Steel Lines Sustain Program FY14-15

BPA’s overhead steel line assets consist of approximately 10,800 circuit miles on approximately 43,000 steel towers and poles. Steel lines represent the agency’s most critical transmission assets and make up most of the main and secondary grids. According to the Aging Overhead Asset Report of 2007, 50 percent of BPA’s overhead assets are already in, or heading toward an impaired state of reliability and availability. The average age of all circuit miles is 48 years and over 47 percent of the 230-345kV system is 60 years or older.

BPA is experiencing material failures that clearly indicate that active components have a finite lifespan and are approaching that limit. For example, there have been recent ground wire failures on Fairview-Rogue and Ashe-Marion and insulator failures on Olympia-Grand Coulee. Observations on North Bonneville-Troutdale and Bonneville-Hood River lines indicate that tower attachment points for suspension insulators have worn thin. There is growing concern over obsolete conductor with fittings that are exhibiting the first stages of thermal failure.

For FY 2014 and FY 2015, the program will focus on proactive condition based component replacement. Beginning with an age-based approach, line segments will be targeted for insulator hardware replacement. A sampling of retired components will be evaluated and results will be documented along with factors like age, manufacturer, geographic location, and adverse environmental conditions in order to refine life expectancy predictions, better target high risk lines and appropriately pace the program. The program will also begin systematic replacement of obsolete 2.5” expanded conductor. In addition, the program will continue to relocate, reinforce or repair structurally distressed towers and aggressively implement vibration mitigation strategies. Finally, the program will expand on a newly launched corrosion mitigation program and refine maintenance priorities to better address critical asset components that serve a protective function.