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# Northwest **Power** and **Conservation** Council

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September 10, 2019

## MEMORANDUM

**TO: Council Members**

**FROM: Jennifer Light**

**SUBJECT: 2018 Regional Conservation Progress Report**

### **BACKGROUND:**

Presenter: Jennifer Light

Summary: The Regional Conservation Progress (RCP) survey comprises energy efficiency savings data from Bonneville (on behalf of their public utilities), the region's investor owned utilities, Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance. The report also includes data on total market savings, capturing additional savings occurring outside of direct program touch. The data provide an understanding of the cost-effective energy efficiency savings acquired in the region and related expenditures for 2016-2018.

The data reported for 2016 through 2018 show that the region is currently on track with the Seventh Power Plan energy efficiency acquisition milestones. Despite this good progress, there are a few areas of note that may impact whether the region will meet the six-year goal of 1400 aMW of energy efficiency:

- Savings from programs have declined annually between 2016 and 2018, and projections show a continued trend. If that holds true, it will require increasing amounts of savings from the NEEA Alliance and other market sources.
- Residential lighting has been a significant portion of the total regional savings over the past three years. Starting in 2020,

however, the Power Plan assumes a much more efficient baseline for general service lamps. This means that there will need to be a shift towards achieving savings in other end uses for the region to meet the goals.

- Bonneville is currently achieving less than 42% of the regional target. This trend is consistent with what was reported in the 2017 RCP.

Staff will present the findings of this survey to the Council, including more information on the accomplishments to date and on these trends to track in the coming years.

Relevance: The Seventh Power Plan established a goal of 1400 aMW of conservation acquisition by the end of the six-year Action Plan period (2021). This was broken into two-year milestones:

	<b>FY 2016-2017</b>	<b>FY 2018-2019</b>	<b>FY 2020-2021</b>
Annual Energy Savings (aMW)	370	460	570
Cumulative Energy Savings (aMW)	370	830	1400

Per its charter, the Regional Technical Forum is responsible for tracking the region's progress against the plan goals.

Workplan: B.1.1 Coordinate with regional entities to ensure the regional goal for cost-effective conservation is achieved.

# 2018 Regional Conservation Progress Survey Results

September 17, 2019

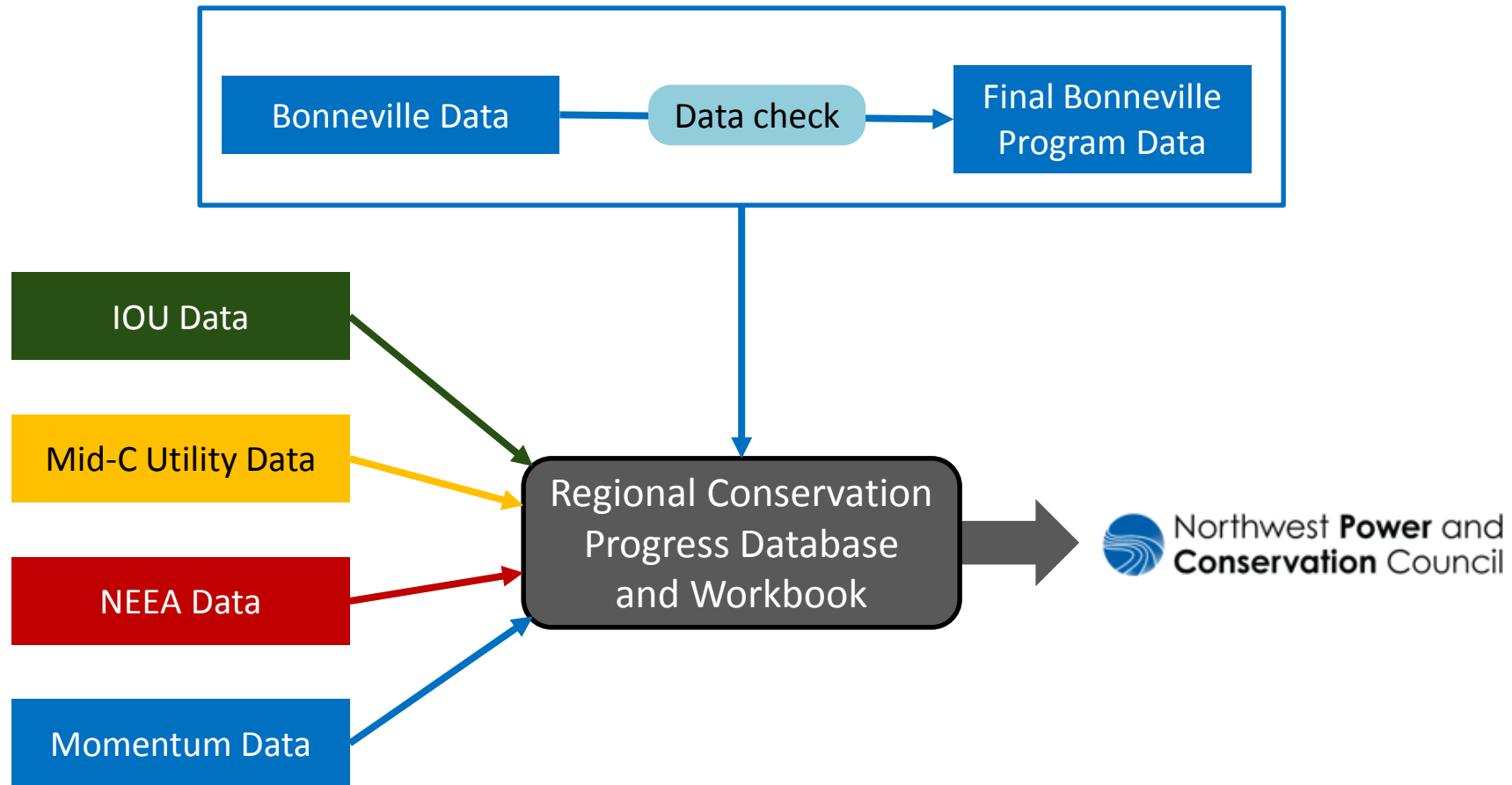
Council Meeting

Corvallis, Oregon

# Background

- Annual survey conducted by the RTF on behalf of the Council
- Requested energy efficiency savings and expenditures for 2018 and corrections/updates to 2016 and 2017
  - Savings: Sought as much detail as possible, to the end-use
  - Expenditures: Sought to get *total* expenditures
  - Projections: Estimates for 2019-2020 to inform progress against Power Plan goals
- At this point, we are halfway through the Action Plan period

# Data and Analysis Process



# Types of Savings in the RCP

## Total Market Savings

Represents the total savings in the region relative to the Power Plan baseline. A look at the change in consumption for a whole market (efficient and inefficient). **These savings are most comparable to the Power Plan goals.**

## Program Savings

Savings claimed by utilities, BPA, and Energy Trust of Oregon for specific measures that they have incentivized.

## NEEA Alliance Savings

Savings reported by NEEA that represent efficiency in markets they track above the Power Plan baseline not claimed by programs.

## Momentum Savings

Savings reported by BPA to reflect efficiency in the market, resulting from previous program activity, that are above the Power Plan baseline and not accounted for by Programs or NEEA.

## Codes and Standards Savings

Savings from new buildings or equipment that meet a new code or standard not captured in the Power Plan baseline.

# Caveat: Apples, Oranges, and Pears

- Each savings component represent slightly different perspectives
- It is not accurate to sum these different components, without adjusting for double or under counting
- Total Market Savings best reflect the savings compared to the Power Plan baseline and allow us to adjust for double counting or under counting
- Where Total Market Savings are not available, savings represent the sum of specific components as reported



# Total Market Savings

- For 2016-2018, Total Market Savings were included for the following residential markets:
  - Lighting
  - Refrigerators
  - Heat Pump Water Heaters
  - Clothes Washers
  - HVAC (only 2016 & 2017, except ductless heat pumps)
- Total Market Savings were also reported for non-residential lighting for 2016 & 2017

These markets represent  
40% of the total 2016-2018  
regional savings



# Correcting for Different Perspectives

To ensure the sum of the parts equals the total, Council staff calculated a market adjustment for any market where we have Total Market Savings



This avoids double counting (or under counting) savings. Without this adjustment, savings components generally overstate total savings.

# Other Caveats

- While Bonneville reports savings for the fiscal year, many others report on a calendar year
  - This will be smoothed out over multiple years of reporting
- Some types of savings, in particular industrial, are blocky and can vary significantly year by year
- Comprehensiveness of expenditure data vary year-by-year (ex: some utility self-fund expenditures)
- Savings may be updated in future years to account for adjustments to savings and the addition of data from new sources

# Thank You Respondents!



**No...I insist...Thank You!**

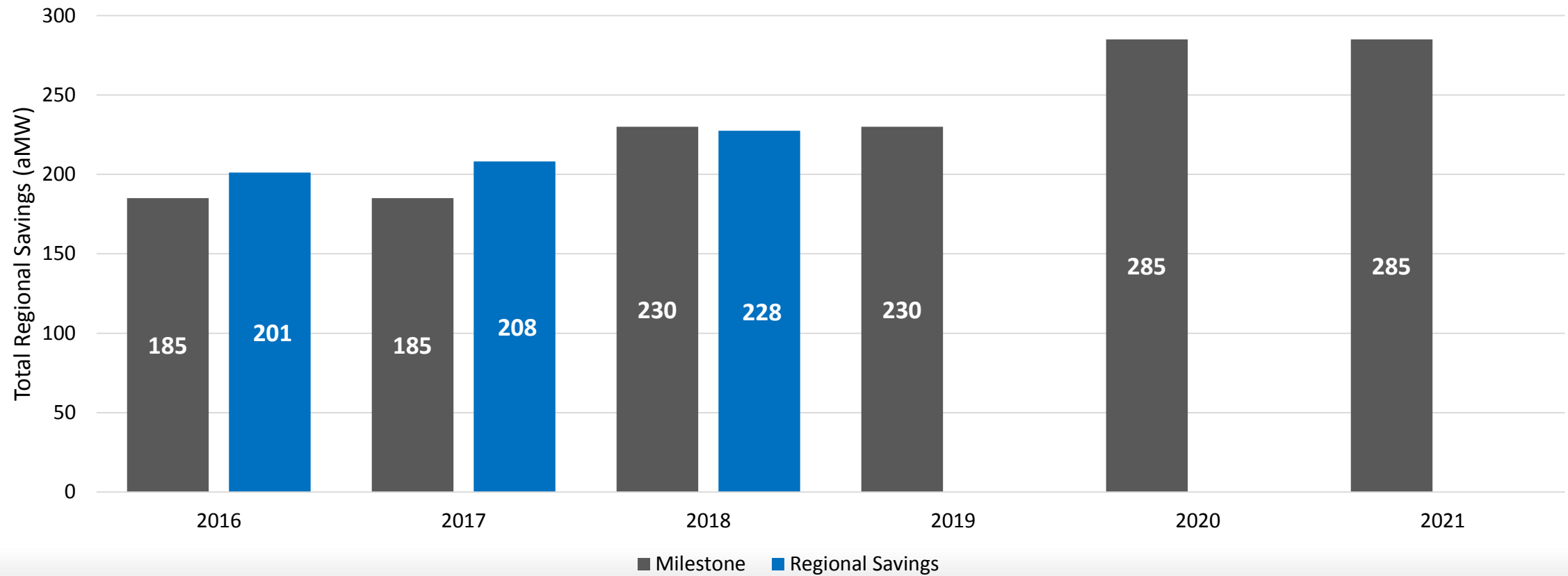
# Now for the Results



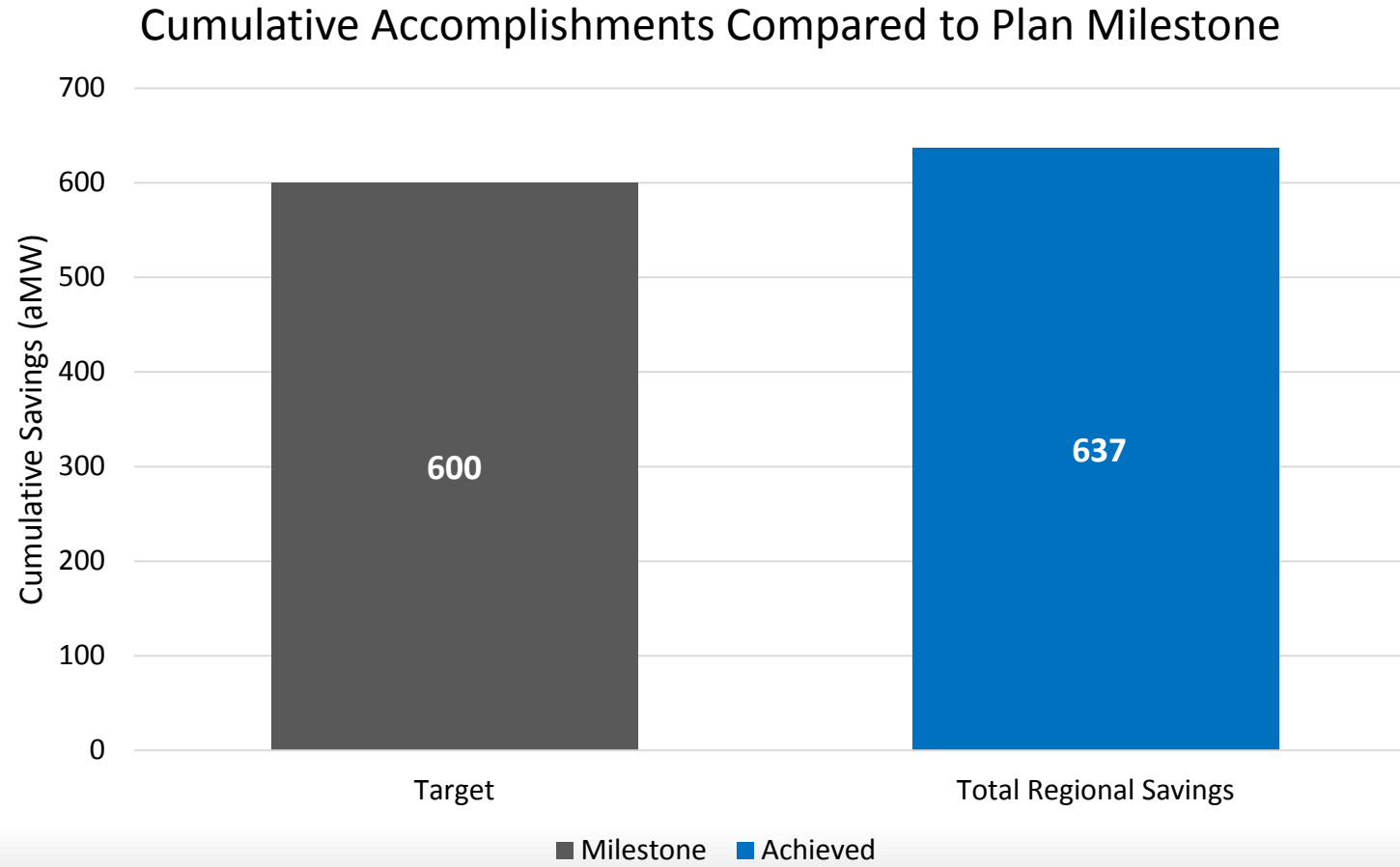


# Regional Progress from 2016-2018

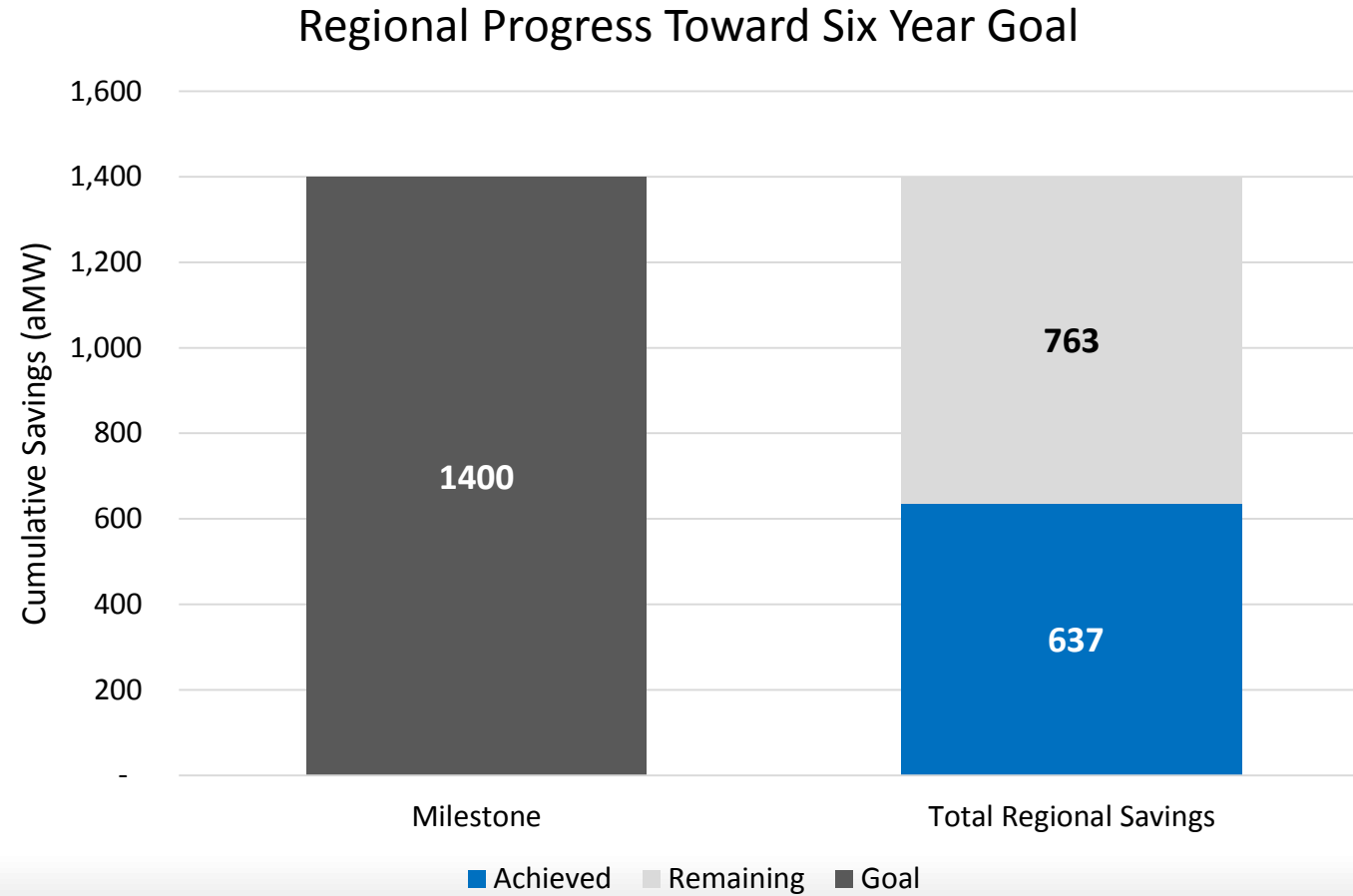
Total Regional Savings Compared to Seventh Plan Milestones



# Region is Ahead of Current Milestone Goals



# Significant Savings Remain to Reach Six Year Goals



Region is currently on track, but there are some areas to watch

Program Savings

NEEA Alliance and Momentum Savings

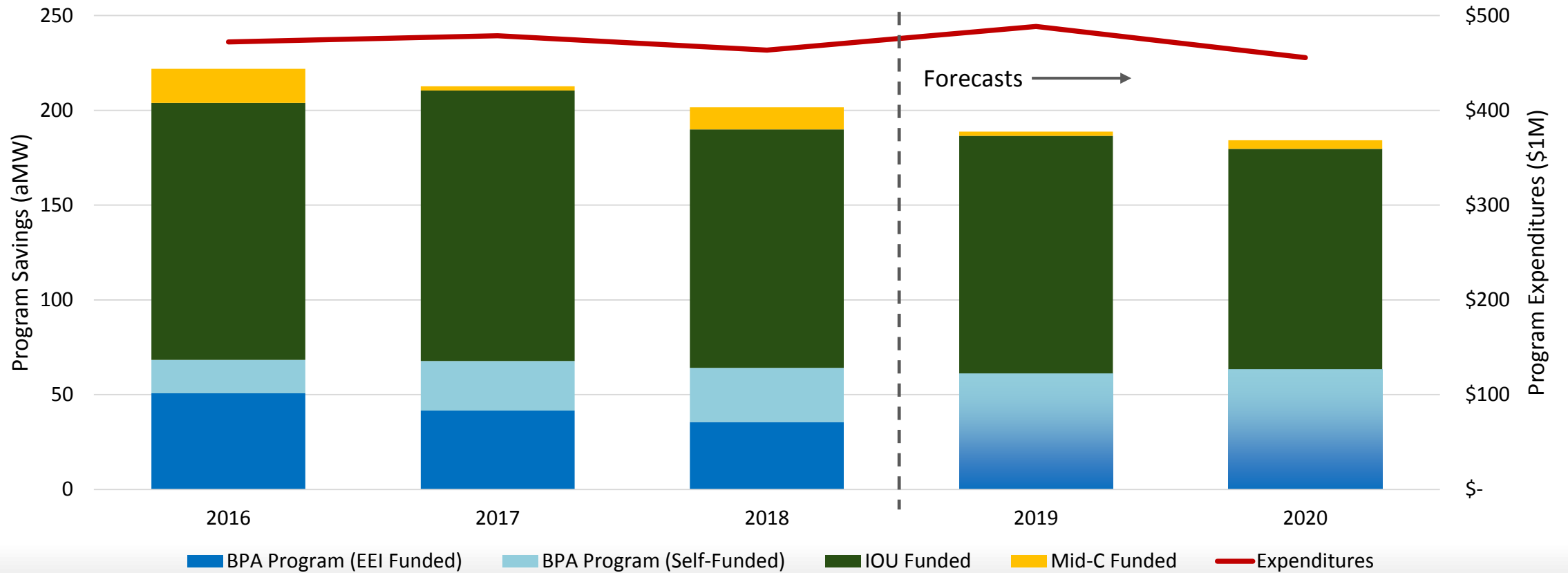
Residential Lighting

Bonneville's Progress



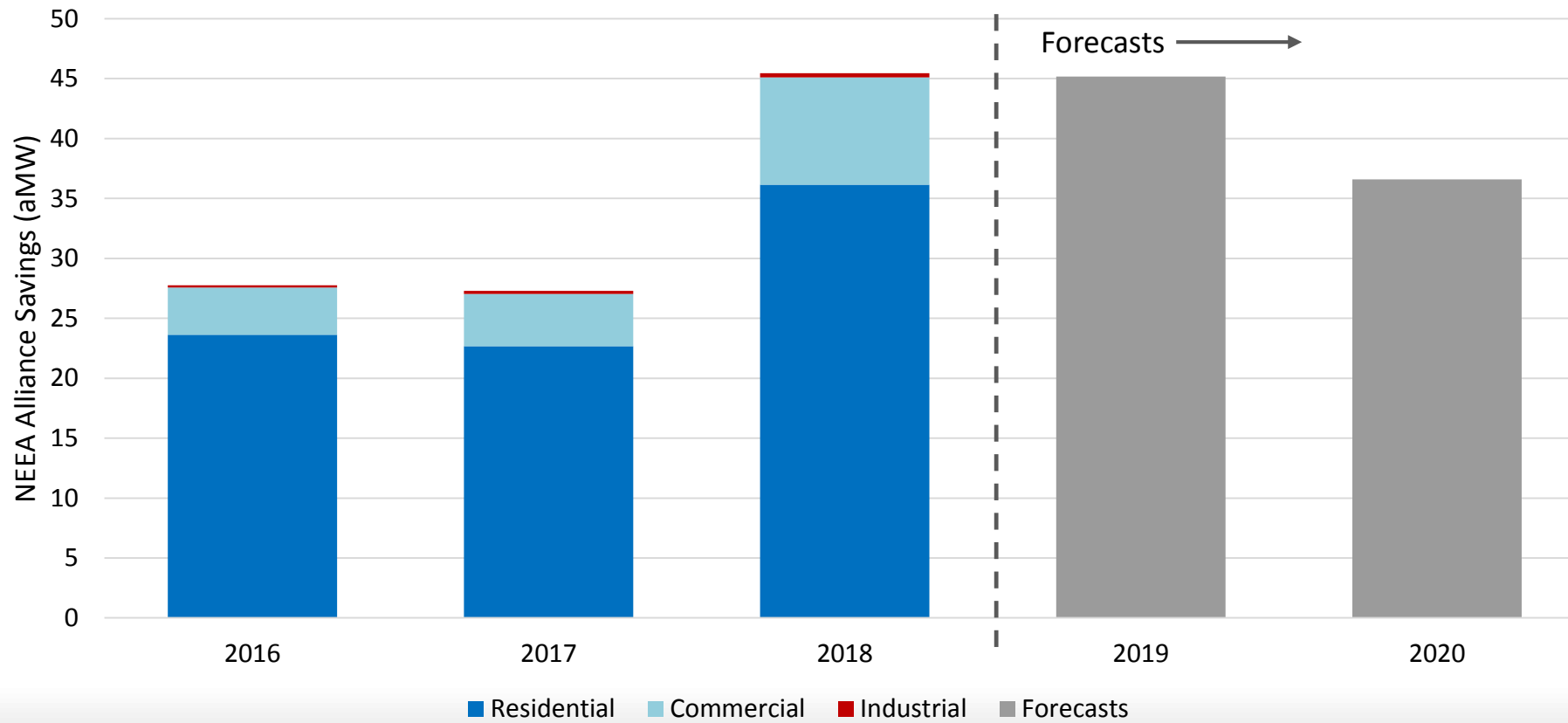
# Program savings are declining, and forecasts show this trend continuing

Annual Program Savings and Expenditures, including Forecasts



# NEEA Alliance Savings increased in 2018, but are forecasted to decrease in 2020

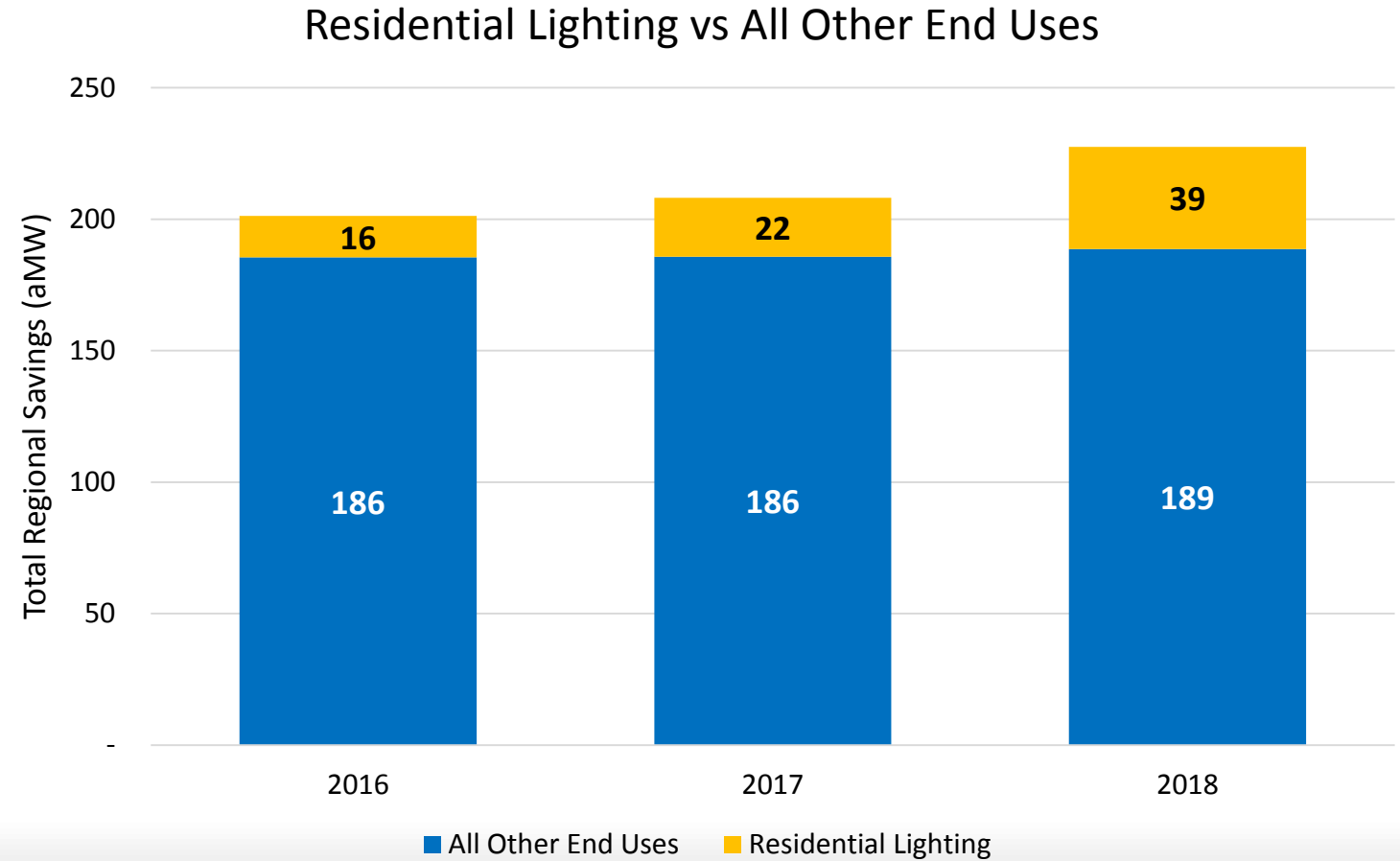
Annual NEEA Reported Savings by Sector, plus Forecasts



Note: About 60% of these savings to date are from residential lighting.

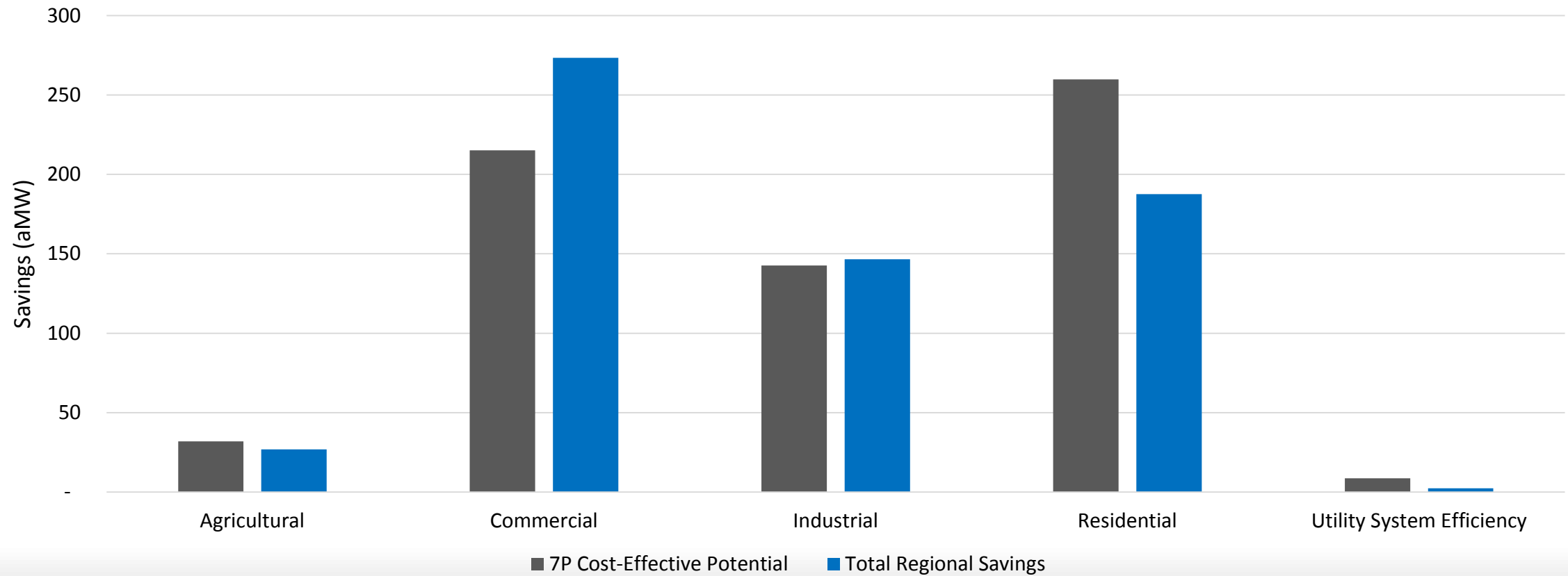
# Residential lighting has been an important contributor to savings

- Residential lighting has provided significant, and increasing, savings
- About 35% of these savings are from general service lamps (GSL)
- Power Plan baseline assumed a more efficient baseline for GSL starting in 2020 based on Federal standard
- Only savings above the Power Plan baseline can be claimed against the goals



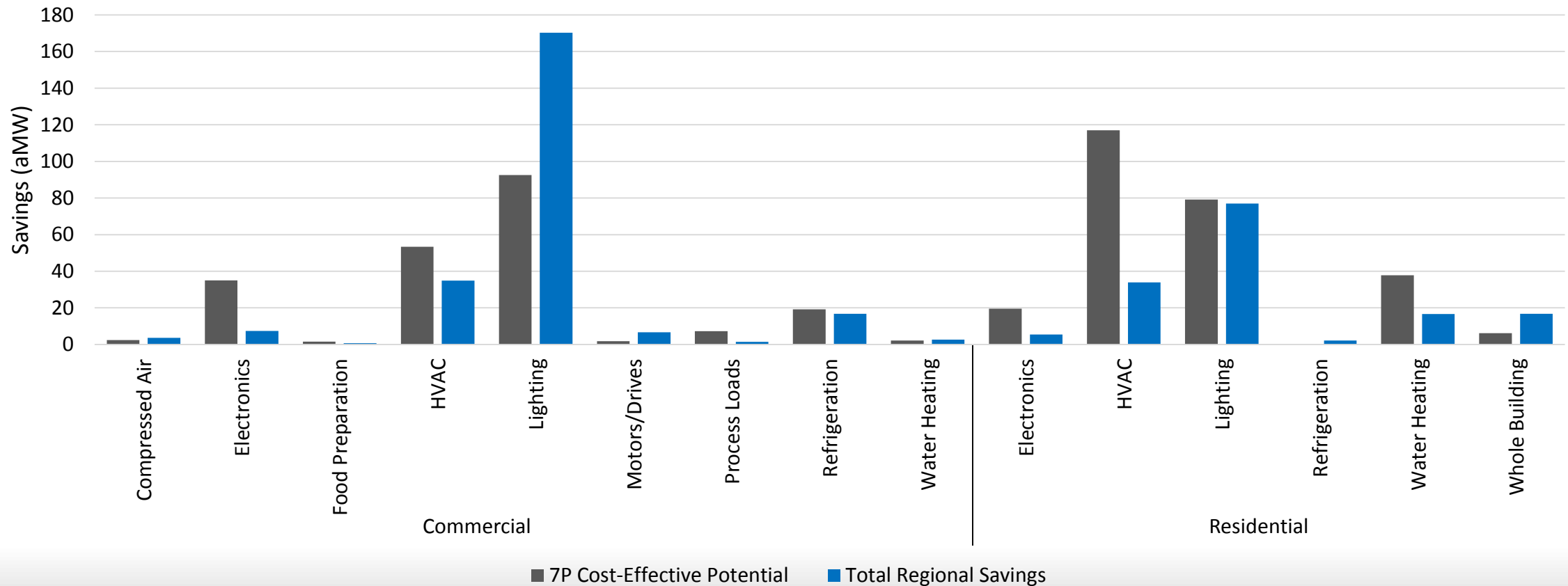
# Despite success in lighting, significant potential remains in the residential sector

2016-2018 Regional Savings Compared to Seventh Plan Cost-Effective Potential, by Sector



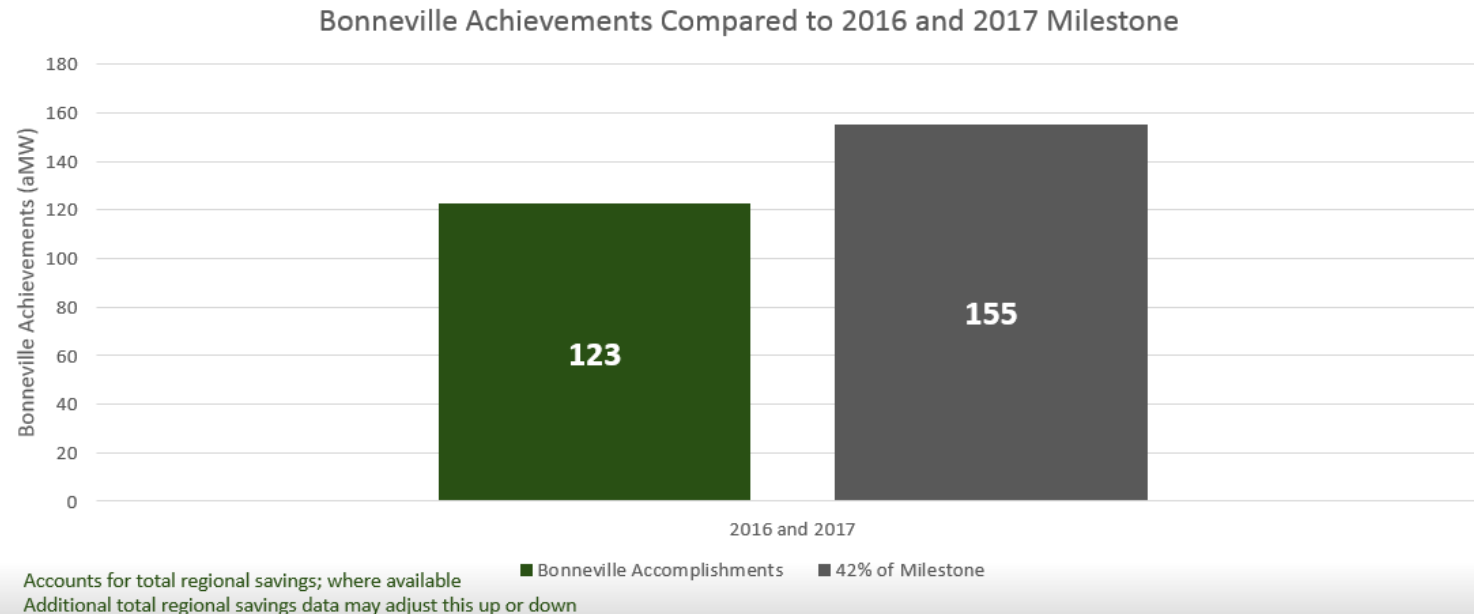
# Shifting the emphasis towards HVAC and water heating will help in meeting potential

2016-2018 Regional Savings Compared to Seventh Plan Cost-Effective Potential



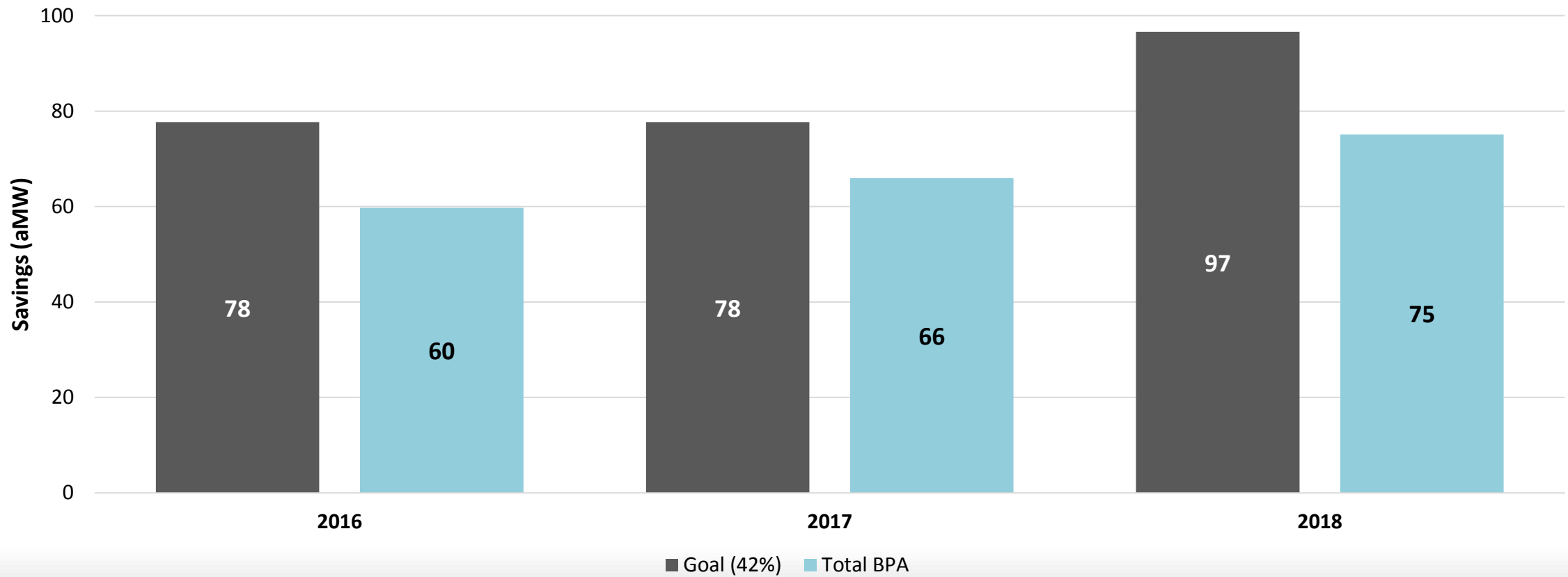
# Reminder from 2017 RCP

## Bonneville's Progress Towards Milestone



# BPA is currently achieving less than 42% of Power Plan Goals

Total BPA Savings Relative to 42% of Goal



# Determining BPA's Savings

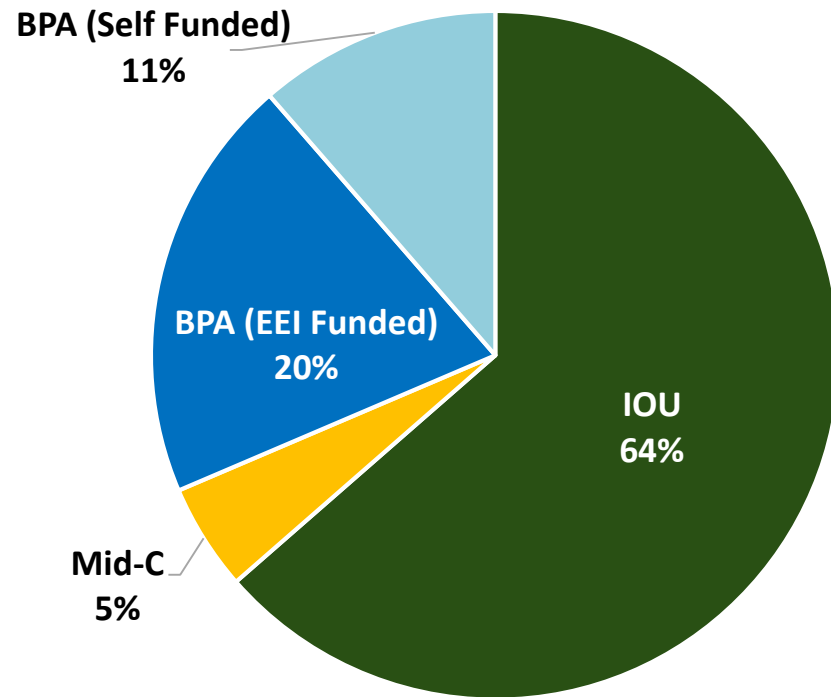
BPA's savings represent Program Savings accomplishments plus 42% of the other regional accomplishments.



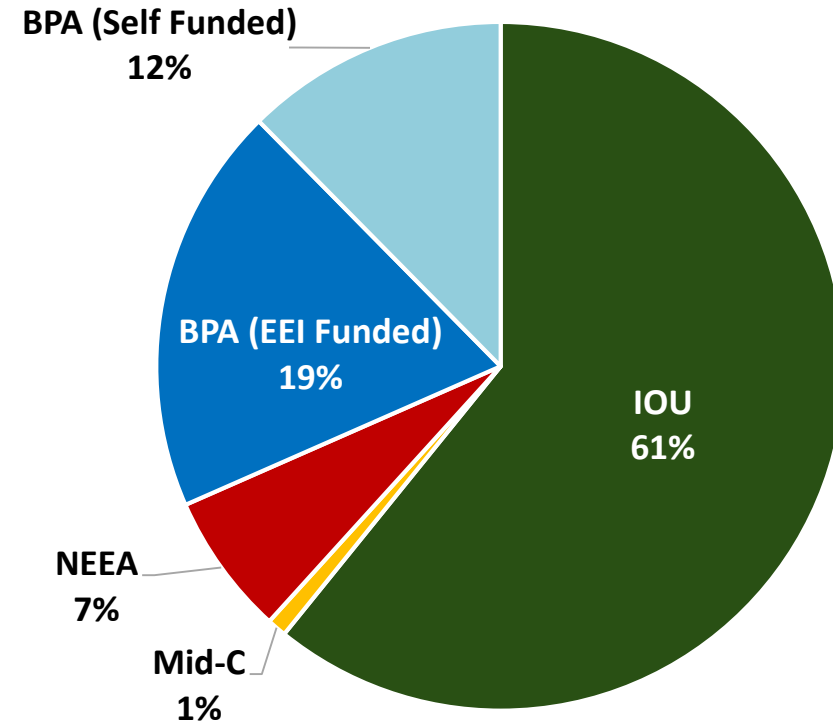


# BPA Program Savings account for 30% of regional Program Savings

2016-2018 Program Savings Share



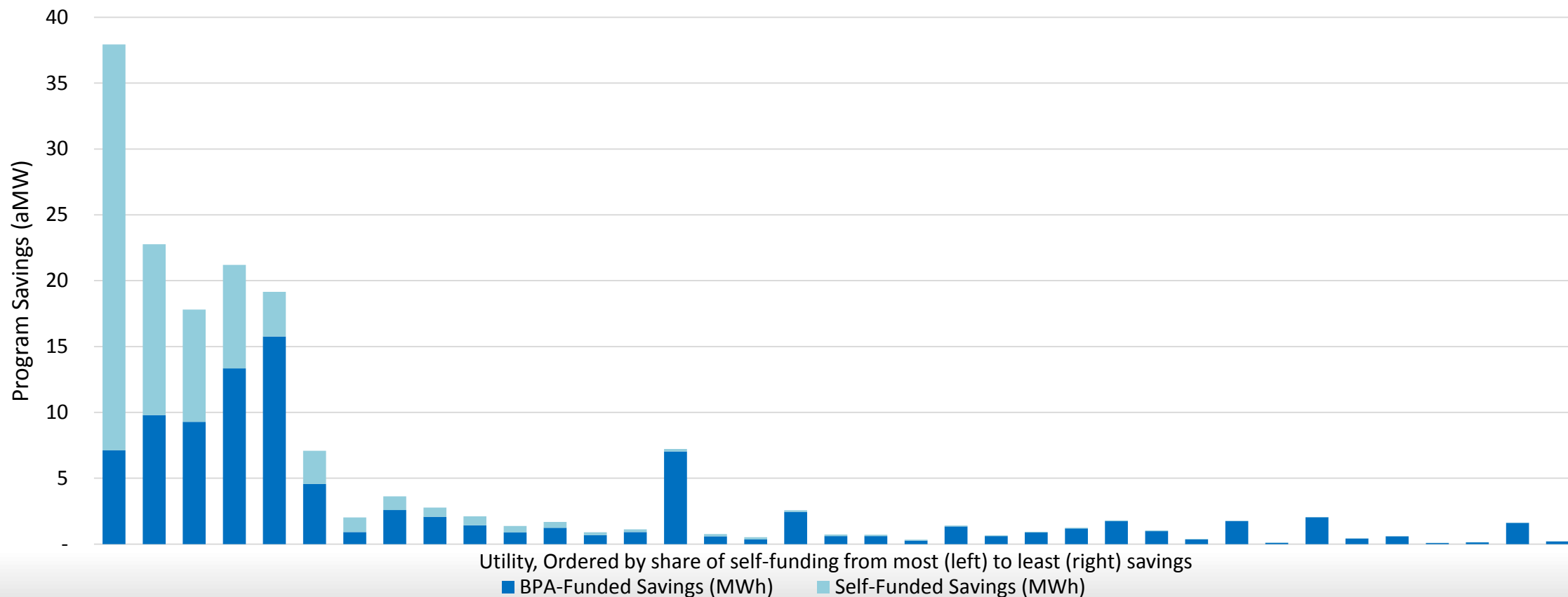
2016-2018 Funding Shares



Bonneville is achieving ~35% of its savings through self-funding

# Only 25% of BPA utilities self-fund; 90% of self-fund savings come from only 6 utilities

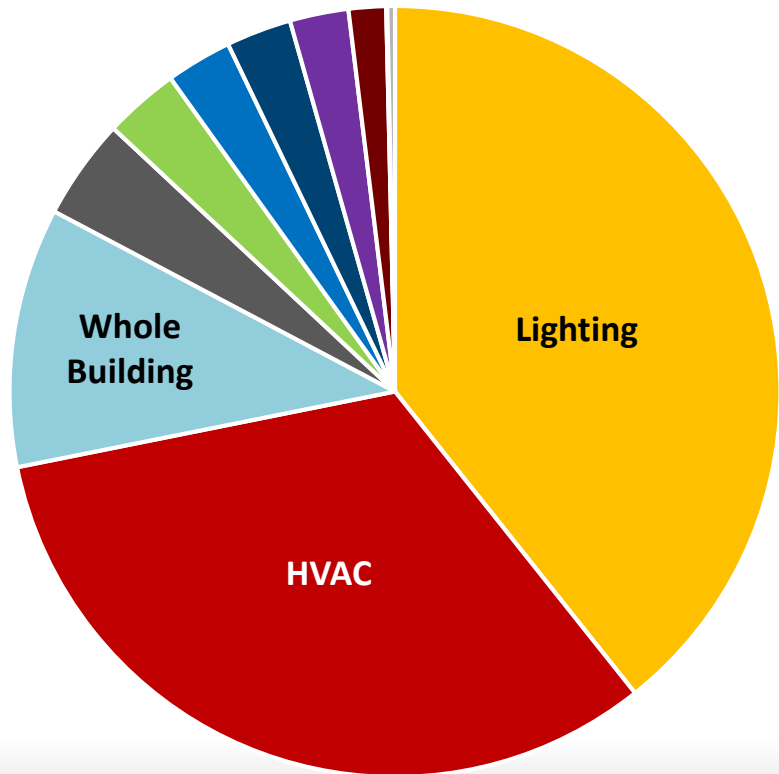
2016-2018 BPA-Funded vs. Self-Funded Savings, by Share of Self-Funding



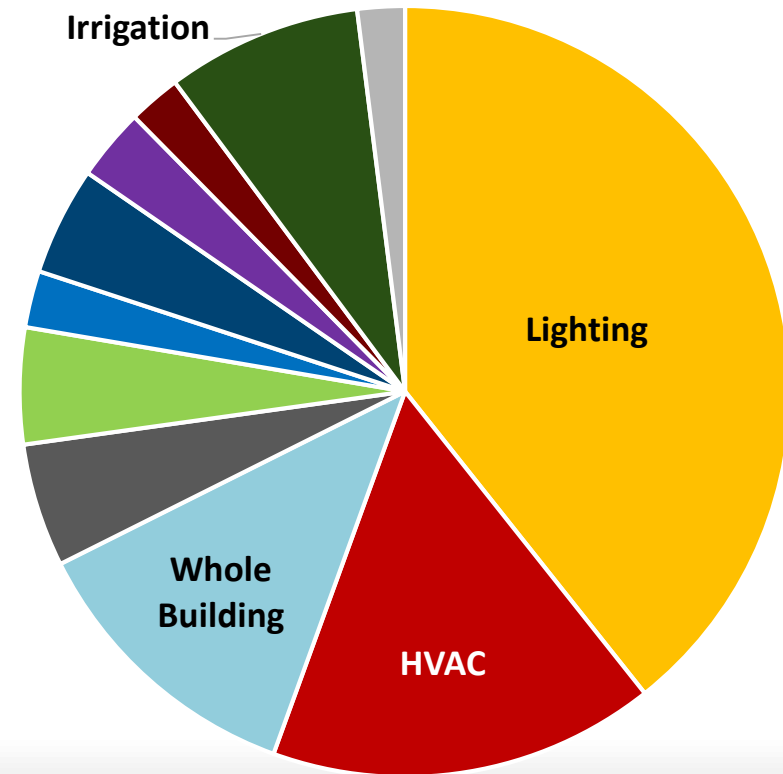
# Efficiency continues to contribute significant capacity savings to the region

**2016-2018 Winter Savings: 1222 MW**

**2016-2018 Summer Savings: 801 aMW**

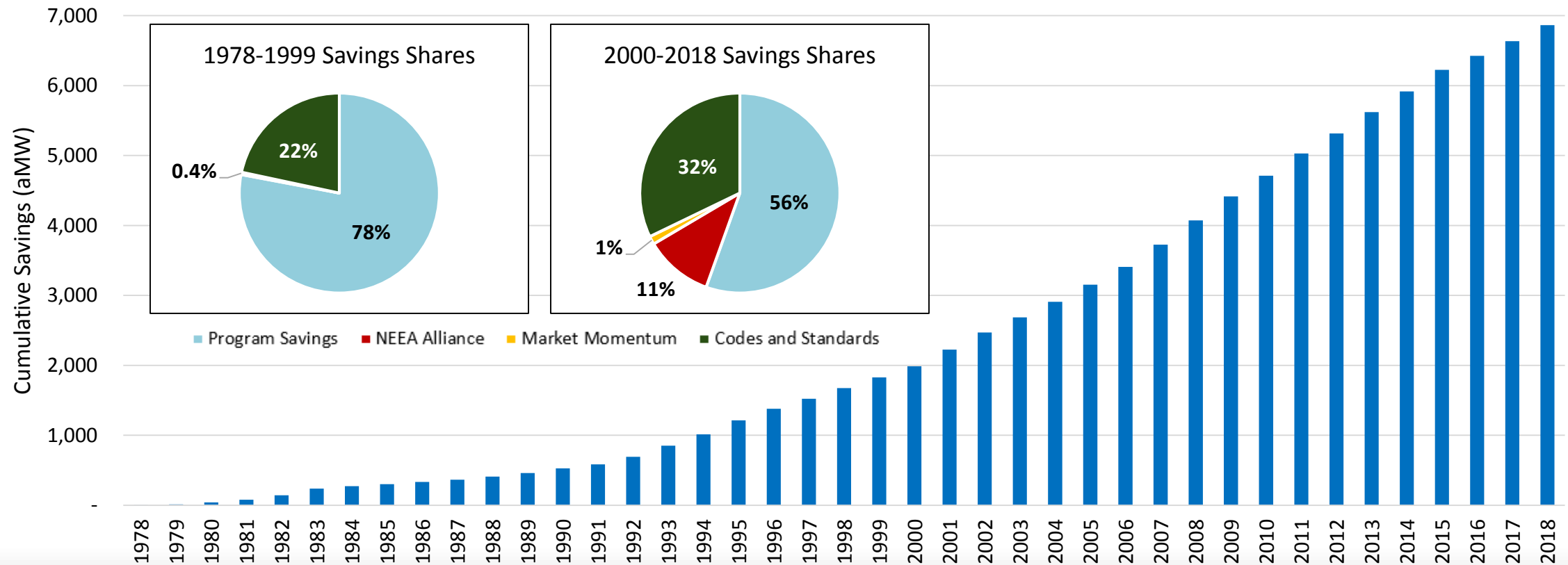


- Lighting
- HVAC
- Whole Building
- Unknown
- Process Loads
- Water Heating
- Refrigeration
- Electronics
- Motors/Drives
- Irrigation
- Other



# Energy efficiency has provided almost 6900 aMW of savings since 1978

Cumulative Regional Savings, all Mechanisms



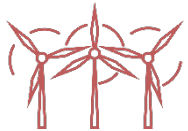
# Fun Facts: What does 6900 aMW represent?



Equivalent to the annual energy consumption of around 5.5 million homes



Roughly 2.5 times the generation of Grand Coulee



Approximately 3 times the region's wind capability



Avoided more than 21.9 million metric tons of CO2



CO2 equivalent of driving a Prius between the Portlands over 15,000 times

# Summary

Energy efficiency continues to be a valuable resource and the region is currently on track for meeting Seventh Plan goals, but there are some areas to watch:

Program Savings

NEEA Alliance  
and Momentum  
Savings

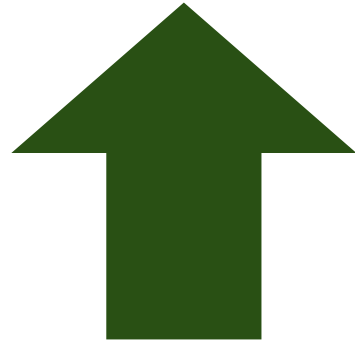
Residential  
Lighting

BPA's Progress

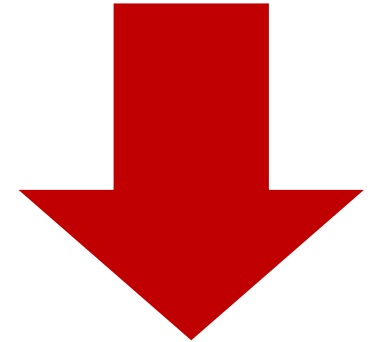
# ADDITIONAL SLIDES

# Adjusting to Total Market Savings

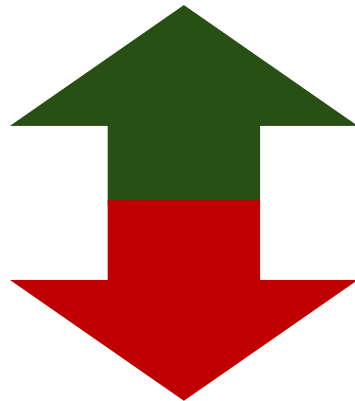
Efficiency is occurring outside of Program and NEEA Alliance Savings and do relate to the Plan goal



Program and NEEA Alliance Savings represent only efficient units, while the Plan looks at all units



Program Savings baselines may be different than the Plan baseline, and change throughout Plan period



Program savings represent short-term savings, while the Plan represents long-term savings

