**PMU Additions FY17-19**

NERC requires the Transmission Planner to verify actual performance of the transmission system following disturbances to validate the steady state and dynamic models, and to ensure they provide adequate voltage performance. Without good voltage control at the generators, transmission outages can lead to voltage instability. The Transmission Planner will use phasor measurement unit (PMU) data to comply with NERC standards that are under development. NERC Standards PRC-002-2, MOD-026-1, MOD-027-1, and MOD-33-1 require the Transmission Planner to provide high resolution samples to record low frequency oscillations and damping issues across the system and to verify the Generator Operator's models when assessing the BES reliability. It will be necessary to record disturbance data at 60 times per second. Today phasor measurement units (PMUs) are the only equipment with this capability. In addition, it is extremely important to validate the simulation of steady state and dynamic models of the power system through event analysis, and base-line performance validation. MOD-26-1 and MOD-27-1 require this and FERC approved these standards in May 2014. WECC wants these implemented within 5 years with a percentage completed each year. PMUs give the most accurate and timely data to be able to accomplish this task. Finally, MOD-33-1 requires comparisons of the model to system response. This standard was adopted in February 2014. Again, PMUs are required to accomplish this. NERC is looking for these studies to be started within 3 years. This will require BPA to start gathering data and setting up the procedures on how this comparison will be done. With these additional PMUs BPA should be fully compliant.