

BPA Comments on FRAC MOO – Phase 2 Supplemental Issue Paper

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General Comments:

Purpose of the Intertie

The Pacific Northwest-Pacific Southwest Intertie was constructed in 1964 to provide the benefits of coordinated markets to the two regions. One of the products envisioned by Congress, the sale of surplus peaking capacity from the Federal Columbia River Power System (FCRPS), could potentially meet several California needs for integrating renewables:¹

- Provide energy to California during the daily peak hours of use;
- Provide a load to use surplus California renewable energy when the peaking energy is returned to the Pacific Northwest (PNW);
- Provide the above benefits without exacerbating California’s net load ramping concerns through must run requirements in hours when not needed; and
- Meet those requirements with surplus capacity produced by primarily hydroelectric resources that have no or minimal carbon use.

Opportunities

BPA is willing to work with California utilities to develop mechanisms to help with California’s oversupply issues. BPA believes other PNW utilities with surplus hydroelectric capability would likely be willing to participate as well. However, due to the CAISO’s current market structure and design, only a small amount of FCRPS and PNW hydroelectric surplus capability can be used. For example, the ability of PNW hydroelectric resources to assist the CAISO, i.e., to meet net load ramping requirements, is significantly constrained if the solution set is limited to real time (5 minute) dispatch.

Market Design Issues Limiting Access of Pacific Northwest Hydroelectric Flexibility

¹ 16 U.S.C. § 837b(c) (2014) Any contract for the disposition of surplus peaking capacity shall provide that (1) the Secretary may terminate the contract upon notice not in excess of sixty months, and (2) the purchaser shall advance or return the energy necessary to supply the peaking capacity, except that the Secretary shall not require such advance or return during the purchaser’s daily peak periods. The Secretary may contract for the sale of such energy to the purchaser, in lieu of its return, under the conditions prescribed in subsection (a) of this section.

Nearly all of the FCRPS and other PNW hydroelectric resources are part of an interdependent system of dams, whose operation is bound together by the physics of hydrology. In addition, there are nearly always several non-generation uses of these systems with priorities set higher than the production of electricity (flood control, navigation, fish and wildlife preservation, etc.).

The limited ability to store water in run-of-river dams is another factor governing the movement of water through the FCRPS during certain periods of the year. BPA plans its hydro operations to meet load service and operational requirements on a continuous basis up to real time. The Agency's ability to make use of the flexibility of the FCRPS is greater the farther ahead of real-time operations that the obligation is established. By the time BPA is scheduling in real time, there is comparatively very little flexibility that can be provided from the FCRPS.

The California market is currently designed to capture flexible capacity as 5 minute dispatches of energy. Not only does this timeframe preclude the CAISO from making use of the majority of the cost-effective and carbon-free flexible surplus capacity available from FCRPS, it presents a unique set of transmission challenges. The Pacific Northwest-Pacific Southwest intertie is currently limited to 400 MW of dynamic transfer capability (DTC) to deliver 5 minute energy. In contrast, allowing PNW hydroelectric resources external to the CAISO to provide 15-minute Flexible RA allows use of the entire California-Oregon Intertie rated capacity, totaling nearly 4,000 MW. Going a step further and allowing these resources to schedule day-ahead ramps to meet the highly forecastable part of Flexible RA needs brings the Pacific DC Intertie into play as well, and another 3,000 MW of transfer capability.

PNW hydroelectric resources can provide significant amounts of 15 minute dispatch of energy if adequately compensated. The opportunity cost of the flexibility can be high if the water is already in motion when California elects not to take the energy. The cost of fuel must be captured in the opportunity cost of this flexibility to not take the energy. The FCRPS can offer significant flexibility in the 15-minute market, however compensation for this flexibility must be in some form other than energy market payments.

BPA has much greater capability to plan day-ahead FCRPS operations that capture the benefits described at the beginning of this document. In the day-ahead timeframe, FCRPS surplus capacity can be used as a flexible resource to help reshape the net load in California, serving load ramps with no minimum generation outside the ramp. Given the nature of the Pacific Northwest-Pacific Southwest intertie as one of the most valuable assets in the West Coast energy market, use of this asset by parties holding firm transmission rights on the northern half of the intertie will find the highest opportunity cost. The current market design places the highest value on the day-ahead fixed energy schedules with minimal payment for flexibility to not take the energy and no payments to external resources to guarantee availability of this service.

While the current day-ahead market can provide many benefits of FCRPS surplus capacity, it does not provide the assurance of delivery under all conditions, particularly when low water conditions occur in the PNW. Broadly speaking, BPA believes that only bilateral contracts with LSEs in a resource adequacy construct of one year or more will create an incentive for PNW parties to take actions ahead of day-ahead markets to ensure water is available to provide these services during low water conditions in the Northwest. Developing product categories eligible to provide Flexible RA, and providing capacity payments for these services, would make it more economically attractive for Northwest parties to provide flexibility. If product categories are developed to capture the flexible attributes of Pacific Northwest hydro resources, then both California parties and Northwest parties would benefit.

Identified opportunity for enhancing flexible capacity product

1. Ramping speed
 - a. Large single hour net load ramps

Comments:

BPA recommends that the CAISO separate the requirements for meeting net load ramps from the requirements for intra-hour variability. Net load ramps can be forecasted with reasonable certainty on a day-ahead basis. By creating a separate category of Flexible Resource Adequacy resources to meet the net load ramp need there would be greater access to resources that could meet this need.

- b. The transition from low net loads to steep ramps

Comments:

BPA suggests the CAISO set transition standards applicable to all resources to address its concerns. Setting such standards at an hourly granularity would increase the number of resources that can provide flexibility to meet net load ramps.

- c. Intra-hour variability

Comments:

The CAISO should develop separate requirements for intra-hour variability and the resources providing Flexible Resource Adequacy for this purpose. Resources that bid into the 15-minute market could meet these requirements.

2. Cycle time and flexible capacity qualifications

Comments:

Flexible resource qualification

In response to the 2015 FRAC MOO straw proposal BPA noted that the CAISO had not provided any technical analysis to show that imports from system resources are not capable of meeting the flexible RA performance standards. BPA would like to reiterate that point. The CAISO Tariff provides ample detail on the three existing categories of Flexible Capacity that the CAISO uses for Flexible RA Resources. They each contain provisions for bidding hours, availability, minimum run times, and number of starts. BPA maintains that inertia resources are operationally able to provide all three flexible capacity categories: base ramping, peak, and superpeak. Even non-resource specific system resources that use a separate resource ID solely for each category should be able to provide economic bids in the day-ahead and 15-minute energy markets, qualifying as flexible resources.

New Categories of Flexible Resources:

In the next two sections, BPA suggests that the CAISO add two new categories of Flexibility to its needs and resources. These are simply aimed at illustrating BPA's view of how the CAISO might adjust its market rules to make the most cost-effective use of the flexible capacity that exists in the West, given resource and transmission constraints.

Dec resources

Currently the CAISO has many different variations of incremental (inc) capacity need and resource classification, but no defined need for decremental (dec) capacity, no resource classification, and no methodology for compensating generators that operate to provide such capacity. BPA asserts that the need for all of these will become increasingly critical as more solar is added to California's grid, creating oversupply conditions. BPA suggests that the CAISO create a Flexible RA category for decs. In developing a Flexible RA category for decs, the CAISO should separately consider its needs to meet net load ramps and its intra-hour variability. In addition, an export that provides an economic bid or self-schedule in the day ahead or 15 minute energy market during forecasted hours of oversupply should be able to qualify as a flexible resource.

One of the barriers to efficient use of the inerties to deal with oversupply is the Transmission Access Charge, or more specifically, the Wheeling (Export) Access Charge, assessed on all exports from the CAISO footprint. BPA notes that this barrier has been successfully lifted for EIM transfers, providing value for EIM participants. The CAISO should explore waiving TAC charges for energy exports that relieve oversupply conditions to incentivize bids during forecasted hours of oversupply.

Day-ahead

As noted earlier, the rated capacity of the Pacific Northwest—Pacific Southwest Intertie and Pacific DC Intertie allows roughly 7000 MW of transfer capability to either provide 15 minute Flexible RA or schedule day-ahead ramps, as opposed to the limited dynamic transfer capability over the intertie for 5 minute dispatches of energy (400 MW). BPA recommends the CAISO create a new Flexible RA category to accommodate resources available to meet day-ahead needs. This would improve the symmetry between BPA’s ability to supply surplus capacity from the FCRPS and the CAISO’s ramps, i.e., BPA could better plan its FCRPS operations to supply surplus to meet California needs and/or accommodate California’s oversupply events.

The CAISO has noted that the increased amount of renewable energy on the system has created a greater risk of oversupply. Resources available for day-ahead needs can also be used to help mitigate the forecasted hours of oversupply. These resources may provide delivery in the day-ahead market for up to five hours and can include three hours of Effective Flexible Capacity if the energy delivered is returned as export during hours of oversupply.

The CAISO has a separate stakeholder process for energy storage and distributed energy resources, focused on flexible inc and dec capability to add operational flexibility to the system. BPA would like to reiterate that if allowed, the intertie and the Northwest could potentially provide this flexibility to the CAISO system with low carbon resources. BPA suggests the CAISO set Flexible RA requirements for external resources to allow both deliveries and returns of energy to qualify as flexible capacity.

3. High minimum operating levels from both RA and flexible RA.

Comments:

No comment.

4. Most significant net load ramps occur on weekends or holiday weekdays.

Comments:

No comment.

5. Significant quantities of long start resources may limit the CAISO’s ability to address real-time flexibility needs.

Comments:

The CAISO is concerned that the number of long start resources may hinder the ability of resources in total to meet real-time flexible capacity needs and states that the number of long

start resources should be capped, though not completely excluded. BPA recommends any category of day-ahead external resources not be treated as long start resources or be exempt from this cap if these resources have a zero MW minimum generation during hours of oversupply.

6. There is currently no means in place for the CAISO to assess the likelihood that the flexible RA showings will adequately meet all ramping needs.

Comments:

BPA recommends the CAISO create separate categories for Flexible RA to meet net load ramps and intra-hour variability. The CAISO should calculate requirements for each category and describe the requirements for a resource to meet either requirement separately or both requirements from the same resource.

Other comments

Please provide any additional comments not associated with the topics above.

Regional Resource Adequacy (RA)

In the event there is regional expansion of the CAISO, relying on the current CAISO tariff for Regional RA is not appropriate without allowing system deliveries from external resources to meet flexible resource adequacy requirements.

Resource Specific Criteria

In the 2015 FRAC MOO straw proposal the CAISO proposed limiting intertie Flexible RA capacity to specific resources to mitigate the risk of double counting resources. The CAISO was worried that an intertie Flexible RA resource could be used to meet a resource-specific Flexible RA capacity requirement in one balancing authority area (BAA) and also be counted as a non-resource specific Flexible RA capacity requirement in another BAA. BPA, like many others in the PNW and Western region, utilize system sales. BPA would like to reiterate its comment from the initial straw proposal – limiting intertie Flexible RA imports to resource specific criteria will limit the supply pool without providing a solution to the double counting concerns.

The CAISO could consider adding a restriction in Tariff Section 40 to prohibit Scheduling Coordinators from submitting a Supply Plan in which the same portion of designated capacity from a resource is used to meet a resource specific Flexible RA requirement in one BAA and a non-specific resources Flexible RA requirement in another BAA.