

# Western Resource Adequacy Program (WRAP)

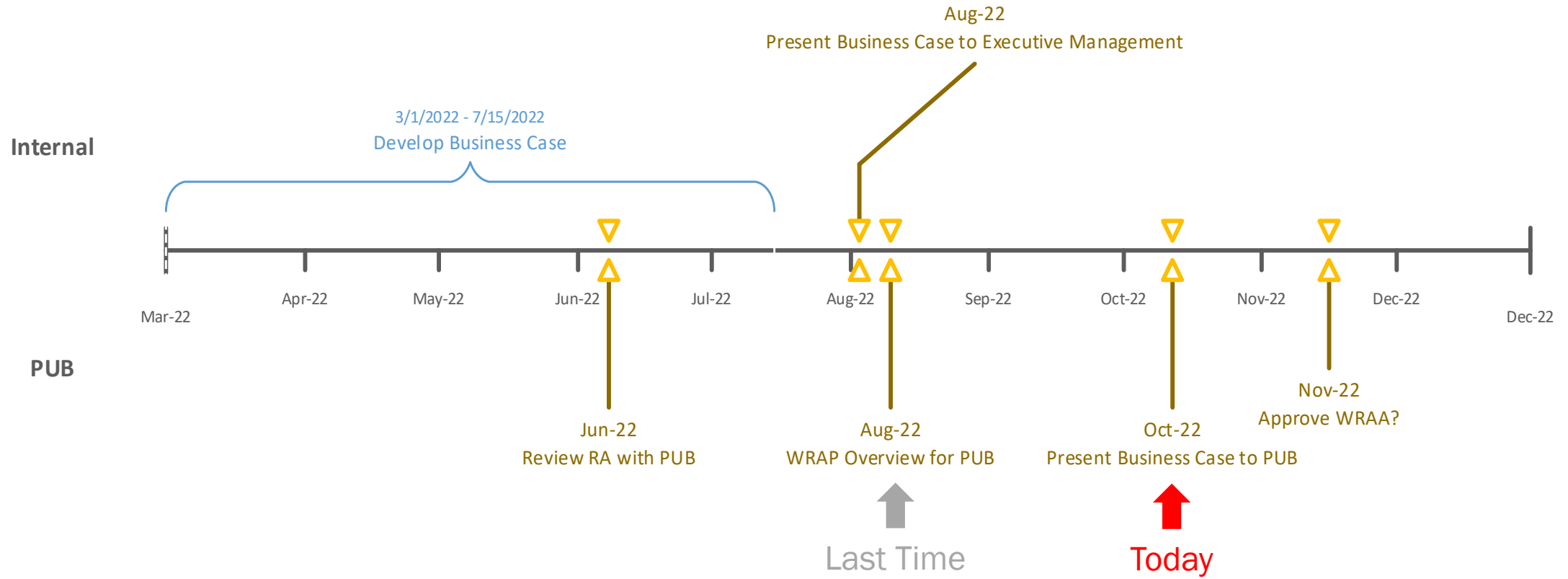
## Recommendation & Cost Benefit Analysis

October 12<sup>th</sup>, 2022

Ray Johnson  
Assistant Power Manager

## WRAP Decision

# WRAP Decision Timeline



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Tacoma Power should join the Western  
Resource Adequacy Program

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**Recommendation**

## Draft Cost Benefit Analysis

# Environmental Scan

### Current Challenges

The integrated regional power system is in transition. The impending retirement of several thermal generators within and outside the region (the Western US and Canada) mixed with increasing variable energy resources (VERs), has led to questions about whether the region will continue to have an adequate supply of electricity during critical hours.

In 2020, a heatwave caused **blackouts in the CAISO** and forced other balancing authorities across the WECC to declare EEAs. Many in the industry observers believe that we will experience similar events in the coming years.

### Electrification

Many States in the West are pursuing policy to decarbonize the economy through electrification of buildings, and industry. Recent studies suggest that increased electrification will lead to **large increases in peak loads** – further increasing the resource adequacy challenge for WECC utilities.

### Implications

These developments threaten to upset the balance of loads and resources within the region and, if not properly addressed, will increase the risk of **supply disruptions** during Winter and Summer, **increase financial risk** for utility customers, and hinder the ability of the system to meet **environmental goals** and legal requirements.

## Draft Cost Benefit Analysis

# Resource Adequacy Today

### Shortcomings of Current Construct

Today, resource adequacy is conducted on **utility-by-utility basis** under individual utility IRPs. Varying levels of attention to or emphasis are placed on regional factors. There is no uniform/standardized method for measuring resource adequacy or sufficient reliability. Utility-specific planning can make assumptions about regional capacity availability that may not be realistic.

There is **insufficient market/price signals to construct new capacity** when utilities are procuring/building for their specific IRP needs based on their own load forecasts and assessments of available capacity.

Planning on a utility-by-utility basis **fails to account for regional diversity** in peak loads (e.g., winter vs. summer) and resource contributions (e.g., wind rich vs. solar rich areas).

## Draft Cost Benefit Analysis

# Rationale for Joining

1

Increased  
Reliability

2

Investment  
Savings

3

Decarbonization

4

Self vs. State /  
FERC  
Regulation

## Draft Cost Benefit Analysis

# Rationale #1: Increased Reliability

### Improved Reliability

- Establishes a capacity “backstop” – Tacoma Power can access pooled capacity when loads are high and/or if we unexpectedly lose a generating unit for a long duration
- As generating capacity becomes scarce in the region it is not a safe assumption that that market will always be available to make up shortfalls
- Provides region-level monitoring and oversight

### Targets the Problem

- The Program will direct and coordinate development of capacity ahead of need
- Establishes more transparency/price signals to spur investment in capacity resources where/when needed – by targeting Capacity Critical Hours (CCHs)
- Establishes standardized approach to forecasting, capacity requirements, and accreditation

## Draft Cost Benefit Analysis

# Rationale #2: Investment Savings

### Diversity Benefits

- The Program unlocks cost savings from overall regional reduction in PRM compared to localized approach, and from helping optimize reliance on existing capacity
- **This means Tacoma Power needs less capacity by being in the program vs. operating outside of it**
- The cost of building new “Clean Firm” capacity is high and uncertain; being in the program helps shield Tacoma Power customers from large resource acquisition costs



## Draft Cost Benefit Analysis

# Rationale #3: Decarbonization

### Maintaining Reliability Though Grid Transition

- As the West transitions to a zero-carbon generation mix, it is critical that sufficient dispatchable generation capacity is maintained to ensure reliability.
- Washington State utilities must meet CETA's requirements for a greenhouse gas neutral electricity supply by 2030 and 100% renewable or non-emitting ("clean") electricity by 2045, while incorporating equity, reliability and resource adequacy principles.
- Utilities must also fulfill energy and capacity demands created by electrification of transportation, buildings and industry.
- **The program will support investment in emerging generation and storage technologies needed to meet environmental objectives.**

## Draft Cost Benefit Analysis

# Rationale #4: Self vs. Outside Regulation

### West-wide? Or State by State, Utility by Utility?

- WRAP represents a unique west-wide collaborative effort
- If this effort fails, it is likely that individual States will implement a patchwork of resource adequacy regulation
- FERC is concerned about resource adequacy; it supports WRAP and has urged western utilities to implement it as soon as possible. If this effort fails, it is likely that FERC will introduce resource adequacy regulation.

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What are the quantifiable costs & benefits if  
Tacoma Power joins WRAP?

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**Cost Benefit Analysis**

## Draft Cost Benefit Analysis

# Quantitative Cost/Benefit Elements

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Investment Savings

Capacity Investment Savings

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Holdback

Depressed Day-Ahead Prices

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Trading Impact

Capacity Sale Incremental Opportunity

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BPA Impact

BPA Rate Impacts

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Direct Costs

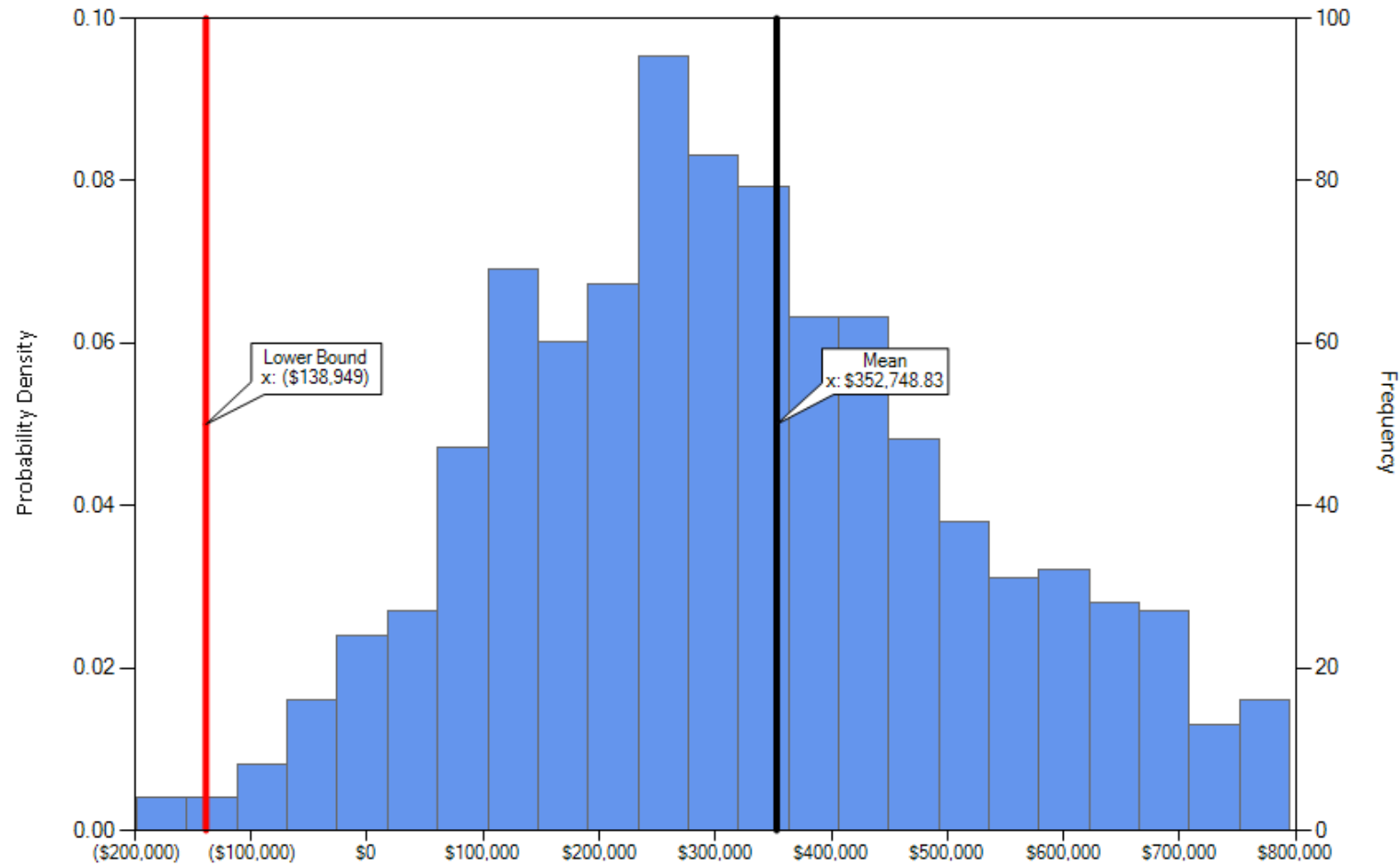
Program Costs

Systems Costs

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## Draft Cost Benefit Analysis

# Aggregate Costs & Benefits per Year



## Notes

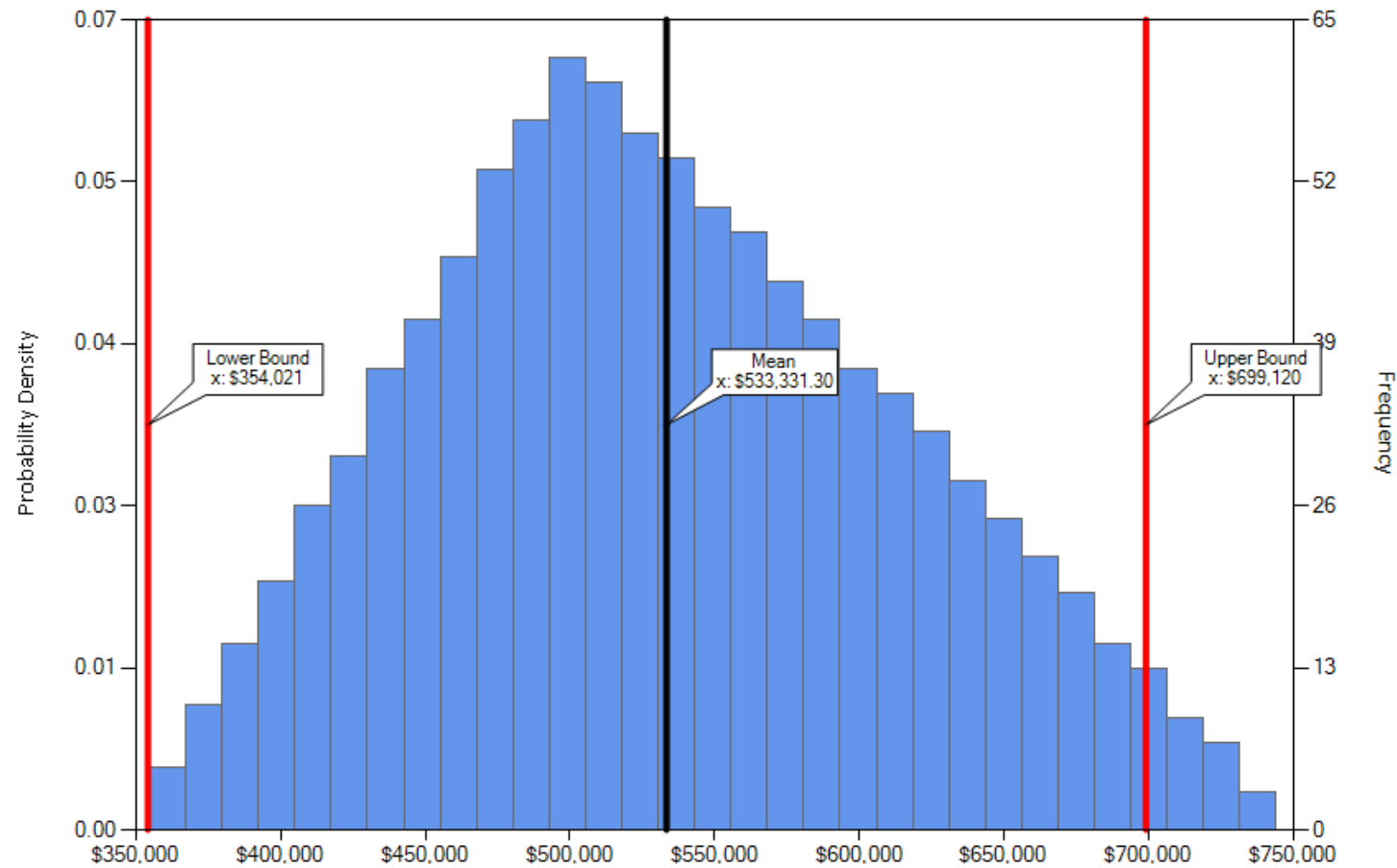
- Program likely provides modest direct net benefits
- There is significant uncertainty; it is possible that net benefits could be negative
- Change to BPA's post-2028 product offering could alter the costs and benefits

# Cost-Benefit Detail

**Section 2**

## Draft Cost Benefit Analysis

# Element #1: Capacity Investment Savings

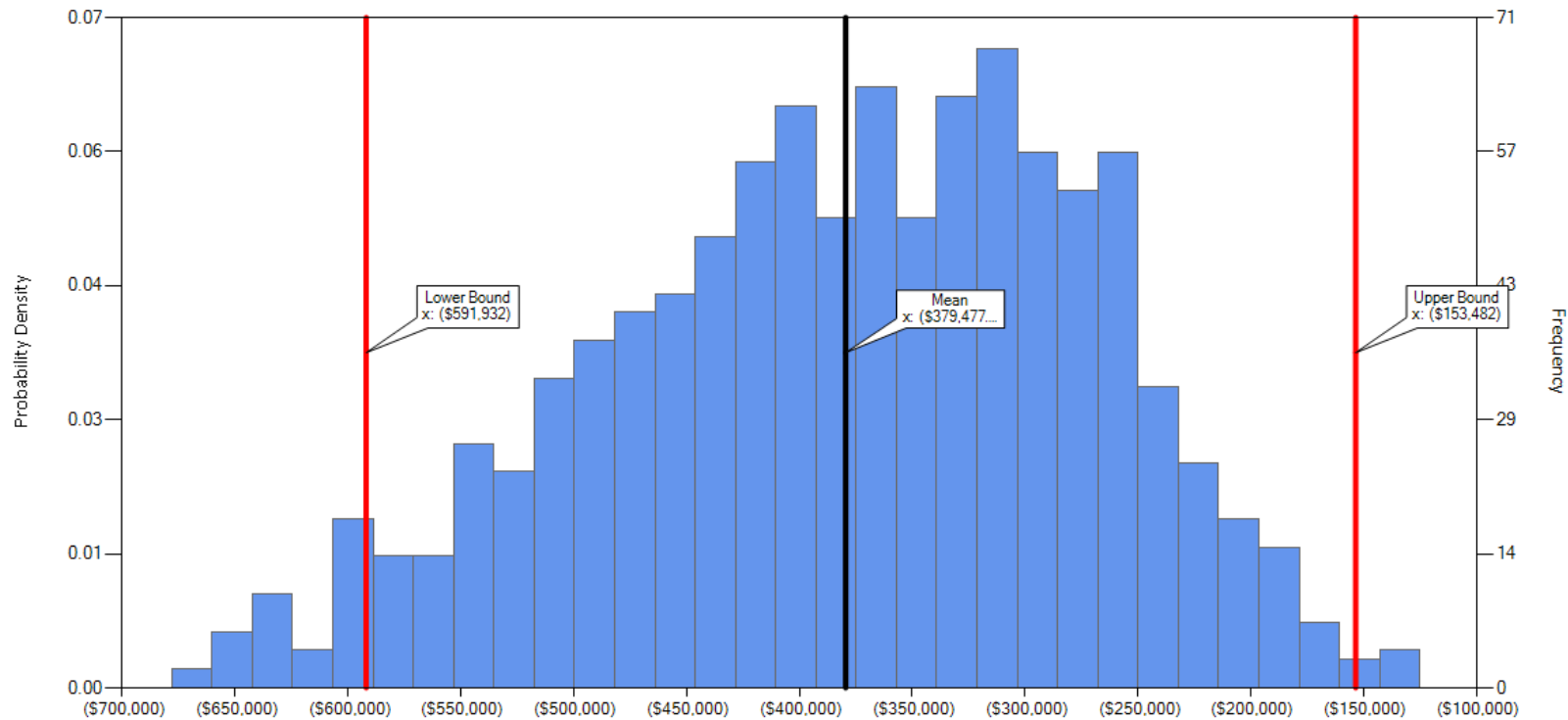


## Notes

- WRAP likely addresses need identified in IRP to acquire 10 MW of capacity.
- Cost of capacity is uncertain; assumed a range of costs in simulation
- **Expected benefit: \$533,331**

## Draft Cost Benefit Analysis

# Element #2: Depressed Day-Ahead Prices



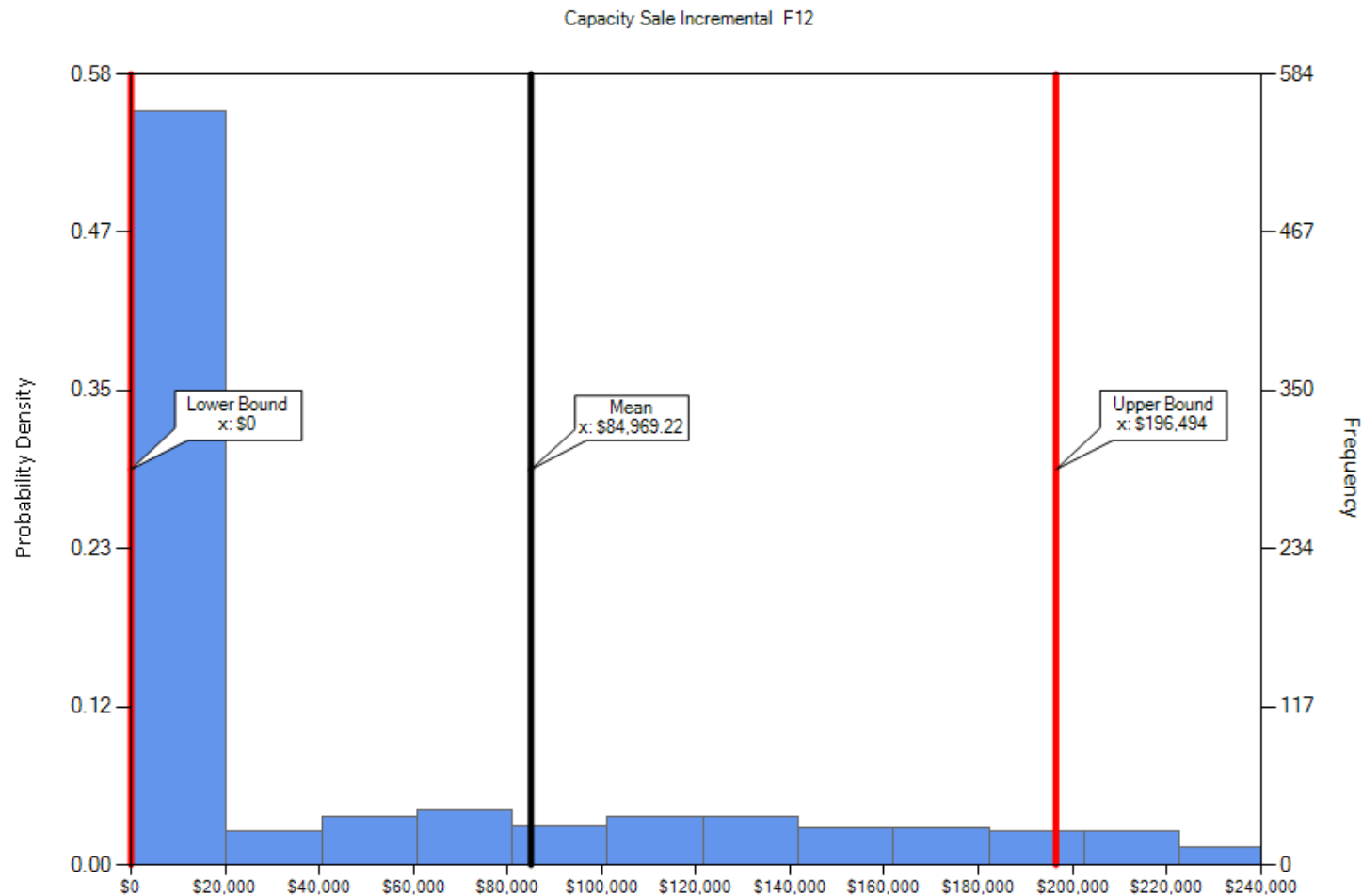
## Notes

- WRAP capacity holdback requirement may depress day-ahead prices
- Range of impacts difficult to estimate – developed wide range
- Expected cost: **-\$379,477**



## Draft Cost Benefit Analysis

# Element #3: Capacity Sale Incremental Opportunity

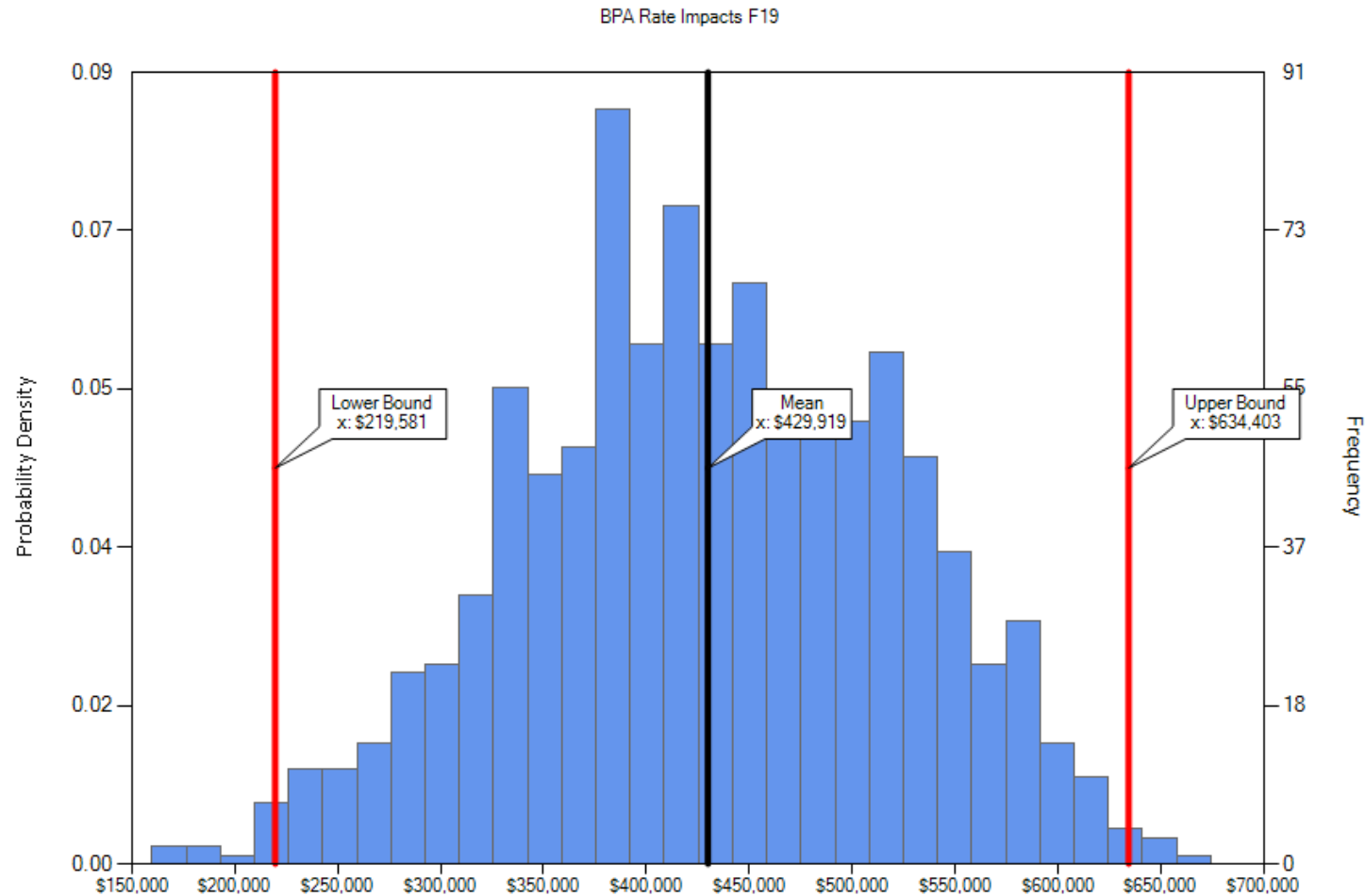


## Notes

- Selling surplus WRAP-compliant capacity may produce incremental economic benefits.
- The incremental value of capacity is uncertain; assumed a range of value in simulation
- **Expected benefit: \$85K**

## Draft Cost Benefit Analysis

# Element #4: BPA Rate Impacts

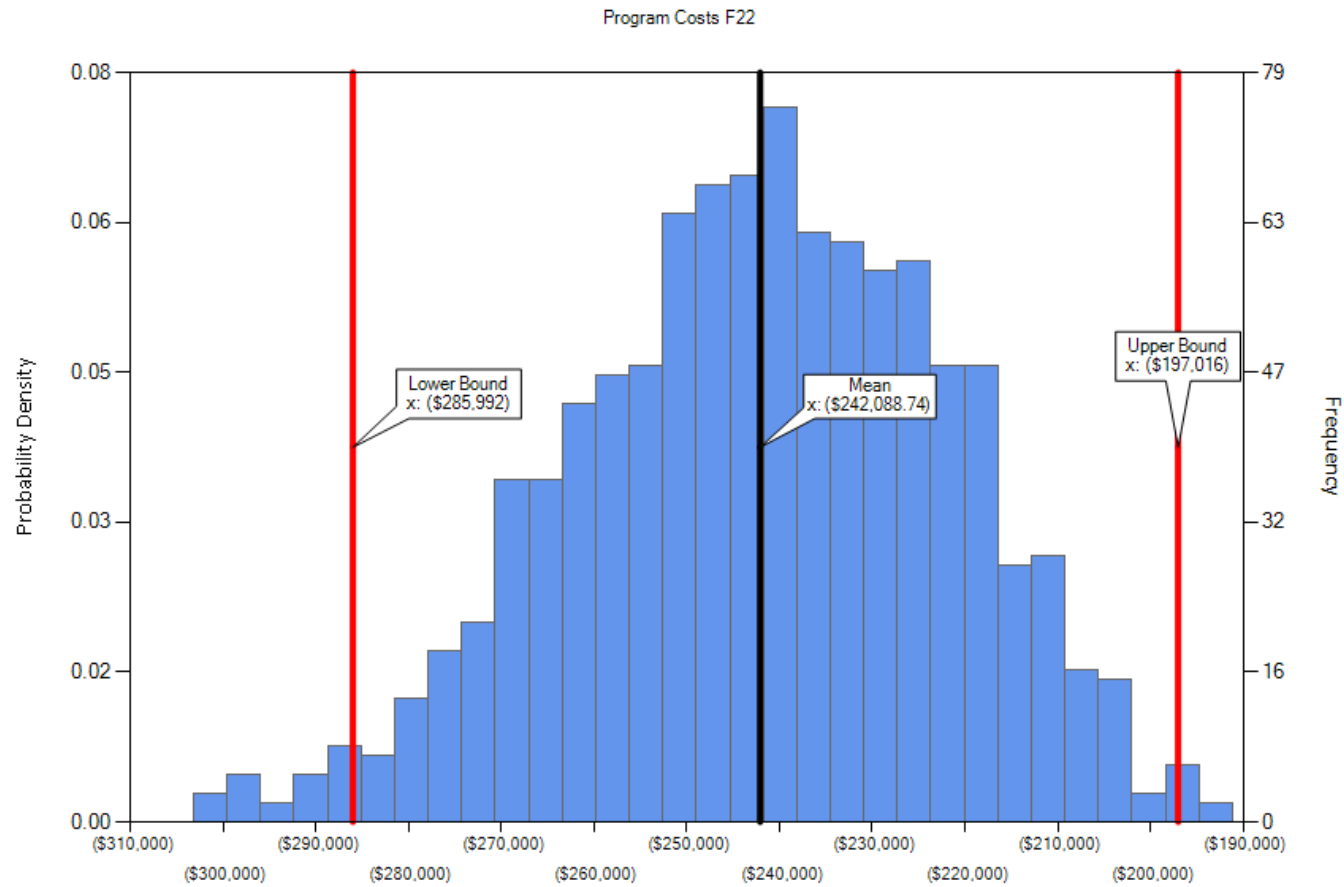


### Notes

- BPA may also benefit by selling surplus WRAP-compliant capacity – which would cause our block product costs to decrease relative status quo.
- The incremental value of capacity is uncertain; assumed a range of value in simulation
- **Expected benefit: \$429,403**

## Draft Cost Benefit Analysis

# Element #5: Program Costs

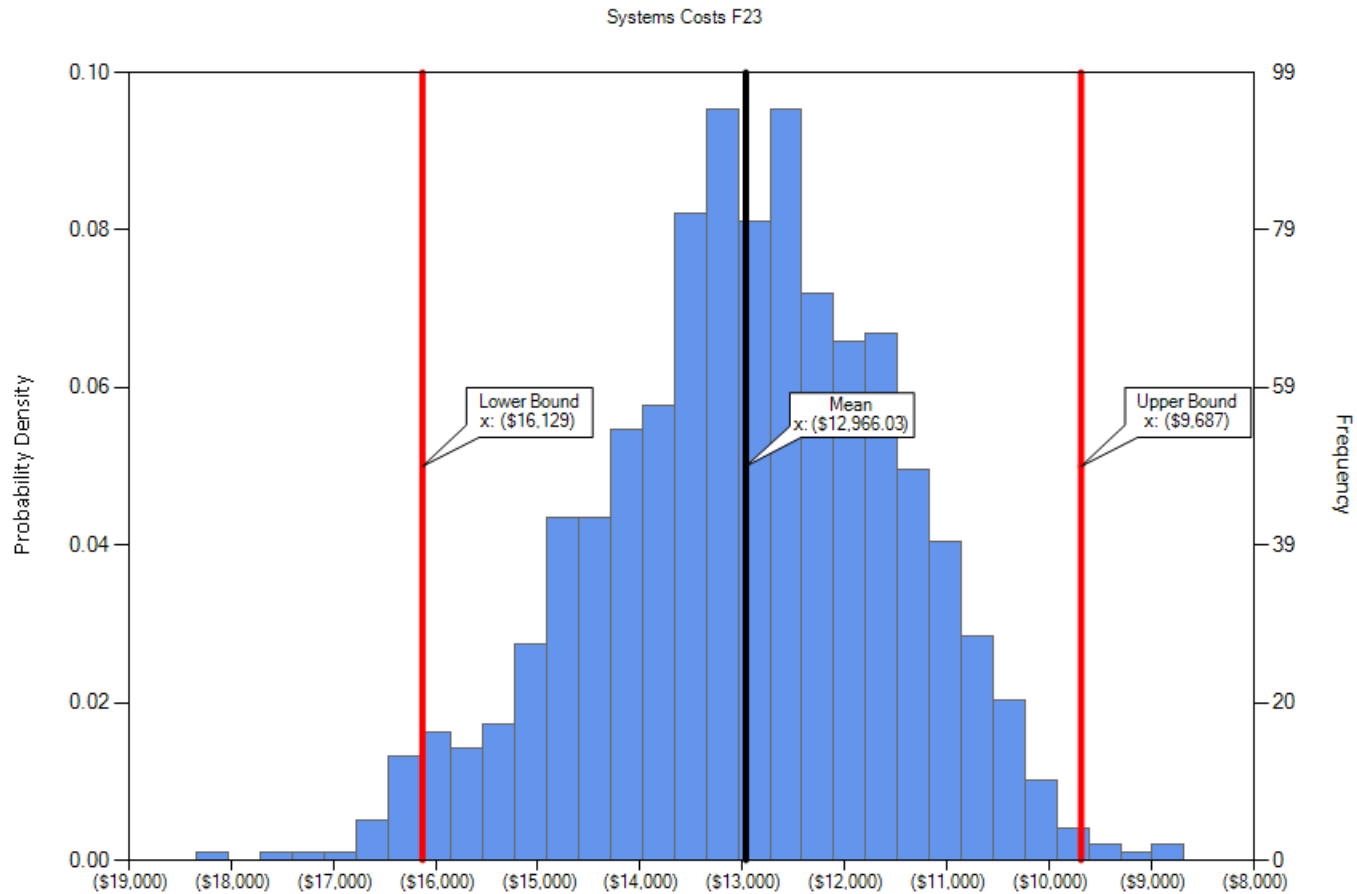


## Notes

- WRAP participants must cover the cost of the program, which is primarily attributable to staffing and software costs from the WPP and SPP
- The cost to Tacoma will depend on the number of participants and the amount of load represented in the program.
- Expected cost: **-\$242,088**

## Draft Cost Benefit Analysis

# Element #6: Systems Costs



## Notes

- To participate in the operational program, we will need to submit data an hourly basis to SPP.
- Because we have joined the EIM, we already produce the majority of what is required.
- Expected cost (annualized): **-\$12,966**

# Conclusion

**Section 3**

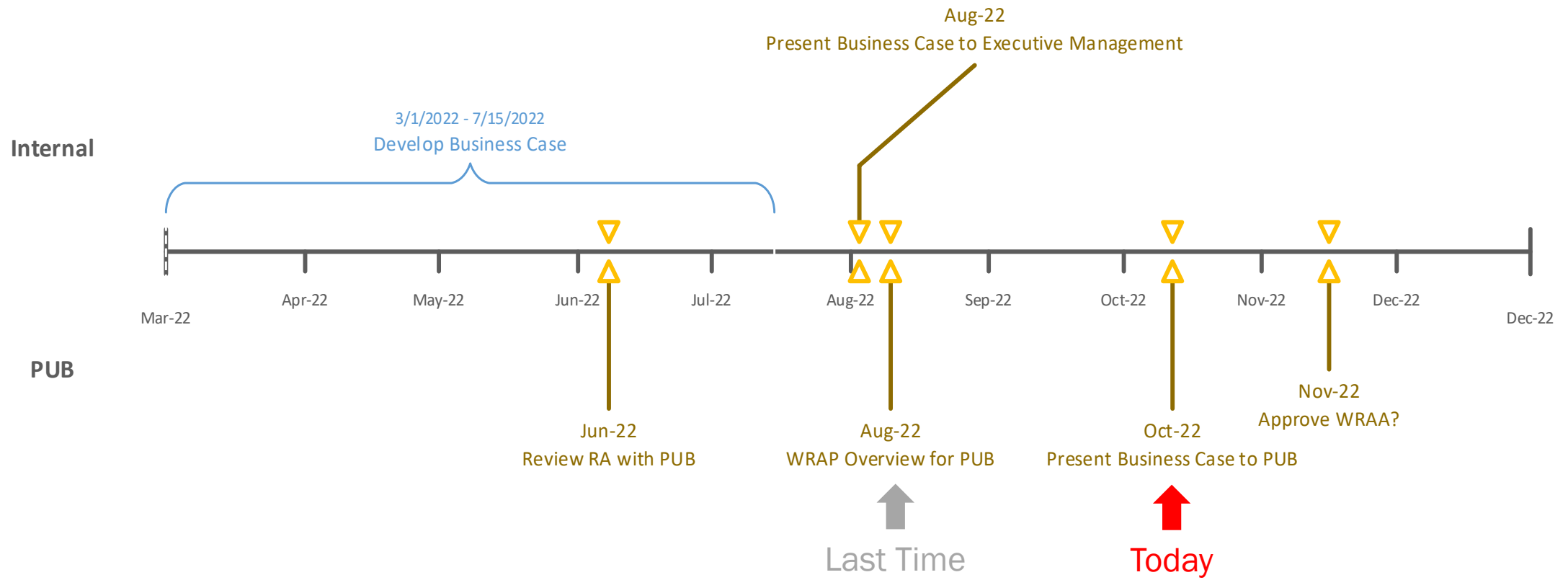
## Conclusion

# Summary

- Joining WRAP is recommended based on several qualitative factors:
  1. Increased Reliability
  2. Supports Decarbonization
  3. Self vs. State by State Regulation
  4. Organized Market Options
  
- Program likely provides direct net benefits, although there is significant uncertainty
  
- Direct net cost/benefit small relative to the qualitative benefits

## Conclusion

# WRAP Decision Timeline



## Conclusion

# Joining WRAP

## The Western Resource Adequacy Agreement (WRAPA)

- If the Public Utility Board supports Tacoma Power joining the WRAP, staff will prepare a resolution that will be presented at the November 16<sup>th</sup> Board meeting.
- The resolution will ratify support for the Director to execute the WRAPA and commit the utility to the provisions of the WRAP tariff that was filed with FERC at the end of August.
- The authority to execute the WRAPA is conditional on FERC accepting the tariff with **no modifications**.
- If FERC rejects the tariff and asks for modifications it will delay tariff approval to 2023.
- Staff would then provide an overview of the revised tariff and bring a new resolution at that time.

### ATTACHMENT A

#### Western Resource Adequacy Program Agreement

This Western Resource Adequacy Program Agreement ("Agreement") dated as of \_\_\_\_\_ ("Effective Date") is entered into by and between Western Power Pool Corporation ("WPP") and \_\_\_\_\_ ("Participant"). WPP and Participant are each sometimes referred to in the Agreement as a "Party" and collectively as the "Parties."

In consideration of the mutual promises contained herein, and other good and valuable consideration, the receipt of which is hereby acknowledged, the Parties agree as follows:

1. The Parties agree that this agreement shall be governed by the rates, terms, and conditions of the Western Resource Adequacy Program Tariff ("Tariff") and all such rates, terms, and conditions contained therein are expressly incorporated by reference herein. All capitalized terms that are not otherwise defined herein shall have the meanings ascribed by the Tariff.
2. Participant wishes to participate in the Western Resource Adequacy Program ("WRAP") administered by WPP under the Tariff.
3. Participant certifies that it satisfies all of the following qualifications:
  - 3.1 Participant is a Load Responsible Entity as that term is defined in the Tariff.
  - 3.2 Participant commits to complying with all applicable terms and conditions of WRAP participation as set forth in the Tariff and Business Practice Manuals adopted thereunder, including all Forward Showing Program and Operations Program requirements.
4. Participant will register all resources and supply contracts and shall disclose any other obligations associated with those resources and supply contracts.
5. Participant represents and warrants that it is authorized by all relevant laws and regulations governing its business to enter into this Agreement and assume all rights and obligations thereunder.
6. It is understood that, in accordance with the Tariff, WPP, as authorized by its independent Board of Directors, may amend the terms and conditions of this Agreement or the Tariff by notifying the Participant in writing and making the appropriate filing with FERC, subject to any limitations on WPP's authority to amend the Tariff as set forth therein.
7. Participant agrees to pay its share of all costs associated with the WRAP, as calculated pursuant to Schedule 1 of the Tariff. The manner and timing of such payment shall be as specified in Schedule 1 of the Tariff.
8. WPP agrees to provide all services as set forth in the Tariff.



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# Board Discussion

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**Q&A**