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September 9, 2020

MEMORANDUM

TO: Council Members

FROM: Jennifer Light

SUBJECT: 2019 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 2016-2019.

The data reported for 2016 through 2019 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 2019, 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 a portion of lighting. 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 previous two 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:

	FY 2016-2017	FY 2018-2019	FY 2020-2021
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.

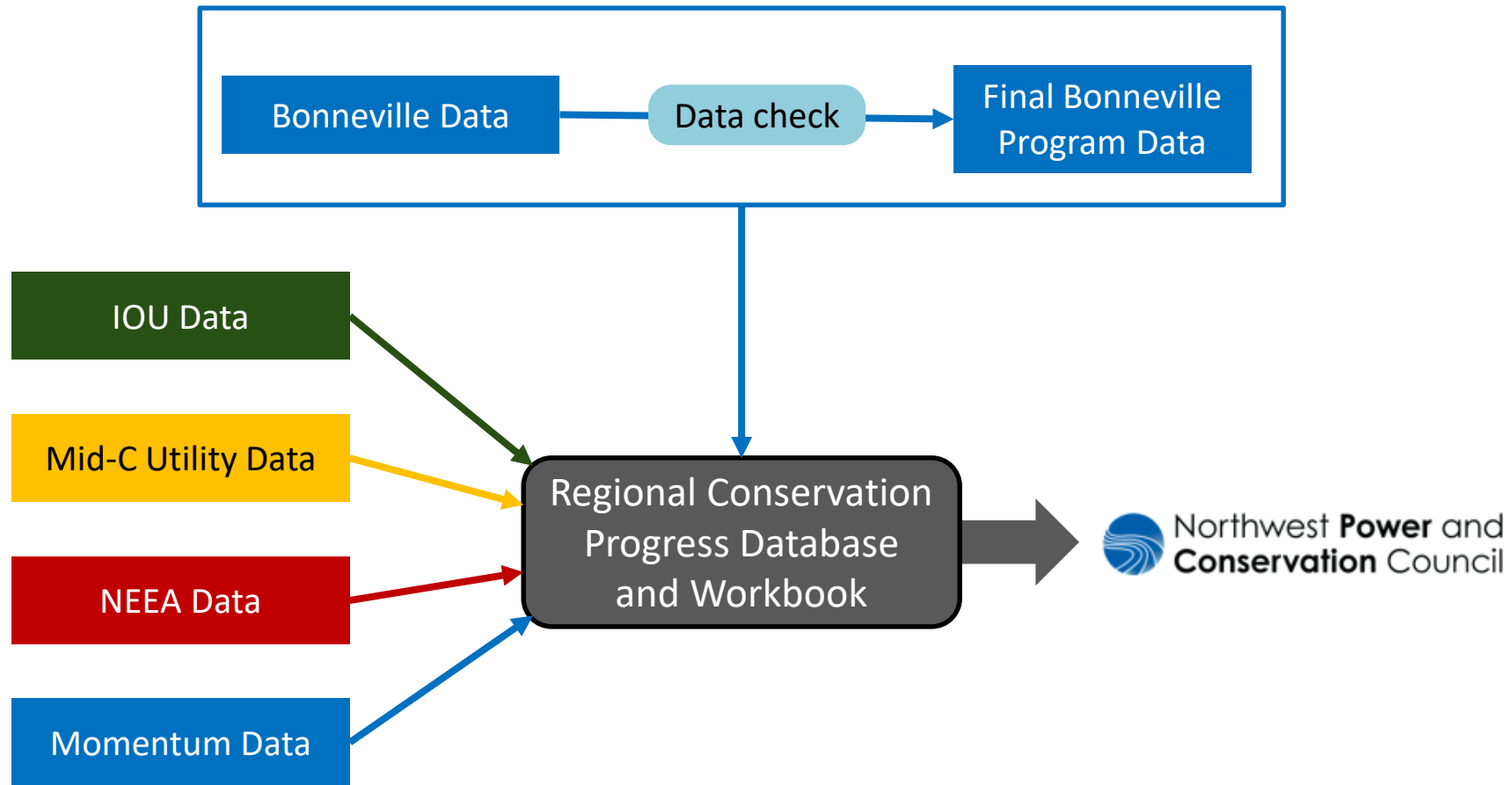
2019 Regional Conservation Progress Survey Results

September 16, 2020
Council Meeting

Background

- Annual survey conducted by the RTF on behalf of the Council
- Requested energy efficiency savings and expenditures for 2019 and corrections/updates to 2016-2018
 - Savings: Sought as much detail as possible, to the end-use
 - Expenditures: Sought to get *total* expenditures
 - Projections: Estimates for 2020-2021 to inform progress against Power Plan goals
- This represents the fourth year of the six year action plan

Data and Analysis Process



Framing for Today

- This is the last RCP before release of the 2021 Power plan
- It is too early to say whether the region will meet the conservation goals in the plan, and we won't know until after we start implementation of the next plan
- Therefore, this is an opportunity to learn from the 7P implementation to inform the framework for the conservation target in the plan

Conservation Acquisition: The Different Roles in the Region

Primary Role for Utility Programs

- Perform direct resource acquisition
- Engage directly with end use consumers, trade allies, and local retailers/distributors
- Provide near-term savings in load, funding today results in savings today

Primary Role for NEEA

- Support market transformation
- Fill the pipeline and get products ready for direct program acquisition, support codes and standards
- Provide long-term savings, funding today results in savings in the future

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.

The Market Adjustment

Different savings have different perspectives and don't stack perfectly

In those markets, we use the market adjustment to ensure the sum of the parts equals the whole

For some markets, we have data on total market savings and can see the full picture



Example



257 aMW

-27 aMW

230 aMW

Simply put, the market adjustment accounts for under- and over-counting from the different sources

Total Market Savings

- For 2016-2019, Total Market Savings were included for the following residential markets:
 - Lighting
 - Refrigerators
 - Heat Pump Water Heaters
 - Clothes Washers
 - HVAC (full market 2016 & 2017, ductless heat pumps all years)
- Total Market Savings were also reported for non-residential lighting for 2016 & 2017

Other Notes/Caveats

- ★ As additional market data and momentum are reported, savings will change
 - Report represents a mix of calendar and fiscal year savings; this gets 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)

Thank You Respondents!

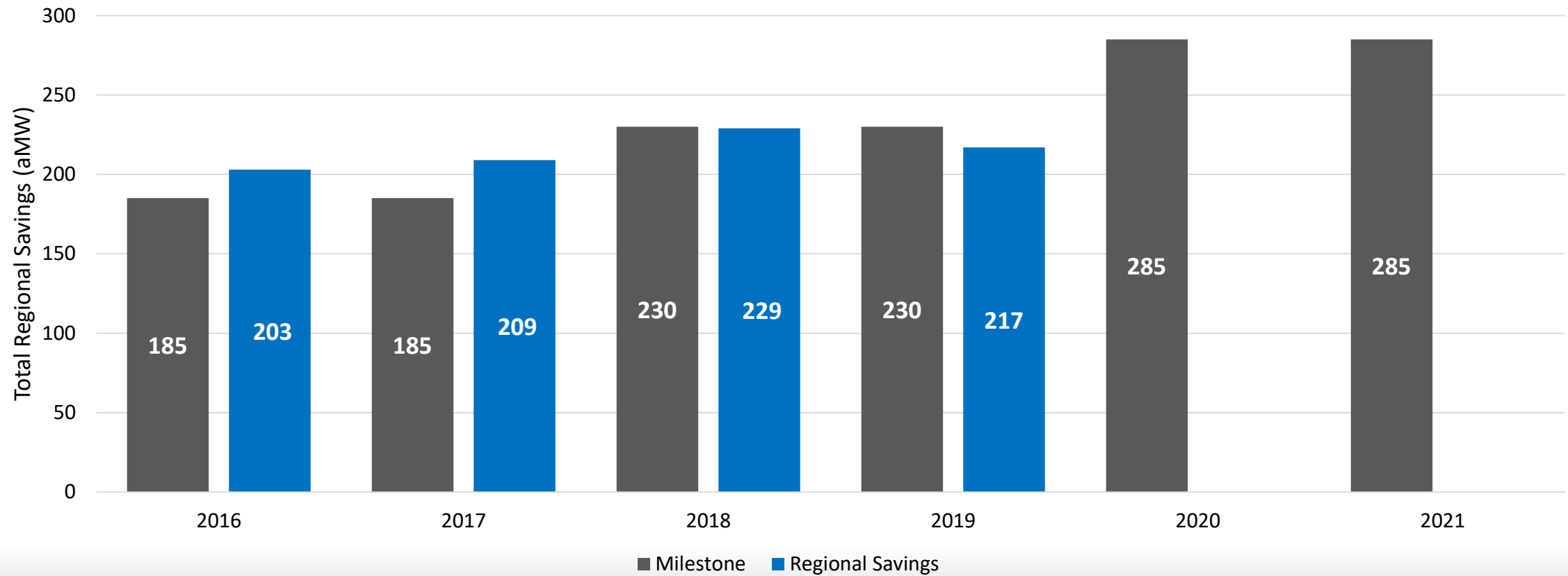


Now for the Results

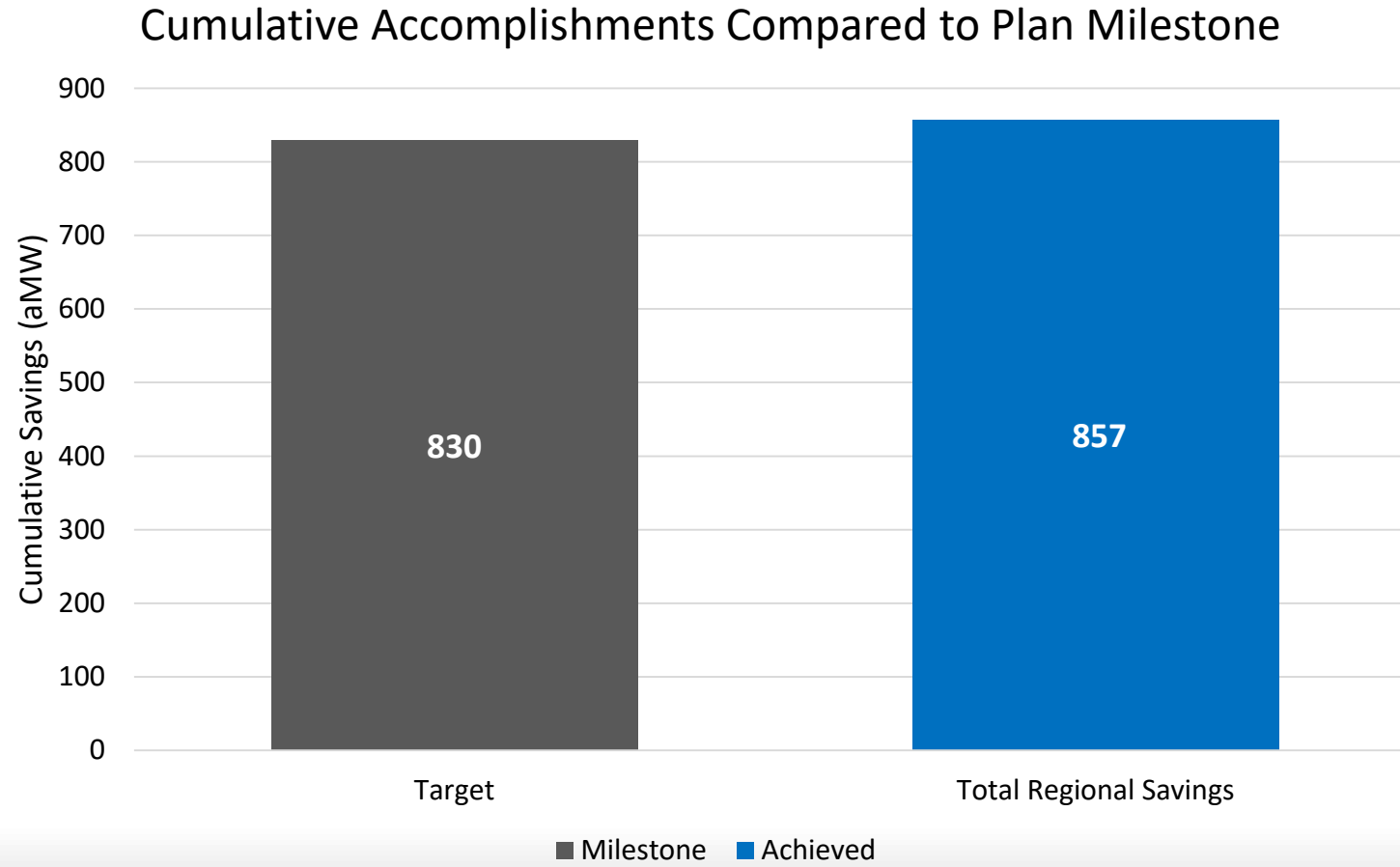


Regional Progress from 2016-2019

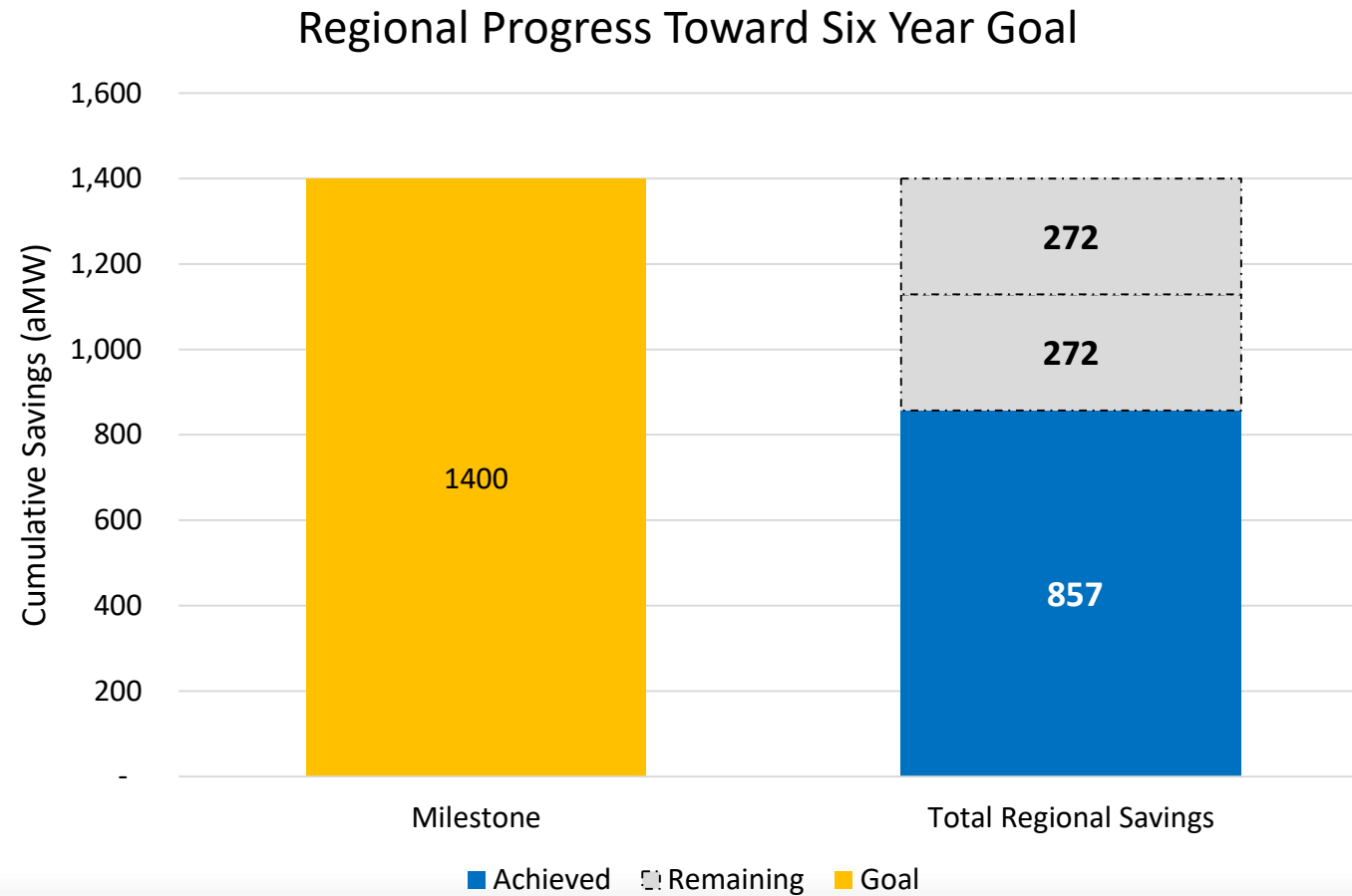
Total Regional Savings Compared to Seventh Plan Milestones



Region is Ahead of Current Milestone Goals

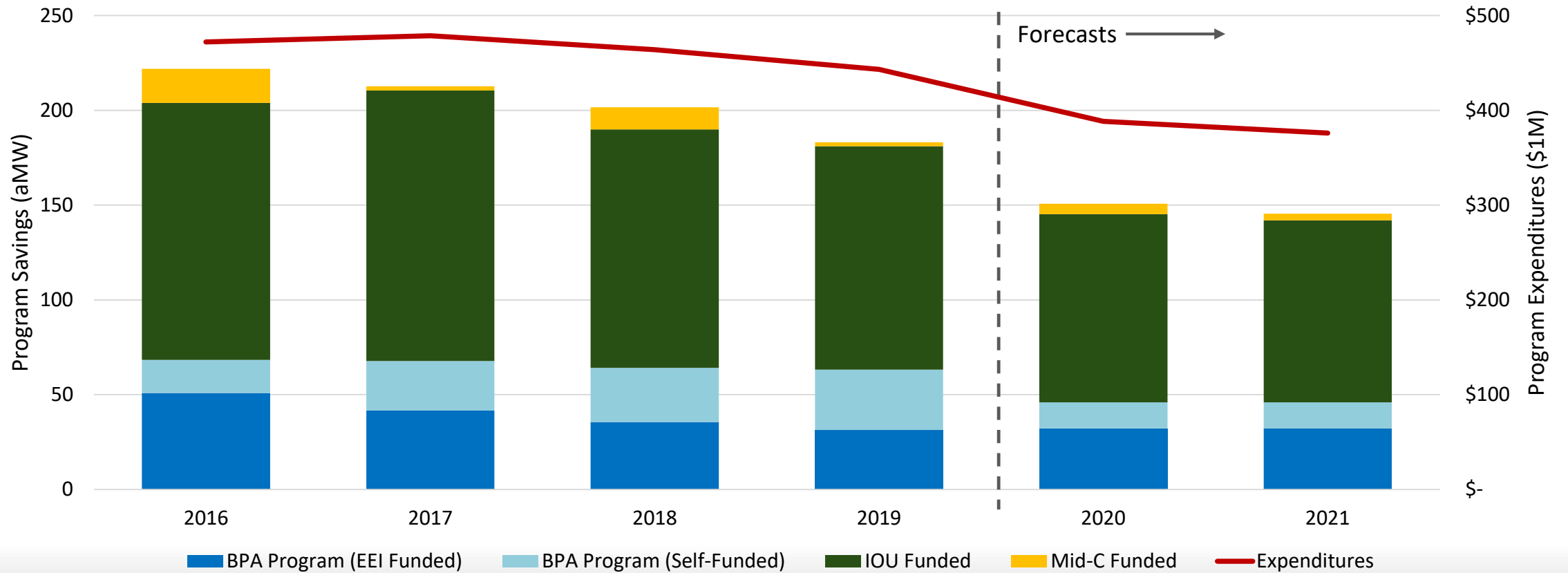


What Is Needed to Reach the Six Year Goal?



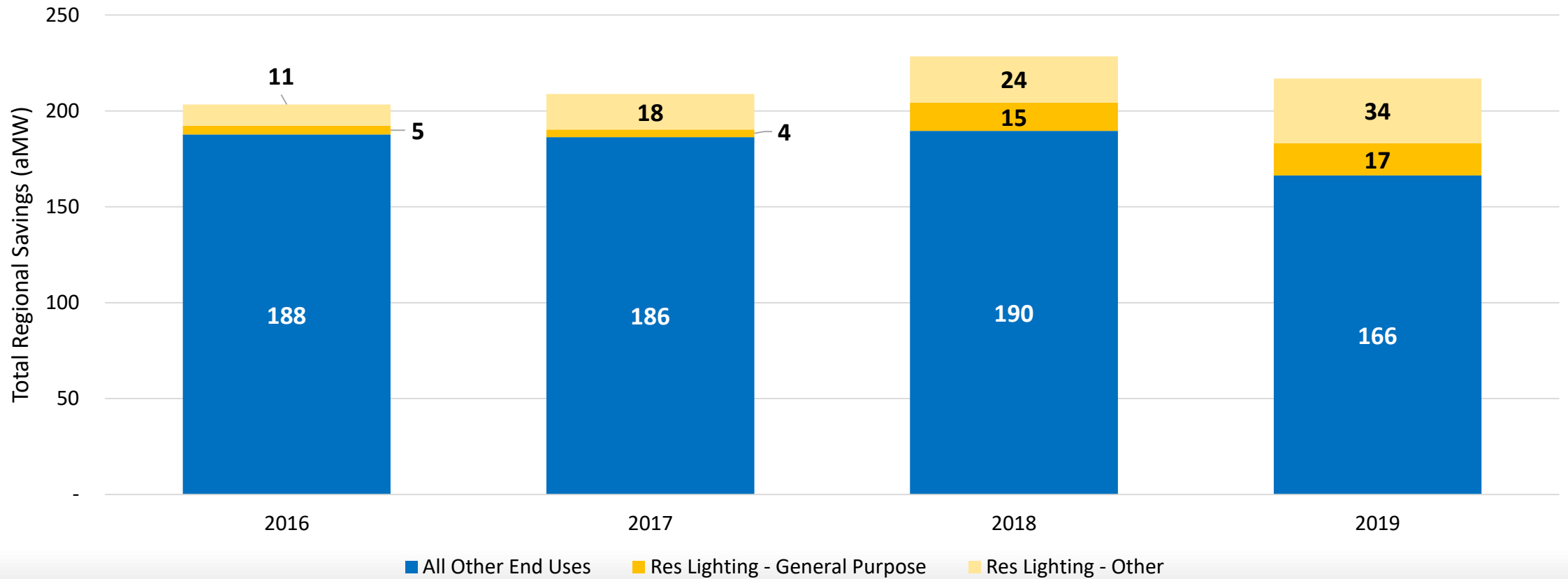
Program savings are declining, and forecasts show this trend continuing

Annual Program Savings and Expenditures, including Forecasts



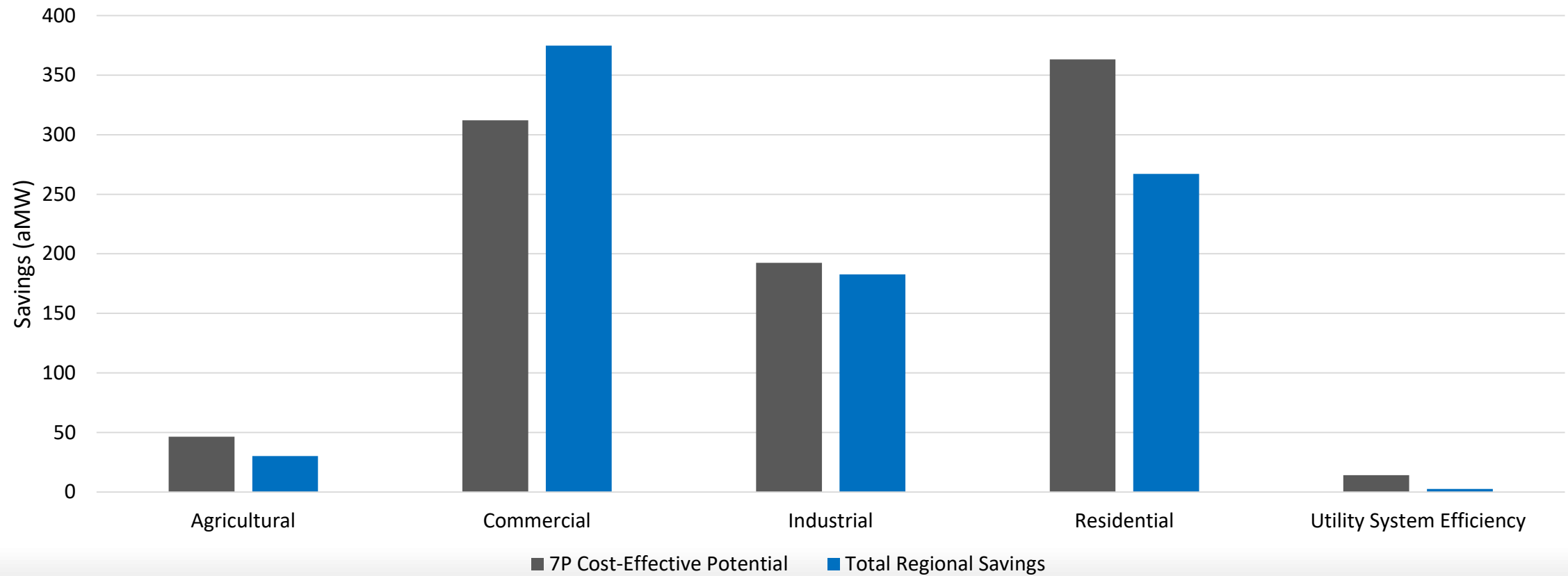
Residential lighting is an important contributor to savings

Residential Lighting vs All Other End Uses



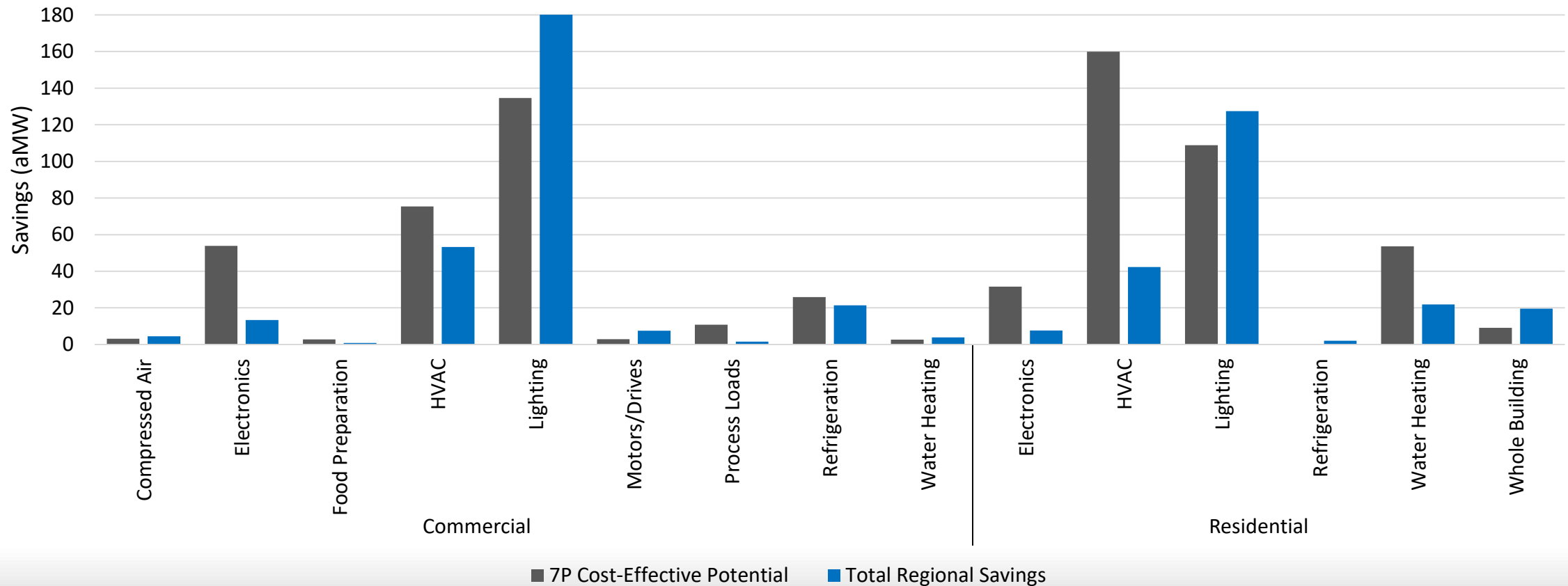
Despite success in lighting, significant potential remains in the residential sector

2016-2019 Regional Savings Compared to Seventh Plan Cost-Effective Potential, by Sector



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

2016-2019 Regional Savings Compared to Seventh Plan Cost-Effective Potential



Determining BPA's Savings

BPA's savings represent:

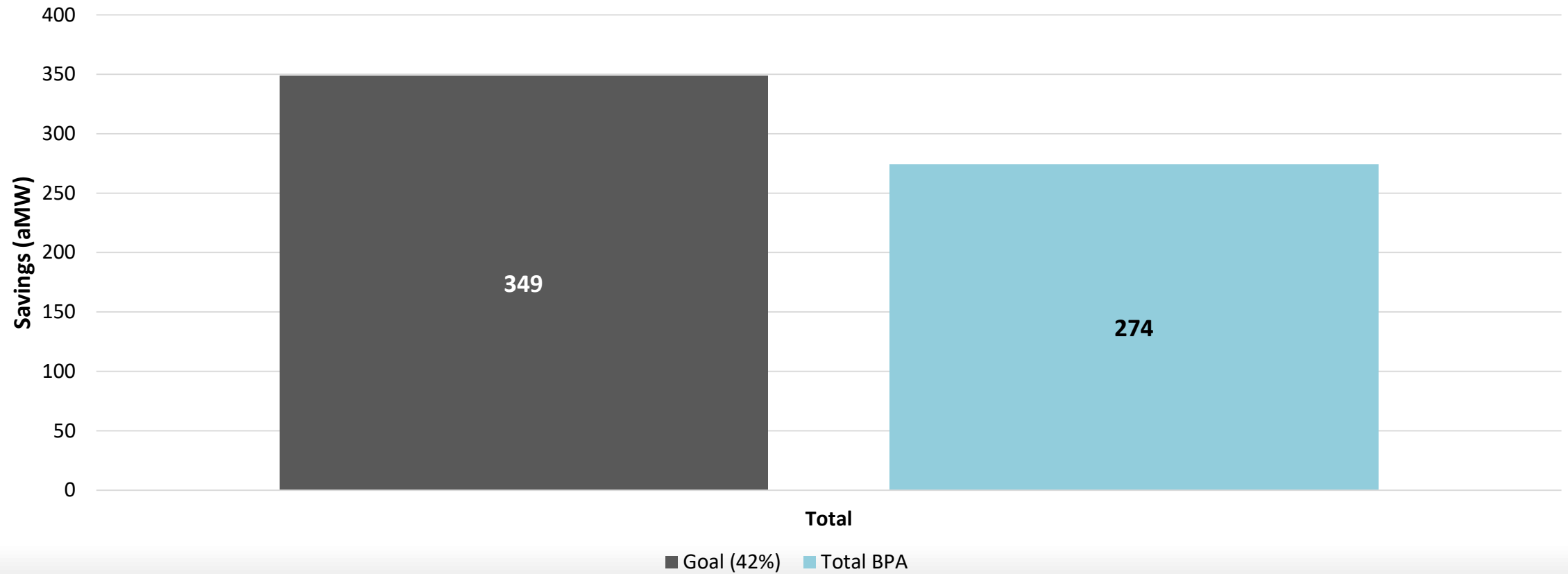
- Program Savings
- Proportional accomplishments from regional mechanisms and adjustments

Focusing on the program savings because those are in BPA's direct control and the only component not proportional to regional savings



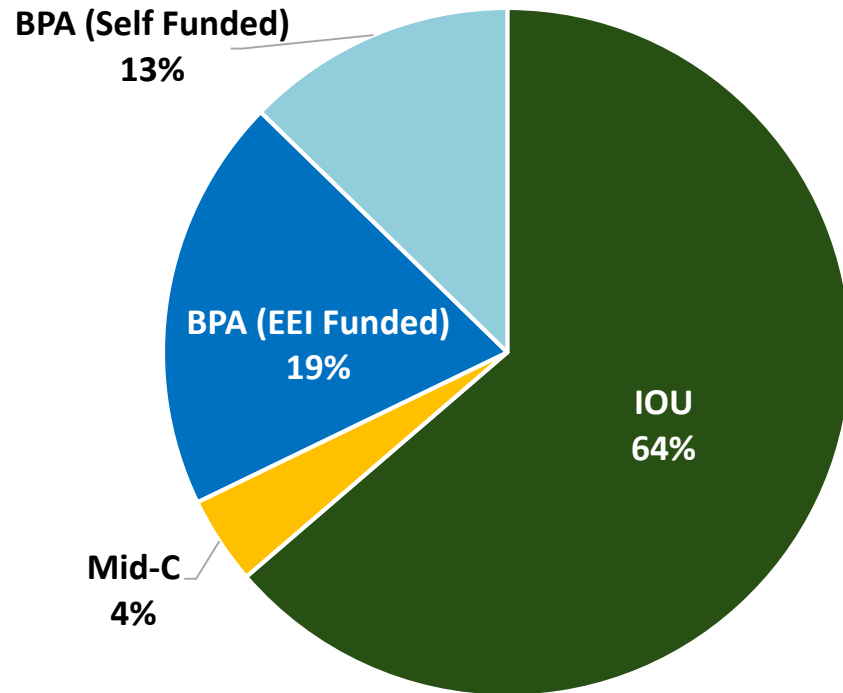
BPA is currently achieving less than 42% of Power Plan Goals

Total BPA Savings from 2016-2019 Relative to 42% of Goal

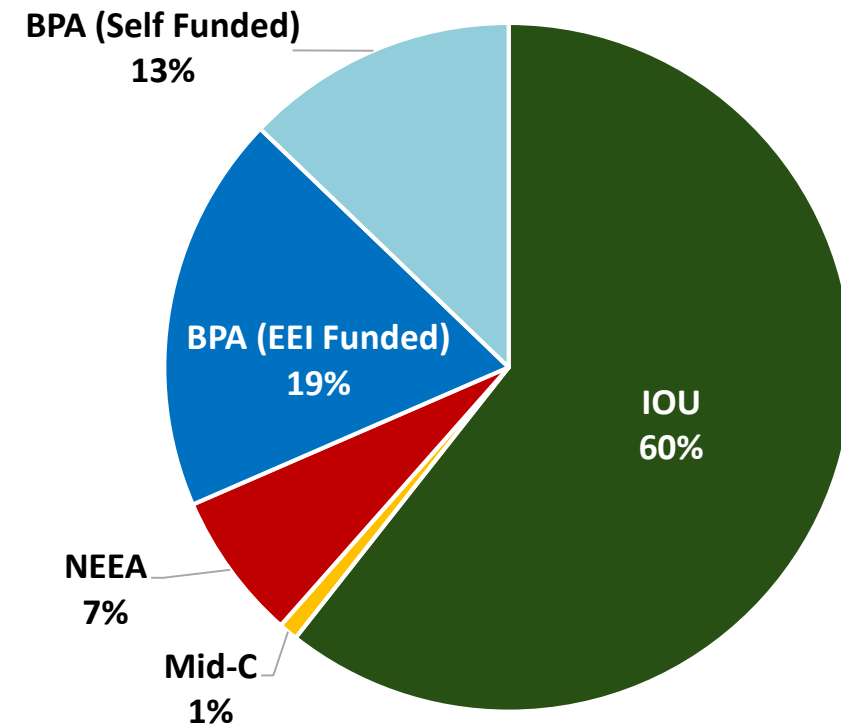


BPA Program Savings account for 32% of regional Program Savings

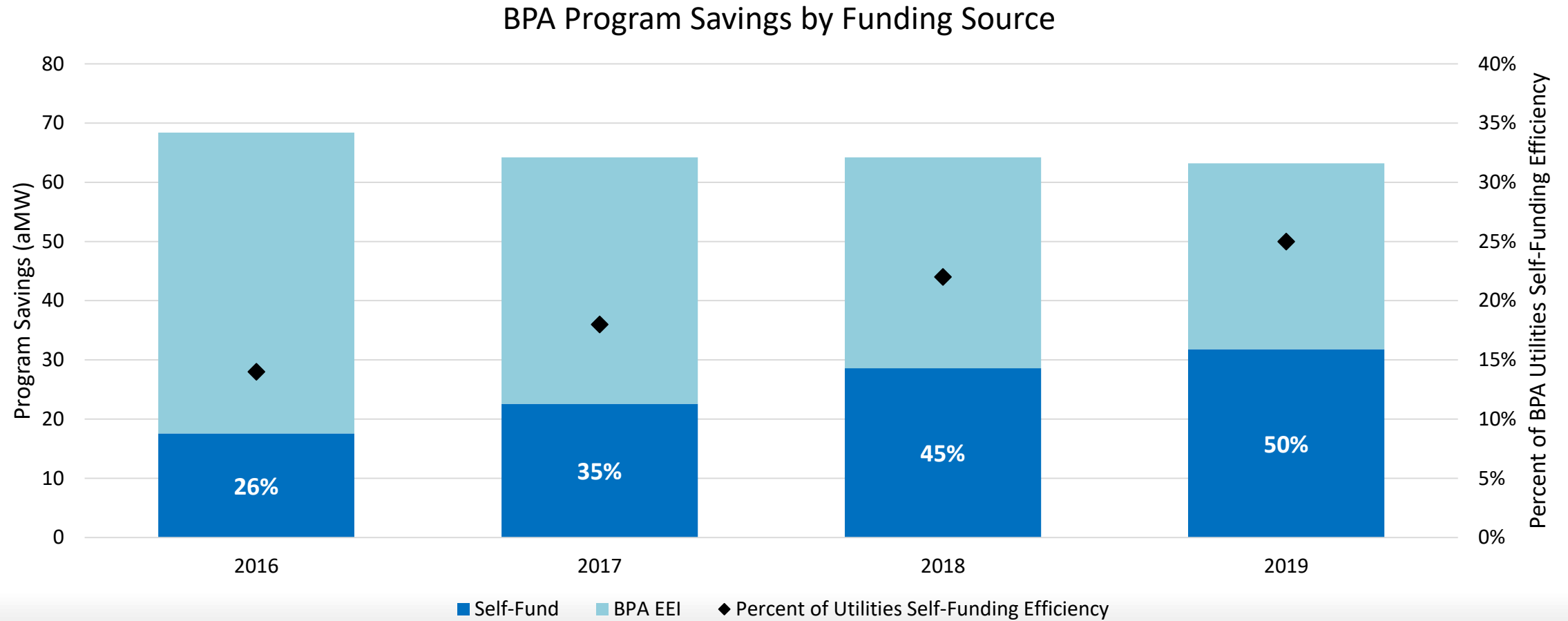
2016-2019 Program Savings Share



2016-2019 Funding Shares

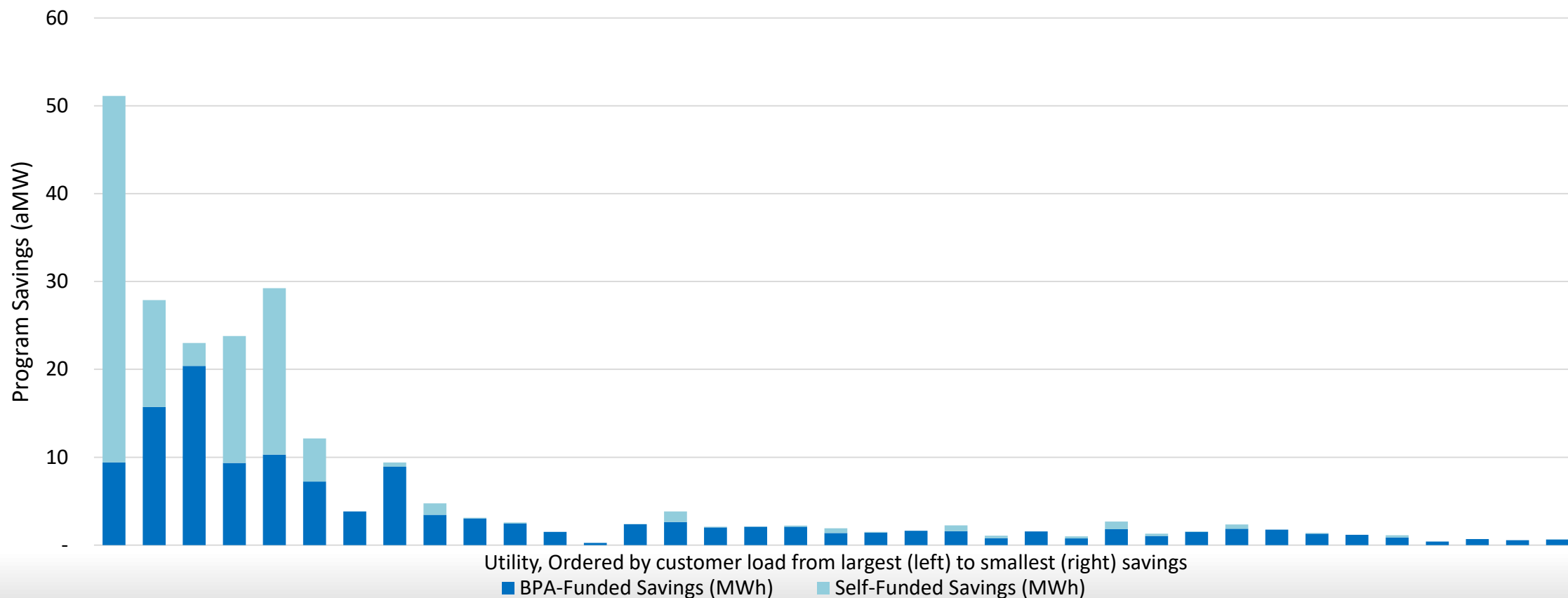


Self-fund program savings are an increasing portion of total BPA program savings

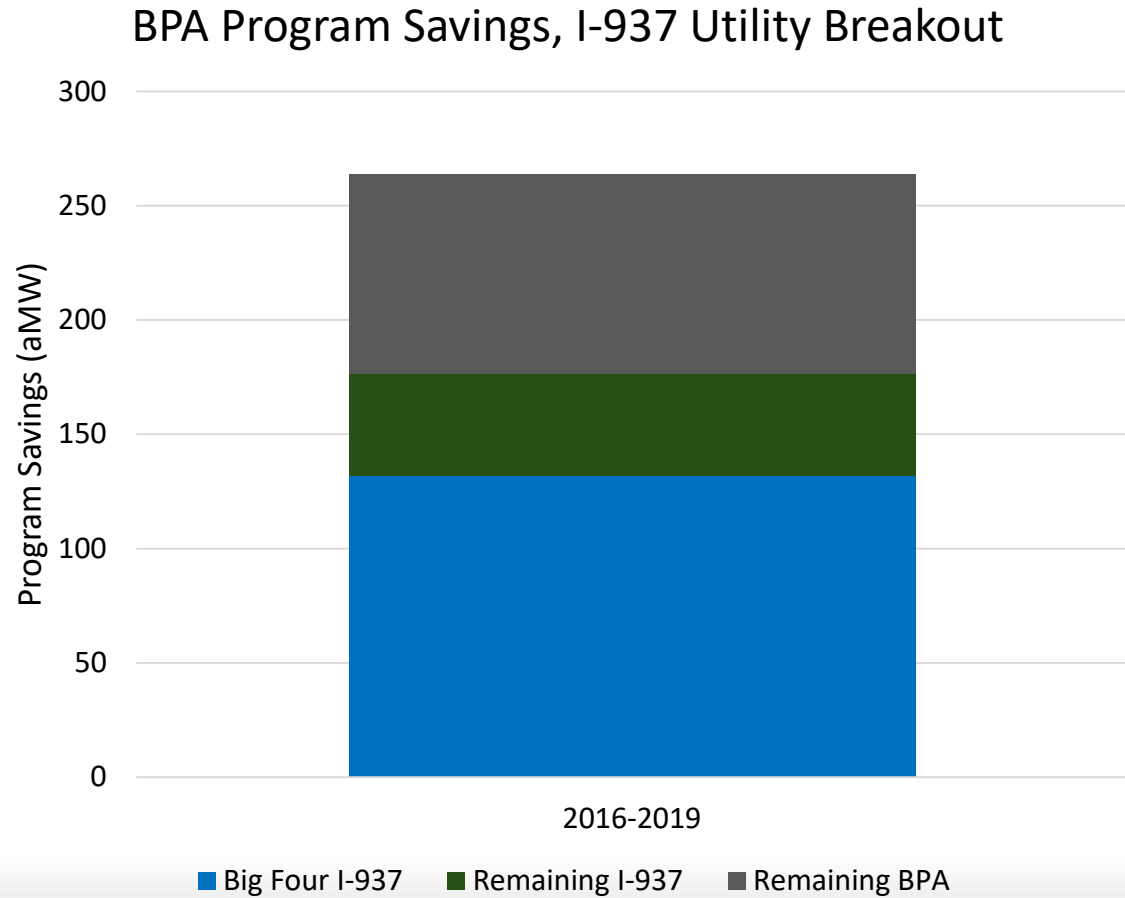


Only 25% of BPA utilities self-fund; 92% of self-fund savings come from only 6 utilities

2016-2019 BPA-Funded vs. Self-Funded Savings, by Share of Self-Funding



Much of the BPA Program Savings are driven by WA I-937 requirements



“Big Four” represent:

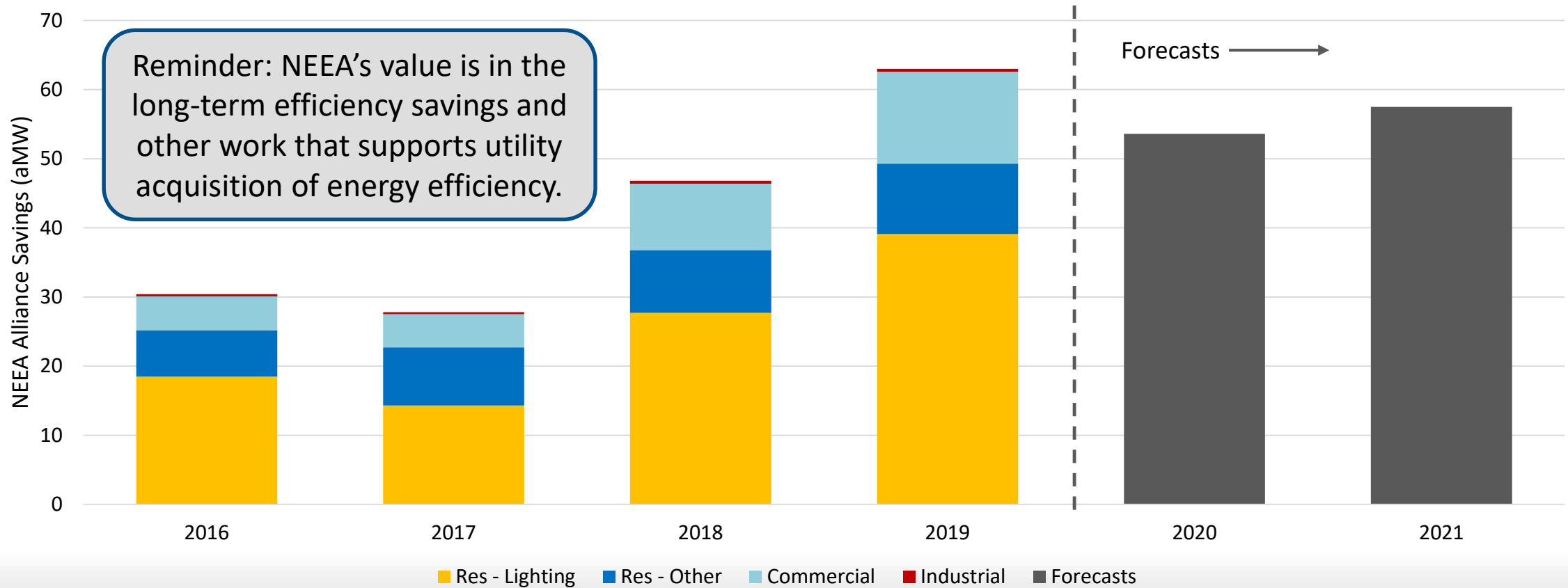
- ~37% of total BPA customer load
- ~50% of total BPA program savings

All I-937 represent:

- ~53% of total BPA customer load
- ~67% of total BPA program savings

NEEA Alliance Savings increased, mostly driven by residential lighting

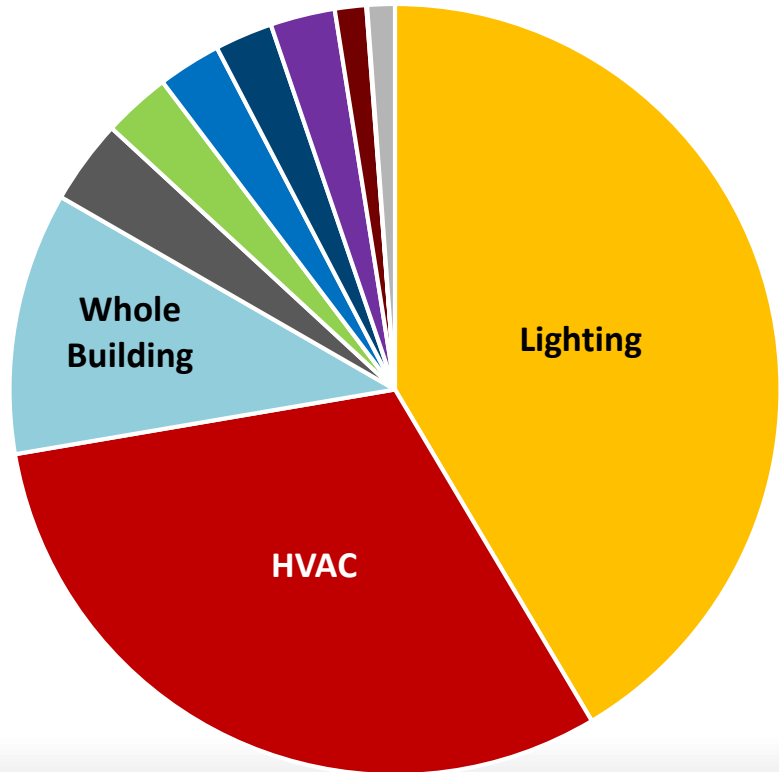
Annual NEEA Reported Savings by Sector, plus Forecasts



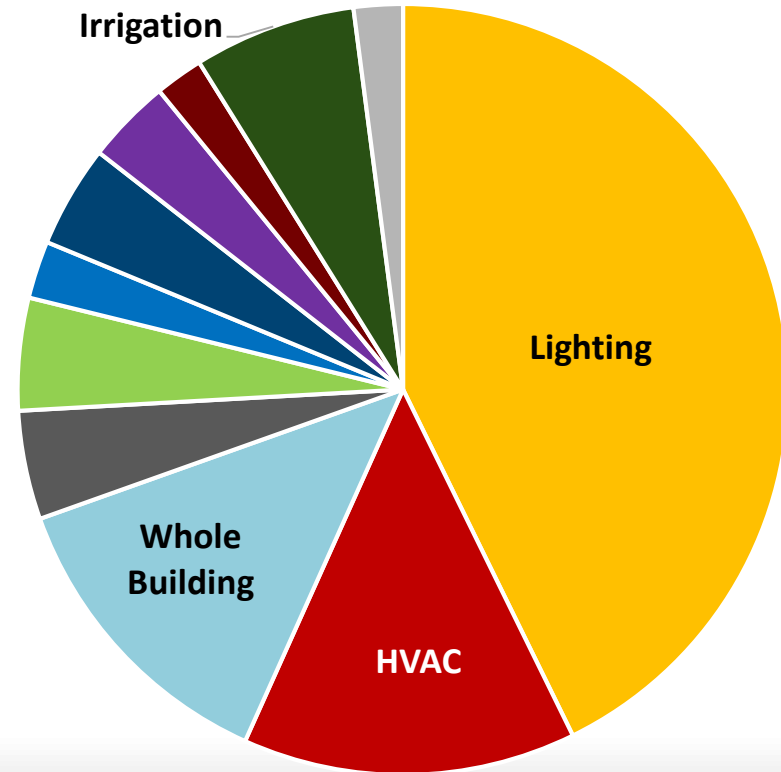
Efficiency continues to contribute significant capacity savings to the region

2016-2019 Winter Savings: 1683 MW

2016-2019 Summer Savings: 1042 aMW

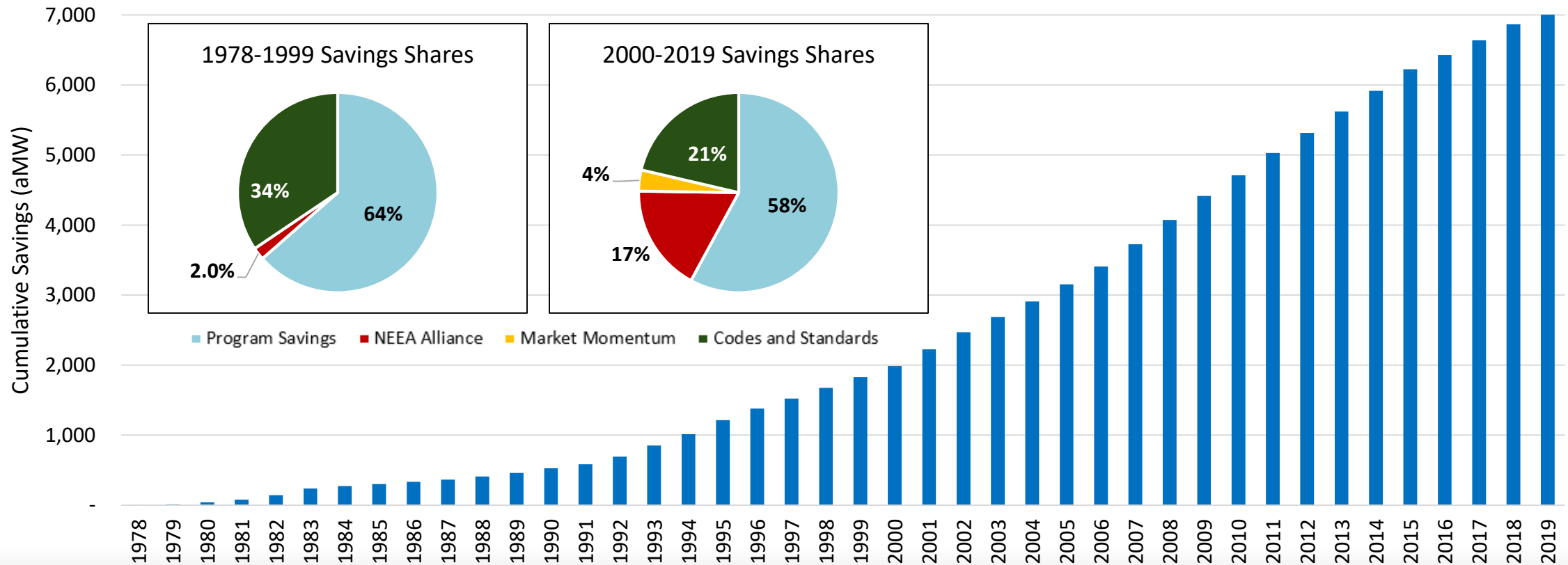


- Lighting
- HVAC
- Whole Building
- Unknown
- Process Loads
- Water Heating
- Refrigeration
- Electronics
- Motors/Drives
- Irrigation
- Other



Energy efficiency has provided over 7000 aMW of savings since 1978

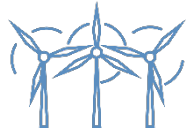
Cumulative Regional Savings, all Mechanisms



Fun Facts: What does 7000 aMW represent?



Equivalent to the annual energy consumption of around 5.1 million homes



Approximately 2.5 times the region's wind capability



Avoided more than 22.2 million metric tons of CO2



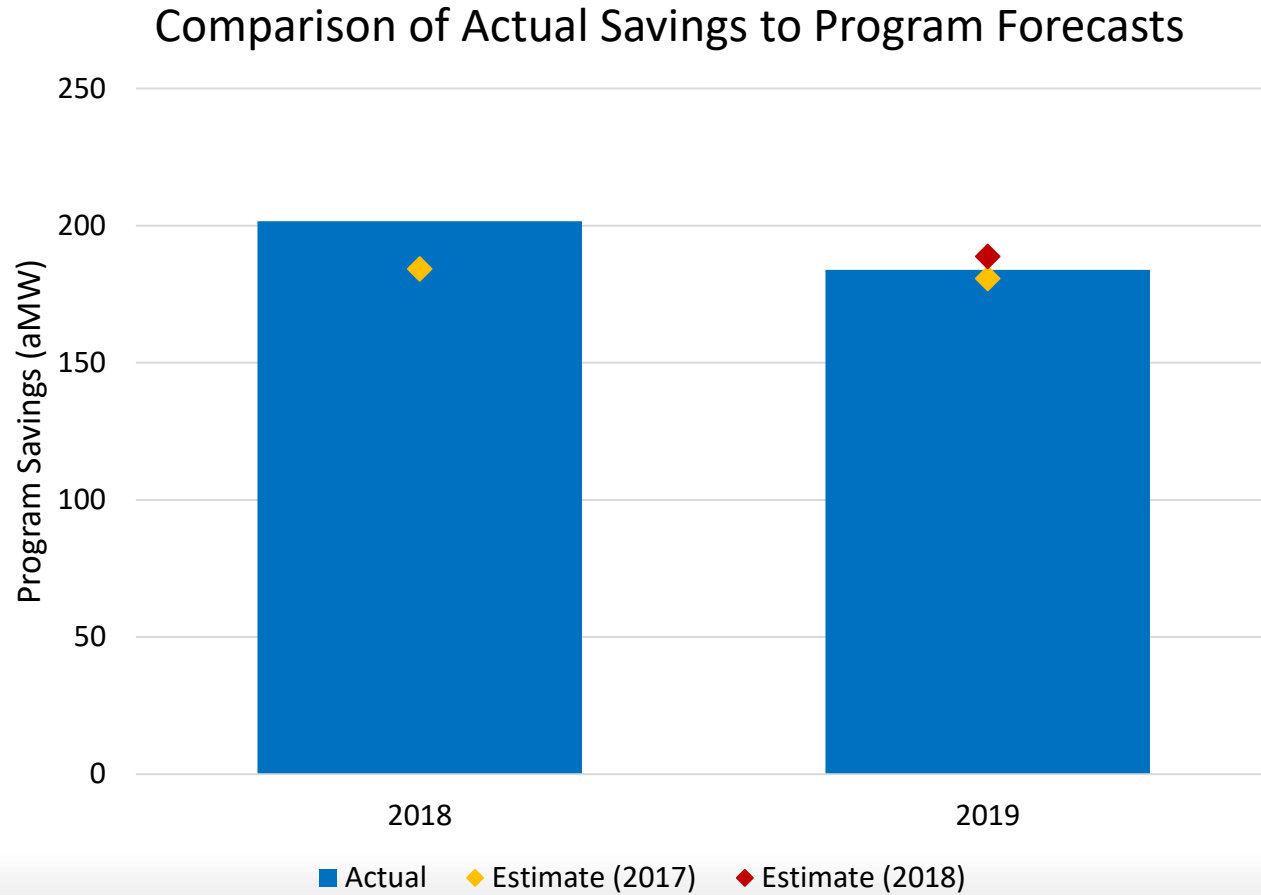
CO2 equivalent of approximately 91 million BBQs



CO2 equivalent of driving a Prius the length of the PCT almost 19,000 times

ADDITIONAL SLIDES

How Good Are Programs at Forecasting?



- Programs are pretty good at forecasting savings
- Main driver of difference in 2018 is one large project at a mid-C utility

What's the graph showing?

- Blue bars show actual program savings claims
- Yellow diamonds are the forecasts for each year as estimated in 2017
- Red diamonds is forecast estimated in 2018