



# **SPP** *Southwest Power Pool*

***System Impact Study SPP-2001-330  
For Transmission Service  
Requested By  
Cargill-Alliant, LLC***

***From GRDA to KCPL***

***For a Reserved Amount Of 200MW  
From 1/1/02  
To 3/1/02***

***SPP Transmission Planning***

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## **1. Executive Summary**

Cargill-Alliant has requested a system impact study for Monthly Firm transmission service from GRDA to KCPL. The period of the transaction is from 1/1/02 to 3/1/02. The request is for reservations 303813, 303814, 303815, and 303816 for the amount of 200MW.

The 200MW transaction from GRDA to KCPL has a positive response on the La Cygne to Stillwell, La Cygne to West Gardner flowgate. The impact of this transfer on the La Cygne to Stillwell, 345kV line will cause an overload for the loss of the La Cygne to West Gardner, 345kV line during the time period of this request. To provide the ATC that is necessary for this transfer, the impact on this flowgate must be relieved.

It has been determined that there is not sufficient time available to complete any upgrades to the system that would relieve this flowgate.

Redispatch was looked at as an option to relieving the impact on the La Cygne to Stillwell, La Cygne to West Gardner caused by the 200MW transfer.

Those companies owning units, which through increasing or decreasing generation will relieve the impact on the La Cygne to Stillwell, La Cygne to West Gardner flowgate, were given the opportunity to participate in the redispatch of those units. Those companies declined to participate in redispatch. Therefore, there are no options available to relieve the impact on this flowgate caused by the 200MW GRDA to KCPL transfer.

## **2. Introduction**

Cargill-Alliant has requested an impact study for transmission service from GRDA to KCPL.

The La Cygne to Stillwell, La Cygne to West Gardner flowgate has been identified as a limiting constraint for the GRDA to KCPL transfer. For this flowgate, the La Cygne to Stillwell, 345kV line is monitored during the loss of the La Cygne to West Gardner, 345kV line. It has been determined that the 200MW transfer from GRDA to KCPL will cause the La Cygne to Stillwell line to overload should the loss of the La Cygne to West Gardner line occur.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews redispatch as an option to relieving the transmission restraints.

### **3. Study Methodology**

#### **A. Description**

Southwest Power Pool used the NERC Generator Sensitivity Factor (GSF) Viewer to obtain possible unit pairings that would relieve the constraint. The GSF viewer calculates impacts on monitored facilities for all units above 20MW in the Eastern Interconnection. The La Cygne to Stillwell, La Cygne to West Gardner flowgate is included in the flowgate list.

#### **B. Model Updates**

The 2001 Southwest Power Pool Winter Peak model was used for the study. This model was updated to reflect the most current information available.

#### **C. Transfer Analysis**

Using the short-term calculator, the limiting constraint for the transfer is identified. The response factor of the transfer on that constraint is also determined.

## **4. Study Results**

### **A. Study Analysis Results**

NERC calculates shift factors on specified facilities for all generation units over 20MW in the Eastern Interconnection. NERC also provides a list of the Top 100 Relief pairs for a specified constraint. These generation shift factors were reviewed for impacts on the La Cygne to Stillwell, La Cygne to West Gardner flowgate for the redispatch assessment. SPP generators with both negative and positive impacts were available. Those with negative impacts would reduce flows when unit output is increased. The generators with positive impacts would increase flows when unit output is increased and reduce flows when unit output is decreased. There are several redispatch options within SPP for pairing units with positive impacts to units with negative impacts.

The distribution factor on the La Cygne to Stillwell, La Cygne to West Gardner flowgate for the GRDA to KCPL transfer is 20.9%. A redispatch would be required to relieve the 41.8MW impact on the constraint under emergency conditions.

Table 1 documents the SPP generators top 40 relief pairs for the La Cygne to Stillwell, La Cygne to West Gardner flowgate.

**Table 1:** Top 40 Relief Pairs of SPP Generators for La Cygne to Stillwell, La Cygne to West Gardner Flowgate

Source	Sink	Factor	Source	Sink	Factor	Source	Sink	Factor
MPS_ARIESSTG18.0_1	KCPL_LAC G2 124.0_2	-72.9	MPS_ARIESCT118.0_1	KCPL_LAC G2 124.0_2	-72.9	MPS_ARIESCT218.0_1	KCPL_LAC G2 124.0_2	-72.9
MPS_ARIESSTG18.0_1	KCPL_LAC G1 122.0_1	-72.9	MPS_ARIESCT118.0_1	KCPL_LAC G1 122.0_1	-72.9	MPS_ARIESCT218.0_1	KCPL_LAC G1 122.0_1	-72.9
MPS_GRNWD#1 13.2_1	KCPL_LAC G2 124.0_2	-72.6	MPS_GRDWD#2 13.2_2	KCPL_LAC G2 124.0_2	-72.6	MPS_GRNWD#3 13.2_3	KCPL_LAC G2 124.0_2	-72.6
MPS_GRNWD#4 13.2_4	KCPL_LAC G2 124.0_2	-72.6	MPS_GRNWD#1 13.2_1	KCPL_LAC G1 122.0_1	-72.6	MPS_GRDWD#2 13.2_2	KCPL_LAC G1 122.0_1	-72.6
MPS_GRNWD#3 13.2_3	KCPL_LAC G1 122.0_1	-72.6	MPS_GRNWD#4 13.2_4	KCPL_LAC G1 122.0_1	-72.6	MPS_RGREEN#313.2_3	KCPL_LAC G2 124.0_2	-71.7
MPS_RGREEN#313.2_3	KCPL_LAC G1 122.0_1	-71.7	MPS_SIBLEY#322.0_3	KCPL_LAC G2 124.0_2	-69.9	MPS_SIBLEY#322.0_3	KCPL_LAC G1 122.0_1	-69.9
INDN_BLUVLY 269.0_4	KCPL_LAC G2 124.0_2	-69.8	INDN_BLUVLY 269.0_4	KCPL_LAC G1 122.0_1	-69.8	MPS_ARIESSTG18.0_1	WR_WCGS U1 25.0_1	-55.1
MPS_ARIESCT118.0_1	WR_WCGS U1 25.0_1	-55.1	MPS_ARIESCT218.0_1	WR_WCGS U1 25.0_1	-55.1	MPS_GRNWD#1 13.2_1	WR_WCGS U1 25.0_1	-54.8
MPS_GRDWD#2 13.2_2	WR_WCGS U1 25.0_1	-54.8	MPS_GRNWD#3 13.2_3	WR_WCGS U1 25.0_1	-54.8	MPS_GRNWD#4 13.2_4	WR_WCGS U1 25.0_1	-54.8
MPS_RGREEN#313.2_3	WR_WCGS U1 25.0_1	-53.9	MPS_SIBLEY#322.0_3	WR_WCGS U1 25.0_1	-52.1	INDN_BLUVLY 269.0_4	WR_WCGS U1 25.0_1	-52
MPS_ARIESSTG18.0_1	WR_NEC U3 12.0_1	-41.5	MPS_ARIESCT118.0_1	WR_NEC U3 12.0_1	-41.5	MPS_ARIESCT218.0_1	WR_NEC U3 12.0_1	-41.5
MPS_GRNWD#1 13.2_1	WR_NEC U3 12.0_1	-41.2	MPS_GRDWD#2 13.2_2	WR_NEC U3 12.0_1	-41.2	MPS_GRNWD#3 13.2_3	WR_NEC U3 12.0_1	-41.2
MPS_GRNWD#4 13.2_4	WR_NEC U3 12.0_1	-41.2	MPS_ARIESSTG18.0_1	WR_ERIE 269.0_3	-40.5	MPS_ARIESCT118.0_1	WR_ERIE 269.0_3	-40.5
MPS_ARIESCT218.0_1	WR_ERIE 269.0_3	-40.5						

## **5. Conclusion**

The SPP Regional Tariff participants were given the opportunity to include their units for redispatch in order to provide relief on the flowgates impacted by a certain transaction. The participants owning units that would relieve the flowgate impacted by the 200MW GRDA to KCPL transfer declined to participate in the redispatch of those units. No other options are available to provide the capacity needed for the 200MW transfer. Therefore the request for monthly service from GRDA to KCPL must be refused due to the impact on the La Cygne to Stillwell, La Cygne to West Gardner flowgate.