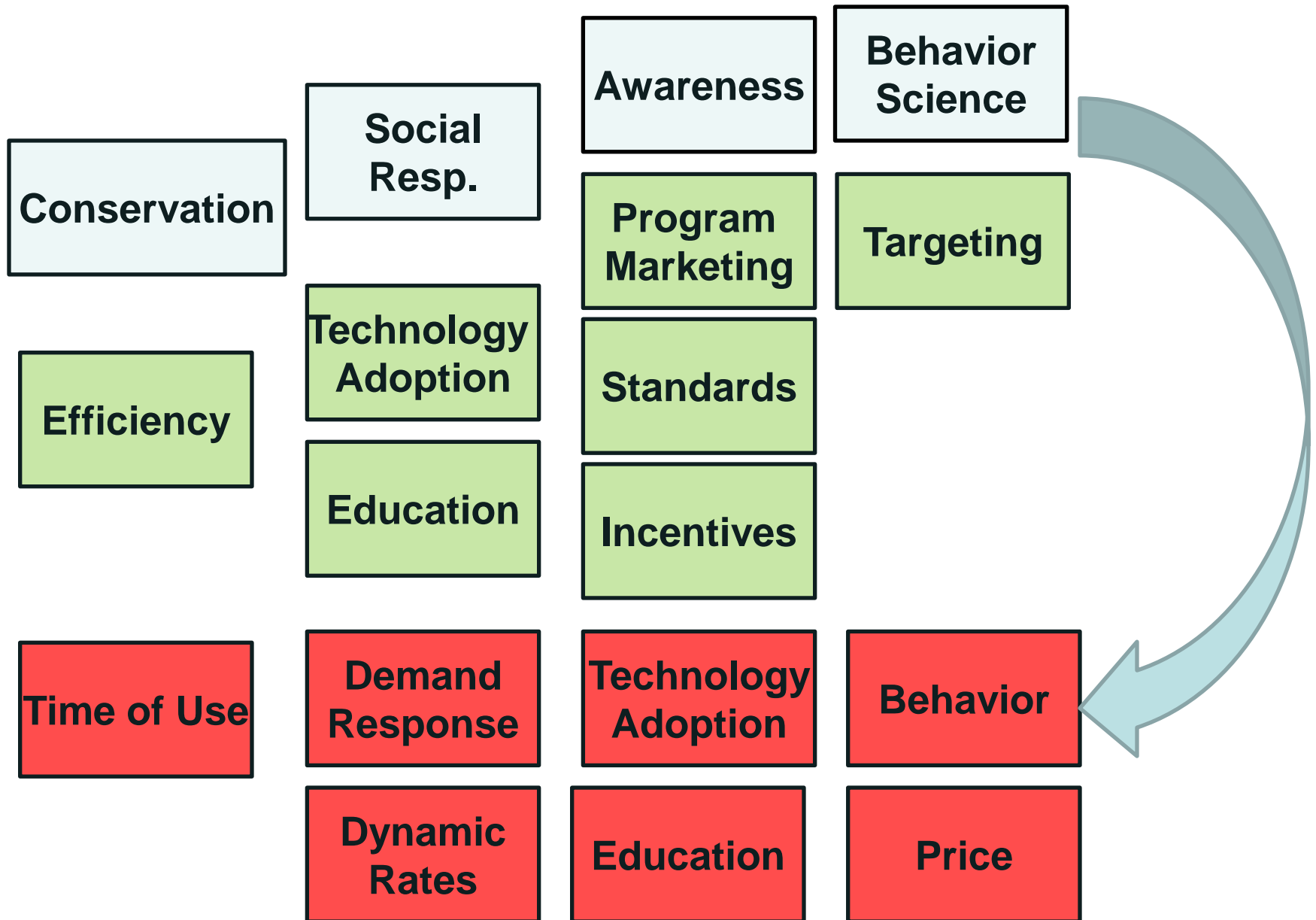
(Wu, Ossege, Thompson Gateway Effects IEPEC  
2011)

# See, also PG&E Smart Rate <sup>TM</sup>

TIMING	INCENTIVE	TARGET	YIELD
February	\$25	Prior AC Cycling Kern	24%
May	\$50 & Protection	Kern	8.5%
<b>July</b>	<b>\$0</b>	<b>Prior AC cycling customers</b>	<b>15%</b>
September	\$50	Psychometric	3.6%
		Psychometric	7.4%
Average each mailing			2.5%
Muliple contacts			3.3%

Freeman, Sullivan & Co. 2009 Load Impact Evaluation for Pacific Gas and Electric Company's Residential SmartRate<sup>TM</sup>—Peak Day Pricing and TOU Tariffs and SmartAC Program Volume 2: Ex Ante Load Impacts Final Report April 1, 2010

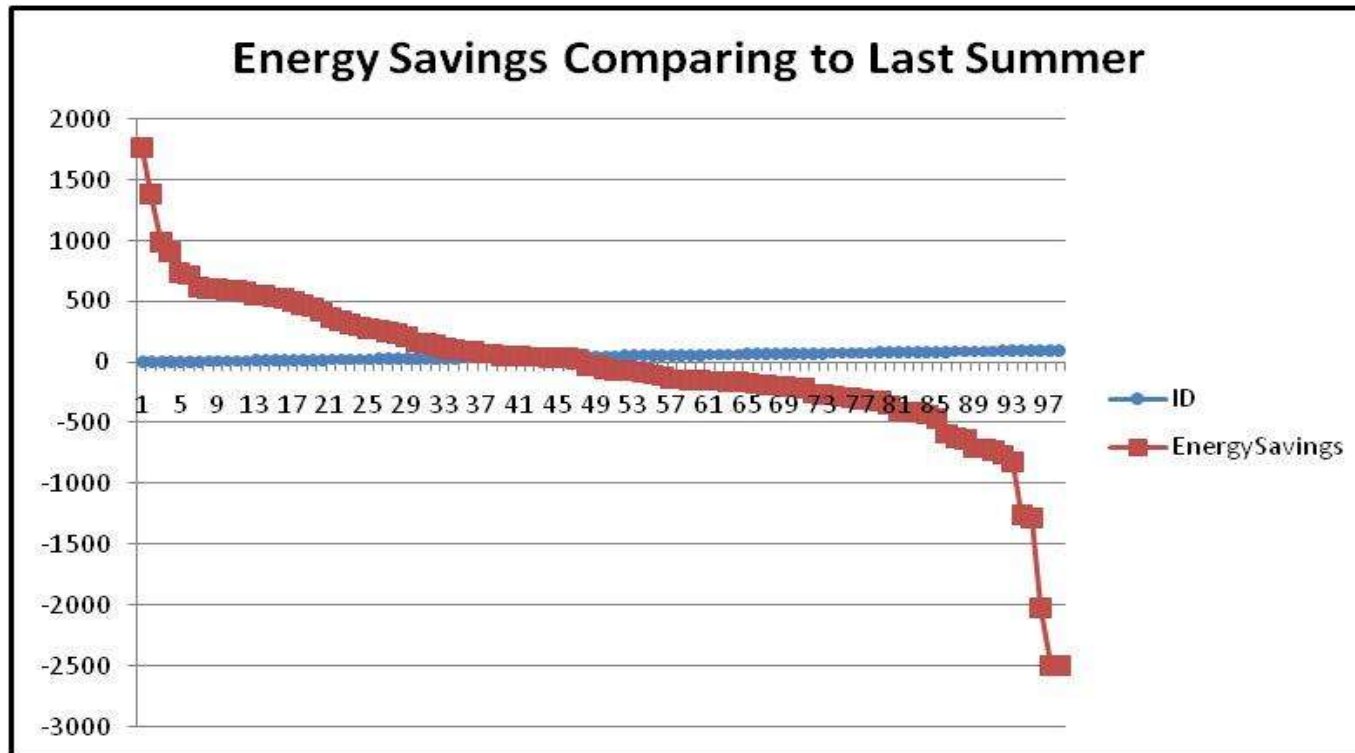




# Interpreting smart grid research (with more smarts)

- Who are we recruiting into smart grid pilots and “smart” programs
- How does that affect results “at scale”
  - Real errors in self report
  - Need to better ID uptake correlates
  - Motivation, interactive effects
- What is the financial implication of getting it (more) right?

# How do these participants compare to my population?



# Smart Grid or New Coke - History repeats itself

<b>New Program should...</b>	<b>Percent selecting</b>	<b>Revealed Preference</b>
Offer more incentives	61%	48%
Reduce cycling time	16%	16%

Research from SMUD

“...ordinarily people are not very good at analyzing their own preferences and purchase behaviors, and thus self-reports can be very misleading.”

Wood et al IEPEC 2009



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# Hawthorne Letter

<Customer Name>  
<Address Line 1>  
<Address Line 2>  
<City>, <State> <Zip>

Dear <Customer>:

From time to time, Duke Energy analyzes the energy usage of its customers for research purposes. This note is just to inform you, your home has been randomly selected to be included in our sample group. **No action is required on your part.** You will not notice any changes. We will simply be tracking your usage for the next few months, relative to the energy usage of similar houses in the area. Your energy usage data is kept completely confidential, and this will not affect your bill, your comfort or convenience in any way.

Thanks,

*If you do not want your home energy usage to be included in our analysis,  
please email [market.research@duke-energy.com](mailto:market.research@duke-energy.com)*

Observation  
notification – “we will  
be tracking your  
usage for the next few  
months”

No energy usage or  
savings information.

Take Away Our causal hypotheses need refinement

# Consider Feedback Responses

- Significantly variable. 3-12%
- Most studies attribute this to: TIMING OF FEEDBACK.
  - What about prior programming
  - Prior involvement with utility
  - Usage compared to region
  - Targeting of messaging?
- In one study, over 20 percent of households that **paid** for a feedback monitor failed to install it.

*Final Report for PowerCost Monitor Pilot Program Evaluation.* Prepared for National Grid, NSTAR Electric, Western Massachusetts Electric Company. Opinion Dynamics Corporation, Waltham, MA.

# Interpreting smart grid research (with more smarts)

- Who are we recruiting into smart grid pilots and “smart” programs
- How does that affect results “at scale”
- What is the financial implication of getting it (more) right?
  - Optimal investment
  - Valuation examples

# Consider “system challenges”

- E.g. Rates and EV adoption clusters
- *A significant fraction of those that are most likely (and able \$) to adopt EVs are unwilling to lose convenience charging even for rate penalty.*
- *However many of these households will respond to insurance breaks and higher tech solutions like managed appliances.*



# Keep your eye on the prize

- Smart grid/smart meter marketing dollars have eclipsed efficiency marketing dollars. Use them to
  - 1) drive short term EE/DR gains while Smart Grid unfolds by **TARGETING FOR YIELD. Not AWARENESS**
  - 2) identify those households most likely (and in **THE RIGHT PLACES**) to deliver high value (marginal cost) **YIELD.**

**IN THE END DYNAMIC DISPATCH VALUE IS GREATER THAN EE AND DR**

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Save the Date



## 22<sup>nd</sup> National Conference & Expo

February 6-10, 2012  
Hilton San Diego Bayfront

