UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
BEFORE THE
BONNEVILLE POWER ADMINISTRATION

2022 Joint Power and Transmission Rate Proceeding	**BPA Docket No. BP-22**

JOINT PARTY 01
MOTION TO ADMIT RESPONSES TO DATA REQUESTS

Pursuant to the Hearing Officer's Order Establishing Procedures for Admission of Evidence, BP-22-HOO-10, and the Order Cancelling Cross-Examination and Re-stating Procedures for Admission of Evidence, BP-22-HOO-11, Joint Party 01 ("JP01") (consisting of the Northwest & Intermountain Power Producers Coalition and Renewable Northwest) submits this motion to admit the responses to the following data requests in this proceeding:

1. JP01-PP-30-3
2. JP01-BPA-30-1
3. JP01-BPA-30-2
4. JP01-BPA-30-3
5. JP01-BPA-30-5
6. JP01-BPA-30-6
7. JP01-BPA-30-10
8. JP01-BPA-30-11
9. JP01-BPA-30-12
10. JP01-BPA-30-13
11. JP01-BPA-30-14
12. JP01-BPA-30-15
13. JP01-BPA-30-16
14. BPA-JP01-30-4
15. BPA-JP01-30-5
16. BPA-JP01-30-7
17. BPA-JP01-30-9
18. BPA-JP01-30-12

A copy of the response to each data request is attached in Exhibit A. Counsel for JP01 has contacted counsel for the Bonneville Power Administration ("BPA") regarding this motion, and BPA has no objection to the admission of these responses. Counsel for JP01 has also contacted counsel for the Public Power Council ("PPC") regarding this motion, and PPC indicated it does not intend to object to the admission of these responses.

JP01 requests that the Hearing Officer grant this motion.

DATED this 13th day of April 2021.

Respectfully submitted,

/s/ Dina Dubson Kelley
Dina Dubson Kelley
Irion Sanger
Sanger Law PC

Attorneys for Northwest & Intermountain Power Producers Coalition and Renewable Northwest

Exhibit A

to JP01 Motion to Admit Responses to Data Requests

Response is past due after seven (7) days.

Request (click to view)	Exhibit	Responded	Requesting Party	Responding Party	Date Filed	Response (click to view)
JP01-PP-30-3	**BP-22-E-PP-02**	**Yes**	**Joint Party 01**	**Public Power Council**	**3/26/2021 1:19 PM**	**Select Request to view Response**

You are viewing page 1 of 1

Request Detail

Request ID: JP01-PP-30-3
Page Number: 10
Line Number: 3-5
Exhibit Filing: **BP-22-E-PP-02**

Technical Contact Name: Michael Goggin
Technical Contact Phone: 202.302.9670
Technical Contact Email: mgoggin@gridstrategiesllc.com
Legal Contact Name:
Legal Contact Phone:
Legal Contact Email:

Request Text:

Please provide evidence for PPC's statement that "The existence and use of OCBR and OMP protocols do not reduce the total balancing reserve capacity needed to maintain a specified level of balancing service on a planning basis for the rate period." Does PPC acknowledge that the use of those protocols reduces deviations in wind output?

Response Detail

Date Response Filed: 4/2/2021 9:16:39 AM
Contact Name:
Contact Phone:
Contact Email:
Response Text:

Because OCBR and OMP are inherently contingency measures, it is our view that their historical implementation does not provide robust predictive value of future use or impact the general relationship between wind output and schedules that informs the balancing reserve capacity requirement. BPA's approach of correcting the historical dataset to reflect likely actual wind generation during OCBR and OMP instances provides a more accurate picture of expected wind variability relative to schedules. While OCBR or OMP may reduce deviations in wind output relative to schedules in real time, BPA's proposed approach for calculation of balancing reserves needs on a rate case planning basis is most appropriate in this proceeding.

Files Submitted for this Response:

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-1

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-40

REQUESTOR'S NAME: Henry Tilgham
COMPANY/ENTITY: JP01

PAGE(S): 11
LINE(S) 1-11

DATA REQUEST:

BPA asserts that "the default energy bid for hydro is a mechanism that is only used when the EIM is not functioning properly, and while it does include opportunity costs, will only be used occasionally to settle the market." Please describe (a) the circumstances under which BPA would bid energy into the EIM at a bid price below BPA's determination of its default energy bid for any given time interval, and (b) how BPA generation would ever be dispatched into the EIM at a clearing price below BPA's bid offer.

RESPONSE:

The Default Energy Bid (DEB), specifically the Hydro DEB, is the construct used to estimate the opportunity cost of a generator and then mitigate said generator in instances where the Department of Market Monitoring (DMM) determines potential market power exists. The Hydro DEB is an option recently developed by CAISO (in concert with NW hydro owners/operators) and is designed to reflect the opportunity cost consistent with the storage horizon of hydro resources and the associated transmission profile.

The Hydro DEB, though a reasonable proxy that has a forward-looking component, may not always perfectly align with our perception of BPA's opportunity cost that we use to create our bid curves. In instances where DMM determines potential market power exists, BPA could see its bids mitigated down to the Hydro DEB, potentially affecting the clearing price, but only if BPA represents or otherwise affects the marginal MW of supply. As the Hydro DEB is designed to reflected forward looking opportunity cost of each participant's resources, BPA expects the impact to be minimal (regardless of frequency of mitigation).

Until BPA has experience participating in the EIM it is not possible to determine if there will be instances when BPA may bid a price below its determined default energy bid. If the DMM

determines market power exists and applies DEB, it is possible that BPA could be dispatched at a price below BPA's offer price.

For technical questions about this response, please contact Todd Miller by email temiller@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-2

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-40

REQUESTOR'S NAME: Henry Tilgham
COMPANY/ENTITY: JP01

PAGE(S): 11
LINE(S) 1-11

DATA REQUEST:

BPA asserts that "BPA would charge customers for imbalance at the EIM prices, but JP01's argument ignores the fact that all those revenues are passed through BPA to the CAISO, so that the CAISO can then compensate whichever generator served the imbalance." In the context of this rebuttal testimony, please explain the revenue flows when customers who pay BPA for non-regulation reserves are charged for imbalance by the EIM at times when BPA has bid that non-regulation reserve capacity into the EIM and BPA's capacity has been dispatched by the CAISO to serve imbalances. In other words, please explain how energy imbalance payments move from a customer with imbalance to the generator serving that imbalance when BPA bids non-regulation reserves into the EIM and the CAISO dispatches BPA's bids of non-regulation reserves to serve generator and load imbalances within BPA's balancing area.

RESPONSE:

Energy imbalance payments currently flow from customers to BPA Transmission and then to BPA Power. Under BPA's potential EIM participation the payments would flow from customers, to BPA Transmission (EESC), to the CAISO, then to BPA Power (PRSC) for cases when BPA's bids are dispatched. EIM participation simply adds the CAISO (market operator) in the middle of the BPA Transmission and BPA Power payment flow. It should be noted that this is true for both charges and credits; a customer could over-generate (generator) or overschedule (load), and receive a credit from BPA Transmission (EESC). BPA Transmission would be credited from the CAISO, and CAISO would charge the generating entity. The CAISO determines the charge/credit based on the Load Aggregation Points (LAP) for load or the Locational Marginal Pricing (LMP) for generators and the size/direction of energy imbalance.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

For technical questions about this response, please contact Todd Miller by email temiller@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-3

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-40

REQUESTOR'S NAME: Henry Tilgham
COMPANY/ENTITY: JP01

PAGE(S): 14-15
LINE(S) 23-17

DATA REQUEST:

BPA asserts that there is uncertainty regarding the extent to which the EIM would offset the costs allocated to non-regulation reserves. Given that uncertainty and other uncertainties associated with the forecasts used in the GARD model, please explain why BPA staff's proposal to adjust the GARD model to offset some portion of the costs allocated to non-regulation reserves is superior to JP01's proposal to return a credit to generation inputs customers based on BPA's actual EIM revenues. Please explain whether you consider BPA staff's approach superior to JP01's even if the credit in JP01's proposal is limited to costs allocated to non-regulation reserves and limited to those intervals when BPA generation is actually dispatched to serve imbalance.

RESPONSE:

We believe BPA's staff approach is superior for three reasons. First and foremost, our approach is superior because it maintains the distinction between power and capacity. Unlike power customers who may receive a credit from EIM revenues in a similar fashion as current net secondary revenue credits, generation input customers are not entitled to energy revenue. Generation input customers pay for a service to maintain reliability of the transmission system that relies on reserve capacity. Energy dispatches to maintain that reliability is a cost in addition to holding the reserves in the first place.

Second, our approach is superior because it maintains rate setting and billings close to current, pre-EIM, practices. Given the uncertainty surrounding BPA's involvement in the EIM, keeping rate setting and billing close to current standards is beneficial. JP01's proposal would require creating new rate setting and billing processes with generation input customers to enable an after-the-fact credit to offset variable costs associated with Hydro Shift for non-regulation balancing reserves.

Third, the method for determining the actual amount of Hydro Shift costs offset would be extraordinarily challenging, particularly in the context of being suitable for billing purposes. This is because it would require a counterfactual analysis that evaluated what might have happened had BPA not been in the EIM. Needless to say, billing based on a hypothetical counterfactual analysis would be problematic at best.

Finally, we want to reiterate that the proposal put forward by BPA staff for the Administrators consideration is simply a short term solution to ensure costs are appropriately allocated in light of the significant uncertainty surrounding BPA's participation in the EIM. If BPA does indeed join the EIM, BPA staff are committed to find a long term solution that is equitable and allocates costs appropriately.

For technical questions about this response, please contact Todd Miller by email temiller@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-5

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-40

REQUESTOR'S NAME: Henry Tilgham
COMPANY/ENTITY: JP01

PAGE(S): 11-12
LINE(S) 12-24

DATA REQUEST:

BPA staff recognizes the merit of JP01's argument that a portion of the variable costs allocated to generation inputs should be "offset". However, BPA staff suggests limiting this offset to encompass only hydro-shift variable costs. Please explain why the other components of variable costs (efficiency losses and spill) would not also be mitigated when BPA bids non-regulation reserves into the EIM and is dispatched by the EIM. In particular, please explain why spill costs resulting from creating room to hold reserves would not be incorporated into BPA's bidding strategy in the EIM in order to recover at least some portion of the value for energy that would otherwise be spilled.

RESPONSE:

It should be noted that efficiency losses as calculated by GARD were negative $2 million in the Initial Proposal. This means they reduce the cost of balancing services. Regardless, negative (a credit) or positive (a cost), we do not believe the efficiency impact of balancing reserves would be materially mitigated by BPA participating in the EIM. This is because the cost (or credit) is incurred as a result of holding the reserves.

In regard to Spill as calculated by GARD, further analysis suggests that participation in the EIM may afford BPA an opportunity to "offset" some associated costs through added within-hour flexibility and as such propose the same consideration for Spill as was proposed for Hydro Shift in the Rebuttal Testimony (BP-22-E-BPA-40 at 10-18). The table below presents the potential Spill cost offsets from EIM participation. As with the proposed solution to the Hydro Shift offset, this solution, if adopted, would be a short-term solution until BPA gains additional data and experience from EIM participation to establish more long-term solutions.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

GARD Stand-ready Costs and Potential EIM Revenue Spill Cost Offsets

	Regulation INC	Non-regulation INC	Operating Reserves INC	Regulation DEC	Non-regulation DEC	All Reserves
Hydro-shift	$ 2,016,240	$ 2,569,080	$ 3,848,366	$ 2,329,102	$ 3,666,049	$ 14,428,838
Spill	$ 596,276	$ 759,771	$ 1,138,103	$ 688,801	$ 1,084,185	$ 4,267,135
Efficiency	$ (287,288)	$ (366,060)	$ (548,341)	$ (331,866)	$ (522,364)	$ (2,055,919)
Total	$ 2,325,228	$ 2,962,791	$ 4,438,128	$ 2,686,037	$ 4,227,870	$ 16,640,054
25% Spill Cost Offset	$ -	$ 189,943	$ -	$ -	$ 271,046	$ 460,989
50% Spill Cost Offset	$ -	$ 379,885	$ -	$ -	$ 542,092	$ 921,978

For technical questions about this response, please contact Todd Miller by email temiller@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-6

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-36

REQUESTOR'S NAME: Henry Tilghman
COMPANY/ENTITY: JP01

PAGE(S): 40-42
LINE(S) 15-25

DATA REQUEST:

In its Initial Proposal, BPA staff sought to include $45 million of revenue financing per year in transmission rates. During the IPR#2 Workshop on March 2, BPA staff proposed to reduce the BP-22 capital spending level for transmission by $53 million. Does BPA staff intend to suggest that the Administrator reduce the amount of revenue financing sought in the Final Record of Decision by $53 million? Or does BPA staff still intend to seek $45 million of revenue financing per year from transmission customers in the Final Proposal? If BPA does not intend to suggest that the Administrator reduce the amount of transmission revenue financing by $53 million, please explain why not.

RESPONSE:

Staff does not expect to recommend a reduction from the amount of revenue financing proposed in the Initial Proposal. The change in the capital forecast proposed in the IPR2 workshop does not alleviate the concerns about available Treasury borrowing authority or Transmission's total debt. The proposed change in the capital spending forecast shifts costs from the BP-22 rate period to the BP-24 period, but it does not reduce the overall capital spending for the VCC. The reasons for staff's proposal have been stated in staff's initial and rebuttal testimony.

For technical questions about this response, please contact Rebecca Fredrickson email refredrickson@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-10

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 4
LINE(S) 11-13

DATA REQUEST:

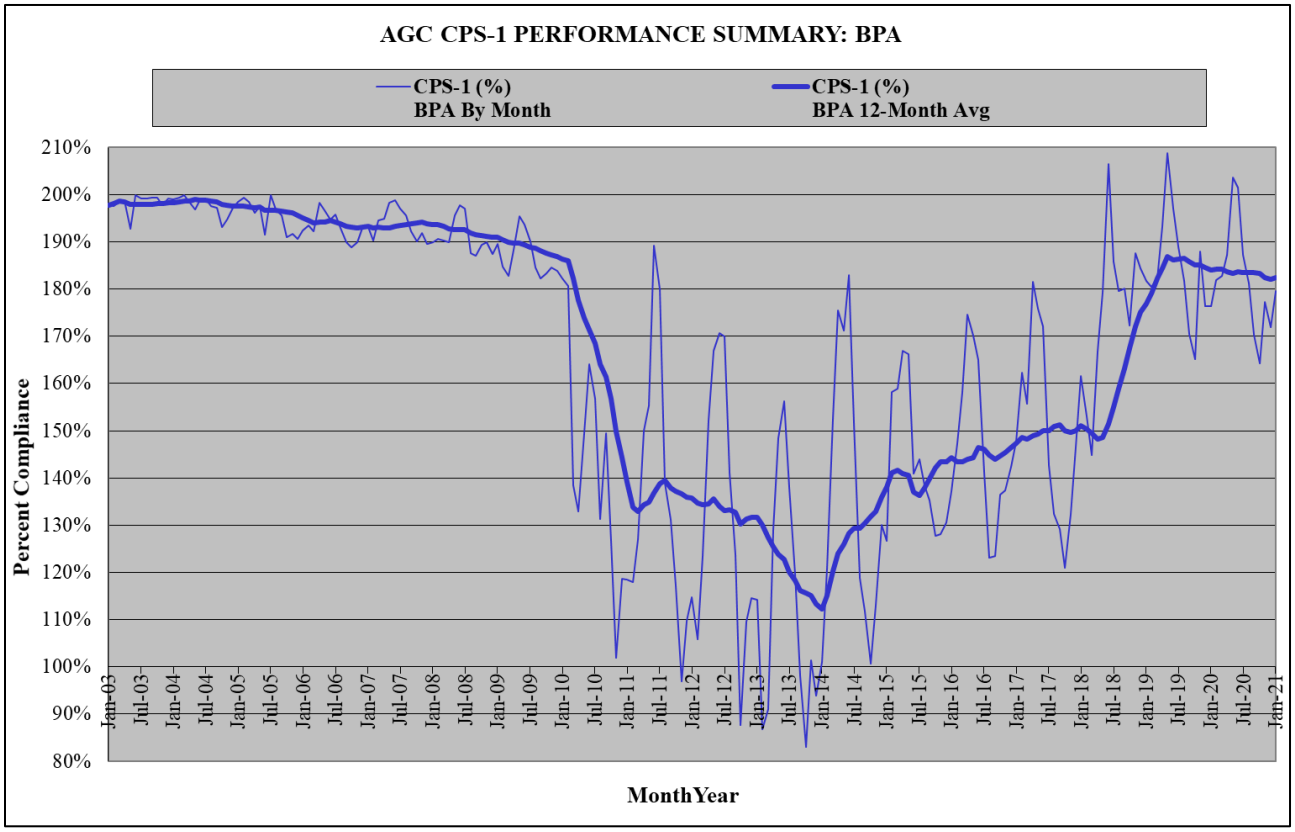
Please see the statement that "BPA no longer operates on "BAAL control" for various reasons, including reliability concerns and operational impacts." Please provide documentation describing those reliability concerns and operational impacts, including any analysis or other documentation indicating that those concerns outweighed the cost of maintaining higher reserve levels.

RESPONSE:

BPA objects to this request as the operational and reliability decisions BPA makes to operate the Balancing Authority Area are outside the scope of the rate case. While the operational and reliability decisions made may impact the quantity of balancing reserves held, those decisions are not rate case issues. The purpose of the balancing reserve capacity forecast is to produce a forecast that most accurately reflects how BPA operates its system, including both the expected error and the way in which BPA operates to correct that error. Without waiving its objection, BPA provides the following response:

Below is a chart showing BPA's CPS1 performance prior to and during our introduction of "BAAL Control". While BPA never failed either requirement of the BAL-001-2 standard, BPA experienced marked degradation of its CPS1 performance after the introduction of "BAAL Control", with multiple monthly CPS1 values below 100% and the yearly CPS1 score getting as low as 112%. This degradation occurred simply because of the larger ACE accumulation allowed prior to reserve deployment under BAAL control; BPA was still holding reserves to meet its 99.7% planning standard or similar during this time, as well as employing a lower ACE limit than allowed under the BAAL requirements when frequency was near 60 Hz. As a reminder, BPA began operating to "BAAL Control" in 2010 and returned to "tight control" midway through 2018.

No analysis was done to compare the reliability and operation concerns with the cost of maintaining higher reserve levels.



For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-11

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 4
LINE(S) 13-14

DATA REQUEST:

Please see BPA's statement that under its current operational practices, "we exceed both requirements of BAL-001-2 (BAAL and CPS1)." Has BPA done any analysis indicating how much its current operational practices allow it to exceed each of the requirements of BAL-001-2? If so, please provide that analysis. Has BPA violated requirement R2 of BAL-001-2 at any point in the nearly five years since its adoption? If so, when?

RESPONSE:

BPA objects to this request as the operational and reliability decisions BPA makes to operate the Balancing Authority Area are outside the scope of the rate case. While the operational and reliability decisions made may impact the quantity of balancing reserves held, those decisions are not rate case issues. The purpose of the balancing reserve capacity forecast is to produce a forecast that most accurately reflects how BPA operates its system, including both the expected error and the way in which BPA operates to correct that error. Without waiving its objection, BPA provides the following response:

BPA has not run analysis of such nature. BPA has never failed requirement R2 of BAL-001-2; BPA holds sufficient balancing reserves and utilizes operational tools, such as OCBR, to maintain reliable operation of the system and meet all requirements of BAL-001-2.

For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-12

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 5
LINE(S) 15-21

DATA REQUEST:

Please see BPA's statement that "BPA's methodology allows BPA to remove these obsolete scheduling practices, substituting the proper scheduling behaviors and/or more accurate proxies." Does BPA's transition away from these existing scheduling practices result in more accurate schedules for VERBS resources? If yes, does that indicate that had JP01 accounted for the transition to new scheduling practices, JP01's calculation of BPA's reserve needs would have been even lower? If no, why is BPA transitioning to scheduling practices that result in less accurate schedules for VERBS resources?

RESPONSE:

No, BPA's proposal to eliminate the existing scheduling options will generally result in less accurate scheduling, except compared to the Uncommitted scheduling options. As stated in the Generation Inputs Policy Testimony, BPA is eliminating the existing scheduling options in order to conform to EIM scheduling timelines. King *et al.*, BP-22-E-BPA-23, at 4.

For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-13

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 6
LINE(S) 15-23

DATA REQUEST:

Does BPA correcting VERBS output to remove periods of oversupply management cause an increase or decrease in BPA's modeled reserve needs relative to if BPA did not correct for that factor? Does BPA correcting VERBS output to remove contingency reserve deployments cause an increase or decrease in BPA's modeled reserve needs relative to if BPA did not correct for that factor?

RESPONSE:

BPA's correction to VER output for both periods of OMP and contingency reserve deployments results in a decrease to the balancing reserve capacity forecast. In other words, the capacity forecast would overstate reserve needs if periods of OMP and contingency reserve deployments where left unaddressed in the study data.

For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-14

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 13
LINE(S) 15-22

DATA REQUEST:

Please see BPA's statement that "In analyzing the mesoscale wind speed information, the analysis found existing plants with a wind speed correlation of 1.0 when shifted by 0 minutes for two of the future plants, 0.95 when shifted by 10 minutes for one of the future plants, and 0.91 for the last plant when shifted by 10 minutes, and each of these four future sites is located between 12 and 27 kilometers from the corresponding highest correlated existing plant."

a. The above statement provides correlations for wind speed. Please provide the modeled correlations in power output for these plants. Please confirm that the correlations for wind plant power output between new wind plants and reference existing wind plants are lower than those for wind speed.

b. Were these correlations larger or smaller during time periods with above average changes in wind speed or power output? If so, what were the correlations during those periods? Please confirm that periods with above average changes in wind plant output have a larger impact on BPA's balancing reserve needs than periods with below average changes.

c. Please explain BPA's assumption that future wind plants 12 or more kilometers from existing plants had changes in output that lagged by zero minutes. Did BPA allow for a lag factor of between 0 and 10 minutes? Does it typically take more than 0 minutes for a weather system to move 12 kilometers?

d. Did BPA account for the fact that turbines within a wind plant are spread over many kilometers, or did BPA assume wind plants are represented by a single point in the mesoscale model? If BPA assumed wind plants are represented by a single point, does that overstate the modeled correlation in output between the two plants? Please explain why or why not.

RESPONSE:

a. BPA cannot conduct an analysis of the power output for these plants as these plants were not built during the period of the data set used in the BP-22 Balancing Reserve Capacity Forecast Study.

b. BPA does not run analysis of correlations for sub-sections of the data, nor does it categorize periods of wind volatility in the data.

c. The mesoscale model data, Western Wind Data, used by BPA for correlating new plants to existing plants is published by NREL with a 10-min resolution (https://www.nrel.gov/grid/western-wind-data.html), which limits BPA's analysis for new plants to 10-minute increment shifts in time. BPA is planning to update the mesoscale dataset used in the correlation development to NREL's Wind Integration National Dataset Toolkit WRF dataset (5-min resolution on a 2-kM grid) for future studies.

BPA did not explicitly assume that future wind plants 12 or more kilometers from existing plants had changes in output that lagged zero minutes. Rather, in comparing the mesoscale model data, the highest correlation between each future plant's mesoscale model data and the corresponding existing plant occurred at a time shift of 0 minutes. In other words, lower correlations between the mesoscale model data was found at time shifts of 10 minutes or greater. As stated, this analysis found existing plants with a wind speed correlation of 1.0 when shifted by 0 minutes for two of the future plants, 0.95 when shifted by 10 minutes for one of the future plants, and 0.91 for the last plant when shifted by 10 minutes. These highly correlated relationships are reflective of the weather systems as captured in the 10-min time-step Western Wind Data and not associated with JP01's presumption of weather moving 12 km in 0 minutes.

d. Future wind plants modeled by BPA are in their preliminary planning process, lacking any specific layout information beyond a single expected location. For the sole purpose of calculating the highest correlated existing wind plant and associated time shift on the Western Wind Data analysis, BPA uses an individual latitude/longitude pair. However, the data used to represent the output new plant captures all within plant variability of the highest correlated existing plant for the purpose of the balancing reserve capacity forecast, and thus inherently accounts for the turbine spread within a plant.

For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-15

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 14
LINE(S) 10

DATA REQUEST:

Please confirm that Table 1 shows real output correlations are lower than indicated by BPA's mesoscale modeling. Does this not confirm that the use of correlations based on mesoscale modeling in BPA's rate case overstates actual correlations in wind plant output, overstating the impact of future wind plants on reserve needs? Please explain why or why not.

RESPONSE:

BPA does not agree with the presumption that slight variations in correlations will result in overstating reserve needs, as once online, the new plant could be more or less variable relative to the existing plant used to synthesize its data. For the three plants which data is shown in Table 1 of BP-22-E-BPA-39, the real output correlations are lower than those of the mesoscale data. Regardless, all of the correlations in Table 1 are significantly high and demonstrate the accuracy that can be obtained through BPA's model. As such, the models of future plant output demonstrate a similar high degree of accuracy, which is reflected in the accuracy of the overall balancing reserve requirements.

For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

DATA RESPONSE
BONNEVILLE POWER ADMINISTRATION

BP-22 RATE CASE

DATA REQUEST NUMBER: JP01-BPA-30-16

EFFECTIVE FILING DATE OF REQUEST:

DIRECTED TO: BP-22-E-BPA-39

REQUESTOR'S NAME: Michael Goggin
COMPANY/ENTITY: JP01

PAGE(S): 15
LINE(S) 12-25

DATA REQUEST:

Please confirm that at page 60, the Hirth and Muller article states: "It is apparent that with advanced turbines, small forecast errors (below 3.1 GW) are more frequent, but large errors are less frequent. With classical turbines, in 6% of all hours the persistence forecast error is above 5 GW (compared to an installed capacity of 90 GW). With advanced turbines, the 5 GW mark is exceeded in less than 2% of all hours. This is important for economics and system operation, since it is large forecast errors that determine the size of the balancing reserve requirement. This suggests that advanced wind turbines have the additional benefit of reducing balancing costs." Does this not contradict BPA's claim that "accounting for improvements in wind plant technology in the way JP01 suggests may actually increase balancing reserve capacity requirements?" Please explain why or why not.

RESPONSE:
Bonneville confirms this statement on page 20 of the cited journal article, in reference to a specific example provided in the paper. The example considers a system with 30% wind penetration scheduling using a one-hour persistence schedule, and compares the average hourly scheduling error of the fleet constructed using traditional turbines to that of the fleet assuming it was constructed using the advanced turbine technology discussed throughout the paper.

We do not agree that the example contradicts our statement that "accounting for improvements in wind plant technology in the way JP01 suggests may actually increase balancing reserve capacity requirements." First, as stated in our testimony, , the authors note that their "advanced case" has a lower installed capacity level to capture the same energy penetration level, which reduces aggregate forecast error. Puyleart *et al.*, BP-22-E-BPA-39, at 15. This is not applicable to BPA's analysis; BPA is not reducing the installed wind capacity in its Balancing Authority, nor is it using an aggregate wind forecast. BPA's balancing reserve capacity analysis uses individual

plant wind forecasts to represent schedules, which the authors note can result in increased forecast error. *Id.*

Further, the one-hour persistence scheduling used in the example differs from BPA's weather forecast used for scheduling, and thus the same analysis even at the aggregate level may not result in a similar improvement under our scheduling paradigm. In fact, the authors recognize that there are many angles, including the use of weather-based forecasting instead of persistence scheduling, that would need to be further researched, stating that "this analysis has a number of caveats and should be understood as a first and rough assessment".

Lastly, this analysis considers the impact of an entire fleet of wind plants being replaced with advanced turbines, while only a portion of the fleet in BPA's Balancing Authority would potentially use this technology.

For technical questions about this response, please contact Frank Puyleart by email frpuyleart@bpa.gov.

For legal questions about this response, please contact Allen Chan by email acchan@bpa.gov.

Response is past due after seven (7) days.

Request (click to view)	Exhibit	Responded	Requesting Party	Responding Party	Date Filed	Response (click to view)
BPA-JP01-30-4	**BP-22-E-JP01-01**	**Yes**	**Bonneville Power Administration**	**Joint Party 01**	**2/16/2021 2:11 PM**	**Select Request to view Response**

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Request Detail

Request ID: BPA-JP01-30-4
Page Number: 25
Line Number: 15-19
Exhibit Filing: BP-22-E-JP01-01

Technical Contact Name: Frank Puyleart
Technical Contact Phone: 360.418.2464
Technical Contact Email: frpuyleart@bpa.gov
Legal Contact Name: Allen Chan
Legal Contact Phone: 503.230.3551
Legal Contact Email: acchan@bpa.gov

Request Text:

Please indicate whether your analysis accounted for the following factors. If so, please also indicate how your analysis accounted for either factor. • BPA's forecasted increase in wind and solar generation in the BP-22 rate period • Impact of imbalance in the BPA Balancing Authority Area on system frequency

Response Detail

Date Response Filed: 2/23/2021 10:54:08 AM
Contact Name: Michael Goggin
Contact Phone: 202.302.9670
Contact Email: mgoggin@gridstrategiesllc.com
Response Text:

Because Mr. Goggin's analysis was based on historical data, it was not able to account for a forecasted increase in wind and solar generation in the BP-22 rate period. However, as explained at pages 29-30 of his testimony, of the 6 years in the analysis period, "the 2,764 MW of wind capacity online after July 2018 most closely aligns with the average of 3,028 MW of wind BPA expects to be online during the rate period. As a result, the balancing reserve needs for October 2018-September 2019 are the most indicative of balancing reserve needs going forward." Mr. Goggin's analysis did not take any additional steps to account for any impact of imbalance in the BPA Balancing Authority Area (BAA) on Western Interconnect frequency, aside from any relationship implicit in the historical data. BPA accounts for less than 6% of Western Interconnect peak load (NERC, "BAL-003-1 Frequency Response Obligation Allocation and Minimum Frequency Bias Settings for Operating Year 2020" at 5, available at https://www.nerc.com/comm/OC/Documents/BA%20FRO%20Allocations%20for%20OY2020.pdf), and each BAA in the Western Interconnect must control its imbalances to the same BAL-001-2 standard. Other BAAs of a similar size to BPA have found no correlation between their imbalances and Western Interconnect frequency. See, e.g., id. (showing PacifiCorp East and West peak load total as 12.8 GW, compared to BPA's 10.2 GW). Notwithstanding PacifiCorp's larger peak load total, PacifiCorp found that "[i]n 2015, PacifiCorp's deviations and Balancing Authority ACE Limits were uncorrelated, which indicates that PacifiCorp's contribution to WECC-wide frequency is small. PacifiCorp's deviations and Balancing Authority ACE Limits were also uncorrelated when periods with large deviations were examined in isolation." PacifiCorp, Revisions to Open Access Transmission Tariff, Docket No. ER17-219, PAC-14 at 21 (Oct. 28, 2016), available at https://elibrary.ferc.gov/eLibrary/idmws/common/OpenNat.asp?fileID=14386435. As a result, there is no reason to expect BPA's imbalances to have a significant impact on system frequency.

Files Submitted for this Response:

Response is past due after seven (7) days.

Request (click to view)	Exhibit	Responded	Requesting Party	Responding Party	Date Filed	Response (click to view)
BPA-JP01-30-5	**BP-22-E-JP01-01**	**Yes**	**Bonneville Power Administration**	**Joint Party 01**	**2/16/2021 2:14 PM**	**Select Request to view Response**

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Request Detail

Request ID: BPA-JP01-30-5
Page Number: 35
Line Number: 8-13
Exhibit Filing: BP-22-E-JP01-01

Technical Contact Name: Frank Puyleart
Technical Contact Phone: 360.418.2464
Technical Contact Email: frpuyleart@bpa.gov
Legal Contact Name: Allen Chan
Legal Contact Phone: 503.230.3551
Legal Contact Email: acchan@bpa.gov

Request Text:

The testimony states that there are several errors that caused BPA to overstate the reserve need, including not accounting for changes in wind forecasting accuracy over time, treatment of data during OCBR and OMP periods, overstating the correlation between two plants, not accounting for changes in wind plant technology, and not accounting for the EIM diversity benefit. Please indicate if you are proposing that BPA adopt the methodology proposed in the testimony in addition to accounting for each of these items, or if you are proposing that BPA choose to either reflect changes for these items within its own methodology or adopt the methodology proposed in the testimony.

Response Detail

Date Response Filed: 2/23/2021 10:54:48 AM
Contact Name: Michael Goggin
Contact Phone: 202.302.9670
Contact Email: mgoggin@gridstrategiesllc.com
Response Text:

Mr. Goggin is proposing that BPA adopt the methodology proposed in the testimony in addition to accounting for each of these items.

Files Submitted for this Response:

Response is past due after seven (7) days.

Request (click to view)	Exhibit	Responded	Requesting Party	Responding Party	Date Filed	Response (click to view)
BPA-JP01-30-7	**BP-22-E-JP01-01**	**Yes**	**Bonneville Power Administration**	**Joint Party 01**	**2/16/2021 2:44 PM**	**Select Request to view Response**

Request Detail

Request ID: BPA-JP01-30-7
Page Number: 64-65
Line Number: 14-4
Exhibit Filing: **BP-22-E-JP01-01**

Technical Contact Name: Daniel Fisher
Technical Contact Phone: 503.230.3202
Technical Contact Email: dhfisher@bpa.gov
Legal Contact Name: Richard Greene
Legal Contact Phone: 503.230.4626
Legal Contact Email: ragreene@bpa.gov

Request Text:

Is the principle of inter-generational equity as used in your testimony predicated on an unlimited supply of financing? If not, please provide citation to examples of where the principle of intergeneration equity was used to preclude a utility from recovering a portion of the costs of a long-term asset in present rates even when that utility was unable to obtain financing from other sources.

Response Detail

Date Response Filed: 2/23/2021 11:39:34 AM
Contact Name: Henry Tilghman
Contact Phone: 503.702.3254
Contact Email: hrt@tilghmanassociates.com
Response Text:

JP01 objects to this request to the extent that it asks JP01 to perform new analysis. Without waiving that objection, JP01 responds as follows: No. While the testimony is not predicated on an unlimited supply of financing, it does contemplate a combination of expanded borrowing authority; resumption of the lease financing program; development of a capital spending program in which BPA prioritizes capital spending within the limits of its permitted sources of financing; and any other financing options authorized by policymakers in the near term. We are not aware of any examples of the type requested. Further, given that each state has unique requirements governing the types of costs that can be recovered in rates—all of which differ from BPA's ratemaking obligations—it is not clear whether new analysis on this question would be relevant.

Files Submitted for this Response:

Response is past due after seven (7) days.

Request (click to view)	Exhibit	Responded	Requesting Party	Responding Party	Date Filed	Response (click to view)
BPA-JP01-30-9	**BP-22-E-JP01-01**	**Yes**	**Bonneville Power Administration**	**Joint Party 01**	**2/16/2021 3:38 PM**	**Select Request to view Response**

Request Detail

Request ID: BPA-JP01-30-9
Page Number: 24
Line Number: 15-21
Exhibit Filing: **BP-22-E-JP01-01**

Technical Contact Name: Daniel Fisher
Technical Contact Phone: 503.230.3202
Technical Contact Email: dhfisher@bpa.gov
Legal Contact Name: Richard Greene
Legal Contact Phone: 503.230.4626
Legal Contact Email: ragreene@bpa.gov

Request Text:

Please provide analysis or documentation supporting your statement that BPA is, or would be, over collecting its costs.

Response Detail

Date Response Filed: 2/23/2021 11:40:52 AM
Contact Name: Henry Tilghman
Contact Phone: 503.702.3254
Contact Email: hrt@tilghmanassociates.com
Response Text:

The purpose of the cited portion of our testimony is to demonstrate that BPA will collect its opportunity costs when the rate for energy imbalance (or generator imbalance) is settled at an index price. The Powerdex Mid-C index is a weighted average price for all transactions reported to the publisher. The index is calculated from transactions reported by market participants, including BPA, who have engaged in arms-length bilateral transactions at negotiated prices. We assume that BPA (or any market participant) would not engage in a bilateral transaction if the negotiated price did not compensate BPA for its opportunity costs of selling that energy at a different time or location. Furthermore, many transactions in the index reported by thermal generators include a contribution to the thermal unit's fixed costs; if the thermal unit only covered its costs, it would have no incentive to execute the bilateral transaction. Therefore, when BPA settles energy imbalances at an index price, that price includes a contribution to a generator's fixed costs—and in the case of BPA, BPA's opportunity costs. Since BPA is already collecting its capacity costs (including its opportunity costs) through the generation inputs rates, BPA is collecting those opportunity costs again in its energy imbalance rates.

Files Submitted for this Response:

Response is past due after seven (7) days.

Request (click to view)	Exhibit	Responded	Requesting Party	Responding Party	Date Filed	Response (click to view)
BPA-JP01-30-12	**BP-22-E-JP01-01**	**Yes**	**Bonneville Power Administration**	**Joint Party 01**	**2/16/2021 3:48 PM**	**Select Request to view Response**

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Request Detail

Request ID: BPA-JP01-30-12
Page Number: 3
Line Number: 18-23
Exhibit Filing: **BP-22-E-JP01-01**

Technical Contact Name: Daniel Fisher
Technical Contact Phone: 503.230.3202
Technical Contact Email: dhfisher@bpa.gov
Legal Contact Name: Richard Greene
Legal Contact Phone: 503.230.4626
Legal Contact Email: ragreene@bpa.gov

Request Text:

Please explain how “overstating” the amount of balancing reserve capacity could result in BPA recovering more than its “total system costs.”

Response Detail

Date Response Filed: 2/23/2021 11:43:42 AM
Contact Name: Henry Tilghman
Contact Phone: 503.702.3254
Contact Email: hrt@tilghmanassociates.com
Response Text:

JP01 objects to this request to the extent that it asks the witnesses to perform legal analysis. Without waiving that objection, we respond as follows: Our testimony assumes that BPA’s various revenue forecasts and cost projections in the Initial Proposal are aimed at BPA setting rates to cover the cost of operating its system. To the extent that BPA overstates the cost of a particular service, recovers more revenue from a rate than it had forecasted, or forecasts higher costs associated with a program than actuals, then BPA’s rates will result in more revenues than needed to meet its actual costs. We acknowledge the possibility that by overestimating the actual balancing reserve capacity needed—and the associated generation inputs revenues—BPA could reduce rates charged to other customers with the result that it would not recover more than its total system costs; however, our understanding is that this cost shift of generation inputs charges would result in an inequitable allocation of costs between federal and non-federal users of the system. See also JP01 Response to Data Requests BPA-JP01-30-8, BPA-JP01-30-9, and BPA-JP01-30-10.

Files Submitted for this Response: