

**COMMISSIONERS PREAGENDA  
FOR THE REGULAR MEETING OF  
CLALLAM COUNTY PUBLIC UTILITY DISTRICT #1  
BOARD OF COMMISSIONERS  
FEBRUARY 14, 2022 at 1:30 PM**

**Join Zoom Meeting:**

<https://us06web.zoom.us/j/82503848665?pwd=bDZsb3pHOXV2QTNnaURjRHBXZzZYZz09>

**Meeting ID:** 825 0384 8665 | **Passcode:** 576319

**One tap mobile:** +12532158782,,82503848665#,,, \*576319# US (Tacoma)

**Dial by your location:** +1 253 215 8782 US (Tacoma)

- **Consent Agenda Items**

The Commissioners will consider approving Consent Agenda items.

- **Power Supply Analysis and Update**

Assistant General Manager John Purvis will present a Power Supply Analysis and an update to the September 2020 *Future Power Supply Options and CETA* presentation.

- **BPA Post-2028 Contract Discussion**

The Commissioners will discuss any recent draft updates or presentations.

- **Executive Session**

The Commissioners will hold an executive session for the purpose of discussing the potential acquisition of real estate pursuant to RCW 42.30.110(1)(b).

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*The Commissioners will also consider the customary business matters associated with approval of payments, minutes of the previous meeting, reports from Commissioners and staff, comments from the public, and other items of information or general business. Items may be added to, or removed from, the agenda at the meeting.*

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**1. CALL TO ORDER**

**2. APPROVAL OF CONSENT AGENDA**

- a. Minutes of the January 24, 2022 regular meeting;
- b. Claim vouchers for January 24 through February 7, 2022 for a total of \$5,412,478.95;
- c. Payroll vouchers for the period of January 1 through February 4, 2022;
- d. Removal of delinquent accounts from the February 2022 active accounts receivable totaling \$30,428.33 including a 30% collection fee; and
- e. Contractor prequalification for Mi-Tech Services, Inc. in the amount of \$500,000 for the upcoming calendar year.

**3. AGENDA REVISIONS**

**4. COMMENTS FROM THE PUBLIC**

**5. BUSINESS ITEMS**

- a. Power Supply Analysis and Updates John Purvis
- b. BPA Post-2028 contract discussion Commissioners, Staff

**6. CORRESPONDENCE/COMMUNICATIONS**

- a. Provider of Choice Education Letter Sean Worthington

**7. COMMISSIONER REPORTS**

**8. STAFF REPORTS**

- a. Update on Sekiu polling re: open office days Chanda Halverson
- b. Update on District broadband grant applications Shawn Delplain

**9. BOARD ACTIONS FOR STAFF**

**10. COMMENTS FROM THE PUBLIC**

**11. EXECUTIVE SESSION**

Executive session for the purpose of discussing the potential acquisition of real estate.

**12. ADJOURN**

**CLALLAM COUNTY PUBLIC UTILITY DISTRICT #1**  
Minutes of the Regular Meeting of the Board of Commissioners  
Main Office | 104 Hooker Road | Sequim, WA 98382  
**January 24, 2022 – This meeting was held remotely via ZOOM**

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**Commissioners Present**

Will Purser, President  
Rick Paschall, Vice President  
Jim Waddell, Secretary

**Staff Present**

Sean Worthington, General Manager  
Jamie Spence, HR Manager  
Larry Morris, Safety Manager  
Lori Carter, Controller, Auditing Officer  
Nicole Hartman, Communications Manager  
Ruth Kuch, Finance Manager/Treasurer  
Steve Schopfer, IT Services Manager  
Teresa Lyn, Executive Assistant  
Tom Martin, WWW Manager  
Mattias Järvegren, Utility Services  
Supervisor  
Chanda Halvorson, Customer Service  
Supervisor

Annette Long, Finance Coordinator  
Sarah Canepa, Financial Analyst  
Colin Young, Distribution System  
Supervisor  
Chelsey Jung, Payroll Coordinator  
Tyler King, Power Analyst  
Rebecca Turner, Sr. Accountant  
Julie Metzger, Power Systems Project  
Coordinator  
Mike Hill, Engineering Manager

**Others Present as Identified**

Patti Morris  
Ken Reandeau  
Colleen McAleer  
Mark Ozias

The meeting commenced at 1:30 PM.

**CONSENT AGENDA 2:58**

Upon recommendation of staff, and upon motion of Commissioner Paschall seconded by Commissioner Waddell and carried, the Commissioners approved the following consent agenda items:

- a. Revised minutes of the December 13, 2021 regular meeting;
- b. Minutes of the January 10, 2022 regular meeting; and
- c. Claim vouchers for January 10 through January 18, 2022 for a total of \$1,146,409.74.

**AGENDA REVISIONS**

None

### **COMMENTS FROM THE PUBLIC 3:46**

Three identical letters for public comment were received from the cities of Forks and Sequim as well as the Port of Port Angeles requesting the PUD participate in stakeholder meetings regarding the next BPA contract.

Public comment was heard from Clallam Commissioner Mark Ozias requesting community stakeholder outreach and engagement ahead of the post-2028 BPA contract.

### **BUSINESS ITEMS STARTING AT 5:57**

- a. **6:00:** Clallam County Economic Development Council Executive Director Colleen McAleer presented a recap of 2021 accomplishments and 2022 EDC goals for the PUD to the Commissioners.
- b. **42:13:** Utility Services Supervisor Mattias Järvegren presented on Solar Washington, a non-profit organization comprised of individuals and organizations working to advance solar energy in Washington State.
- c. **48:02:** The Commissioners discussed adding Solar Washington to the District's organization memberships and assigning delegates. Upon motion of Commissioner Waddell, seconded by Commissioner Purser with Commissioner Paschal abstaining, the motion carried. Solar Washington will be added to the District's membership list on a trial basis. Staff suggested and assigned delegates Utility Services Supervisor Mattias Järvegren and Engineer Colin Young.
- d. **55:19:** Bonneville Power Administration's (BPA)'s post-2028 contract: Assistant Manager John Purvis will present on the Tier 1 system size analysis in an upcoming meeting. Topics of the discussion were: tier rate structure methodology; the potential impact of contract high water marks upon PUD rates; and utility allocations. Commissioner Paschall advised that the board needs to find a way to get "out in front of" contract discussions in order to provide WPAG with a united stance/answer from our PUD, when asked for input.

### **CORRESPONDENCE/COMMUNICATIONS 1:06:41**

Water/Wastewater Manager Tom Martin provided an update on the District's communication history with the Sequim airport management regarding water issues,. This was in response to the January 18, 2022 Peninsula Daily News article requesting that the Sequim Valley Airport be hooked up with the PUD's water and sewer by becoming part of the Carlsborg Urban Growth Area (UGA).

General Manager Sean Worthington was pleased to report that the District went into the market last Wednesday to act upon the board-approved 2014 bond defeasance and purchase of new bonds. Taking action on that date resulted in a reduction of the District's debt service by 1.9 million dollars.

### **COMMISSIONER REPORTS 1:22:20**

Commissioner Waddell attended an WPUA education meeting and complimented Commissioner Purser on his hiring presentation at that meeting.

Commissioner Paschall attended WPUA and WPAG meetings. Of most concern to Commissioner Paschall is a proposed bill before the House that may if passed, make the presumption that a utility is at fault/responsible for a WA wildfire if transmission lines are nearby.

Commissioner Purser attended WPUA, WPAG, and Energy Northwest meetings. Topics were: proposed bills for electrification and buyback of gasoline-powered appliances and the improvement of indoor air quality, and other climate change-related bills. He reminded Commissioners that if they voice in an organization meeting a position that is opposition to that of the District's stated position, that the Commissioner is obligated to specifically state that the opinion is his own personal one (and not that of the District's).

### **STAFF REPORTS 1:42:32**

Customer Service Supervisor Chanda Halvorson and Finance Manager/Treasurer Ruth Kuch presented on a plan to restructure the Sekiu office due to an upcoming retirement there. Specifically, Forks office staff will increase from 2.5 to 3 full time CSRs; the Sekiu office will remain open on Fridays, rotating Forks CSRs to staff it every week; and the Sekiu office drop box will be removed, as it is redundant now that there is a payment kiosk in Sekiu. Commissioners approved the plan, and asked that staff (after implementation) forward any customer feedback to the board.

The meeting convened and recessed at 2:55 for a five minute break. The meeting reconvened a 3:00 PM.

Water/Wastewater Manager Tom Martin presented on the Carlsborg Urban Growth Area's (UGA) existing and pending water rights, including a briefing on the LUD #10 well nitrate increase; the Carlsborg LUD area service history and the new Carlsborg well history; the Dungeness groundwater model and mitigation concepts; future use and water rights development schedule; and Department of Ecology requirements.

### **BOARD ACTION ITEMS FOR STAFF 1:54:41 and 2:44:24**

- a. Staff is to look into the Enabling Agreement and present findings;
- b. Staff is to work on a succinct response that outlines the history of the District's involvement in Carlsborg water issues and our correspondence with the Sequim airport owner in regards to the 1-18-22 PDN article;
- c. Staff is to provide a presentation/update on our broadband efforts and grants applied for.
- d. If there is any customer feedback on the Sekiu restructuring, staff is to forward it to the board; and
- e. Staff is to respond to the letters submitted for public comment by the cities of Forks and Sequim, and the Port of Port Angeles.

**COMMENTS FROM THE PUBLIC 2:44:43**

Economic Development Council Director Colleen McAleer suggested holding an educational stakeholder meeting in regards to the post-2028 BPA contract.

**ADJOURN 2:57:57**

There being no further business to come before the Commission, the meeting adjourned at 4:24 PM.

**ATTEST:**

\_\_\_\_\_  
President

\_\_\_\_\_  
Vice President

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
*A detailed transcript of this meeting via audio recording is available to the public on the Commission Meetings page of the PUD website here: <https://clallampud.net/commission-meetings/>.*

January 24, 2022

**SUMMARY VOUCHER APPROVAL**  
**PUBLIC UTILITY DISTRICT #1 OF CLALLAM COUNTY**  
**OPERATING FUND**

We certify, under penalty of perjury, that the materials have been furnished, the services rendered, or the labor performed as described herein, and that the attached list of claims are a just, due and unpaid obligation against Public Utility District No. 1 of Clallam County, and that we are authorized to authenticate and certify said claims.

SIGNED *[Signature]* DATE 2/7/22  
 AUDITING OFFICER

*[Signature]* DATE 2-7-2022  
 GENERAL MANAGER

Vouchers audited and certified by the Auditing Officer and the General Manager have been recorded on the attached list(s) which has been made available to the Board of Commissioners of Public Utility District No. 1 of Clallam County. We, the undersigned Board of Commissioners of Public Utility District No. 1 of Clallam County, approve for payment those vouchers included on the attached list(s):

Summary for Voucher Lists Dated 1/24/2022–2/7/2022

Checks	\$	1,192,097.88
Wire Transfers		4,061,551.60
E-Payment		90,160.23
Prepays		68,669.24
<b>Total</b>	<b>\$</b>	<b>5,412,478.95</b>

\_\_\_\_\_  
 COMMISSIONER

\_\_\_\_\_  
 COMMISSIONER

\_\_\_\_\_  
 COMMISSIONER

**VOUCHER APPROVAL**  
**PUBLIC UTILITY DISTRICT #1 OF CLALLAM COUNTY**  
**OPERATING FUND**

We certify, under penalty of perjury, the materials have been furnished, the services rendered, or the labor performed as described herein, and the attached list of claims are a just, due, and unpaid obligation against Public Utility District No. 1 of Clallam County, and we are authorized to authenticate and certify said claims.

SIGNED Yoni Carter DATE 2/4/22  
 AUDITING OFFICER

SIGNED [Signature] DATE 2.9.22  
 GENERAL MANAGER

Vouchers audited and certified by the Auditing Officer and the General Manager have been recorded on the attached list which has been made available to the Board of Commissioners of Public Utility District No. 1 of Clallam County. We, the undersigned Board of Commissioners of Public Utility District No. 1 of Clallam County, approve for payment those vouchers included on the attached list:

DATE: February 7, 2022

	\$	245,434.40	Checks
		65,737.88	EPAY
		67,694.00	Wire Transfers
			Prepay
	\$	<b>378,866.28</b>	<b>TOTAL AMOUNT</b>

The attached list of claims has been paid using Check Numbers:

121597 through 121658 mailed on 2/7/22

The attached list of claims has been paid using E-Payment Numbers:

1081 through 1093 Processed on 2/7/22

The attached list of claims has been paid using Wire Numbers:

2028 through 2028 Processed on 2/7/22

Signed Yoni Carter Dated 2/7/22

AUDITING OFFICER



**VOUCHER APPROVAL**  
**PUBLIC UTILITY DISTRICT #1 OF CLALLAM COUNTY**  
**OPERATING FUND**

We certify, under penalty of perjury, the materials have been furnished, the services rendered, or the labor performed as described herein, and the attached list of claims are a just, due, and unpaid obligation against Public Utility District No. 1 of Clallam County, and we are authorized to authenticate and certify said claims.

SIGNED *Yori Carter* DATE 1/22/22  
 AUDITING OFFICER

SIGNED *[Signature]* DATE 1/24/22  
 GENERAL MANAGER

Vouchers audited and certified by the Auditing Officer and the General Manager have been recorded on the attached list which has been made available to the Board of Commissioners of Public Utility District No. 1 of Clallam County. We, the undersigned Board of Commissioners of Public Utility District No. 1 of Clallam County, approve for payment those vouchers included on the attached list:

DATE: January 24, 2022

\$	688,479.87	Checks
	3,972,635.86	Wire Transfers
	12,653.07	EPAY
	68,669.24	Prepay (Vehicle Purchase)
<b>\$</b>	<b>4,742,438.04</b>	<b>TOTAL AMOUNT</b>

The attached list of claims has been paid using Check Numbers:

121443 through 121527 mailed on 1/24/22

The attached list of claims has been paid using E-Payment Numbers:

1062 through 1090 Processed on 1/24/22

The attached list of claims has been paid using Wire Numbers:

1999 through 2004 Processed on 1/24/22

Signed *Yori Carter* Dated 1/24/22  
 AUDITING OFFICER

**PUD#1 OF CLALLAM COUNTY, WASHINGTON**

**FEBRUARY 2022  
DELINQUENT ACCOUNTS TO BE REMOVED  
FROM ACTIVE ACCOUNTS RECEIVABLE**

Delinquent accounts listed for electricity and water on the attached pages are approved to be removed from the active accounts receivable. All accounts to be removed are grouped and total as follows:

02/01/22	Clallam Bay – Evergreen	\$	-
02/01/22	Forks – Evergreen	\$	4,709.07
02/01/22	Port Angeles – Evergreen	\$	15,236.66
02/01/22	Sequim – Evergreen	\$	3,441.90
02/01/22	All Area-Direct W/O Bankruptcy	\$	-
02/01/22	All Area-Direct W/O Deceased	\$	-
02/01/22	All Area-Direct W/O Small Balance	\$	24.43
	<b>SUBTOTAL</b>	\$	<b>23,412.06</b>
02/01/22	30% Collection Fee	\$	7,016.27
	<b>TOTAL</b>	\$	<b>30,428.33</b>
	<b>Previous Debt Collected in January 2022</b>	\$	664.83
	<b>Previous Debt Collected Year To Date 2022</b>	\$	664.83

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
President

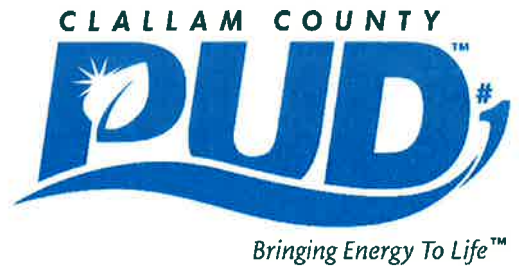
\_\_\_\_\_  
Secretary

\_\_\_\_\_  
Vice-President

SW:kw

Attachments

These lists comply with our CIS software which removes accounts from the active accounts receivable when placed with a collection agency (classifies them as bad debt). The exceptions are bankruptcies, deceased customers and customer accounts with small balances under \$20. These are removed under the categories of All-Area Direct W/O, but not placed with a collection agency.



MEMORANDUM

Date: February 14, 2022  
To: Sean Worthington, General Manager  
From: John Purvis, Assistant General Manager  
Re: CONTRACTOR PREQUALIFICATION APPLICATIONS

The contractor on the following list is requesting approval for prequalification for the upcoming calendar year. Ruth Kuch, Treasurer/Finance Manager, has examined the financial data submitted with the application as well as the bonding letter from their surety and/or bonding company and has recommended the prequalification amount as indicated:

Contractor	Previously Approved Amount	Recommended Amount
Mi-Tech Services, Inc	\$500,000	\$500,000

Approved by Board of Commissioners at meeting of: \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Sean Worthington, General Manager



# Power Supply Analysis

2/14/2022



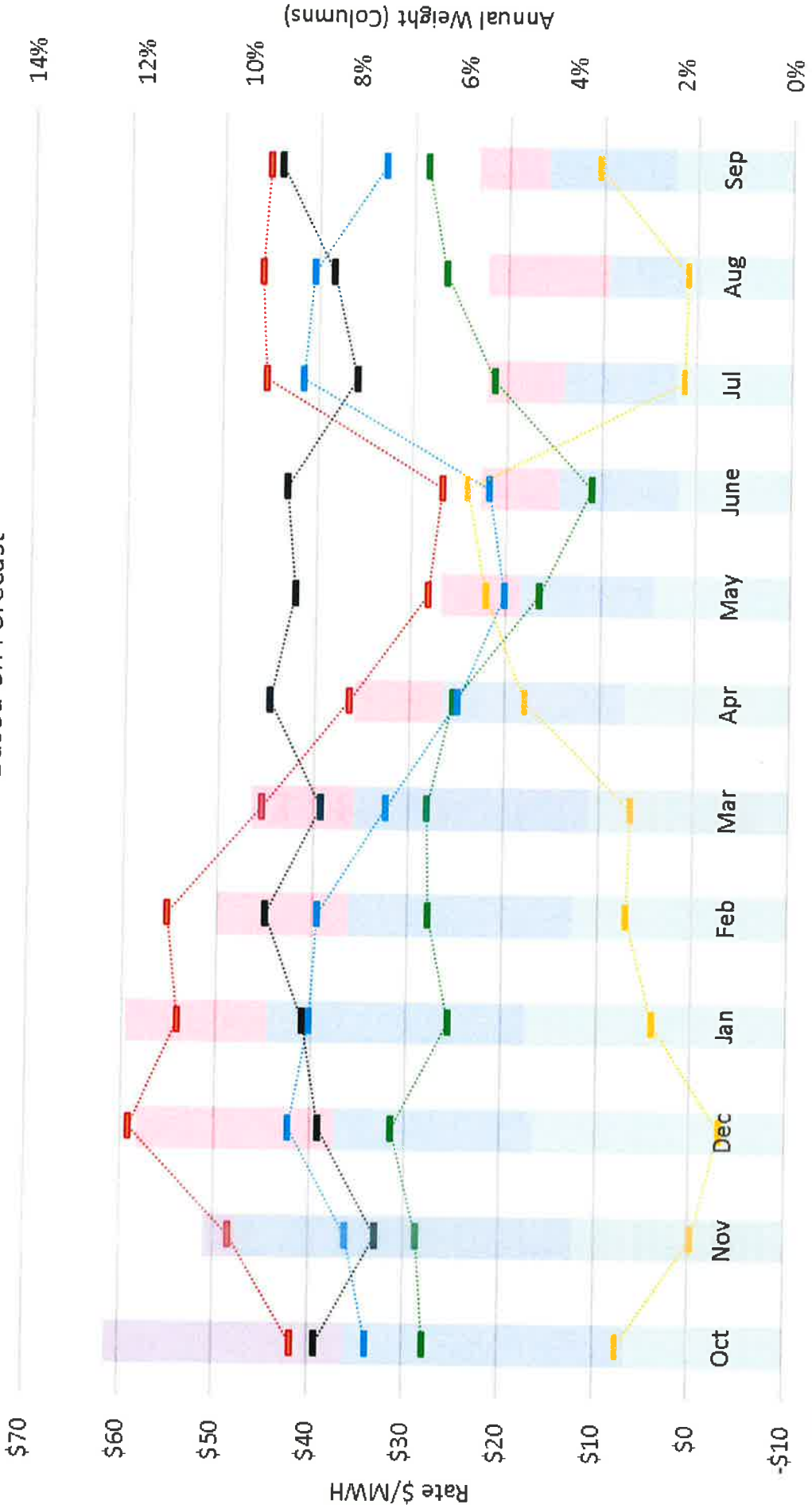
# BPA Billing Determinants



- BPA Billing Determinants:
  - Complex and convoluted
  - Not independent nor stand alone
- Transmission and Power are not entirely independent, for example power HLH and LLH are major transmission determinants
- One must deconstruct BPA billing to find effective rates for comparative analysis
  - A fixed monthly rate for each of 12 months
  - A two tiered MWH rate for HLH for each of 12 months
  - A single tiered MWH rate for LLH for each of 12 months
  - Results based on forecast load



# BP-22 Effective Rates, Incremental & Base Power + Transmission Wholesale Costs Based on Forecast



- Weight LLH
- Weight HLH Above Contract Demand
- Rate LLH
- Rate HLH Below Contract Demand Shapped to Forecast
- Rate Effective Composite Fixed Charge Normalized to MWH
- Weight HLH Below Contract Demand
- Weight Unused HLH Below Contract Demand Headroom
- Rate HLH Above Contract Demand, Shaped to Forecast
- Rate Base Composite Power + Transmission

# Incremental Tier 1 Cost of Power (Effective Block Rate)

Month	HLH Total	HLH aMW	HLH Shape	LLH aMW
Oct	\$28.34	\$28.34	\$0.00	\$26.77
Nov	\$30.03	\$30.03	\$0.00	\$27.60
Dec	\$53.52	\$36.71	\$16.81	\$30.35
Jan	\$46.35	\$32.48	\$13.88	\$24.48
Feb	\$48.68	\$32.95	\$15.74	\$26.79
Mar	\$39.09	\$26.11	\$12.98	\$26.93
Apr	\$31.02	\$19.61	\$11.40	\$24.30
May	\$23.57	\$15.42	\$8.15	\$15.44
June	\$21.19	\$16.24	\$4.94	\$10.06
July	\$38.82	\$34.88	\$3.94	\$20.23
Aug	\$39.31	\$33.97	\$5.34	\$25.43
Sep	\$38.85	\$26.66	\$12.19	\$27.42
Weighted Avg.	\$36.51	\$27.77	\$8.74	\$23.80



# Incremental Tier 1 Costs Transmission



Month	HLH Total	HLH aMW	HLH Shape	LLH aMW
Oct	\$5.53	\$4.37	\$1.16	\$1.10
Nov	\$6.18	\$4.50	\$1.68	\$1.10
Dec	\$5.60	\$3.95	\$1.65	\$1.10
Jan	\$7.74	\$5.47	\$2.27	\$1.10
Feb	\$6.62	\$4.64	\$1.97	\$1.10
Mar	\$6.30	\$4.25	\$2.05	\$1.10
Apr	\$5.36	\$3.56	\$1.80	\$1.10
May	\$4.68	\$3.28	\$1.40	\$1.10
June	\$5.63	\$4.37	\$1.26	\$1.10
July	\$6.67	\$6.00	\$0.67	\$1.10
Aug	\$6.57	\$5.64	\$0.93	\$1.10
Sep	\$6.39	\$4.50	\$1.89	\$1.10
Weighted Avg.	\$6.10	\$4.54	\$1.56	\$1.10





# Alternative Supply Incremental Analysis



Bringing Energy To Life™

- It is not cost effective to supplant Tier 1 with an alternative market based **non-carbon** block product unless:
  - HLH Incremental Breakeven = **\$27.77** / aMW
  - LLH Incremental Breakeven = **\$23.80** / aMW
  - Monthly Average BPA HLH Shaping Charge = \$8.74 / aMW
- Current market based forward price curves exceed \$50/aMW
- Forward price curves through 2020 and first several months of 2021:
  - 2022: \$24/aMW at 50% confidence
  - 2022: <\$38/aMW at 95% confidence
  - Miss by four standard deviations???



# Market Trends

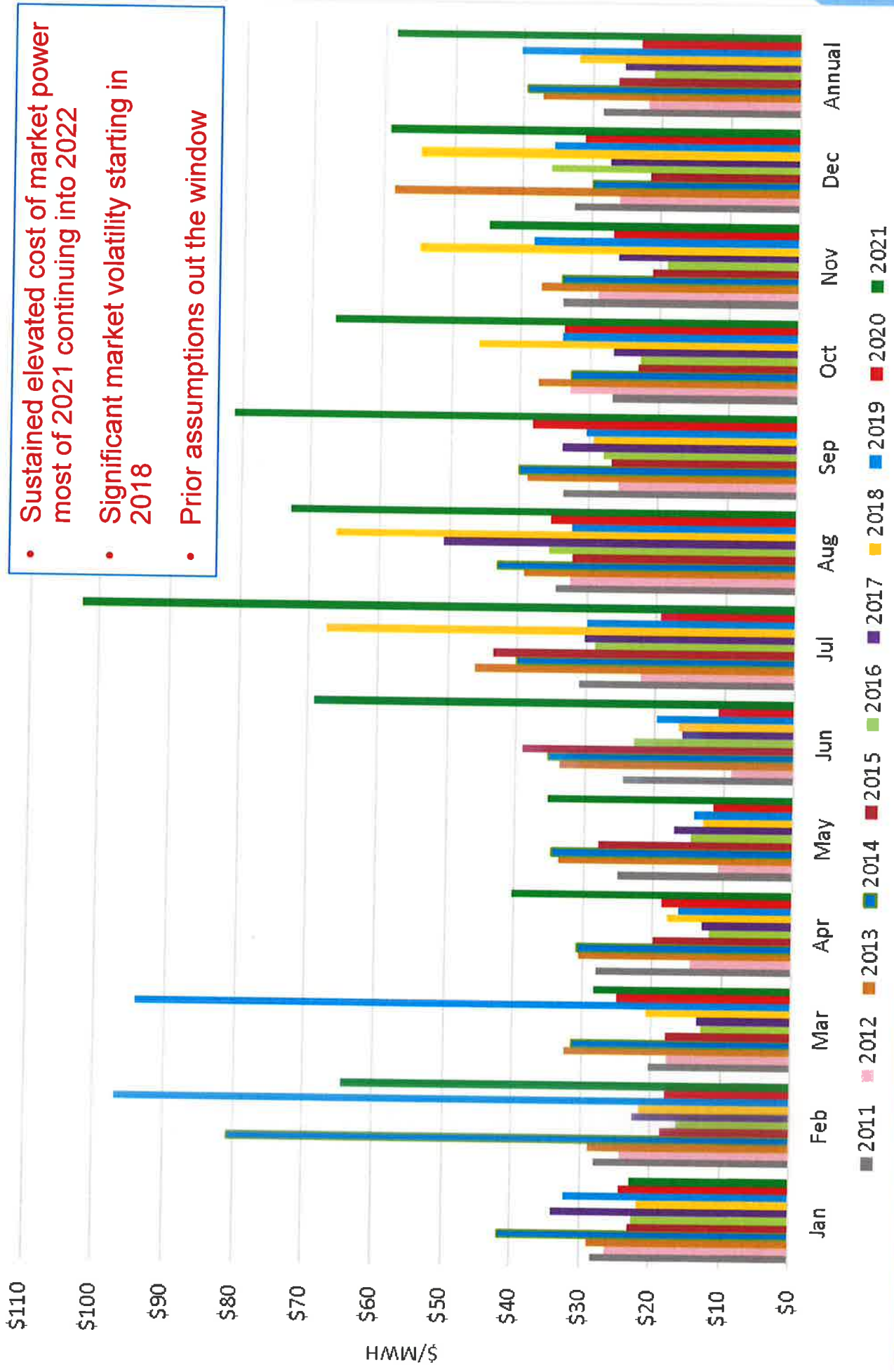


Bringing Energy To Life™

- BPA Tier 1 Power has recently become substantially more competitive than market power
- Mid-C prices trends and forecast are no longer favorable with respect to cost
- A diminishing spot market volume
  - Regional trend towards forward market procurement and long-term renewable contracts (CETA impacts on IOUs?)
  - Coal generation retirements
  - Continuing poor hydro conditions Western Interconnect(South)
  - Hydro curtailments / fish mitigation (Impacts both BPA and Market either directly or via BPA secondary sales)
- BPA Tier 2 cost follows Mid-C prices, which may offer future opportunities for serving above CHWM load

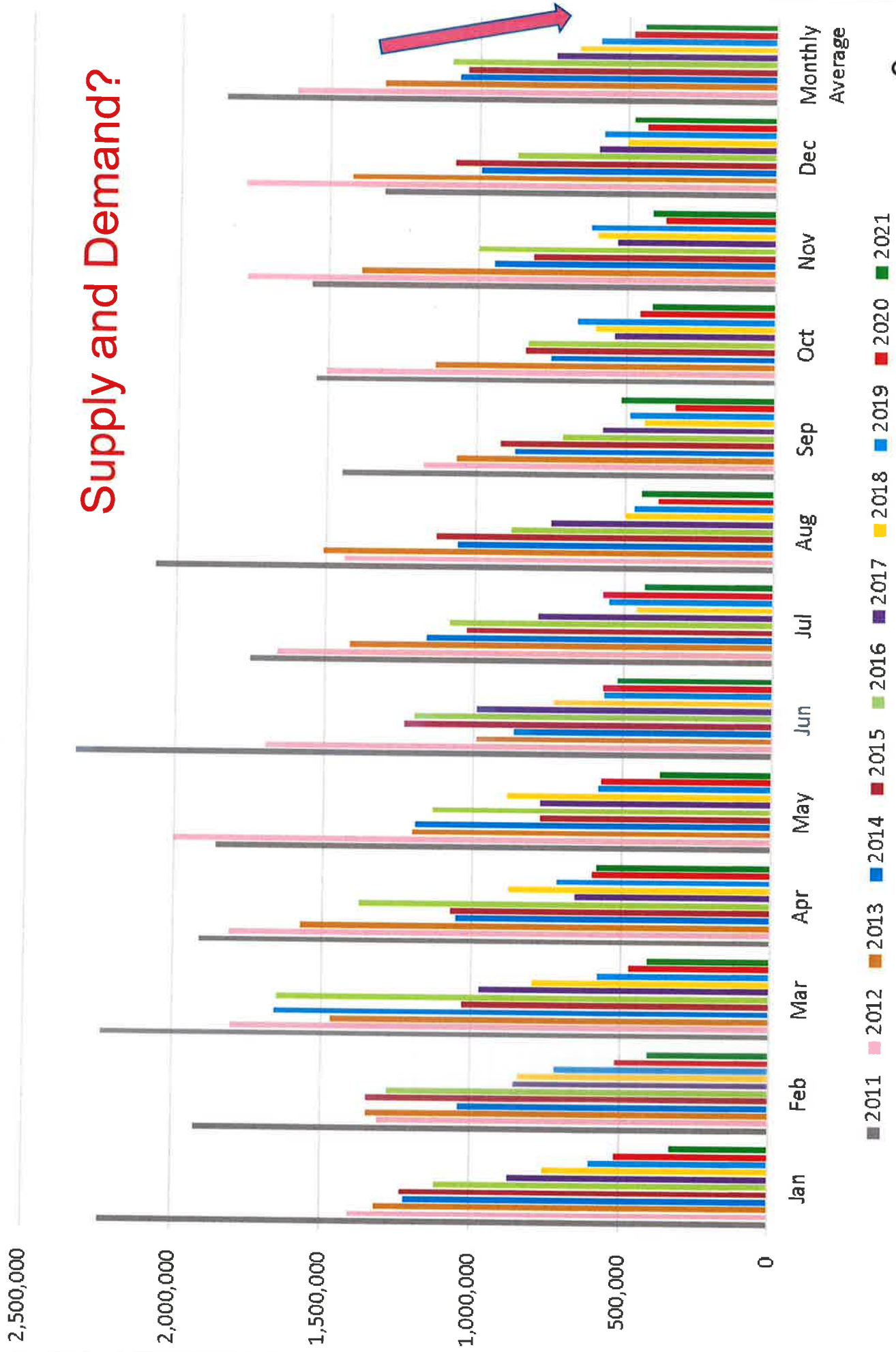


# Mid-C Spot Market Weighted Average On-Peak for each Month



- Sustained elevated cost of market power most of 2021 continuing into 2022
- Significant market volatility starting in 2018
- Prior assumptions out the window

Mid C Hub MWH Sold - Monthly Average



# Supply and Demand?

# Mid-C Cost and Volume



Bringing Energy To Life™

Year	HLH Weighted Average \$/MWh	Average Monthly HLH Market Volume MWh	Average Monthly Consumption MWh WA+OR+ID
2011	\$28.48	1,848,800	13,680,674
2012	\$21.94	1,614,567	13,561,430
2013	\$37.23	1,320,500	13,727,646
2014	\$39.43	1,067,767	13,559,085
2015	\$26.27	1,041,933	13,369,906
2016	\$21.30	1,095,433	13,274,802
2017	\$25.37	741,800	13,815,482
2018	\$32.00	666,300	13,590,434
2019	\$40.39	594,967	13,786,871
2020	\$23.07	483,567	13,092,294
2021	\$58.37	445,200	13,842,465



# Future Market Impact



Bringing Energy To Life™

- BP-24 Future tier 2 costs can be approximated by Mid-C prices over the preceding 24 months plus a scheduling and risk adder of several dollars per MWH
- Elevated Mid-C prices since April 2021 will be included in future BPA Tier 2 calculations
- BP-24 Tier 2 costs are very likely to exceed \$45/MWH, a 31% increase over BP-22
- The Energy Authority(TEA) forward price curves have stabilized at between \$45 and \$55/MWH for each of the next 4 years
- The District is likely to see a wholesale cost of power increase exceeding 3% in BP-24 simply due to elevated Tier 2 costs
- If BPA sells surplus into a high cost market, a Tier 1 decrease may largely offset the Tier 2 increase
- Election for Tier 2 or new dedicated sources requires advance notice. For Clallam the earliest future opportunity is BP-26





# Strategic Planning Workshop

## Future Power Supply Options & CETA

9/14/2020

Update



# 9/2020 Presentation Topics



- Solar & Wind Generation
- Distribution Scale Batteries
- Small Modular Reactor (SMR) Nuclear





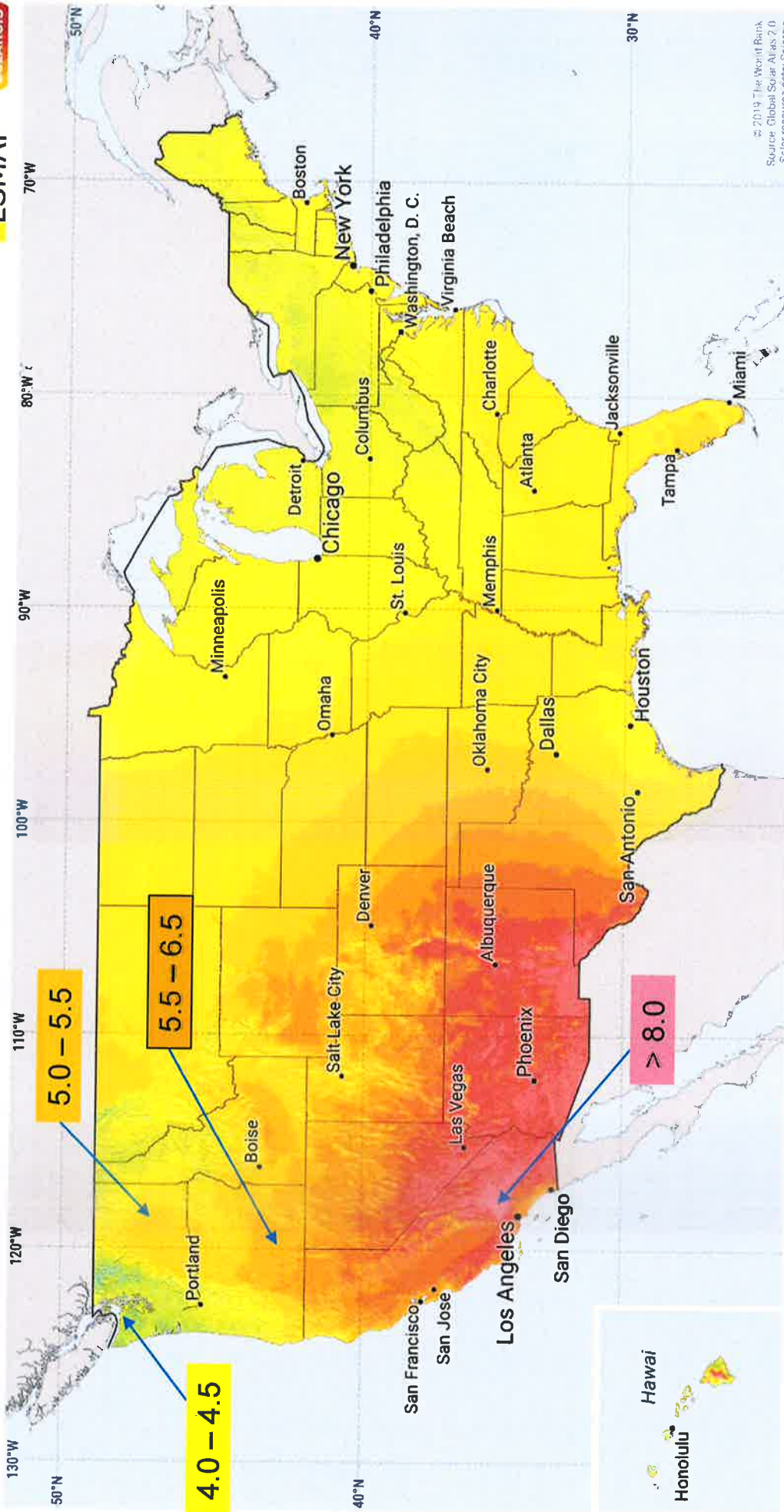
# Latest Renewable Offering Wind and Solar



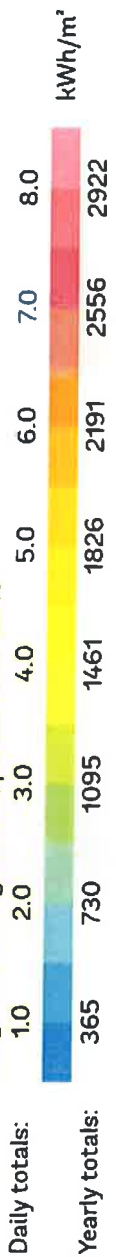
- UM 2059—2020 All-Source Request for Proposals
- Pacific Power average bid scores
  - Solar Generation Plan = \$27.43/MWH bus price
  - Wind Generation Plan = \$30.77/MWH bus price
- These Oregon projects are the most competitive PNW renewable offerings to date
  - The seasonal production to Clallam Shape does result in an effective \$2.28 / MWH penalty for the solar project
  - The BPA RSS costs, including shaping, based on prior analysis is expected to be approximately \$16.32/MWH for solar and \$16.50/MWH for wind



# DIRECT NORMAL IRRADIATION UNITED STATES OF AMERICA



Long term average of DNI, period 1999-2018



© 2019 The World Bank  
Source: Global Solar Atlas 2.0  
Solar resource data: Solargis

500 km

This map is published by the World Bank Group, funded by ESMAP, and prepared by Solargis. For more information and terms of use, please visit <http://globalsolaratlas.info>

# Summary

## Incremental Analysis BP-22



Bringing Energy To Life™

	Power	RSS and/or Shaping	Transmission	Total
Incremental HLH Tier 1	\$27.77	\$8.74	\$6.10	\$42.61
Incremental LLH	\$23.80	\$0	\$1.10	\$24.80
Incremental BPA Weighted	\$26.27	\$5.45	\$4.21	\$35.93
Packwood Hydro	\$39.86	\$8.10	\$4.21	\$52.17
Tier 2 (BP-22)	\$34.39		\$4.21	\$38.60
Tier 2 (BP-24) ?	\$45.00 ? \$55.00 ?		\$4.21	\$49.21 ? \$59.21 ?
Solar <sup>(1)</sup> Primarily HLH	\$27.43 <sup>(1)</sup>	\$16.32 <sup>(3)</sup> +\$2.28 <sup>(2)</sup>	\$7.06 <sup>(2)</sup>	\$53.09
Wind <sup>(1)</sup> HLH & LLH	\$30.77 <sup>(1)</sup>	\$16.50 <sup>(3)</sup>	\$7.38 <sup>(2)</sup>	\$54.65
SMR (9/2020 Analysis)	\$50.04 <sup>(2)</sup>	\$5.45 <sup>(2)</sup>	\$4.57 <sup>(2)</sup>	\$60.06

(1) UM 2059—2020

(2) Staff Estimate

(3) BPA Similar Projects



# Summary



- To bring on a new dedicated source to serve above CHWM load requires advance notice
  - BP-26 is the first future opportunity
- It is unlikely we will want to bring on new dedicated resources to supplant tier 1 in a future contract
  - Our dedicated Packwood supply now nets about a \$16 / MWH higher than current BPA composite incremental rate
  - Latest renewable offerings have a similar differential
  - **Warning – once a resource is dedicated, BPA Tier 1 is lost for the life of the oncoming project**
- Expected rising tier 2 costs are likely to make alternatives for serving above CHWM load cost effective, including renewable options



# Buying Power is Complex Requires Outside Expertise



Bringing Energy To Life™

- Procurement of power requires membership in organizations with functions similar to:
  - Northwest Requirements Utilities (NRU) \$51,000/year
  - Northwest Energy Management Services (NEMS) 24,000/year, above CHWM procurement
  - The Energy Authority (TEA), power trading and management fees
  - These cost can be several dollars per MWH over and above forward market contracts
- Even with procurement costs, power can be procured several dollars below the BPA tier 2 rate, but with substantial downside risk in volatile markets, as have recently occurred
- With CETA, Above CHWM load will eventually need to be non-carbon

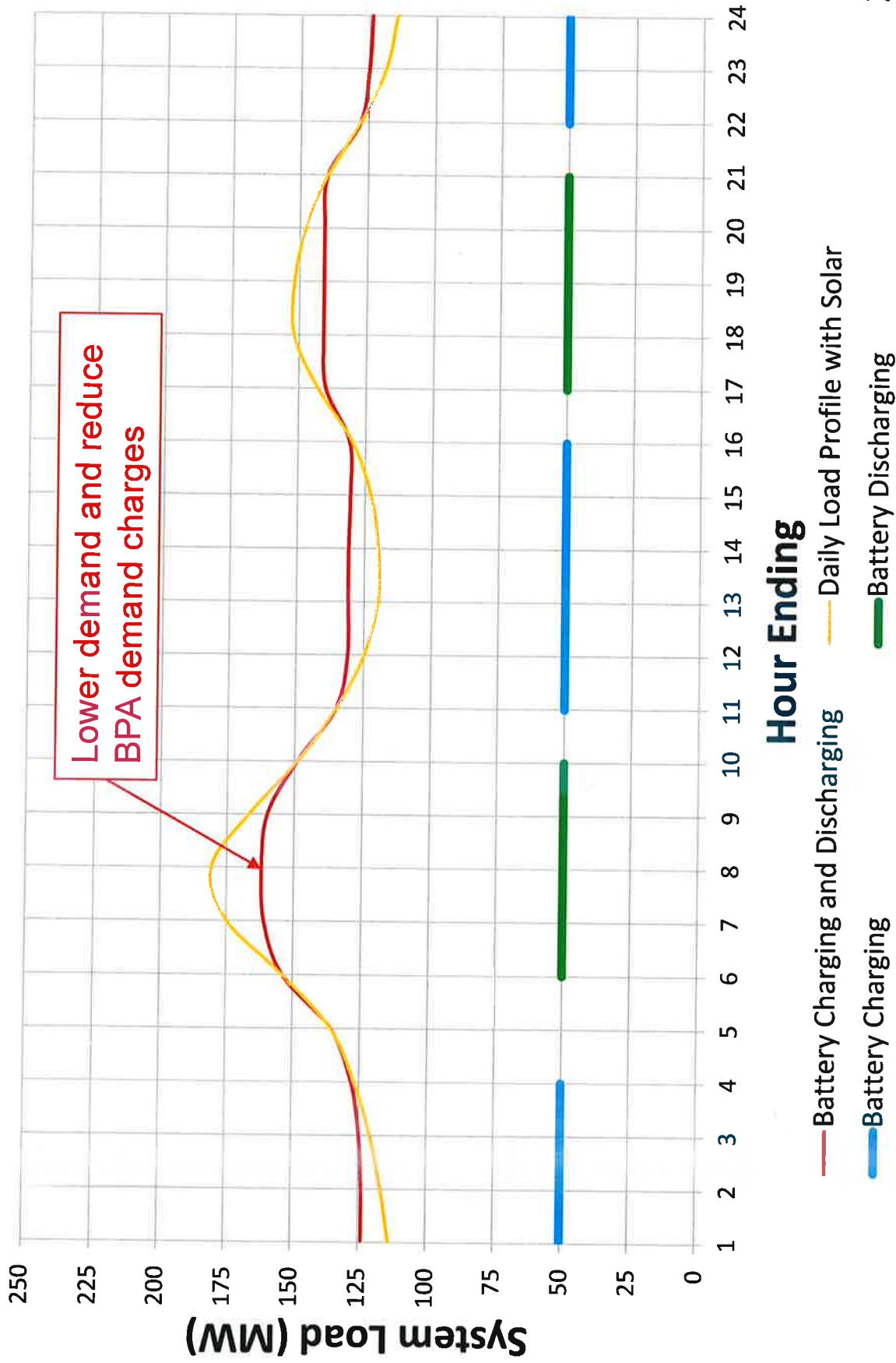




# Recent Battery Trends



# Battery Peak Shaving Concept



# Distribution Scale Battery 5MW/20MWH



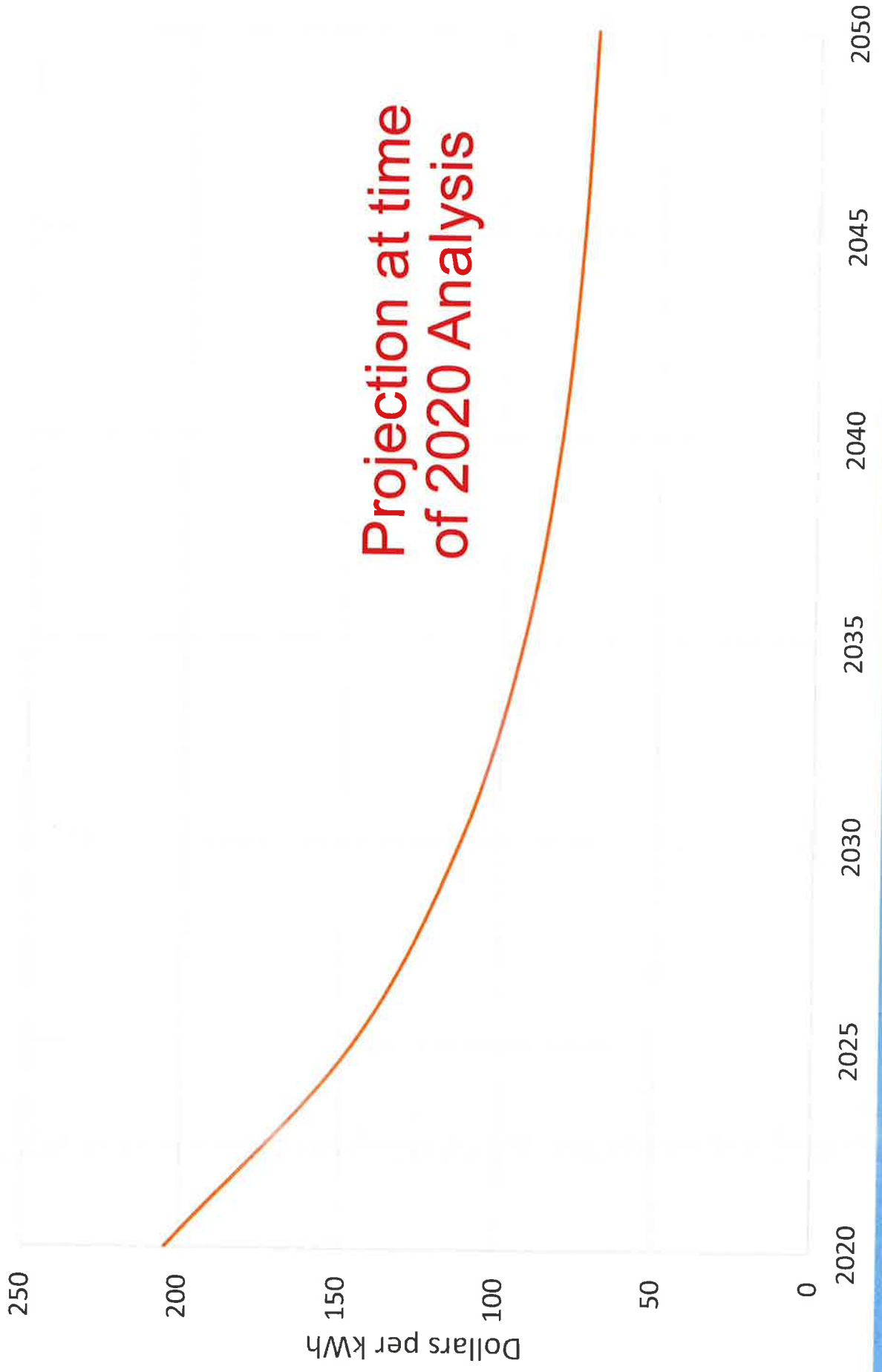
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- Cost recovery through reduction in BPA demand charges
- Projected economic viability 2024-2026 based on BP-20 and projected declining battery component costs
- Unexpectedly, cost analysis using BP-22 resulted in a net lowering of demand charges for most months compared to BP-20.
  - BP-20 cost recovery = \$538,000/year
  - BP-22 cost recovery = \$455,000/year
- Adverse battery cost trends due to COVID, manufacturing and supply chain issues
  - More than transitory?





Li-Ion Battery Cost, 60MW 120MWh \$/kwh  
Cost Projections (NREL – mean case)



# Battery Grade Lithium Carbonate Price Trends

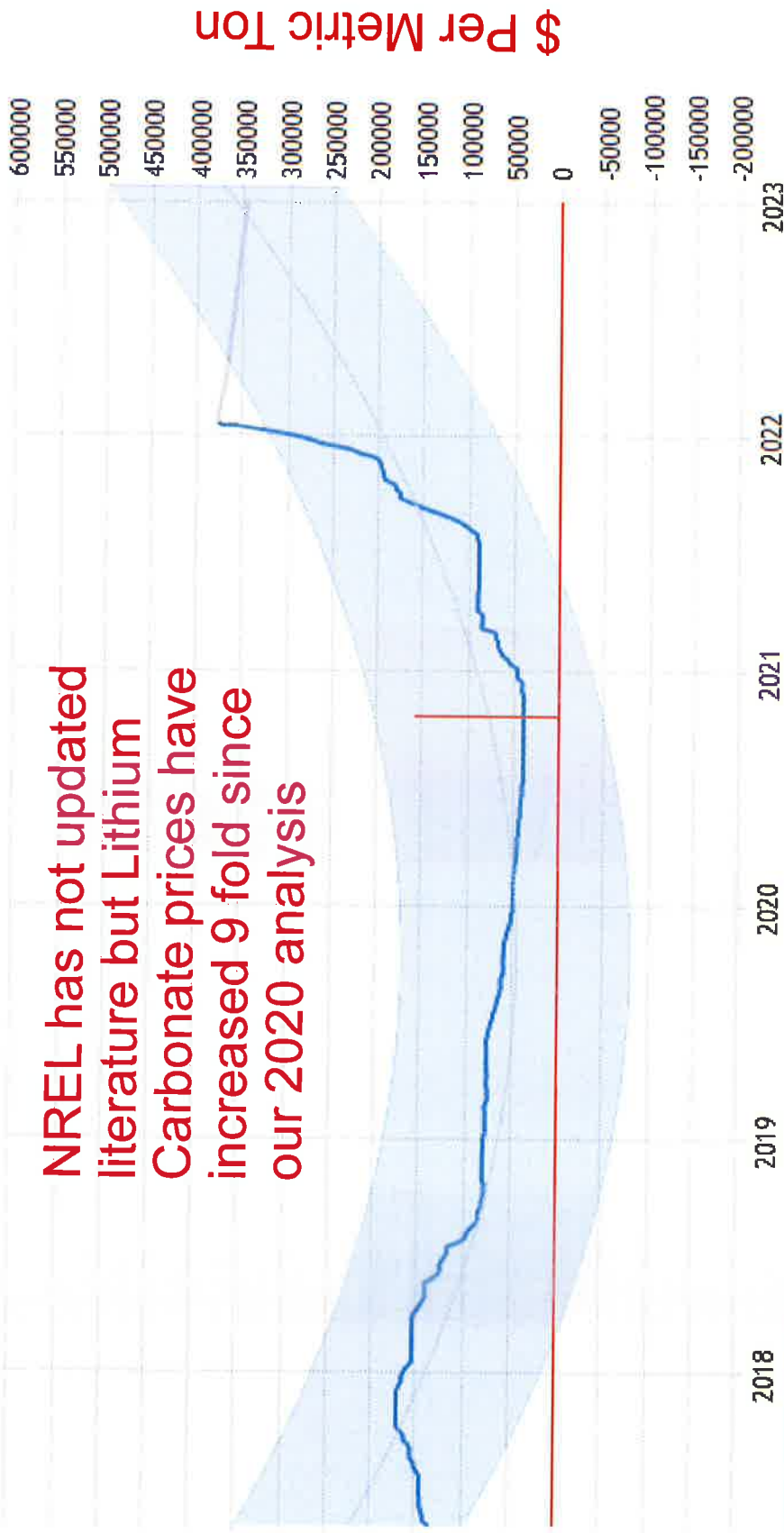


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Lithium is expected to trade at 369685.75 points by the end of this quarter, according to Trading Economics global macro models and analysts expectations. Looking forward, we estimate it to trade at 347186.75 in 12 months time.

1Y 5Y 10Y 25Y MAX Chart Compare Export API Embed

**NREL has not updated literature but Lithium Carbonate prices have increased 9 fold since our 2020 analysis**



# Battery Trend Takeaways



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- Vehicle electrification is likely to be substantially delayed due to battery component costs and availability
- Economic viability of the planned Distribution Scale Battery project will be pushed out due to higher project cost and slower cost recovery.
- An alternative CETA project may be needed



# T1 System Size Analysis Overview

PPC Rates and Contracts Group

1-18-22

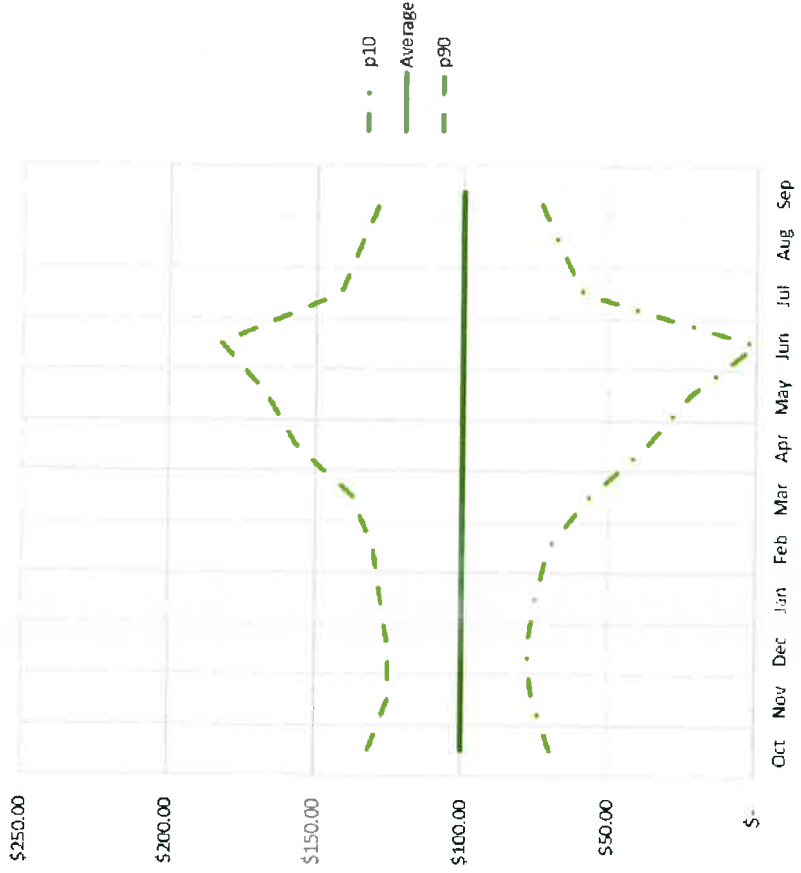
**Clarifications and comments  
associated with PPC Modeling**

# AURORA modeling BP-22 (2020) vs PPC (2021)



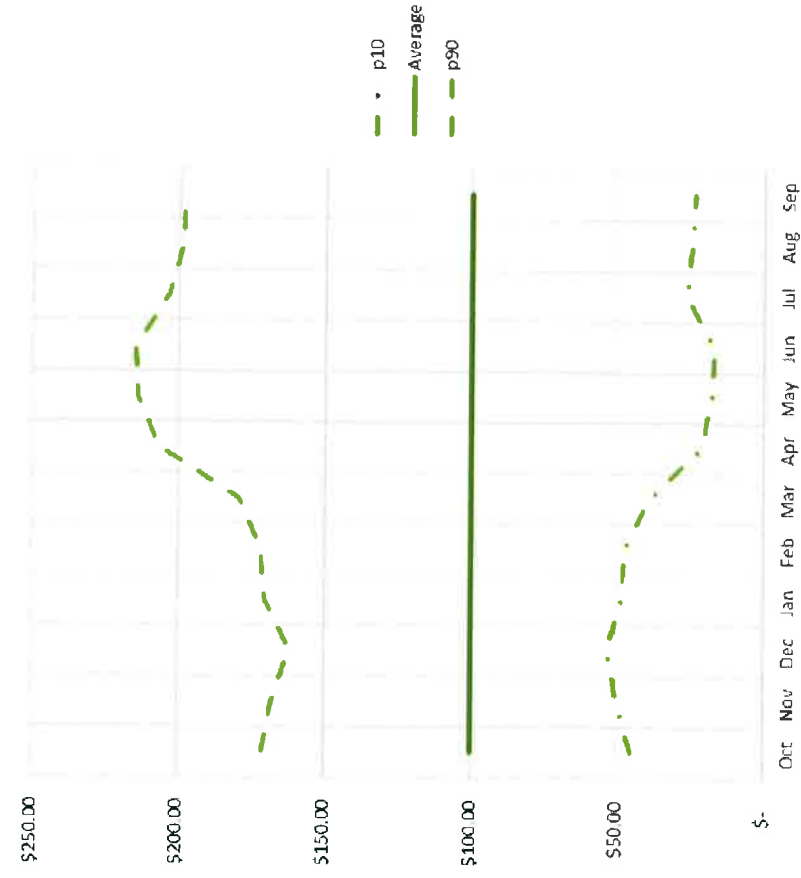
## BP-22 and PPC Volatility Distribution

Arbitrarily set  
to \$100/MWH



Upside and downside variance balanced

BP-22



Upside > downside, expanded variance

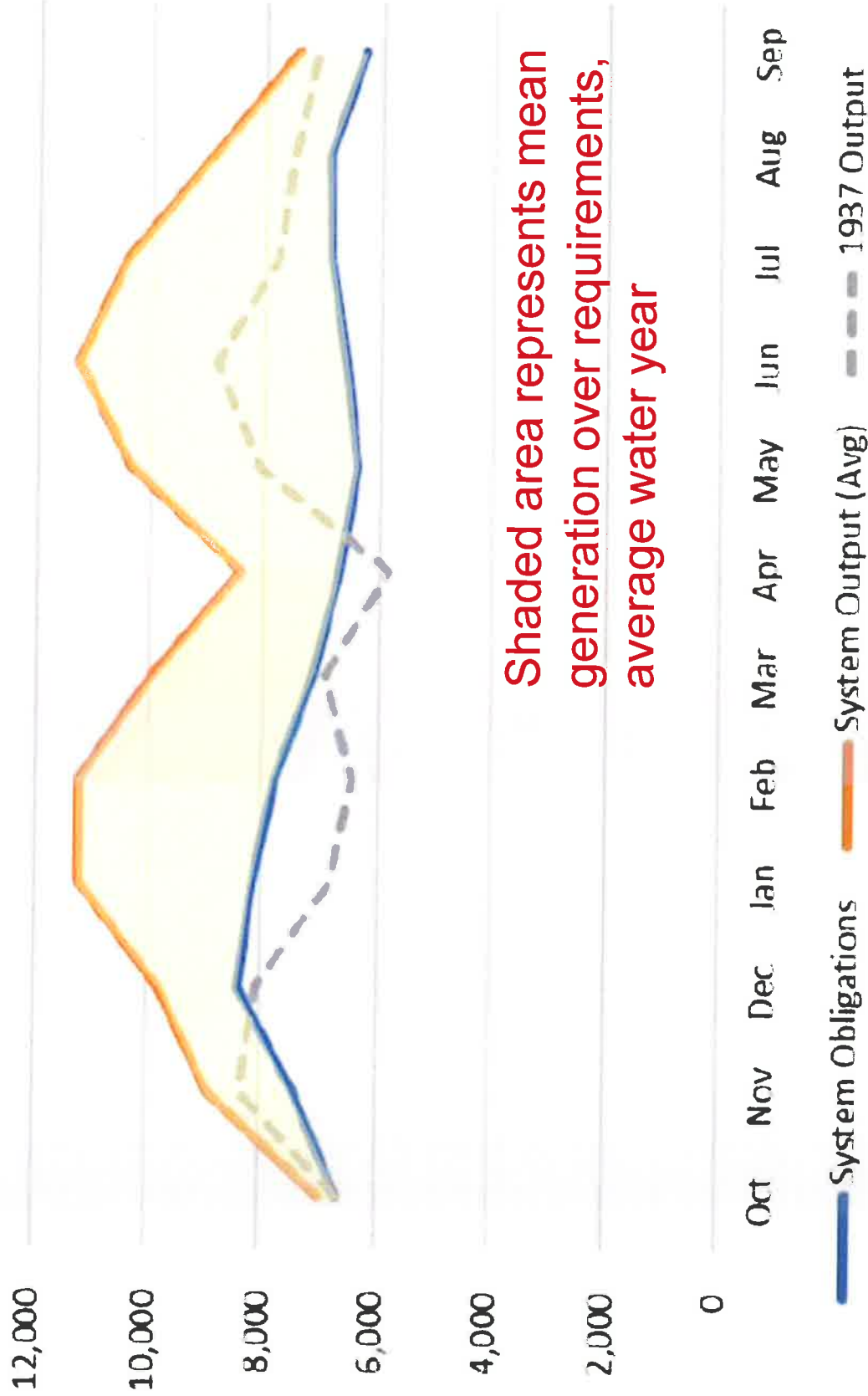
PPC

# PPC System Modeling



## System Output and Shape

Life™

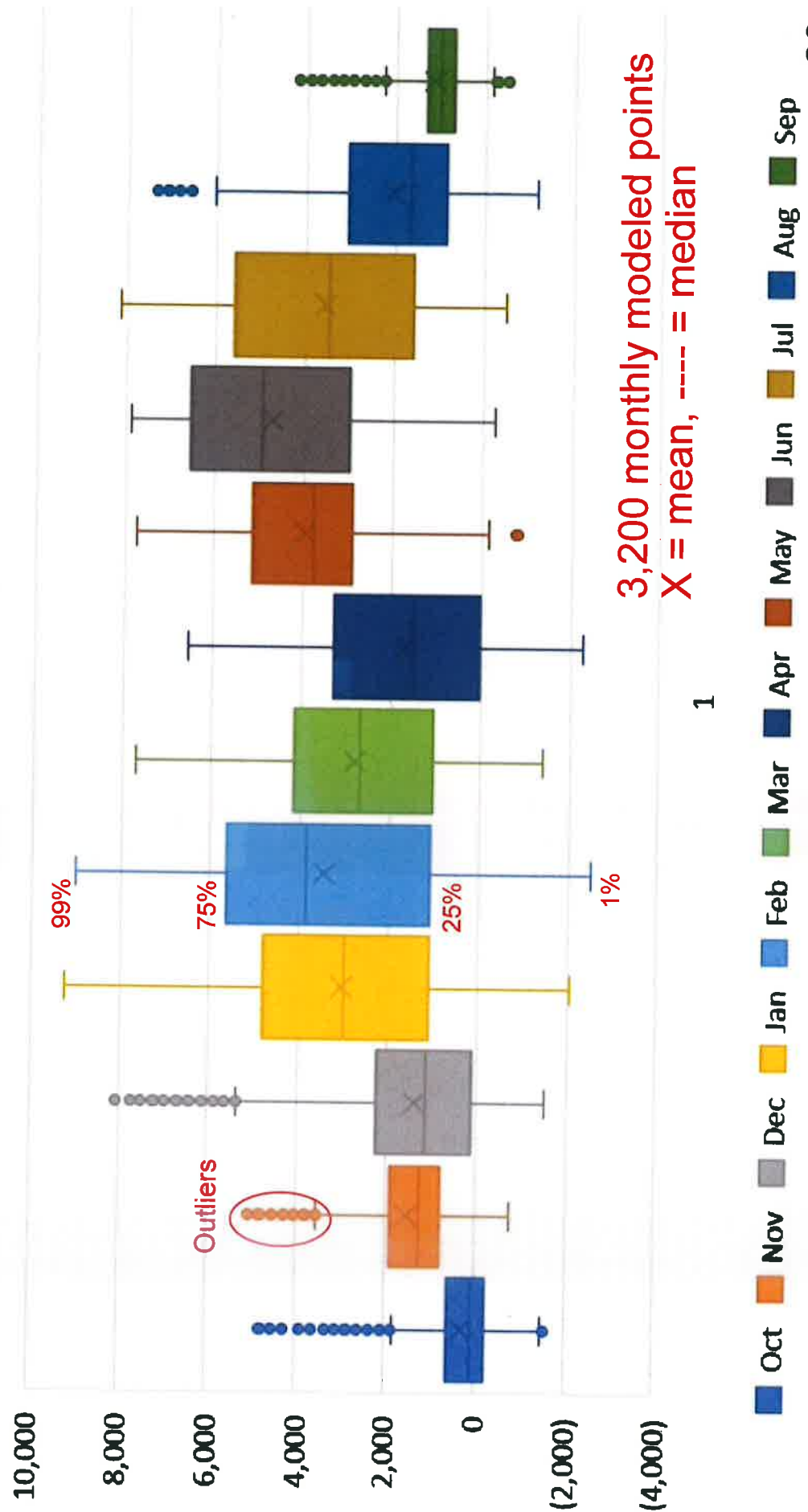


# Net Inventory Distribution Generation minus Obligations



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Net Inventory Position By Month



Average Generation MW

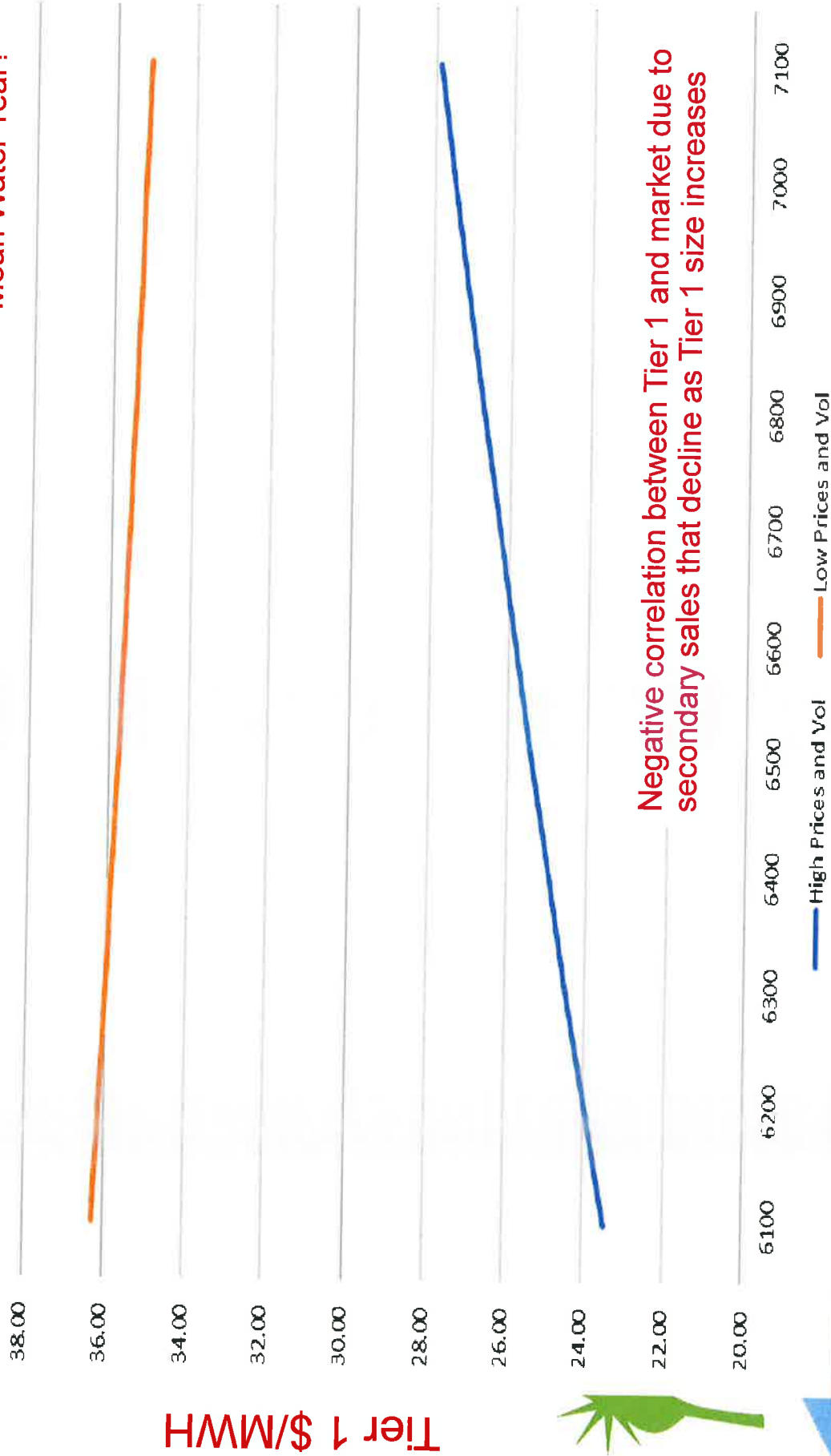
3,200 monthly modeled points

1

# Market & Secondary Sales Impact



Relationship of Rates and T1 Sales Levels **Mean Water Year?**



Negative correlation between Tier 1 and market due to secondary sales that decline as Tier 1 size increases

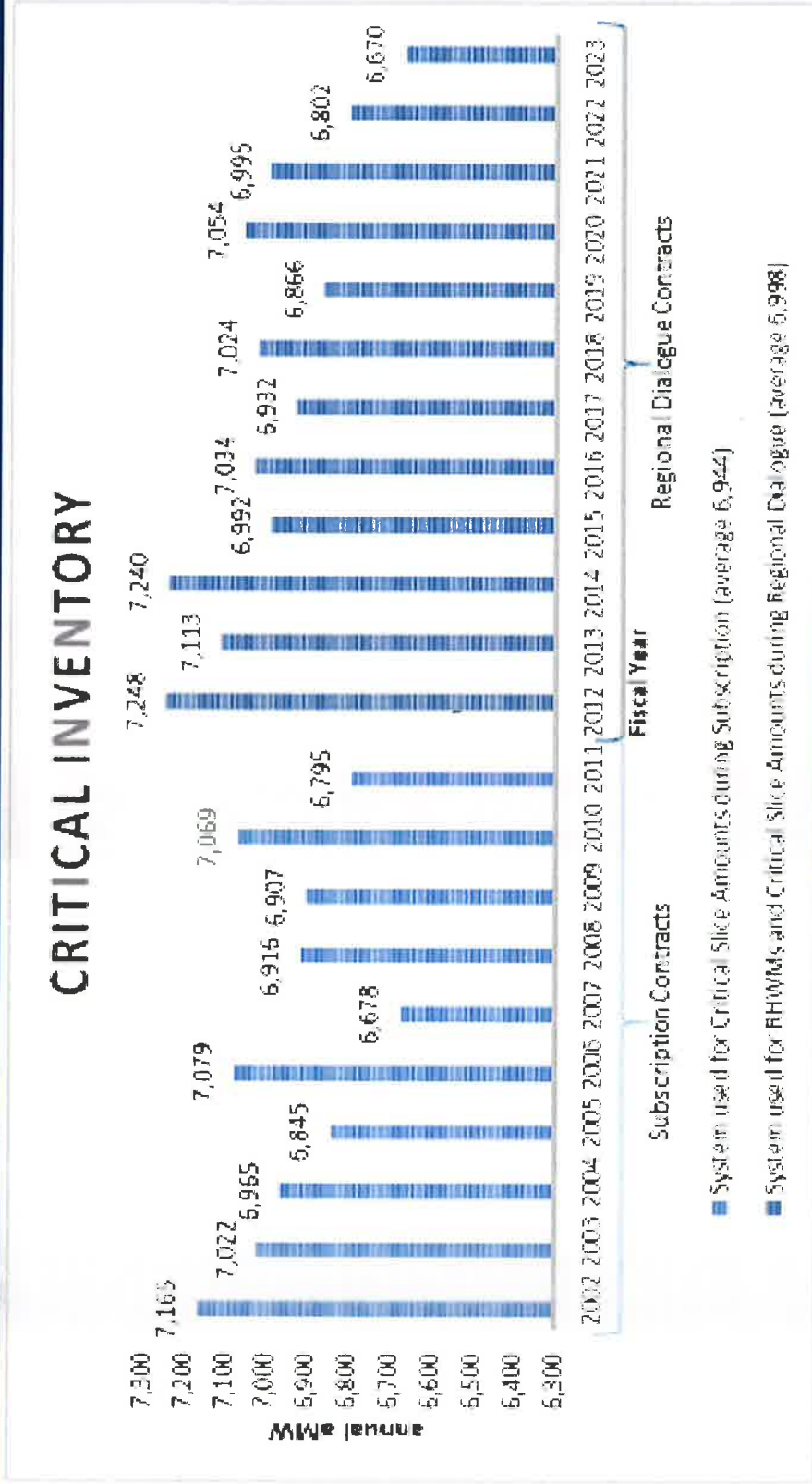




POST 2028 CONCEPT PAPER:  
PUBLIC POWER DISCUSSION ON  
BPA SYSTEM SIZE AND ALLOCATION

WPAG  
PRESENTATION

# Critical Firm Power 2002 through 2023



# Question – Critical Firm Power

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- **AT this point in the presentation Ryan asked for feedback.**
- **Do you favor fixing Critical Firm Power for the duration of the upcoming contract, or continue the current process? Yes**
  - If Critical Firm Power were fixed it would eliminate uncertainty and year to year fluctuations.
  - Customers could more accurately estimate Tier 2 requirements well into the future.
  - Would avoid administrative costs associated with setting Critical Firm Power every two years
  - May prompt BPA to put more thought into market purchases or system augmentation **!!!! Staff considers this of utmost importance**

# CHWM Options Cont'd

- **Option 1: Maintain and continue the current CHWMs to use in the post-2028 contracts** Compared to most other customers, Clallam would be allocated a lower portion of Tier 1 compared to requirements, as is the case today. Worst option
  - Business as usual
  - Could create perceived winners and losers
- **Option 2: Fully reallocate CHWMs to be used starting with the first rate period under the new contracts based on updated loads and resources** Almost all customers would receive a Tier 1 allocation that is proportion to their requirements at the onset of the contract, substantially increasing our proportion of load served by Tier 1. Best and we believe the most fair option
  - Could be based on similar methodology as that used in 2011
  - Could be based on yet to be identified different methodology
  - Could create perceived winners and losers
- **Option 3: Use an average of the CHWMs determined under Option 1 and Option 2** A compromise that retains but partially mitigates the disparities in Option 1
  - Split the baby approach
  - Could create perceived winners and losers

# CHWM Options Cont'd

- **Option 4: Set the post-2028 CHWM for each customer at the higher of its CHWM under Option 1 and Option 2. Very complex and conditional on several assumptions, including system augmentation. Not be as favorable to Clallam as option 2 unless Tier 1 significantly augmented. Likely the only current option that will garner a substantial majority of public power support**
  - Fix the size of the Tier 1 system for the term of the new contract at the sum of the CHWM so determined
  - This would fix the system at approximately 7,400 aMW if done using most recent RHWM process data
  - Each rate period, customers would be allowed to purchase Tier 1 power up to the lower of their CHWM and their Net Requirements
  - To the extent the sum of Net Requirements for a given rate period is lower than the sum of CHWMs, BPA would use the unused-CHWM/RHWM to first reduce balancing/augmentation and then remarket any excess to Tier 2 or as secondary energy
  - BPA could potentially sell more energy to preference customers from the existing system at the PF Tier 1 Rate if combined with a non-critical water assumption to set the firm size of the system
  - Each customer would have certainty as to the amount of Tier 1 power it is entitled to during the term of the contract
  - Attempt to eliminate the zero-sum game of the other options to create winners and losers rather than winners and losers

# CHWM Options Cont'd – (BPA) Option 5

B O N N E V I L L E P O W E R A D M I N I S T R A T I O N

## A hybrid CHWM recalculation example

- Use data from a RHWML process to determine those customers with headroom. Determine the CHWM amounts those customers could free up that would result in their headroom being reduced by 50%. Re-allocate the freed up CHWM to all other customers based on Above-RHWML Load (Above RHWML) size.
- Using BP22 RHWML Process data this could look like:
  - $\text{CHWM}^{\text{RevisedHeadroom}} = \text{CHWM}^{2022} - ((0.5 * \text{Headroom}) / (\text{RT1SC} / \text{Sum of CHWM}^{2022}))$
  - $\text{CHWM}^{\text{RevisedAboveRHWML}} = \text{CHWM}^{2022} + ((\text{AboveRHWML}^{2022} / \text{Sum of AboveRHWML}^{2022}) * \text{Sum of CHWM}^{2022} - \text{Sum of CHWM}^{\text{RevisedHeadroom}})$

	CHWM 2022	count
Headroom 2022	280 aMW	34
AboveRHWML 2022	444 aMW	100
	CHWM Revised	count
Headroom Revised	140 aMW	34
AboveRHWML Revised	304 aMW	100

- A benefit of this method is that CHWMs could be locked down rather quickly.
- A drawback of this method is that there would still be customers experiencing headroom or Above-RHWML Load based on load changes that have occurred since 2010.

PROVIDER OF CHOICE  
POST-2028

Pre-decisional. For Discussion Purposes Only.

27

**How much? Why should some have headroom and other Tier 2? Functionally comparable to option 3**

# Staff Recommendation BPA 2028



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- Seek lowest future cost power supply option(s) and technologies while conforming to CETA carbon requirements
  - Based on current information, market conditions and Aurora modeling, this will require maximizing our share of Tier 1 with no reduction in our net requirements served by BPA
  - In a high cost market environment we will need to seek to minimize Tier 2 requirements and may have to look for non-BPA options to serve Tier 2 load





# Questions?







Published January 2022

## Washington State Broadband Office – Fall 2021 Acceleration Grants Investing \$145,216,024 in 13 Projects across 14 counties



Counties in which projects were submitted, but not funded.	Counties in which projects were funded: <a href="http://www.broadband.wa.gov">www.broadband.wa.gov</a>	Counties from which no projects were submitted for Phase 2 funding consideration.
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## Clallam County Awarded Grants for Broadband

- Clallam County awarded \$4,525,174 for ftth from Washington State Public Works under Washington State Dept. of Commerce announced December 2021. This is a federally funded grant via NTIA.
- Clallam County awarded \$20,272,533 for ftth from Washington State Broadband Office under Washington State Dept of Commerce. This is a federally funded grant.
- 4.5 million grant proposed passing 327 homes between Joyce and Elwha River. Construction advertised to begin Sept 2022.
- Details for the \$20 million have not been provided other than a general geometric map of the area from Elwha River to Lyre River. Construction advertised to begin Dec 2022.
- My understanding these grants were weighted towards end to end fiber as well as towards ports and counties.

## Clallam PUD Grant Applications

- Clallam PUD has applied for 4 state or federal grants as of January 2022:
  - Washington State Public Works
  - Washington State Broadband Office
  - NTIA USDA Rural Reconnect
  - ARPA funds for broadband via Clallam County
- Clallam PUD is currently working towards a middle mile application via USDA Rural Reconnect phase 3 due April 29<sup>th</sup> 2022. This build is for connecting from Elwha River to Forks.