Operating Guide

XCEL062106-1

TITLE: Lubbock Area Local Operating Guide

Concurrent Outages:

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Prepared By:_____Bob Cochran_____ Date: 6/21/06_____

Reviewed By:_____ Date:_____

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1.0 PURPOSE:

The purpose of this guide is to outline the generation requirements to protect the Lubbock area transmission system from unacceptable operating voltage for a single contingency.

2.0 BACKGROUND:

2.1 Normal and contingency conditions

Economic dispatch of generation in the Lubbock area can make the Lubbock area transmission system subject to unacceptable operating voltage during peak load times for the single contingency loss of certain transmission elements in the Lubbock area or the loss of a Jones Station generator. Normally both Jones Units 1 and 2 are run for economic dispatch. Lubbock Power & Light (LPL) generators may or may not run for economic dispatch. Worst contingencies are the forced outage of a Jones Unit or the Tuco to Okalunion 345kv line.

2.2 Control Variables and limit

Various factors impact the post contingency transmission voltage. A subset of factors have been selected to act as proxies for all the factors in the interest of consistency and predictability. For the conditions listed above, the following limitations are required:

2.2.1 This guide applies to the summer peak months defined as June through September 2006. During the remainder of the year, LPL's load is below the limits determined by Southwest Power Pool's studies.

2.2.2 The aggregate power factor for energy flows across the four interconnection points between Lubbock Power & Light and SPS is calculated as follows: Sum the MW flows to calculate aggregate MW flow. Sum the MVAR flows to calculate the aggregate MVAR flow. Calculate PF using the aggregate MW and MVAR flow.

2.2.3 The aggregate power factor for energy flows across the interconnection between Lubbock Power & Light and SPS must be maintained between .95 lag and .95 lead.

2.2.4 Summer Peak is defined as the months of June through September 2006.

2.2.5 The MW Flow Limit across the SPS to LPL interconnection was originally derived from *Table 5 – Network Load Totals and Tie Line MW Limits by Season* in Southwest Power Pool's System Impact Study titled "SPP-2004-006-3 050330_ATTACH.pdf" as posted on SPP's OASIS site. SPP staff has since updated the study to provide values for 2006.

Aggregate Power Factor (%)	2005 Summer Peak MW limit from Table 5	2006 Summer Peak MW Limit from SPP updated study	2007 Summer Peak MW limit from Table 5
100	337	336	265
99	273	252	213
98	254	223	196
97	241	205	184
96	228	193	175
95	220	182	169
94	211	174	163
93	204	169	158
92	198	164	154
91	193	156	149
90	189	152	146

3.0 IMPLEMENTING PROCEDURES:

3.1 Preventive measures

3.1.1 Maximize the availability of reactive resources in Lubbock area. Request SPS field personnel to verify distribution capacitor banks are in service.

3.1.2 Avoid scheduling maintenance outages to transmission elements in the Lubbock area.

3.1.3 Forecast MW flows and Power Factor in order to provide enough notice to Xcel Energy Markets to bring on steam driven generation if necessary.

3.2 Monitoring

3.2.1 Monitor power factor at SPS to LPL interconnection.

3.2.2 Monitor MW flows across SPS to LPL interconnection.

3.2.3 Xcel Energy Markets is supplied LPL Load and PF via the SPS EMS with written permission from Lubbock Power & Light. Xcel Energy Markets can thus monitor the load and power factor and dispatch generation accordingly.

3.2.4 Forecast MW flows and Power Factor in order to provide enough notice to Xcel Energy Markets to bring on steam driven generation if necessary.

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3.3 Real Time Mitigation

3.3.1 Notify LPL operator if power factor falls below that required for MW flow as shown in the table in section 2.2.5.

3.3.2 If power factor isn't increased and flow persists, instruct Xcel Energy Markets to bring on "X" MW of LPL generation. "X" being the MW necessary to bring the SPS to LPL MW flows within allowed limits.

3.4 Contingency Response

3.4.1 The loss of the Tuco to Oklaunion line or one of the Jones Units may require more generation to be run in LPL than shown in the table in 2.2.5. Maximize the available capacitive reactive resources and request real time planning to analyze the flow limits. Depending on the system loading it may be prudent to order the dispatch of additional LPL generation until the situation can be analyzed.