

## **Grand Coulee 230 kV Current Limiting Reactor**

This project seeks to install a current limiting reactor at the Grand Coulee 230kV switchyard.

Since 1966, it has been recognized that with the addition of the Third Power Plant (TPP) at Grand Coulee Dam and the installation of a transformer connection between the (then under design) 230kV and 525kV Switchyards would create a fault current level that would be at or above 62kA. This was, and still is, beyond the ratings of the oil-filled ITE circuit breakers selected for installation in the 230kV Switchyard.

Since then, the available fault current in the 230kV Switchyard has grown at a rate proportional to new power generation being added to the Bulk Electric System (BES). After several years of on and off discussions, an Interagency Agreement (R15PG00129) was signed in September 2015 where Reclamation requested BPA to complete a Grand Coulee Switchyard Study. This study, labeled the Grand Coulee 230kV Switchyard Reconfiguration Report, was completed in June of 2016.

One of the factors addressed in this study was the higher level of fault current now available in the 230kV Switchyard. The report provided a recommendation to mitigate such fault current by inserting two Current Limiting Reactors (CLR) between the three sections of this switchyard. Spurred by this report, engineers of Reclamation's Technical Service Center in Denver, Colorado, responded with a letter to the Power Manager of Grand Coulee in October 2016 stating Reclamation and BPA should enter into design discussions for reducing the fault current, a grievous safety hazard, to a level below the maximum ratings of the circuits breakers installed.

Subsequently, the two agencies entered into an agreement to include a current limiting reactor (CLR) in the 230kV Switchyard, reducing the fault duty on the existing breakers, and for TBL to take ownership of the switchyard. Presently, the yard remains under the ownership of the Bureau of Reclamation's, however; the agencies are moving towards passing ownership over to TBL, and TBL has developed a 10-year plan to revitalize the switchyards at Grand Coulee. This includes this CLR project, new SCADA, major modernization of the 230kV switchyard, and a smaller modernization in the 115kV switchyard. The CLR project is a Priority-A Safety designation due to the hazard to personnel posed by the existing fault duty condition