



Final Facility Study Report Request # GI-2010-08

Comanche Unit 3 100 MW Uprate
Pueblo, Colorado

Public Service Company of Colorado
Transmission Planning
November 10, 2010

Public Service Company of Colorado (PSCo) received an interconnection request (GI-2010-08) for a 100 MW increase in Comanche Unit 3 generation output. The interconnection request was received May 14, 2010. Comanche Unit 3 is currently an existing 750 MWnet unit connected to the transmission system at the Comanche 345 kV substation located at Pueblo, Colorado (see Figure 1 below). The request was originally for 840 MWnet. However, on May 26, 2010, the customer requested an increase to 850 MWnet. The auxiliary load is approximately 43 MW resulting in a gross requested output of 893 MWgross. The requested in-service date was June 15, 2010. A Preliminary System Impact Study report was issued June 25, 2010. Based on the results in that report, a Letter Agreement was executed with the Customer on June 30, 2010 allowing operation at 850 MWnet on an interim basis until the Large Generation Interconnection Agreement (LGIA) is executed. The final System Impact Study report was issued September 27, 2010. On October 21, 2010 PSCo Transmission executed an agreement to perform a Facility Study for the 100 MW increase.

The results of the final System Impact Study for the 2010 and 2012 summer analyses showed mostly increases in previously existing overloads on facilities in the PSCo, BHE, and TSG&T systems. In the 2010 case, a new overload was found on the BHE system, Burnt Mill-Freemary 115 kV circuit for the loss of Pueblo Plant-Reader 115 kV circuit. However, the studies showed that BHE load 22 MW below the system peak in the case would relieve the overload. As of this writing, BHE is past the system peak. Therefore, this overload should not be a problem for the remainder of 2010. For 2011, the studies showed that installation of the new Airport Tap-West Station double circuits relieved the loading on the Burnt Mill-Freemary 115 kV circuit. Therefore, 2011 should also not be a concern. In addition, the 2012 analyses also did not uncover limitations to the proposed generation increase. Note that on the PSCo system in 2010, the Comanche 230/115 kV T1 transformer was found to be overloaded for the loss of the Comanche 230/115 kV T2 transformer. It was overloaded in both the benchmark case and the case with the increased generation. This transformer is scheduled to be replaced in December 2010.

The transient stability results indicated that with the proposed increase in generation,



Comanche Unit 3 and nearby units are stable with satisfactory damping for all modeled disturbances. In the Preliminary System Impact Study Report, a question was raised regarding the damping in one case with a double-circuit tower 3 phase fault on the Comanche-Daniels Park 345 kV lines. With updated WECC testing dynamics data, this situation did not change appreciably. Since the damping is positive, it should be satisfactory.

Therefore, the results of the System Impact Study indicated that the customer can provide 100 MW of additional generation from Comanche Unit 3 without the need for Network Upgrades for Interconnection or Network Upgrades for Delivery of the proposed generation increase to PSCo loads. Therefore, there is no need to determine cost estimates and a schedule associated with siting, engineering, equipment procurement and construction of new facilities. Since there are no new facilities required, permanent authority to operate up to 850 MWnet will commence following execution of the LGIA.

