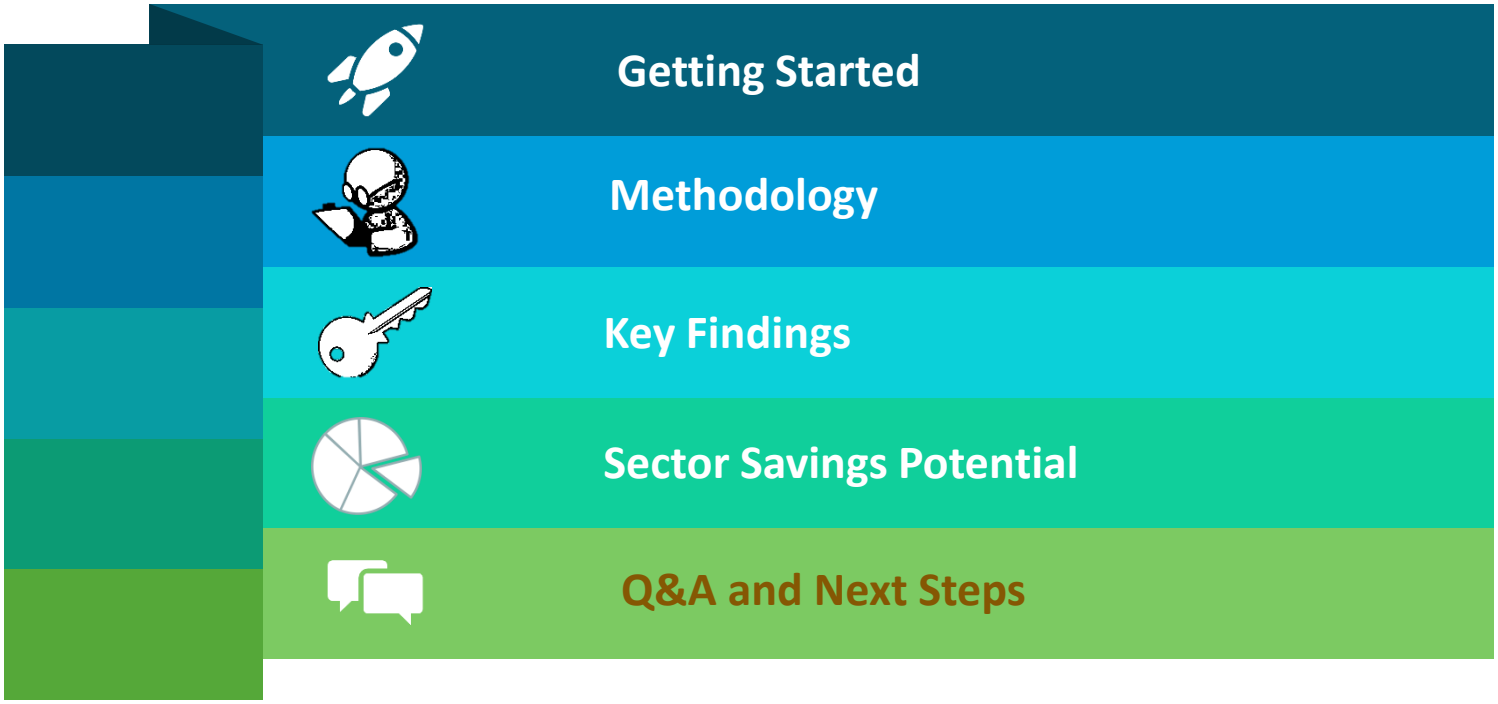
BPA Conservation Potential Assessment Results

April 10, 2018


Getting Started
Methodology
Key Findings
Sector Savings Potential
Q&A and Next Steps

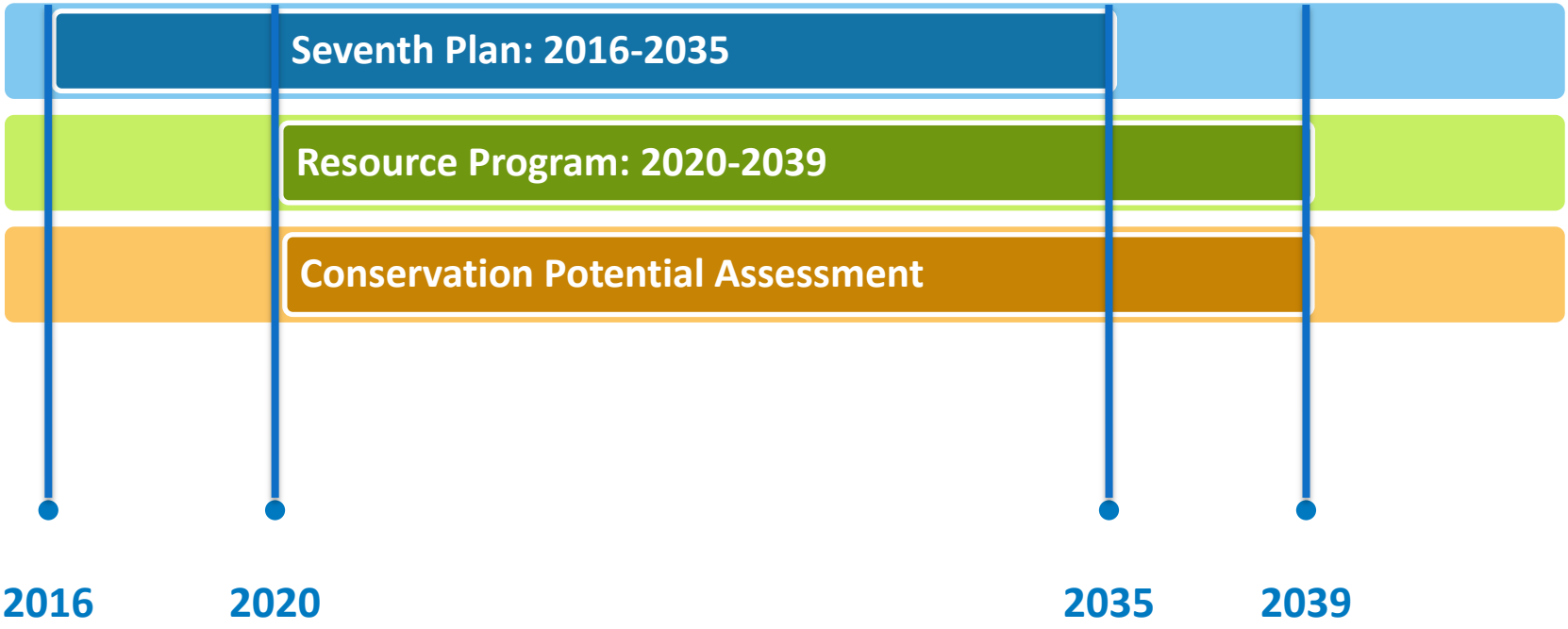
1 Study: 2 Goals

1. How does EE potential in BPA's service territory compare to 42% of the 7th Plan?

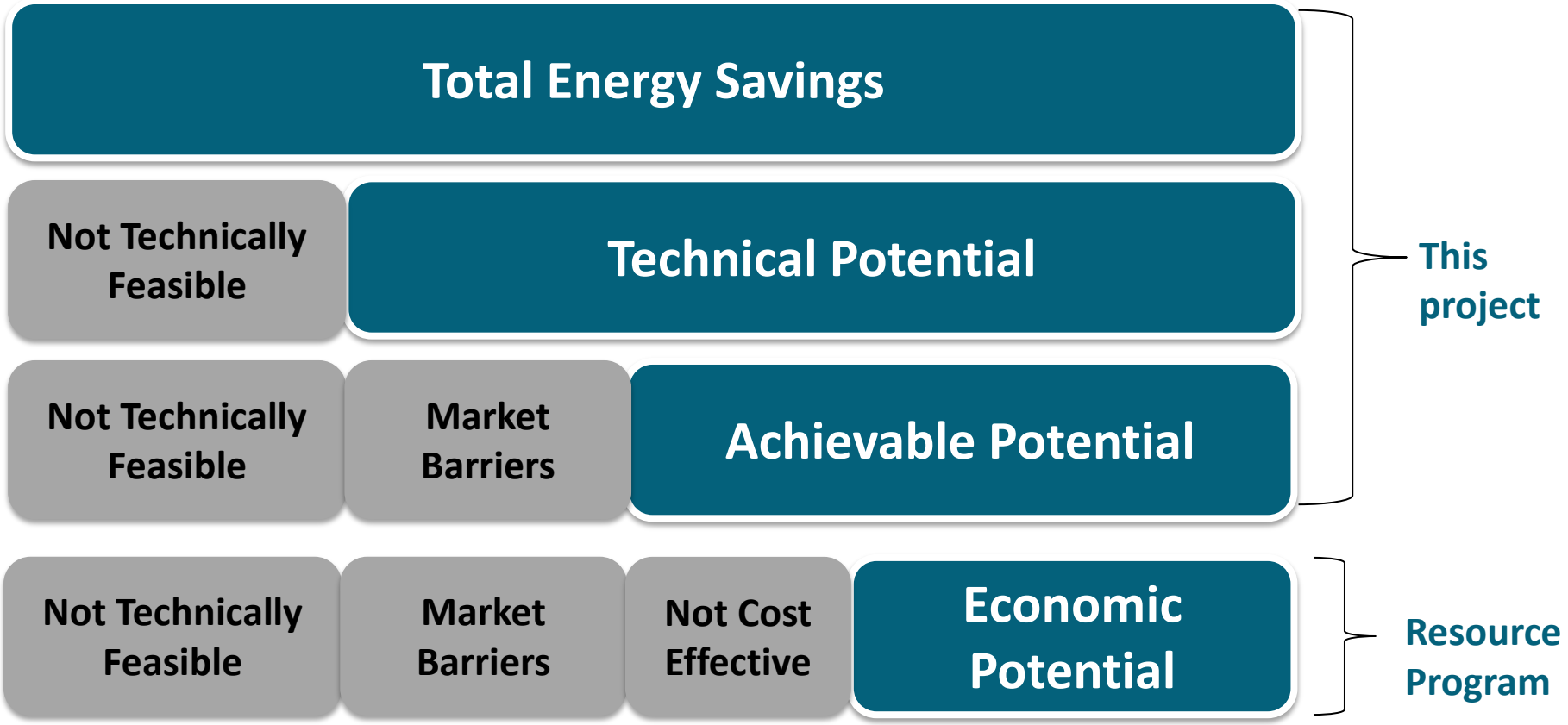
2. What achievable energy efficiency is available for the BPA Resource Program?

- BPA decided to focus on goal #2, leaving it difficult to compare to the 42%

Study Horizon



Definitions of Potential



Methodology

7th Plan
Achievable Potential
2016-2035

2016-2019 Achieved Savings

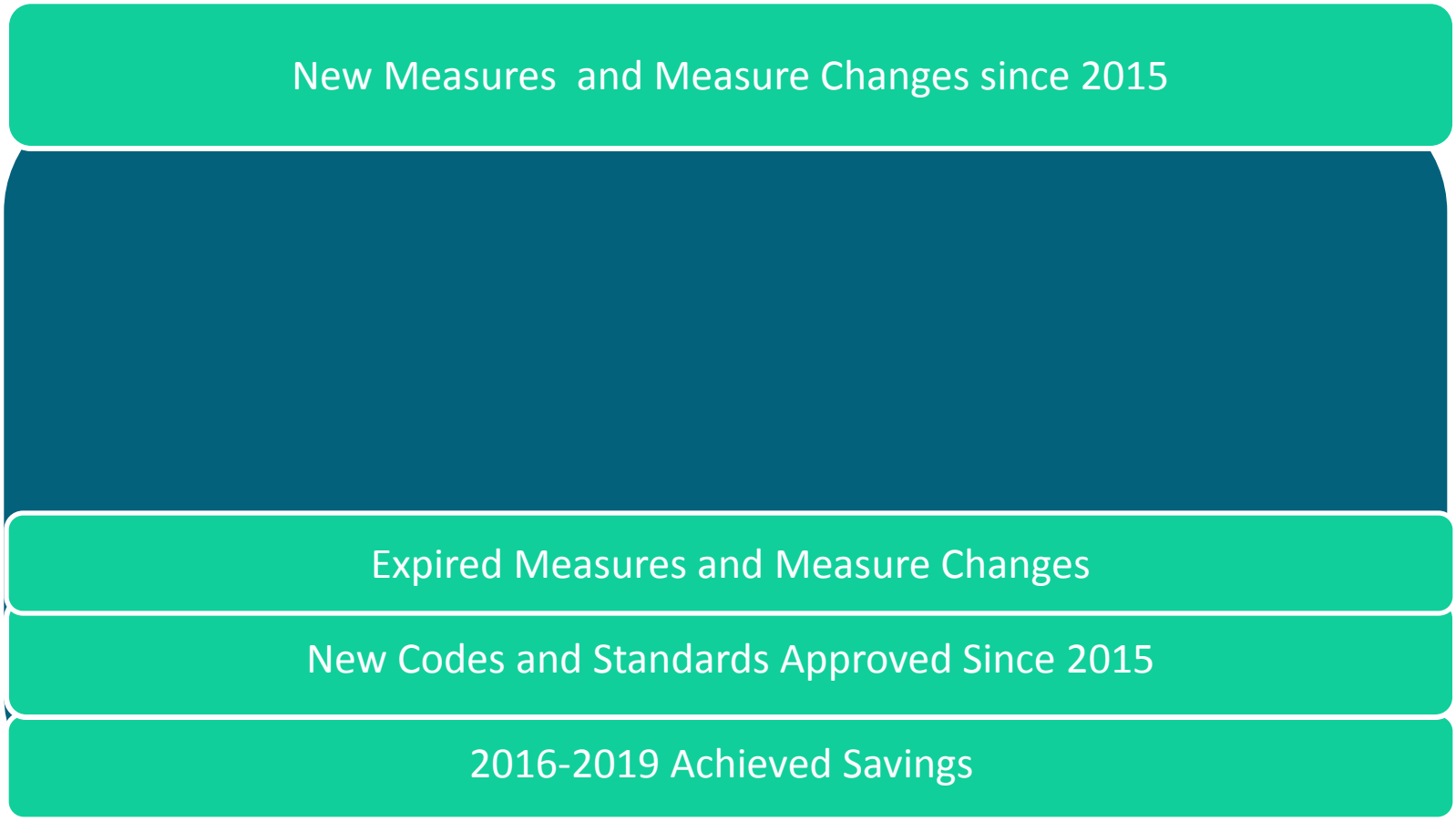
New Codes and Standards Approved Since 2015

2016-2019 Achieved Savings

Expired Measures and Measure Changes

New Codes and Standards Approved Since 2015

2016-2019 Achieved Savings


New Measures and Measure Changes since 2015
Expired Measures and Measure Changes
New Codes and Standards Approved Since 2015
2016-2019 Achieved Savings

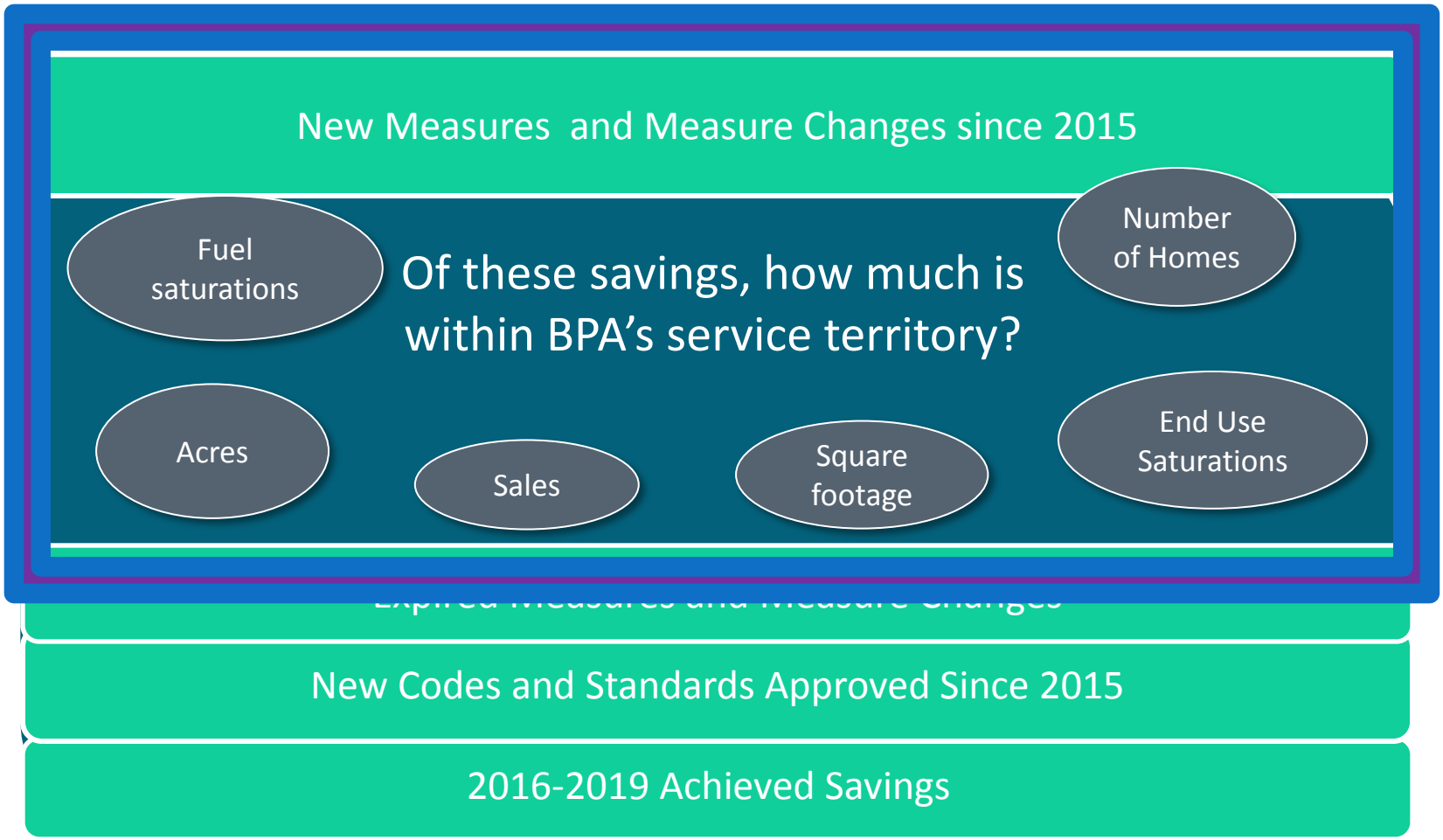
New Measures and Measure Changes since 2015

Of these savings, how much is within BPA's service territory?

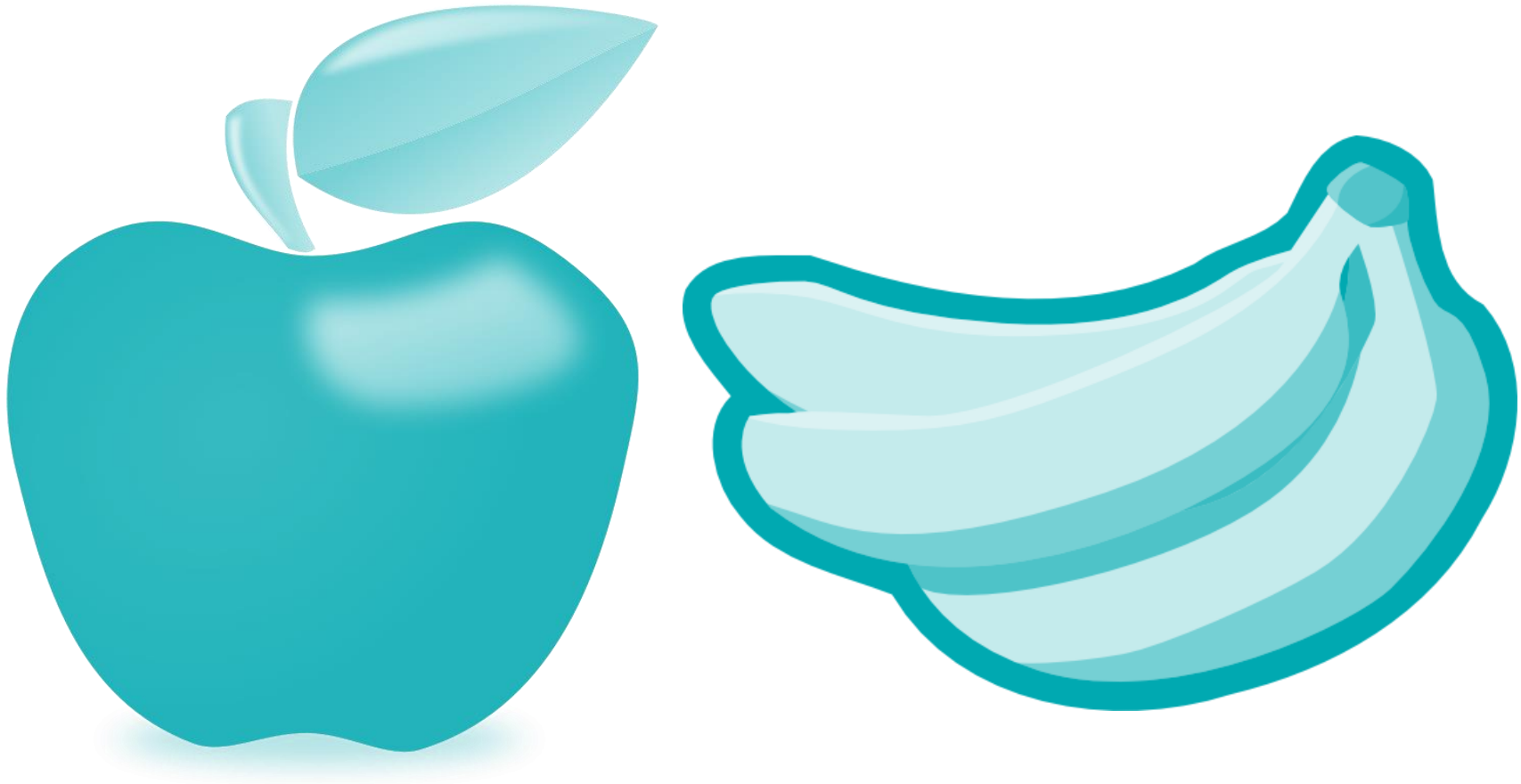
Expired Measures and Measure Changes

New Codes and Standards Approved Since 2015

2016-2019 Achieved Savings


New Measures and Measure Changes since 2015
Of these savings, how much is within BPA's service territory?
Fuel saturations
Number of Homes
Acres
Sales
Square footage
End Use Saturations
New Codes and Standards Approved Since 2015
2016-2019 Achieved Savings

Alignment with the 7th Plan



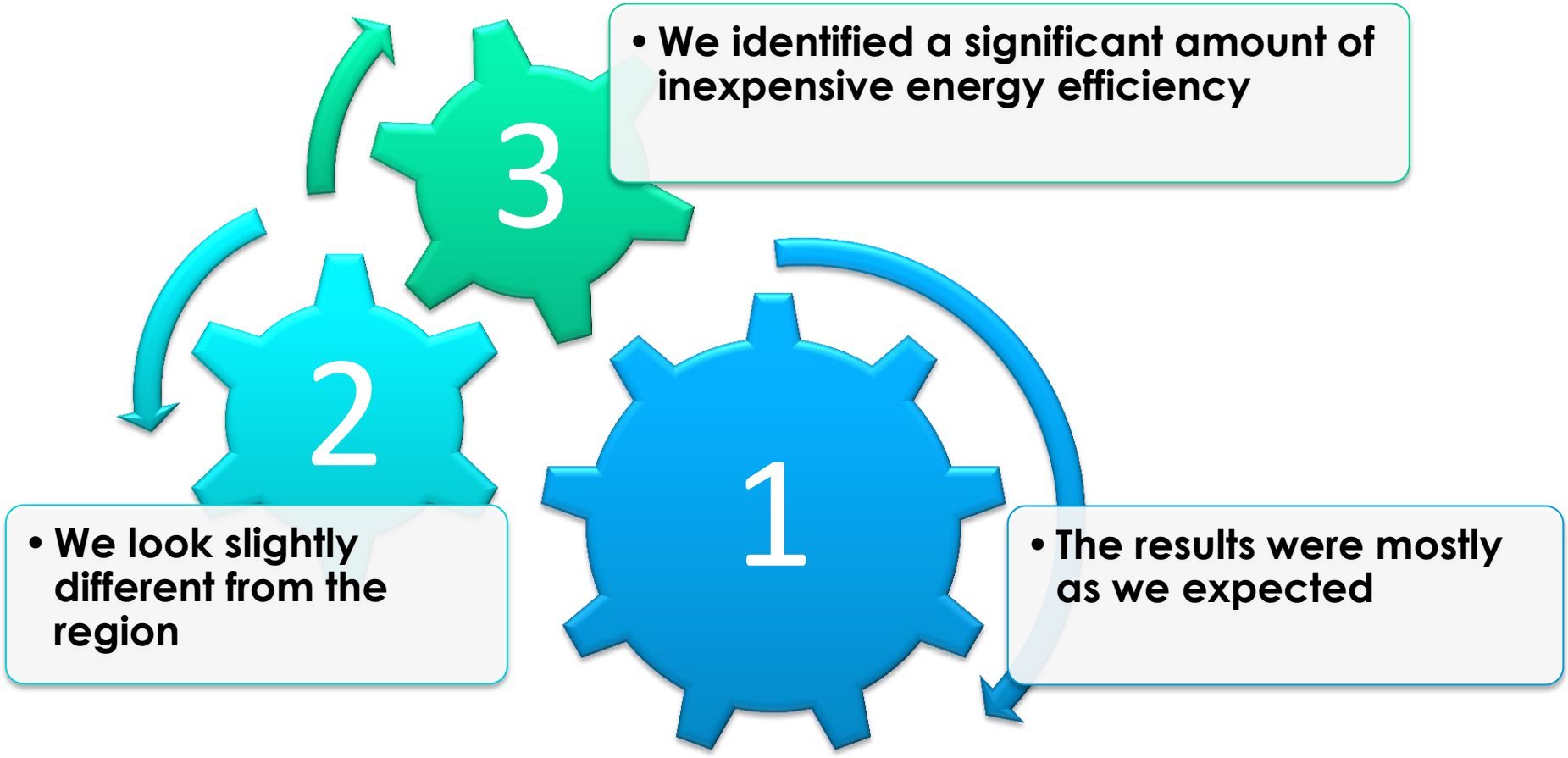
Disclaimers

- Results of this assessment are not intended to be compared to the Seventh Power Plan. This study is based on different timelines, baselines, and measures.

- Results reflect only achievable potential. Economic potential will be determined in the BPA Resource Program.

Results

Key Findings



Things We Learned about Public Power

01 We have more electric heating load

02 We have 38% of all single family homes

03 We have 36% of all commercial sq footage

04 We have 48% of the industrial sales

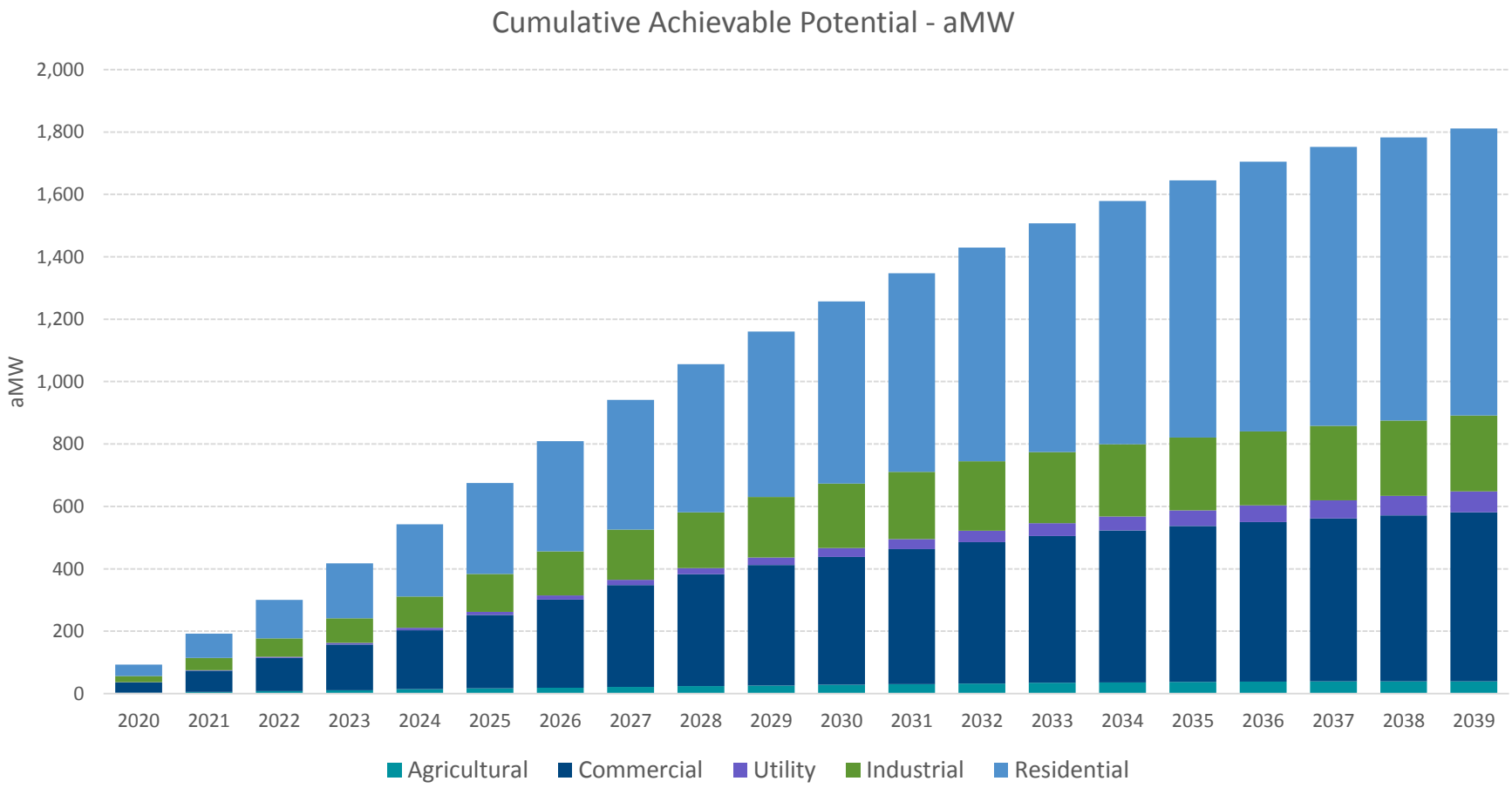
05 We have 34% of all irrigated acres

06 We have 30% of substations > 40,000 MWh

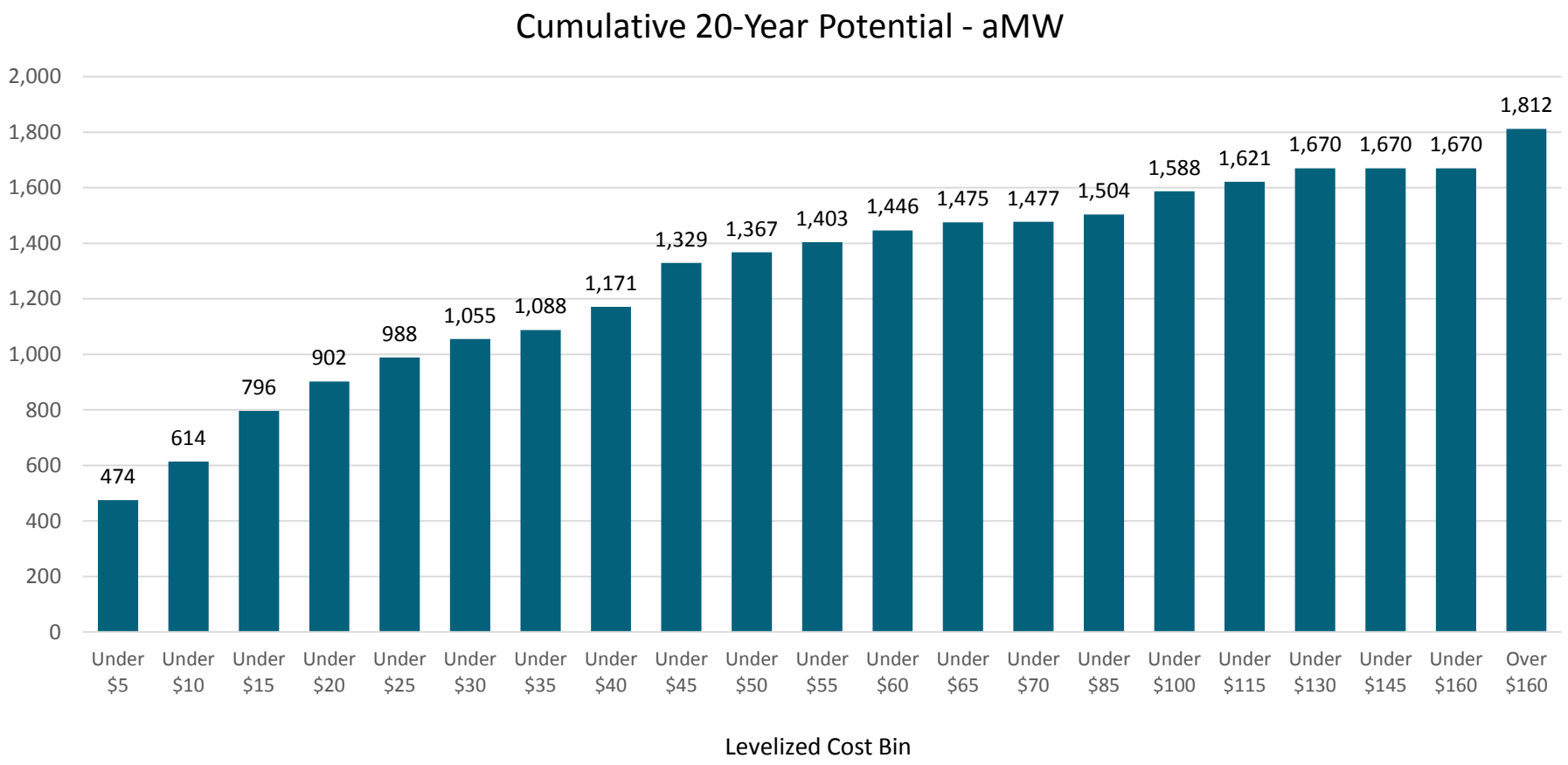
Total Savings Potential

20 Year Cumulative Savings Potential		
Sector	**aMW**	**% of Total Potential**
Agriculture	39	2%
Commercial	542	30%
Utility	67	4%
Industrial	243	13%
Residential	920	51%
Total	**1,812**	

Annual Cumulative Potential



EE Supply Curve



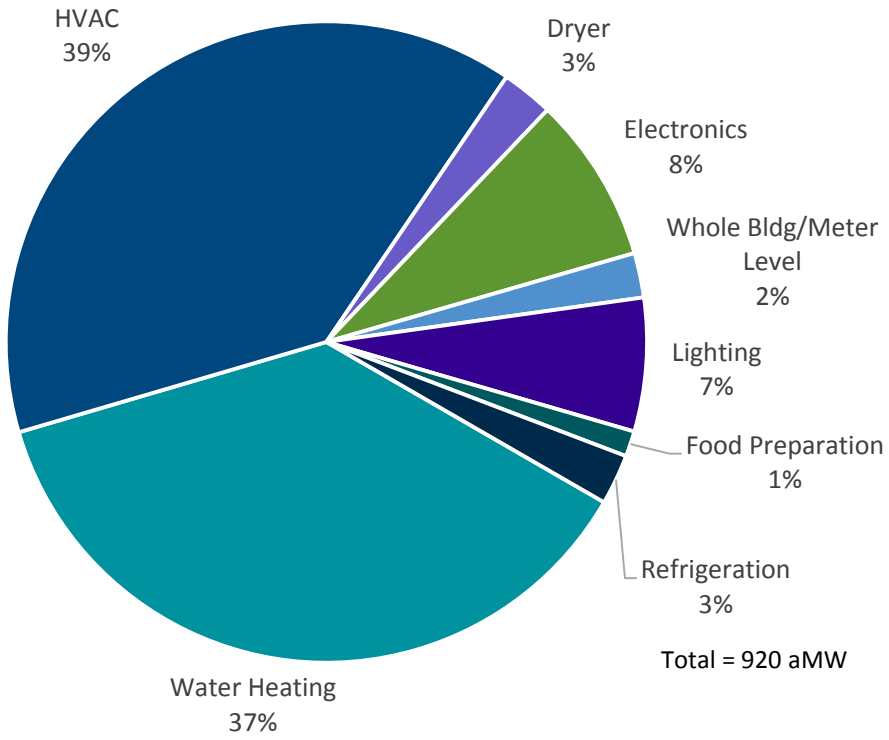
Residential

Residential Highlights

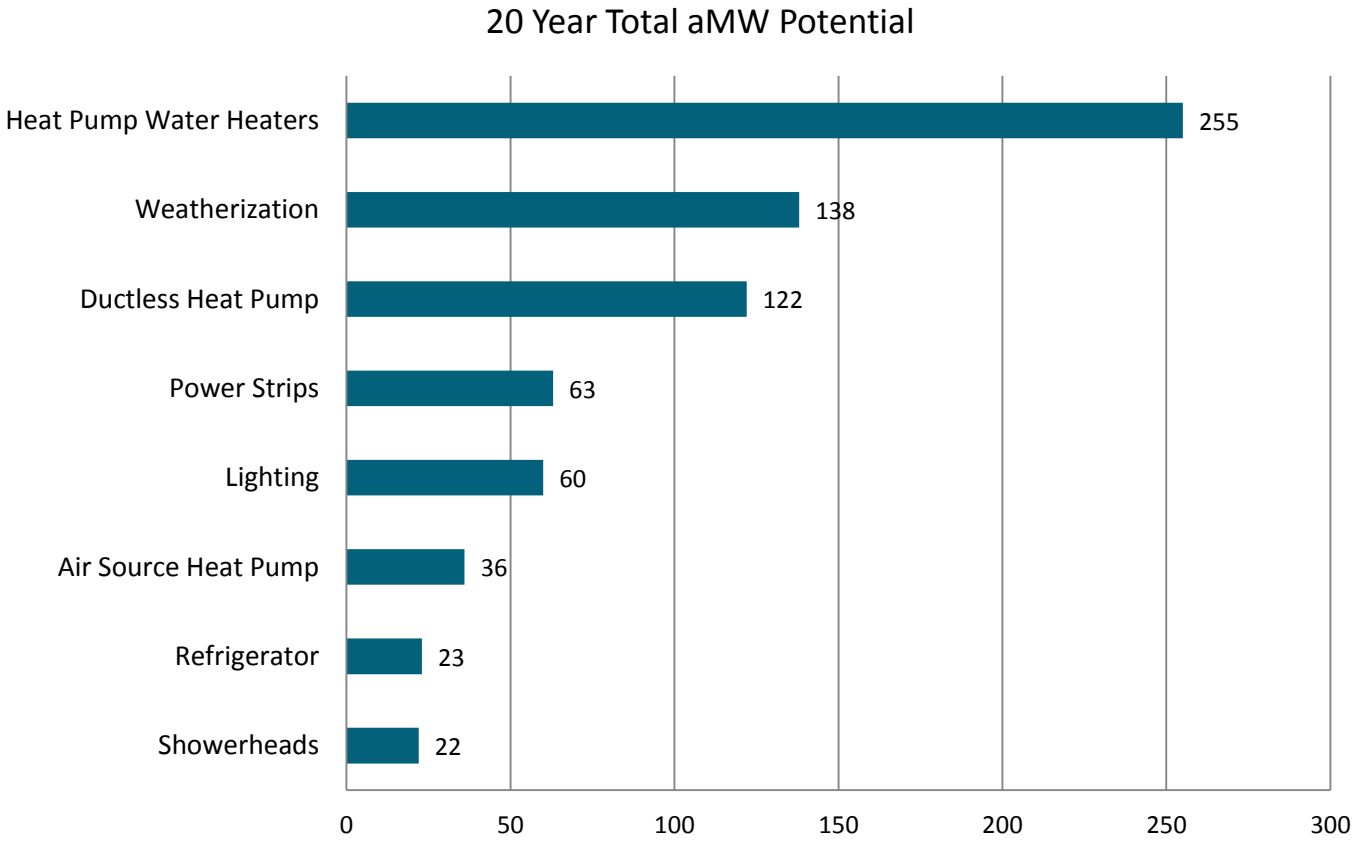
- Residential characteristics compared to the region:
  - Higher saturation of electric heat
  - Higher saturation of electric water heat
  - Fewer number of single family homes
- Measure Changes:
  - Measures updates from RTF results in both increases and decreases to per unit savings
  - Lighting standard beginning in 2020 accounted for, reducing lighting potential

Total Residential Achievable Savings

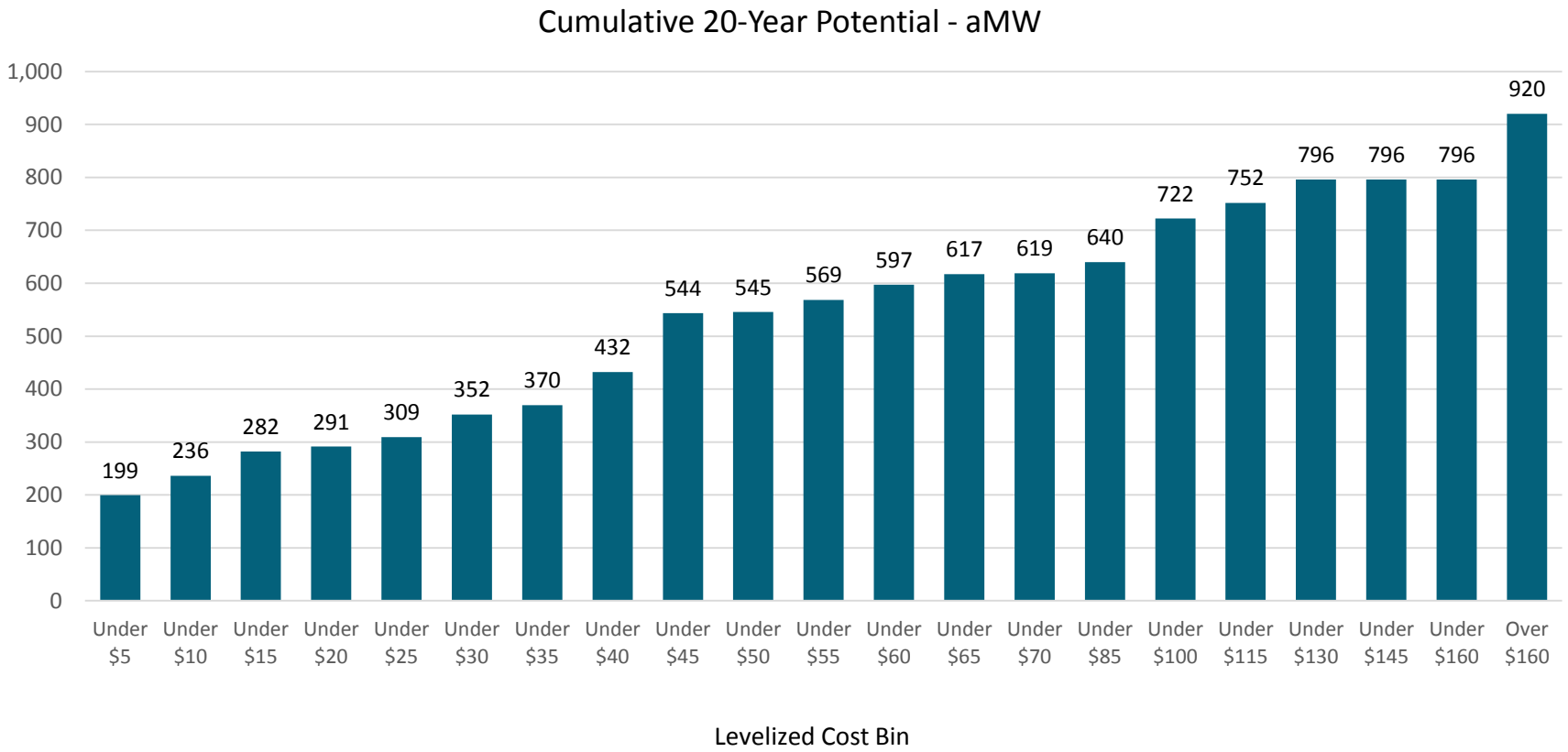
End Use	Total 20 Year Savings
Water Heating	342
HVAC	359
Dryer	24
Electronics	77
Whole Bldg/Meter Level	21
Lighting	62
Food Preparation	12
Refrigeration	23
Total	**920**



Top Residential Measures



Residential Supply Curve




Commercial

Commercial Highlights

Commercial characteristics compared to the region:

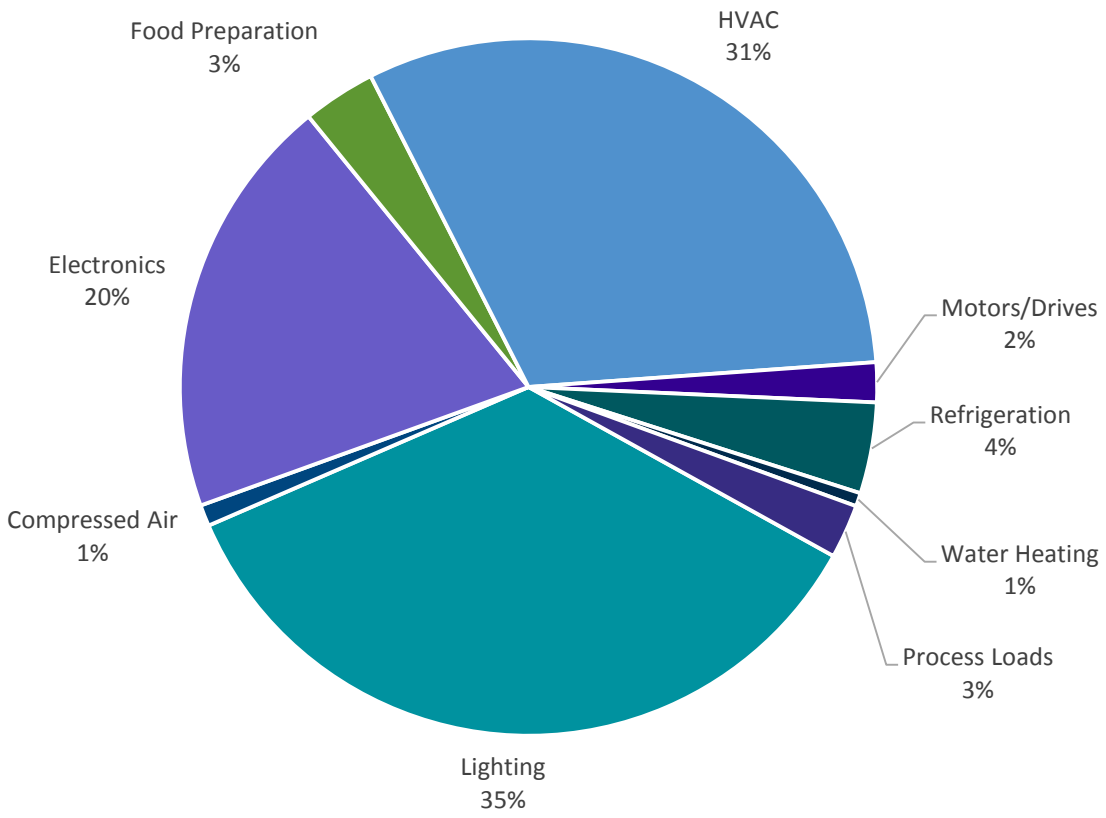
- Less commercial square footage

Measure Changes:

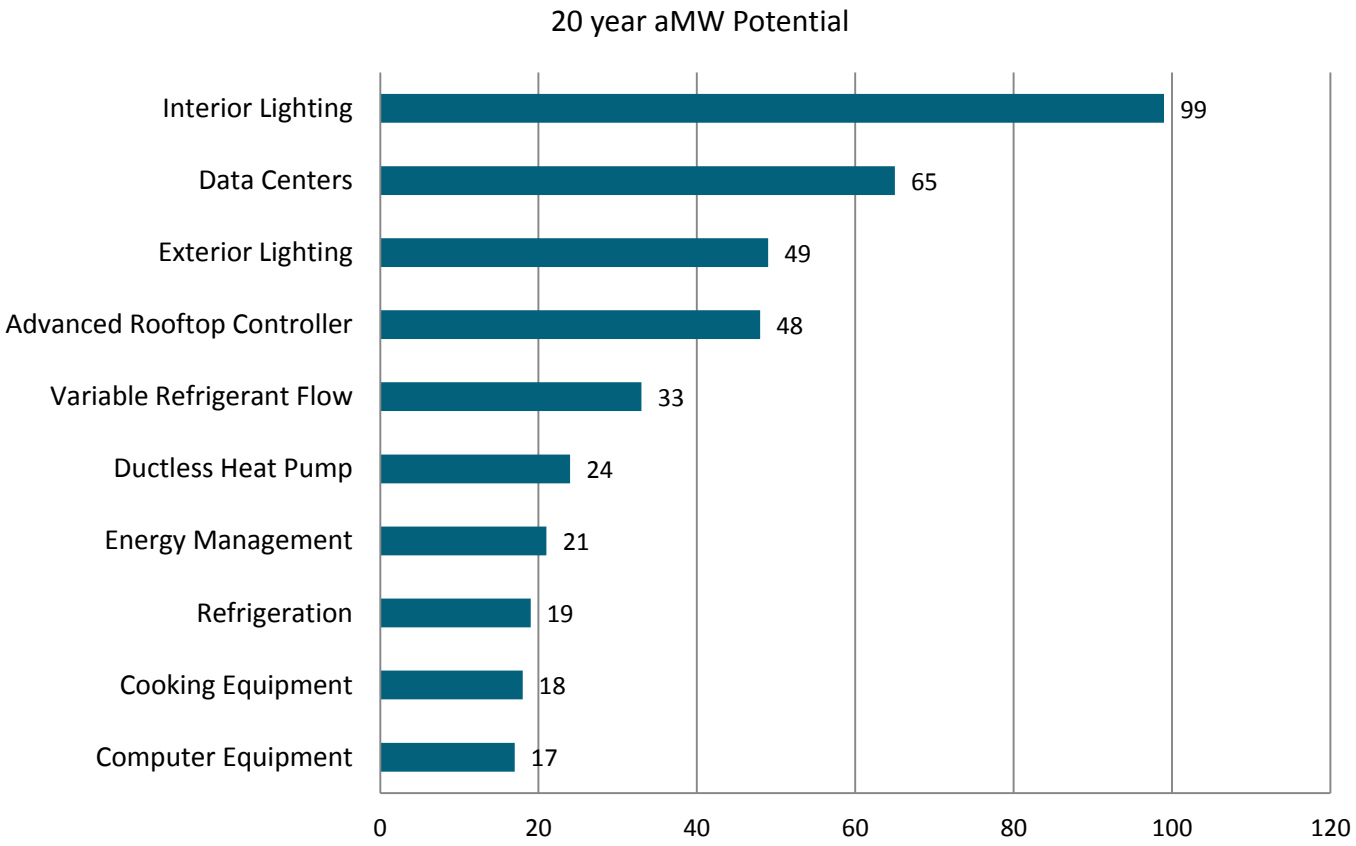
- Measures updates from RTF results in both increases and decreases to per unit savings.

Total Commercial Achievable Potential

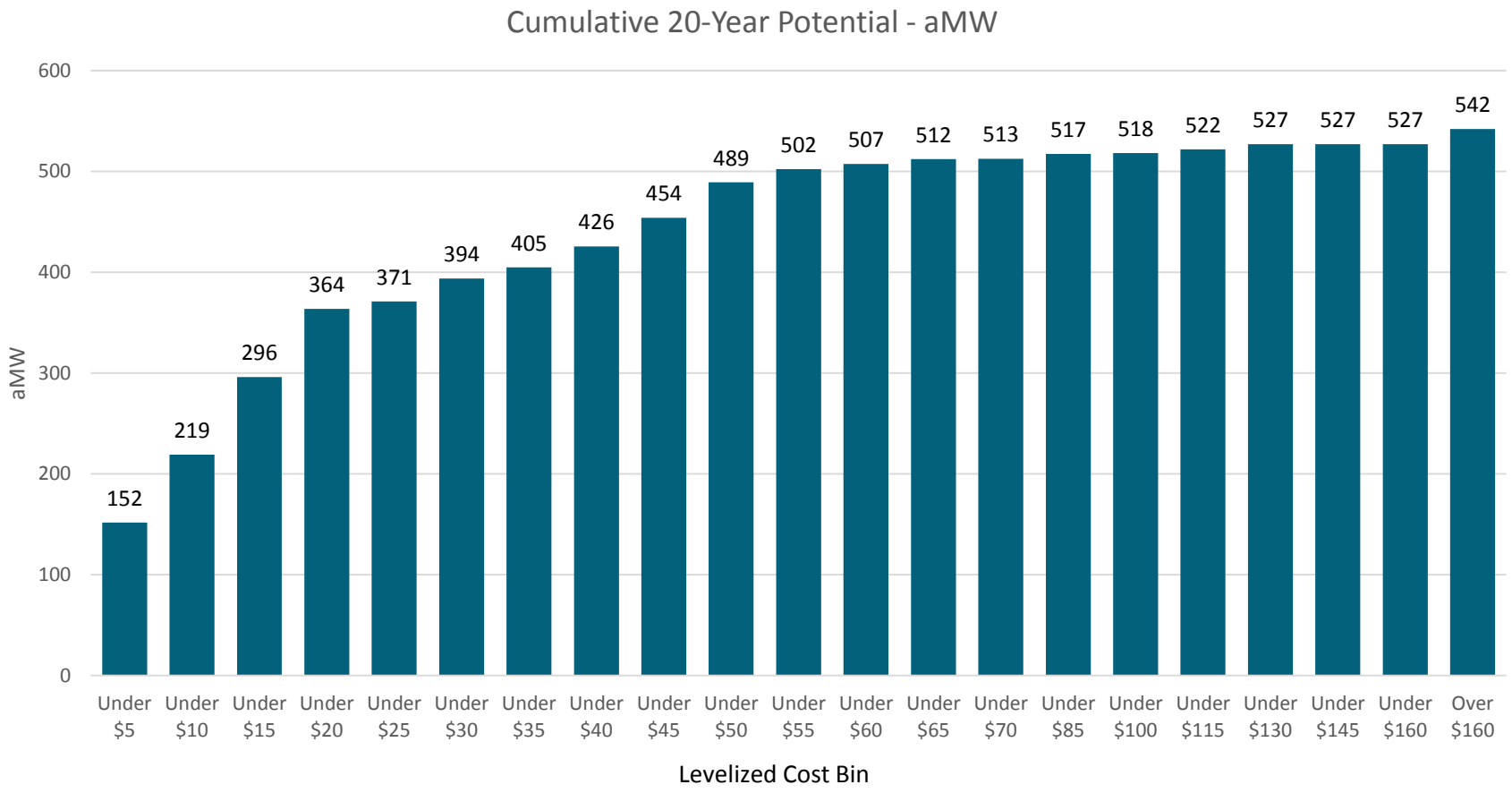
End Use	Total 20 Year Savings
Lighting	192
HVAC	170
Electronics	107
Refrigeration	23
Food Preparation	18
Process Loads	14
Motors/Drives	10
Compressed Air	5
Water Heating	3
Total	**542**



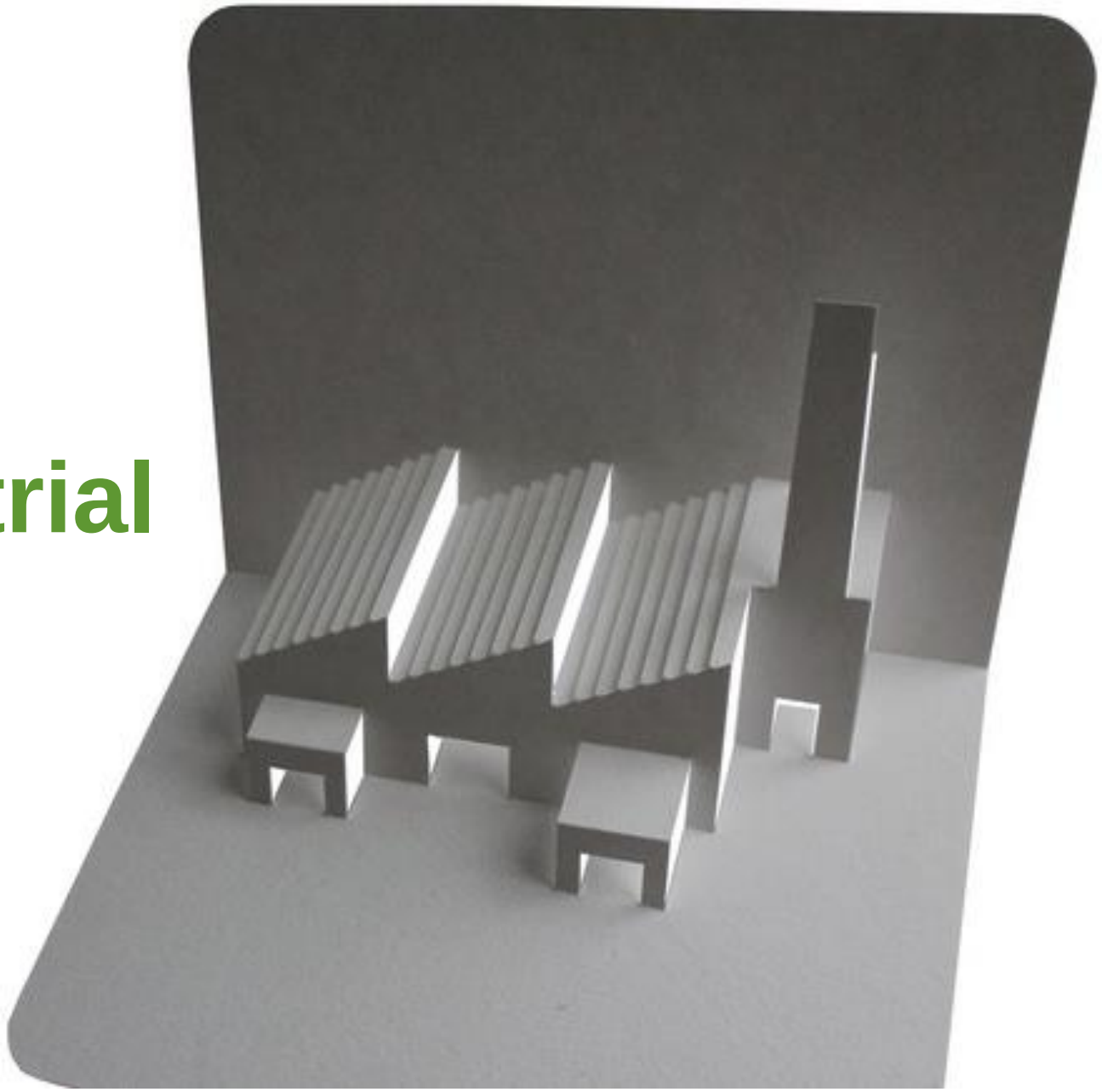
Commercial Top Measures



Commercial Supply Curve



Industrial



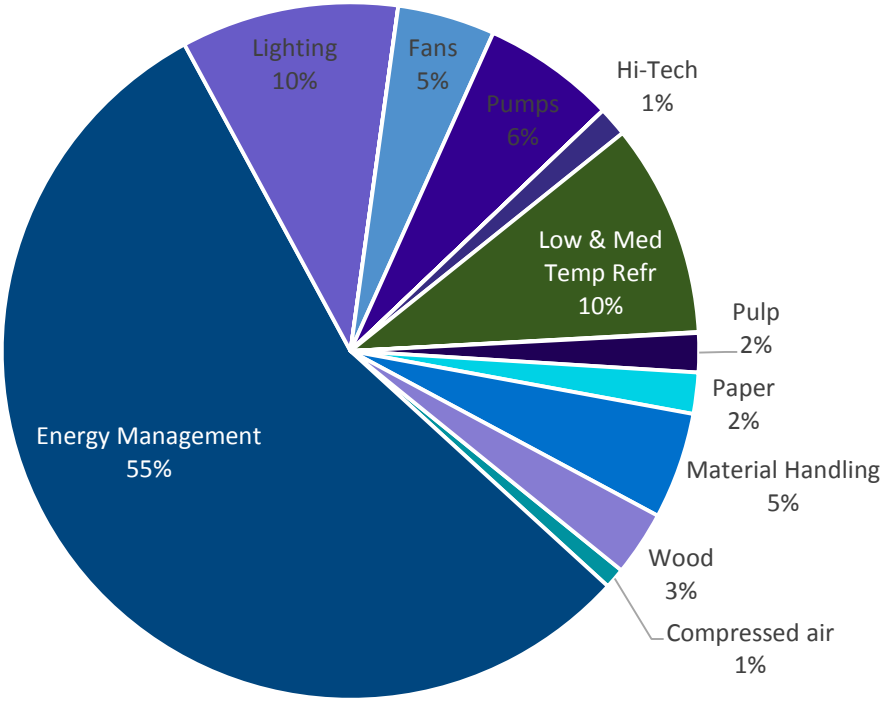
Industrial Highlights

Industrial characteristics compared to the region:

- Higher Industrial sales
- Reduction in potential due to removal of New Large Single Loads

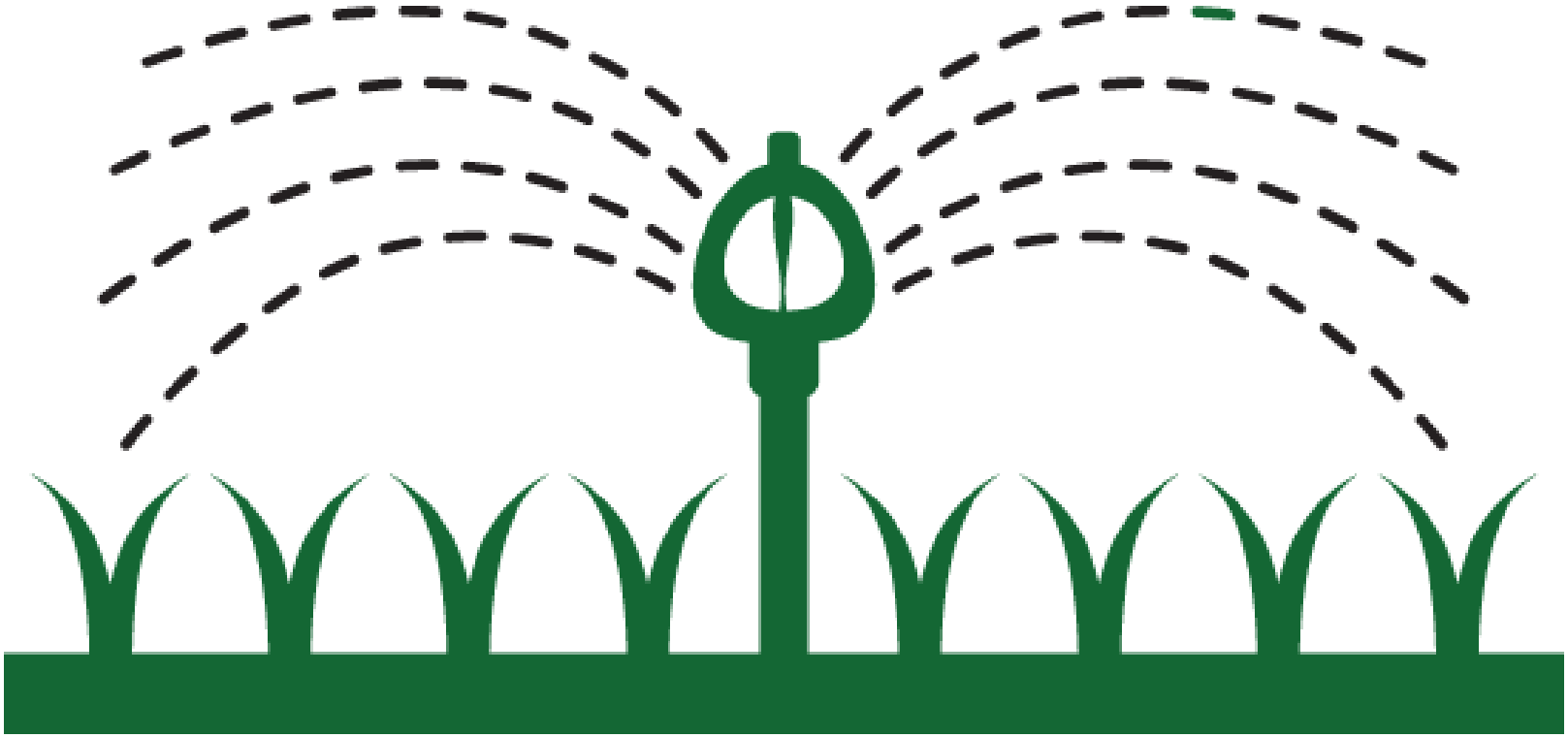
Total Industrial Achievable Savings

End Use	20 Year Total Savings
Energy Management	134
Lighting	25
Refrigeration	24
Pumps	15
Material Handling	12
Fans	11
Wood	7
Paper	5
Pulp	4
Hi-Tech	3
Compressed air	2
Total	**243**



Industrial Supply Curve

Agriculture



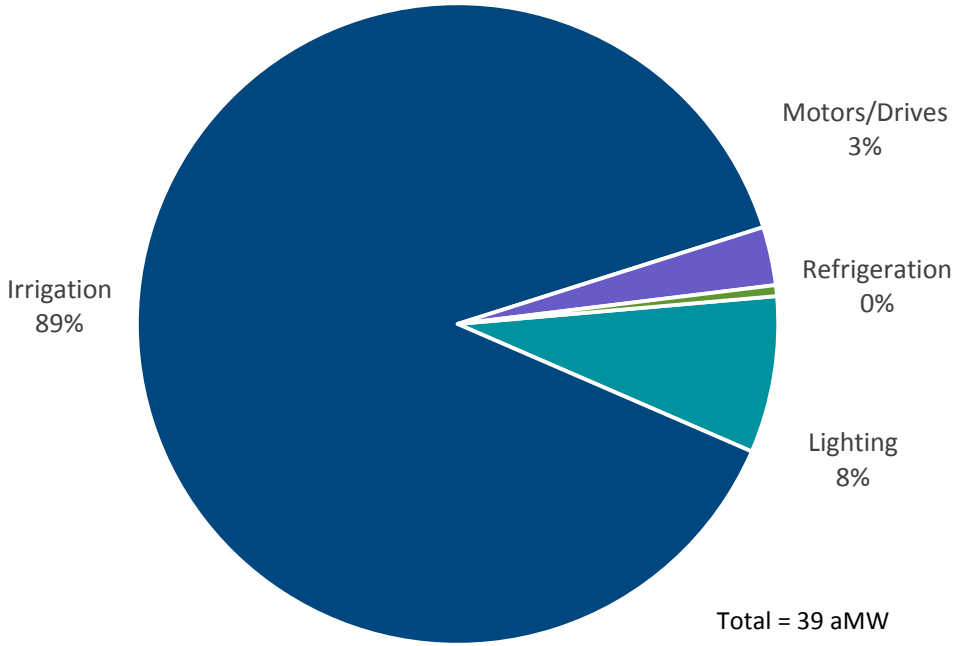
Agriculture Highlights

Agriculture characteristics compared to the region:

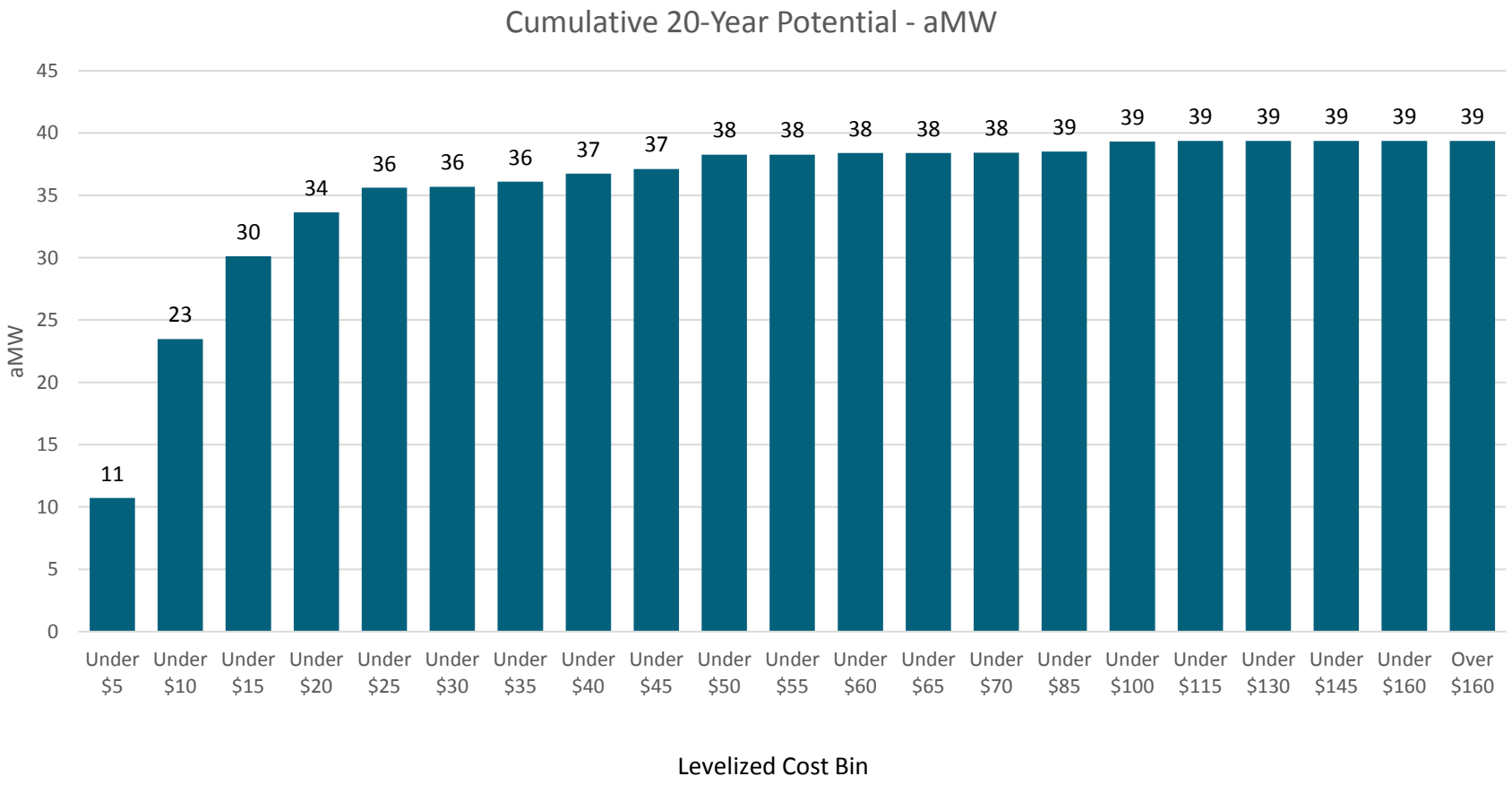
- Fewer acres of irrigated land
- Removal of Scientific Irrigation Scheduling measure reduces savings potential.

Total Agriculture Achievable Savings

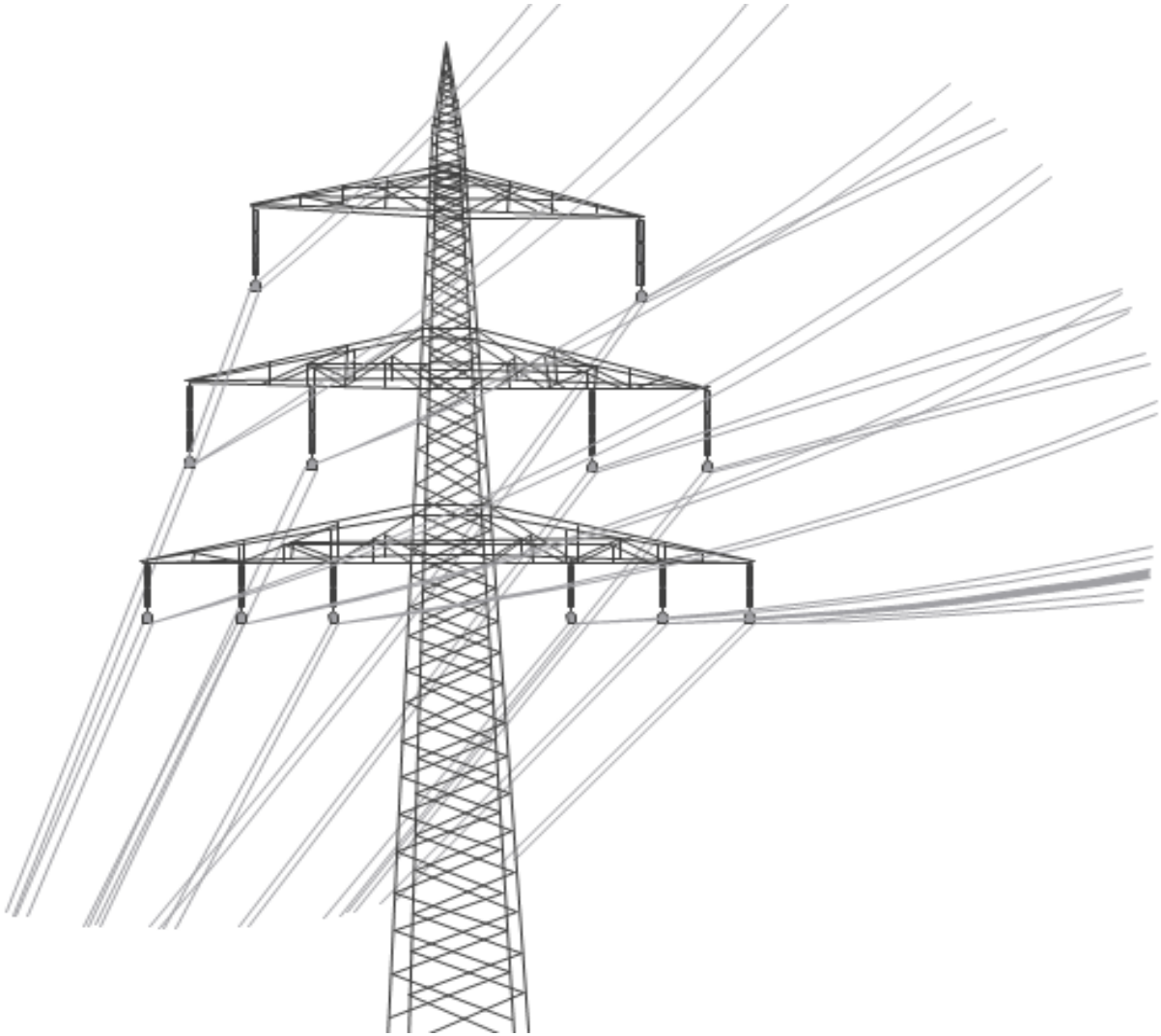
End Use	20 Year Total Savings
Irrigation	35
Lighting	3
Motors/Drives	1
Refrigeration	0
Total	**39**



Agriculture Supply Curve



Utility System

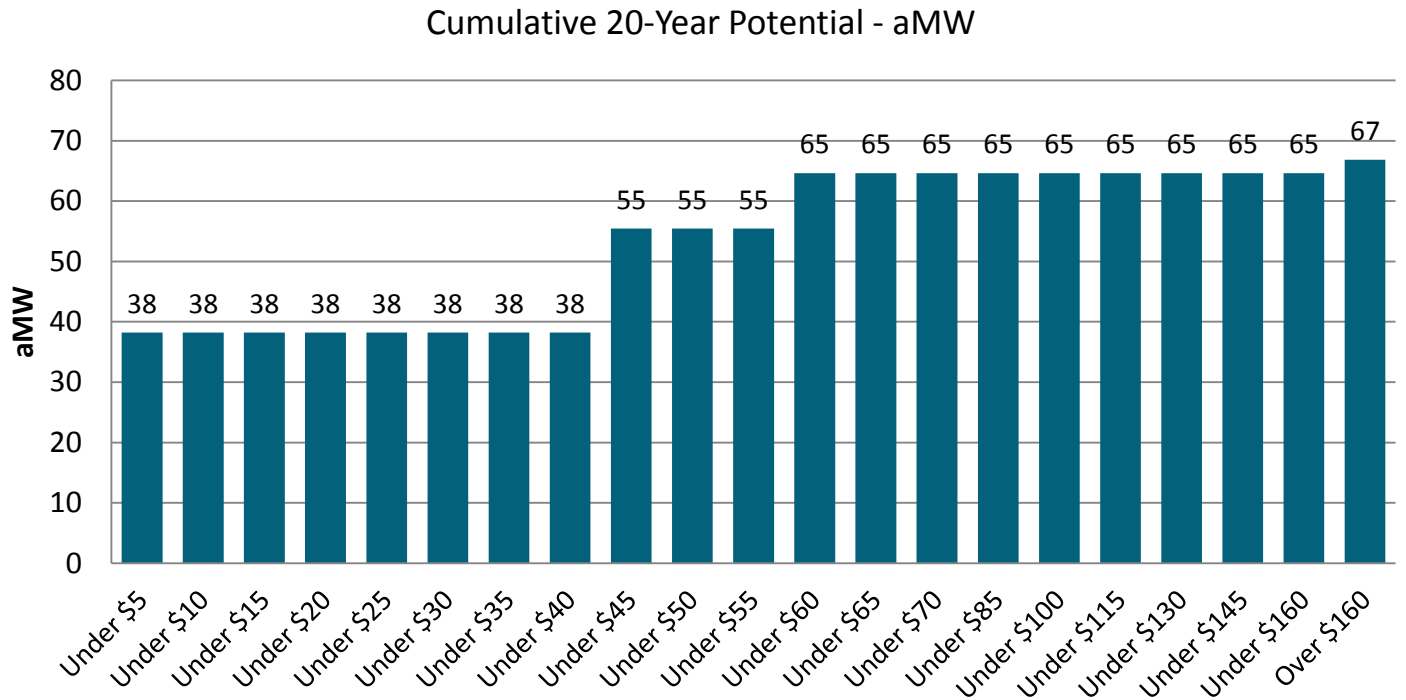


Utility System Highlights

Utility System characteristics compared to the region:

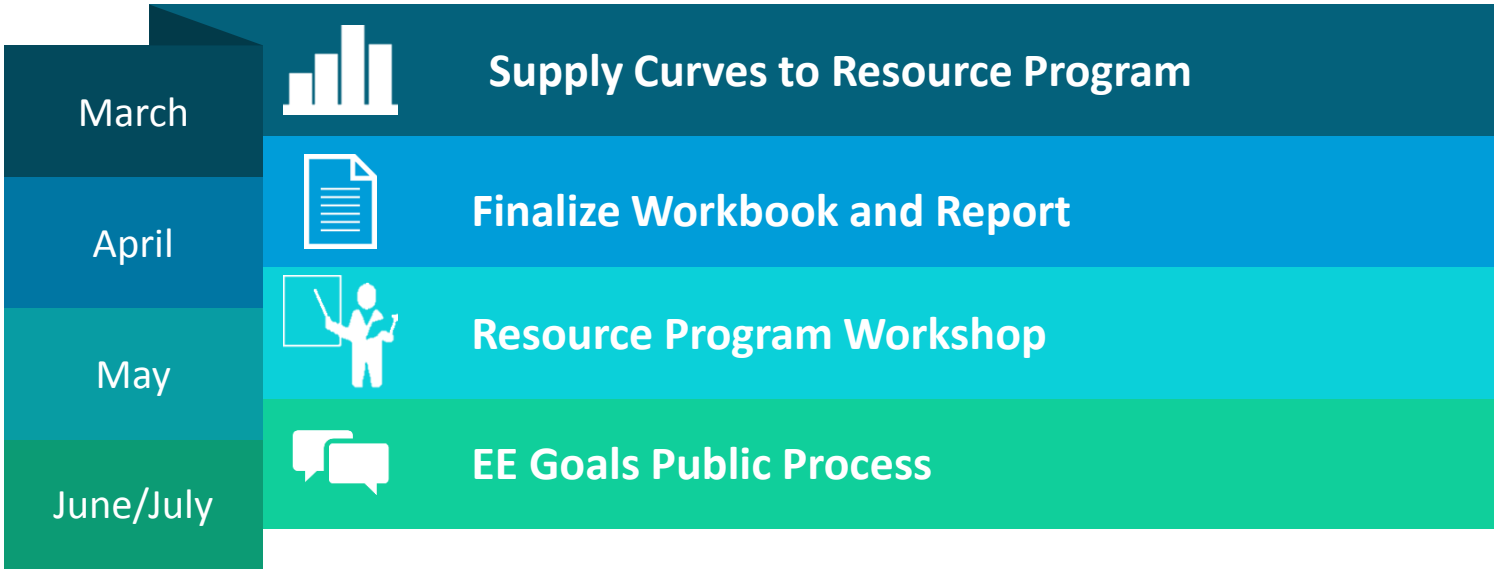
- Fewer applicable substations resulted in lower potential

Utility System Achievable Savings and Supply Curve



Utility System	20 Year Total Savings (aMW)
Total	67

Next Steps


March
April
May
June/July
Supply Curves to Resource Program
Finalize Workbook and Report
Resource Program Workshop
EE Goals Public Process