

Balancing Reserve Procurement Strategy:

Overview, Assumptions, and Caveats:

- One of the inefficiencies with the status quo is that BPA commits and holds balancing reserves based on the worst-case scenario 24/7/365.
- This document focuses on scoping out a more efficient procurement strategy for BPA's purchases of non-federal balancing reserves.
- The allocation of the costs associated with certain purchases is not the focus of this document. The purpose of this document is to scope out the most efficient procurement strategy for BPA and its customers, thereby lowering costs to all customers.
- Legal questions associated with BPA's ability to procure non-federal balancing reserves are not addressed in this document. It is assumed that this proposal could be reconciled with any legal limitations BPA does identify.
- The recent FERC Order regarding BPA's reciprocity status was not considered in drafting this document.
- For the purposes of this paper, we assume there will be a single quality of service level for all VERBS customers and that quality of service will be equitable with the quality of service received by conventional generators.
 - The current committed scheduling options and incentives are assumed to continue.
- Exact quantities are left blank (XXX) in certain places below, as those are questions that require more analysis or more market information before they can be pinned down.
- A non-discriminatory backstop tool for handling extreme instances where the system need for balancing reserves exceeds what is available from the federal system and the market is an important component of an efficient procurement strategy. This document does not focus on developing the details of such a tool.

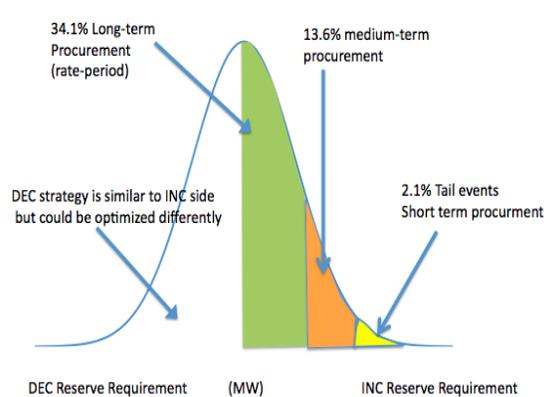
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Procurement Strategy:

- This document assumes that Bonneville is doing the procurement on behalf of customers.
- The procurement strategy is a “portfolio approach” incorporating a mix of both long and short-term purchases and a mix of both federal and non-federal balancing reserves.
- The goal is to reduce the total long-term (rate period) cost of providing balancing reserves to BPA customers at an agreed upon level of service.

Illustrative Example of a Layered Procurement Strategy:

- The percentages here are based on the standard deviations of a normal distribution. The actual distribution of system errors should be used to guide the procurement strategy.
- BPA should hold up to the XXX percentile (e.g. 85th, 95th, or 99.5th) on a long-term (rate period) basis because that is the magnitude (MWs) of the system need for balancing reserves that occurs on a regular basis.



- This could be accomplished through a mix of federal and non-federal balancing reserves, with the goal of optimizing for least-cost and the highest quality of service.
- The remainder of the balancing reserve need (anything above XXX percentile) would be procured on a medium-term (1-year, quarterly) and short-term (monthly, weekly, day-ahead, hour-ahead) basis, based on the forecast need and the availability of the FCRPS.

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Balancing Reserve Product Definition and Market Supply Information:

Product Definition:

- A major focus of this document is the concept/assumption that there are different price points and different supply curves for different “balancing reserve” products, the definition of which depends on a host of operating and contractual terms and conditions.
- Regardless of whether we are talking about short-term or long-term procurement, the region needs greater specificity and delineation of different balancing reserve products. The first BPA RFP was a success, but it asked for “Imbalance Capacity” under only one set of specific terms and conditions, a product that would have to be available all hours of the quarter and fully dispatchable within 10-minutes notice.
- All of the following variable terms and conditions should be considered when defining the specific need that a particular balancing reserve acquisition is trying to fill: imbalance, following or regulation; term-length; seasonality; notice provisions; HLH/LLH; INC/DEC; limitations on the number of calls; ramp rate requirements; energy content; other.

Market Supply Information:

- BPA and customers should work to mature the market for balancing reserves as much as possible prior to the next rate case. Examples of ways to do this might include:
 - BPA could put out an RFP (or multiple RFPs) for balancing reserves as a part of the rate case process and well in advance of the determinative rate case decision points. This could be accomplished by 1) BPA working with the region to identify the key balancing reserve products and BPA putting out RFP’s for each product, or 2) BPA putting out a generic request for proposals with no limitations on what types of products would be offered.
 - BPA could use the next quarterly RFP cycle to define some additional distinct balancing reserve products and see how the market responds.

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- BPA could also use some of the \$2 million set aside in the rate case settlement to gain experience in the short-term balancing reserve market during this rate period.

Implementation Tools (Master Agreements and R3T):

Master Agreements:

- With respect to short-term procurement, BPA should develop “master agreements” with identified suppliers of balancing reserves. The master agreement is a standing agreement that defines the terms and conditions under which a short-term purchase of balancing reserves can be made. Such agreements will make short-term purchases more efficient and effective.
- Having these agreements themselves in place has no cost associated with it; there is a capacity charge for when BPA calls upon a certain agreement to standby and provide capacity; there is an additional energy charge if that capacity is deployed (INC).
- BPA should develop these agreements prior to the rate case.

Real-Time Reserve Requirement Tool (R3T):

- R3T allows the system operator to forecast the need for balancing reserves in advance of real-time. This capability is critical for managing the cost associated with holding expensive balancing reserves on a long-term fixed basis.
- Understanding the time frames under which R3T is accurate and useful will also help to define the different balancing reserve products that the BPA needs.
- The region needs to understand the capabilities of the R3T as soon as possible.