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PPC Background Paper
Western Markets Landscape, Opportunities of Expanding Organized Markets, and Impacts to BPA Preference Customers

The current inefficiencies of the balkanized Western grid have long been acknowledged, but previous attempts at an organized market have failed – largely due to concerns around how costs and benefits would be shared, individual entities' reluctance to turn over operational control, and a fear in the Northwest that any market would raise rates and reduce regional benefits. These concerns have led the West to take a cautious and incremental approach to organized markets compared with other regions. However, when built correctly, organized wholesale markets – where generators sell power and load-serving entities purchase it – can provide a much more economically efficient method of doing so.

Most recently, the California Independent System Operator (CAISO) and the Southwest Power Pool (SPP) have both developed voluntary "energy imbalance" markets which focus on economically dispatching resources to meet "imbalance" or the within-hour changes of participant's resources and demands. This incremental approach has also allowed participating utilities or Balancing Authority Areas to maintain control of their operations and planning functions, meaning that these energy imbalance markets seek to gain market efficiencies while largely allowing entities to retain local control of their systems. Entities participating in the region's energy imbalance markets have already experienced the benefits of optimizing regional dispatch through an integrated market.

Success of these energy imbalance markets, utility environmental goals, state mandates requiring transmission owners to join regional transmission organizations, and the replacement of traditional power trading options with organized markets are now motivating utilities in the West to explore *expanding* the region's organized markets. ***For potential market participants like BPA with clean, flexible, and reliable resources and ample firm transmission rights, expanded centralized markets could offer an opportunity to get better value for its resources, reduce wholesale power costs for its preference customers, and operate the Federal power and transmission systems more efficiently.***

Studies show that the benefits of establishing an integrated day ahead market in the West are even greater than those experienced in the current imbalance markets, with gross benefits ranging from roughly $200M[1] to $750M[2] per year. The broad range of these estimates, however, clearly demonstrates that the amount of value created by an organized day ahead market will be heavily dependent on the market design, the implementation of market rules, and the extent of the market footprint. Establishing the rules that determine how the benefits are shared among participants is another challenge, as changes in market rules can shift significant value between market participants. Despite the challenges, these

[1] The 2019 Extended Day Ahead Feasibility Assessment estimated $119 to $227M in total annual benefits, focused on production cost benefits only and assuming a footprint consistent with EIM participation as of 2018.
[2] The State Led Market Study concluded an organized day ahead market would result in roughly $500M - $750M in gross annual benefits, depending on the market footprint. This included both production cost benefits and capacity benefits.

studies demonstrate that there could be real financial benefits to the region from pursuing a well-designed organized day ahead market.

PPC Objectives

PPC members see an opportunity for properly structured organized markets to improve the costs and services they provide to their customers. This is true both for PPC member utilities that have their own generation resources and could experience enhanced value of those resources through participation in a market, and for member utilities that rely entirely on the BPA supply to serve their customers.

As the statutory preference customers of BPA, PPC will be seeking a market option that maximizes three business objectives. First, the market must reduce future costs for our ratepayers by lowering power supply costs and providing full compensation for the value of the Federal hydropower and transmission system. Second, the market must maximize efficient operation and expansion of the Federal transmission system. And third, the market must facilitate integration of additional carbon-free resources.

At the same time, an acceptable market must operate within several parameters. First, it must maintain grid reliability. Second, it must preserve the statutory rights of the preference customers to cost-based Federal service at all times. And finally, it must have a strong and effective independent governance structure that does not unduly discriminate in favor or against specific market participants.

BPA Role in Market Development

BPA preference customers fund about 70 percent of BPA's annual $3.9 billion revenue requirement through their existing contracts. Consequently, we expect rigorous analysis and partnership as BPA considers any market participation decisions.

From the preference customer perspective, BPA's ability to provide low-cost power supply allows our members to provide reliable and affordable service to their communities. For many PPC members, the cost of purchasing wholesale power from BPA is the biggest component of the rates these non-profit utilities charge their customers. PPC members are looking for a market that not only lowers their cost of service through increasing access to additional low-cost resources, but also a market that fairly compensates BPA for the value of its resources – including the operational flexibility and contributions to grid reliability those resources provide. The value that BPA receives for selling its surplus power directly lowers BPA wholesale power rates for our members and reduces the cost to their consumer-owners.

BPA's power and transmission assets are central to any market's success. BPA owns and operates 75 percent of the transmission system in the Northwest, which every utility in the region must utilize to participate in the day-ahead markets currently being considered. ***BPA must leverage this role to advance the needs and interests of the Northwest and the agency's customers. PPC would like to see BPA take full ownership of its central role in these market discussions and serve as an effective advocate for BPA customer and Northwest interests.***

Development of Integrated Market Options

A day ahead market is a major commitment beyond the current energy imbalance market. This is because a much greater share of the region's trading activity is done in the day ahead timeframe. The extent of this trading activity is extraordinary – over 400,000 GWh of electricity is traded and delivered between Balancing Authority Areas in the West every year. Assuming an average price of $50/MWh, this equates to approximately $20 billion of annual trading. The day ahead market will also have a greater potential to impact what resources are online and available to be dispatched in real-time and thus will have a greater potential to impact regional reliability.

Currently, there are two active competing initiatives to develop an organized day ahead market option for the West. The first is being developed by the California Independent System Operator (CAISO) and is referred to as the Extended Day Ahead Market (EDAM). Development was initiated in 2019 but was paused nearly a year later, after the CAISO experienced supply shortages and resulting blackouts during the summer of 2020. Late last year, CAISO restarted the initiative. In stakeholder discussions, there continues to be a tension between entities within and entities outside of California on a range of issues that will determine how the market is designed and governed and how the market benefits are allocated to market participants. The decision-making structure of the CAISO, which has a statute-driven objective to create economic benefits for California ratepayers, has been a key area of this tension.

The Southwest Power Pool's (SPP) Markets+ concept is a more recent effort, with development of the concept beginning in late 2021. SPP currently operates a Regional Transmission Organization in the Eastern Interconnect and recently began offering services in the Western Interconnect. These services include Reliability Coordinator services and the Western Energy Imbalance Services (WEIS) market. Many members of the WEIS have also signed an agreement to explore joining a Regional Transmission Organization in the Western Interconnect. While there are several areas where SPP has less experience – in particular, greenhouse gas accounting – the market operator's expertise, the opportunity for participant influence over design, and use of an impartial board to make decisions on market rules are all elements that have been appealing to entities in the West, including many PPC members.

Both offerings are still under development with very few design items firmly set at this time. Therefore, this is a critical time for entities to seize the opportunity to influence the proposed market designs. PPC continues to advocate for policies that would create the greatest benefits for Northwest consumer-owned utilities, with any BPA participation decision contingent on clear and significant benefits. BPA has also been actively engaged in market design discussions but has yet to clearly message the objectives the agency is seeking with market participation and describe the protections necessary to ensure confidence it will be able to continue to meet its statutory obligations.

While the EDAM and Markets+ proposals are still being developed, the table below captures some areas of greatest opportunity and some areas of greatest challenge for these two options based on our current understanding of each option.

CAISO Extended Day Ahead Market (EDAM)

Opportunities	• The Pacific Northwest and California have a long history of trade which has created benefits for both regions; inclusion of California in a Western market footprint allows that trade to continue with minimal barriers. • California has aggressive carbon goals that may give the CAISO more experience in developing policies to encourage carbon-free resources. • Many Northwest utilities, both investor-owned and consumer-owned, are already participating in the EIM operated by the CAISO.

Challenges	• CAISO's Board is appointed by the California Governor and the governance structure is bound by statute to operate for the benefit of California ratepayers. This creates the risk or the perception of risk that the governing board will adopt rules designed to discriminate in favor of certain participants and prevent the market from working properly. Historically, there have been numerous instances of the adoption of market design choices that benefit California at the expense of other regions. • "Fast start" generators are excluded from setting market prices, which results in lower payments to all generators participating in the markets, particularly in hours of scarce supply. This reduces compensation to utilities like BPA that sell generation into the market, thereby directly increasing the cost of BPA power for preference customers. • CAISO will have dual roles in the market, both as the market operator and as a participant, which could create a conflict of interest. This concern could potentially be addressed with additional clarity on roles and responsibilities and transparency into the actions taken by CAISO. • The market would include divergent resource adequacy programs, which creates additional challenges, particularly when there is not confidence that those programs require the same rigor to demonstrate resource adequacy. Almost all organized markets utilize a consistent resource adequacy program across the market footprint.

SPP Markets+

Opportunities	• SPP is governed by an independent board that has no additional obligations to any specific market participants and plans to utilize a "panel" of independent decision-makers familiar with the west to oversee Markets+. • Based on conversations to date, we expect that all participants will be required to participate in the Western Resource Adequacy Program or meet the standards of that program, creating equity and consistency in how participants contribute capacity towards regional reliability. • SPP has experience working with WAPA to ensure that market rules facilitate participation of a federal power marking administration and committed early in the development process to work with BPA on the agency's specific needs to continue to meet its statutory obligations. • SPP has significant amounts of wind installed and solar in its queue, with little demand for carbon-free resources to meet state requirements within its current footprint; this could provide an opportunity for the West to access those resources to help meet carbon reduction goals.
Challenges	• SPP is new to providing services in the West. There are some "cultural" differences, including the West's broader focus on "stakeholders" vs. "participants." • SPP has no experience with GHG accounting to date. • Markets+ is a "contract service" offered by SPP, which provides the potential for more autonomy of the market but could result in additional risk for the longevity of the program (SPP has stated it is committed to continuing to provide the service).

Next Steps & Key Questions

Organizations across the West continue to develop both market options. Members of PPC Executive Committee recently issued an open letter committing resources to the development of SPP's Markets+ to ensure that there are two viable market options to choose from. Based on our current understanding of the EDAM proposal, there are some aspects of that proposal that could create unacceptable risks to many of PPC members – specifically the EDAM governance and several market design issues that seem to favor California participants. Importantly, while such issues are not currently evident in SPP's Markets+, that concept is less developed, a formal straw proposal has not been published, and there may be plenty of controversial issues ahead. Some of the key questions the remain for PPC as development of both options continues:

- Are California parties willing to forgo their influence in the CAISO market to make the market more tenable to other participants?
- Will SPP be able to navigate some differences in organizational culture to gain confidence from Western entities, particularly in how stakeholders are recognized and their ability to participate in policy development?
- What entities will join which market? A utility must be connected to the market in order to participate, so decisions made by other entities will impact what options are available to individual utilities. Additionally, the footprint of each market will impact the potential benefits of participation.
- Given that two markets are likely to form in the West, how will the rules governing the "seams" between those markets be negotiated? What potential is there within that negotiation to protect the value of current trades into subregions that are not within the same market footprint?
- Will the protections put in place to deter "leaning" on the resources of other participants be sufficient to address Northwest parties' concerns about CAISO's resource adequacy program? Will the changes to the CAISO's resource adequacy program ensure that sufficient capacity is procured by those in the CAISO to equitably contribute to regional reliability?

All these questions are designed to better understand each option, so that BPA – in partnership with PPC and its members – can engage in rigorous analyses and quantitative evaluations of the benefits and costs each option presents for the agency and its preference customers. At this time, neither option is sufficiently developed to engage in those types of rigorous evaluations. However, in the next six months, PPC will seek additional details of the proposals to evaluate the proposed market designs and advocate for improvements that will benefit PPC members. This is a critical time for influencing the outcomes of these market designs, which, if adopted, would influence the benefits to Northwest consumers.