Mitigating DSO 216 Schedule Cuts

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Background

Parties agreed in the 2010-2011 BPA rate case to limit the amount of balancing reserves BPA sets aside on a planning basis for wind and load variability and schedule error. BPA's Dispatch Standing Order 216 (DSO 216) specifies conditions under which BPA will order wind generator output limits, or conversely, reduce scheduled deliveries as necessary to maintain reserve deployment within levels set aside for that purpose. Implementation of DSO 216 appears to be a success, limiting the economic consequences of holding large amounts of reserves on the BPA system, while simultaneously limiting BPA's exposure to frequency excursions and reliability events. Schedule limit events occur on average about twice a month, with November 2009 reaching a high of 5 events. This rate is roughly half the amount forecasted in BPA's rate case.

Issue

Under DSO 216, the consequences of schedule limits are considerably more severe than generation limits. This paper explores ways to minimize schedule cuts.

It is our understanding that the region, and BPA in particular, likely has enough non-contingency related generating capability to obviate the need to cut schedules during most or perhaps all DSO 216 events. However, markets and process have not yet been established to allow available generating capability to be brought to bear to reduce the number of DSO schedule curtailments.

Ideas for Mitigating DSO 216 Schedule Cuts

Expansion of Intra Hour Scheduling Pilot

BPA's intra hour scheduling pilot project currently allows wind generators to increase scheduled deliveries mid-hour. This has had the effect of reducing generation imbalance on hours when wind generation increases rapidly over an hour or two. Allowing wind schedulers to reduce delivery schedules mid hour (or preferably more often) would allow receiving balancing areas to accept more of the balancing burden by voluntarily increasing generation to compensate for the schedule reduction.

In effect, allowing intra-hour schedule reductions has the same effect as a schedule cut, except that it occurs in a more controlled and voluntary fashion between BPA and the receiving balancing area.

In addition, expanding BPA's intra-hour schedule pilot to smaller increments (e.g., ten-minute intervals) will better match California ISO practices and allow BPA to better market its surplus energy into California energy markets, increasing secondary revenues and reducing rates to BPA's preference customers.

BPA PBL Sale of Contingent Capacity

The federal power system consists of more than 20,000 MW of hydro nameplate capacity, and a reported one-hour peaking capability of more than 18,000 MW (including all resources) according to the 2009 BPA Whitebook. Conversely, the highest one-hour load on BPA's system in 2009 was less than 11,000 MW. Because the hydro system is often constrained by environmental operating requirements and physical limits, the available incremental generating capability cannot be fully committed on monthly and annual bases. As a consequence, BPA often has incremental generating capability in excess of its obligations.

We propose establishing business practices necessary to allow BPA to sell availability-contingent incremental generating capability to wind schedulers desiring to limit exposure to DSO 216 schedule cuts. This appears to be a win-win proposition: BPA opens a new revenue stream for uncommitted flexibility, and wind schedulers are able to increase the reliability of their deliveries—limiting schedule cuts to periods where incremental generating capability is not available to avoid them.

Dynamic scheduling for mitigating DSO-216 events.

In addition to expanding intra-hour scheduling, BPA should explore ways to facilitate wind generators' access to additional reserves from BPA and third-parties, such as hosting/creating a website/market platform through which BPA and other third-parties (including load) could offer incing and decing capability to wind generators.