SIX GOING ON SEVEN

Data Aggregation and Analysis

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Lakin Garth, Cadmus

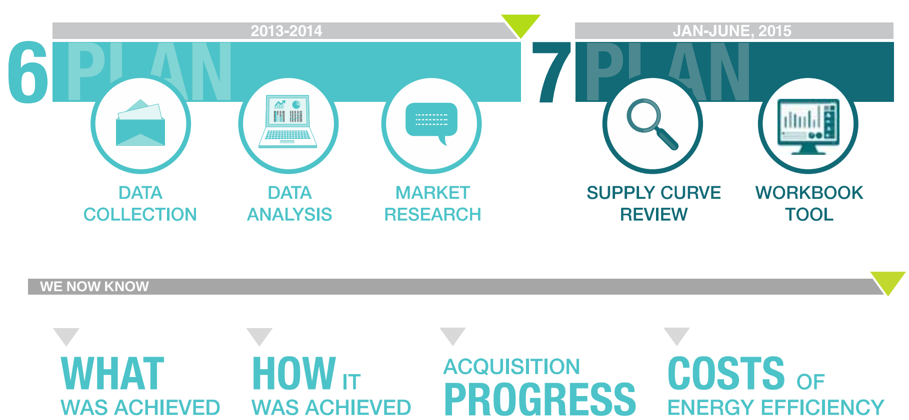
B O N N E V I L L E P O W E R A D M I N I S T R A T I O N

TODAY'S AGENDA

- Project Overview
- The Results
- Next Steps
- Q&A

PROJECT
OVERVIEW

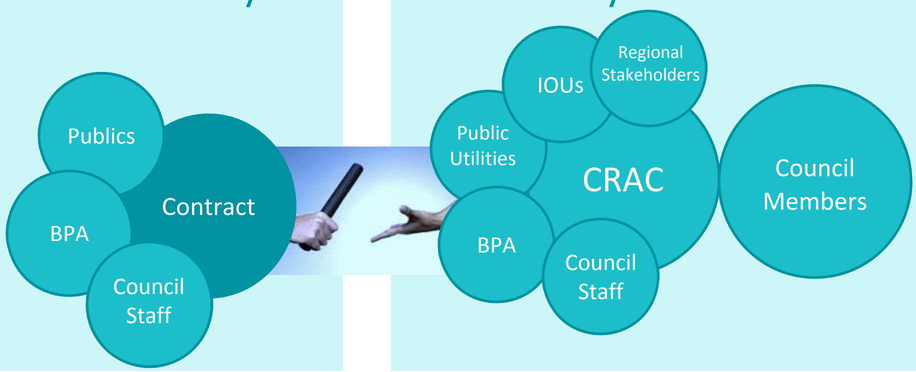
PROJECT OVERVIEW



PROJECT OVERVIEW

Technical Analytics

Policy Decisions



OUR PROCESS

DATA GATHERING → DATA CLEANING → DATA MAPPING

DATABASE DEVELOPMENT → DATA ANALYSIS → MARKET RESEARCH

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ASSUMPTIONS & CAVEATS

1. We are assuming the data are correct
2. We did the best we could with the mapping
3. We had to make a few judgment calls
4. No adjustments to the actual savings were made

7

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HOW COST DATA ARE ASSEMBLED

OUR GOAL:
Estimate and compare regional costs for achieving energy savings for the region by sector, end-use, measure category & technology.

REQUESTED DATA
Incentives, incremental & project costs, units, & measure lives.

GOOD RESPONSE
We received nearly all that was requested.

DEVELOPED PROXIES
For missing data.

8

HOW COST DATA ARE ASSEMBLED

WHAT WE CREATED:

Sector-Specific
ADMINISTRATIVE COSTS

Estimated from:
- RCP total utility expenditure
- Minus 6 Going On 7 collected incentives

S
LEVE

VINGS
OSTS

UTILITY

Administra
+
Incentive

TOTAL

ninistrative
+
Incremental

- Neither include O&M, 10% Act credit, etc.
- Discount rate = 5%
- 2013$/kWh, 2006$/kWh

- 2013$/kWh & million 2013$/aMW
- 2006$/kWh & million 2006$/aMW

HOW DATA ARE BEING USED

Data are available online at
www.bpa.gov/goto/SixGoingOnSeven

COUNCIL STAFF
- Inform baseline saturations
- Adjust available potential
- Inform ramp rate assumptions

BPA & REGIONAL STAKEHOLDERS
- Using to support CRAC participation
- Comparing utility savings achievements and distribution against the region and the 6th Power Plan targets

THE RESULTS

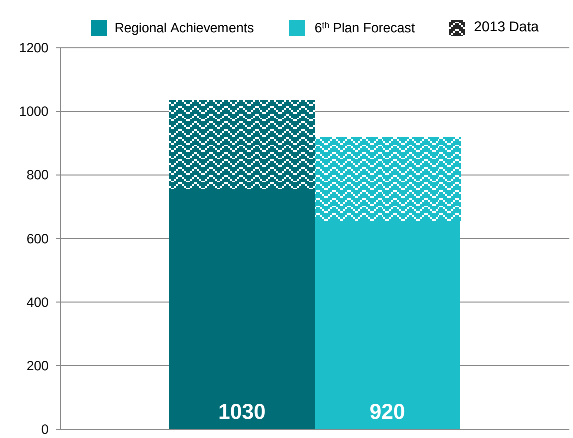
(2010-2013)

REGIONAL ACHIEVEMENTS

6TH PLAN COMPARISONS

SPECIFIC TECHNOLOGIES

REGIONAL ACHIEVEMENTS 2010-2013



85% of forecasted savings

178% of forecasted savings

129% of forecasted savings

136% of forecasted savings

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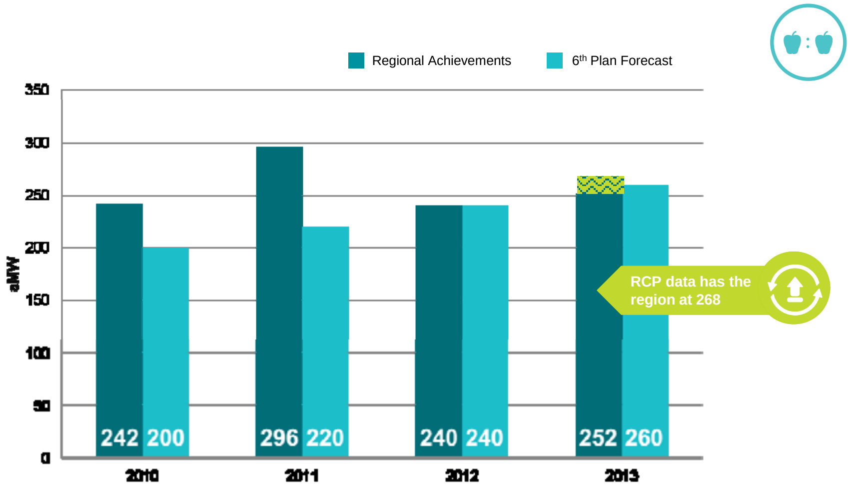
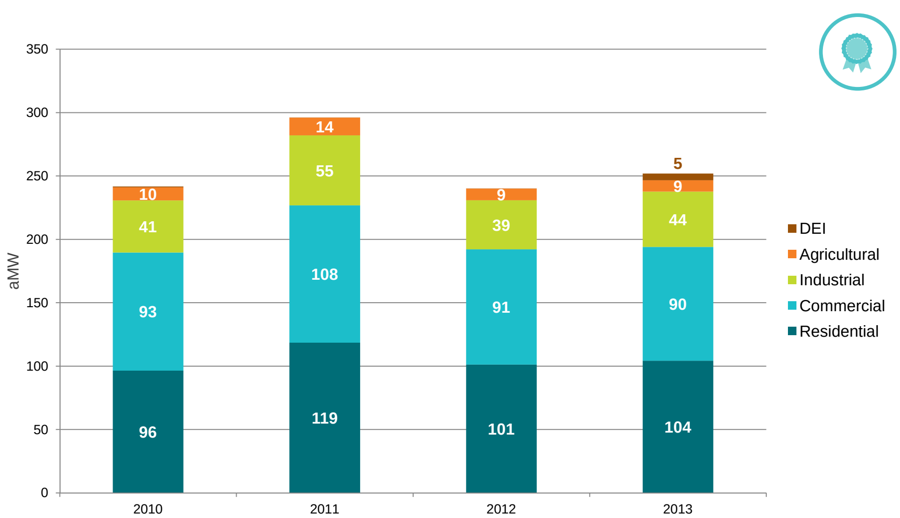
REGIONAL COMPARISON TO 6TH PLAN



13

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

REGIONAL ACHIEVEMENTS BY SECTOR

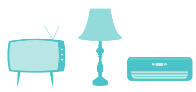


14

HOW TARGETS WERE MET

UTILITIES MAINLY HIT TARGETS THROUGH

1 Markets with Strong Customer Demand

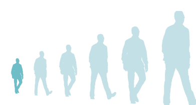


2 Technologies with Mature Program & Market Infrastructure

WE INTERACTED WITH THE MARKET IN TWO WAYS:

WE **MOVED** THE MARKET

- DHPs
- SEM
- T8s

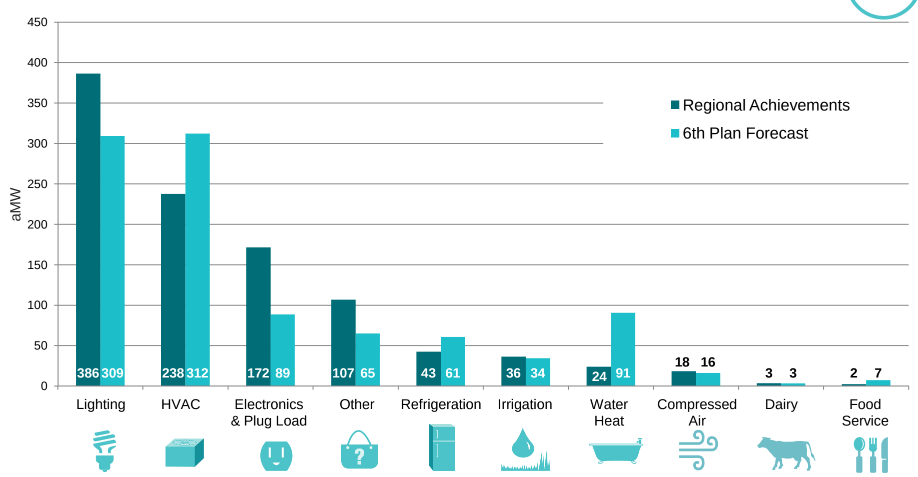


WE **FOLLOWED** THE MARKET

- TVs
- T8s

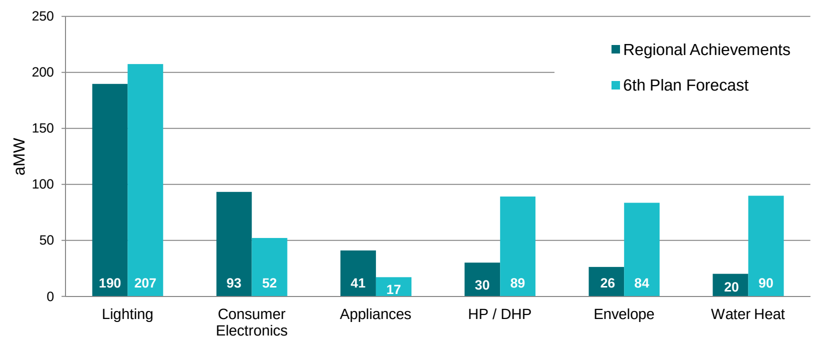
END-USE COMPARISON TO 6TH PLAN

SUMMARY OF END USE (2010-2013)



END-USE COMPARISON TO 6TH PLAN

RESIDENTIAL (2010-2013)



362
aMW Saved
(2010-2013)

$2.5m
$/aMW
UTILITY

$4.8m
$/aMW
TOTAL

2013
First-year Savings
Acquisition Cost

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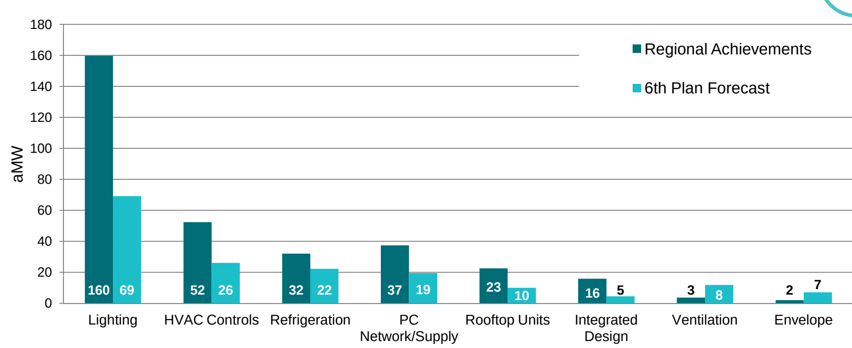
END-USE COMPARISON TO 6TH PLAN

COMMERCIAL (2010-2013)



358
aMW Saved
(2010-2013)

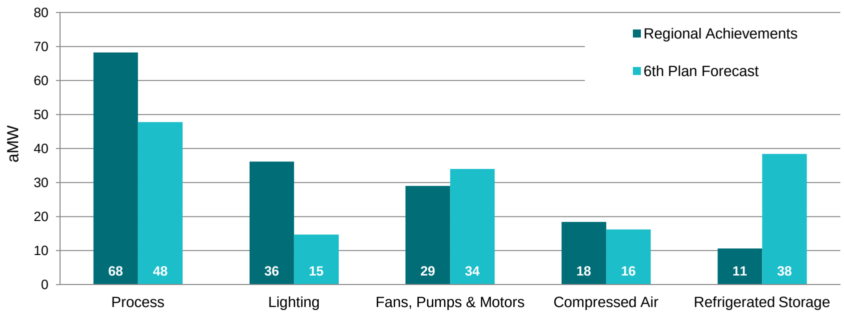
$1.9m
$/aMW
UTILITY

$4.0m
$/aMW
TOTAL

2013
First-year Savings
Acquisition Cost

END-USE COMPARISON TO 6TH PLAN

INDUSTRIAL (2010-2013)



178
aMW Saved
(2010-2013)

$1.4m
$/aMW
UTILITY

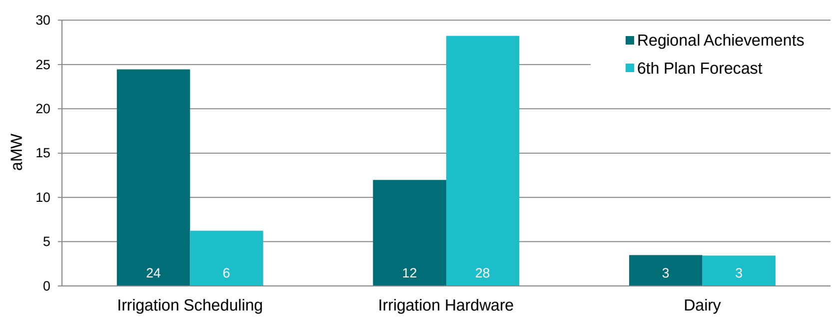
$2.5m
$/aMW
TOTAL

2013
First-year Savings
Acquisition Cost

BONNEVILLE POWER ADMINISTRATION

END-USE COMPARISON TO 6TH PLAN

AGRICULTURAL (2010-2013)



48
aMW Saved
(2010-2013)

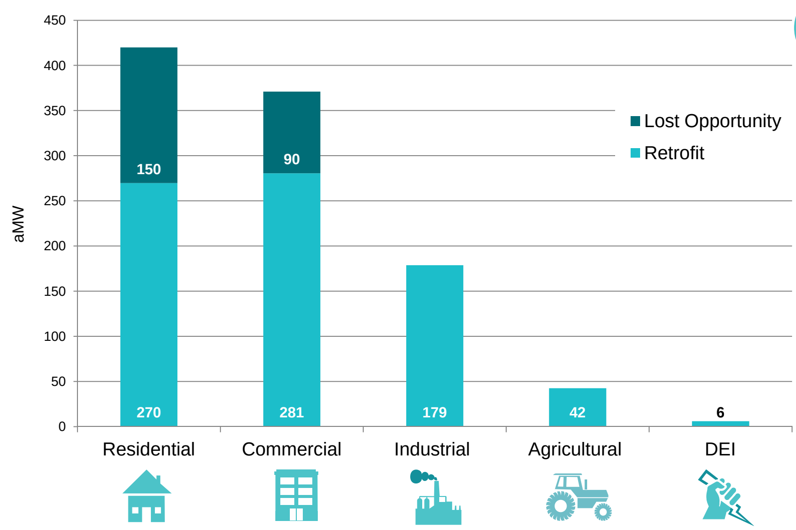
$0.9m
$/aMW
UTILITY

$2.3m
$/aMW
TOTAL

2013
First-year Savings
Acquisition Cost

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

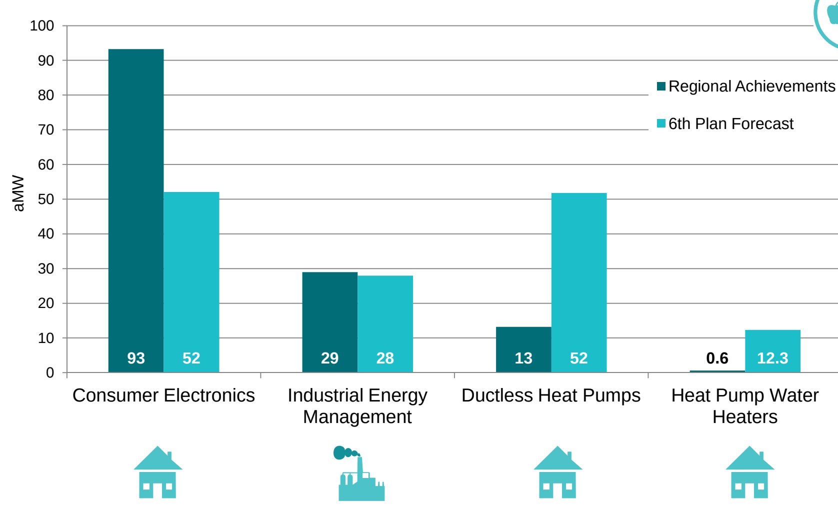
LOST OPPORTUNITY & RETROFIT 2010-2013



21

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

EMERGING TECHNOLOGIES 2010-2013

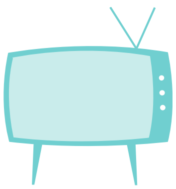


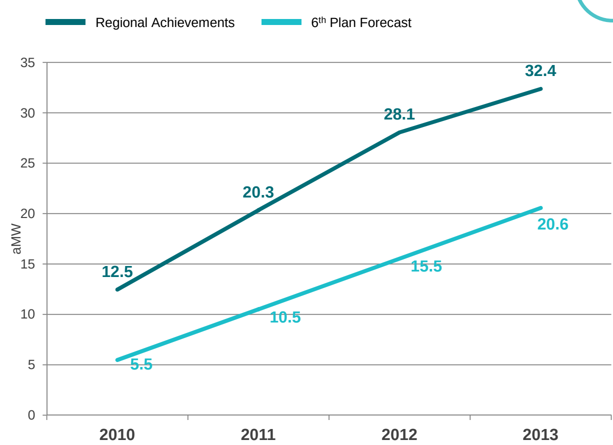
22

BONNEVILLE POWER ADMINISTRATION

ACQUISITION RATES

CONSUMER ELECTRONICS

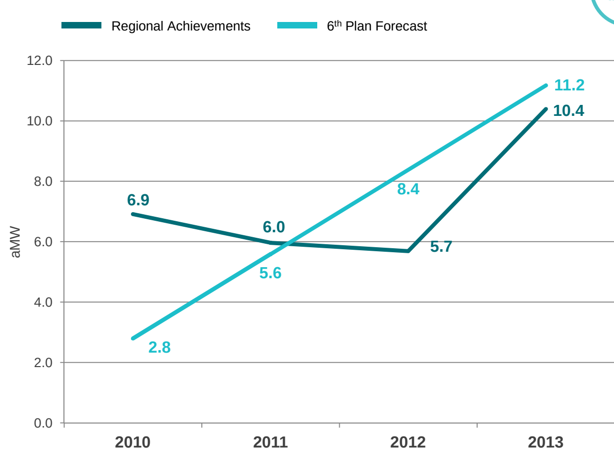




BONNEVILLE POWER ADMINISTRATION

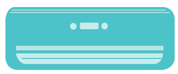
ACQUISITION RATES

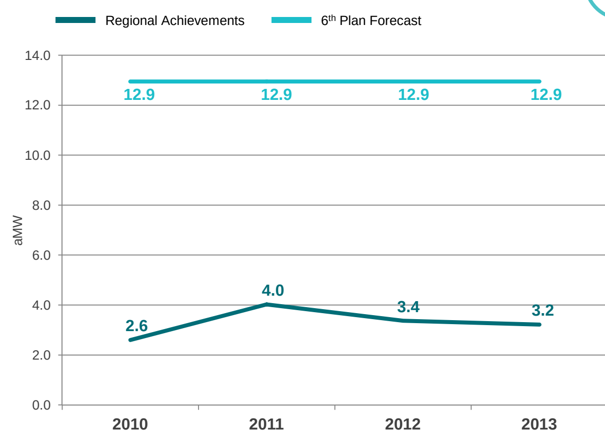
INDUSTRIAL ENERGY MANAGEMENT



ACQUISITION RATES

DUCTLESS HEAT PUMP





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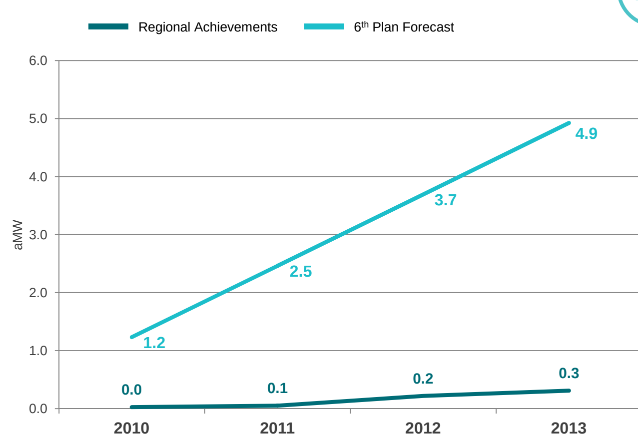
ACQUISITION RATES

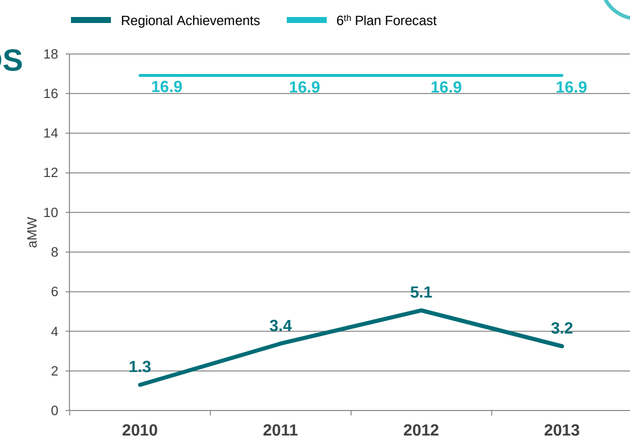
HEAT PUMP WATER HEATER



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

ACQUISITION RATES

RESIDENTIAL SHOWERHEADS



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COST BY EMERGING TECHNOLOGY

LEVELIZED UTILITY COST PER kWh

$0.013
Region saved
29 aMW
between 2010 & 2013
Industrial Energy Management

$0.029
Region saved
13 aMW
between 2010 & 2013
Ductless Heat Pumps

$0.040
Program saved
0.61 aMW
between 2010 & 2013
Heat Pump Water Heaters

$0.088
Program saved
7.6 aMW
between 2010 & 2013
Residential Behavior Programs

TOTAL REGIONAL SAVINGS:
1030 aMW
between 2010-2013

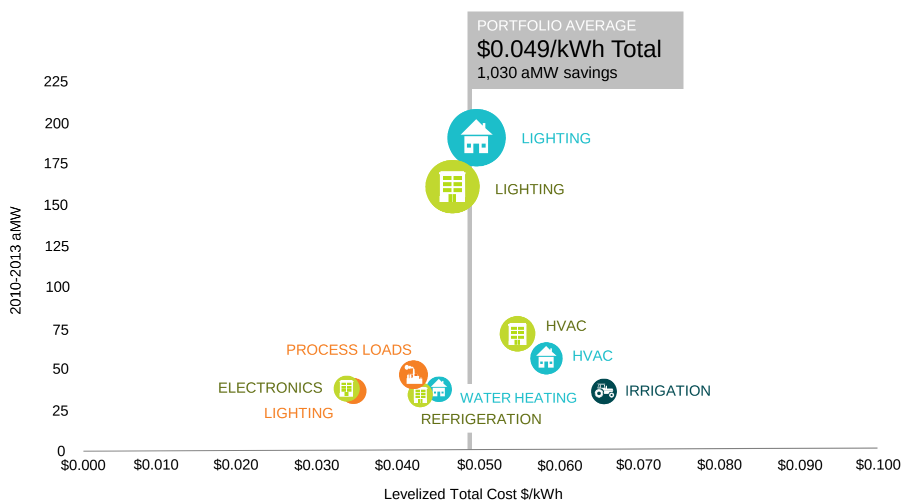
PORTFOLIO AVERAGE COST:
$0.024/kWh
UTILITY

2013
Levelized Cost

BARRIERS & SOLUTIONS TO EMERGING TECHNOLOGY ADOPTION

TOP 3 BARRIERS	POTENTIAL SOLUTIONS
FIRST COST & COST EFFECTIVENESS	▪ Increased incentives ▪ Increased saturation to capture economies of scale
LACK OF INFRASTRUCTURE & TRAINING	▪ Regional program development ▪ Increased marketing efforts & trainings
TECHNOLOGY PERFORMANCE	▪ Conduct research, performance testing or case studies

LEVELIZED TOTAL COSTS OF SELECT END-USES



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

IN CLOSE…

FOR BPA, THE PROJECT FINDINGS ARE VALUABLE TO THE REGION

OUR WORK IS COMING TO A CLOSE

COULD THIS WORK BE CONTINUED ON A REGIONAL LEVEL?

31

NEXT STEPS

NEXT STEPS

1. Post Six Going on Seven Database
2. Finish review of Seventh Plan Supply Curves
3. Develop Draft Comprehensive Workbook
4. Present and Post Comprehensive Workbook

BONNEVILLE POWER ADMINISTRATION

QUESTIONS?

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