SIX GOING ON SEVEN
Market Research Results

PRESENTERS:
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TODAY’S AGENDA
- Project Overview
- Research Objectives & Survey Design
- Key Findings
- Future Planning Considerations
- Q&A

Q&A
PURPOSE OF 6 GOING ON 7

- Goal of this project is to inform the technical review of the Council’s 6th Power Plan
  - Conduct research on questions posed by BPA and customer utilities
  - Supplement Council staff analytics, providing data on where the savings occurred

- Outputs of the project provide us with information to support effective CRAC participation by BPA, customer utilities and regional stakeholders
PROJECT ACTIVITIES

- Literature Review
- Data Collection
- Data Analysis
- Market Research

KEY FINDINGS

- One Target, Many Paths
- Emerging Technologies are Unique
- Emerging Technologies Need Program Infrastructure Support
RESEARCH OBJECTIVES & SURVEY DESIGN

MARKET RESEARCH FOCUS
MARKET RESEARCH OBJECTIVES

- Measure Performance
- Adoption Challenges
- Marketing Strategies
- Overcoming Barrier Strategies
- Planning & Supply Curves
- Effects of Regional Support

SURVEY DESIGN

- 30-45 minute survey
- Open ended & quantitative
- Received input on the survey instrument from BPA, NEEA & the Council

Topics:
- Program Planning
- Savings & Implementation
- Research & Evaluation
- Regional Support & Involvement
SURVEY SAMPLE SELECTION

PARTICIPATION CHECKLIST

- Targeted 20-25 interviews
- Identified utilities that reported emerging technology savings
- Solicited recommendations from BPA, NEEA & Council staff
- Invited all utilities at the CRAC & various brown bag presentations

SURVEY SAMPLE

24 UTILITIES were surveyed
- 14 UTILITIES subject to I-937 legislation
- 4 STATES represented

IOUs  Publics

PARTICIPANTS REPRESENT:

- 63% of total regional savings*
- 88% of Emerging Technology savings
- 71% of regional load

*total regional savings includes savings associated with NEEA initiatives
### THE PEOPLE BEHIND THE RESPONSES

<table>
<thead>
<tr>
<th>Role</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Managers</td>
<td>58%</td>
</tr>
<tr>
<td>Program Planners or Evaluators</td>
<td>29%</td>
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<tr>
<td>Engineers</td>
<td>8%</td>
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<tr>
<td>Executive Management</td>
<td>4%</td>
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</tbody>
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### KEY FINDING:

**ONE TARGET, MANY PATHS**
ACHIEVING TARGETS

JUST NOT THE WAY IT WAS PLANNED

88% of forecasted savings*

195% of forecasted savings*

134% of forecasted savings*

142% of forecasted savings*

*2010-2012

TARGETS WERE MET

ALTERNATIVE PATHS

UTILITIES MAINLY HIT TARGETS THROUGH

1. Markets with Strong Customer Demand
2. Technologies with Mature Program & Market Infrastructure

WE INTERACTED WITH THE MARKET IN TWO WAYS:

• DHPs
• Industrial Energy Management
• T8s

WE MOVED THE MARKET

• TVs
• T8s

WE FOLLOWED THE MARKET
SETTING TARGETS

THREE UTILITY SEGMENTS IDENTIFIED

CUTTING EDGE
Typically aggressive conservation targets that include emerging technologies
24% of survey participants

CLOSE FOLLOWER
Targets are moderate and may/may not include emerging tech
40% of survey participants

TRIED & TRUE
Not subject to mandated targets (e.g., I-937)
36% of survey participants

% contributed toward regional savings

SAVINGS FROM EMERGING TECH

25 aMW of savings was achieved through emerging technologies*
between 2010-2012

85% of these savings (21 aMW)

11% of these savings (3 aMW)

4% of these savings (1 aMW)

IMPACTS OF CODES & STANDARDS ON ESTABLISHED PROGRAMS

POTENTIAL PROGRAM EFFECTS

LIGHTING
50% of respondents* feel that lighting programs will be most impacted.

NEW CONSTRUCTION
35% of respondents* feel that new construction programs will be impacted. In particular from new blower door testing requirements.

RESIDENTIAL APPLIANCES
30% of respondents* feel that residential appliances will be significantly impacted.

*20 Total Respondents

KEY FINDING:
EMERGING TECHNOLOGIES ARE UNIQUE
RESPONDENT DEFINITIONS OF EMERGING TECHNOLOGY

- A new technology defined by the region (BPA, RTF)
- Something new that doesn’t currently exist in the market and has potential energy savings
- The Cadillac version of an existing technology
- Can be a way to use an existing technology to make it more efficient
- Anything that isn’t mainstream
- Commerically available and new
- Market ready

BARRIERS & SOLUTIONS TO EMERGING TECHNOLOGY ADOPTION

TOP 3 BARRIERS

45% FIRST COST & COST EFFECTIVENESS

29% LACK OF INFRASTRUCTURE & TRAINING

25% TECHNOLOGY PERFORMANCE

POTENTIAL SOLUTIONS

- Increased incentives
- Increased saturation to capture economies of scale
- Regional program development
- Increased marketing efforts & trainings
- Conduct research, performance testing or case studies
CUSTOMER / MARKET RESPONSE

70% said their customers are interested in new or emerging technologies, but said that it depends on the technology.

MORE INTEREST
- DUCTLESS HEAT PUMPS
- LEDs
- IN-HOME ENERGY MONITORING

LESS INTEREST
- HEAT PUMP WATER HEATERS

KEY FINDING:
EMERGING TECHNOLOGIES NEED PROGRAM INFRASTRUCTURE SUPPORT
THE IMPORTANCE OF REGIONAL SUPPORT

IDENTIFIED REGIONAL SUPPORT for the development of EE programs & promoting emerging technologies.

92%
Of respondents think regional efforts are very or somewhat important for achieving long & short term targets and goals.

88%
Of respondents think regional efforts are very or somewhat important for promoting emerging technologies.

RESEARCH & EVALUATION
PROGRAM PLANNING
TECHNOLOGY DEMONSTRATION

NEW MEASURES

PROGRAMMATIC APPROACH

• Demonstrate Technology
• Run Pilots
• Train Trade Allies

• Add Measures to Existing Programs
• Partner with other Utilities
• Participate in Regional Efforts
NEW MEASURES

How does your organization determine which measures to include in programs?

- **CUSTOMER INTEREST**
  - 11 RESPONDENTS

- **CPA / IRP**
  - 9 RESPONDENTS

- **REGIONAL POWER PLAN**
  - 6 RESPONDENTS

- **BPA IMPLEMENTATION MANUAL**
  - 4 RESPONDENTS

- **TRADE ALLIES**
  - 4 RESPONDENTS

- **COST-EFFECTIVENESS**
  - 2 RESPONDENTS

Cutting Edge
Close Follower
Tried & True

KEY FINDING IMPLICATIONS

**One Target...Many Paths**
- All utilities that set targets met them but with variation in measure mix compared to the 6th Plan
- Achievements were impacted by program infrastructure, adoption rate, customer demand and market actor engagement

**Emerging Technologies Are Unique**
- Not all utilities offer them
- We define them differently
- Market uncertainty
- There’s a need to move cautiously

**Emerging Technologies Need Program Infrastructure Support**
- Successful customer uptake is dependent upon regional infrastructure and existing markets
- Consider program support & strategy in the planning process
### Future Planning

#### NEW MEASURES

**RESIDENTIAL**
- Peak demand and demand response measures
- Gravity film heat exchangers
- Technologies that allow for the storage of on-site generation (e.g. wind, solar, etc.)
- Behavioral measures: Nest Thermostat and program approaches (e.g. MyMeter, Opower, Pay As You Go billing)

**COMMERCIAL/INDUSTRIAL**
- Peak demand and demand response measures
- Pump systems for commercial buildings
- Variable refrigerant flow (VRF) heat
- More deemed approaches to VFDs
- Gravity film heat exchangers
- More analysis of DEI, voltage optimization, and utility distribution efficiency
- Technologies that allow for the storage of on-site generation (e.g. wind, solar, etc.)
BONNEVILLE POWER ADMINISTRATION

NEXT STEPS

DATA COLLECTION
2013 data has been collected and analysis has begun

DATA ANALYSIS
2013 will be added to the 2010-2012 analysis captured in phase 1 and presented

MARKET RESEARCH
Address any questions or need for clarification and publish results

ANY QUESTIONS?
QUESTIONS?

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