Call Participants
Residential Network Members

- Build It Green
- City of Fort Collins (CO)
- City of Plano (TX)
- City of Sunnyvale (CA)
- Energy Efficiency Specialists, LLC
- EnergySavvy
- Greater Cincinnati Energy Alliance (GCEA)
- International Center for Appropriate & Sustainable Technology (ICAST)
- Local Energy Alliance Program (LPEA)
- Performance Systems Development (PSD)
Call Participants
Non-Members

- Bonneville Power Administration (BPA)
- Cascade Natural Gas Corporation
- CLEAResult
- CMC Energy Services
- ComEd
- Debra Little Sustainable Design
- Eco Rehab
- Erie County (NY)
- Fuel Fund of Maryland
- Mpower Oregon

- Opower
- Snohomish County Public Utilities District (WA)
- Sustainable Environments Inc.
- U.S. Department of Housing and Urban Development (HUD)
Call Participant Locations
Agenda

- Agenda Review and Ground Rules
- Opening Polls
- Brief Residential Network Overview
- Featured Speakers
  - Ben Packer, Principal Data Scientist, Opower
  - Mark Ghazal, Senior Product Manager, EnergySavvy (Residential Network Member)
- Discussion
  - What approaches has your organization used to differentiate energy efficiency customers for the purposes of targeted marketing?
    - What types of data has your organization used (building stock, customer behavior, demographic, energy use, etc.)?
    - What approaches have been most useful and cost-effective?
  - How have you adjusted your marketing and/or services based on knowing more about different parts of your customer base?
  - How do you determine whether/when to shift from one-size-fits-all marketing to more targeted marketing to customer segments?
  - Other questions/issues related to audience segmentation and targeted marketing?

- Closing Poll and Upcoming Call Schedule
Which of the following best describes your organization’s experience with audience segmentation analysis for targeted marketing?

- Some experience/familiarity – 46%
- Limited experience/familiarity – 38%
- No experience/familiarity – 8%
- Very experienced/familiar – 8%
- Not applicable – 0%
Opening Poll #2

How has your organization differentiated EE customers for marketing and service delivery?

- Customer demographic data – 71%
- Building type/characteristics – 71%
- Energy use/consumption data – 42%
- Customer behavior data – 21%
- Other (please explain) – 4%
Better Buildings Residential Network: Connects energy efficiency programs and partners to share best practices and learn from one another to increase the number of homes that are energy efficient.

Membership: Open to organizations committed to accelerating the pace of home energy upgrades.

Benefits:
- Peer Exchange Calls 4x/month
- Tools, templates, & resources
- Recognition in media, materials
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- Residential Program Solution Center guided tours

Commitment: Provide DOE with annual number of residential upgrades, and information about associated benefits.

For more information or to join, email bbresidentialnetwork@ee.doe.gov
Web portal of residential EE upgrade program resources, & lessons learned to plan better, avoid reinventing the wheel.

- BB Neighborhood Program, Home Performance with ENERGY STAR Sponsors+

- Provides:
  - Step-by-step guidance
  - Examples
  - Tools and Templates
  - Quick Links and Shortcuts
  - Lessons learned
  - Proven Practices posts – see the latest on Quality Assurance
  - Tips

- Continually add content to support residential EE upgrade programs—member ideas wanted!

https://bbnp.pnnl.gov/
Program Experience:
Ben Packer, Principal Data Scientist
Opower
Personalization Through Load Curve Analysis

Ben Packer, Principal Data Scientist, Opower
Yearly archetypes

MONTHLY ELECTRIC USAGE
KWh

- Winter peak
- Summer peak
Nancy is a winter peaker

NANCY HERSH 2014 MONTHLY ELECTRIC USAGE KWh

But there’s more …
Nancy has a smart meter!
Hourly data opens a window into how she lives

NANCY HERSH 2014 WEEKDAY HOURLY USAGE

...but they’re most active 7-11pm (eat dinner ~9pm!)

Her house gets going about 7am

Someone is often home during the day....
Machine learning automates the process
Smart Meter Data

![Graph showing kilowatt hours vs. hour of day]
Load Curves – All Customers

Load Curves From 1,000 Customers

Proportion of Usage in Each Hour

Hour of the Day

0:00 4:00 8:00 12:00 16:00 20:00 24:00

2.5% 5.0% 7.5% 10.0%
Load Curves – After Clustering

Load Curves From 1,000 Customers

Proportion of Usage in Each Hour

Hour of the Day
Enter the AMI archetypes

- **Steady Eddies**
  - Hour of the day: 0.00, 4.00, 8.00, 12.00, 16.00, 20.00, 24.00
  - Proportion of usage: 3%, 4%, 5%, 6%

- **Evening Peakers**
  - Hour of the day: 0.00, 4.00, 8.00, 12.00, 16.00, 20.00, 24.00
  - Proportion of usage: 3%, 4%, 5%, 6%

- **Night Owls**
  - Hour of the day: 0.00, 4.00, 8.00, 12.00, 16.00, 20.00, 24.00
  - Proportion of usage: 3%, 4%, 5%, 6%

- **Twin Peaks**
  - Hour of the day: 0.00, 4.00, 8.00, 12.00, 16.00, 20.00, 24.00
  - Proportion of usage: 3%, 4%, 5%, 6%

- **Daytimers**
  - Hour of the day: 0.004.00, 8.00, 12.00, 16.00, 20.00, 24.00
  - Proportion of usage: 3%, 4%, 5%, 6%
Evening Peaker

Proportion of usage in each hour

Hour of the day
Use Case: Identifying customers for DR

This is an alert from UtilCo: Tomorrow, Wednesday, July 10th is a peak day. From 2 PM to 7 PM join UtilCo customers by reducing your electric use. Simple ways to save on peak days include postponing dishwashing and other large appliance use until the peak day is over. Thank you for helping us save! To opt out of phone alerts, press 9
The stories behind the shapes

<table>
<thead>
<tr>
<th>Steady Eddies</th>
<th>Evening Peakers</th>
<th>Night Owls</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
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<td><img src="image4.png" alt="Graph" /></td>
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The stories behind the shapes
Demographics alone do not predict EE savings

**Energy savings by income**

- 0-25k
- 25-50k
- 50-75k
- 75-100k
- >100k

**Energy savings by age**

- 18-29
- 30-39
- 40-49
- 50-59
- 60+

**Energy savings by # of residents**

- 1 resident
- 2 residents
- 3 residents
- >4 residents

No impact variance by demographic group
Analysis suggests that Daytimers save energy at above average rates

Why do you think this is?
And Steady Eddies save less energy than most during BDR events

BDR PEAK REDUCTION % BY ARCHETYPE ACROSS 3 CLIENTS, CONDITIONAL ON USAGE, 80% CONFIDENCE INTERVALS

Why do you think this is?
Segment Customers

- All Relevant Customers (979,232)
  - Utility is UTIL (979,232)
    - Has Valid Email is true (491,656)
      - Evening Peakers (Load Curve Archetype) (58,669)
      - Late Afternoon Peakers (Load Curve Archetype) (70,510)
    - Everyone else (487,576)
      - Night Owls (Load Curve Archetype) (35,153)
      - Night / Weekend Peakers (Load Curve Archetype) (23,362)
        - Communication: Night/Weekend Email 1 (11,581)
        - Communication: Night/Weekend Email 2 (11,581)
Targeted Tips

Replace your inefficient light bulbs with LEDs
Standard incandescent bulbs are relatively inefficient and costly to use and replace. Consider switching to light-emitting diodes (LEDs) — they are shatter resistant, use up to 80% less energy, and last 25 times longer.

Power down your cable or DVR box when it’s not in use
Most set-top boxes in homes today constantly operate at near full power, even when no one’s watching or recording a show. Consider unplugging your set-top box when you’re not using it (note that it could take a few hours to reload certain features).
Extracts to Utilities

Load curve assignments for utility with an unusual climate and demographic breakdown

Utility X
- 25% of customers unassigned

Other utilities
- 10% of customers unassigned
Unlike other utilities, Steady Eddies in this utility have lower average energy consumption.
Extracts to Utilities

Client 1:
Currently using extract for descriptive analysis
Unusual demographic/climate makeup, but most customers still fit the archetypes well

Client 2:
Imported extract into their segmentation tool

Client 3:
Planning to use extract for targeted messaging and program marketing
Thank you!

Ben Packer, Principal Data Scientist, Opower
Program Experience:
Mark Ghazal, Senior Product Manager
EnergySavvy
Customer Segmentation

Better Buildings Residential Network
Peer Exchange Call, 9-24-15

Mark Ghazal, EnergySavvy
EnergySavvy – Brief Introduction

Cloud solutions for customer intelligence, engagement, and action

Quick Facts

- Founded in 2008
- 25+ utility and public benefit corporation clients
- 75 employees
- 100% cloud software
- Seattle and Boston offices
Segmentation and Targeting

Traditional personas using utility and third-party data

Utility Data
- Address
- Usage

Market Data
- Demographics
- Psychographics

Customer Personas

Sample Sally

BACKGROUND:
- Head of Human Resources
- Worked at the same company for 10 years; worked her way up from HR Associate
- Married with 2 children (10 and 8)

DEMOGRAPHICS:
- Skews female
- Age 30-45
- Dual HH Income: $140,000
- Suburban

IDENTIFIERS:
- Calm demeanor
- Probably has an assistant screening calls
- Asks to receive collateral mailed/printed
Let’s start with your customers

Utility customers with different backgrounds, needs, and motivations

Persona 1: Bob
• Bob is 67 years old
• Lives in his home of 30+ years
• Married, with grandchildren
• Retired teacher, fixed income
• Computer literate, but only pays his bills by check in the mail

Persona 2: Emma
• Emma is 28 years old
• Bought first condo
• Has a roommate
• Office job with in-city commute
• Tech-savvy, but little interaction with utility

Persona 3: Melissa
• Melissa is 42 years old
• Professional photographer
• Married, two kids in school
• She and husband both work
• Super busy schedules
• No time, pays bills online at 10pm

Persona 4: John
• John is 48 years old
• Hardware store owner
• Works 60-80 hours per week
• Little time and attention to utilities, but…
• Motivated by the bottom line

There’s a lot more we now know.
Segmentation and Targeting

Utility-accessible data AND customer-provided data

Utility Data
- Address
- Usage

Customer-driven Data
- Structure
- Heating & Cooling
- Appliances
- Behavior
- Program participation
- Premise participation
- Program Impact

Market Data
- Demographics
- Psychographics
Leveraging Customer-Driven Data
Both customer reported and observed
Example Customer Journey: Bob

Wants lower bills, strong preference for mail and phone

Calls about high bill

- Completes mailed audit
- Receive report, saving options
- Signs up for TOU rate
- Candidate for efficient A/C

Core Customer Service | DSM | Emerging
Customer Journey: Emma

Digital Millennial who wants to be comfy AND green

Core Customer Service  | DSM  | Emerging

Trigger
Interaction 1
Interaction 2
Interaction 3
Follow Up

Move in, start service

Solutions for drafty home
Completes online audit
Purchase air sealing
Target for comm. solar
Customer Journey: Melissa

Working parent who doesn’t have much free time

Core Customer Service | DSM | Emerging

- Trigger
- Interaction 1
- Interaction 2
- Interaction 3
- Follow Up

- Signs up for e-bill pay
- Completes online audit
- ENERGY STAR fridge rebate
- DR trigger to mobile device
- Candidate for solar
Customer Journey: John

Small business owner, $$ motivated but enviro-sensitive

Core Customer Service | DSM | Emerging

- OBP TOU rates
- Opt-in HVAC DR
- Business walk-in: online audit
- Onsite building audit
- Lighting retrofit
- Selected for Targeted QA
Personas Become Individuals
Actionable Insights from Personalized Data

Instead of a persona applied to thousands…

Sample Sally

BACKGROUND:
- Head of Human Resources
- Worked at the same company for 10 years
- Married for 20 years
- Married with 2 children: 10 and 8

DEMOGRAPHICS:
- Sharma female
- Education Level: Bachelor
- Dual H1-B Income: $40,000
- Suburban

IDENTIFIERS:
- Calm demeanor
- Probably has an assistant screening calls
- Aids in receiving collateral mailed/printed

…insights applied to individuals.
Thank you!

Mark Ghazal
Senior Product Manager
Discussion Questions

- What approaches has your organization used to differentiate energy efficiency customers for the purposes of targeted marketing?
  - What types of data has your organization used (building stock, customer behavior, demographic, energy use, etc.)?
  - What approaches have been most useful and cost-effective?

- How have you adjusted your marketing and/or services based on knowing more about different parts of your customer base?

- How do you determine whether/when to shift from one-size-fits-all marketing to more targeted marketing to customer segments?

- Other questions/issues related to audience segmentation and targeted marketing?
Knowing customers’ energy profiles, such as with detailed energy use information and/or history of program interactions, can help programs tailor custom messages and services to different groups.

Advanced metering infrastructure (AMI) (“Smart Meter”) data makes it possible for a utility or program to develop in-depth profiles of customer energy-use patterns.

Demographic and energy-use data alone may not tell enough to accurately pinpoint a customer, so a program may need to combine different data sources better understand target audiences. Example data sources include:

- County data about premises and owners
- Utility/program interaction data
- Inputted energy audit information
- Monthly billing data

The Better Buildings Residential Network Solution Center has information on how to assess and target your market, including examples of surveys that programs have used.
Beginning in October, we will hold one Peer Exchange call every Thursday from 1:00-2:30 pm ET.

This is a change from the current call schedule.

Calls cover a range of topics, including financing & revenue, data & evaluation, business partners, multifamily housing, and marketing & outreach for all stages of program development and implementation.

Upcoming calls:
- October 8: On-Bill Financing: Reducing Cost Barriers to Energy Efficiency Improvements (201)
- October 15: You Are My Sunshine: Integrating Residential Solar and Energy Efficiency (301)
- October 22: Programs and Contractors – Top Tips for Successful Relationships! (101)
- October 29: Ghosts in the Attic – Horror Stories from the Field (What to Do When Things Go Wrong) (201)

Send call topic ideas to peerexchange@rossstrategic.com
Closing Poll

- After today's call, what will you do?
  - Seek out additional information on one or more of the ideas – 73%
  - Make no changes to your current approach – 18%
  - Consider implementing one or more of the ideas discussed – 9%
  - Other (please explain) – 0%

Please send any follow-up questions or future call topic ideas to: peerexchange@rossstrategic.com