Southwest Power Pool

# System Impact Study
# SPP-2013-021
# For Transmission Service
# Requested By:
# KMEA

# From WPEK.KPP to
# SECI_KMEA_GARC

# For a Reserved Amount Of
# 16 MW
# For 1/1/2014 – 10/1/2014

## 1. Executive Summary

KMEA has requested a system impact study for weekly and monthly firm transmission service from WPEK.KPP to SECI_KMEA_GARC. The period of the transaction is from 1/1/2014 00:00 to 10/1/2014 00:00. The request is for reservations 79057822 and 79088162.

The 16 MW transaction from WPEK.KPP has an impact on the following flowgates with no AFC: MILCLEBARSAW and CUDKISSPEFTD. To provide the AFC necessary for this transfer, the impact on these flowgates must be relieved.

After studying many scenarios using generation redispatch, there are several feasible scenarios that will relieve the flowgate(s) in question.

## 2. Introduction

KMEA has requested a system impact study for transmission service from WPEK.KPP to SECI_KMEA_GARC.

There are 2 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- MILCLEBARSAW: Milan Tap – Clearwater 138 kV line for the loss of Barber – Sawyer 115 kV line.

- CUDKISSPEFTD: Cudahy – Kismet 115 kV line for the loss of Spearville – Ft. Dodge 115 kV line.

## 3. Study Methodology

### A. Description

Southwest Power Pool used Transmission Adequacy & Reliability Assessment (TARA) to obtain possible unit pairings that would relieve the constraint. TARA calculates impacts on monitored facilities for all units within the Southwest Power Pool Footprint. The SPP ATC Calculator is used to determine response factors for the time period of the reservation.

### B. Model Updates

The 2013 Southwest Power Pool 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 constraints for the transfer are identified. The response factor of the transfer on each constraint is also determined.

The product of the transfer amount and the response factor is the impact of a transfer on a limiting flowgate that must be relieved. With multiple flowgates affected by a transfer, relief of the largest impact may also provide relief of smaller impacts.

Using Transmission Adequacy & Reliability Assessment (TARA), specific generator pairs are chosen to reflect the units available for redispatch. The quotient of the amount of impact that must be relieved and the generation sensitivity factor calculated by TARA is the amount of redispatch necessary to relieve the impact on the affected flowgate.

## 4. Study Results

After studying the impacts of the request, three flowgates require relief. The flowgates and associated amount of relief are as follows:

**Table 1**

| Flowgate | Duration | Sensitivity (%) | Required Relief (MW) |
|---|---|---|---|
| 5486 : MILCLEBARSAW | 5/1/2014 - 10/1/2014 | 4.2% | 1 |
| 5494 : CUDKISSPEFTD | 1/1/2014 - 10/1/2014 | 39.9% | 6 |

Table 2 displays a list of generator pairs that are possible relief options for each flowgates in question and the amount of redispatch capacity needed.

**Table 2**

| 5486 : MILCLEBARSAW | | | |
|---|---|---|---|
| **Increment** | **Decrement** | **Sensitivity** | **MW** |
| Murray Gill Energy Center - WR | Fort Dodge - SECI | 11.3% | 9 |
| Murray Gill Energy Center - WR | Cimarron River Plant - SECI | 9.9% | 10 |
| Murray Gill Energy Center - WR | Holcomb - SECI | 9.6% | 10 |
| Murray Gill Energy Center - WR | Garden City | 9.5% | 10 |
| Gordon Evans Energy Center - WR | Fort Dodge - SECI | 6.0% | 17 |
| Gordon Evans Energy Center - WR | Cimarron River Plant - SECI | 4.7% | 21 |
| Gordon Evans Energy Center - WR | Holcomb - SECI | 4.3% | 23 |
| Gordon Evans Energy Center - WR | Garden City | 4.3% | 23 |
| Lacygne - KCPL | Fort Dodge - SECI | 4.0% | 25 |
| Lacygne - KCPL | Cimarron River Plant - SECI | 2.7% | 37 |
| Lacygne - KCPL | Holcomb - SECI | 2.3% | 43 |
| Lacygne - KCPL | Garden City | 2.3% | 43 |

| 5494 : CUDKISSPEFTD | | | |
|---|---|---|---|
| **Increment** | **Decrement** | **Sensitivity** | **MW** |
| Cimarron River Plant - SECI | Fort Dodge - SECI | 67.1% | 9 |
| Holcomb - SECI | Fort Dodge - SECI | 53.9% | 11 |
| Garden City | Fort Dodge - SECI | 53.7% | 11 |
| Cimarron River Plant - SECI | Pratt | 21.2% | 28 |
| Cimarron River Plant - SECI | Murray Gill Energy Center - WR | 17.5% | 34 |
| Cimarron River Plant - SECI | Gordon Evans Energy Center - WR | 17.5% | 34 |

## 5. Conclusion

Generation redispatch options were studied in order to relieve the necessary constraints. The results of this study shows that the constraints on the flowgates in question could be relieved by executing one or more of the options described in the Study Results section of this document. Before the Transmission Provider accepts the reservations, proof of the necessary relief options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.