

MEDFORD AREA
TRANSMISSION SYSTEM STUDY
2012-2016

Executive Summary

The focus of this study is the 230, 115 and 69 kV transmission, sub-transmission system, and distribution substations in the Medford area. The purpose of this study is to identify system constraints and local reinforcements needed to meet area load growth for the period from the base year and season, summer of 2012, through the horizon year and season, the winter of 2016-17.

The PacifiCorp system in the Medford area has an installed distribution substation capacity of 745/887 MVA (summer/winter). Load is expected to peak near 475 MW in the summer of 2012 (64% utilization). The winter 2012-13 loads are expected to peak near 500 MW (56% utilization).

Based on historical load trends the overall peak demand growth rate is estimated at 0.6% for summer and 0.8% for winter. Using these growth rates the horizon year peak loads are projected to reach 488/521 MW (summer/winter).

Construction projects to correct system deficiencies identified in the study include the following:

Conversion of Line 3 to 115 kV

The Line 3 Conversion project addresses a system normal overload on Line 79 from Lone Pine to Foothills Rd as well as voltage and overload problems that occur during four different outages. The scope of the project includes: moving the 115-69 kV transformer from Ashland to Belknap; new transmission breakers at Ashland and Oak Knoll; upgrades to Line 3; a 3-breaker ring bus at Baldy Switch Station and relay work. This is already an approved project, though it has been deferred at mid-completion.

Reconductor of Line 19-S

The Line 3 conversion project will cause more power to flow to Lines 74 and 82 via Baldy Switch Station. Line 19-S between Lone Pine and Baldy is rated 117/153 MVA (summer/winter) due to its 250 copper conductor. This could become overloaded up to 84% in some contingencies during peaks. To resolve this problem, the line should be reconducted. The project was approved, but then deferred.

Reconductor of Line 74 from Whetstone to Scenic

The Whetstone 230-115 kV substation is also an approved project, scheduled for construction in 2014. Whetstone's primary delivery route to the south will be Line 74 via Scenic. This line is rated 128/169 MVA (summer/winter) and becomes overloaded in two different outages after the completion of Whetstone. To solve this problem, Line 74 should be reconducted from Whetstone to Scenic with a high temperature conductor.

Load transfer from Rogue River to Fielder Creek

Five different contingencies result in overloads and low voltages on the 69 kV Line 7 between Grants Pass and Scenic Substations. This is caused by the #2 copper conductor which has a 29/38 MVA (summer/winter) rating and causes significant voltage drops. Rebuilding Line 7 with bigger conductor would be cost prohibitive. Rather, the plan is to move load off of Line 7 onto 115 kV Line 40 via the Elk Feeder between the Rogue River and Fielder Creek Substations. A portion of the required load transfer can simply be switched via distribution. To transfer the rest, 1.6 miles of the feeder must be rebuilt and a transformer must be installed at Rogue River to step up the distribution voltage from 12.5 kV to 20.8 kV.

Dodge Bridge capacity increase

Transformer T-3523 at Dodge Bridge Substation has already surpassed its 15.6 MVA winter rating by 3% in December 2009. To avoid further loss of life to the transformer, it is recommended that a second 12.5 MVA transformer at Dodge Bridge be installed. To save cost, the 69-20.8 kV transformer T-2104 from Rogue River can be re-deployed to Dodge Bridge.

Red Blanket capacity increase

Transformer bank T-2560, 1, 2 at Red Blanket is expected to reach its 1.9 MVA capacity in the winter of 2013-14. To avoid overloading this transformer, it is recommended to replace it with a larger spare transformer bank. The new transformer has a combined capacity of 7.5 MVA, which should provide sufficient capacity for the foreseeable future.

Load transfer from Fraley to White City

Transformer bank T-2976, 7, 8 at Fraley is expected to reach its 5.9 MVA winter rating in the winter of 2016-17. To avoid an overload it is recommended to transfer load from Fraley to White City via the Table Rock Feeder. Since the 12.0 kV distribution voltage at Fraley differs from the 12.47 kV voltage at White City, installation of a regulator may be needed on the feeder.