

Redmond 230-115 kV Transformer Addition

The project adds a second 230/115kV transformer at Redmond substation, to mitigate thermal overloads, low voltages, and possible voltage collapse in the Central Oregon area. The investment includes installing a 230/115 kV 300MVA, 3-phase auto transformer with load tap changer, a 13.8kV tertiary for station service and four breakers.

Portions of the Central Oregon area transmission system are currently at or near system limits. Transmission Planning studies show that during summer conditions, critical contingencies can result in thermal overloads. During peak winter conditions, contingencies can result in voltage collapse and thermal overloads. The need for an additional Redmond transformer is driven by violations of NERC/WECC reliability criteria for an outage of a single element that may result in the loss of load. An outage of the Redmond 230/115 kV transformer is currently the most critical N-1 contingency in the Central Oregon area. If voltage collapse occurs at Redmond during peak winter loads, Transmission Services estimates that load losses could be around 600 MW. In addition, Central Electric Cooperative (CEC) has been experiencing low voltages within its 69 kV system with all lines in service during peak winter conditions. Loads in the CEC load service area continue to grow, and this problem will become increasingly difficult to manage. CEC has proposed to shift much of its load from 69 kV to 115 kV at Redmond, the effect of which will be to alleviate its low voltage issues and also alleviate potential winter thermal overloading with BPA's Redmond 230/69 kV transformers. This shift will, however, place more load on the existing 230/115 kV transformer and exacerbate the consequences of an outage on this transformer.

The project is scheduled to be complete by November 1, 2011. Total project costs are estimated to be \$17 million, including overheads and AFUDC.