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Topic: Chambers Project Delay Mitigation Measures

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Statement:

If the Chambers 230/115 kV Interconnection Project is not in service as planned by the summer of 2007, Transmission Planning studies indicate a potential for extreme contingency overloads on the Spruce – Smoky Hill 230 kV lines. The overloads would increase with the implementation of additional resources northeast of the Denver-metro area. Studies modeled all PSCo generation northeast of the Denver-metro region at maximum simultaneous levels¹, and high Tot 3 transfer path flows. Operating conditions with lower generation and Tot 3 levels would reduce the likelihood of contingency overloads. However, Transmission proposes to mitigate the risks prior to the summer of 2007 with the following three measures:

1. Increase the power carrying capacity of the existing Spruce – Smoky Hill 230 kV transmission lines by modifying some towers and substation terminations. This modification will significantly reduce, but not fully eliminate the contingency overloads. Studies indicate that reducing generation at Spruce by about 200 MW would alleviate the risk of contingency overloads. Engineering estimates indicate this modification could be implemented at a cost of approximately \$2 million and be completed in 9 months².
2. Explore the benefits of installing real-time capacity monitors on the Spruce – Smoky Hill 230 kV lines. These devices would provide accurate physical conductor limitations, based on environmental conditions and line flows. Such a system can, at times, significantly increase the rated capacity of a line from the static limit used in system studies. A monitoring system for these lines could be implemented at a cost of approximately \$200,000 and be installed within the year.
3. Establish an operating powerflow limit for the Spruce – Smoky Hill 230 kV lines, similar to other transmission paths in the PSCo system. PSCo Operations can then adjust regional generation when necessary to reduce the potential for contingency overloads.

In addition to the measures listed above, Transmission will continue to investigate an additional capacity increase to the existing Spruce – Smoky Hill 230 kV transmission lines above what could be achieved in (1) by replacing the existing conductors with newer-technology, higher rated conductors. Such an upgrade would eliminate the need for generation curtailment. Preliminary estimates indicate that this modification would require at least 16 months to complete. However, such an upgrade could require a Certificate of Public Convenience and Necessity from the Colorado PUC, which could increase the completion time by six months. Cost estimates are being evaluated.

¹ RMEC, BSEC, Pawnee, Manchief, Barr Lake, Ft. Lupton, and Ft. St. Vrain

² Posting G025_SA_r3 at www.rmao.com/documents/psco/NQ-2005-2.html