

Question and Answers
Topic: Risk Mitigation
WP-07 Rate Case Workshops

June 1, 2005

Q: Why is it not possible to update the regulated hydro data past 1978? Customers indicated SLICE customers are receiving 60-year data and PNCA is using 70-year data?

A: **BPA Rate Case and Planning:** Hydro system modeling requires a data set of observed stream flows as input to the model. Three such data sets have been developed for the Columbia River Basin. The first was a 50-water year set (1929-1978), the second a 60-water year period (1929-1988) and a 72-water year set (1929-1999). In addition to a stream flow data set, there are other required input parameters. One parameter is the flood control draft requirement for each reservoir--known as an Upper Rule Curve (URC). A project's URC can vary widely depending on the runoff volume in the river basin. For example, if the expected runoff volume in the Columbia River Basin increases, more space is required in reservoirs to protect against flooding.

One objective of BPA's modeling for Rate Case and planning purposes is to simulate the real-time decision-making capability under each water condition as accurately as possible. In real-time operations, the Corps of Engineers (COE) and the Bureau of Reclamation (BOR) recalculate URCs each time a volume runoff forecast for the current year is updated. Therefore, BPA uses COE and BOR volume runoff forecasts to set URCs for Rate Case modeling of the hydro system.

At this point in time, URCs based on volume runoff forecasts have only been produced by the COE for the 50-water year period (1929-1978). That constrains BPA to use only the 50 historical years in our hydro regulation studies.

SLICE: BPA currently provides the SLICE customers hydro generation estimates reflecting 60-years of historical stream flows. These results, however, are a composite of hydro operations that are based on different URC assumptions. In the 50-water year period (1929-1978) the URCs are based on forecast runoff volumes and the last 10-water year set (1979-1988) incorporates BPA URC estimates based on actual forecast runoff volumes from those years. The method is not appropriate for BPA's ratemaking process because the URCs for the additional 10-water years were not validated the COE and BOR.

PNCA: The PNCA planning process incorporates a long-term 70-water year set (1929-1988) for hydro modeling estimates. PNCA studies have defined URCs based on observed runoff volume, not forecasted runoff volumes. This method provides an advantage that the real-time decision makers do not have, namely perfect foresight of

what future runoff volumes and weather conditions will be. This leads to results from the hydro regulation studies that include operational efficiencies that cannot be captured because operational decisions are based on volume runoff forecasts that have an inherent expectation of error. Since BPA is trying to simulate the real-time decision-making capability under each water condition as accurately as possible, the PNCA methodology for URCs is also not appropriate in Rate Case studies.