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June 5, 2018

MEMORANDUM

TO: Council Members

FROM: Ben Kujala

SUBJECT: Presentation on Bonneville's Resource Program

BACKGROUND:

Presenter: Rob Petty, Bonneville

Summary: Bonneville will present a high-level overview of the Resource Program to the Council Members. This will include Bonneville's assessment of its needs for future power as well as its portfolio analysis of how to meet those needs.

Workplan: Monitor and Report to Council on BPA Resource Program. Action items BPA-2, BPA-4, ANLYS-11.

Background: BPA launched its Resource Program shortly after passage of the Northwest Power Act in 1980. The purpose of the program is to assess BPA's need for power and reserves and develop a resource strategy to meet those needs.

More Info: <https://www.bpa.gov/p/Power-Contracts/Resource-Program/Pages/Resource-Program.aspx>



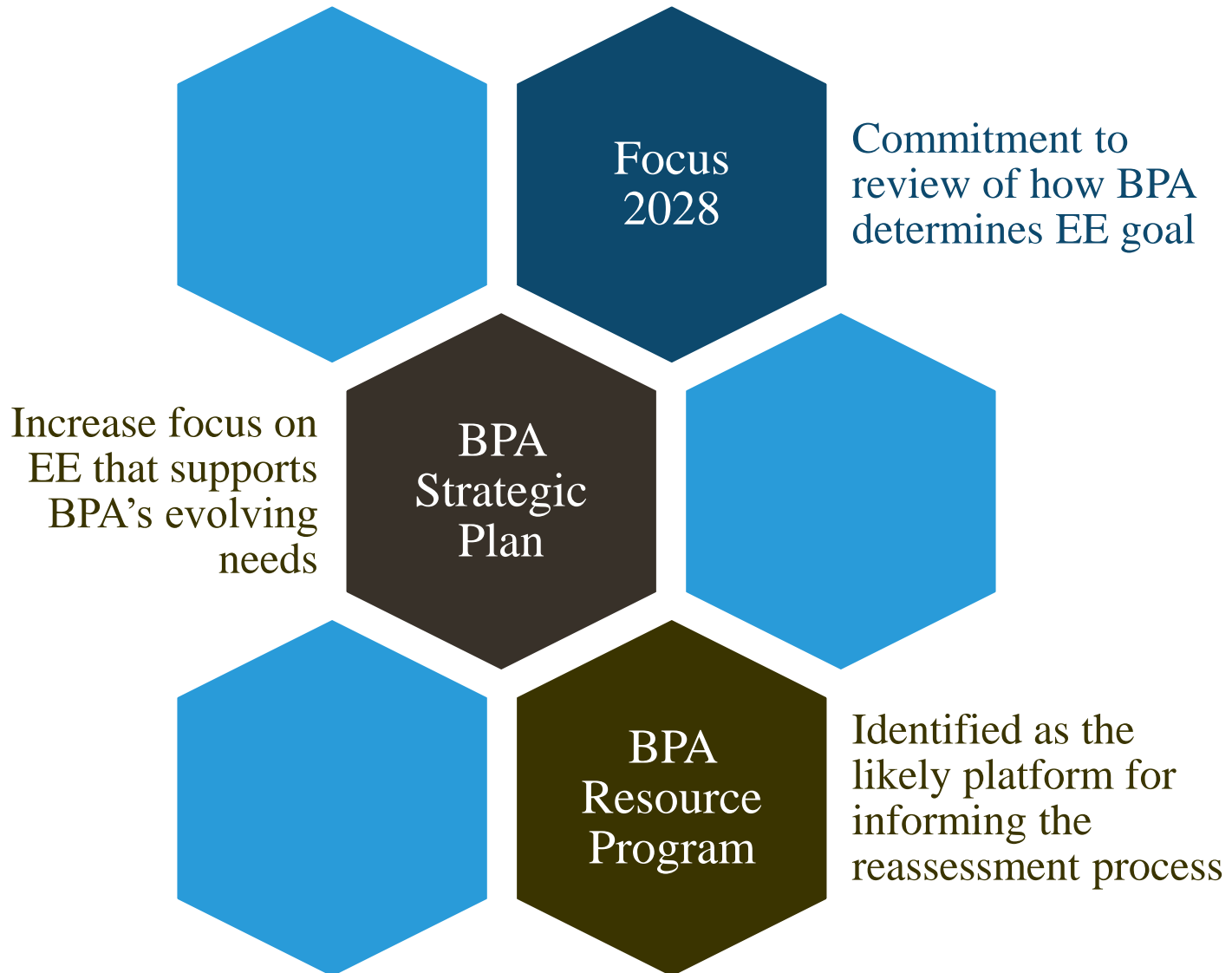
Bonneville
POWER ADMINISTRATION



BPA 2018 Resource Program and 2020-21 Energy Efficiency Goal & Budget

JUNE 12, 2018

Background



Summary

A robust investment in energy efficiency remains a cost-effective way to meet BPA's power needs

BPA has new insights into the savings that provide higher value to our system

BPA is integrating these insights with the energy efficiency goals established in the Seventh Power Plan

BPA Resource Program

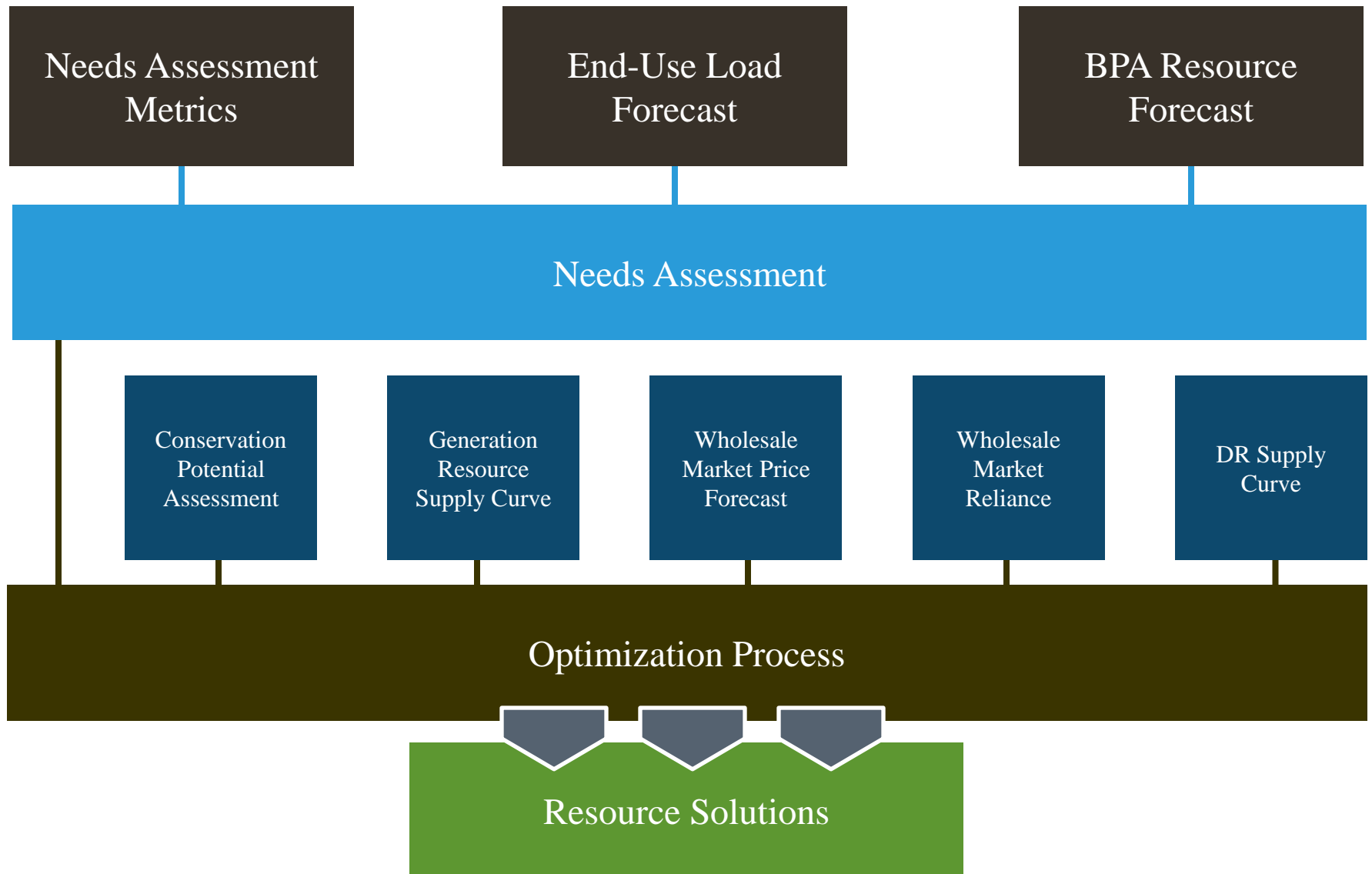
Overview

- Begins with a forecast of BPA load obligations and existing resources and then determines needs
- Identifies and evaluates potential solutions to meeting the needs (energy efficiency, demand response, wind, solar, natural gas plants, etc.)
- Outlines potential strategies for meeting those needs

The Resource Program is not:

- A decision or policy document such as an administrators record of decision
- A requirement of law or a regulating body such as FERC or NERC

Resource Program Overview



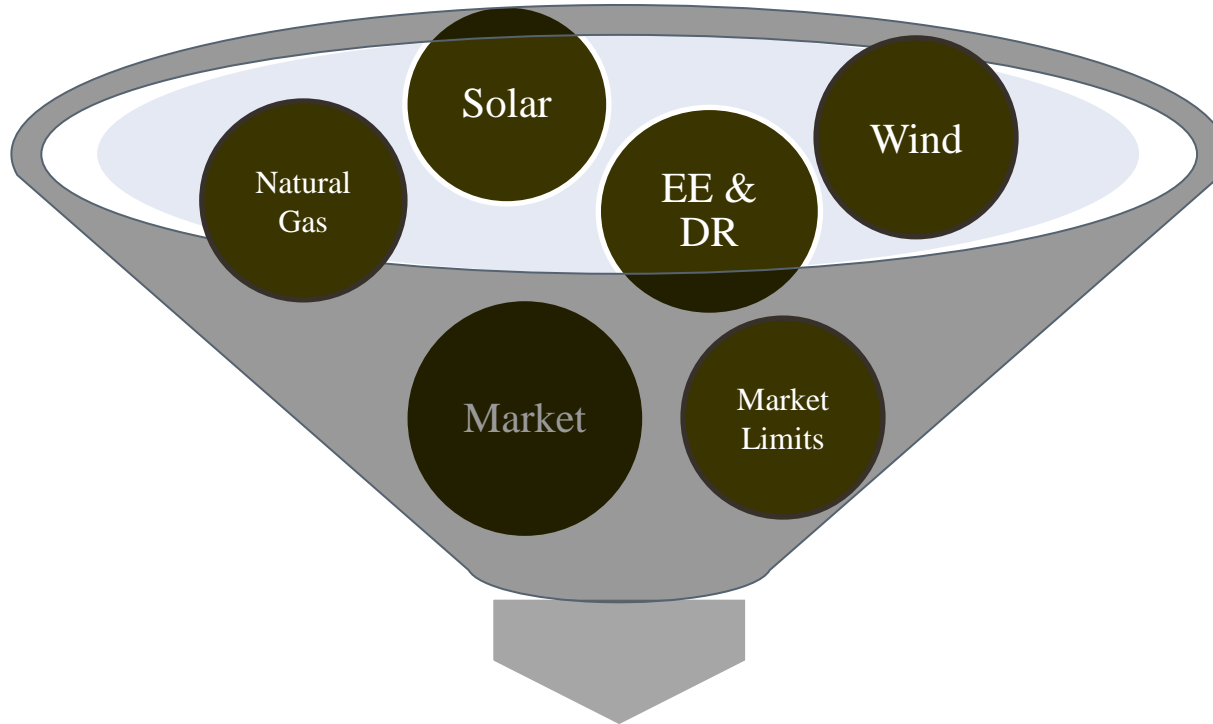
BPA Energy and Capacity Needs

BPA is forecasting to have energy and capacity needs

- BPA is energy limited with the biggest forecasted deficits in the winter and smaller deficits in the early spring and late summer
- BPA is forecasting to have a capacity deficit in late summer by 2025 but is not forecasting a winter capacity deficit through 2039
- Currently, BPA is not forecasting the need for additional balancing reserves

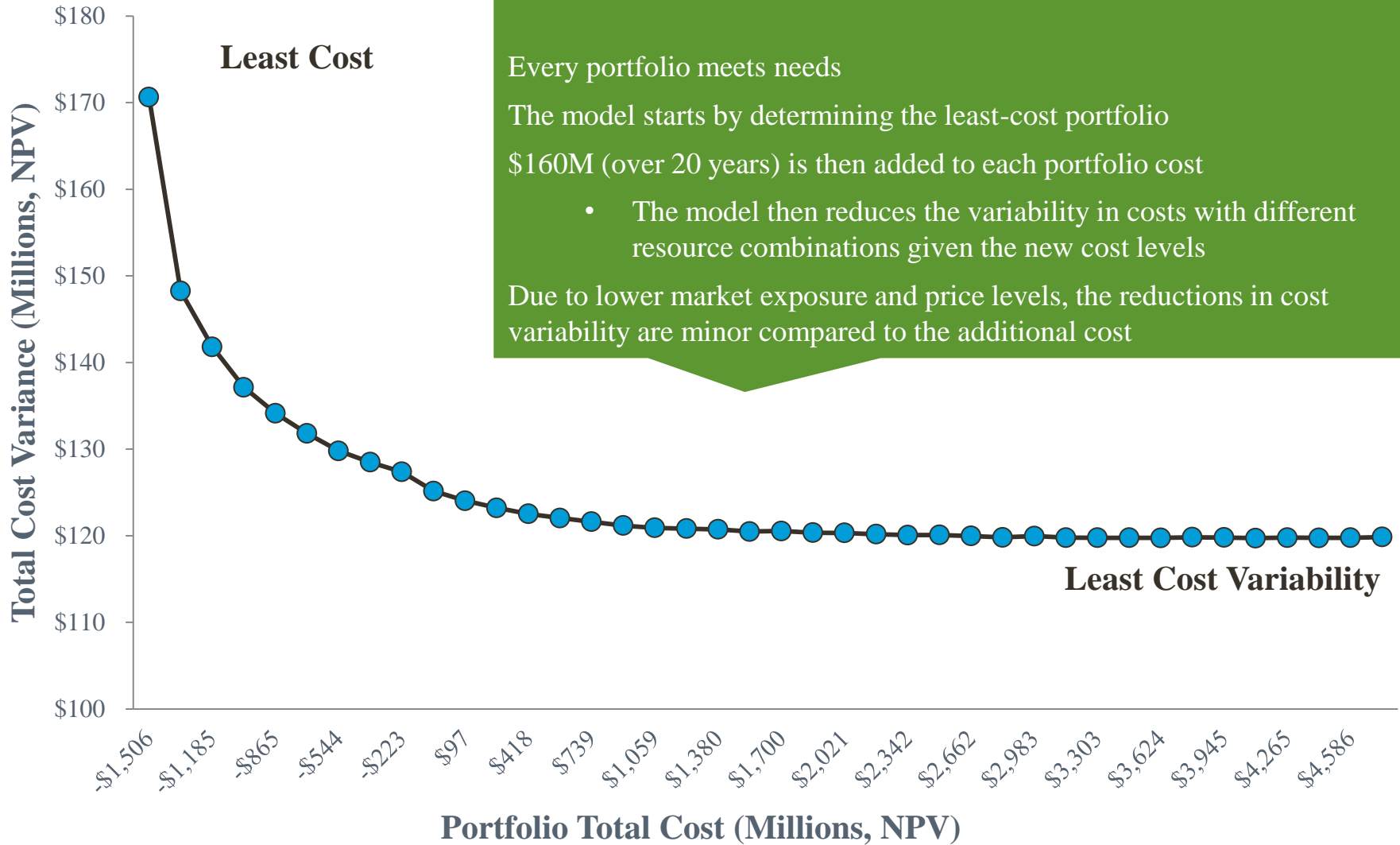
Optimization Model

BPA's Future Power Needs

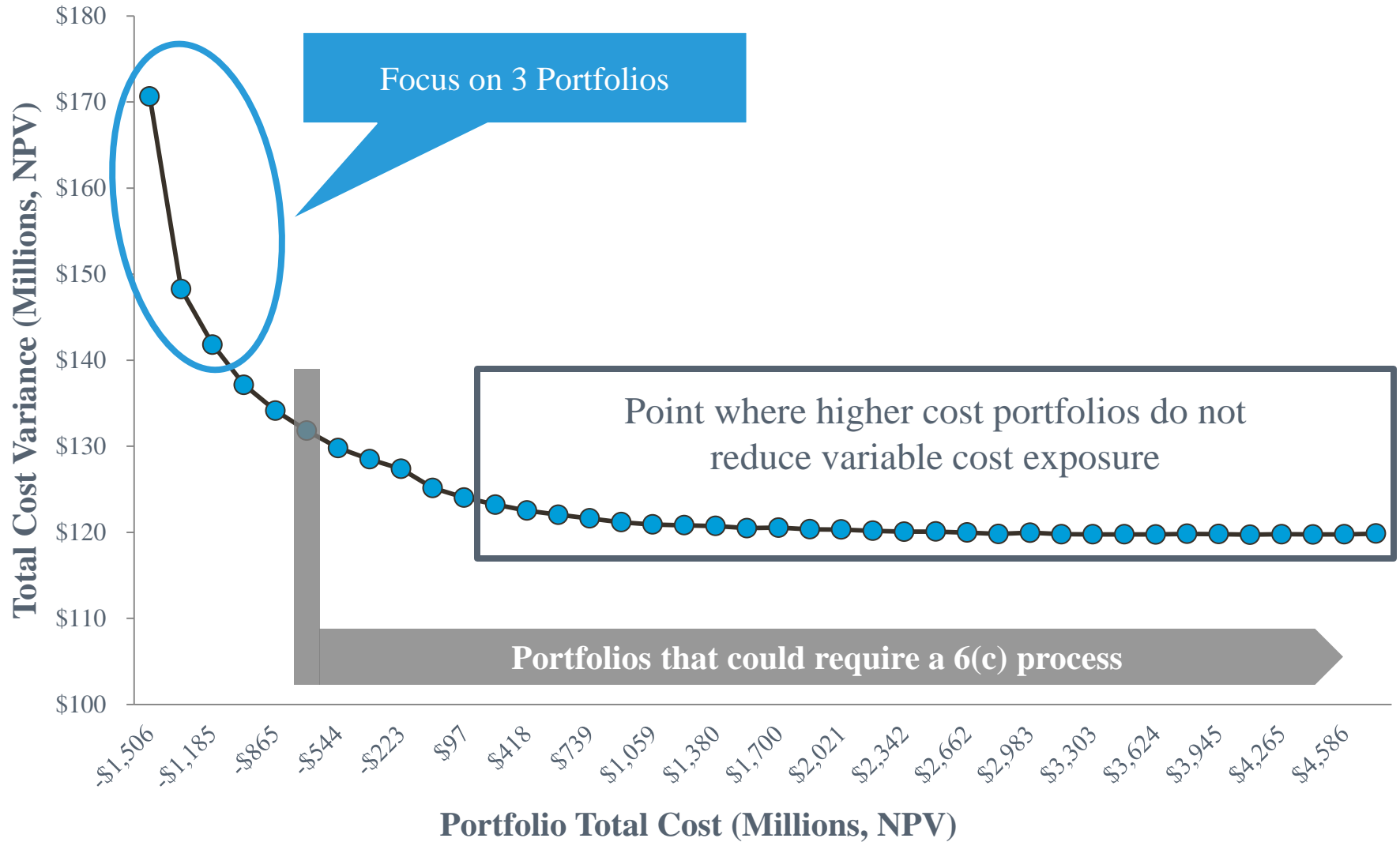


Portfolios

Efficiency Frontier



Efficiency Frontier Results



Resource Program Results - 2021

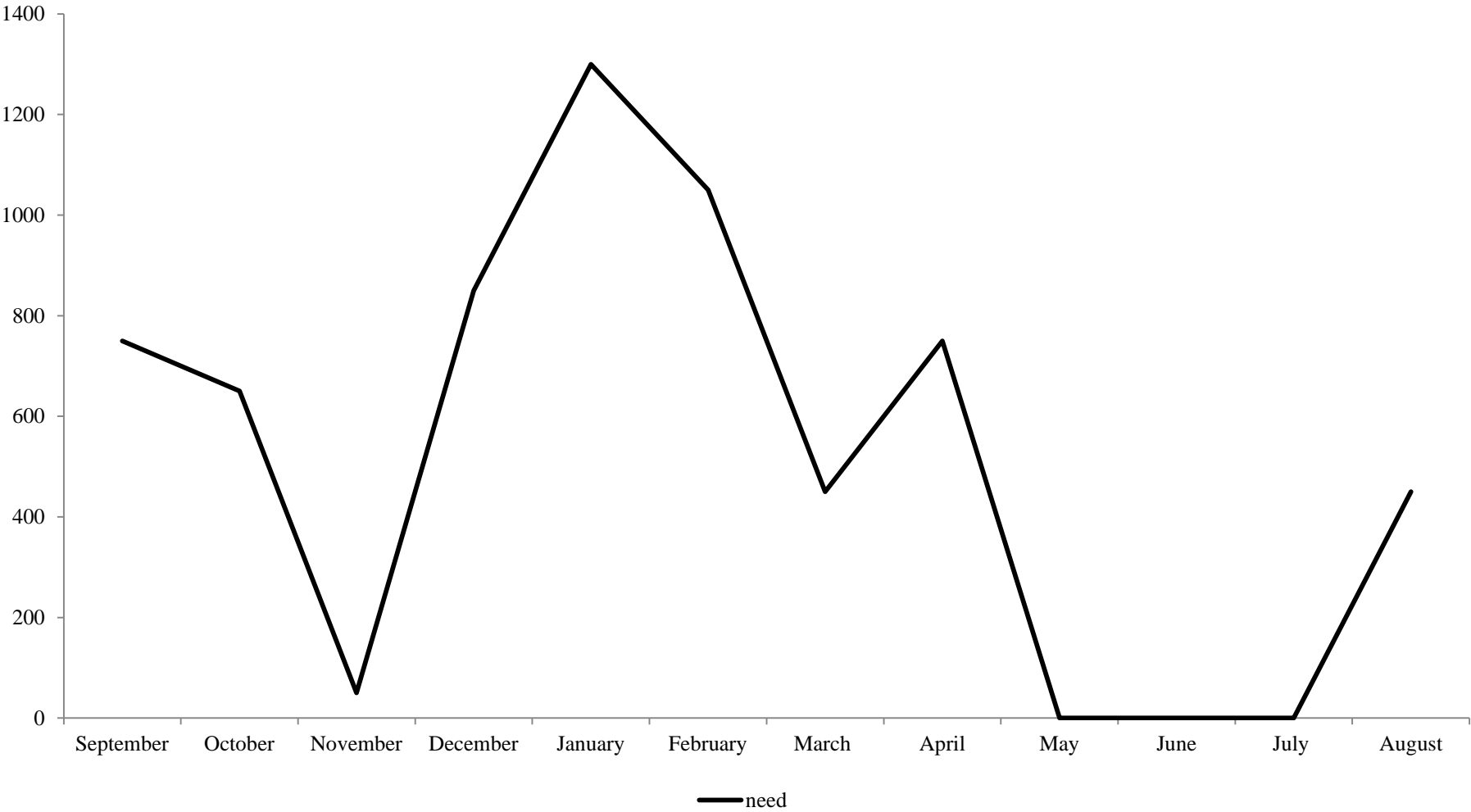
Total Acquisitions – Cumulative 2020-2021

Portfolio	Max Monthly Market Purchases (aMW)	Energy Efficiency Acquired (aMW)	Highest EE Cost Bundle (\$/MWh)	Demand Response Acquired (MW)
1	775 aMW	121 aMW	\$25/MWh	40 MW
2	737 aMW	154 aMW	\$40/MWh	131 MW
3	729 aMW	161 aMW	\$50/MWh	131 MW

More EE and DR acquired as market purchase reliance is reduced

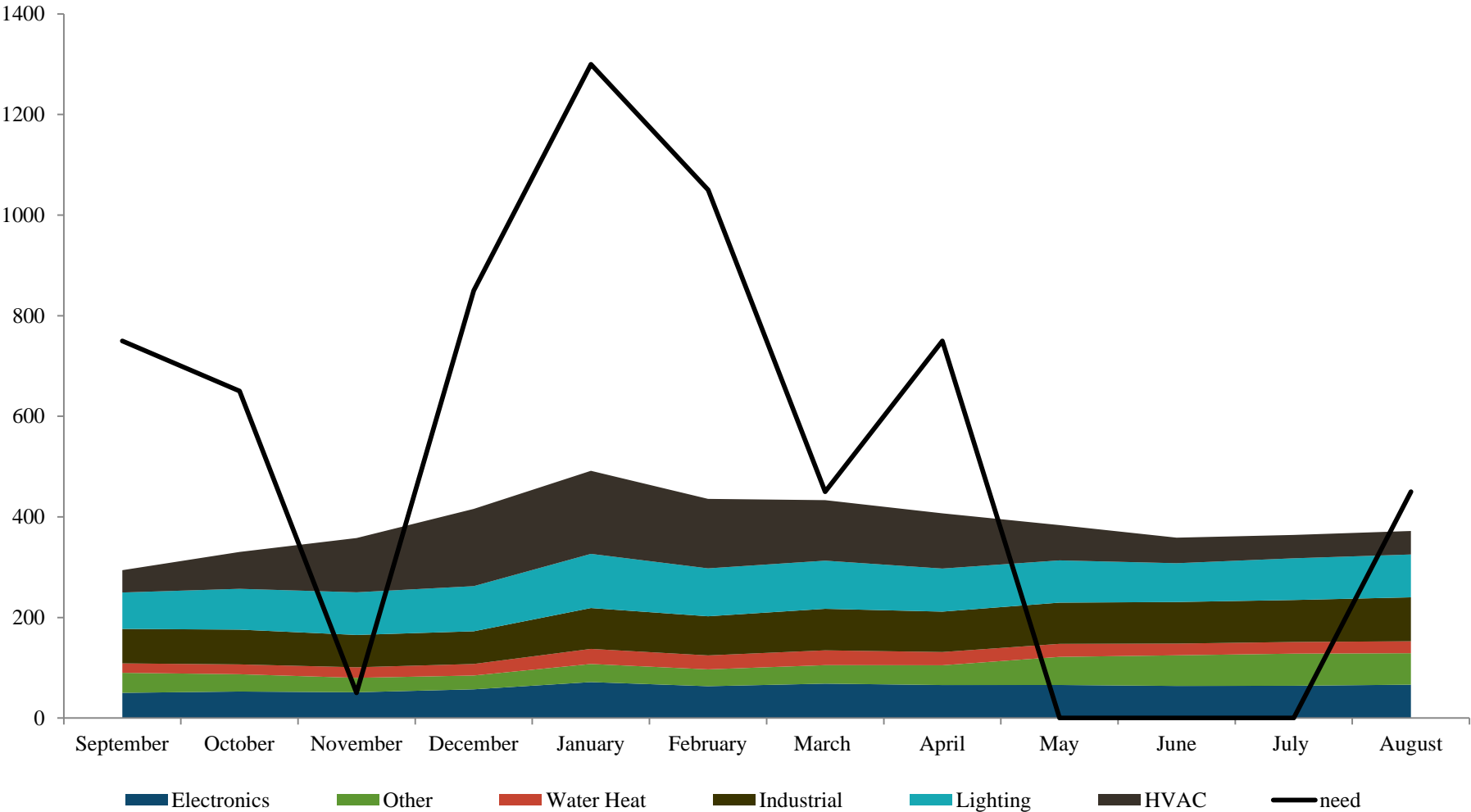
How EE Helps Meet Our Energy Needs

2025 Energy Need



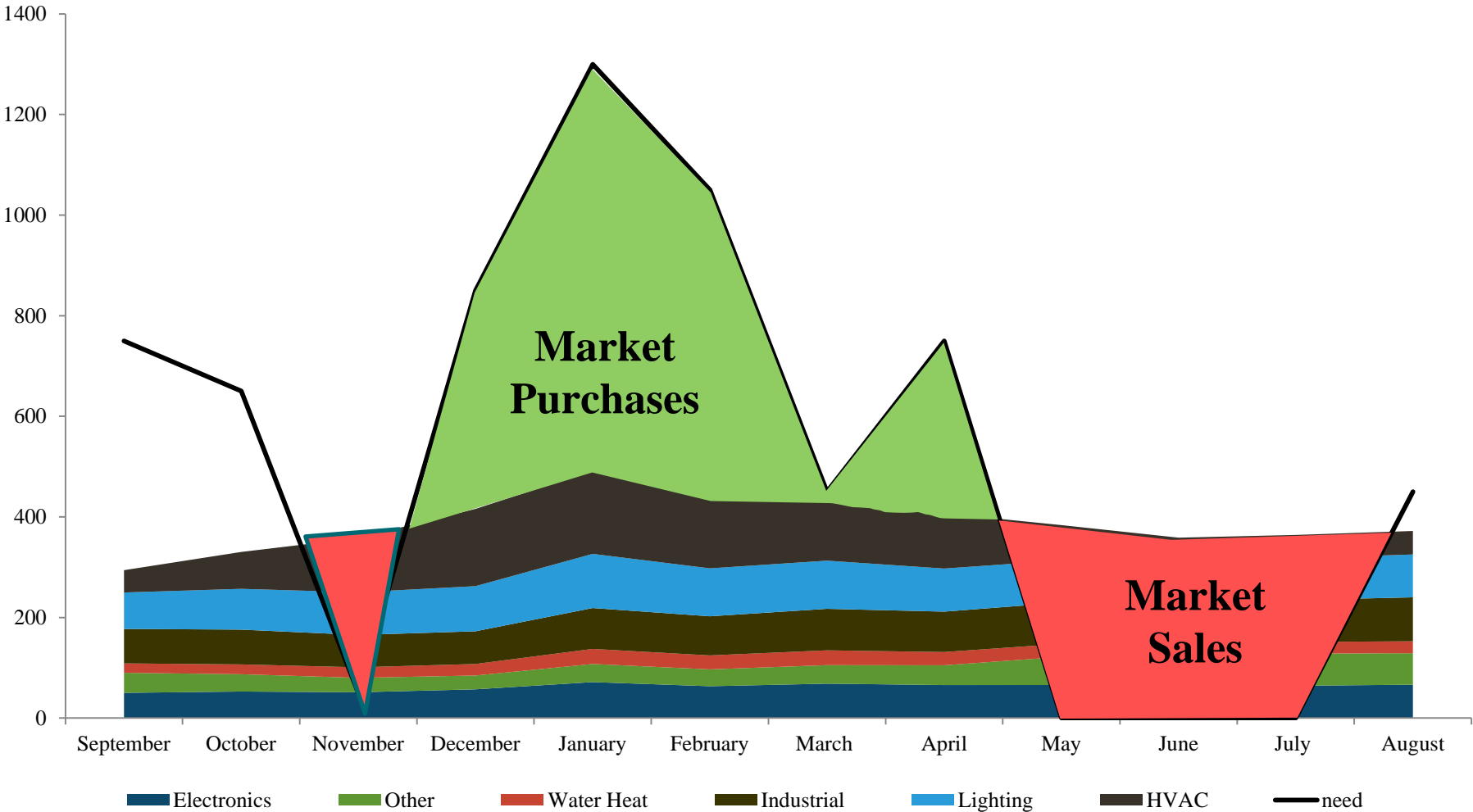
How EE Helps Meet Our Energy Needs

2025 Need and Resource Acquisitions



How EE Helps Meet Our Energy Needs

2025 Need and Resource Acquisitions



Resource Program Takeaways

EE, DR and
Market
Purchases



BPA can continue to meet its obligations with a mix of EE, DR and market purchases

Least Cost
Contributor



EE is a significant component of a least-cost acquisition portfolio

Not All
Savings Are
Equal



Some energy efficiency provides a greater contribution to our needs

Current EE Program - Planning

Public Power Share of Region Goal

Programmatic
Savings

Market
Transformation
Savings

Momentum
Savings

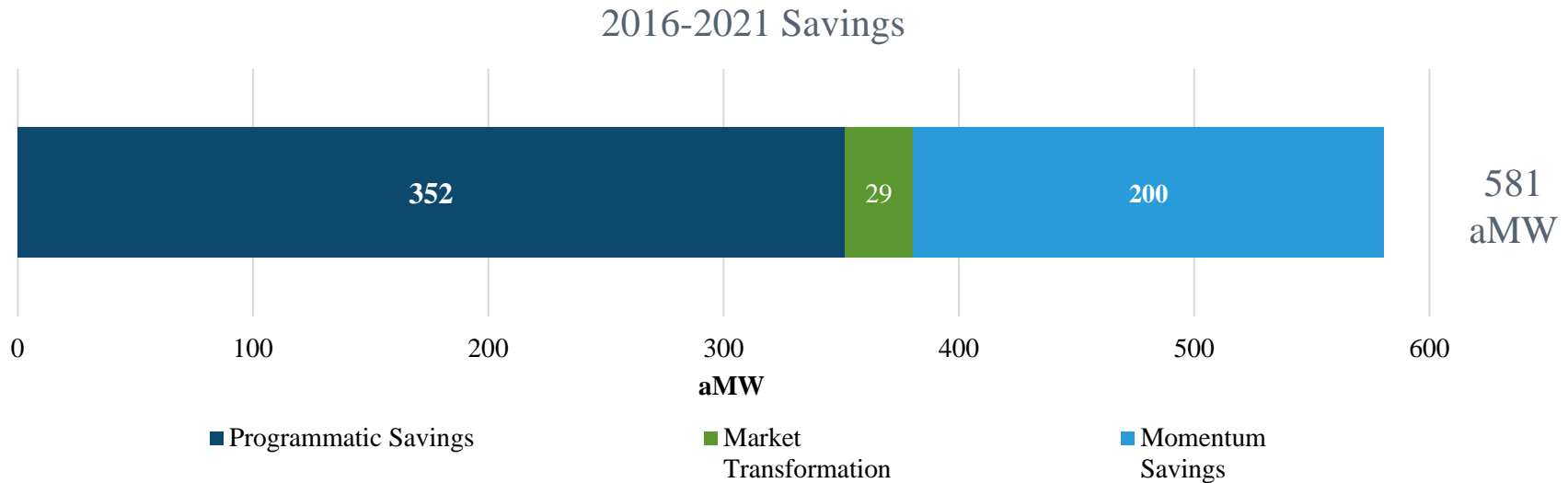
EEI Funded Savings
(70%)

Self
Funded
Savings
(30%)

TOCA Allocation of EEI

*EEI: Energy Efficiency Incentive
TOCA: Tier One Cost Allocator*

BPA's Energy Efficiency Action Plan

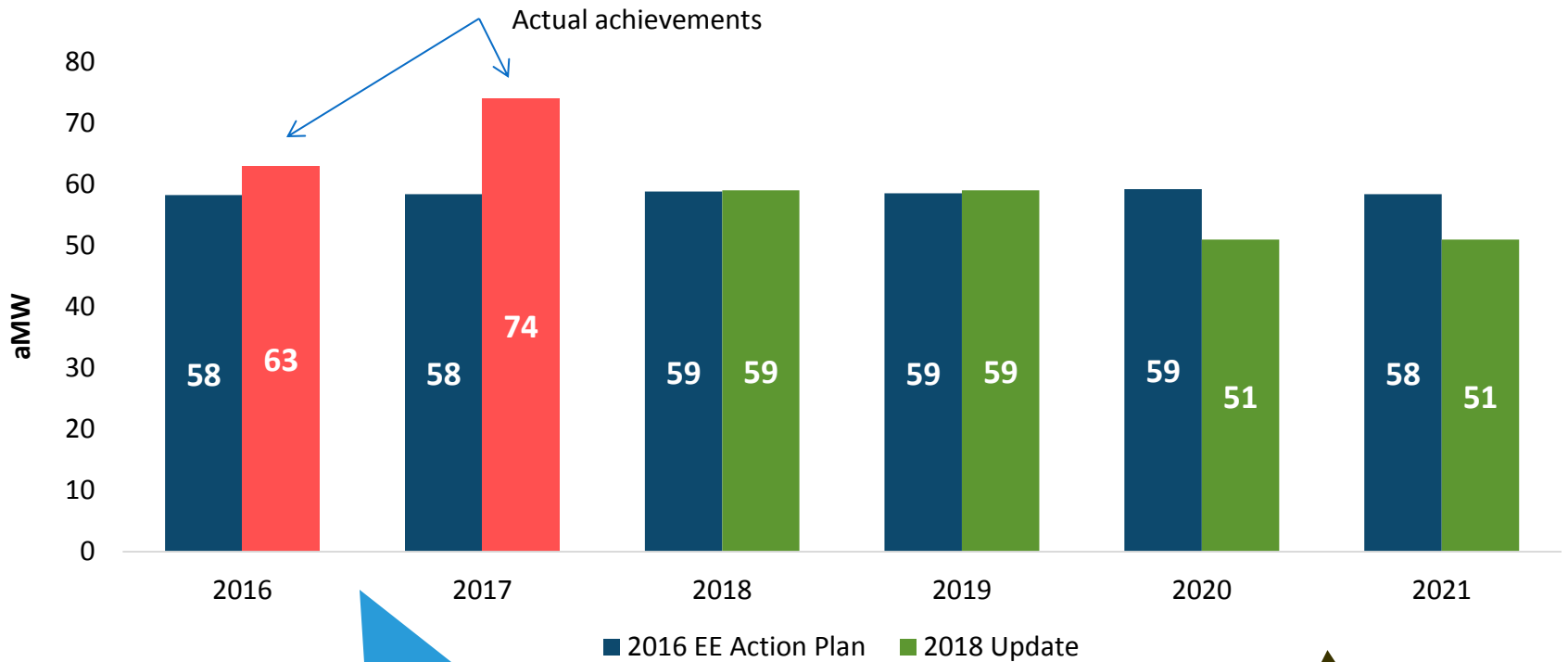


BPA's 2016 EE Action Plan projected achieving a total of 581 aMW of savings towards the 7th Plan goal

Of that, 352 aMW was expected to come through programmatic savings

Programmatic savings are savings achieved through utility EE programs, funding through EEI and customer self funding

Programmatic Savings Achievements



Public power exceeded EE Action Plan programmatic savings expectations in 2016 and 2017

This resulted in fewer programmatic savings needed in 2020 and 2021 to meet the EE Action Plan goal

Programmatic Savings and Costs 2020-21

Updated Savings and Costs		
2016 EE Plan	Updated EE Plan Savings	EEI Budget (\$M)
118 aMW	101 aMW	\$134 M

A EEI budget of \$134 million was the forecasted funding amount needed to achieve 101 aMW of programmatic savings.

Current EE Program - Implementation

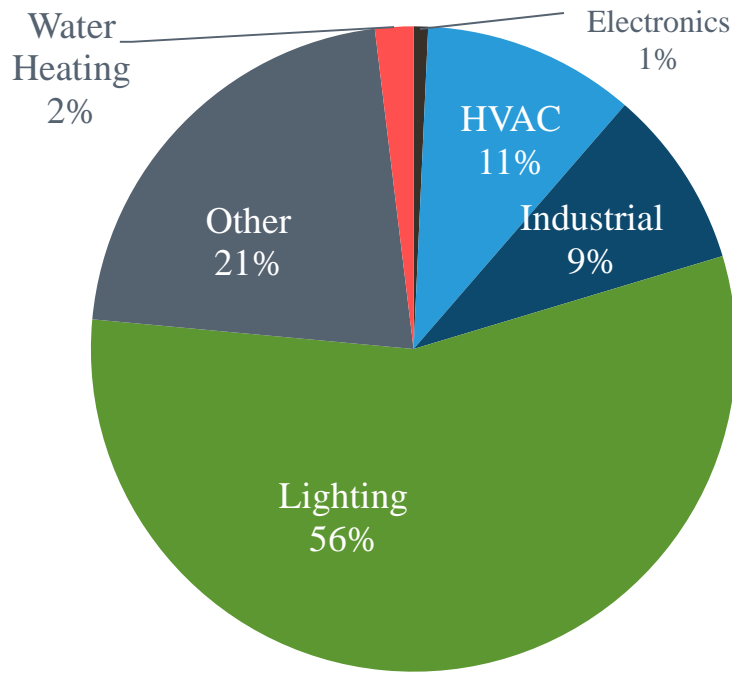
Our current portfolio is customer-service focused

Customer-service oriented program design

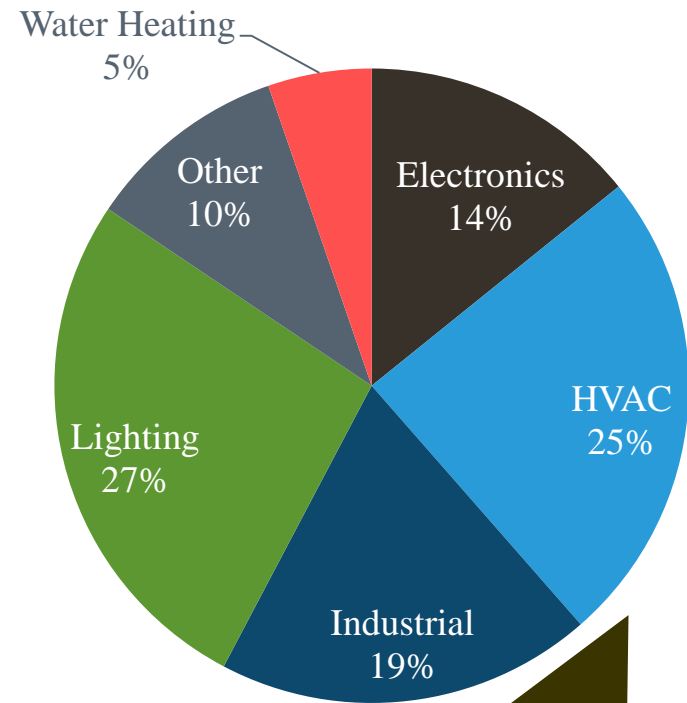
- Equity based allocation of acquisition funding: TOCA
- Broadest possible mix of measures and incentives to ensure local ability to deploy program
- No differentiation of measure support or BPA payment based on value to BPA system

Current Mix vs Potential Mix – All Savings Types

2017 Savings Achievements



Resource Program Output



Better match to needs; higher barriers to achieve (cost and implementation)

Breakout of Savings Types

BPA Total Savings Goal

Programmatic
Savings

Market
Transformation

Momentum Savings

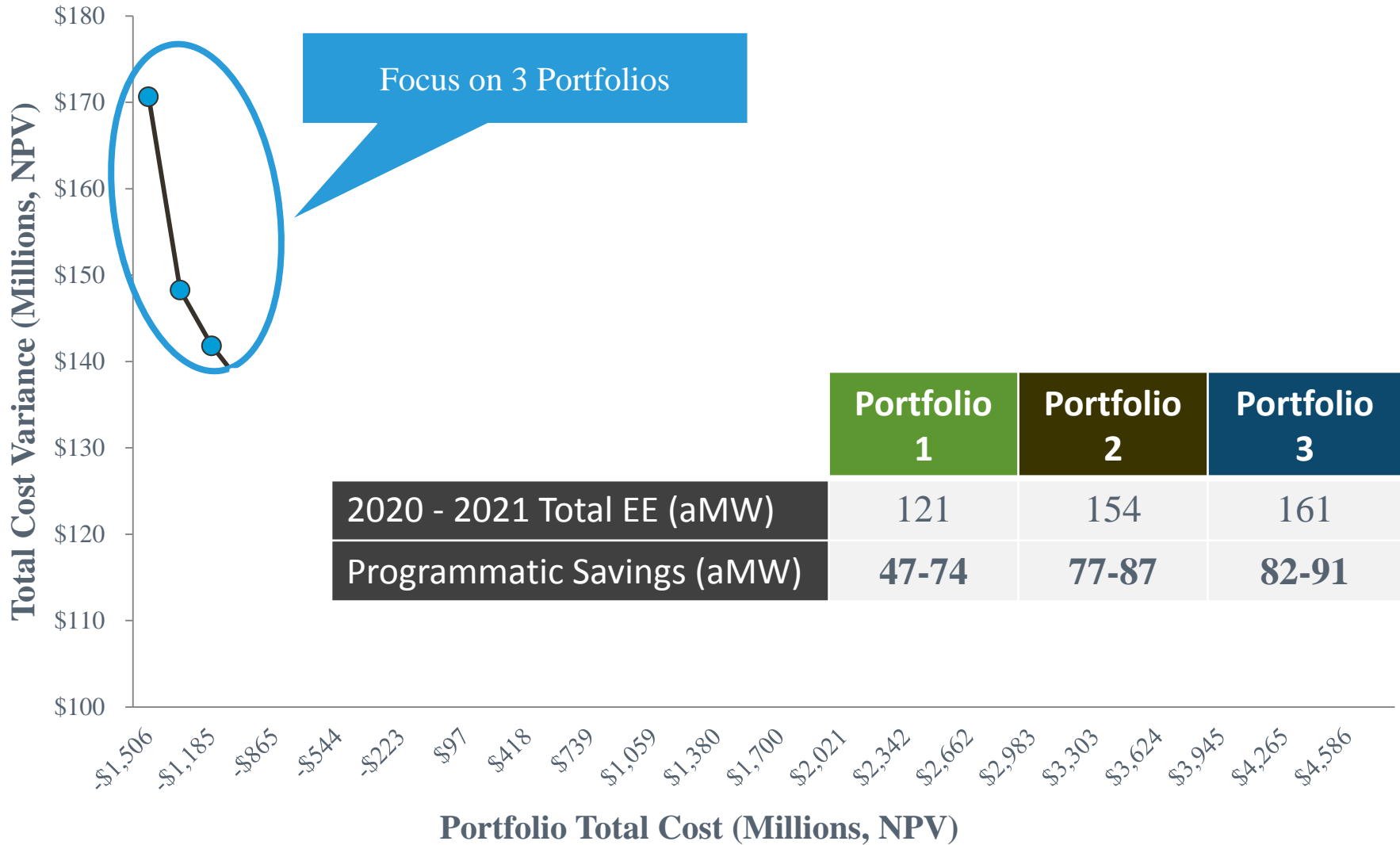
EEI Funded Savings
(70%)

Self
Funded
Savings
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TOCA Allocation

*EEI: Energy Efficiency Incentive
TOCA: Tier One Cost Allocator*

Efficiency Frontier Results



EE Program Principles

Maintain
customer equity

Acquire savings that
meet BPA's needs

Recognize cost pressures, as
well as goals of the BPA
strategic plan

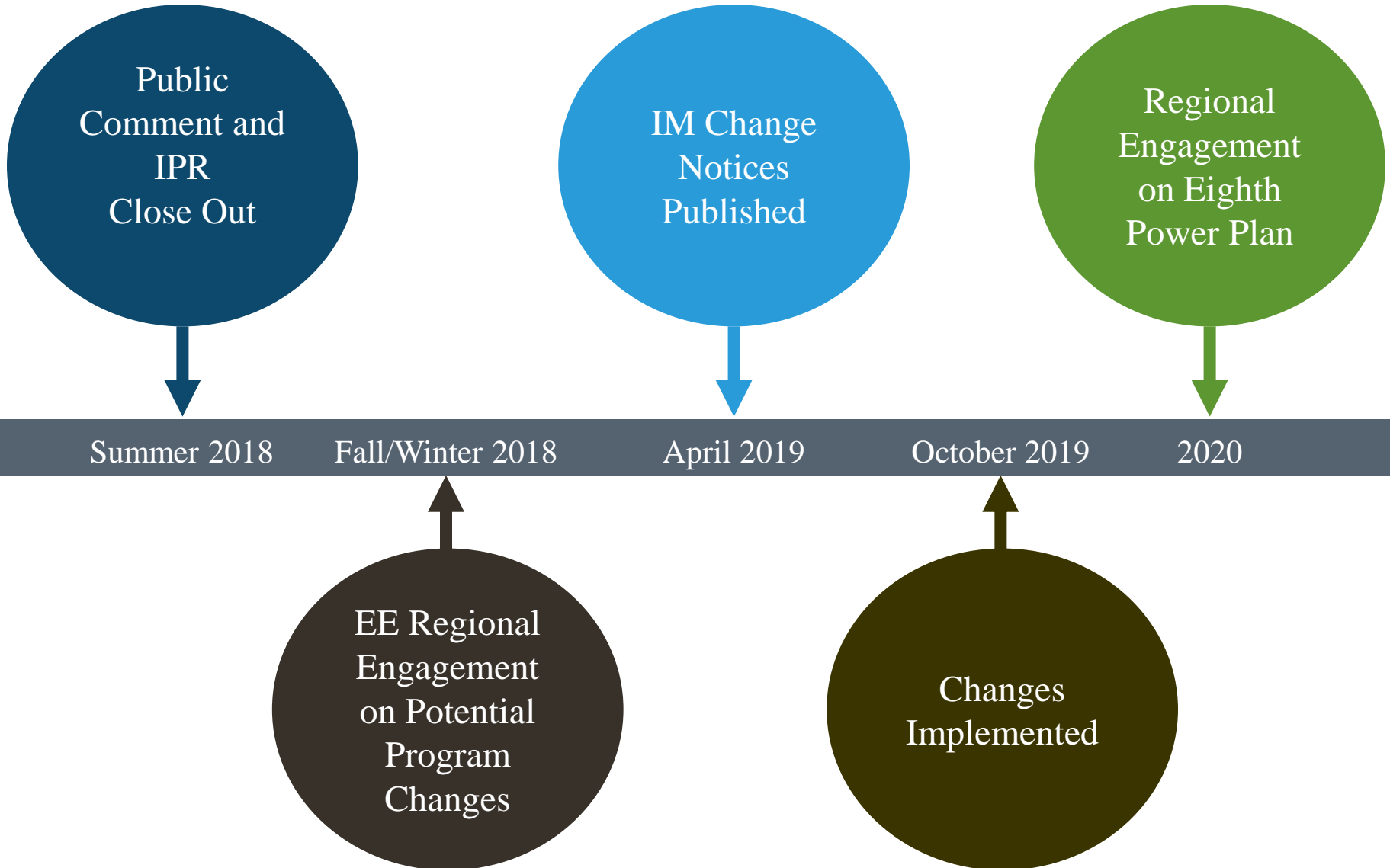
Retain program
stability

Programmatic Savings Comparison

	2020 - 2021		
	Updated EE Plan	Resource Program Portfolio 1	Proposal
Programmatic Savings (aMW)	101	47-74	74-101
Average Portfolio Cost (\$M/aMW)	\$1.33	\$2.30	\$1.81 - \$1.33
Total Programmatic Cost (\$M)	\$134	\$110-150	\$134

BPA expects to achieve a blend of savings between the current program and the mix chosen by the Resource Program. This will likely result in a portfolio cost somewhere between the current cost and the higher cost of Portfolio 1

Timeline



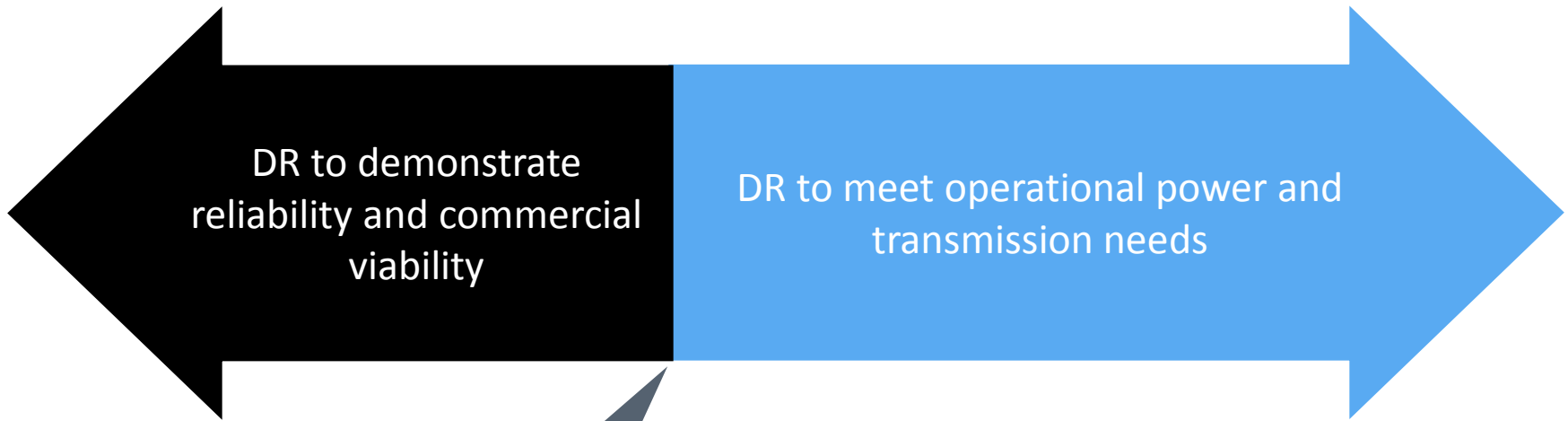
Demand Response

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Resource Program ID's DR for summer capacity in lowest cost portfolios

Demand Response



Resource Program
Non-wires analysis
Integrated Planning

Specific program(s) and potential funding pending program design proposal and tied to benefitting business



QUESTIONS?