# SIX GOING ON SEVEN

## Market Research Results

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## TODAY'S AGENDA

- ☐ Project Overview
- ☐ Research Objectives & Survey Design
- ☐ Key Findings
- ☐ Future Planning Considerations
- ☐ Q&A

# PROJECT OVERVIEW



## 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

IOUs Publics

**4** STATES represented


**14** UTILITIES subject to I-937 legislation

**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

**58%**
PROGRAM MANAGERS

**29%**
PROGRAM PLANNERS OR EVALUATORS

**8%**
ENGINEERS

**4%**
EXECUTIVE MANAGEMENT

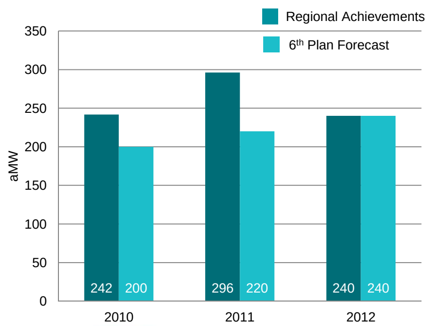



KEY FINDING:

## ONE TARGET, MANY PATHS

B O N N E V I L L E   P O W E R   A D M I N I S T R A T I O N

# ACHIEVING TARGETS




TARGETS WERE MET

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



B O N N E V I L L E   P O W E R   A D M I N I S T R A T I O N

# 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:

WE **MOVED** THE MARKET

- DHPs
- Industrial Energy Management
- T8s

WE **FOLLOWED** THE MARKET

- TVs
- T8s

# 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

*Ductless Heat Pumps, Heat Pump Water Heaters & Industrial Energy Management

**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

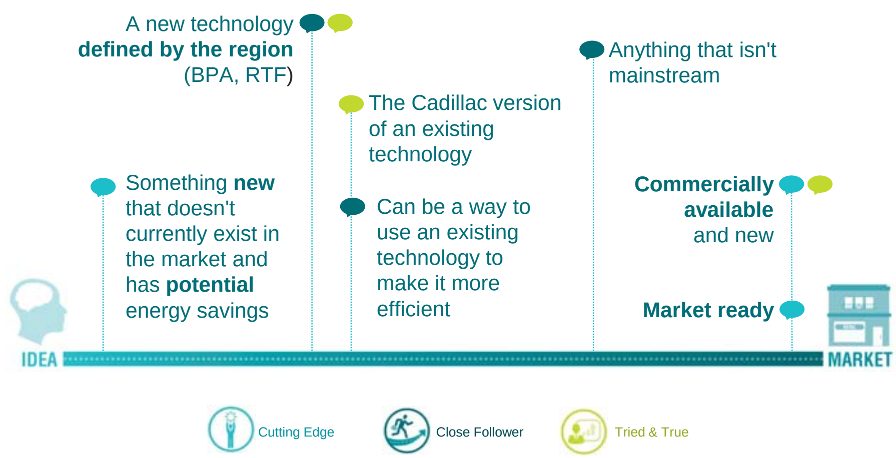
*20 Total Respondents



KEY FINDING:

# EMERGING TECHNOLOGIES ARE UNIQUE

# RESPONDENT DEFINITIONS OF EMERGING TECHNOLOGY






BONNEVILLE POWER ADMINISTRATION

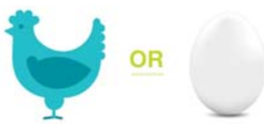
# BARRIERS & SOLUTIONS TO EMERGING TECHNOLOGY ADOPTION

| **TOP 3** BARRIERS | POTENTIAL SOLUTIONS |
|---|---|
| **45%** FIRST COST & COST EFFECTIVENESS | ▪ Increased incentives<br>▪ Increased saturation to capture economies of scale |
| **29%** LACK OF INFRASTRUCTURE & TRAINING | ▪ Regional program development,<br>▪ Increased marketing efforts & trainings |
| **25%** TECHNOLOGY PERFORMANCE | ▪ 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.

- **RESEARCH & EVALUATION**
- **PROGRAM PLANNING**
- **TECHNOLOGY DEMONSTRATION**

**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.





# NEW MEASURES


PROGRAMMATIC APPROACH

- Demonstrate Technology
- Run Pilots
- Train Trade Allies

- Add Measures to Existing Programs
- Partner with other Utilities

- Participate in Regional Efforts

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# NEW MEASURES

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

Cutting Edge

Close Follower

Tried & True

11 RESPONDENTS
CUSTOMER INTEREST

9 RESPONDENTS
CPA / IRP

6 RESPONDENTS
REGIONAL POWER PLAN

4 RESPONDENTS
BPA IMPLEMENTATION MANUAL

4 RESPONDENTS
TRADE ALLIES

2 RESPONDENTS
COST-EFFECTIVENESS

27

B O N N E V I L L E P O W E R A D M I N I S T R A T I O N

# 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

28

# FUTURE PLANNING



# 7TH POWER PLAN CONSIDERATIONS

## 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.)

# 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?

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