

# Post 2028 Residential Exchange Program September 27, 2022

9:00am-3:00pm

Join the WebEx Meeting

<https://bpa.webex.com/bpa/j.php?MTID=m6c374aca58664e3066918099c50e8a1a>

Join by Meeting Number: 1-415-527-5035, 2762 896 1929#



# Agenda for September 27, 2022

Time	Topic	Presenter(s)
9:00-9:05	Introduction	Kim Thompson
9:05-9:20	Public Process Plan	Daniel Fisher
9:20-9:45	REP Program Overview and History	Rich Greene
9:45-10:00	Average System Costs (ASC) Background	Paulina Cornejo
10:00-10:45	Mechanics of the 7(b)(2) Rate Test	Stephanie Adams
10:45-11:00	In Lieu	Rich Greene
11:00-12:15	<i>Lunch Break</i>	
12:15-12:30	Major Forecasting Assumptions & Reference Case Methodology	Stephanie Adams
12:30-1:30	Reference Case Results for FY 2022-23 and FY 2029-30	Stephanie Adams
1:30-1:40	<i>Break</i>	
1:40-2:40	Scenario Results for FY 2022-23 and FY 2029-30	Stephanie Adams
2:40-2:50	Brief Introduction to RAM2022 REP Model	Stephanie Adams
2:50-3:00	Next Steps, Feedback and Questions	Jonathan Ramse



# Public Process Plan



# Public Process Plan

**Phase 1 focuses on helping participants understand how REP Benefits are calculated and impacted by the 7(b)(2) Rate Test.**

- The first workshop provides an educational recap and summary of REP analysis with the intention of using future workshops to dive into specific factors influencing those results.
- The second workshop builds on educating participants on more complex fundamentals which will be pre-determined for discussion. Topics for the remaining workshops will be identified and prioritized at a later date.

## PHASE 1 - SETTLEMENT

REP Dry Run and Preparation  
Sub-Phase 1  
(Fall 2022 – Spring 2023)

REP Contract Negotiation  
Sub-Phase 2  
(Fall/Winter 2023 –  
Spring/Summer 2024)

REP Settlement Evaluation  
Process and Decision (7i)  
Sub-Phase 3  
(Fall 2024 – Spring 2025)

The settlement phase builds on the foundation established by the 2012 REP Settlement– BPA’s focus and efforts are to facilitate and encourage regional discussions towards a structured settlement of the REP.

## PHASE 2 - TRADITIONAL REP PREPARATION PHASE

If no settlement is reached in 2025, BPA must shift its focus from facilitating and supporting settlement discussions to preparing its positions and policies for the BP-29 rate proceeding.

# Public Process Plan

## During the Sub-Phase 1 Process:

- Bonneville will provide a dry run production of REP benefits using data from the BP-22 rate period and various assumptions on 7(b)(2) implementation from the REP-12 proceeding.
  - REP Benefit results from various scenarios will be presented for FY 2022-23 and FY 2029-30.
  - The RAM2022 REP Model will be provided externally which includes detailed inputs and modeling assumptions. *The FY 2029-30 model and detailed inputs will not be provided due to business sensitivity.*
- Participants will have an opportunity to inform and influence the working list of scenarios and assumptions used in the REP contract negotiation sub-phase.
  - Bonneville intends to use final study data from the BP-24 rate proceeding for REP scenario analysis in support of the REP contract negotiations sub-phase kicking off in the Fall/Winter of 2023.
- **Virtual** Monthly workshops will be held through May of 2023. Participants can provide informal feedback, request agenda topics and submit additional questions after each workshop.
- April/May 2023, BPA will post the list of scenarios / sensitivities to be used in the REP Contract Negotiation Sub-phase.

# Public Process Plan

## Objectives and Limitations of Phase 1 Process

### Objectives (Within Scope)

- Gain general understanding of the REP and the impacts of various assumptions on REP benefits.
- Develop a working knowledge of the 7(b)(2) rate test, legal interpretation, and 7(b)(2) rate test methodology.
- Develop understanding of the Rates Analysis Model (RAM) and the 7(b)(2) rate test to run scenarios.
- Develop the list of scenarios and sensitivities to be used in the formal REP negotiations that will begin in the Fall/Winter of 2023.

### Limitations (Outside Scope)

- Retroactive Rate Analysis or revisions to the 2012 REP Settlement.
- Detailed analysis and inputs beyond FY 2027.
- Provider of Choice issues/topics.
- Issues related to the Average System Cost Methodology (ASCM) review process (excepting when applicable to discuss an REP scenario).

# Public Process Plan

- **Newly Created** - BPA Post 2028 REP website and REP email box to post workshop materials, background information, questions/comments, etc.
  - <https://www.bpa.gov/energy-and-services/power/residential-exchange-program/post-2028-rep>
  - [REP2028@bpa.gov](mailto:REP2028@bpa.gov)
- BPA will target advance publication of workshop material.
- Most workshops will be scheduled for 9am-3pm. Meeting duration will be adjusted based on topics and/or availability.
- Sub-Phase 1 is being conducted concurrent with BP-24, REP workshops have been coordinated with rate case deadlines to avoid overlapping with critical deadlines but remain subject to change.

## Workshop Dates

September 27<sup>th</sup>  
October 25<sup>th</sup>  
November 15<sup>th</sup>\*  
December 13<sup>th</sup>\*  
January 24<sup>th</sup>  
February 21<sup>st</sup>  
March 14<sup>th</sup>  
April 18<sup>th</sup>  
May 23<sup>rd</sup>

\*Scheduled 9am-12pm

# Rules of Participation

- **Comments can be made via email to: [REP2028@bpa.gov](mailto:REP2028@bpa.gov)**
  - Participants can submit feedback, questions and agenda topic requests after each workshop.
    - » Requests for workshop topics for the next monthly workshop need to be received 5 business days after the last workshop.
  - Data requests will be considered and prioritized as received and based on staff availability.
    - » Questions and responses will be published on the REP website for transparency.
  - Informal comments and feedback can be submitted at anytime between workshops.
    - » All comments will be published to the REP website for awareness and transparency.
- **All Requests will be considered and prioritized:**
  - Request for additional data analysis (i.e. scenarios) will be considered but not guaranteed.
  - If an abundance of workshop topics are submitted, BPA will attempt to prioritize based on level of interest and/or relative impact to the REP program.



# REP Program Overview & History

POST  
2028  
REP



# What is the Residential Exchange Program?

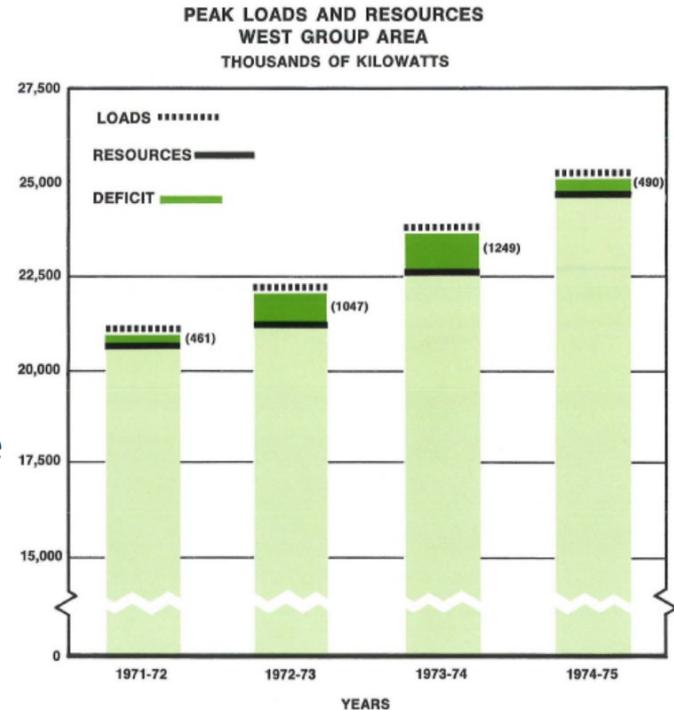
- Enacted by Congress under Section 5(c) of the 1980 Northwest Power Act to address wholesale rate disparity between Investor Owned Utilities (IOUs) and PF customers (COUs) in the Pacific Northwest:
  - In simple terms: the REP is a federal program that provides economic benefits of federal system to residential and farm customers of participating utilities.

<b>Balance forward</b>	<b>0.00</b>
Previous amount due 8/8/22	151.62
Payments through 8/19/22	151.62 <sup>(CR)</sup>
	<b>200.37</b>
<b>Energy charges</b>	<b>192.10</b>
Basic Charge	11.00
Energy Use Charge (1,000.000 kWh x \$0.06642)	66.42
Energy Use Charge (420.000 kWh x \$0.07002)	29.41
Transmission Charge (1,420.000 kWh x \$0.00585)	8.31
Distribution Charge (1,420.000 kWh x \$0.0542)	76.96
<b>Regulatory charges and credits</b>	<b>3.90</b>
102 RPA Exchange Credit (1,420.000 kWh x \$-0.00676)	9.60 <sup>(CR)</sup>
105 Regulatory Adjustments (1,420.000 kWh x \$-0.0001)	0.14 <sup>(CR)</sup>
109 Energy Efficiency Funding Adj (1,420.000 kWh x \$0.00579)	8.22
110 Energy Efficiency Customer Svc (1,420.000 kWh x \$0.00008)	0.11

112 Customer Engagement Transformation Adjustment (1,420.000 kWh x \$0.0003)	0.43
118 Bill Adjustment Cost Recovery	0.23
123 Decoupling Adjustment (1,420.000 kWh x \$-0.00227)	3.22 <sup>(CR)</sup>
135 Demand Response (1,420.000 kWh x \$0.0006)	0.85
136 Community Solar Cost Recovery (1,420.000 kWh x \$0.00006)	0.09
137 Solar Payment Option Cost Recov (1,420.000 kWh x \$0.00005)	0.07
138 Energy Storage Cost Recovery (1,420.000 kWh x \$0.00004)	0.06
143 Spent Fuel Adjustment (1,420.000 kWh x \$-0.00019)	0.27 <sup>(CR)</sup>
146 Colstrip Power Plant Oper Life Adj (1,420.000 kWh x \$0.0044)	6.25
150 Transportation Electrification (1,420.000 kWh x \$0.00058)	0.82
<b>Other charges and credits</b>	<b>0.51</b>

# History: The View from Circa 1960s & 1970s

- “The forecast indicates that Northwest electric energy requirements **will triple in the next 20 years** and that within a few years . . .” (BPA’s Annual Report, December 31, 1970.)
- 7% load growth across the region
- In 1973:
  - BPA stopped selling to IOUs
  - BPA periodically reduced sales to DSIs, and would not renew contracts post expiration.
- In 1976 - BPA issued a “notice of insufficiency” to its preference customers
  - Notified preference customers that BPA would be short on power by 1983.
  - BPA would have to allocate Federal power among preference customers.

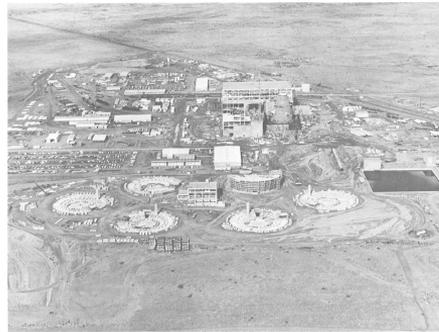


# The Hydro-Thermal Power Program & Issues

- In 1968, BPA and over 100 utilities outlined the Hydro-Thermal Power Program (HTPP) to supply the region through 1981.
- Federal, private and public utilities collaborated to build generation and transmission.
- HTPP proposed developing **20 nuclear plants and 2 coal**, and projected to cost \$17.9 billion (~\$141 billion today).

## Problems with the HTPP

- Reduced forecast for power
- Cost overruns
- Construction delays
- Community opposition
- Environmental opposition
- Court injunction. BPA's participation in Phase 2 paused until BPA completed an EIS



*By the end of October, 1975 overall construction of Washington Public Power Supply System's Nuclear Project No. 2 was about 35 percent complete. Plant's six circular cooling towers are being constructed in the foreground. (photo courtesy of WPPSS)*



*The 1,130,000 kilowatt Trojan Nuclear Plant, which first put power into the Pacific Northwest grid in December, 1975.*

# Rate Disparity: Publics and Private

- HTPP costs included in rates meant costs of serving customers of IOUs and COUs rapidly increased.
- IOUs' consumers were hit harder. Paying 3x what public consumers paid.
- BPA required by federal law to serve COUs' needs first (preference).
- Only sell to IOUs if surplus available.
- As rates between private and public utilities diverge, political pressure builds to provide consumers of IOUs with a share of low-cost federal power.

WEDNESDAY, APRIL 12, 1978

## Governors split over power plan

By ED MOSEY  
of The Oregonian staff

BOISE — Gov. Bob Straub demanded principles; Gov. Dixy Lee Ray of Washington insisted on specifics, and

Gov. John Evans of Idaho joined Straub in supporting a larger share of hydroelectric power for residents of other states that now are served by private utilities.

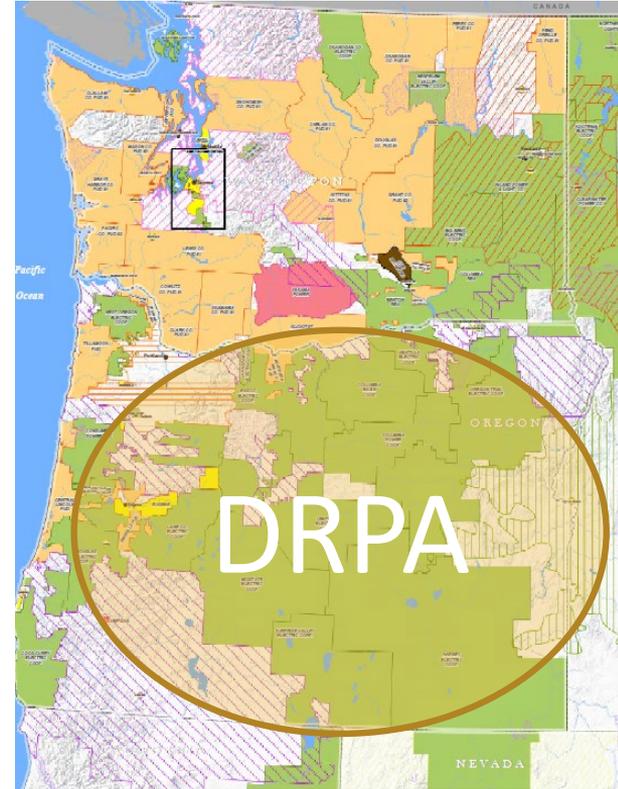
Straub said the governors should agree in principle that customers of private utilities in the Northwest should get an "equitable" share of the electricity generated by dams on the Columbia River system.

"People in Portland are paying \$27 for electricity people in Vancouver are paying \$11 for," he said. "The general public should have equal access."

Customers of public utilities now are guaranteed preferential treatment in the allocation of power generated by federal projects on the Columbia River system.

# Preference and Regional Division

- Washington is primarily served by COUs.
- Oregon is served primarily by IOUs.
- Turning Point: In an effort to gain access to a share of cheaper BPA power, Oregon prepared legislation creating “Domestic and Rural Power Authorities” (DRPA).
  - DRPA would sell power to IOUs’ consumers at a melded rate (some DRPA and some IOU).
  - DRPA would have asserted rights as a BPA preference customer.
- Other states considered proposing the same type of legislation. This opened the door to a regional fight over BPA’s allocation of power.



# The Northwest Power Act (NWPA) and REP

- To avert conflict, Congress passed the NWPA in 1980.
- One aspect of the NWPA was the REP, which was designed to help address the wholesale rate disparity between residential and farm customers in IOU vs. COU territories.
- NWPA created an “exchange” between IOUs and BPA to residential and farm customers access to low-cost federal power.
- Preference battle avoided.
  - IOUs’ consumers received some economic value from Federal projects. COUs received no diminishment in the amount of power sold to them, and “rate protection” through section 7(b)(2) of the NWPA.
- The first 5 years of REP implementation was paid exclusively by DSIs. 7(b)(2) rate protection did not kick in until 1985.



# Calculating the REP Payment



- $(ASC - PF \text{ Exchange Rate}) \times \text{Residential and Farm Load} = \text{REP } \$\$\$$
- $(\$70 \text{ MWh} - \$50 \text{ MWh}) \times 100 \text{ MWh} = \$2000$  (“REP benefit”)
- No actual power exchanged. Just a “paper transaction.” (See, however, *in lieu* under section 5(c)(5)).

# Calculating REP Benefits per Statute

Section 5(c) of NWPA  
(ASC Methodology)

Sections 3(18),  
5(c)(1) of NWPA

$(\text{Average System Cost} - \text{PF Exchange Rate}) \times \text{Res\&Farm Load} = \text{REP } \$\$\$$

Section 7(b)(2) of NWPA  
(Legal Interpretation)  
(7(b)(2) Methodology)



# Average System Costs (ASC) Background



# Section 5(c) of the NWPA

Section 5(c) of NWPA  
(ASC Methodology)



**(Average System Cost** – PF Exchange Rate) x Res&Farm Load = REP \$\$\$

# What is an ASC?

- Section 5(c)(1) of the NWPA
  - Whenever a Pacific Northwest electric utility offers to sell electric power to the Administrator at the **average system cost (ASC)** of that utility's resources in each year, the Administrator shall acquire by purchase such power and shall offer, in exchange, to sell an equivalent amount of electric power to such utility for resale to that utility's residential users within the region.
- An ASC is:
  - The sum of a utility's resources costs, required to produce and deliver energy,
  - expressed as a \$/MWh rate, and
  - used to calculate an exchanging utility's financial REP benefits.



# Section 5(c) and the ASC Methodology

- Section 5(c)(7) of the NWPA directs BPA to determine a methodology to calculate exchanging utilities' ASCs. The ASCM is that methodology.
  - In consultation with the Council, BPA's customers, and State regulatory bodies.
  - Subject to FERC review and approval.
- BPA has had three ASC methodologies.
  - 1981 and 1984 ASC Methodologies were cumbersome, requiring 50+ staff to implement.
  - 2008 ASC Methodology streamlined the ASC process.
- NWPA only stipulates the methodology must exclude the following costs:
  - the cost of additional resources in an amount sufficient to serve any new large single load (NLSL) of the utility,
  - the cost of additional resources in an amount sufficient to meet any additional load outside the region occurring after December 5, 1980, and
  - any costs of any generating facility which is terminated prior to initial commercial operation.

# Calculating REP-Utilities' ASCs (\$/MWh)

- ASCs comprise of Contract System Costs and Contract System Load, expressed in a \$/MWh

$$ASC = \frac{\text{Contract System Cost (CSC)}}{\text{Contract System Load (CSL)}}$$

- Contract System Costs (CSC):
  - ROR Portion of P&T Rate Base
  - Production and Transmission Expense
  - Administrative and General Expenses
  - Conservation Expenses
  - Labor and State Property Taxes
  - Offsets:
    - Sales for Resales
    - Other Revenues and Other Offset
    - Costs to serve NLSLs and Above-RHWM Load (COUs with CHWM only)

- Contract System Load (CSL):
  - Total “regional” retail load
  - Distribution Losses
  - LESS:
    - NLSLs and Above-RHWM Load

*This slide was updated on 9.27.2022  
specifically the last bullet under offsets*



# Mechanics of the 7(b)(2) Rate Test



# Calculating REP Benefits

$$\text{(Average System Cost - PF Exchange Rate)} \times \text{Res\&Farm Load} = \text{REP \$\$\$}$$

Section 7(b)(2) of NWPA  
(Legal Interpretation)  
(7(b)(2) Methodology)

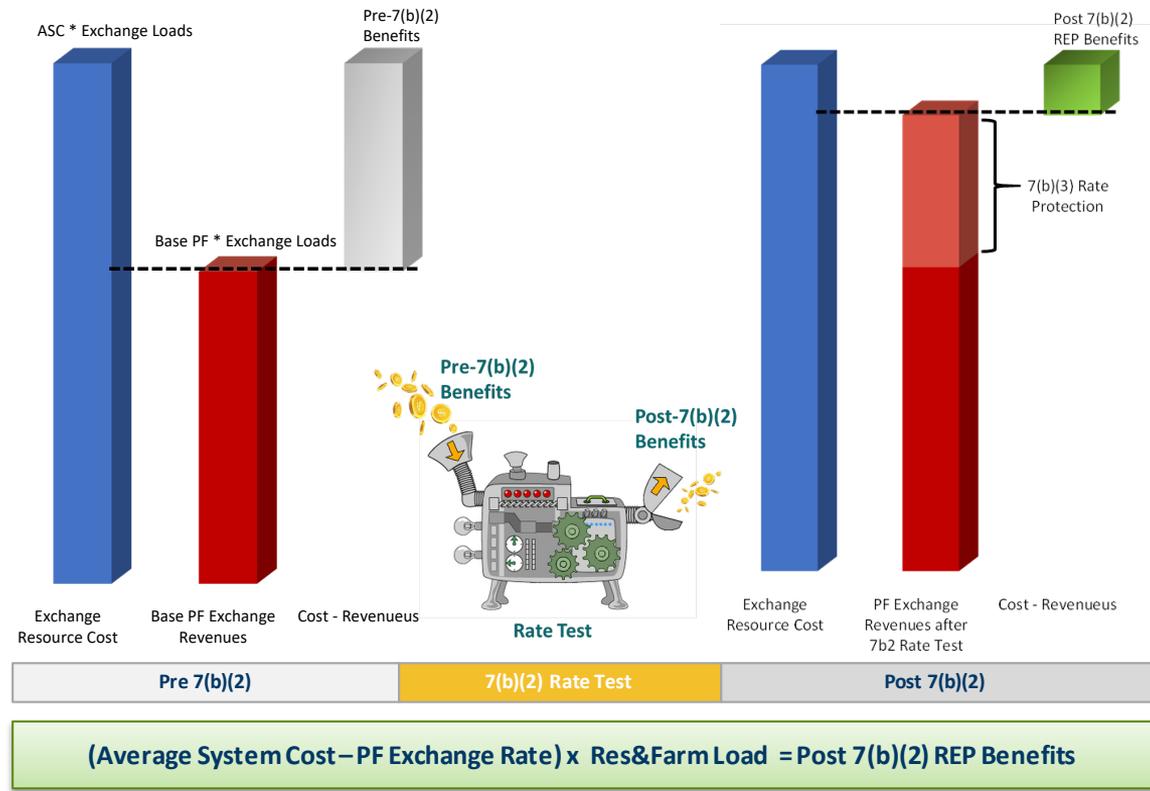
# Section 7(b)(2) of the Northwest Power Act

After July 1, 1985, the projected amounts to be charged for firm power for the combined general requirements of public body, cooperative and Federal agency customers, exclusive of amounts charged such customers under subsection (g) of this section for the costs of conservation, resource and conservation credits, experimental resources and uncontrollable events, may not exceed in total, as determined by the Administrator, during any year after July 1, 1985, plus the ensuing four years, an amount equal to the power costs for general requirements of such customers if, the Administrator assumes that—(A) the public body and cooperative customers' general requirements had included during such five-year period the direct service industrial customer loads which are—(i) served by the Administrator, and (ii) located within or adjacent to the geographic service boundaries of such public bodies and cooperatives; (B) public body, cooperative, and Federal agency customers were served, during such five-year period, with Federal base system resources not obligated to other entities under contracts existing as of December 5, 1980, (during the remaining term of such contracts) excluding obligations to direct service industrial customer loads included in subparagraph (A) of this paragraph; (C) no purchases or sales by the Administrator as provided in section 839c(c) of this title were made during such five-year period; (D) all resources that would have been required, during such five-year period, to meet remaining general requirements of the public body, cooperative and Federal agency customers (other than requirements met by the available Federal base system resources determined under subparagraph (B) of this paragraph) were—(i) purchased from such customers by the Administrator pursuant to section 839d of this title, or (ii) not committed to load pursuant to section 839c(b) of this title, and were the least expensive resources owned or purchased by public bodies or cooperatives; and any additional needed resources were obtained at the average cost of all other new resources acquired by the Administrator; and (E) the quantifiable monetary savings, during such five-year period, to public body, cooperative and Federal agency customers resulting from—(i) reduced public body and cooperative financing costs as applied to the total amount of resources, other than Federal base system resources, identified under subparagraph (D) of this paragraph, and (ii) reserve benefits as a result of the Administrator's actions under this chapter were not achieved.

*“...a Byzantine sentence that nearly fills a page and that is, in my view, the most complicated section in the Act.” – Steve Wright, WP-07 Supplemental ROD*

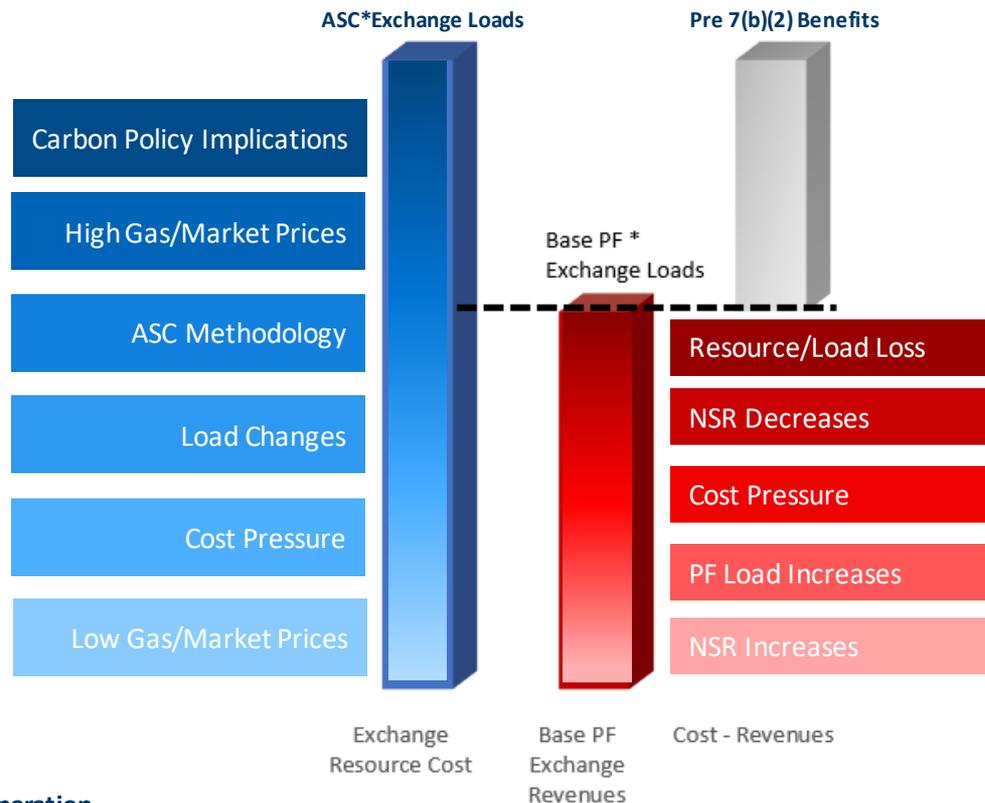
# Calculating REP Benefits

- Pre 7(b)(2) REP benefits represent the level of benefits that would be in place if there were no 7(b)(2) Rate Test or Rate Protection.
- Post 7(b)(2) benefits represent the REP benefits that remain after performing the 7(b)(2) rate test.
- The rate test calculates the amount of rate protection.
- The Rate Test is affected by methodological choices which can change the level of REP Benefits.
- Rate protection is allocated away from preference loads and assigned to all other loads including Exchange Loads.



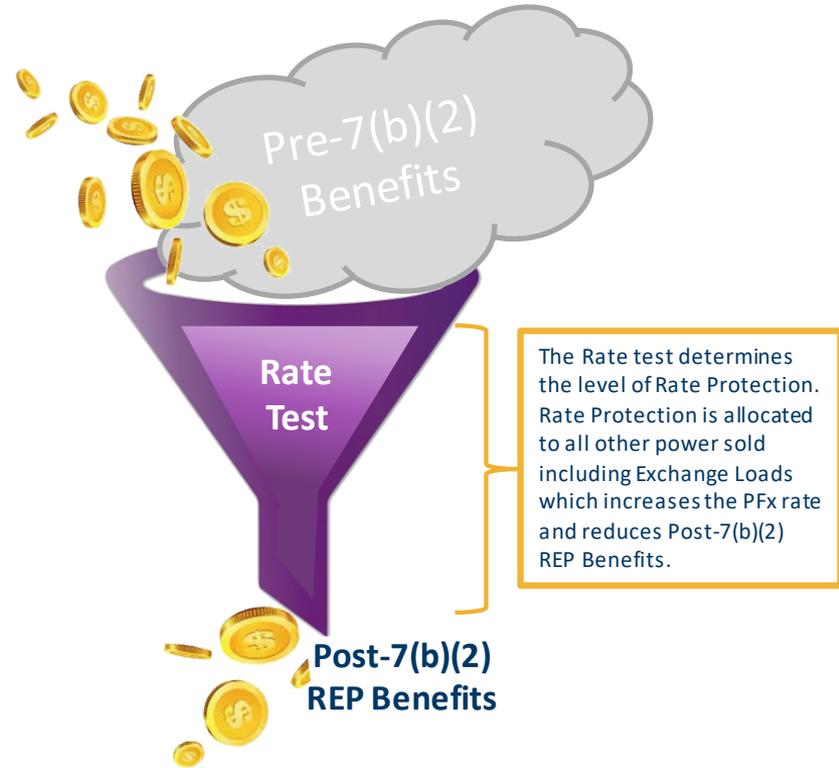
# Calculating Pre-7(b)(2) REP Benefits

- Pre-7(b)(2) benefits represent the REP benefits that would be in place if there were no 7(b)(2) rate protection for Preference Customers (or if the 7(b)(2) test doesn't trigger).
- Pre-7(b)(2) benefits are driven by the interplay between ASCs and the PFX Rate
- These columns fluctuate year-to-year. For example:
  - Resource choices informed by state policies will affect ASCs.
  - Cost pressure will impact both ASCs and the PF rate.
  - The size and availability of BPA's generation resources (FCRPS) will affect the PF rate.



# Calculating Post-7(b)(2) Benefits

- The 7(b)(2) Rate Test is implemented based on guidance set forth in the NWPA.
- Legal interpretation, methodological choices, and implementation of the rate test affects the amount of Post 7(b)(2) REP benefits, sometimes significantly.
- How the 7(b)(2) Rate Test operates is complex and historically contentious.



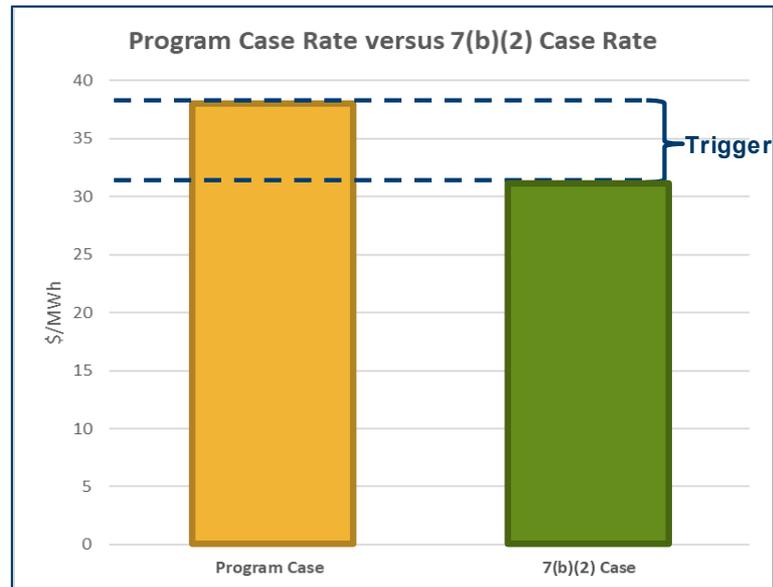
# Calculating Post-7(b)(2) Benefits: 7(b)(2) Test

- **The Rate Test can be considered an ongoing cost/ benefit analysis.**

- It compares projected rates set to recover certain power costs included in the NWPA (Program Case) to a hypothetical rate set to recover power costs assuming certain features of the NWPA were not in place (7b2 Case).
- The Rate Test is intended “to assure that the financial benefits of the preference clause in the Bonneville Act will continue to accrue to BPA preference customers.” Sen. Rep., Appendix B

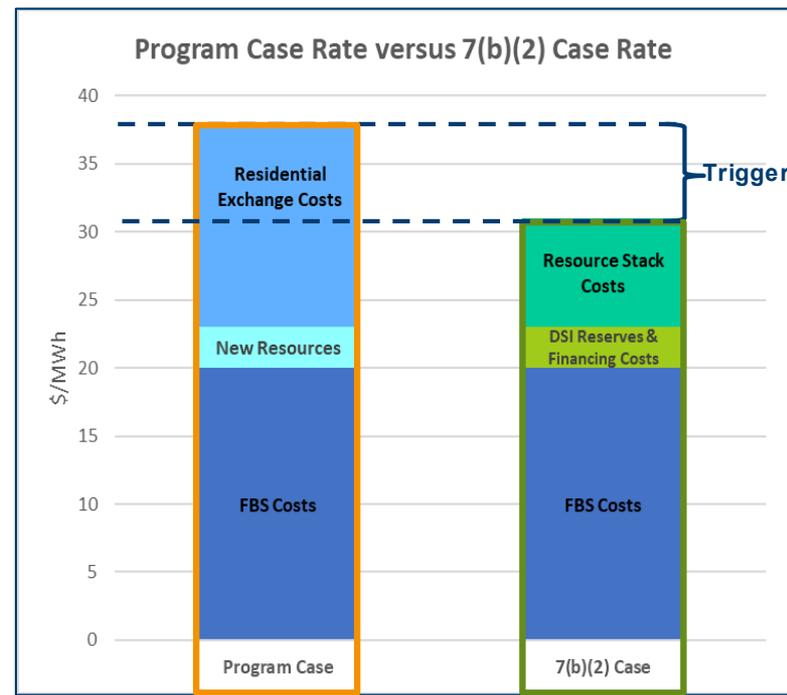
- **Functionally, the Rate Test limits the amount of REP costs that may be recovered in the PF rate.**

- If the Program Case rate is higher than the 7(b)(2) Case rate, then the Rate Test is said to “trigger” and the difference between the \$/MWh is multiplied by PF customer load to establish a rate protection amount.
- The rate protection amount is then allocated away from PF customer loads to all other power sold as a supplemental rate charge.



# Calculating Post-7(b)(2) Benefits: 7(b)(2) Test

Step 1	Exclude specific Section 7(g) Costs from Program Case	Conservation costs, experimental resource costs, billing credits costs, and “uncontrollable events” costs
Step 2	Run the five assumptions of the 7(b)(2) rate test (Hypothetical case)	(A) DSIs are served by their local utility instead of BPA (B) Federal base system resources are used for publics first (C) no REP purchases and sales (D) after the FBS is exhausted, other resources owned by publics are applied in least cost order (E) power reserve benefits and reduced financing costs available under the Act are not achieved, run both rates for a projected four years past the rate period and discount back to the rate period
Step 3	Compare the rates produced by Program Case with the 7(b)(2) Case	If Program Case rate is lower, do nothing; if 7(b)(2) Case rate is lower, rate test triggers. The \$/MWh difference between the two rates is multiplied by the PF customer load to determine a rate protection amount.
Step 4	Allocate difference from Step 3 to other rates	The rate protection amount from Step 3 must be allocated to other non-PF power sold per 7(b)(3).





# In lieu and Section 5(c)(5)

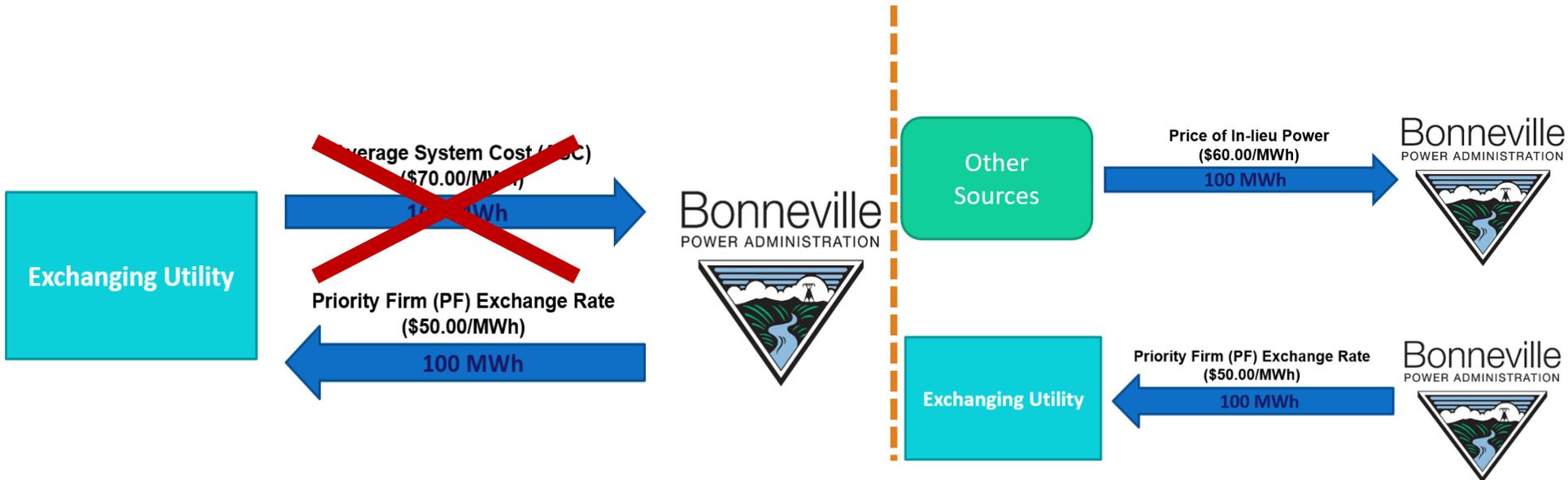


# What is In-Lieu?

- Section 5(c)(5) of the NWPA
  - *“Subject to the provisions of sections 4 and 6, in lieu of purchasing any amount of electric power offered by a utility under paragraph (1) of this subsection, the Administrator may acquire an equivalent amount of electric power from **other sources** to replace power sold to such utility as part of an exchange sale if the cost of such acquisition is less than the cost of purchasing the electric power offered by such utility.”*
- In other words:
  - In lieu of purchasing any amount of power offered by a utility, BPA **may** acquire an equivalent amount of power from other sources instead of exchanging, if the cost of such power is less than the utility’s ASC.
  - This lower physical power cost would be included in ratemaking under section 7 of the NWPA in lieu of exchange purchases at the customers’ ASCs.

# In-Lieu Visual

*This slide was updated on 9.27.2022 specifically the REP Savings value*



**(ASC – PF Exchange Rate) x Residential and Farm Load = REP \$\$\$**

**(\$60 MWh - \$50 MWh) x 100 MWh = \$1000**

**REP Savings: \$1000**

**LUNCH BREAK!**

*Please Return at 12:15pm*



# Major Forecast Assumptions & Reference Case Methodology

POST  
2028  
REP



# Major Assumptions and Modeling

- Assumptions
  - All major forecast components reflect BP-22 Final Proposal for FY 2022-23 and updated projections for FY 2024-34.
  - Major forecast components include: Loads & Resources, Market Prices, Net Secondary Forecast, Costs and Revenue Credits, ASCs, Exchange Loads, Borrowing & Inflation Rates and the 7(b)(2) Resource Stack Costs.
- Modeling
  - Both FY 2022-23 and FY 2029-30 results use RAM operating in non-settlement mode.
    - RAM applies the same major methodology/modeling used in RAM2012 for the REP-12 Settlement Proceeding.
    - RAM has evolved since 2010 to reflect changes in rate design and rate calculations; however, the 7(b)(2) Rate Test and Resource Stack methodology/modeling remain consistent with RAM2012.

# Reference Case Methodology

- The 7(b)(2) Rate Test modeling used in the Reference Case is consistent with BPA's position in the Reference Case used in the 2012 REP Proceeding.
  - This model uses BPA's 2008 Legal Interpretation of Section 7(b)(2) of the NW Power Act and BPA's Implementation Methodology used as part of the WP-07S Supplemental Rate Proceeding. Both publications were withdrawn by BPA as part of the 2012 REP Settlement.
- BPA is not taking a position on methodology or implementation on 7(b)(2) and determined it best to maintain consistency with the Reference Case from the 2012 REP discussions and proceeding for purposes of this analysis.
- Modeling adheres to Section 7(b)(2) which requires BPA to assume that the 7(b)(2) Case is identical to the Program Case except for those differences required by the Five Assumptions set out in section 7(b)(2) (A)-(E) discussed on slide 30.
- Assumptions used in the Reference Case are described in greater detail in Appendix A.



# Reference Case Results for FY 2022-23 and FY 2029-30



# Understanding the Results: *Let's Level Set!*

- As a reminder, today we are providing a summary of BPA's "Dry Run" REP analysis with the intention of using future workshops to dive into specific results and scenarios.
- An in-depth discussion of each scenario will not be covered today -- *that's what future workshops are intended for.*
  - Participants are encouraged to email the REP team at [REP2028@bpa.gov](mailto:REP2028@bpa.gov) with topics of interest for future workshops and/or questions pertaining to today's workshop materials.
- **Understanding what each scenario means and how the results were derived is complex and will require time to fully understand.**
  - The "dry run" provides a working educational model for participants to become familiar with, and to get a sense of scale for, the various assumptions and factors that affect the REP benefit levels.
  - The "dry run" results do not represent what REP benefits will be in the future. The analysis will continue to be updated during the Phase 1 process



# REP Settlement Analysis Overview

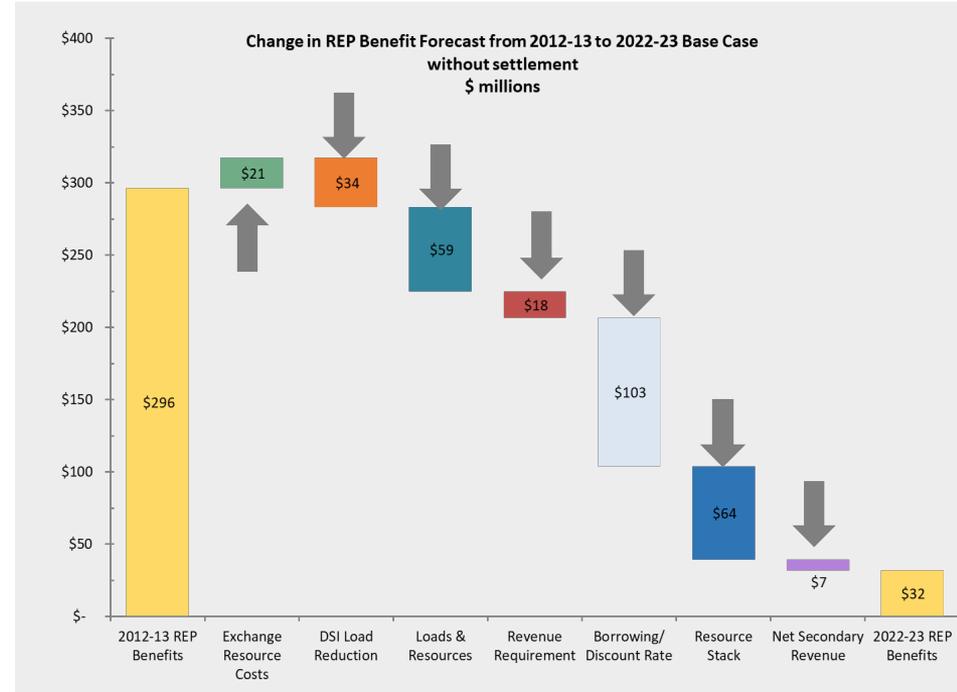
- The 2012 REP settlement resulted in IOU benefits averaging \$239 million annually.
- REP Settlement benefits were back loaded; therefore, BP-22 benefits were set at \$259 million and BP-26 benefits at \$286 million.
- REP Settlement demonstrated that IOUs, under settlement, agreed to take fewer benefits than they would otherwise receive under traditional REP.
- Under the REP-12 record, IOU REP benefits were forecast to be \$286 million without settlement in the FY 2012-2013 reference case.
  - The FY 2012-13 reference case forecast REP benefits with the COUs to be \$296 million.

Fiscal Year	REP Payments included in rates (\$ millions)
2012	\$182.1 + \$76.5
2013	\$182.1 + \$76.5
2014	\$197.5 + \$76.5
2015	\$197.5 + \$76.5
2016	\$214.1 + \$76.5
2017	\$214.1 + \$76.5
2018	\$232.2 + \$76.5
2019	\$232.2 + \$76.5
2020	\$245.2
2021	\$245.2
2022	\$259.0
2023	\$259.0
2024	\$273.6
2025	\$273.6
2026	\$286.1
2027	\$286.1
2028	\$286.1

# FY 2022-23 Analysis: A Changing Landscape 2012 → 2022

*This slide crosswalks the 2012-13 REP Reference Case to the current 2022-23 Dry Run REP Reference Case. It's intended to show the audience how major forecast components have changed between 2012 and 2022 and how they influence REP benefits without settlement.*

- The 2012-13 Reference Case REP Benefits were \$296 million; FY 2022-23 Reference Case REP Benefits are \$32 million.
- Major Forecast Drivers:
  - Exchange Resource costs have increased since FY2012-13 driven by a rise in ASCs, this increases REP benefits.
  - Loads and Resources decreased including a large reduction in DSI's, this drives up the PFX rate and reduces REP benefits.
  - The Revenue Requirement is slightly lower driven by lower capital related costs, this lowers REP benefits.
  - BPA's discount rate used in the rate test decreased, this increases rate protection which lowers REP benefits.
  - Updates to the Resource Stack reflect less Conservation this increases rate protection and decreases REP benefits.
  - Net Secondary Revenue decreased this creates upward pressure on BPA rates and reduces REP benefits.

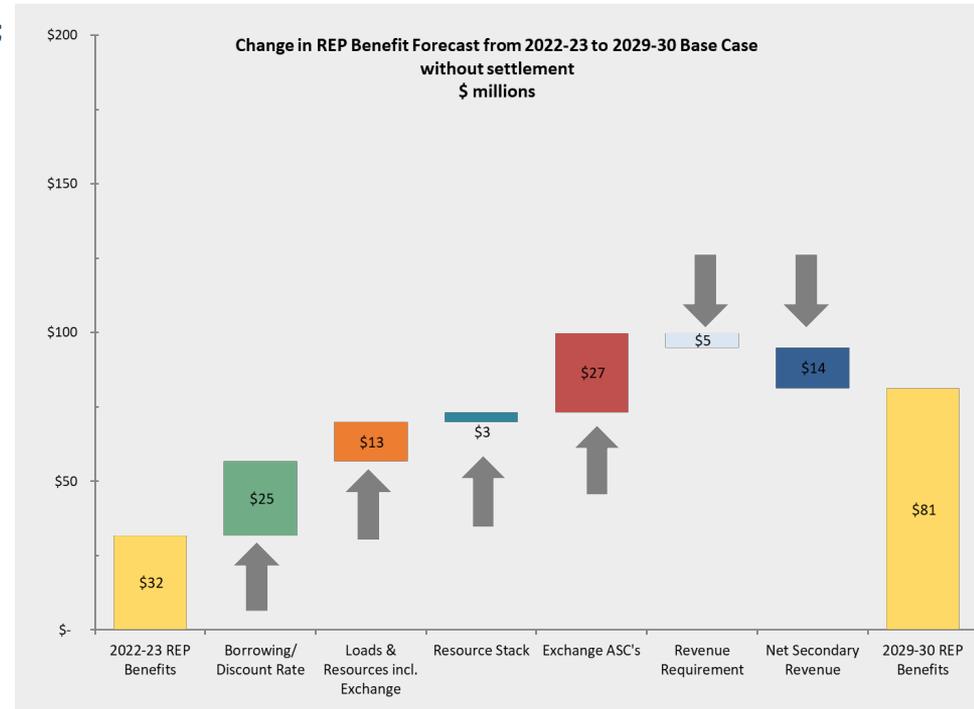


2022-23 REP benefits are based on information from the BP-22 Final Proposal. 2012-13 and 2022-23 REP benefits include public benefits (COUs).

# FY 2022-23 Analysis: A Changing Landscape 2022 → 2029

*This slide crosswalks the Dry Run for the 2022-23 REP Reference Case to the 2029-30 REP Reference Case. It's intended to show the audience how changes in major forecast components between 2022-23 and 2029-30 can influence REP benefits without settlement.*

- The FY 2022-23 Reference Case REP Benefits are \$32 million; FY 2029-30 Reference Case REP Benefit are \$81 million.
- Major Forecast Drivers:
  - The Borrowing Rate rises which increases the discount rate causing lower rate protection and higher REP benefits.
  - Higher Loads and Resources decrease the Pfx rate which increases REP benefits.
  - Slightly higher cost in the Resource Stack reduces rate protection and increases REP benefits.
  - ASCs increase which leads to higher REP benefits.
  - Higher cost in the Revenue Requirement increase the Pfx rate and reduce REP benefits.
  - Net Secondary Revenue decreases from FY 2022-23 levels, this increases the Pfx rate and decreases REP Benefits.



2029-30 REP benefits are based on information derived from the BP-22 Final Proposal  
 2022-23 and 2029-30 REP benefits include public benefits (COUs).



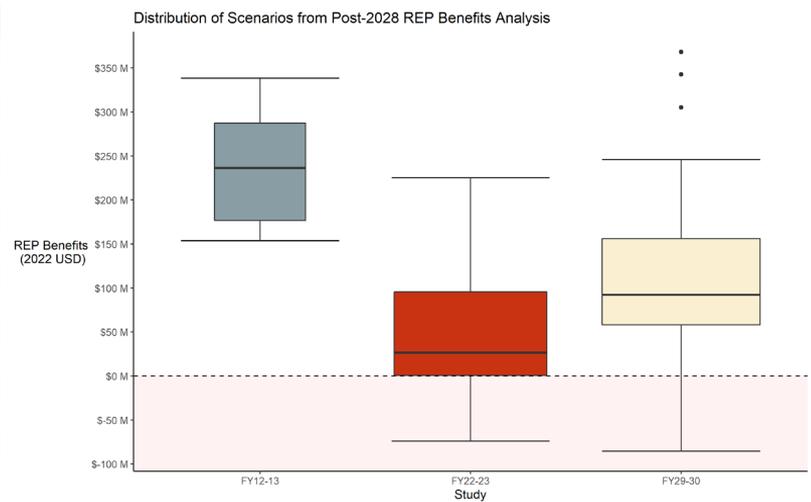
# Scenario Results for FY 2022-23 and FY 2029-30



# Summary of Scenarios

- All scenario analyses uses the FY 2022-23 and FY 2029-30 reference case as a foundation.
  - Scenario results are reported independently without compounding variations.
- Scenario #2 reflects a change in the Average System Cost (ASC) methodology.
- Scenarios #3-12 are based on changes to the 7(b)(2) rate test implementation methodology.
- Scenarios #15-29 reflect various forecast sensitivities.
- Scenarios produce a range of benefits as shown in the graphic below.

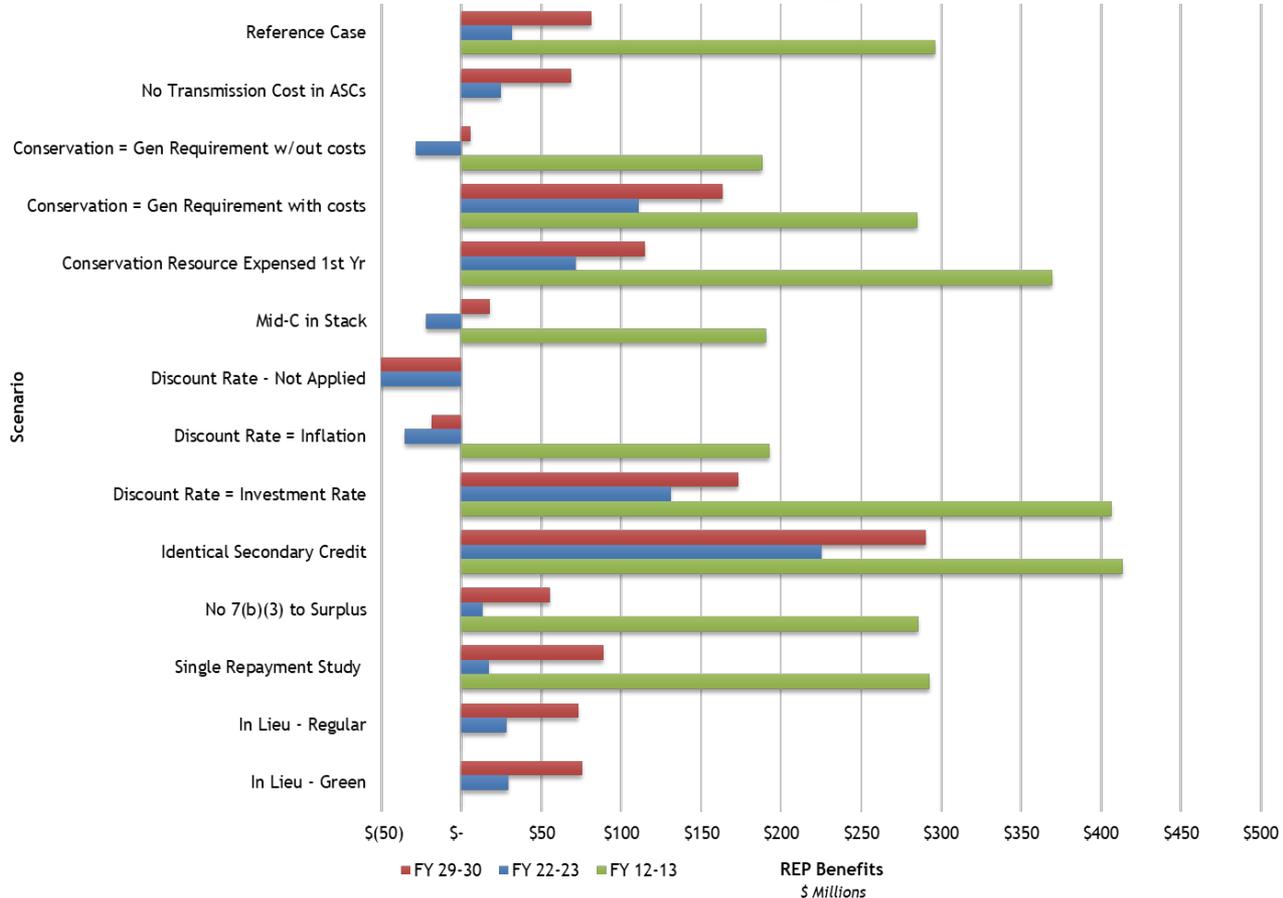
SCENARIO LIST		
1	Reference Case	15 ASCS - HIGH
2	No TS in ASCs	16 ASCs - Average of High/Low (V1)
3	Conservation = Gen Requirement w/out costs	17 ASCs - Average of FY22-25, Hist. Growth (V2)
4	Conservation = Gen Requirement with costs	18 ASCs - Double
5	Conservation Res. Expensed 1 <sup>st</sup> Year	19 ASCs – Test Period Equal to Rate Period ASCs
6	Mid-C in Stack	20 ASCs – Test Period decline 10% from Rate Period ASCs
7	Discount Rate - Not Applied	21 BPA Conservation - High (+50%)
8	Discount Rate = Inflation	22 BPA Conservation - Low (-50%)
9	Discount Rate = Investment Rate	23 Loads - PF Decrease (-1000aMW)
10	Identical Secondary Credit	24 Loads - PF Rise (+1000aMW)
11	No 7(b)(3) to Surplus	25 High Loads and High Resources
12	Single Repayment Study	26 Low Loads and Low Resources
13	In Lieu - Regular	27 Market Prices - High
14	In Lieu - Green	28 Market Prices - Low
		29 Cost Increase (\$100 million)



# Scenario Results – Methodologies

Scenario	REP Benefits (\$ millions)			Scenario Specifics
	FY12-13	FY22-23	FY29-30	
1 Reference Case	\$ 296.3	\$ 31.8	\$ 81.3	Same reference case methodology used as the 2012 REP discussions/proceeding.
2 No Transmission Costs in ASCs/PFx Rate	n/a	\$ 24.4	\$ 68.8	This scenario changes the ASC methodology (ASCM) by removing transmission cost from ASCs and the transmission adder included in the PF Exchange Rate.
3 Conservation = Gen Requirement w/out costs	\$ 187.9	\$ (28.5)	\$ 5.6	The following is removed from the 7(b)(2) Case: conservation augmentation from loads, conservation resources from the resource stack and any conservation costs.
4 Conservation = Gen Requirement with costs	\$ 285.5	\$ 110.6	\$ 163.2	This removes conservation augmentation from 7(b)(2) Case loads and conservation resources from the resource stack. Conservation costs are included in the 7(b)(2) Case.
5 Conservation Resource Expensed 1st Yr	\$ 369.8	\$ 71.5	\$ 114.5	Shifts to expensing all Conservation in the 7(b)(2) Case to the year called upon, regardless of the amortization period or whether it is capital or expense.
6 Mid-C in Stack	\$ 190.4	\$ (22.1)	\$ 17.7	Includes Type 2 Resources defined as existing 7(b)(2) Customer resources not committed to regional load by preference customers or IOUs.
7 Discount Rate - Not Applied	n/a	\$ (74.2)	\$ (72.4)	Removes application of the discount rate when calculating the 7(b)(2) and Program Case Rates.
8 Discount Rate = Inflation	\$ 192.9	\$ (35.5)	\$ (18.9)	Uses BPA inflation rate in lieu of BPA's 30 year Agency Borrowing Rate.
9 Discount Rate = Investment Rate	\$ 406.3	\$ 130.9	\$ 173.3	Uses BPA's risk adjusted discount rate in lieu of BPA's 30 year Agency Borrowing Rate
10 Identical Secondary Credit	\$ 413.8	\$ 225.0	\$ 290.4	Sets the secondary revenue credit in the 7(b)(2) case equal to program case.
11 No 7(b)(3) to Surplus	\$ 285.7	\$ 12.9	\$ 55.4	Removes allocation of rate protection to secondary sales.
12 Single Repayment Study	\$ 292.5	\$ 17.1	\$ 89.0	Uses the Program Case repayment study in the 7(b)(2) Case which includes costs associated with Conservation and New Resources.
13 In Lieu - Regular	n/a	\$ 28.4	\$ 73.3	This is an Ad-Hoc calculation outside of RAM, which assumes 500aMW of Exchange Load is met with a market purchase.
14 In Lieu - Green	n/a	\$ 29.1	\$ 75.2	This is an Ad-Hoc calculation outside of RAM, which assumes 500aMW of Exchange Load is met with a market purchase of carbon free energy.

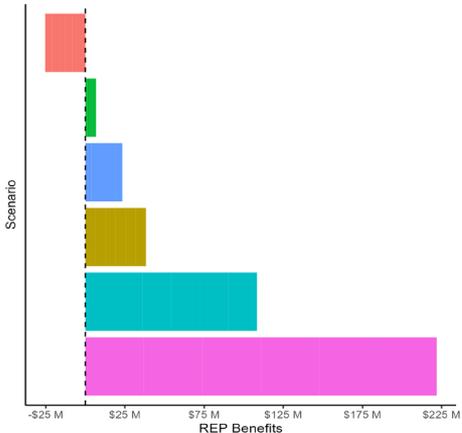
# Scenario Results – Methodologies



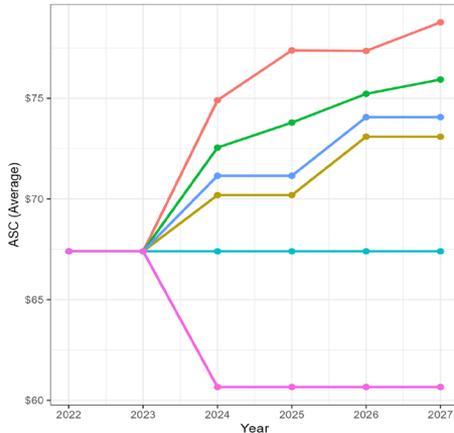
# Scenario Results – ASC Sensitivities

Scenario	REP Benefits (\$ millions)			Scenario Specifics
	FY12-13	FY22-23	FY29-30	
15 ASCs - High	n/a	\$ (21.2)	\$ 35.2	<b>FY22-23</b> assumes 11.8% avg growth rate in ASCs from the rate period to the test period / <b>FY29-30</b> results assume 8.9% avg ASC growth rate from the rate period to test period.
16 ASCs - Average of High/Low (V1)	n/a	\$ 5.6	\$ 48.6	<b>FY22-23</b> assumes 9% avg growth rate in ASCs from the rate period to the test period / <b>FY29-30</b> results assume 7.5% avg ASC growth rate from the rate period to test period.
17 ASCs - Average of FY22-25, Hist. Growth (V2)	n/a	\$ 18.5	\$ 85.2	<b>FY22-23</b> assumes 7.1% avg growth rate in ASCs from the rate period to the test period / <b>FY29-30</b> results assume 6.2% avg ASC growth rate from the rate period to test period.
18 ASCs - Double	n/a	\$ 189.0	\$ 312.1	All ASCs double across all years from the Reference Case.
19 ASCs - Test Period Equal to Rate Period ASCs	n/a	\$ 90.4	\$ 148.7	ASCs in test period (last four years) set equal to the rate period (first two years).
20 ASCs - Test Period decline 10% from Rate Period ASCs	n/a	\$ 184.9	\$ 258.6	ASCs in test period (last four years) decline 10% from the rate period levels (first two years).

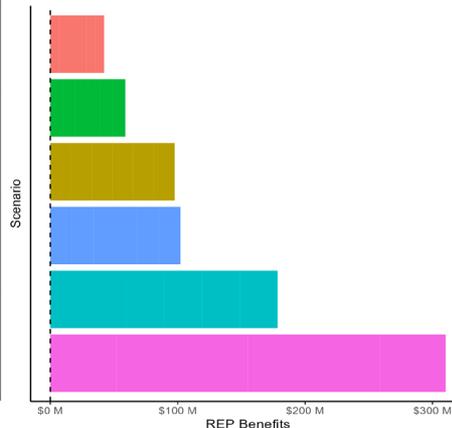
REP Benefits for FY 2022-23



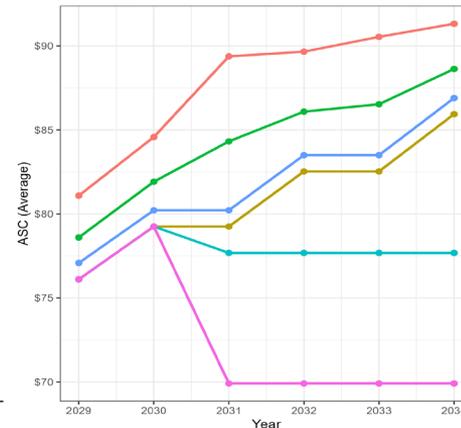
ASC Projections for FY 2022-27



REP Benefits for FY 2029-30



ASC Projections for FY 2029-34



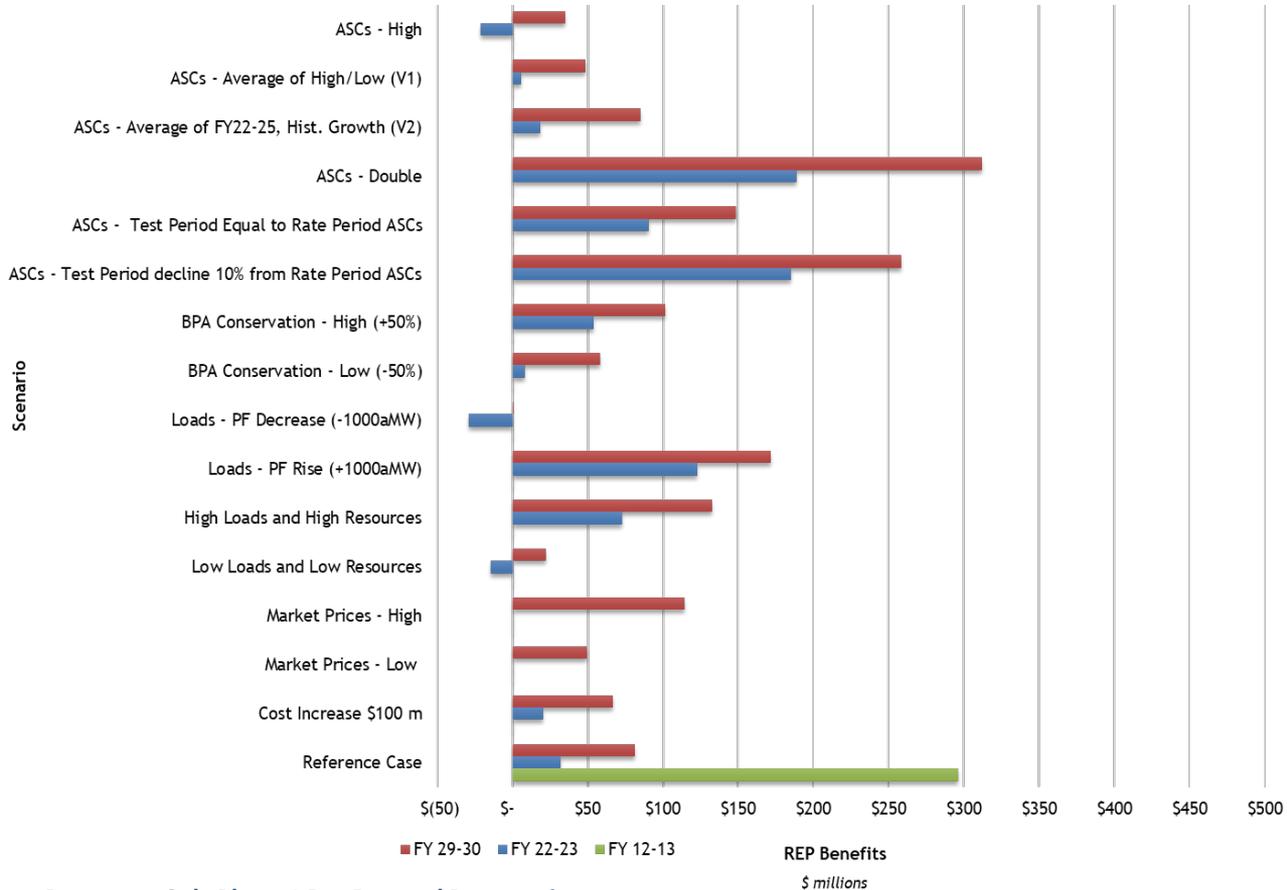
Scenario High Average of High/Low (V1) Average of FY22-25, Hist. Growth (V2) Reference Case Test Period ASCs Equal to Rate Period ASCs ASCs - Test Period ASCs decline 10% from Rate Period ASCs

Scenario High Average of High/Low (V1) Average of FY22-25, Hist. Growth (V2) Reference Case Test Period ASCs Equal to Rate Period ASCs ASCs - Test Period ASCs decline 10% from Rate Period ASCs

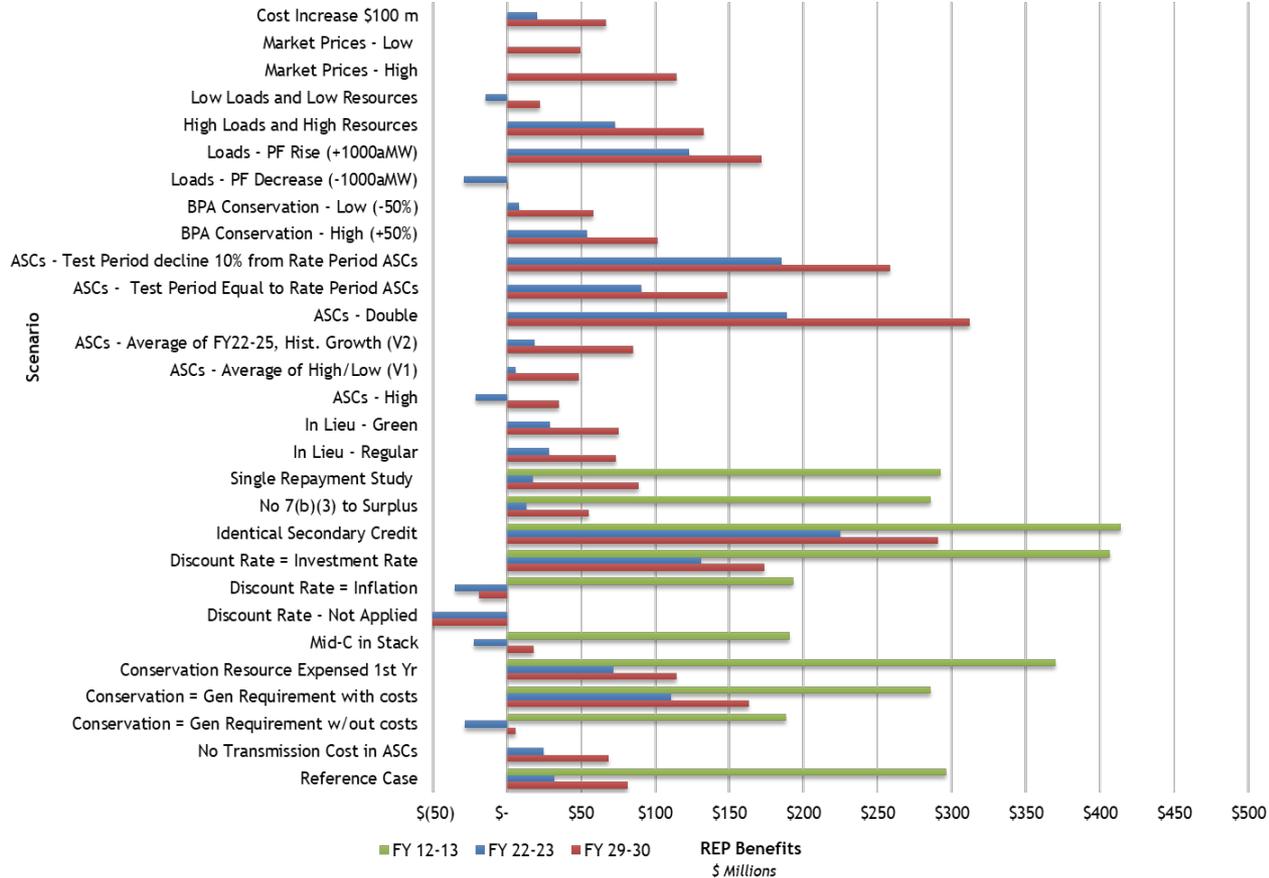
# Scenario Results – Sensitivities

Scenario	REP Benefits (\$ millions)			Scenario Specifics
	FY12-13	FY22-23	FY29-30	
1 Reference Case	\$ 296.3	\$ 31.8	\$ 81.3	Same reference case methodology used as the 2012 REP discussions/proceeding.
21 BPA Conservation - High (+50%)	n/a	\$ 54.0	\$ 101.5	Assumes future conservation savings and costs increase 50% from Reference Case levels.
22 BPA Conservation - Low (-50%)	n/a	\$ 8.3	\$ 58.2	Assumes future conservation savings and costs decrease 50% from Reference Case levels.
23 Loads - PF Decrease (-1000aMW)	n/a	\$ (28.9)	\$ 0.3	PF Loads decreased 1,000 aMW. Firm Surplus increased. No change in Resources. Changes to secondary revenue or positions were not modeled.
24 Loads - PF Rise (+1000aMW)	n/a	\$ 122.7	\$ 171.9	PF Loads increased 1,000 aMW. No change in resources except augmentation purchases, treated as FBS replacement. Changes to secondary revenue or positions were not modeled.
25 High Loads and High Resources	n/a	\$ 72.8	\$ 132.5	Pairs high PF loads with a rise in FBS resources of 1,000 aMW.
26 Low Loads and Low Resources	n/a	\$ (14.6)	\$ 21.9	Pairs low PF loads and with a reduction in FBS resources of 1,000 aMW.
27 Market Prices - High	n/a	n/a	\$ 114.3	Reflects high market prices for FY 29-30 scenario analysis.
28 Market Prices - Low	n/a	n/a	\$ 49.5	Reflects low market prices for FY 29-30 scenario analysis.
29 Cost Increase \$100 million	n/a	\$ 20.4	\$ 67.0	Adds \$100 million in FY22 allocated to FBS (85%), Conservation (10%), Business Support (5%). FY23 & beyond reflects the \$100 million escalated at inflation until FY34.

# Scenario Results – Sensitivities



# Scenario Results – All Scenarios



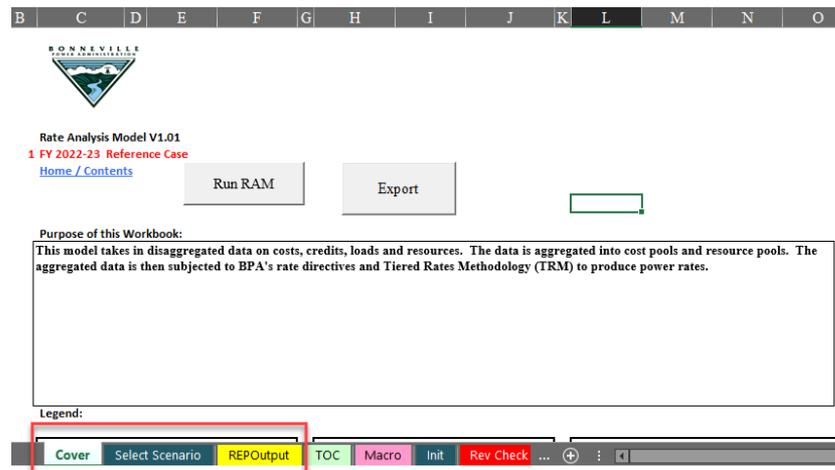


# Brief Introduction to RAM2022 REP Model



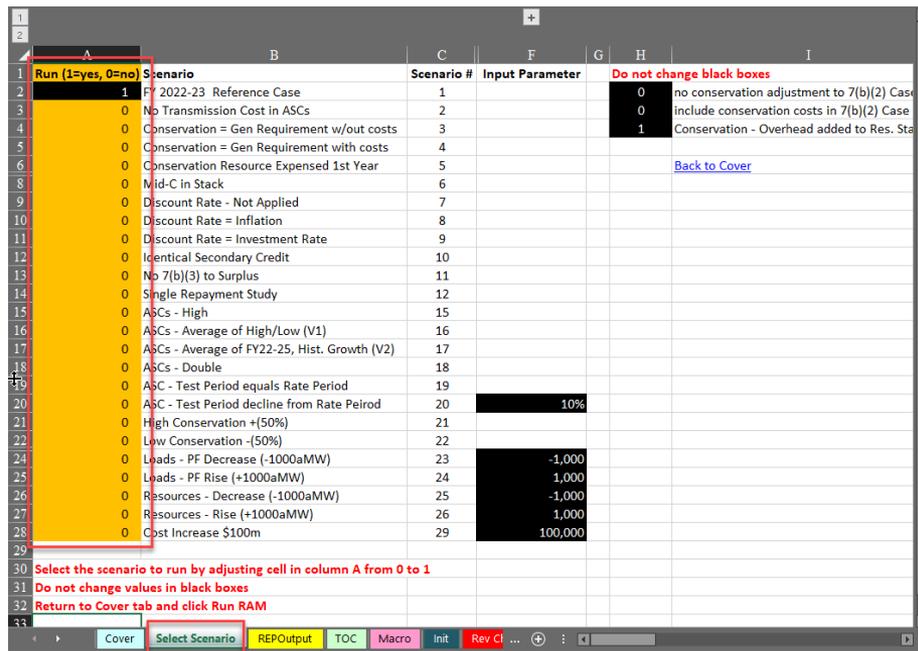
# Accessing the RAM2022 REP Model

- The RAM2022 REP model is accessible on [REP Post-2028 - Bonneville Power Administration \(bpa.gov\)](https://www.bpa.gov)
- Save a copy of the excel model to your computer.
- Upon opening, enable macros to run.
- Basic operations will utilize three main tabs:
  - Cover
  - Select Scenario
  - REP Output



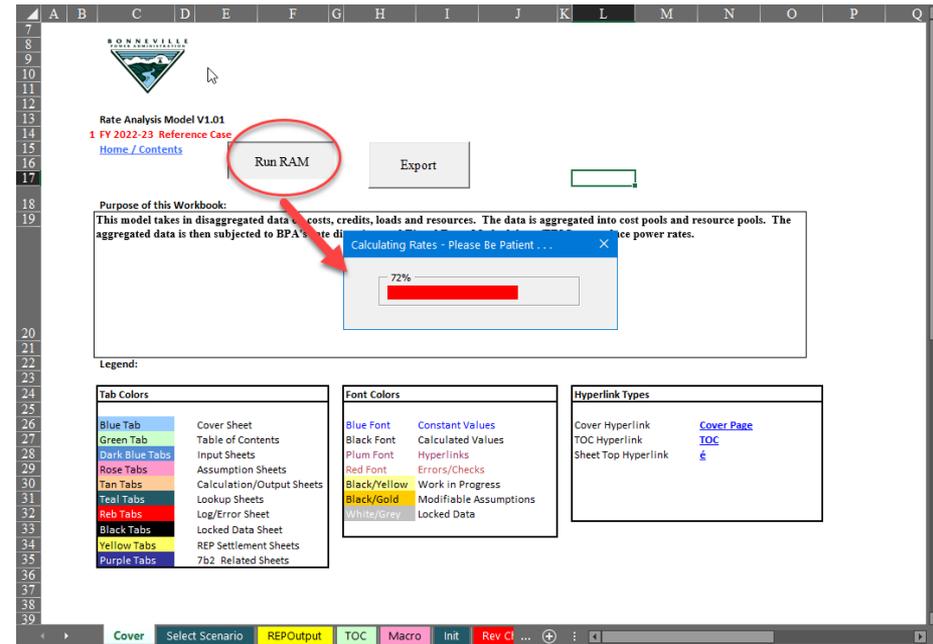
# Running the RAM2022 REP Model

- The model will open to the 2022-23 Reference Case and corresponding results.
- To run a specific scenario go to the Select Scenario tab.
- Select the specific scenario to run by adjusting the cell in Column A from 0 to 1 for the corresponding scenario.
  - For example, to run ASC’s-High adjust A15 from 0 to 1.
  - The model is intended to run individual scenarios, select one scenario at a time.
  - Do not alter values or formulas in RAM.
- Once the scenario is selected return to the Cover tab.



# Running the RAM2022 REP Model

- On the Cover tab push the “Run RAM” button.
- A notification will appear that Rates are being calculated.
- Be patient!
  - Run time will vary but can take up to five minutes.
  - Avoid opening multiple version of RAM or excel workbooks running Macro’s while running RAM to optimize run time.
- Once RAM completes it’s calculation of Rates it will produce results on the Scenario Results tab.



# Running the RAM2022 REP Model

- The Scenario Results tab will report a variety of information.
- REP benefits are reported in the yellow box.
- Individual rates are reported in the first box.
- The Tier 1 Average net Cost is reported on row 48.
- For reporting specific to the REP program and various components of the 7(b)(2) Rate Test go to the REP output tab.

Unbifurcated PF	\$ 46.97	0.0%
PF Exchange	\$ 30.67	-14.2%
IP	\$ 66.49	0.0%
NP	\$ 43.06	5.0%
	\$ 66.72	8.8%

Residential Exchange Benefits	FY 2022	FY 2023
Avista Corporation	\$ 2,006	\$ 2,006
Idaho Power Company	\$ 1,882	\$ 1,882
NorthWestern Energy, LLC	\$ 548	\$ 548
PacifiCorp	\$ 11,124	\$ 11,124
Portland General Electric Company	\$ 7,186	\$ 7,186
Fugate Sound Energy, Inc.	\$ 8,955	\$ 8,955
Net IOU Exchange	\$ 31,280	\$ 31,280
Refund Amt	\$ -	\$ -
		\$ 560
		\$ 31,840

	BP-20	FY22-23	Change
Annual Average \$ (1000s)			
Composite Revenues	\$ 2,244,314	\$ 2,038,134	-9.2%
Non-Slice Revenues	\$ (173,280)	\$ (290,389)	-67.5%
Site Revenues	\$ -	\$ -	
Load Shaping Revenues	\$ 28,042	\$ 17,898	-36.2%
Demand Revenues	\$ 53,529	\$ 55,457	3.8%
Tier 1 Revenue Requirement	\$ 2,152,605	\$ 1,820,500	-17.0%
Tier 2 Revenue Requirement	\$ 14,936	\$ 47,432	
Lookback Return (credit)	\$ -	\$ -	
Spill Surcharge	\$ -	\$ -	
FRP Surcharge	\$ 17,469	\$ -	
Value of Slice Secondary	\$ (72,951)	\$ (106,183)	-45.6%
Net Power Cost to All PF	\$ 2,182,153	\$ 1,761,899	-19.6%
Total PF Load w/Slice (GVh)/yr	58,896	57,436	2.5%
Average Net Cost \$/MWh	35.86	30.67	-14.5%
Tier 1 Load	58,390	55,991	4.3%
Tier 1 Average Net Cost without FRP (\$/MWh)	35.82	30.62	-14.5%
Tier 1 Average Net Cost with max FRP (\$/MWh)	35.82	30.62	-14.5%
Tier 2 Short-term (\$/MWh)	31.76	33.66	6.0%
Tier 2 Load Growth (\$/MWh)	31.76	33.69	6.1%

ScenarioResults ResultsDetail LoadScenarioInput Loads Loads ...

	REP-Total	REP-IOU	REP-COU	Tier 1	Unbif PF	PFp	PFx	FY22-23 ASCs	6yr Wtd ASCs	Base PFx Rate	Pre 7(b)(2) REP Benefits	Program Case	7b2 Case	Trigger	Total Rate Protection	Rate Protection to Secondary Loads	Rate Protection to IP Loads	Rate Protection to PF Exchange Loads
1 FY 2022-23 Reference Case	\$ 31,840	\$ 31,280	\$ 560	\$ 30.62	\$ 46.97	\$ 30.67	\$ 66.49	\$ 67.20	\$ 69.99	\$ 52.50	\$ 657,292	\$ 42.25	\$ 25.95	\$ 16.30	\$ 936,202	\$ 310,980	\$ 1,464	\$ 623,757

Cover Select Scenario REPOutput TOC Macro Init Rev Check RateSummary ScenarioResults



# Next Steps, Feedback and Questions



# Next Steps

- Participants can submit comments for agenda topics after each workshop by email to [REP2028@bpa.gov](mailto:REP2028@bpa.gov)
  - Requests for workshop topics for the October 25<sup>th</sup> workshop need to be received by October 4<sup>th</sup>.
  - If an abundance of workshop topics are submitted, BPA will attempt to prioritize based on level of interest and/or relative impact to the REP program.
- All data requests and questions will be considered and prioritized.
  - Response times may vary due to limited staff resources during the BP-24 Rate Proceeding.
  - Request for additional data analysis (i.e. scenarios) using FY 2022-23 or FY 2029-30 will be considered but not guaranteed.
  - All comments, questions and responses will be published on the REP website for transparency.

## Workshop Dates

September 27<sup>th</sup>  
October 25<sup>th</sup>  
November 15<sup>th</sup>\*  
December 13<sup>th</sup>\*  
January 24<sup>th</sup>  
February 21<sup>st</sup>  
March 14<sup>th</sup>  
April 18<sup>th</sup>  
May 23<sup>rd</sup>

\*Scheduled 9am-12pm

# Additional Resources

- [REP Post-2028 External Webpage](#)
- [REP Fact Sheet](#)
- [History of REP](#)
- [REP-12 Final Record of Decision and Agreement](#)
- [REP-12 Final Settlement Evaluation and Analysis Study](#)
- [REP-12 Final Settlement Evaluation and Analysis Documentation](#)
- [1984 Section 7\(b\)\(2\) Implementation Methodology](#)
- [1984 Section 7\(b\)\(2\) Legal Interpretation](#)
- [2008 Section 7\(b\)\(2\) Implementation Methodology](#)
- [2008 Section 7\(b\)\(2\) Legal Interpretation](#)
- [1980 Northwest Power Act](#)

# Thank You!

## **Post 2028 REP Lead Sponsor:**

Kim Thompson, Vice President, Northwest Requirements Marketing

## **Post 2028 REP Team:**

Stephanie Adams, Paulina Cornejo, Brian Dombeck, Daniel Fisher, Rich Greene,  
Neil Gschwend, Kelly Olive, Jonathan Ramse





# Appendix A



# Reference Case Forecast Assumptions beyond BP-22

- **Loads:** Long-term projections use BP-22 as a basis and are informed by information made available in August 2021.
- **Resources:** Assumes 80 water years with 1937 critical period. Long term projections include the preferred alternative, flex spill and incorporates a phase-in of ongoing fish friendly turbine upgrades at Ice Harbor and McNary. Market limit modeling was updated to include resource commitment optimization.
- **Market Prices:** reflect long term projections sourced from Aurora in August 2021.
- **Revenue Requirement:** 2022 IPR forecasts were inflated after 2030. Interest rate and inflation forecasts use the BPA 2021 Agency Forecast. No limitations were placed on borrowing authority. No revenue financing is included beyond FY 2023. EE capital investments are fully amortized by the end of 2028.
- **Revenue Credits:** Generation Inputs increase at the rate of change in Capital Related Costs. 4(h)(10)(c) credits are modeled and reflect changing F&W costs and power purchases. Most other credits are held flat to BP-22 levels.
- **ASCs:** are escalated at the average historical rate from 2010 to 2022 of 2.04% annually.
- **Exchange Loads:** reflect the average of the first and second year's projected load escalated at the IOUs' individual IRP growth rate.
- **7(b)(2) Resource Stack Costs:** Primarily limited to Conservation, actual cost and savings date back to 2016. Forecast Conservation savings start in FY 2021 and are based on the 4 year historical average (FY16-19) with associated costs escalated using BPA's FY 2021 official inflation forecast.

# Reference Case Methodology

- The **Test Period** evaluates the applicable rate case plus the ensuing four years.
- The Rate Test considers the time value of money across the test period; therefore, the two sets of rates are **discounted** back to the beginning of the first year of the rate case using BPA's 30 year Agency Borrowing Rate.
- **Conservation savings are removed from the 7(b)(2) Case loads** and becomes a callable Type 1 resource included in the 7(b)(2) Resource Stack. The removal of conservation savings results in 7(b)(2) Case loads increasing by an equivalent amount.
- **Rate protection is allocated to all other power sold** including secondary sales reflected in the FPS rate.
- The **Secondary Energy Credit** used in the Program Case includes the 7(b)(3) allocation of rate protection; whereas, the 7(b)(2) Case secondary credit does not.
- The **Revenue Requirement** includes two repayment studies, one study removes all capital related costs associated with Conservation and acquisition of new resources for use in the 7(b)(2) Case.
- If **FBS resources** are insufficient to meet 7(b)(2) Case loads then three types of **additional resources** can be added to serve those loads.
  - These additional resources are defined in section 7(b)(2)(D) and are: (1) actual and planned resource acquisitions by BPA from 7(b)(2) Customers consistent with the Program Case, including conservation resources; (2) existing 7(b)(2) Customer resources not currently committed to regional load by preference customers or IOUs; and (3) all other needed resources, acquired at the average cost of actual and planned resource acquisitions by BPA from non-7(b)(2) Customers.