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Xcel Energy

# Can High Bill Alerts Help Utility Customers to Save Energy?

Jim Stewart, Ph.D.

Behavior, Energy, and Climate Change Conference  
Sacramento, CA  
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behavior, energy & climate change  
**becc**  
2019 Conference  
Nov 17 - 20  
Sacramento, CA

## Agenda

- HBA Pilot
- Evaluation Approach
- Findings
- Takeaways and Future Research

## HBA Pilot Overview

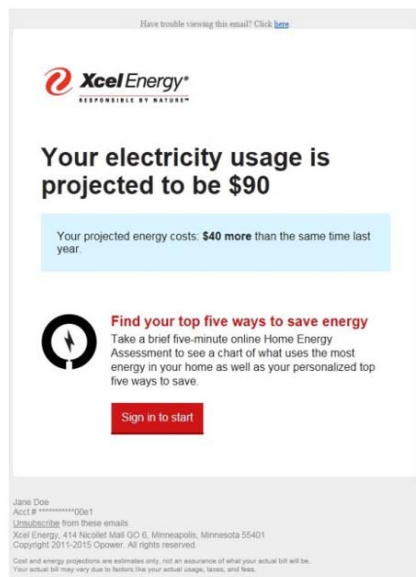
- **Xcel Energy sought to reduce call center call volumes**
  - Many residential customers inquire about higher-than-expected bills
  - Reduce customer service costs
- **High Bill Alert Pilot Program**
  - 50,000 MN residential dual-fuel customers automatically enrolled
  - Email alert sent when customer's monthly electricity or gas consumption was on track to exceed normal levels
  - Alerts sent June 2015 - June 2016
  - HER customers excluded
  - Implemented by Opower (Oracle)

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## High Bill Alert Email



### Features

- ← Xcel Energy branding
- ← Bill alert when spending on track to be 30% higher than normal
- ← Recipient directed to Xcel Energy's on-line Home Energy Assessment website
- ← Customers can opt out

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## Research Objectives

- **No statistically significant effect on customer call center call volumes (Source: Opower/Oracle analysis)**
- **Cadmus research objective**
  - Estimate customer gas and electricity savings during and after the pilot

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## HIGH BILL ALERTS, IS THE EXCITEMENT BACK?

- **Comparison between HBAs and HERs**

	HER	HBA
ENCOURAGES ENERGY EFFICIENCY	✓	✓
SCALABLE	✓	✓
NEIGHBOR COMPARISONS	✓	
SELF-COMPARISONS	✓	✓
OPT-OUT PROGRAM DESIGN	✓	✓
POSTAL MAIL DELIVERY	✓	
EMAIL OR TEXT DELIVERY	✓	✓
EVALUABLE AS RCT	✓	✓
ENERGY SAVINGS	✓	?

- **Do HBAs save energy?**

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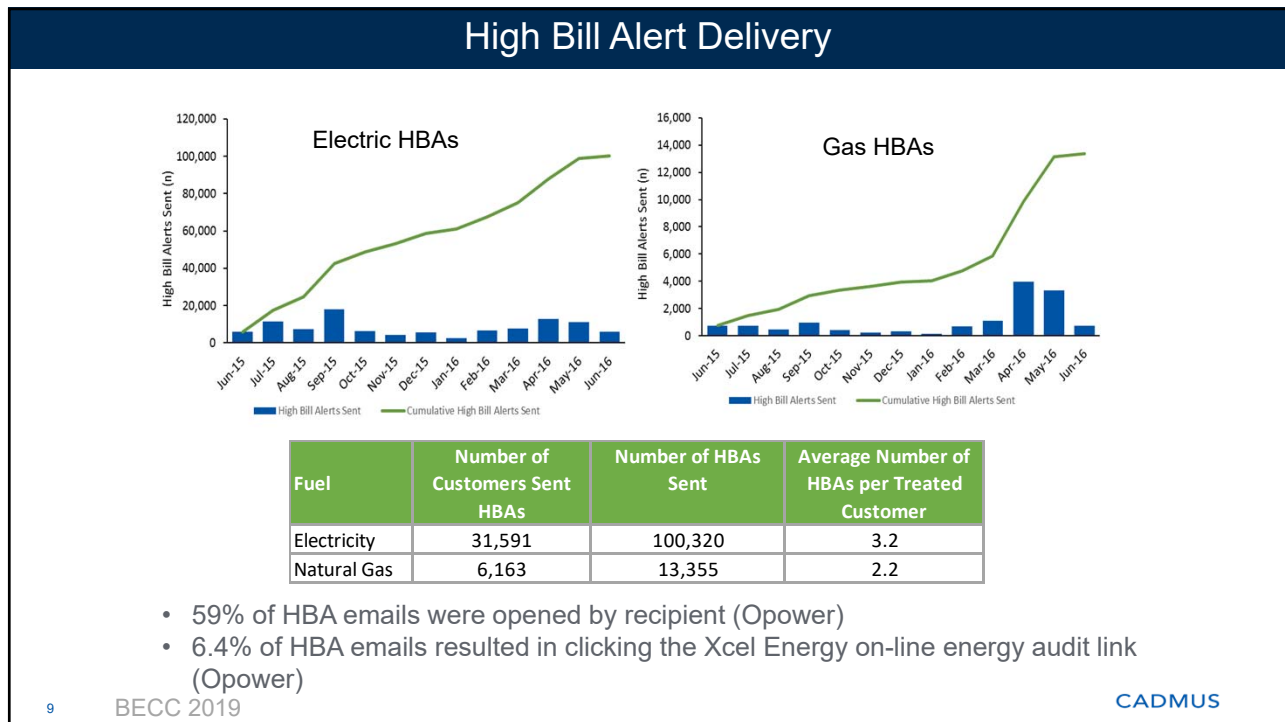
## Evaluation Approach

- **Pilot implemented as an RCT**
  - 50,000 treatment group customers and 25,000 control group customers
  - Only treatment group customers eligible to receive HBAs
- **Monthly billing consumption data**
- **Validation of randomized experiment**
- **Fixed-effects D-in-D panel regression**
- **Estimated savings for two phases:**
  - Phase 1: HBAs delivered (June 2015 - June 2016)
  - Phase 2: HBA delivery suspended (July 2016 – April 2018)

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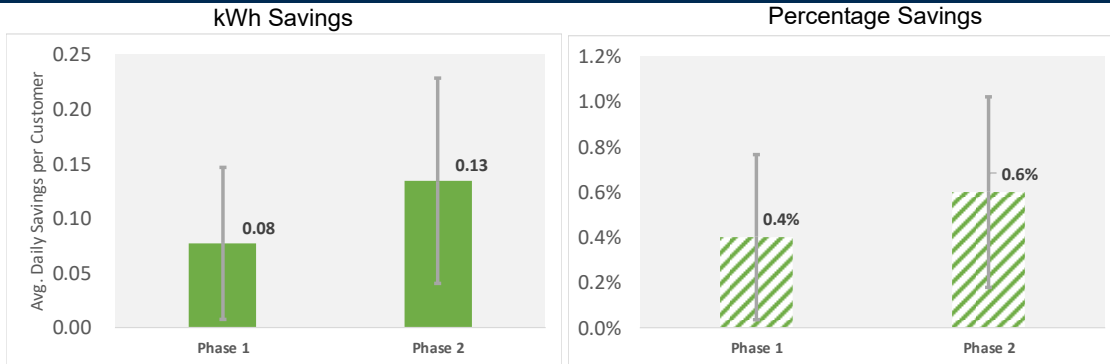


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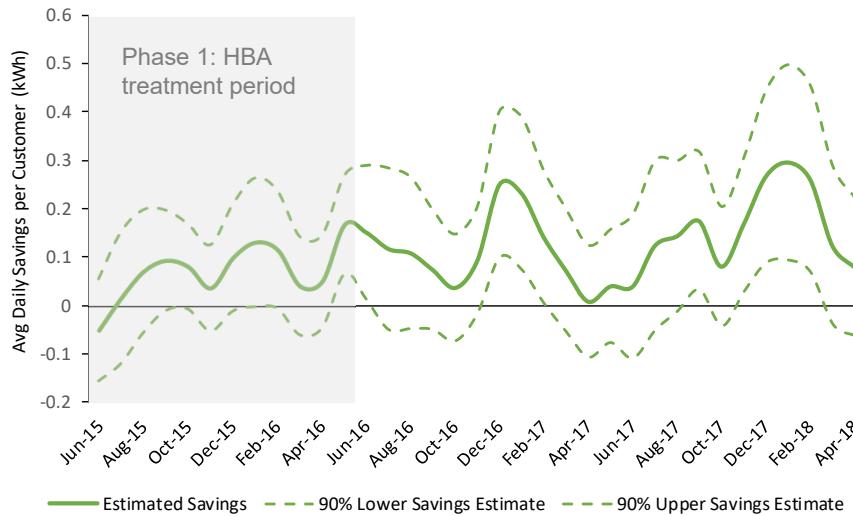
## Electricity Savings Estimates



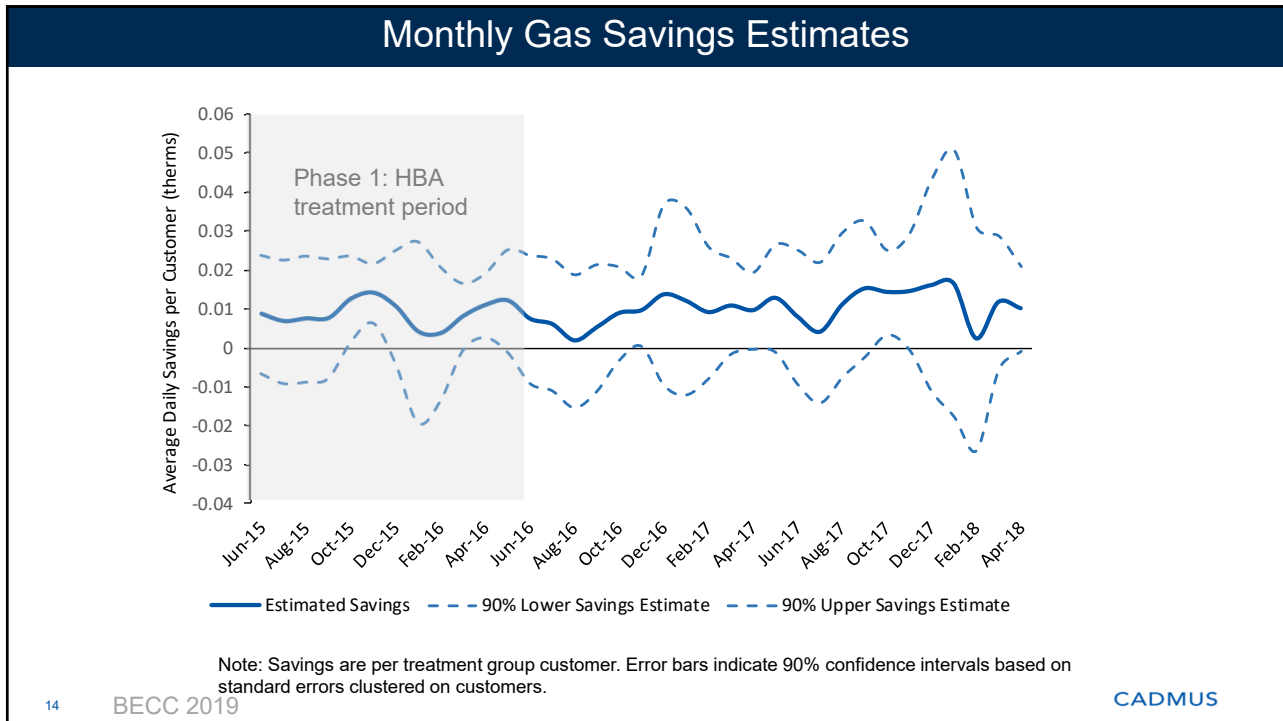
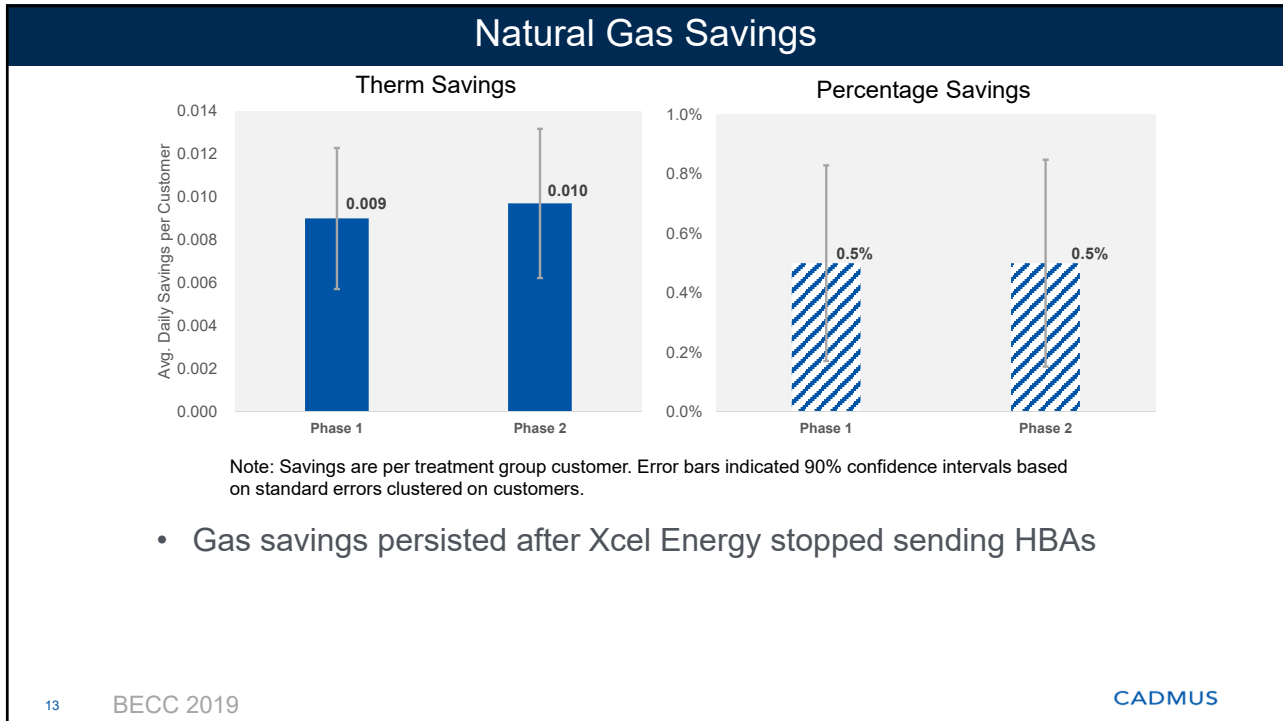
Note: Savings are per treatment group customer. Error bars indicated 90% confidence intervals based on standard errors clustered on customers.

- Electricity savings persisted after Xcel Energy stopped sending HBAs

## Monthly Electricity Savings Estimates



Note: Savings are per treatment group customer. Error bars indicate 90% confidence intervals based on standard errors clustered on customers.



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## Takeaways

### **#1: HBAs did not reduce call center call volumes but generated energy savings**

- Electricity and natural gas savings of about 0.5% during treatment

### **#2: Gas and electricity savings persisted after HBA treatment ended**

- Electricity savings increased after Xcel Energy stopped sending HBAs

### **#3: HBAs have other potential benefits that this evaluation did not assess**

- Utility customer welfare
  - Inattention
  - Monitoring costs
- Customer satisfaction with the utility

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## Outstanding Research Questions

### #1: What are effects of HBAs on customer engagement, satisfaction, and welfare?

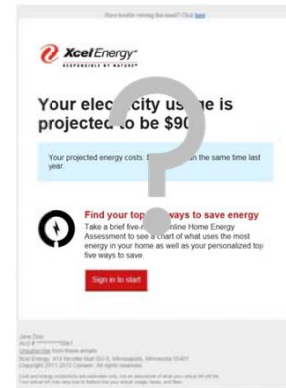
- Value from alerts
- Behavioral changes
- Impact on customer satisfaction with utility

**Research approach: Customer surveys, willingness-to-pay analysis**

### #2: How do HBAs generate energy savings? Why do HBA savings persist?

- Visits to Home Energy Assessment website?
- Participation in Excel Energy efficiency programs?

**Research approach: Customer surveys and channeling/joint savings analysis**



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Thank You  
Questions?