

Proposed 2018-2019 Biennial Target and 10 Year Conservation Potential

Regular Meeting – Commission Briefing
December 5, 2017



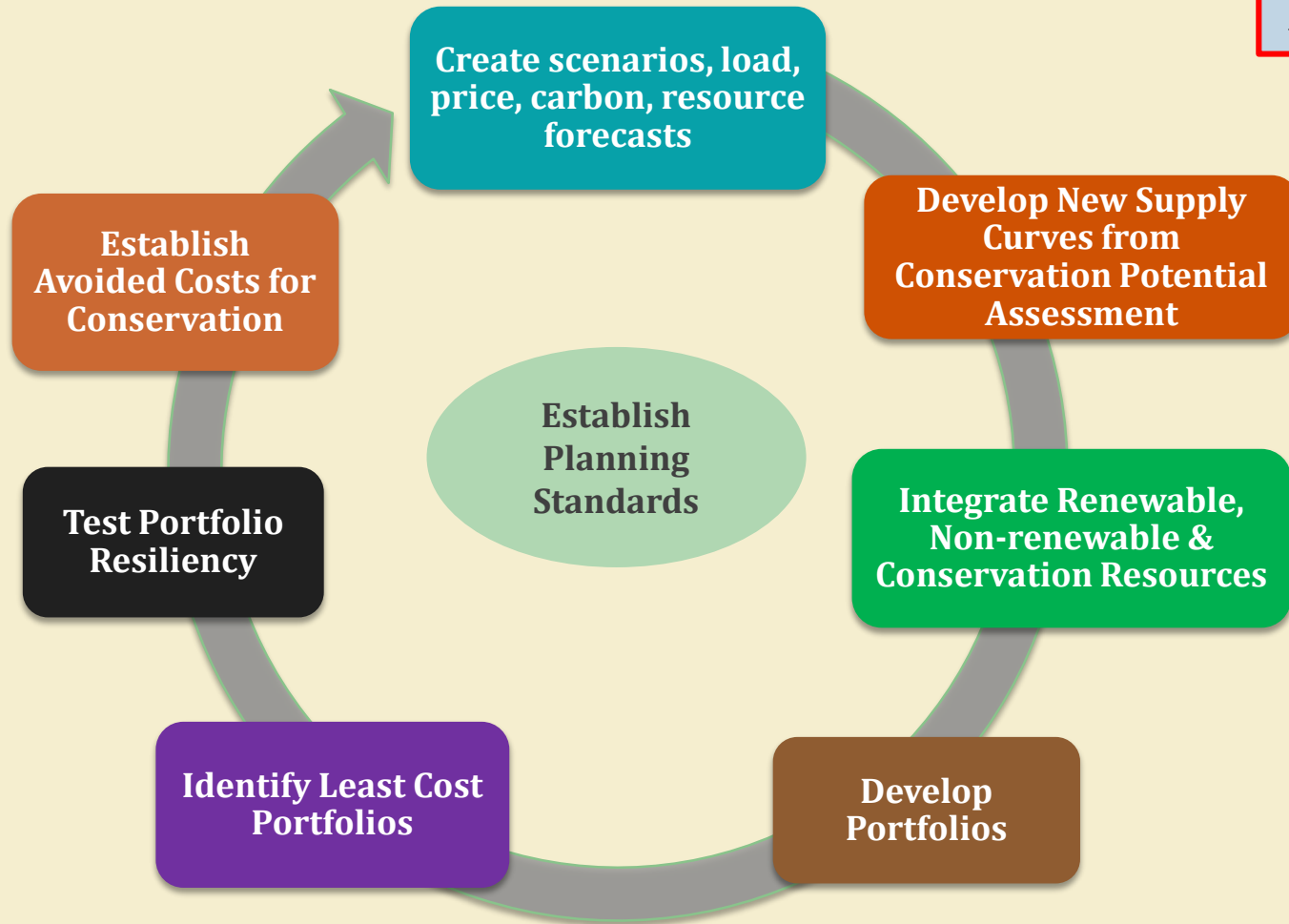
The word "Agenda" is written in a black, cursive font. It is enclosed within a red, hand-drawn cloud-like shape with a scalloped border.

Agenda

1. **2017 IRP Status Update**
2. **Integrated Portfolio Approach**
3. **2017 Conservation Potential Assessment**
4. **Proposed Conservation *(update)***
 - 10 Year Potential Estimate
 - 2018-2019 Biennial Target
5. **Next Steps**

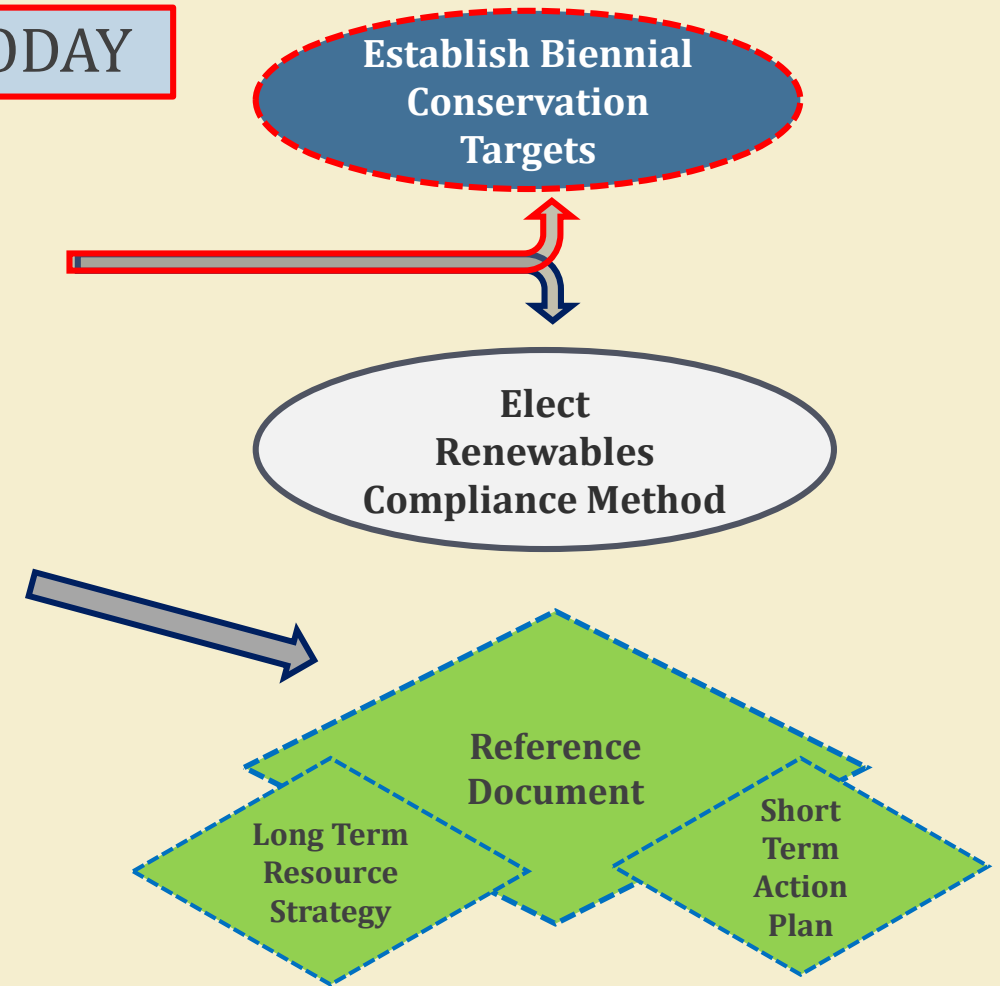
2017 IRP and Integrated Portfolio Approach

IRP Inputs



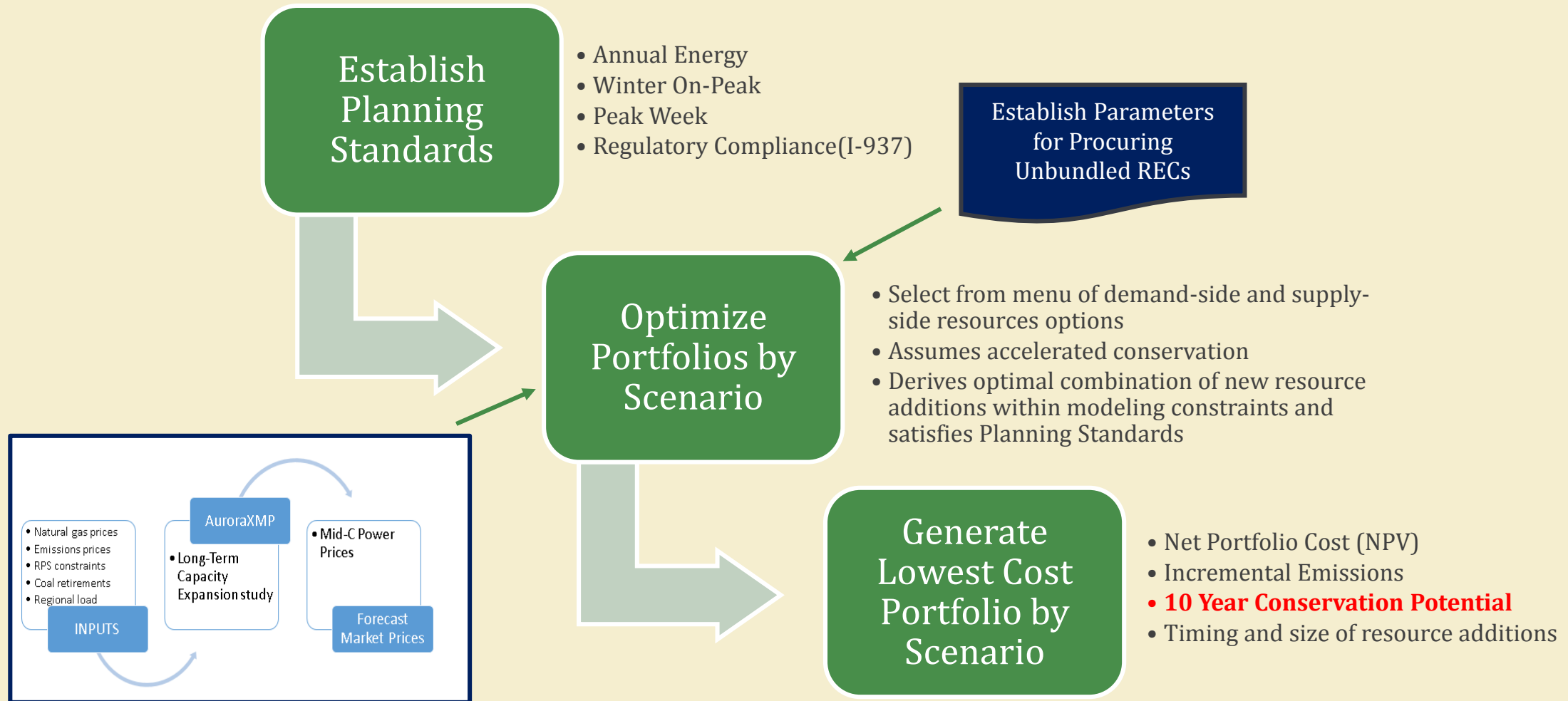
TODAY

IRP Outputs



Integrated Portfolio Approach

Integrated Portfolio Approach



2017 Conservation Potential Assessment

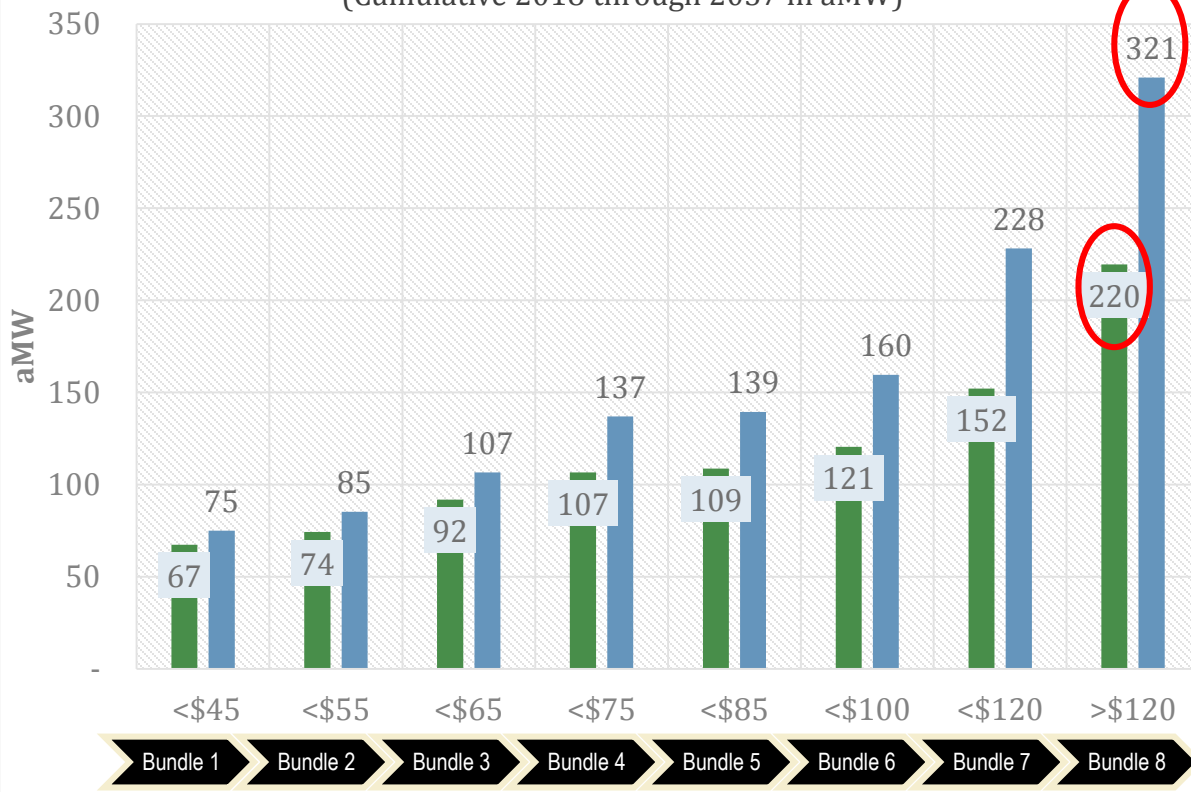
- The CADMUS Group conducted the District's 2017 Conservation Potential Assessment (CPA).
- District's 2017 CPA informed by preliminary regional 2016 Residential Building Stock Assessment (RBSA) data.
- CADMUS also performed an oversampling in the PUD's service area of 2016 RBSA measures and values, which further informed the District's technical achievable potential.
- Conservation supply curves created by grouping measures of technical achievable potential into "bundles" by cost.

Conservation Data *Update*

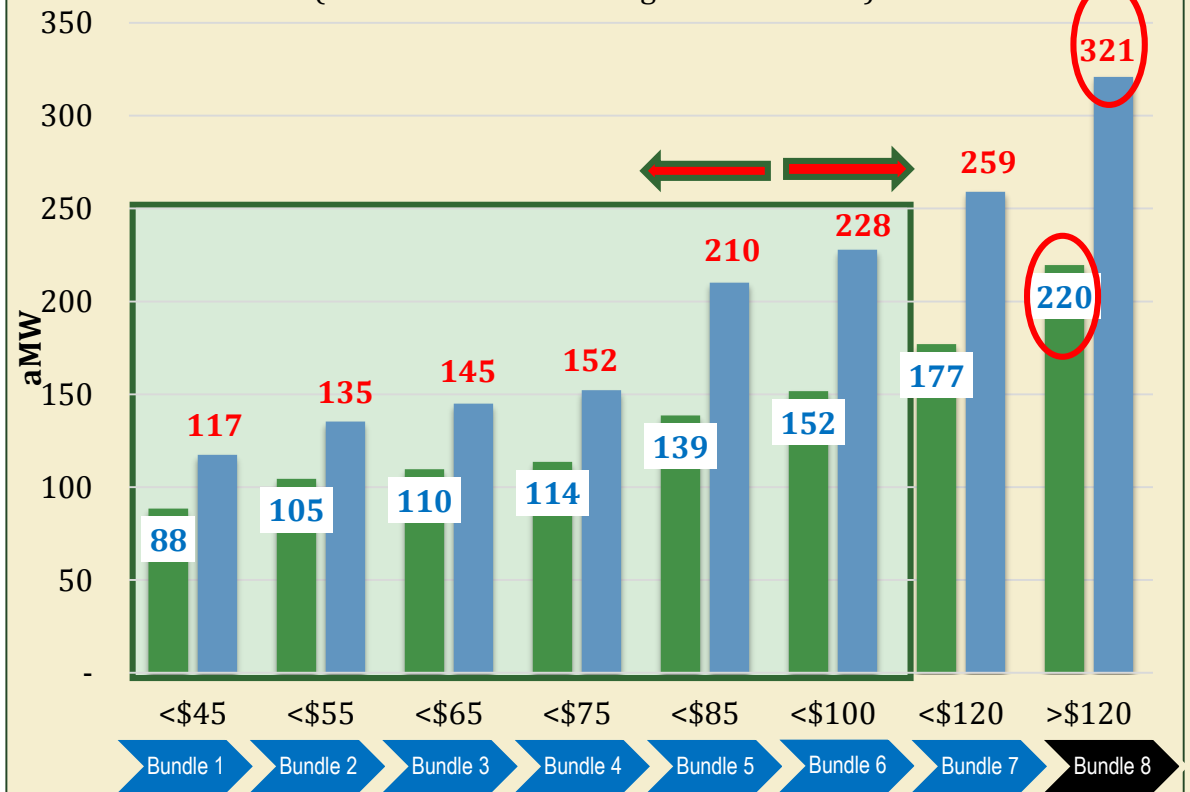
- Data error identified after October 2, 2017 Board briefing.
- Error affected the allocation of costs and technical achievable potential in the bundles used in the integrated portfolio analysis.
- Costs and reallocation of conservation potential savings were updated.
 - More conservation potential available at lower cost
 - New conservation additions cost less, reduced portfolio costs
 - Total cumulative 20 year technical achievable potential did not change
 - Ratio of average annual savings to winter on-peak savings changed from 1:1.3 to 1:1.4
- IRP technical team met and brainstormed best way to proceed.
- Staff re-optimized the Climate Change with Low Societal Cost of Carbon scenario, and tested all conservation bundles (conservation measures bundled from <\$45 to >\$120).
- Updated analysis presented to Steering Team on October 26, 2017.

Update to Conservation Potential Supply Curve

OLD SUPPLY CURVE - 10 year ramp rate
Annual Savings vs Winter On-Peak Savings
 (Cumulative 2018 through 2037 in aMW)



UPDATED SUPPLY CURVE 10-year ramp rate
Annual Savings vs Winter On-Peak Savings
 (Cumulative 2018 through 2037 in aMW)



* The 2017 CADMUS study indicates ratio of annual conservation to winter capacity contribution varies slightly by bundle, **but is 1:1.4 on average.**

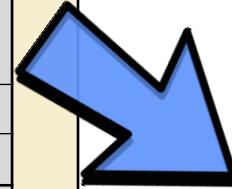
Integrated Portfolio Results *(update)*

Climate Change w/Low Societal Carbon Cost



Climate Change Loads and Resources with Low SCC carbon policy
(Old CADMUS Data - dated 7/31/2017)

		Total
Portfolio Net Present Value		\$ 555,317,896
	10 Year Potential Estimate (in aMW)	20 Year Potential Estimate (in aMW)
New Annual Conservation	87	107
New December HLH Conservation	112	137
NPV New Conservation	\$240,795,209	
	20 Year Total	
Total Added Portfolio Emissions (Metric Tons of CO2)	785,929	



Climate Change Loads and Resources with Low SCC carbon policy
(Updated CADMUS Data – dated 10/9/2017)

		Total
Portfolio Net Present Value		\$ 422,158,569 ↓
	10 Year Potential Estimate (in aMW)	20 Year Potential Estimate (in aMW)
New Annual Conservation	93 ↑	114
New December HLH Conservation	126	152
NPV New Conservation	\$147,987,664 ↓	
	20 Year Total	
Total Added Portfolio Emissions (Metric Tons of CO2)	567,644 ↓	

Results of Integrated Portfolio Approach *(update)*

- ✓ **1. New Conservation Potential – 1st year add is 2018**
 - **Annual: 92.7 aMW by 2027, 114 aMW by 2037 (was 87 and 107)**
 - **Winter: 126 aMW by 2027, 152 aMW by 2037 (was 112 and 137)**
- ✓ **2. Long-Term Capacity Need – deferred to 2028**
 - 50MW Short Term Bridge Contract 2018-2022
 - 116 MW dispatchable capacity addition ~~in 2024~~ **deferred to 2028**
- ✓ **3. 20 year incremental emissions reduced (metric tons CO2 reduced from 785,929 to 567,644)**
- ✓ **4. 25% decrease in net portfolio cost (portfolio NPV \$555M reduced to \$422M)**

Proposed
2018-19 Biennial Target &
10 Year Conservation
Potential *(Update)*

10 Year Conservation Potential Estimate

- Integrated portfolio approach in the 2017 IRP process determined 10 year economic and achievable potential across a range of futures.
- Approach is consistent with the methodology used by the Northwest Power & Conservation Council, prescribed in the WAC 194-37-070 (5).
- Proposed 2017 IRP Long Term Resource Strategy identified 92.7 aMW of conservation as the 10 year economic and achievable potential.

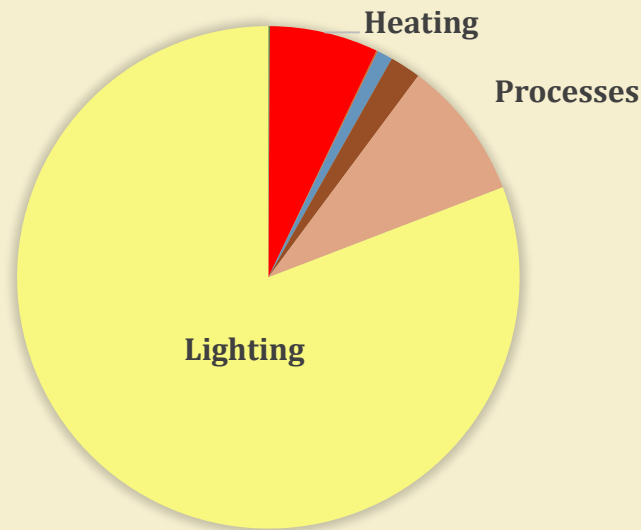
2017 IRP Scenario	10 Year Economic Achievable Potential
Climate Change w/Low Societal Cost of Carbon	92.7 aMW * or 812,051 MWh

** 10 year economical achievable potential calculated at the PUD's Distribution Busbar.*

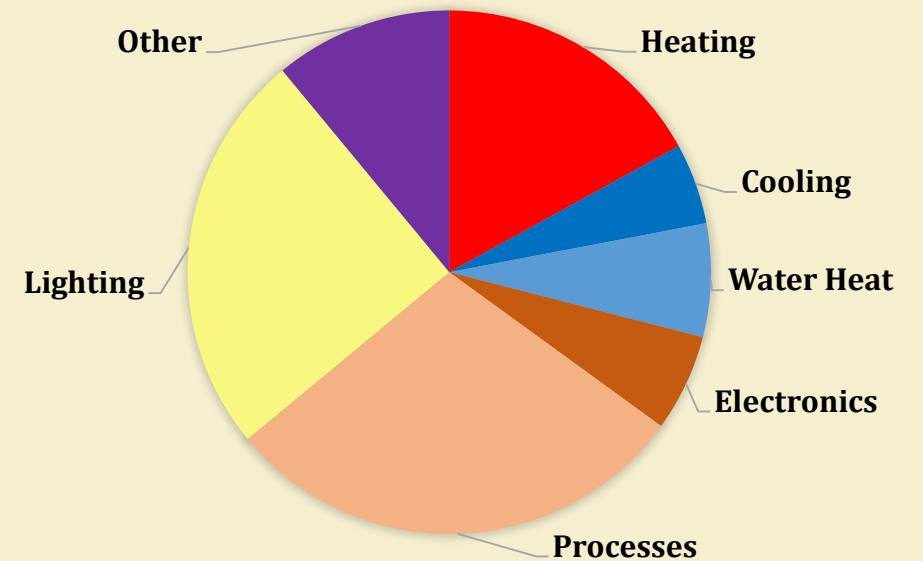
Important Changes to Conservation

- Compared to the Council's Sixth Power Plan, the Seventh Plan has ~40% new measures, creating a substantial change in the measure mix, with notable declines in the residential sector.
- Changes to measure mix necessitate altering ramp rates for several new measures and end-uses to reflect program achievability.

2016 Achievements by End Use*



2018 - 2019 Potential by End Use



** 2016 Achievements translated here to Seventh Power Plan measure values for illustrative purposes only.*

Historical Perspective

Snohomish PUD's 2 Year Biennial Conservation Targets		
	<i>PUD Distribution Busbar</i>	<i>BPA Regional Busbar</i>
2018-2019 (Proposed)	14.61 aMW	15.36 aMW*
2016-2017	13.36 aMW	14.04 aMW
2014-2015	12.65 aMW	13.3 aMW

** 2018-2019 target is set at PUD's Distribution Busbar. Conversion to BPA Regional Busbar is for informational purposes only.*

Proposed 2018-2019 Biennial Target *(update)*

- PUD's proposed biennial target for 2018-2019 has been updated since October 2, 2017 as follows:

Target Years	10-Year Potential	2-Year Biennial Target
2018-2019 <i>(updated)</i>	92.70 aMW (812,051 MWh)	14.61 aMW (127,984 MWh)
2018-2019 (10-2-2017)	86.86 aMW	17.4 aMW

Next Steps

- Schedule public hearing for December 19, 2017 to consider adoption of the 2018-2019 biennial target and 10 year conservation potential estimate.
- File adopted 2018-2019 Biennial Target and 10 year conservation potential with Department of Commerce by December 29, 2017.
- Finalize and publish IRP document.
- Return to Board with additional IRP briefings in early 2018.

Questions?



Additional 2017 IRP Materials

IRP materials and can be located on the Snohomish County PUD's website at:

<http://www.snopud.com/PowerSupply/irp.ashx?p=1161>