



# ACTION PLAN

*Brown Bag*  
*November 3, 2016*

# AGENDA

- 
1. Overview
  2. Seventh Plan
  3. Sector Strategies
  4. Savings and Costs
  5. Next Steps
  6. Discussion



# EE PLAN OVERVIEW

# EE ACTION PLAN

**DRAFT**

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THROUGH  
NOVEMBER 18

# Purpose



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UNWRAP THE  
COUNCIL  
SAVINGS  
POTENTIAL



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EXPLORE  
OPPORTUNITIES



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DEVELOP A  
ROAD MAP

# Our Journey



Fall 2015

Winter 2016

7<sup>th</sup> Plan  
Supply  
Curves

Strategy  
Sessions

Developed  
Estimates

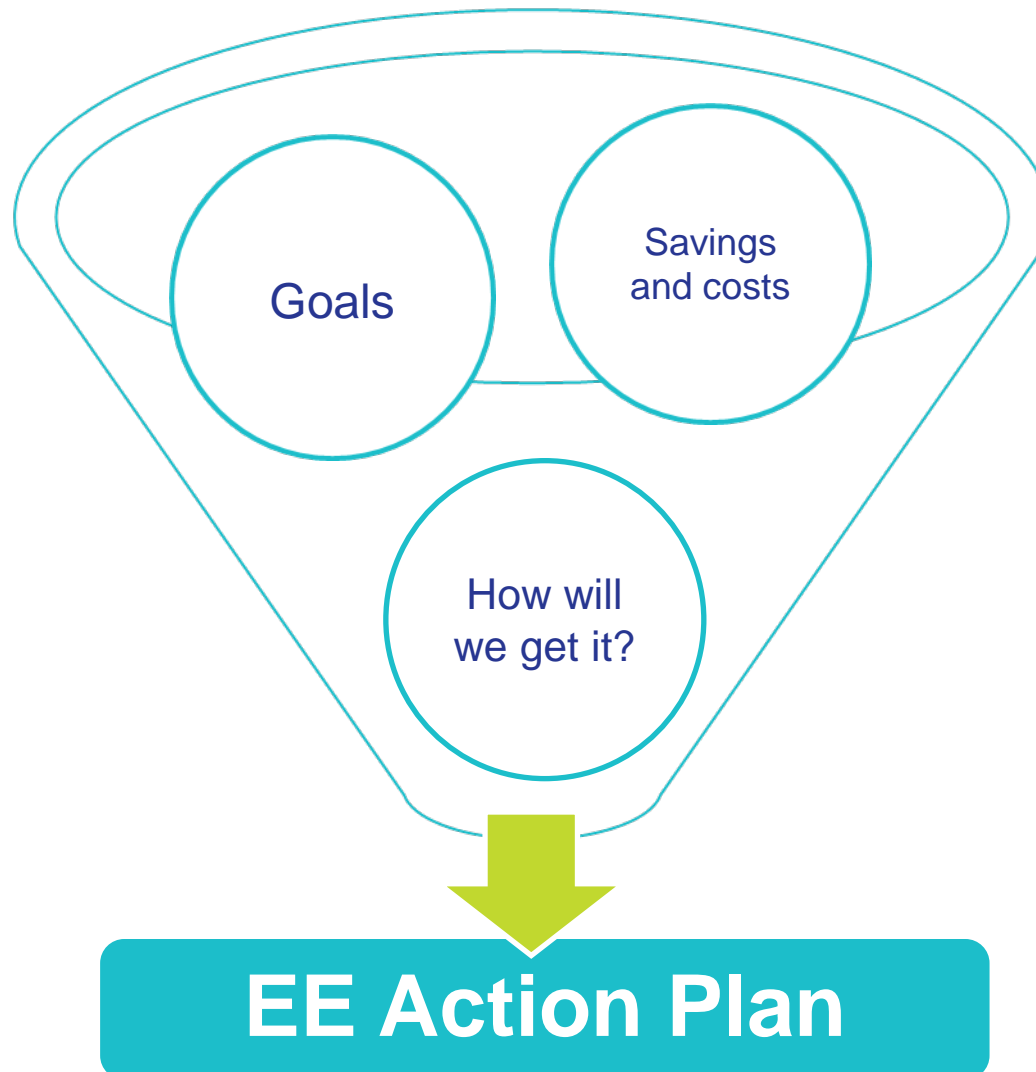
Reviewed  
and  
Revised

Developed  
Draft

Public  
Comment

Edit and  
Finalize

# Components of the Action Plan



# What's New

Change to Self Funding

Costs through 2019

Unallocated Savings

Demand Response

Public Comment Period



# EE Action Plan Overview



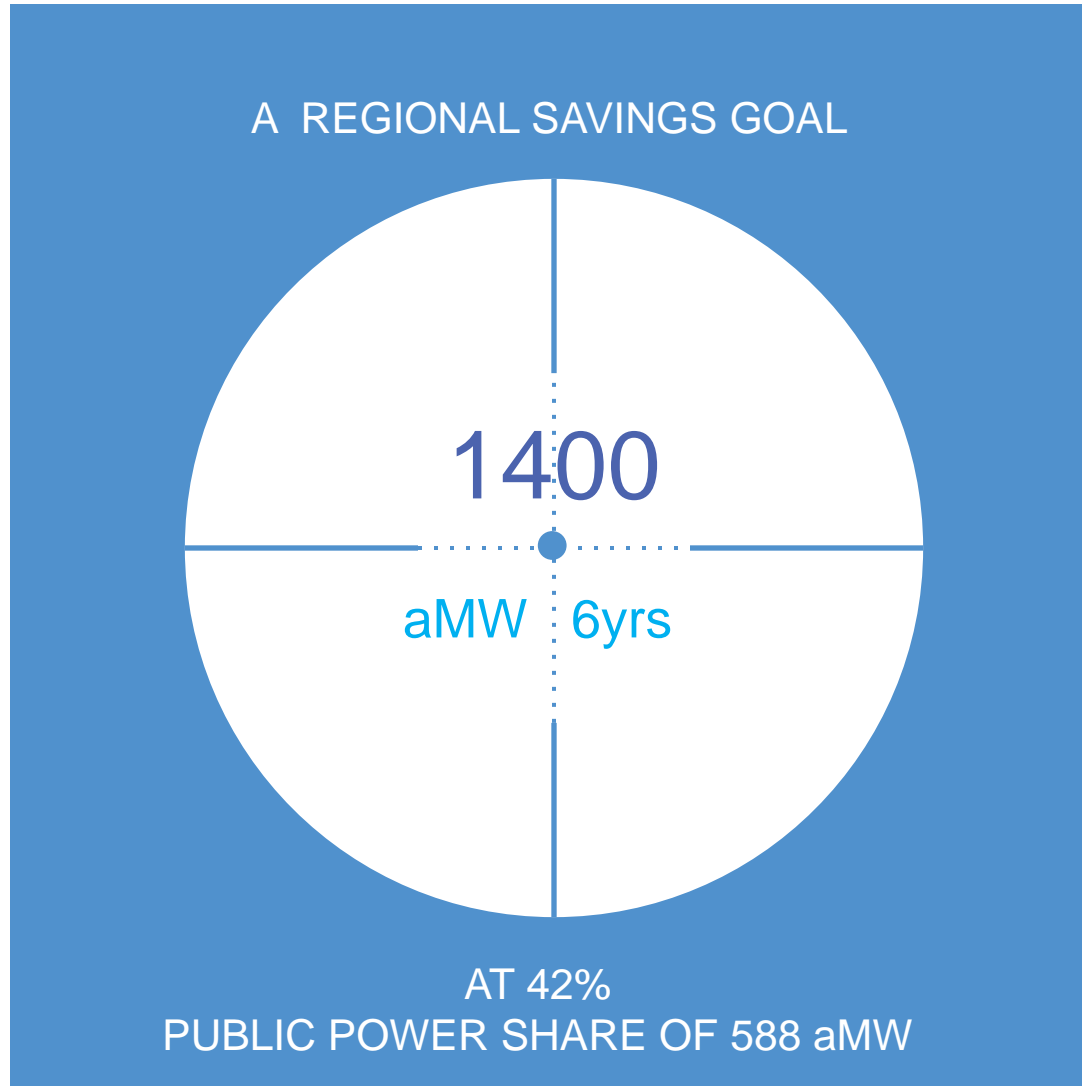
# EE Action Plan Key Conclusions

- BPA believes there is sufficient budget through 2019 to meet the public power share of the Council EE goals. While total forecasted savings are slightly under the Council target, the EE Action Plan estimates are conservative.
- Programmatic savings continue to provide the majority of savings towards the Council goals, accounting for nearly 65% of total estimated savings.

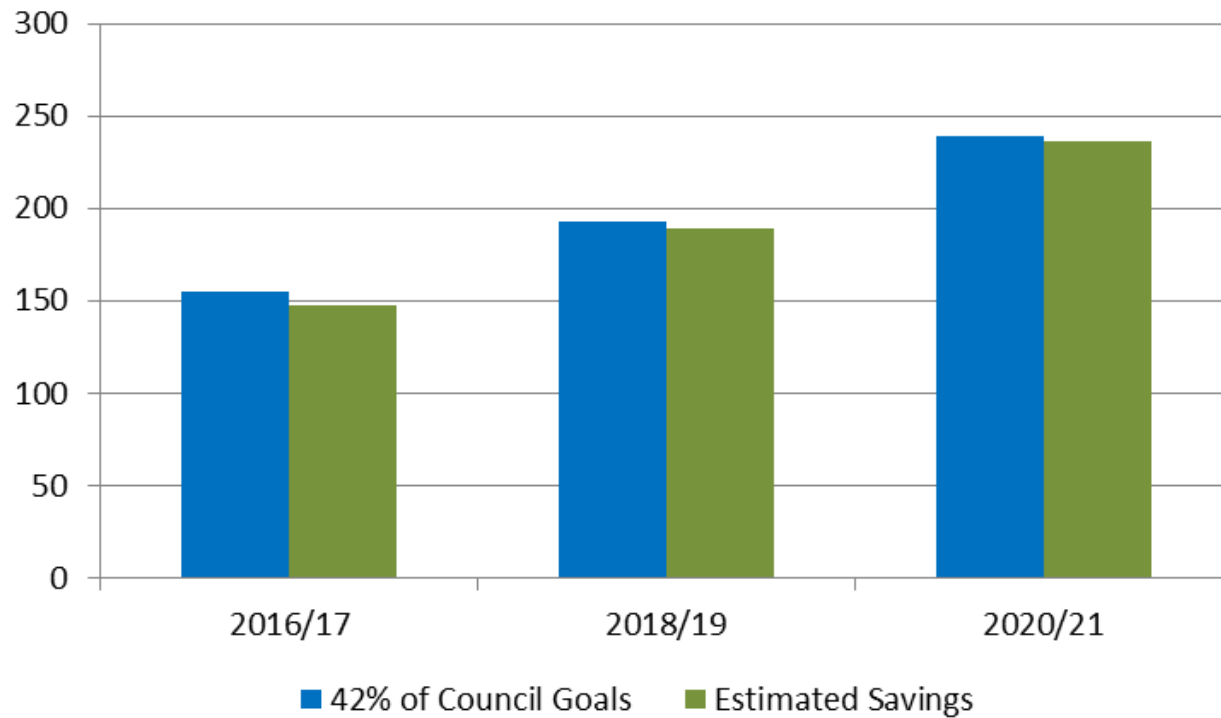
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# SEVENTH POWER PLAN

# The 7<sup>th</sup> Power Plan



# Savings and Goals



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# SECTOR PLANS

# Strategic Themes

Focus on delivery and making programs accessible and easy to use

Identify and prioritize new technologies

Leverage regional efforts

# Residential Sector



## RESIDENTIAL PROGRAM

### HVAC

Heat Pumps & Duct Sealing  
 PTCS Registry & QA Inspections  
 HVAC UES  
 DHP & VSHP Growth  
 Smart Thermostat UES Development

### NEW CONSTRUCTION

ENERGY STAR (NEEM Partnership) MH UES  
 High Performance Manufactured Home's UES  
 ENERGY STAR/Built Green SF Homes UES  
 Montana House UES  
 ENERGY STAR (NEEM Partnership) Multi-Family UES

### WEATHERIZATION

Insulation UES  
 Air Sealing UES  
 Windows and Doors UES  
 Non-Grant Low Income Weatherization/ Ductless Heat Pump UES

### LIGHTING, APPLIANCES & ELECTRONICS

Simple Steps – Retail Promotions, Direct Mail & Direct Install  
 Lamps & Fixtures  
 Showerheads  
 Thermostatic Shutoff Valves (TSVs)  
 Clothes Washers  
 Efficient Dryers  
 Advanced Power Strips  
 RSAT  
 ENERGY STAR Lighting & Appliances UES

### WATER HEATING

Heat Pump Water Heaters  
 Showerheads  
 Thermostatic Shutoff Valves (TSVs)



# Residential HVAC

## ■ Opportunities

- Grow DHP applications to “whole home solutions”
- Smart thermostats
- DHPs in multifamily

## ■ Challenges

- Make PTCS easier for techs to maintain their higher levels of participation
- Keep up with pace of change in new HVAC technologies/applications in our processes/reqts.

# Residential Weatherization and Homes

- Opportunities
  - Window attachments: Attachments Energy Ratings Council to certify energy savings; may bring new low-cost weatherization opportunities
  - Low-Income Workgroup is resulting in collaborative solutions to reach more low-income

# Residential Wx and Homes - Continued

## ■ Challenges

- Maintaining weatherization measures that are designed to bring efficiency to those falling behind code or baseline averages
- Designing programs for new construction that can adapt to the pace of technology and code advancement

# Residential Lighting and Appliances

- Opportunities
  - Large volume continues
  - Online opportunities
- Challenges
  - Rapidly changing market
  - Scalability, how do we make it big?



# Commercial

- New Commercial Program
  - Proactive Field Services - Local Utility Control
  - Comprehensive Building Approach
  - Integrated Trade Ally Networks
  
- Commercial SEM
  - Piloting focused initiative with Tacoma Power, Seattle City Light, and Snohomish PUD
  - Available to BPA's other utilities as well.



# Commercial

## ■ BPAQ Measures

- All Commercial Sector BPAQ measures have been overhauled to ensure implementation viability
- Targeted focus on HVAC and building shell
- Best case scenario – prescriptive commercial measures will only account for 10% of sector savings (lots of effort, thousands of installs, not much savings to show for it)

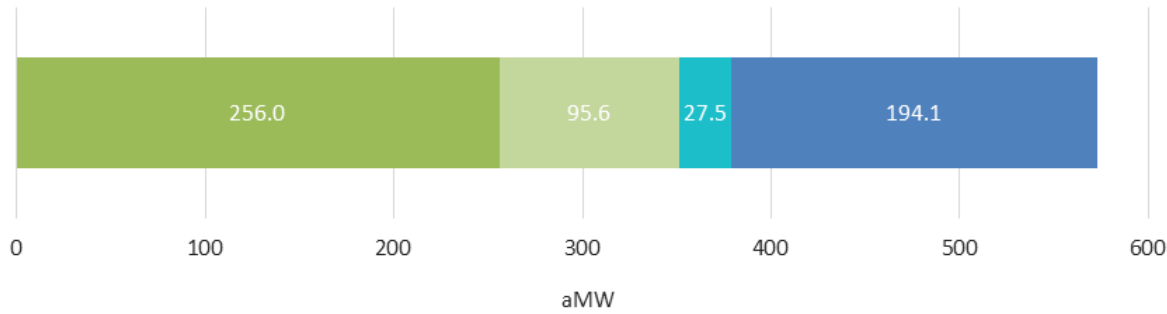
## ■ Streamlined Custom

- Smaller custom projects will be easier to submit and process
- Easier / faster custom projects expected to make up 10-20% of sector savings goals.

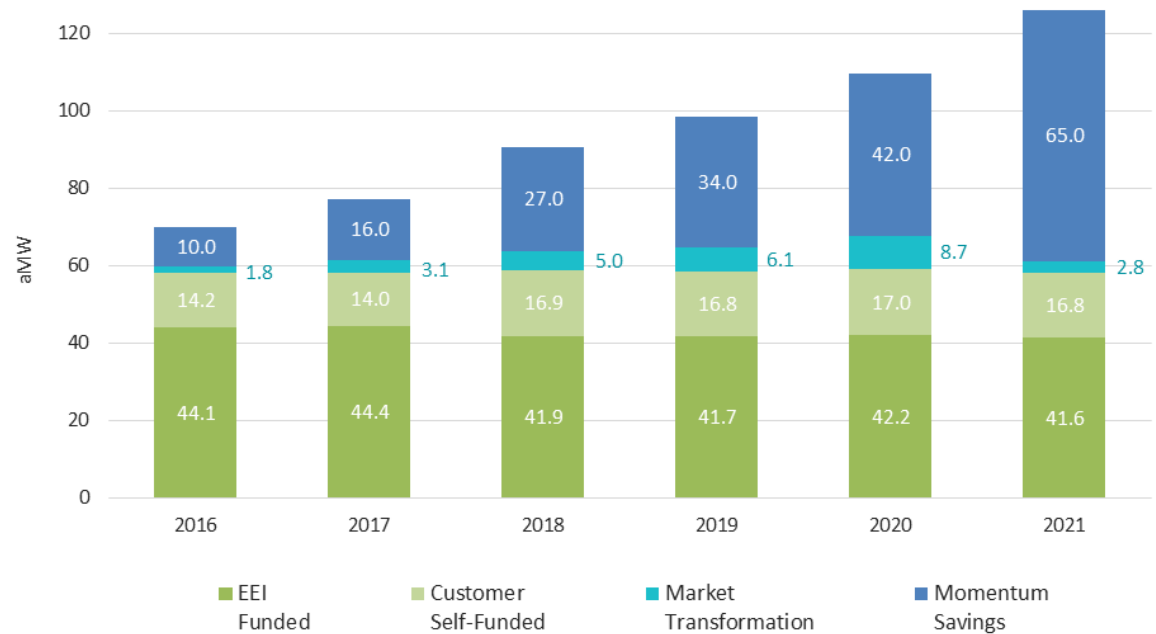
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# SAVINGS OVERVIEW

# Savings by Category



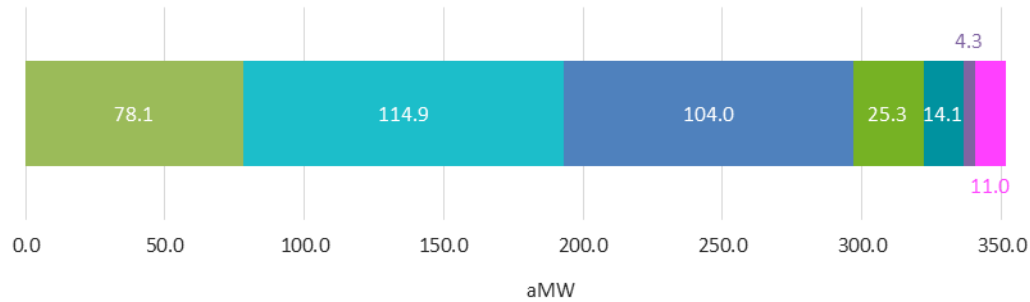
■ EEI Funded    
 ■ Customer Self-Funded    
 ■ Market Transformation    
 ■ Momentum Savings



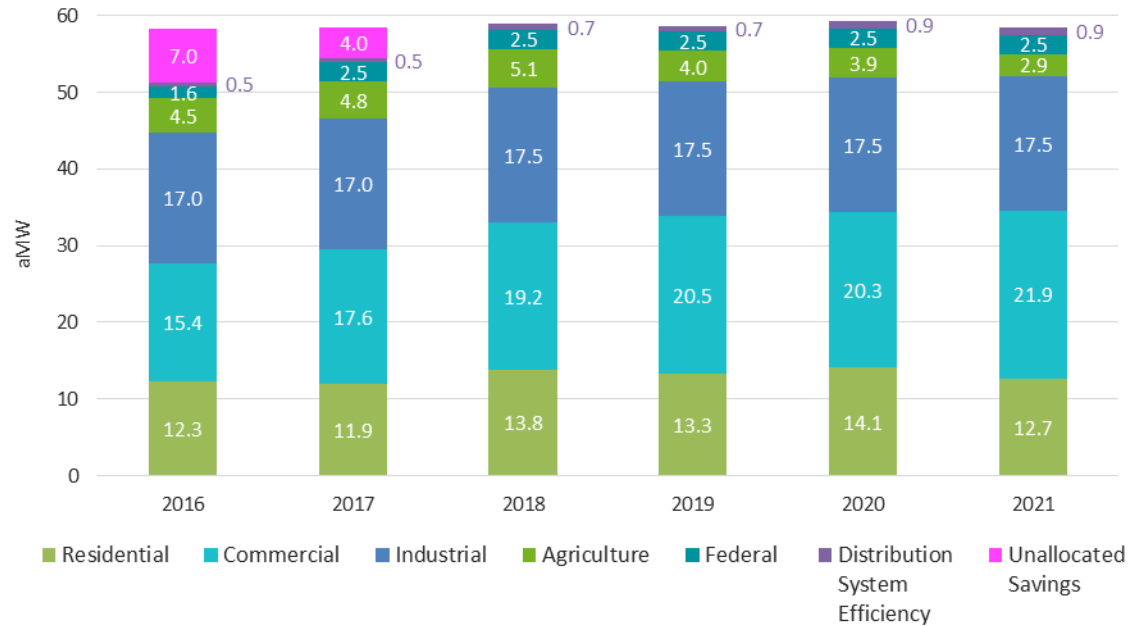
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# Savings by Sector

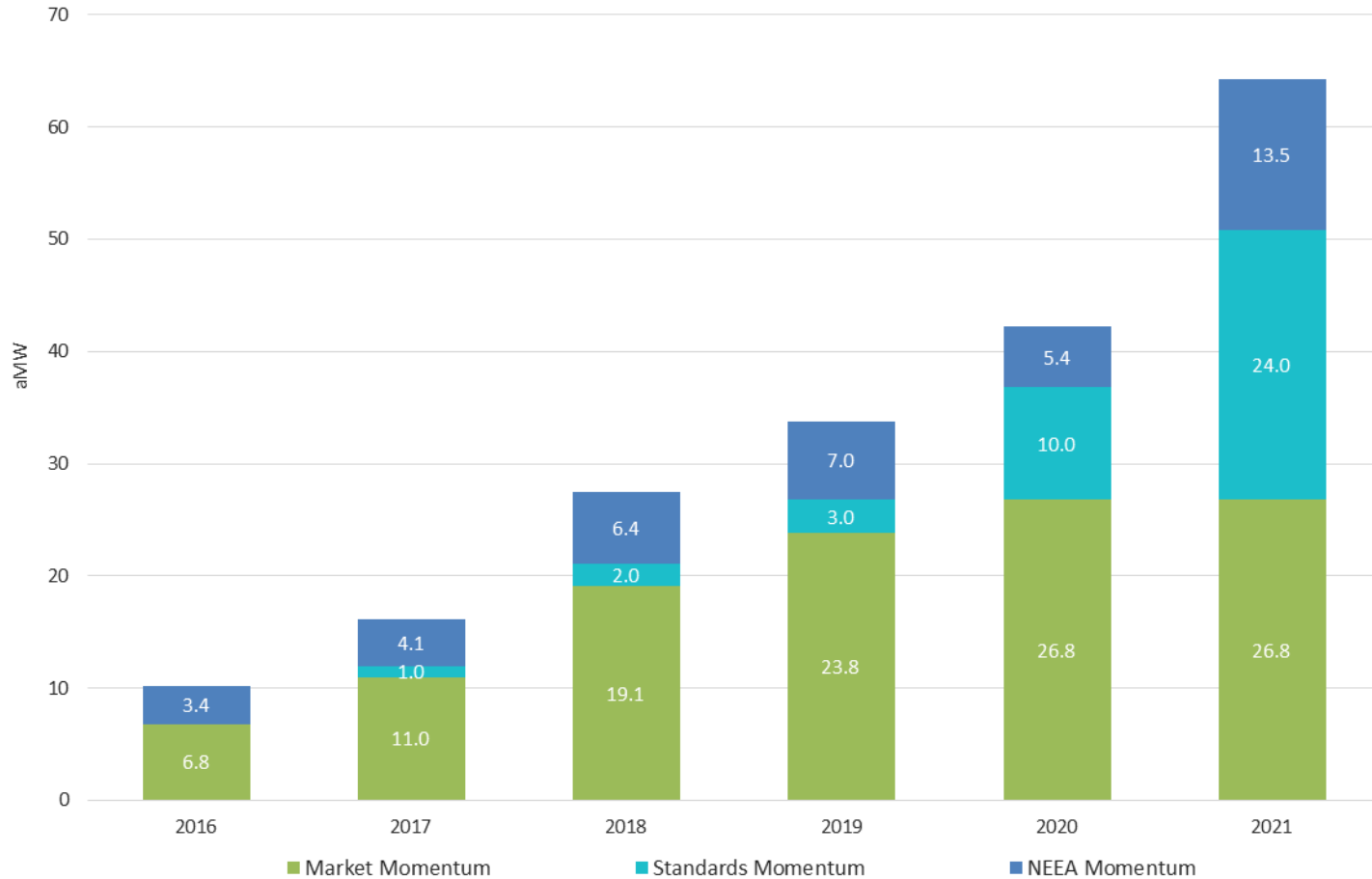


■ Residential ■ Commercial ■ Industrial ■ Agriculture ■ Federal ■ Distribution System Efficiency ■ Unallocated Savings

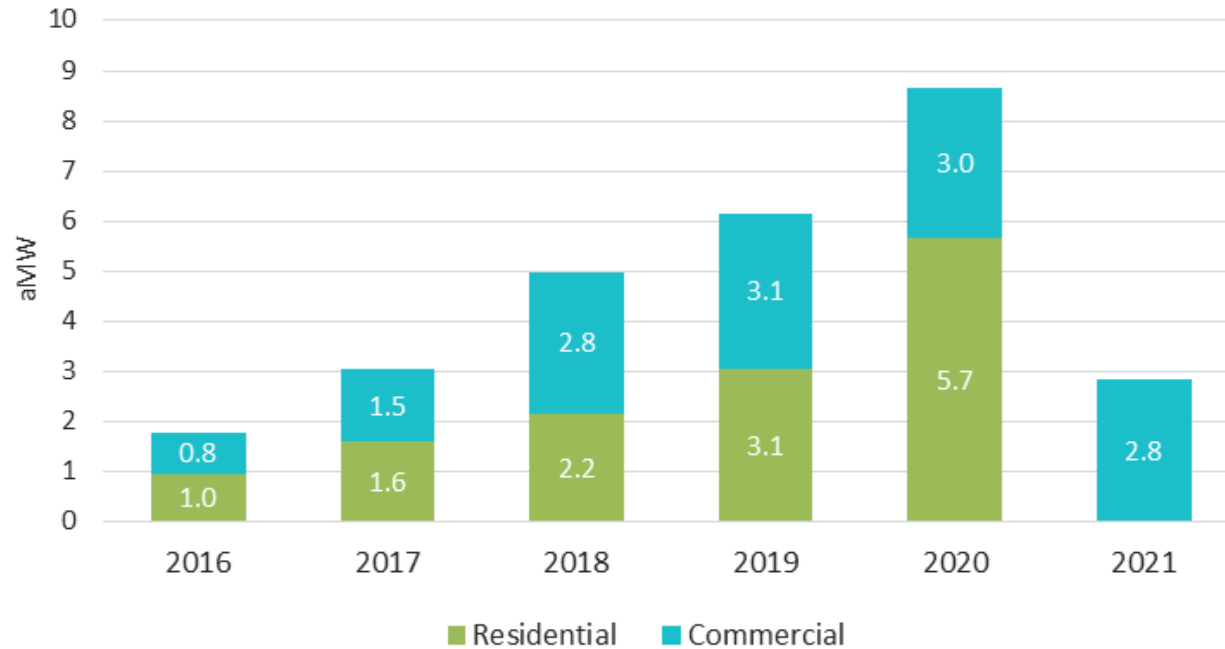


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# Momentum Savings



# NEEA Savings



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# SPENDING OVERVIEW

# Total BPA Spending

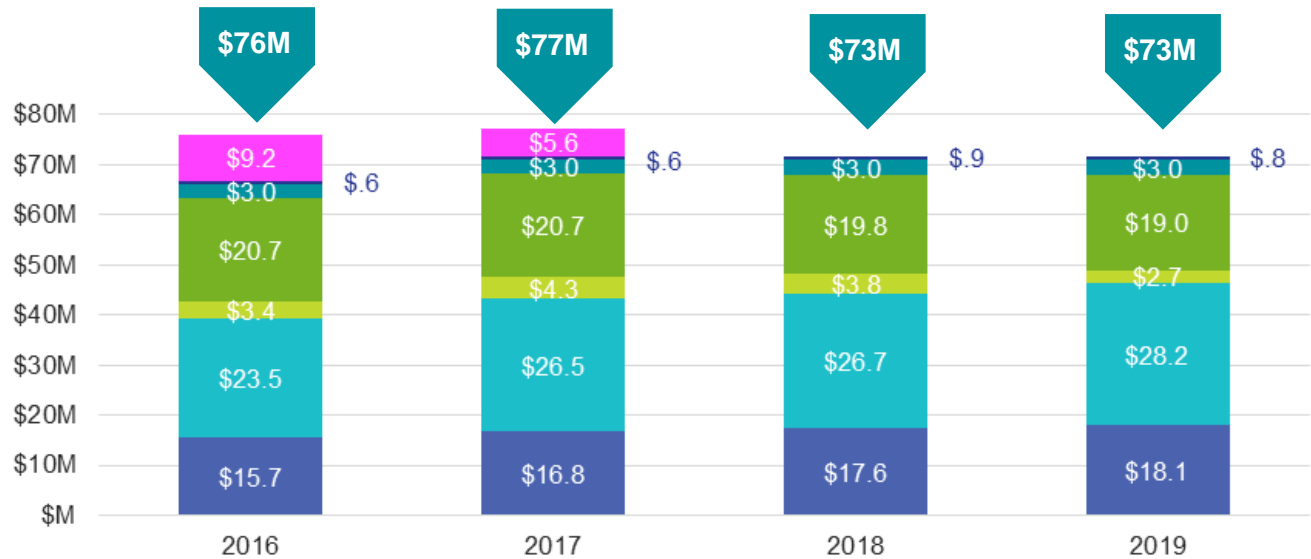


# BPA Spending – by Sector



**TOTAL ESTIMATED SPENDING \$ 297.0 M**

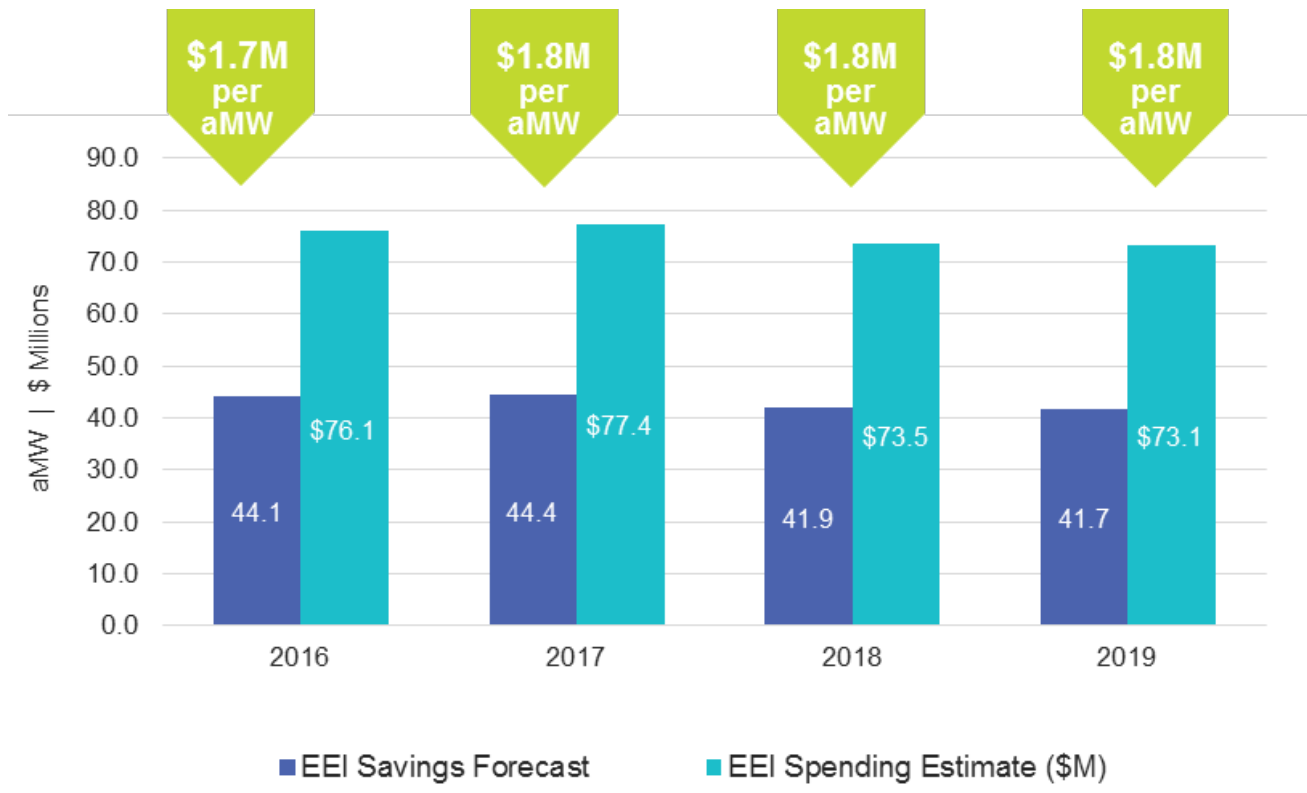
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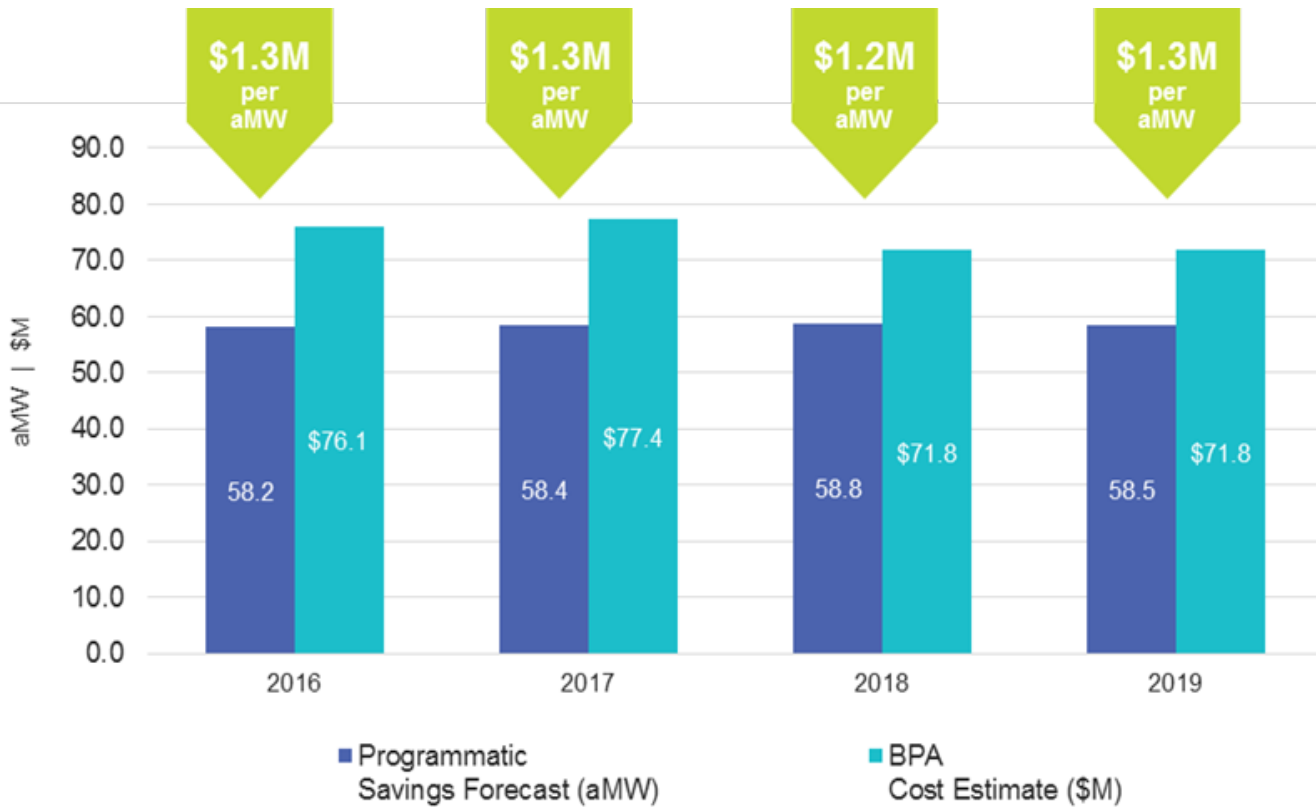


# Average Costs – EEI Costs + EEI Savings



**AVERAGE COSTS**  
**\$1.7M** \$/aMW  
**\$0.20** \$/kWh  
**\$22.5** \$/MWh  
 (levelized)

# Average Costs – EEI + All Prog. Savings



## AVERAGE COSTS

**\$1.3M** \$/aMW

**\$0.15** \$/kWh

**\$17.7** \$/MWh  
(levelized)



# Next Steps

Public Comment

Review and Finalize

Management Approval

Final Release (Jan 2017)

# We want your feedback!

Public Comment Period Through  
November 18



# Discussion and Questions

# Residential Details

	TOTAL SAVINGS (EEI + SF)						aMW
	2016	2017	2018	2019	2020	2021	Total
Plug Load (APS & Dryers)	0.51	0.52	0.54	0.52	0.52	0.51	<b>3.12</b>
Food Preparation (not res)	0.05	0.05	0.05	0.05	0.05	0.05	<b>0.29</b>
HVAC & Wx	4.20	3.46	3.60	4.03	4.80	5.60	<b>25.69</b>
Lighting	5.85	5.91	6.85	6.42	6.44	3.82	<b>35.30</b>
Refrigeration	0.15	0.00	0.00	0.00	0.00	0.00	<b>0.15</b>
Water Heating	0.84	1.36	1.94	1.30	1.29	1.28	<b>8.02</b>
Behavior & New Homes	0.65	0.62	0.85	1.02	0.97	1.41	<b>5.52</b>
<b>Total</b>	<b>12.25</b>	<b>11.92</b>	<b>13.83</b>	<b>13.35</b>	<b>14.07</b>	<b>12.66</b>	<b>78.08</b>

Average Costs	2016	2017	2018	2019 Total	
\$/kWh	\$0.15	\$0.16	\$0.15	\$0.15	\$0.15
\$M/aMW	\$1.28	\$1.41	\$1.27	\$1.36	\$1.33
Levelized cost (\$/MWh)	\$13.15	\$14.41	\$13.03	\$13.89	\$13.62

# Commercial Details

TOTAL SAVINGS (EEI + SF)	aMW						Total
	2016	2017	2018	2019	2020	2021	
Heating and Cooling	3.20	4.50	5.68	6.89	6.65	7.20	<b>34.12</b>
Lighting	10.00	10.00	9.97	9.31	9.23	9.12	<b>57.63</b>
Refrigeration	1.00	1.50	1.50	1.86	1.85	2.73	<b>10.44</b>
Whole Bldg/Meter Level	1.20	1.60	2.04	2.42	2.58	2.83	<b>12.67</b>
<b>Total</b>	<b>15.40</b>	<b>17.60</b>	<b>19.20</b>	<b>20.47</b>	<b>20.31</b>	<b>21.88</b>	<b>114.86</b>

Average Costs	2016	2017	2018	2019	Total
\$/kWh	\$0.17	\$0.17	\$0.16	\$0.16	\$0.17
\$M/aMW	\$1.53	\$1.50	\$1.39	\$1.38	\$1.45
Levelized cost (\$/MWh)	\$19.66	\$19.38	\$17.94	\$17.73	\$18.68

# Agricultural Details

TOTAL SAVINGS (EEI + SF)	aMW						Total
	2016	2017	2018	2019	2020	2021	
Dairy Efficiency	0.05	0.01	0.01	0.01	0.01	0.01	<b>0.10</b>
Irrigation	0.75	1.50	1.50	0.93	0.92	0.46	<b>6.06</b>
Lighting	0.10	0.20	0.20	0.19	0.09	0.09	<b>0.87</b>
Motors/Drives	1.00	1.00	0.75	0.47	0.46	0.46	<b>4.13</b>
Process Loads	0.10	0.10	0.10	0.09	0.09	0.09	<b>0.58</b>
Pumps and Fans	0.01	0.02	0.02	0.02	0.01	0.01	<b>0.09</b>
Water Management	2.50	2.00	2.49	2.33	2.31	1.82	<b>13.45</b>
<b>Total</b>	<b>4.51</b>	<b>4.83</b>	<b>5.07</b>	<b>4.03</b>	<b>3.90</b>	<b>2.94</b>	<b>25.27</b>

Average Costs	2016	2017	2018	2019 Total	
\$/kWh	\$0.11	\$0.13	\$0.11	\$0.10	\$0.12
\$M/aMW	\$0.99	\$1.18	\$1.00	\$0.90	\$1.02
Levelized cost (\$/MWh)	\$14.69	\$17.43	\$14.80	\$13.36	\$15.15