PUBLIC POWER COUNCIL
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RE: BPA's October 23 Day-Ahead Market Workshop

The Public Power Council (PPC) appreciates the opportunity to comment on BPA's ongoing day-ahead market participation workshops. PPC is optimistic about the potential for BPA's participation in a day-ahead market to create benefits for the agency's preference customers and we continue to look forward to more information on BPA's business case for potential market participation. Particularly, as part of that business case PPC members will be looking for BPA to demonstrate that any market in which BPA participates will preserve or further enhance the value that customers currently receive from BPA's products and services. The agency must also ensure the provision of services utilizing the day-ahead market advances the benefits that Congress reserved for BPA's preference customers through BPA's statutes and is consistent with the products being designed in the Provider of Choice initiative.

PPC appreciates the discussion with BPA regarding the results of the Western Market Exploratory Group (WMEG) study. The conversation around this study is important, including understanding the impacts that specific assumptions have on the results. PPC agrees with BPA's framing of the analysis as one input into a much more expansive decision framework, especially given some of the assumptions made in the study as discussed in more detail below. We are eager to continue discussing additional analysis (both quantitative and qualitative) which will inform BPA's decision as part of this stakeholder process.

PPC continues to support BPA's pursuit of a "leaning" on day-ahead market participation consistent with the current proposed timeline, but we also note that there is limited time to explore the full list of "business considerations" identified by BPA[1] which are important to informing the agency's decision, most of which have not been discussed in any detail to date. Key among the areas still to be discussed are governance, reliability implications, and compatibility with BPA's products and services. We look forward to more information from BPA on when and how we can expect to engage with the agency on these additional areas as part of the decision process.

[1] Bonneville's Public Engagement for Establishing a Policy Direction on Potential Day Ahead Market Participation Workshop 3 Presentation, October 23, 2023, slide 13.

Putting WMEG Study Results into Context

The WMEG study simulates the generating and trading activities of the entire Western footprint to evaluate the potential outcomes of participating in different day-ahead market options – namely CAISO's Extended Day Ahead Market (EDAM) and SPP's Markets+. While some design attributes specific to each market were included (for example fast start pricing for the Markets+ footprint) most market design differences were not specifically modeled, resulting in a study that primarily evaluated the impacts of different market "footprints." The study essentially assessed the impacts of having almost the entire West in a single market as compared to having the West split into two footprints (California utilities and PacifiCorp in one footprint and the rest of the West in the other). PPC understands the need to limit the modeling of market design differences in this analysis, particularly as market rules were (and in some cases still are) under development when this analysis was done. At the same time, it is important to note that this does limit the study's ability to accurately compare participation in the two markets.

As with any model evaluating a very complex, integrated and uncertain future, the assumptions used in the WMEG study are simplified, and in some cases speculative. This is true of all of the studies that have been conducted evaluating the potential outcomes of organized market formation in the West. Given these simplifications, there are limitations to what the WMEG analysis and similar studies can provide, and no such study should be expected to produce a single, high confidence result. Instead, such models can provide helpful information on the likely direction of an outcome (positive or negative - including some sense of relative magnitude) and through scenario analysis can help identify the variables or policy choices that will have the greatest impacts on outcomes.

As described below, there are several assumptions which PPC expects were overly simplified or exceedingly speculative in the case of BPA and similarly situated entities. While we can anticipate in a general sense how changes to those assumptions would impact the analysis, it would be worthwhile to run additional scenarios to better understand the magnitude of the impacts resulting from those changes. As described in more detail below, we look forward to working with BPA to explore the possibility of additional scenario runs.

Further Exploration of Assumptions

PPC understands that the nature of the WMEG study required consistent, simplified assumptions which were negotiated between and applied to all Balancing Authority Areas and other participants modeled. Some of these assumptions, in particular assumptions around wheeling revenues and "hurdle" rates, are inconsistent with the trading behavior and generating patterns observed for BPA today, and do not reflect anticipated behaviors that would result from BPA's participation in either EDAM or Markets+. Additionally, it is difficult to compare outcomes modeled under various footprints to the "Business as Usual" (BAU) case presented which served as the default "base case" for the WMEG analysis. Again, PPC understands the need for using simplified assumptions to be able to conduct such a broadly scoped analysis which includes the entire Western footprint. However, these assumptions cause us to question how accurately the BAU case reflects the business outcomes for BPA today. We also note that the BAU case is unlikely to persist into the future if BPA were to not participate in any day-ahead market and may not be an appropriate "base case" for reference in this analysis.

Business As Usual Case

While PPC continues to have some questions about how accurately the business-as-usual case models Bonneville's specific trading activity (for example, no long term commitments are modeled outside of load service, it is unclear if delivery of BPA's planned power products were modeled consistent with specific product obligations, it is unclear if BPA's generation was shaped into the highest value hours, etc.) our most significant concern about using this case to model a "no action" outcome for BPA is that it seems unlikely that "business as usual" is going to persist in the West. Several entities included in the study have already indicated that they plan to participate in EDAM, Markets+, or RTO West. Many others are actively considering these options and appear likely to make similar announcements committing to market participation in the coming year. This is likely to have meaningful impacts on the liquidity in the day-ahead bilateral market. The BAU case does not model an expected loss of liquidity, and therefore, while a helpful data point, should not be used to evaluate a "no action" option by BPA.

PPC would welcome any ideas from BPA or E3 on potential approaches for more accurately modeling a "business-as-adjusted" scenario to better reflect a "no action" response from BPA while others in the West progress with expanded market participation.

Wheeling Revenue

PPC agrees with BPA staff that the amount of lost wheeling revenues resulting from market participation are almost certainly overstated in the WMEG analysis. Absent an additional scenario to address the concerns discussed in more detail below, it is most informative to remove the wheeling revenue impacts when reviewing the WMEG results. Our concerns regarding the treatment of wheeling revenues in the model are twofold.

First, it is our understanding that the BAU case assumes that BPA will receive wheeling revenues for any trading occurring outside of the EIM between the BPA BAA and neighboring BAAs. For the BPA system specifically, this assumption is not reflective of the majority of transmission use, which instead occurs under long-term transmission contracts. For example, capacity on the BPA Southern Intertie (which includes both the AC and DC high voltage lines from the Pacific Northwest into California) is fully subscribed north-to-south for long-term use. Additionally, those with long-term point-to-point rights across BPA's system are able to "redirect" the use of their transmission onto other paths for wheeling purposes (if capacity is available) without additional cost. A quick look at BPA's transmission revenues shows that the anticipated "wheeling" revenue in the BAU case is not in line with the revenues that BPA receives for short term uses of its system. The BAU case forecasts $254.1M in wheeling revenue[2], while in the BP-22 rate case BPA forecast includes just under $40 M in total short-term transmission revenue for 2023[3] which includes transmission purchases less than a year in duration for both use within the BPA system and wheeling in and out of the BAA.

Secondly, both EDAM and Markets+ have been designed specifically to reduce potential lost revenues for transmission providers that participate in the market. Both markets have specific mechanisms which would encourage continued subscription of long-term rights which, as stated above, are how the majority of transmission revenues on BPA's system are collected today. Additionally, both market offerings have included design elements intended to "make whole" any transmission provider who is not otherwise compensated for the market's use of its transmission system.

Taken together, these mitigating factors confirm BPA's staff characterization of the results – that including the lost wheeling revenues as currently estimated is misleading. Absent a changed modeling approach for BPA, it is most appropriate to exclude these from the analyzed results.

Assumed Hurdle Rates

PPC would like to better understand the extent to which modeled hurdle rates are driving the outcomes of the WMEG analysis. PPC believes the assumed hurdle rates require additional consideration given that explicit transmission hurdle rates may not be reflective of how customers use BPA transmission and certain components included in the hurdle rate are quite speculative. Generally, a "hurdle rate" is a barrier to completing a transaction, and the value of any given trade must theoretically overcome that cost for a trade to occur. There are a variety of "hurdle rates" assumed in the WMEG analysis, and those assumptions differ depending on the market framework and market footprint. The

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[2] E3 presentation, WMEG Cost Benefits Study – BPA Day Ahead Market Participation Workshop, October 23, 2023, slide 20, https://www.bpa.gov/-/media/Aep/projects/day-ahead-market/e3-wmeg-benefits-study.pdf.

[3] BP-22-FS-BPA-08-E01, Errata Corrections to Transmission Rates Study and Documentation, Table 12, https://www.bpa.gov/-/media/Aep/rates-tariff/bp-22/bp-22-final-decision/bp-22-fs-bpa-08-e01.pdf
Calculated as cell F14 + F15 + F26 + F27.

study used the following hurdle rate framework and did not a apply any hurdle within a market footprint[4]:

BAU Hurdle Rate	Market Hurdle Rate
OATT Rate + Friction on exports from zone or collection of zones that represent one entity	**Weighted Average OATT Rate of Market + Friction + Congestion Risk** for exports from a zone that is in Market A to a zone that is in Market B

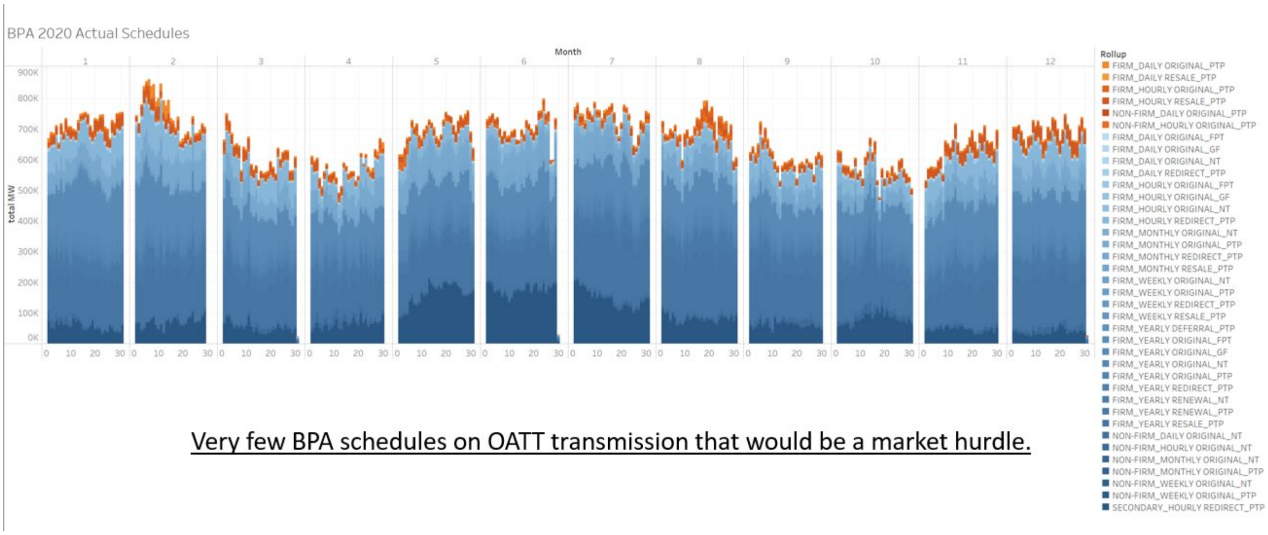
While the WMEG study includes OATT rates as a component of the hurdle rate, including them as an explicit $/MWh charge on market activity introduces transactional friction where it may not actually exist. As discussed above, the use of BPA's transmission system occurs primarily on long-term transmission. That means for any given hourly transaction, the cost of using that transmission is "sunk" and there is no additional cost from using the transmission in that given hour. For example, a customer with long-term point-to-point on the BPA Network and Southern Intertie would pay roughly $4.65/MWh for this transmission. However, because the customer pays for this transmission whether or not they schedule it, they have an incentive to sell to California at any positive spread – even below the $4.65/MWh. Long term point-to-point being a sunk cost effectively eliminates that portion of the hurdle rate.

An initial review of the transmission schedules on BPA's system confirms that the large majority of transactions on BPA's system would not be subject to the OATT portion of the hurdle rate modeled in the BAU. The chart on the following page shows transmission schedules on BPA's transmission system in 2020[5]. Only the share of the schedules shown in orange are likely to have incurred a "new" cost of transmission service to execute a transaction. This very small share of BPA's transmission use would have actually experienced the OATT rate as a hurdle.

[4] Western Markets Exploratory Group: Western Day Ahead Market Production Cost Impact Study, June 2023, Table A-2.

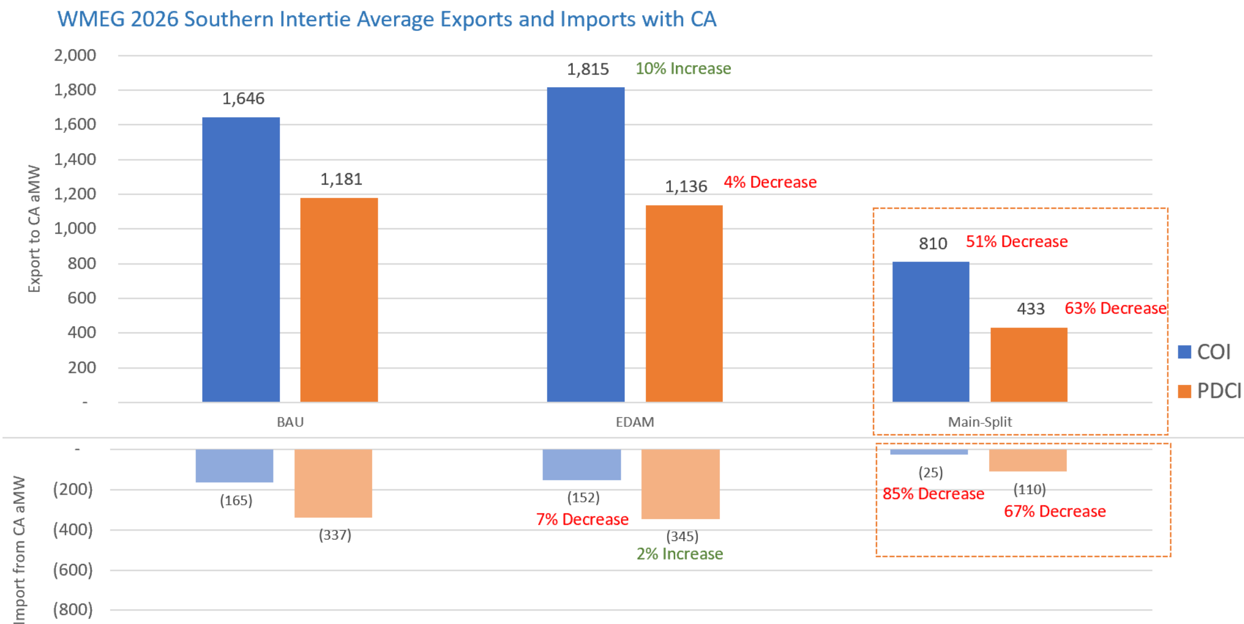
[5] Data from BPA Hourly Firm Data Monitoring & Evaluation.

BPA 2020 Transmission Schedules



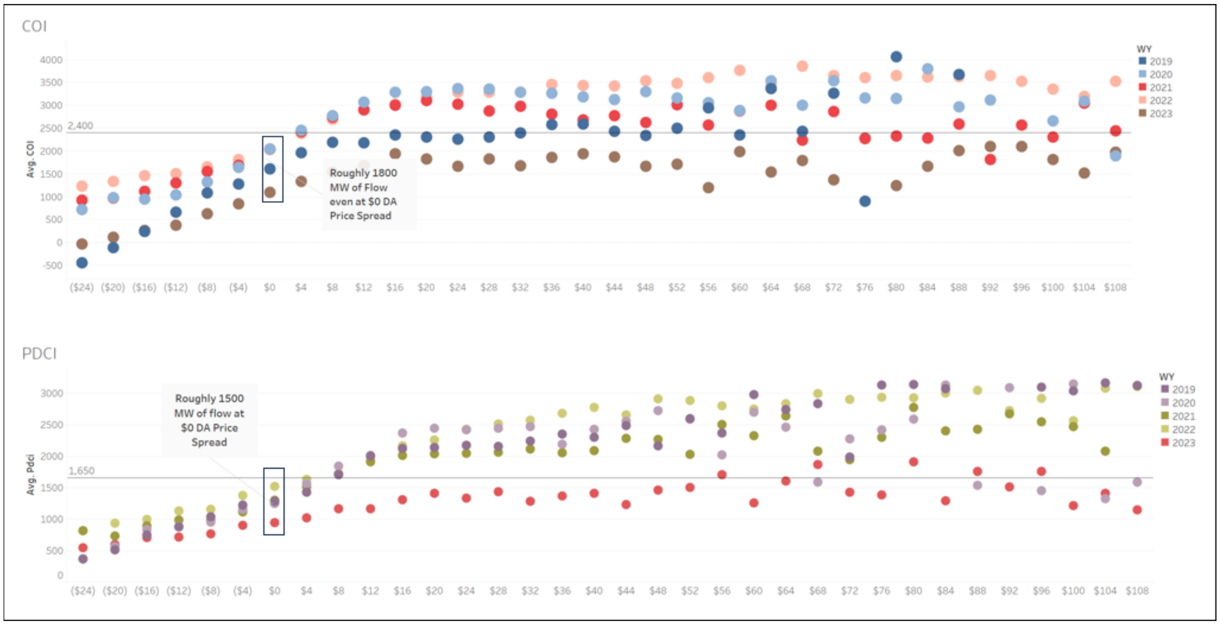
Consistent with the discussion above, it is expected that under either day-ahead option there will continue to be incentives to invest in and use long-term transmission. It is reasonable to assume that those rights-holders with long-term OATT rights on a transmission system participating in EDAM or Markets+ would still be able to use their transmission rights without an additional cost or hurdle. This brings into question the assumptions that the OATT rate should be included as a hurdle on all transactions between markets in the "Main Split" scenario where two Western day-ahead markets are operating.

Along with the inclusion of OATT rates in the hurdle assumptions, PPC suspects that the $10 additional hurdle ($2 friction and $8 congestion rent risk) modeled in the Main Split case is too high. The inclusion of these costs results in roughly a $14/MWh hurdle on Markets+ exports to EDAM and a $19/MWh hurdle on imports out of EDAM. PPC believes this degree of hurdle, applied to all transactions across the market seam, is reducing trade between the Pacific Northwest and California to an unreasonable degree. Data in the WMEG study results show that in the "Main Split" scenario transfers over the NWACI and PDCI are reduced to levels below 50% of the business-as-usual case.



The significant drop in exports may be lowering BPA generating revenues and suppressing estimated prices in the Pacific Northwest in the Main Split scenario. At the very least it is a speculative assumption which requires additional exploring. Under the assumptions used in the WMEG study - that all imports or exports between BPA and California are subject to the transmission cost "hurdle" described above – trades would only occur when the price spreads between the two regions were sufficient to cover these additional OATT costs. However, when reviewing actual transmission use this is not the case. Flows between the Northwest and California continue to occur when the price spread is well below the assumed hurdle rate, and even when there is no price spread between the two regions at all.

COI and PDCI Flows vs Day-Ahead Price Spread



PPC believes this is because of the vast use of long-term transmission and that the paths are often used to deliver forward contracted power. The use of long-term transmission and the delivery of forward power appear to make up a significant portion of the use of the Southern Interties and would be unlikely to be exposed to significant incremental transaction costs that do not exist today. Neither EDAM nor Markets+ are contemplating new transaction costs to leave the market and both options provide "congestion rent" allocations to protect transmission customers against financial congestion. This suggests any potential reduction in trade between the PNW and CA may not be as drastic as estimated by the WMEG study.

If the West develops two markets both will have significant incentive to work together to reduce seams. The results of the two-market scenario and the significant reduction in trade is a counter intuitive result and supports the idea that more evaluation is necessary. For instance, it is difficult to believe that while the Northwest has supply of low cost, carbon free generation available to sell, California would turn on its gas generators – an action contrary to the state's carbon reduction policy objectives – instead of finding a way to work through the "seams" between the two markets and trade with the Northwest.

It is impossible to know the "right" hurdle rate to assume given the uncertainty around how multiple markets will interact. It would be informative to run additional scenarios to better understand the impact that this assumption has on the results. While additional scenarios with higher levels of market coordination were conducted for the 2030 timeframe, it would be helpful to perform such an analysis for 2026. Also, while we understand that BPA participated in the 2030 increased market coordination scenario which reduced the expected inter-market hurdles, the specific BPA results were not readily available. We ask that BPA make that additional information available publicly.

GHG Modeling

PPC would like to better understand any potential impacts of the modeling approach taken regarding GHG revenues. We understand that for simplicity E3 modeled all of BPA's generation as being inside the Washington GHG zone. It is our understanding that in either market it is likely that the portion of BPA's generation serving Washington load would instead be imported into the GHG zone, with other BPA generation remaining outside of the GHG zone. PPC would like to confirm whether that understanding is correct and work with BPA and E3 to better understand the potential impacts of modeling all of BPA's generation in the GHG zone.

BPA Should Provide Additional Clarity on the Remainder of Its Decision Process

We are about halfway through BPA's decision process. While PPC has appreciated the agency's discussions with stakeholders to date, there are many outstanding issues which need to be addressed prior to BPA making an ultimate decision to participate in a day-ahead market. It would be helpful for BPA to provide customers with additional information outlining the remainer of this stakeholder process. As part of that information, PPC would like to better understand what analysis BPA plans to provide (both quantitative and qualitative) and when that will be made available.

Additionally, the agency should clarify what the "leaning" issued at the end of this process will look like. Customers need to clearly understand what will be decided by that leaning, what actions BPA will take as a result of that leaning, and which decisions will be made in a subsequent process. For example, during its EIM decision process, BPA identified a five-phase process with each phase resulting in specific actions advancing the agency's participation in the EIM. While PPC did not always agree with what decisions BPA was making and when, the agency was transparent about the scope of decisions to be made in each phase of the process. The following graphic was used throughout the stakeholder process:

[6]

PPC raises this issue not to suggest that BPA must use the same decision framework/five phase process to come to a decision on day-ahead market participation. Instead, we want to remind BPA how establishing a framework for a series of decisions helped set stakeholder expectations for how to engage at each phase of the process.

To date, BPA has not provided any specific details on decision points subsequent to its initial "leaning." Without that additional information, it is unclear to customers whether there will be additional opportunities to weigh in on aspects of BPA's decision as more information is made available. Understanding more details about the process moving forward is particularly helpful in this case where BPA is having discussions about day-ahead market participation in parallel with designing the power products that the agency will offer in post-2028 contracts. The products offered in the Provider of Choice process must be compatible with any day-ahead market that BPA participates in. PPC members need additional information to understand the current compatibility, and in some cases have serious concerns about proposed product designs being incompatible with future markets. Customers need to better understand the timing for addressing those issues and how they feed into BPA's day-ahead market decision.

Without additional clarity on continued discussions subsequent to BPA's "leaning," customers are almost left with no choice but to assume that a "leaning" essentially means a final decision. More specificity on the scope to be covered in this "leaning" and a more complete description of continued conversations following that leaning could help allay some of these concerns.

[6] https://www.bpa.gov/learn-and-participate/projects/energy-imbalance-market

PPC suspects that the leaning issued at the end of this process will be quite different from the EIM policy Record of Decision (a 200+ page policy document) based on the information that will be available to BPA and stakeholders by the end of this process. This is not necessarily problematic if customers have a clear understanding of the implications of the leaning and support any actions taken as a result of that leaning based on the information and evaluation provided. For instance, PPC members have already supported BPA's funding of the initial portion of Phase 2 of Markets+ while also urging BPA to take the time it needs to thoroughly answer PPC's questions before issuing a leaning by BPA[7]. PPC members felt that based on current information the Markets+ option was valuable enough to incur some limited cost risk in order to support continued development of that option in the case that BPA has not decided on day-ahead market participation by the time additional funding is required.

Better understanding what BPA intends to communicate with its "leaning" at the end of the day-ahead market stakeholder process and what decision points lay ahead related to market participation is important to informing the level of detail and rigor that customers will require to support the leaning issued at the end of this process.

Conclusion

PPC continues to appreciate the hard work of BPA staff both running this public process and taking leadership roles in developing organized market options. We look forward to working with BPA and E3 on potential additional scenarios to further inform the WMEG study results in the context of BPA. PPC also seeks additional clarity from Bonneville on the remainder of the day-ahead market public process, including more details on when the outstanding questions raised by PPC and other stakeholders on the value and compatibility of BPA's products and statutory obligations will be answered.

[7] PPC Comments on BPA's September 11, 2023 Workshop, https://www.ppcpdx.org/wp-content/uploads/PPC-Comments-on-BPA-Day-Ahead-Workshop-10.15.23-with-Attachment.pdf