

SIX GOING ON SEVEN

Data Aggregation and Analysis

PRESENTERS:

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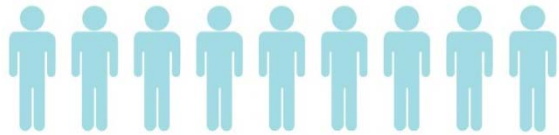
Lakin Garth, Cadmus



TODAY'S AGENDA

- Project Overview
- Data Analysis Process
- The Results
- Next Steps
- Q&A

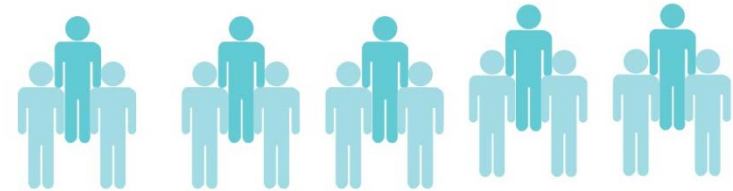
Thank You



9

DATA PROVIDERS

- Avista
- BPA
- Chelan PUD
- Energy Trust of Oregon
- Grant County PUD
- Idaho Power
- NEEA
- PacifiCorp
- Puget Sound Energy



5

STAKEHOLDER REVIEW GROUPS

- Council Staff
- Many Public Utilities
- NEEA
- NW Energy Coalition 7th Plan Working Group
- PPC 7th Plan Working Group

We want your feedback!

Comments go to dngidding@bpa.gov



PROJECT OVERVIEW

BACKGROUND

- BPA uses Power Plan as our Conservation Potential Assessment (CPA) to **set EE goals**
 - We must ensure BPA and public power utilities understand and are **confident in the results**
- During the 6th Plan review process
 - many **questions arose** that we didn't have time, scope or resources to fully explore
- Therefore, for the 7th Plan process, we have developed a project to conduct **technical analysis**

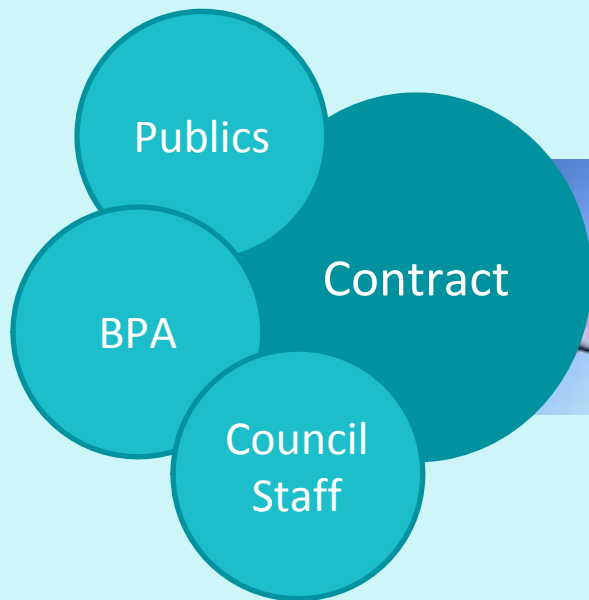
PURPOSE

- Goal of this project is to:
 - Conduct a **technical** review of regional savings achievements toward the 6th Power Plan
 - Conduct **research** on questions posed by BPA, its customer utilities, and other stakeholders
 - **Supplement** Council staff analytics, providing unbiased data on where savings occurred
- Outputs of the project provide the region with **information** to support effective CRAC participation by BPA, customer utilities and regional stakeholders

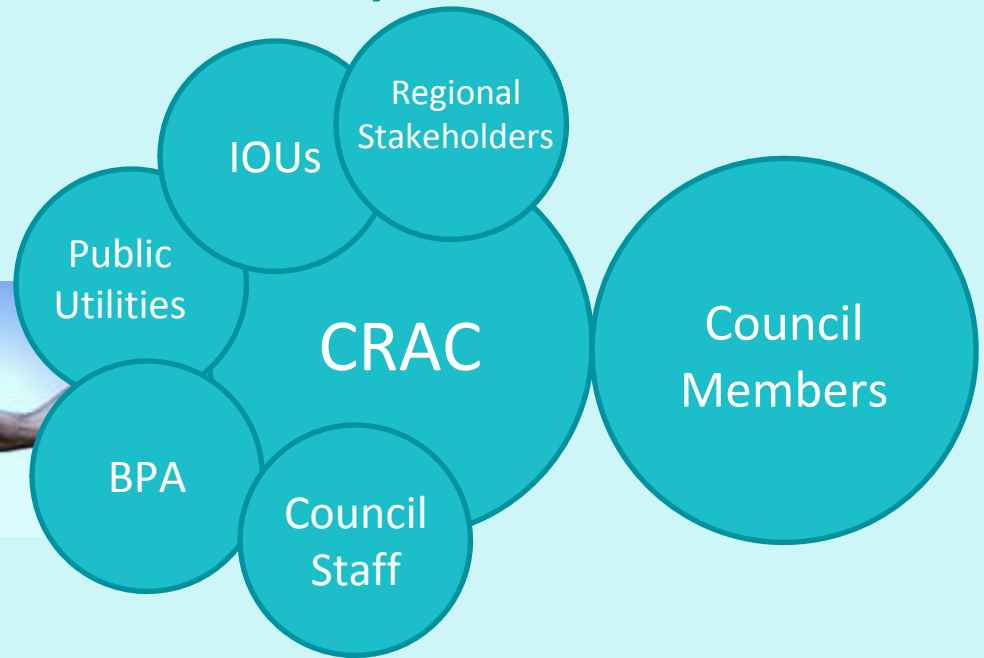
SETTING EXPECTATIONS

- This project has answered technical questions like:
 - What were **achievements** since 6th Plan?
 - Where are the gaps?
- And conduct market research on questions like:
 - What are **barriers** to adoption of specific technologies?
 - What is the experience in **other regions**?
- This project doesn't answer fundamental policy questions like:
 - What are the correct **ramp rates**?
 - What should the **target** be?

Technical Analytics



Policy Decisions



ACTIVITIES



LITERATURE
REVIEW



MARKET
RESEARCH



DATA
COLLECTION

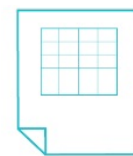


DATA
ANALYSIS

LITERATURE REVIEW



32 DOCUMENTS
900 PUBLIC COMMENTS

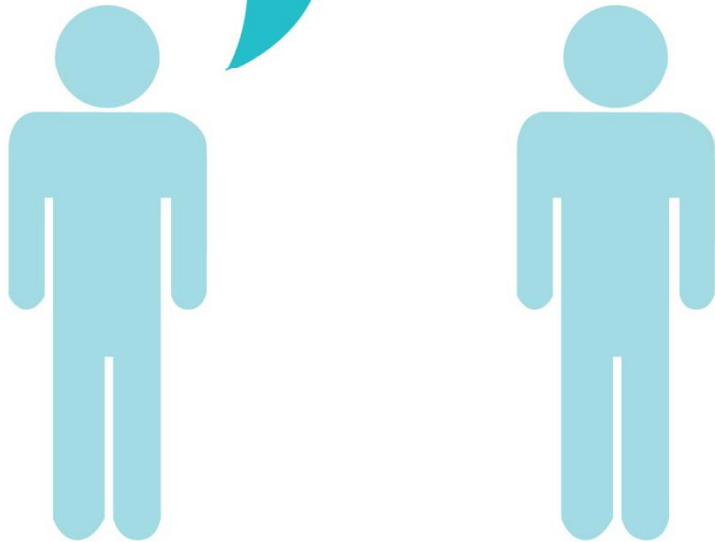


6th Power Plan Literature Review

- Document that summarizes and organizes main themes
- Provides links to 6th Plan literature
- Will be available online at Conduit website

MARKET RESEARCH

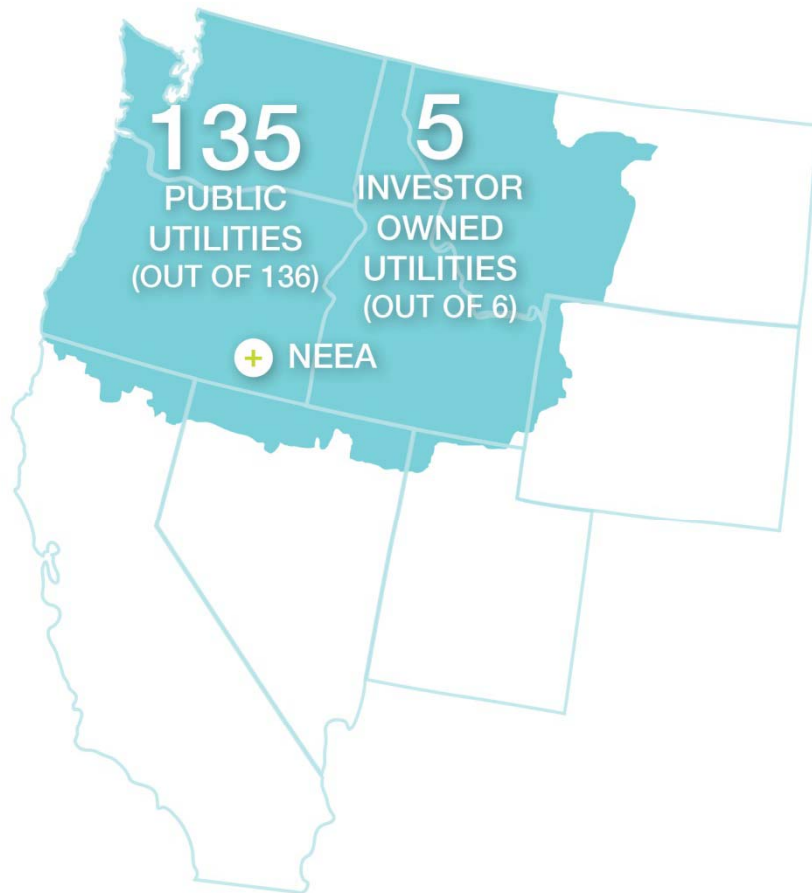
WHAT WAS
YOUR UTILITY'S
EXPERIENCE
WITH...?



Our Plan: Conduct **20** Interviews of Utility Program Representatives

- Understand why the data look the way they do
- Identify successes and challenges
- Compile a list of other emerging technologies that utilities are offering that are not included in the 6th Plan supply curves

DATA COLLECTION



What Was Requested

- Measure specific savings data on achievements from 2010-2012
- Non-programmatic and market transformation savings

Participating Utilities Provided

- Sector, end-use and some and measure specific savings data

But Utilities Reported Data Differently

- Wide range in granularity
- Variance in sector types
- Different measure classifications

DATA ANALYSIS PROCESS

DATA ANALYSIS PROCESS



DATA
CLEANING



DATA
MAPPING



DATABASE
DEVELOPMENT



DATA
ANALYSIS

DATA CLEANING



Process Included

- Reviewing the data
- Removing fuel switching measures
- Removing NEEA savings from utility data to avoid double counting
- Extracting relevant data
- No adjustments to savings were made

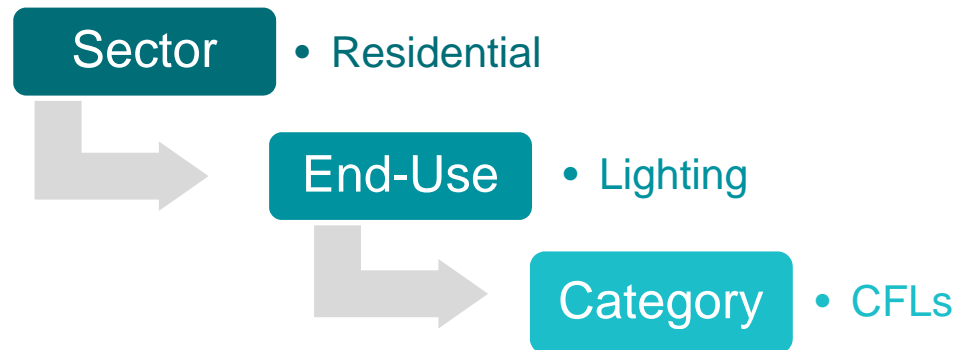
DATA MAPPING

Purpose

- Data are mapped to common **end-uses** & some specific measure categories
- Mapping allows utility data to be summarized in one data set
- After mapping, utility end-uses & measures align with the 6th Plan and can be compared



Measure Naming



DATA MAPPING



- 1 BPA Measure Naming**
Similar to how most utilities report data
- 2 6th Power Plan Measure Naming**
Useful in comparing utility data directly to the 6th Power Plan

Mapping Challenges

- Wide range of granularity
- No common naming across the region
- Measures not included in the 6th Power Plan
- Custom measures, in many cases, could not be defined

DATA MAPPING: Example Difference in Measure Naming

1 BPA

Categorizes end-uses by building system.



2 6th Power Plan

Categorizes end-uses by a mix of building system and technology.

	Sector	End-Use	Technology
1	Residential	Water Heating	Clothes Washer
	★	⊘	★
2	Residential	Appliance	Clothes Washer

OUR DATA MAPPING SOLUTION



UNIFY ALL UTILITY DATA

with the BPA
measure naming
scheme



MAP SIMILAR MEASURES

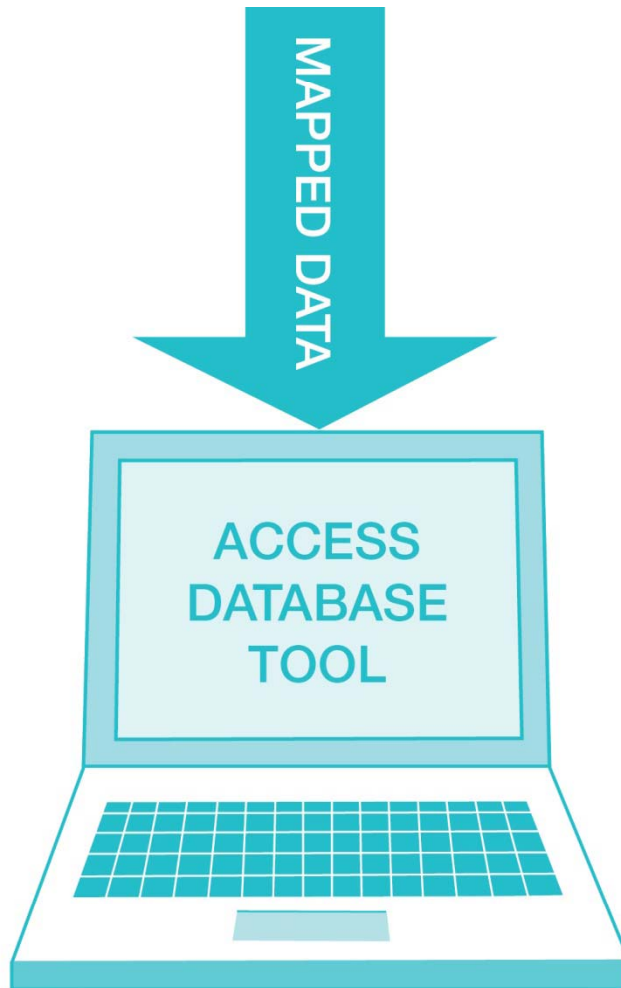
Map unified data to
the 6th Plan
measure naming
scheme where
possible



OVERCOME NAMING DIFFERENCES

Utilities name their
measures differently.
Not all measures are
included in the 6th Plan
supply curves

DATABASE DEVELOPMENT



Function

- Compile all utility data into one file
- Maps utility data to the 6th Plan by end-use

Features

- Database linked to Excel workbook
- Allows data to be easily added or updated over time

DATA ANALYSIS



How We Analyzed the Data

- Summarized savings achievements by:
 - Year
 - Sector
 - End-Use
 - Some Technologies
- Compared savings achievements to the 6th Plan by year, sector, end-use

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 were made to the savings

THE RESULTS

THE RESULTS



REGIONAL
ACHIEVEMENTS

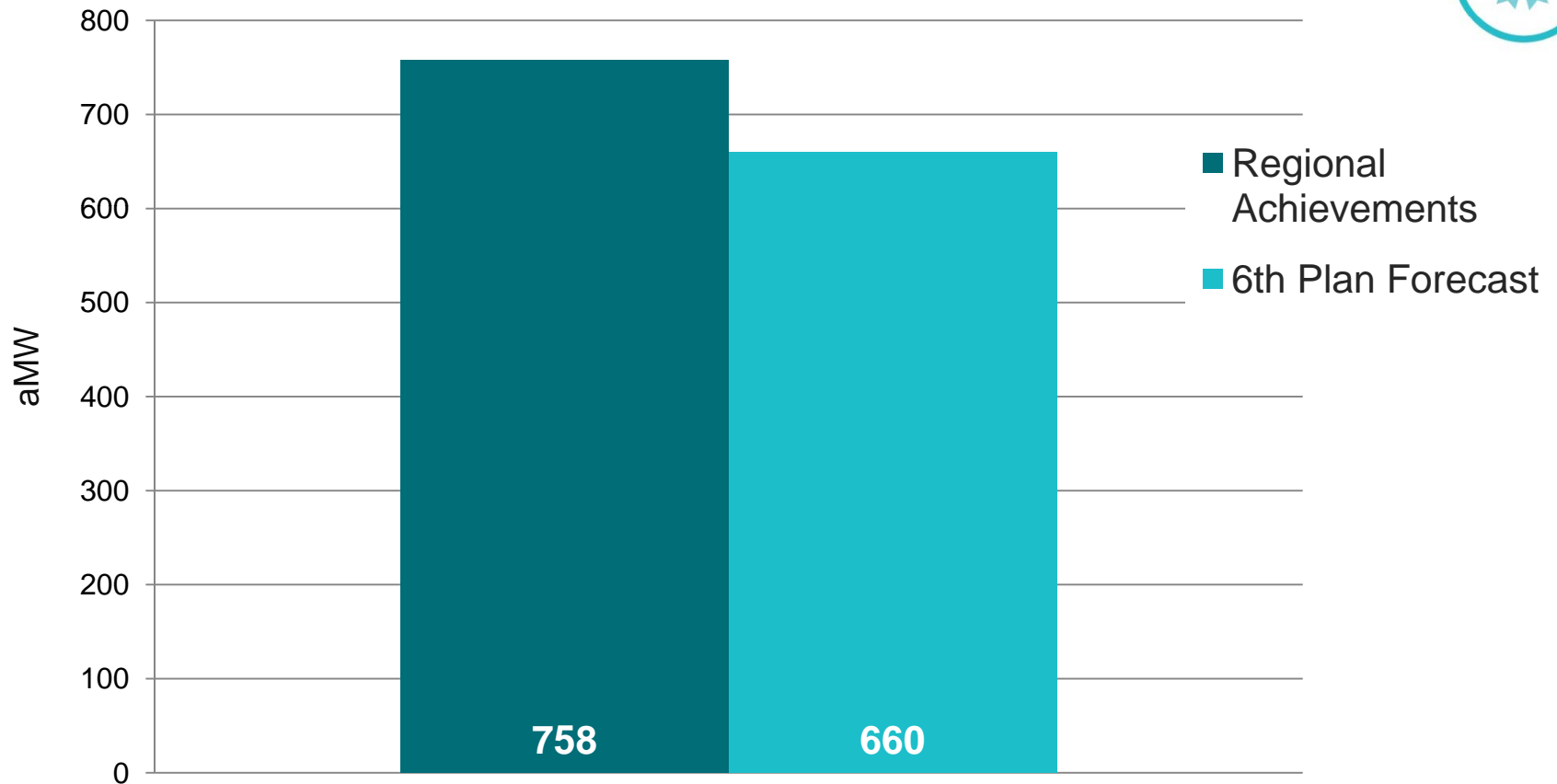


6TH PLAN
COMPARISONS

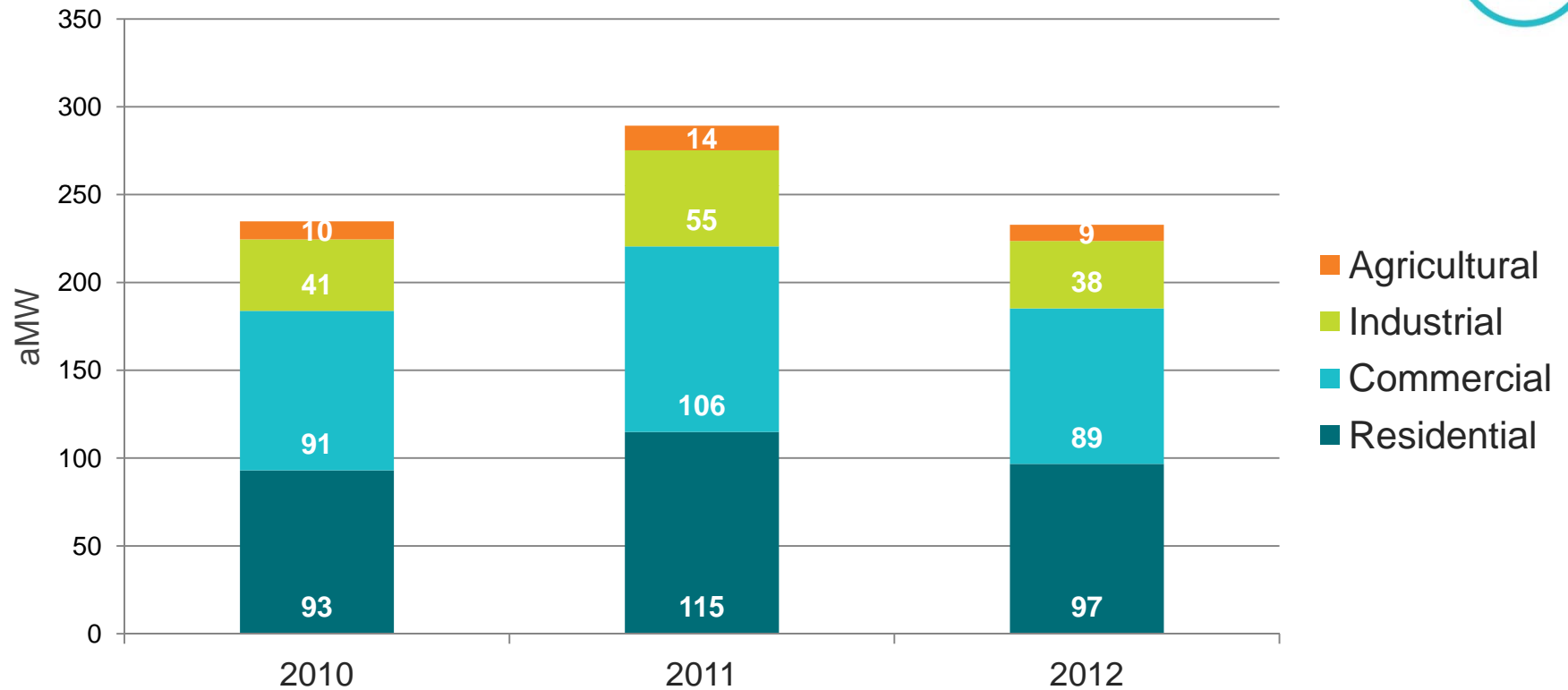


SPECIFIC
TECHNOLOGIES

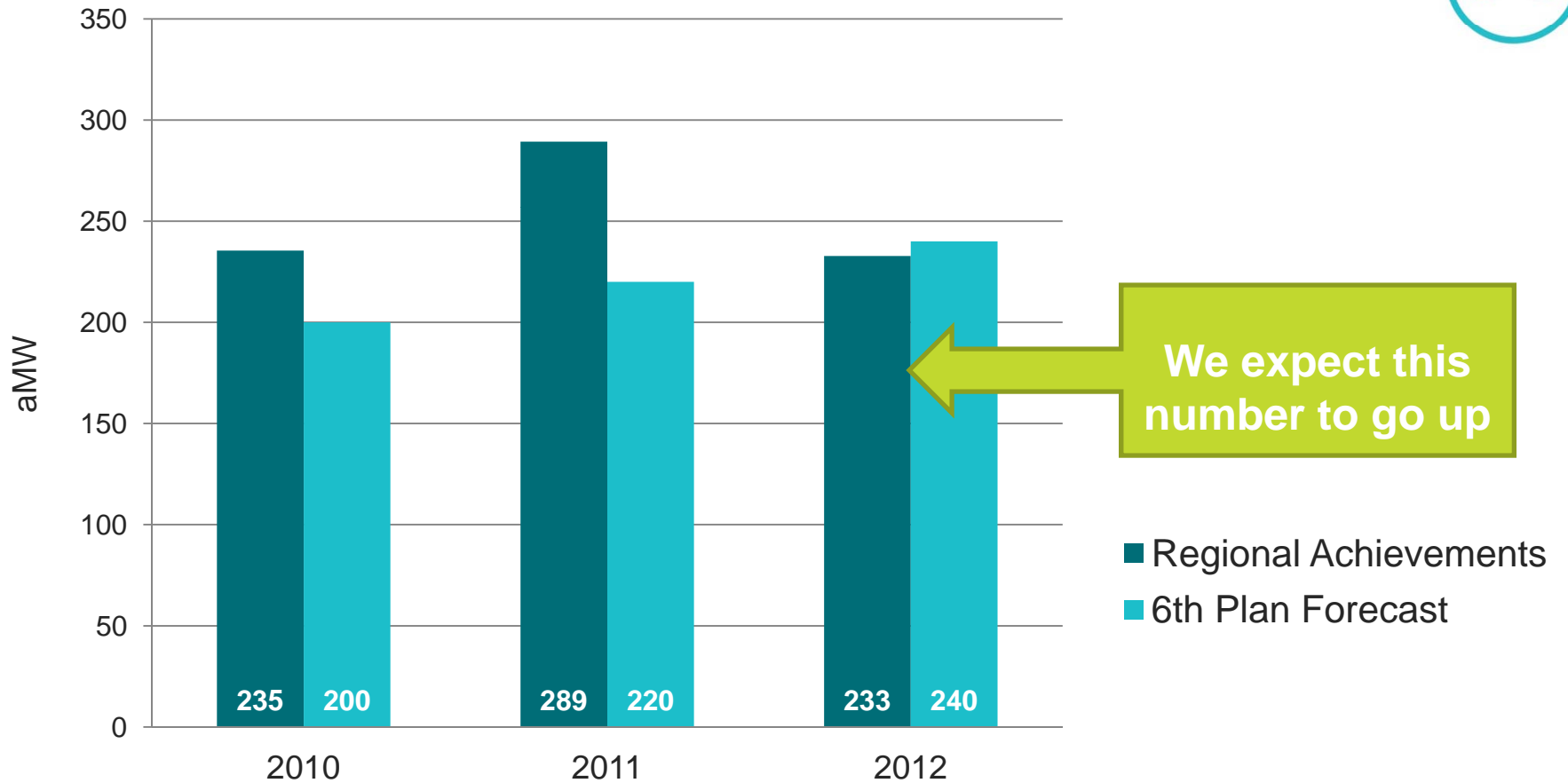
REGIONAL ACHIEVEMENTS 2010-2012



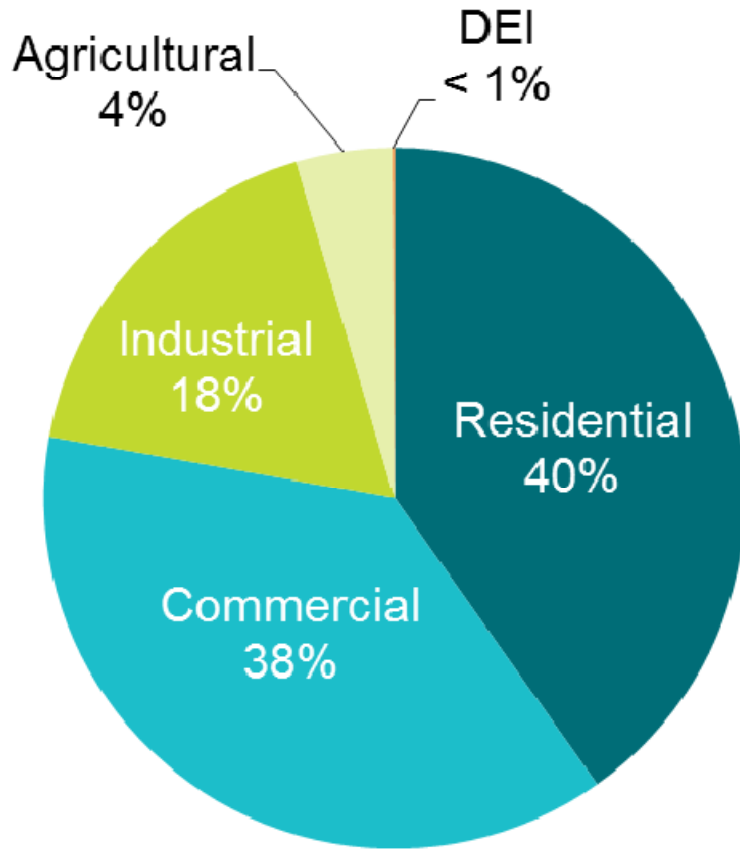
REGIONAL ACHIEVEMENTS BY SECTOR



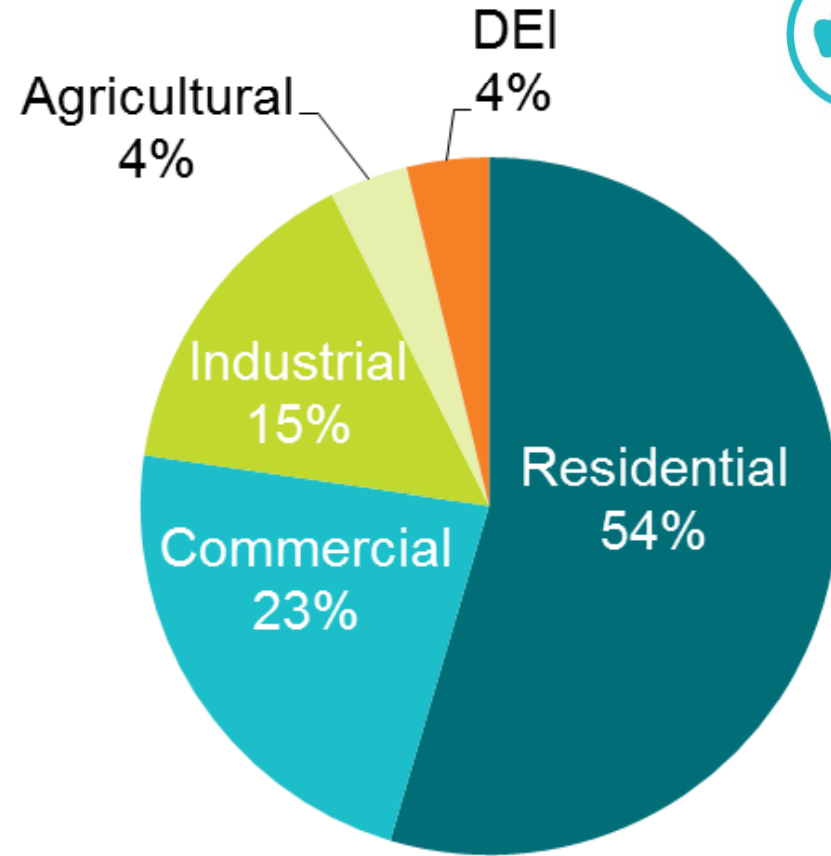
REGIONAL COMPARISON TO 6TH PLAN



REGIONAL COMPARISON TO 6TH PLAN



Regional Achievements
2010-2012

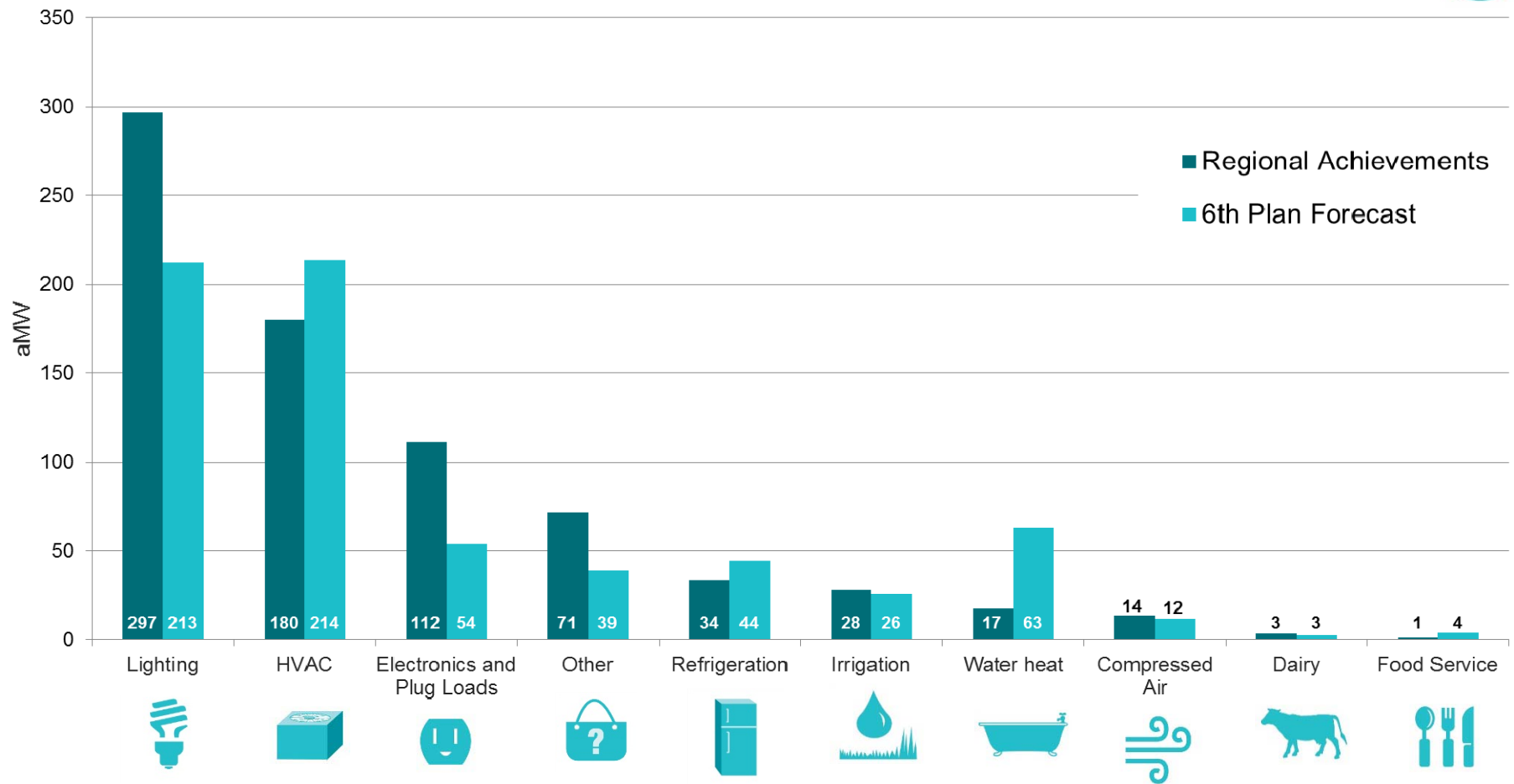


6th Plan Forecast
2010-2012



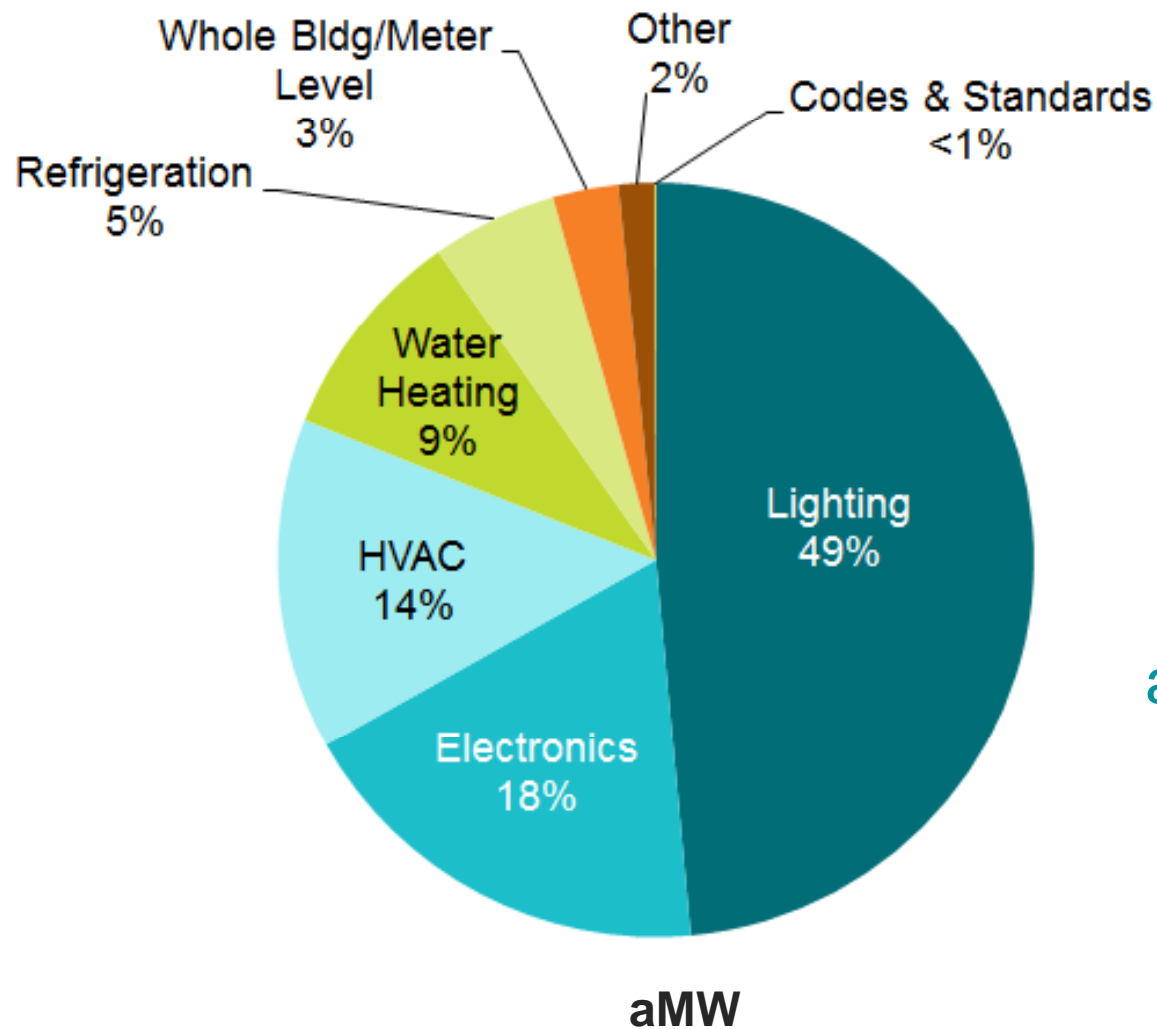
END-USE COMPARISON TO 6TH PLAN

SUMMARY OF ALL END USES



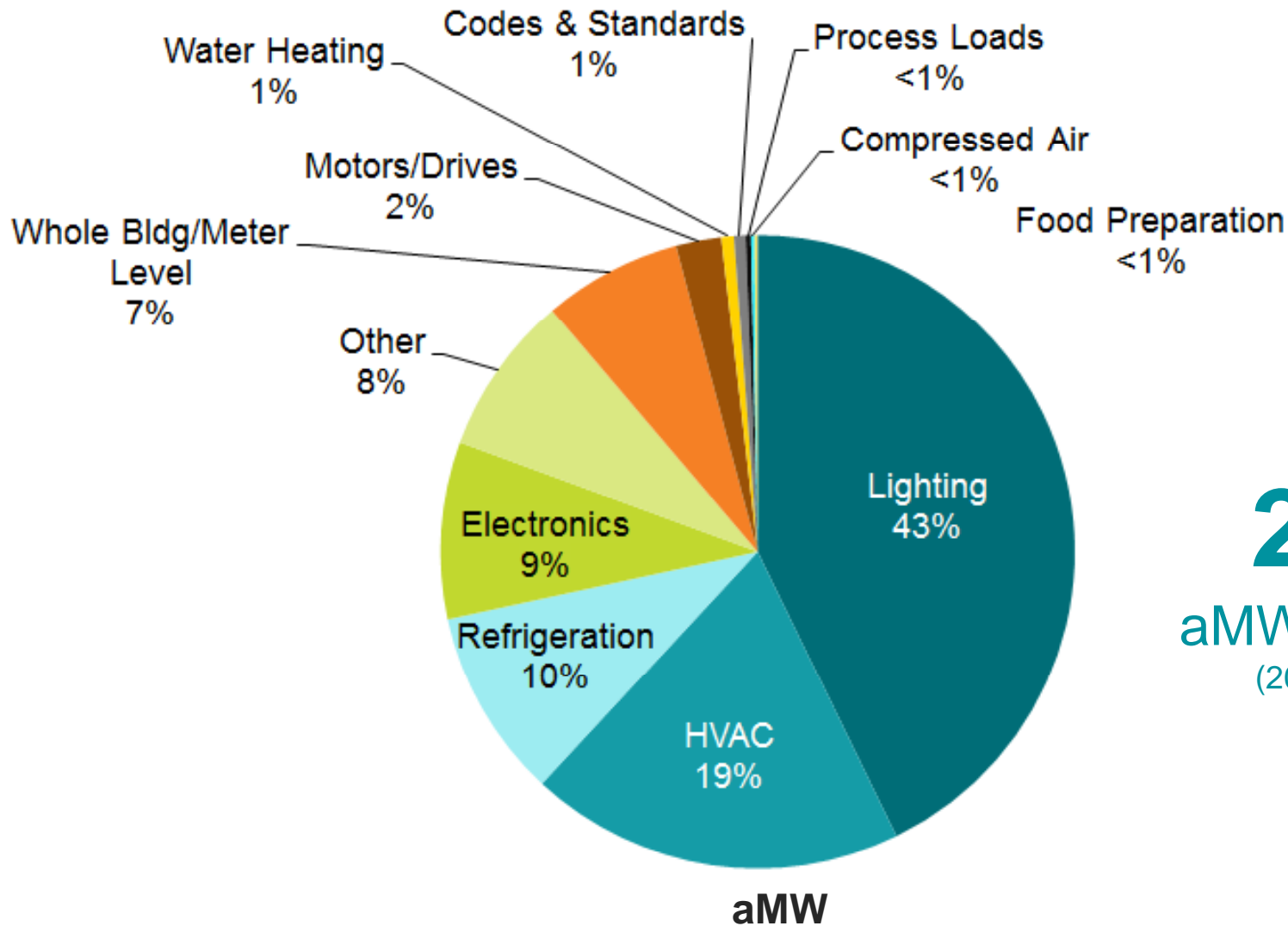
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RESIDENTIAL ACHIEVEMENTS



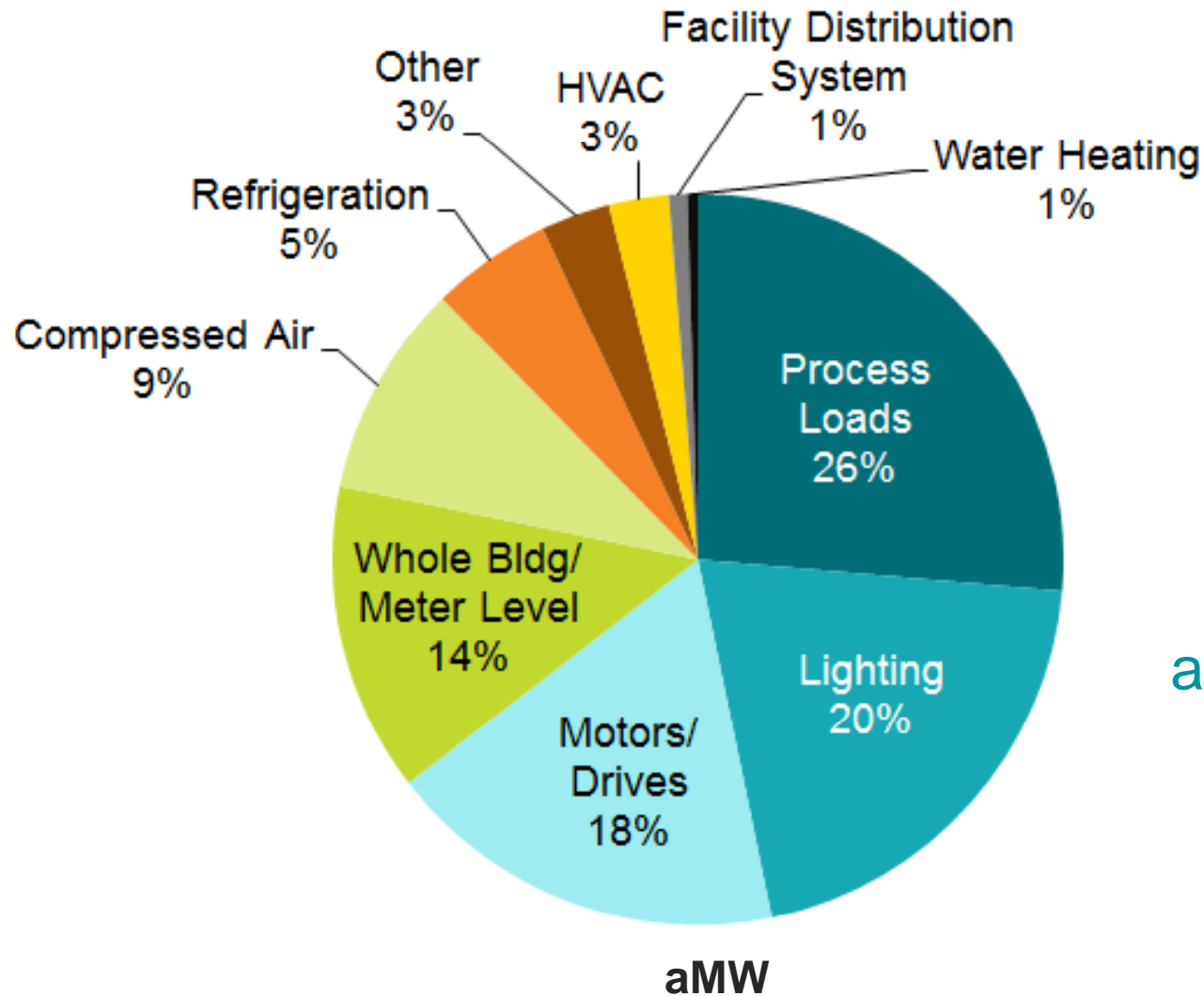
304
aMW SAVED
(2010-2012)

COMMERCIAL ACHIEVEMENTS



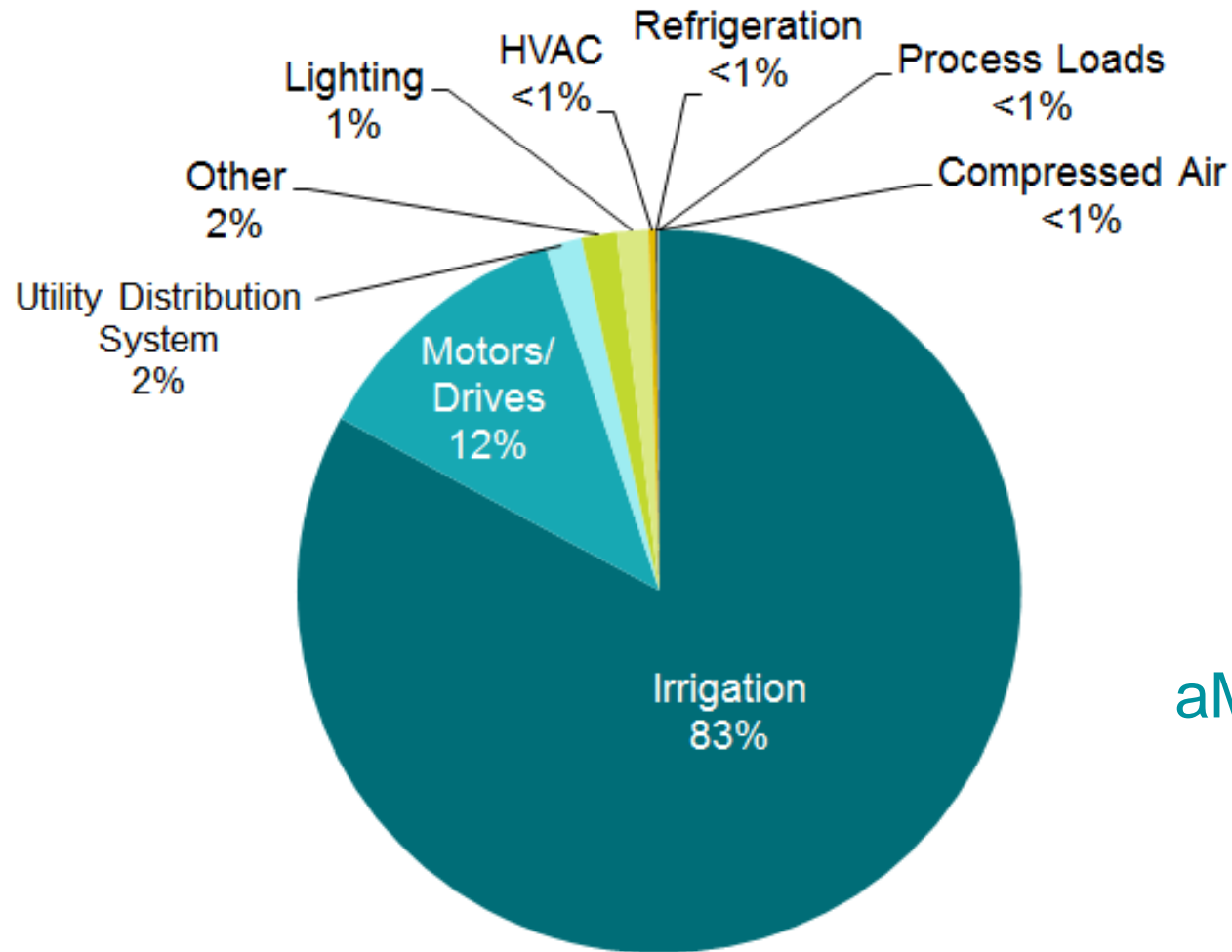
285
aMW SAVED
(2010-2012)

INDUSTRIAL ACHIEVEMENTS



134
aMW SAVED
(2010-2012)

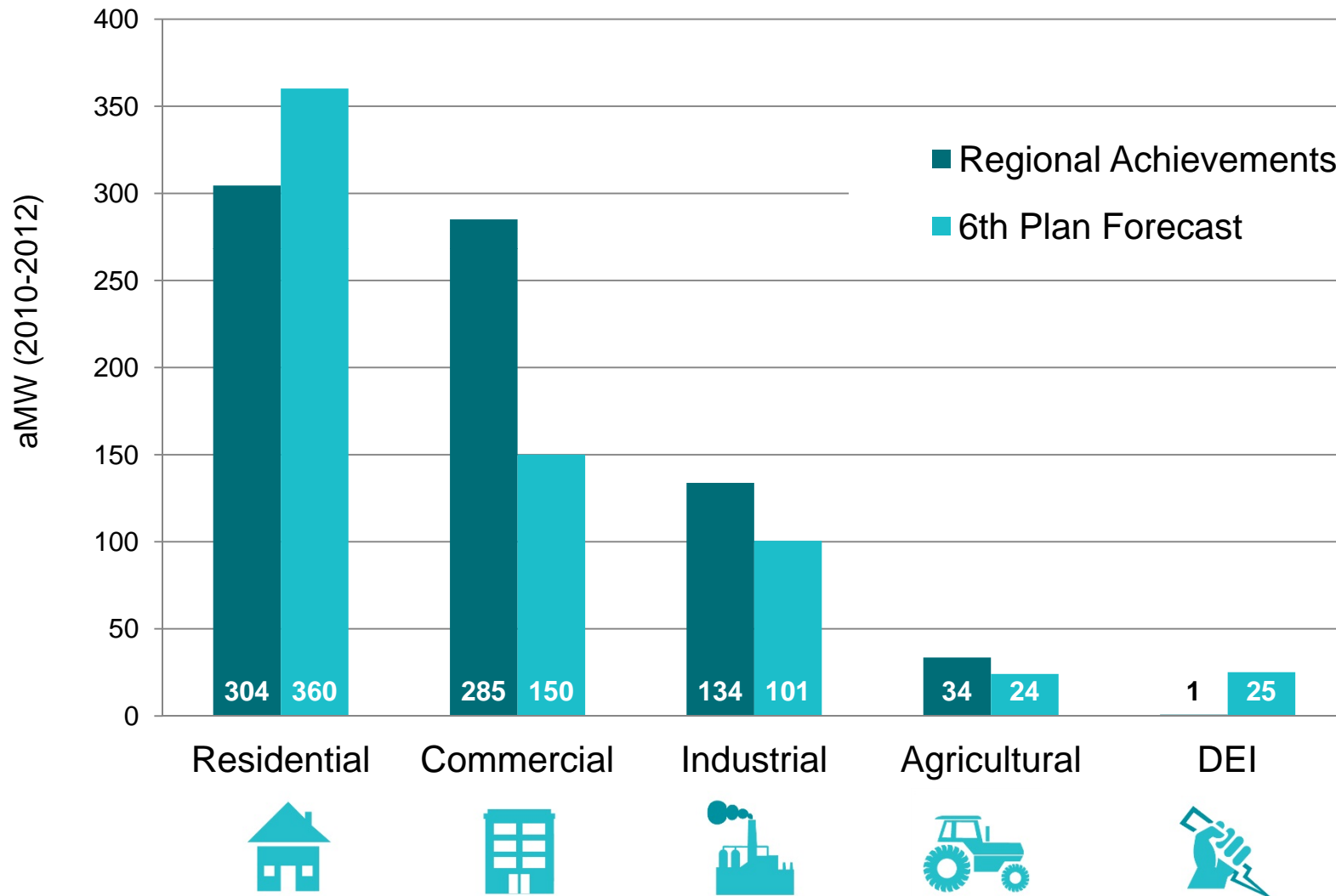
AGRICULTURAL ACHIEVEMENTS



34
aMW SAVED
(2010-2012)

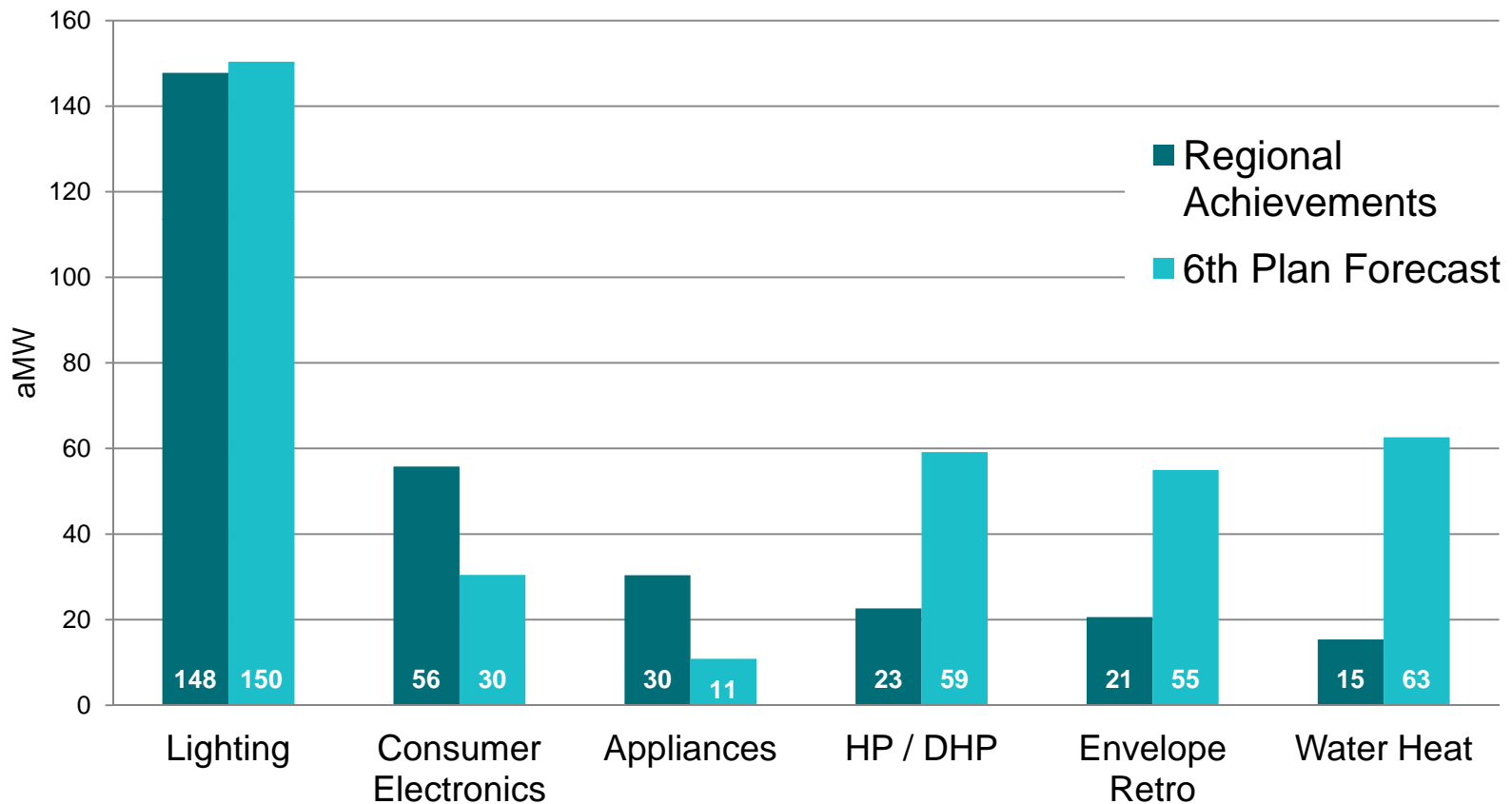
aMW

SECTOR COMPARISON TO 6TH PLAN



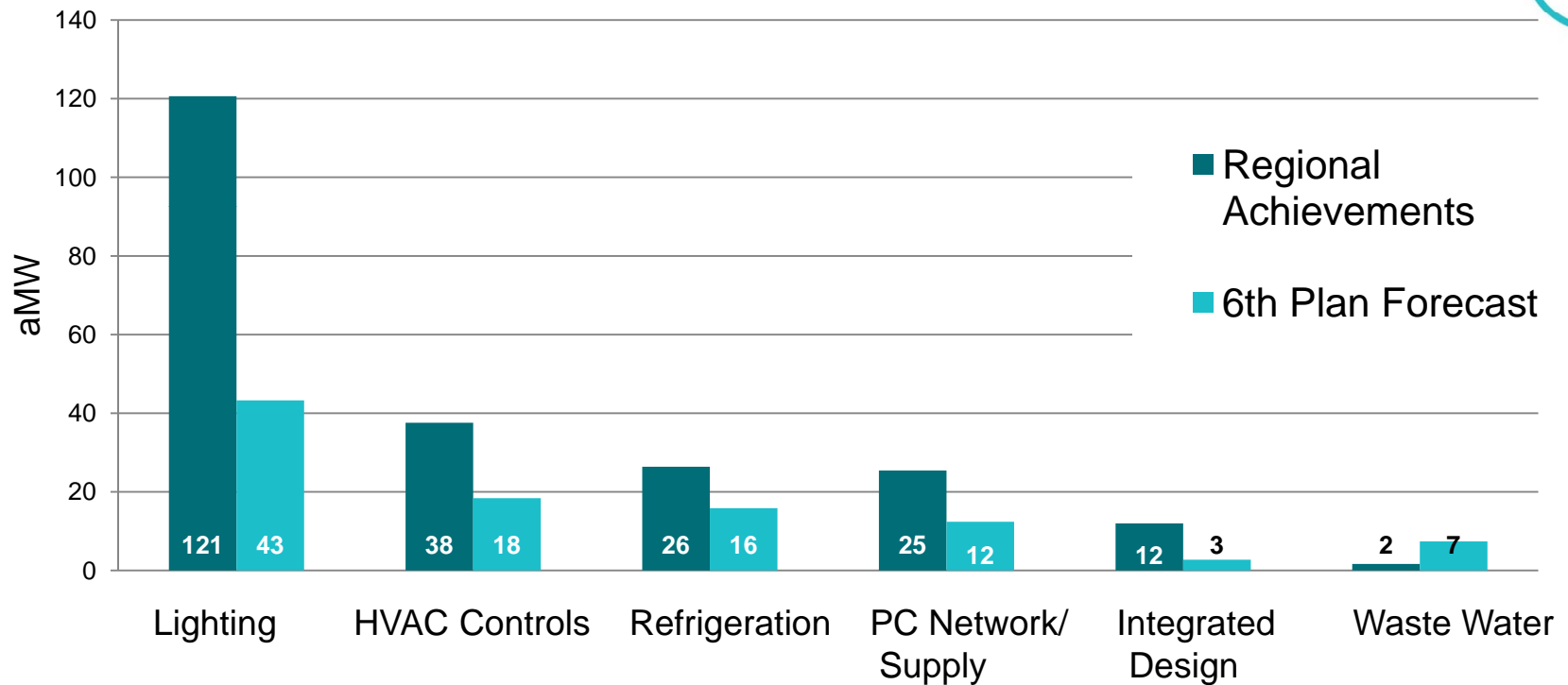
END-USE COMPARISON TO 6TH PLAN

RESIDENTIAL



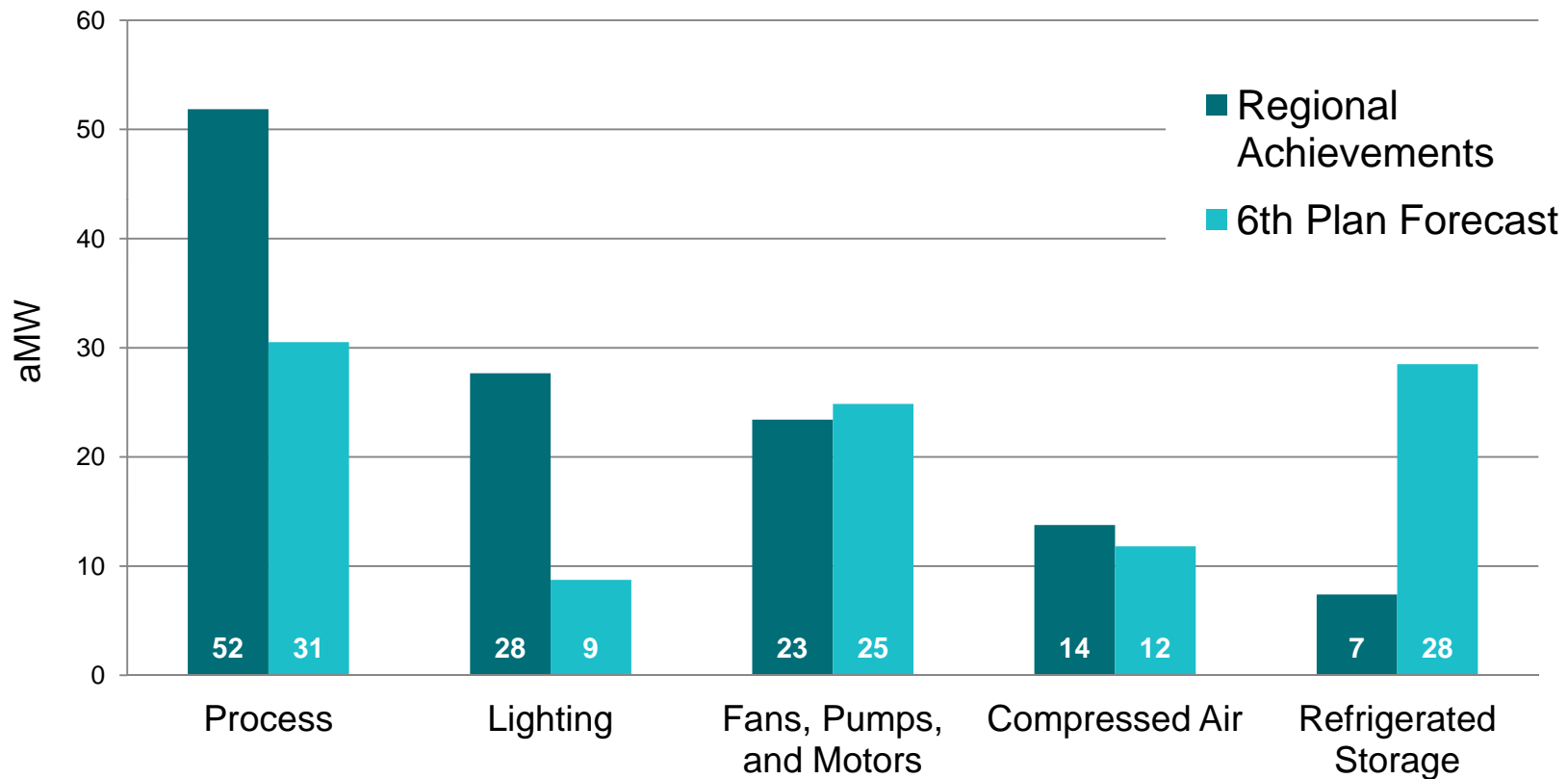
END-USE COMPARISON TO 6TH PLAN

COMMERCIAL



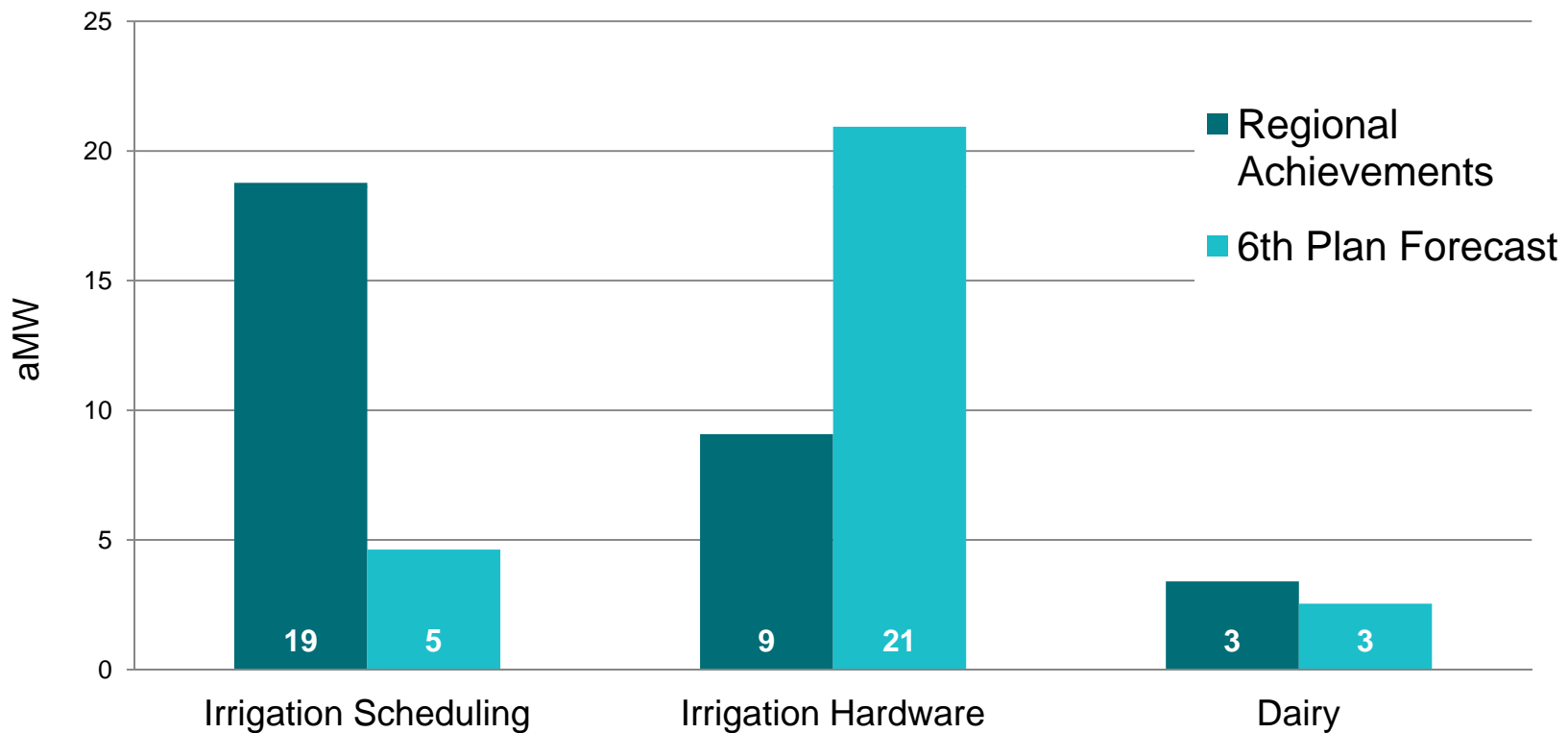
END-USE COMPARISON TO 6TH PLAN

INDUSTRIAL

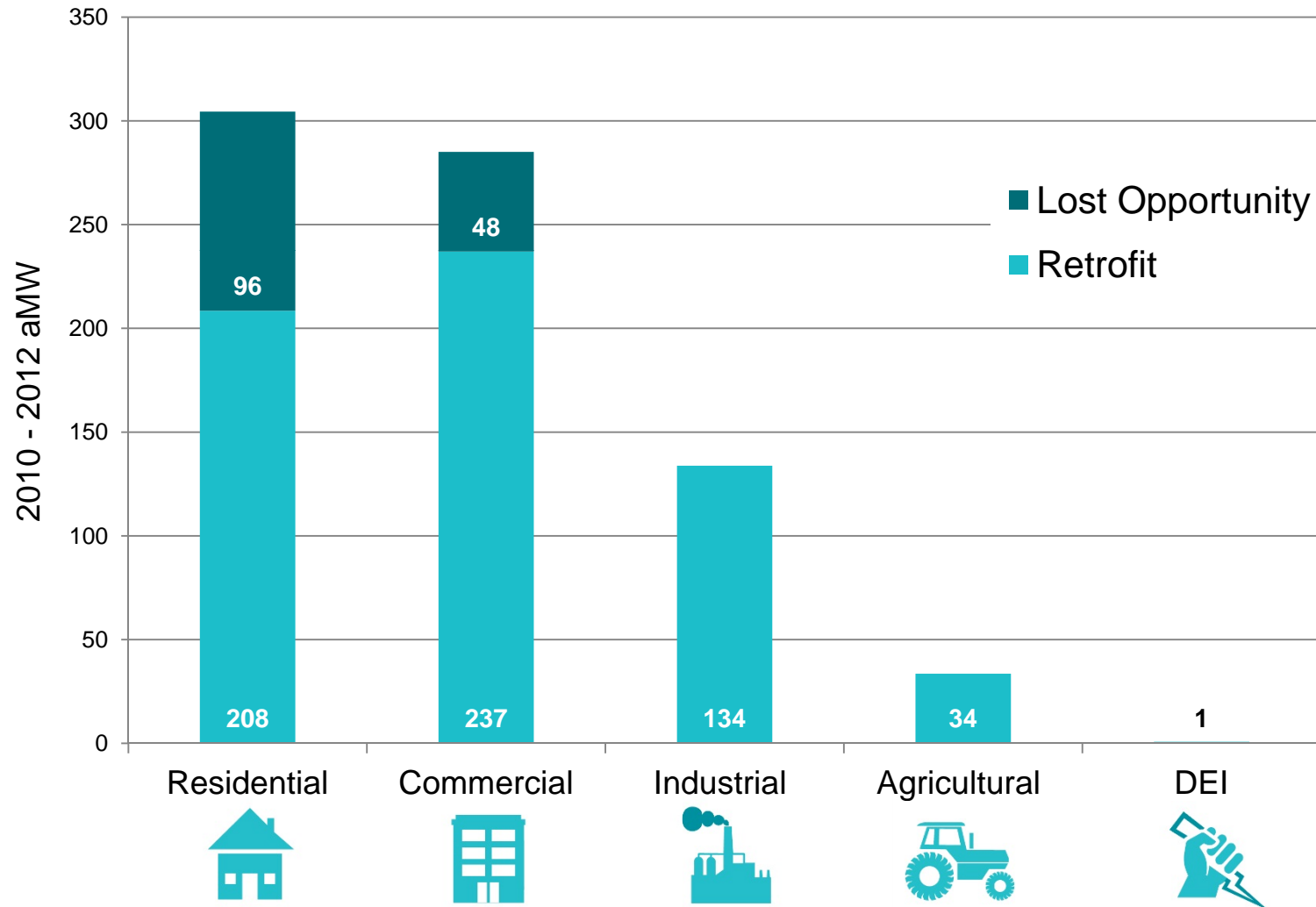


END-USE COMPARISON TO 6TH PLAN

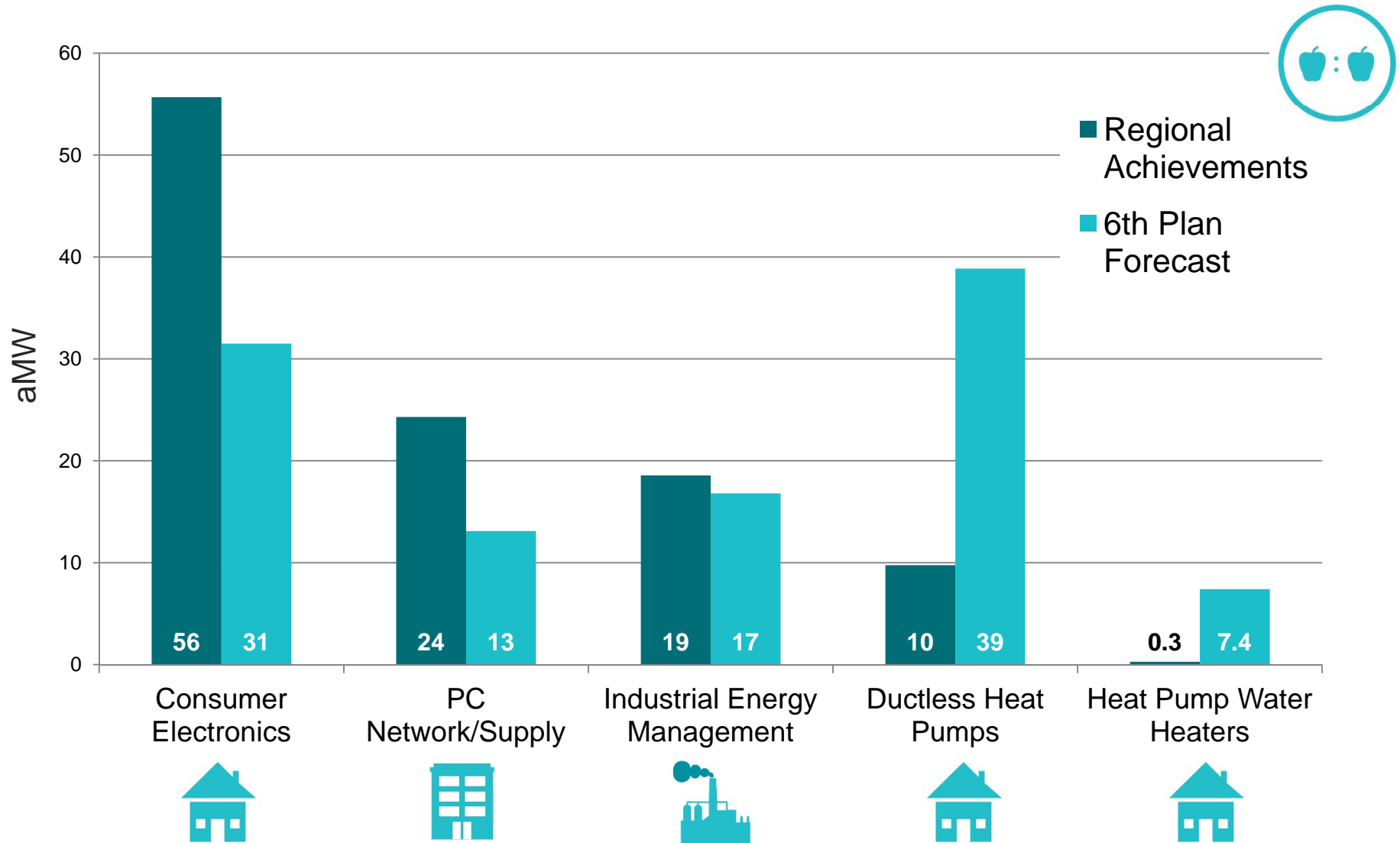
AGRICULTURAL



LOST OPPORTUNITY & RETROFIT

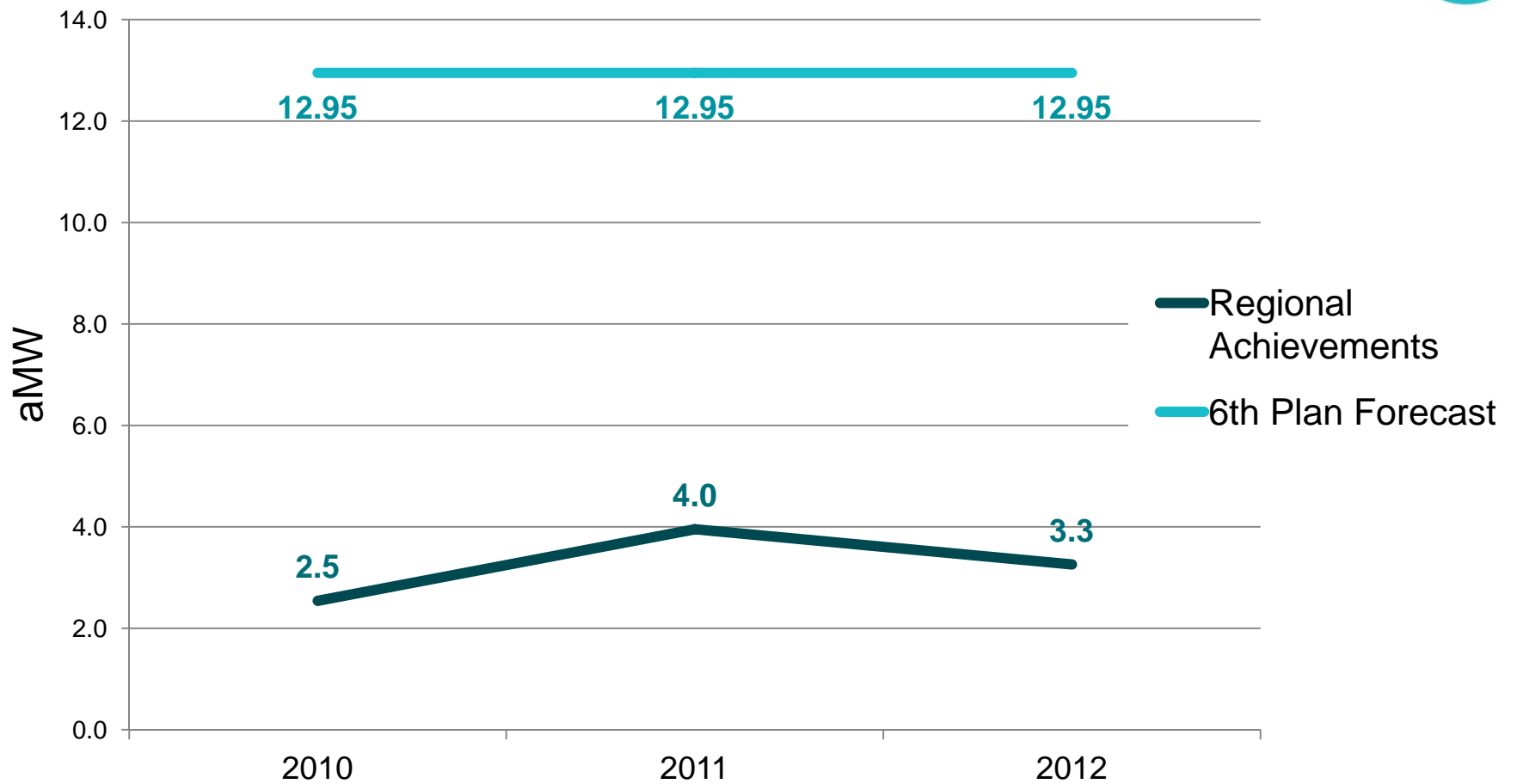


EMERGING TECHNOLOGIES



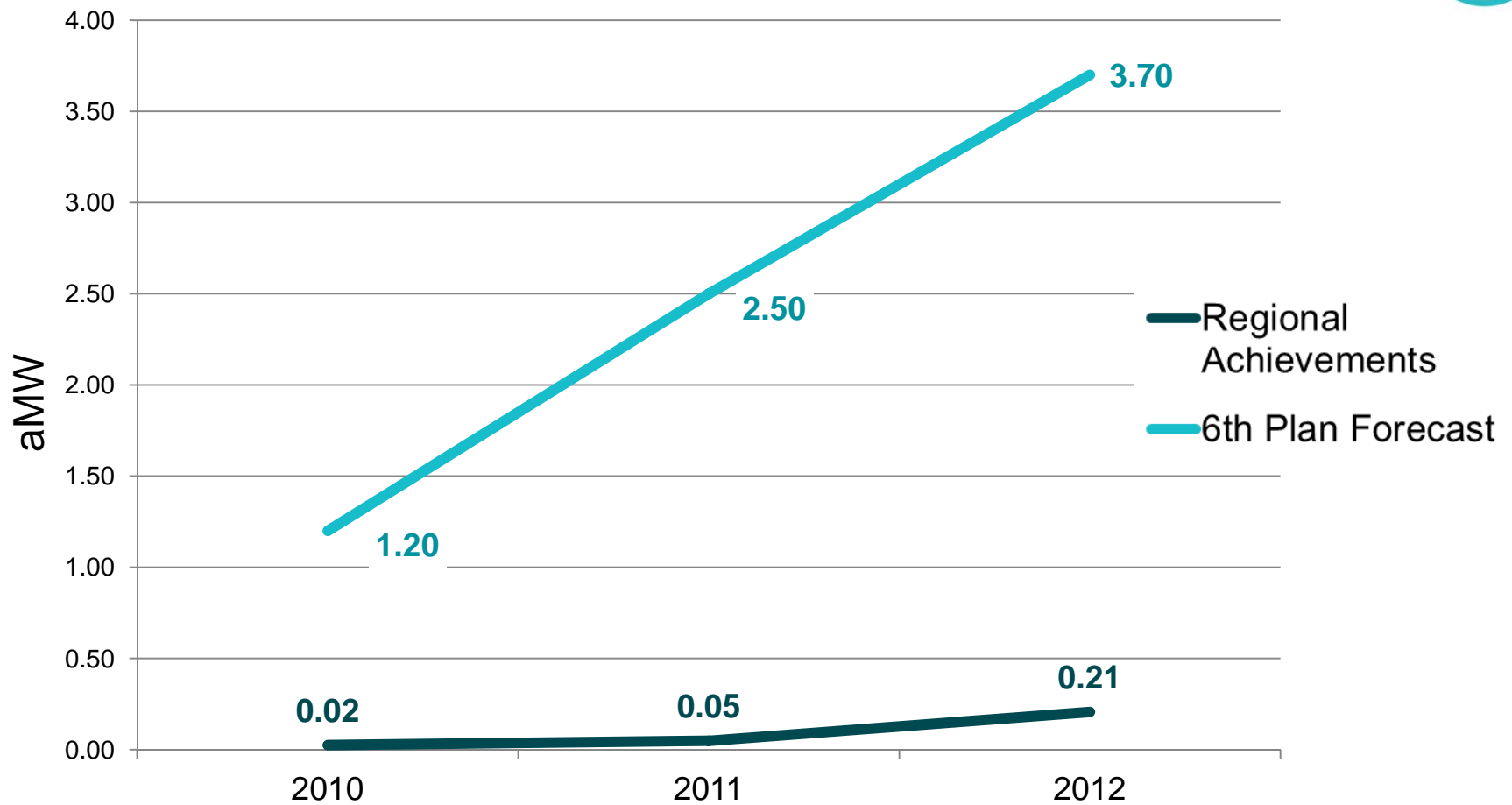
ACQUISITION RATES

DUCTLESS HEAT PUMPS



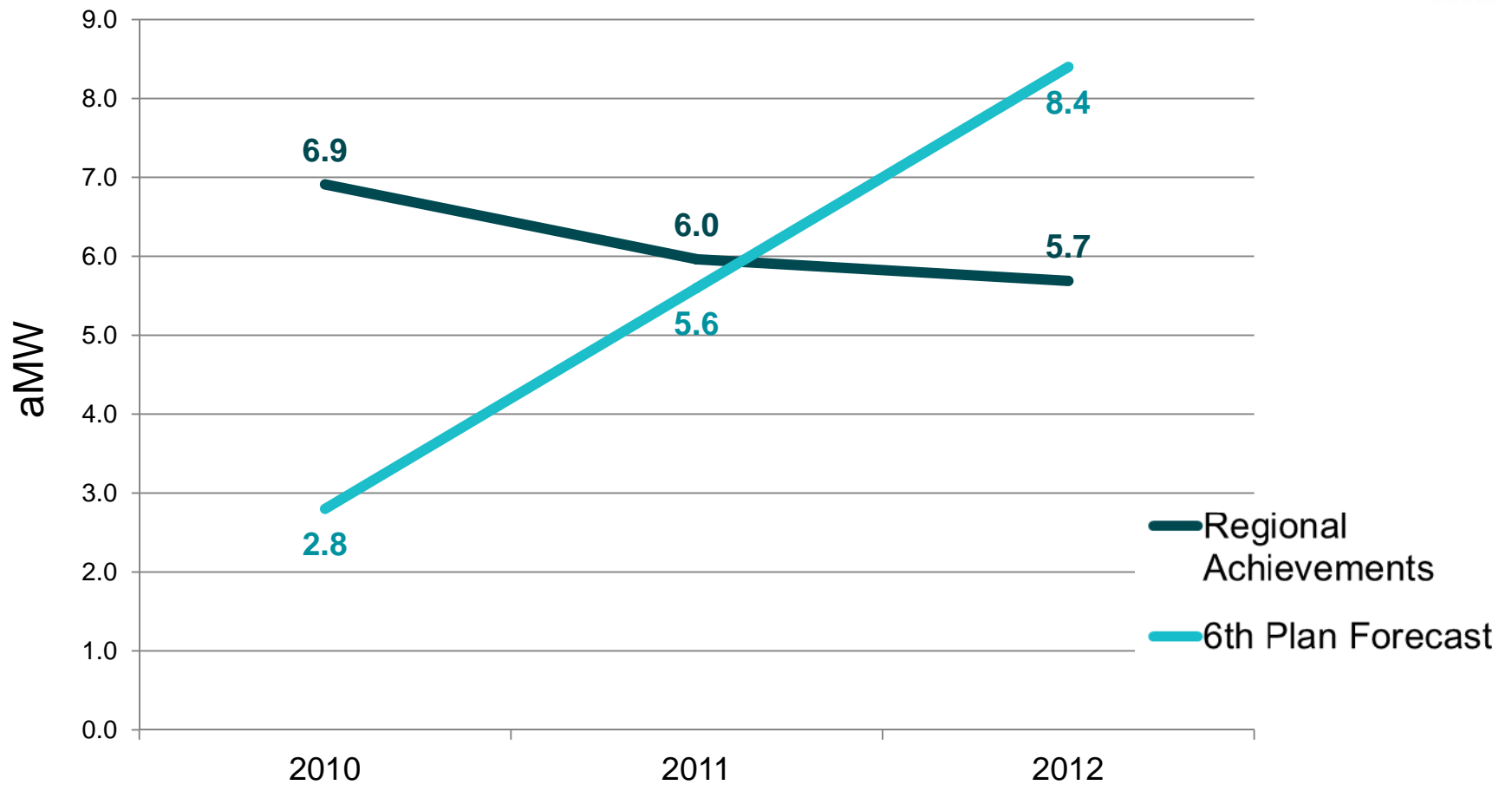
ACQUISITION RATES

HEAT PUMP WATER HEATER



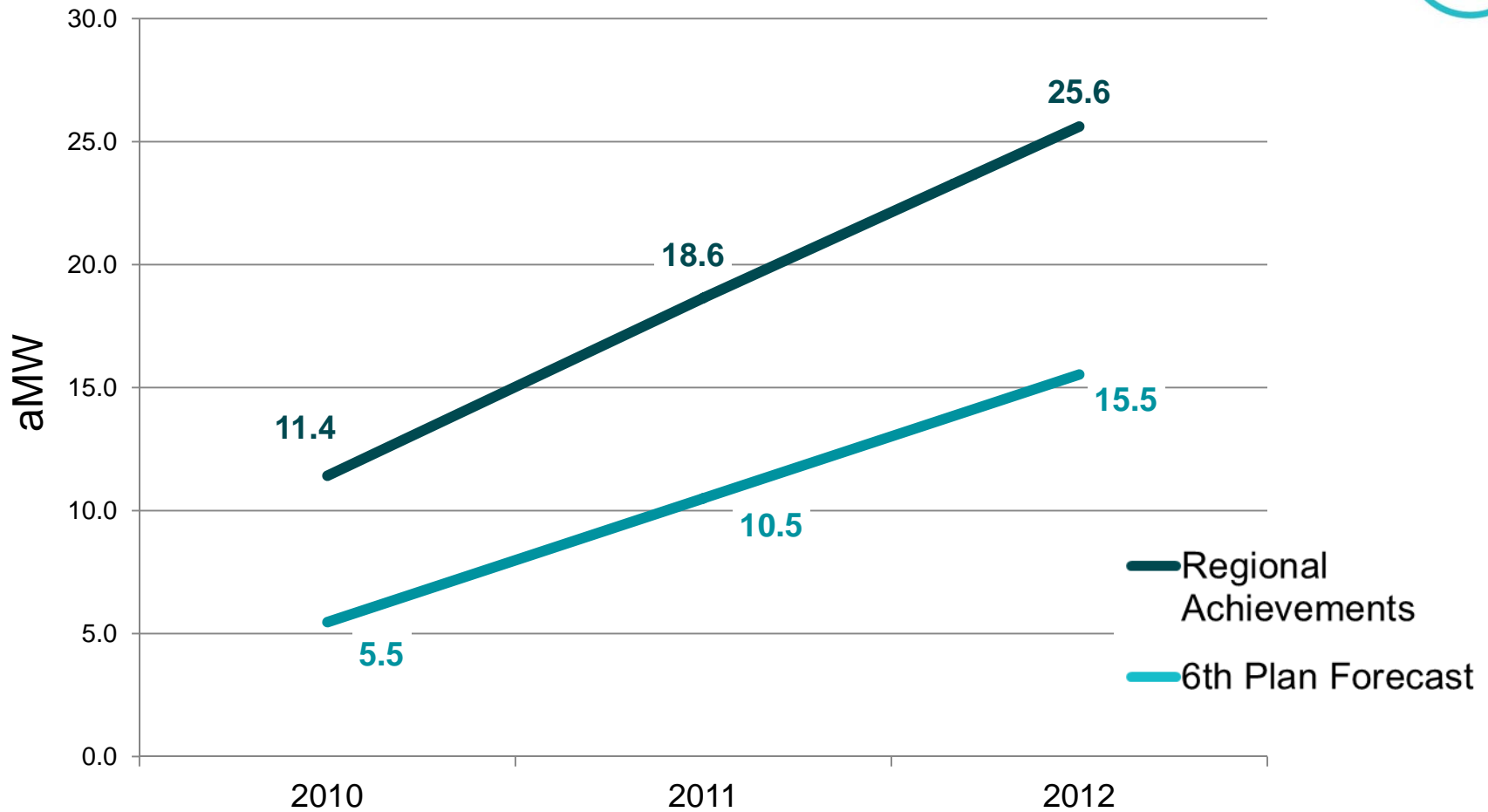
ACQUISITION RATES

INDUSTRIAL ENERGY MANAGEMENT



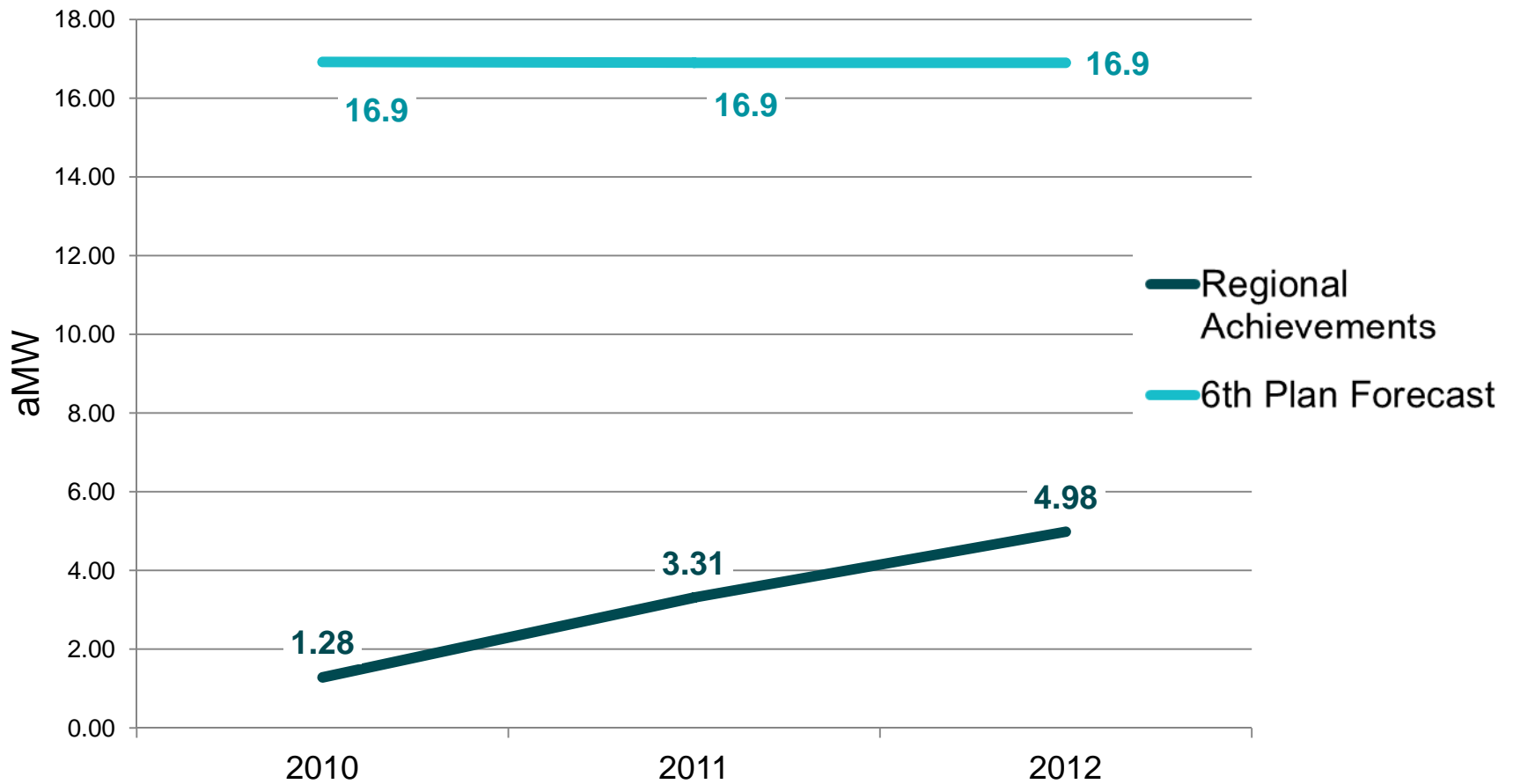
ACQUISITION RATES

CONSUMER ELECTRONICS



ACQUISITION RATES

RESIDENTIAL SHOWER HEADS



PROJECT RECAP



MERGED
REGIONAL DATA AT
A DETAILED LEVEL
BECAUSE NEARLY
ALL UTILITIES
PROVIDED DATA



ABLE TO SEE 6TH
PLAN VS
IMPLEMENTATION



WE CAN LOOK AT
ACQUISITION
RATES AT A
REGIONAL LEVEL

NEXT
STEPS

NEXT STEPS

1. Cost and Incentive Data
2. Address follow up questions from CRAC
3. Launch of the database tool for public use
4. Provide Literature Review that includes links to 6th Power Plan planning documents & comments
5. Complete market research – will share results through public document
6. Update database with 2013 data

QUESTIONS?

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