Southwest Power Pool

Facility Study For Generation Interconnection Request GEN-2011-011

SPP Generation Interconnection

(#GEN-2011-011)

October 2011

Executive Summary

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff for the purpose of a 50 MW increase in the capacity of an existing generating facility with an 850 MW capacity at the Iatan 345kV substation in Weston County, Missouri within the balancing authority of Kansas City Power & Light (KCP&L). The requested in-service date of the generation is December, 2010.

A System Impact Study was performed by SPP which evaluated the request to interconnect the additional 50 MW of generation at the Iatan 345kV substation. The study was performed with the Balanced Portfolio Project; Iatan-Nashua 345kV line in-service. The System Impact Study, completed in July 2011, indicated that no additional network upgrades were required to accommodate the increased generation capacity at the Iatan 345kV bus.

KCP&L performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request GEN-2011-011.

KCP&L has indicated that no circuit breakers will have its short circuit duty ratings exceeded due to the addition of the incremental generation.

KCP&L has indicated that no new interconnection facilities are required for the addition of the incremental generation.

The total cost of the interconnection facilities for this interconnection request is approximately $0.

A Limited Operation Impact Study was performed by SPP to determine the amount of available interconnection prior to the completion of the Balanced Portfolio Project; Iatan-Nashua 345kV line. The Limited Operation Impact Study, attached below, has shown that the additional 50 MW of generation at the Iatan 345kV substation does not have any adverse impact on the system stability in the SPP transmission system.

Kansas City Power & Light Company

Facility Study for Southwest Power Pool

Generation Interconnection Request

GEN-2011-011

Prepared by: KCP&L Transmission Planning
October 12, 2011

Executive Summary

Pursuant to the Southwest Power Pool (SPP) Open Access Transmission Tariff (Tariff) and at the request of SPP, Kansas City Power & Light (KCP&L) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request Gen-2011-011. The request for interconnection was placed with SPP in accordance the Tariff, which covers new generation interconnections on SPP member's transmission system. The customer requests upgrade of an existing interconnection from 850 Mw to 900 Mw at the Iatan 345kV substation. The customer has proposed a commercial operation date of December 31, 2010.

The Southwest Power Pool evaluated this request to increase the interconnection service by 50 MW of generation to the Iatan 345kV substation in study DISIS-2011-001. The System Impact Study was completed in July 2011. The System Impact Study indicated that no additional network upgrades were required to accommodate the increased generation capacity at the Iatan 345kV bus.

KCP&L Transmission Planning has determined that no circuit breakers will have their short circuit duty ratings exceeded due to the addition of the incremental generation.

KCP&L Transmission Planning has determined that no new interconnection facilities are required for the addition of the incremental generation.

The total cost of the interconnection facilities for this interconnection request is approximately $0.

Limited Operational Impact Study for Generation Interconnection Request

GEN-2011-011

October, 2011
Generation Interconnection

Southwest Power Pool

Revision History

Date or Version Number	Author	Change Description	Comments
10/19/2011	Southwest Power Pool	N/A	Report Issued

Executive Summary

<OMITTED TEXT> (Customer) has requested a Limited Operation Impact Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for the interconnection of an additional 50.0 MW of coal generation within the balancing authority of Kansas City Power & Light (KCP&L) in Weston County, Missouri. Customer has requested this Limited Operation Impact Study (LOIS) to determine the impacts of interconnecting its generating facility to the transmission system before all required Network Upgrades identified in the DISIS-2011-001 Impact Study can be placed into service. Limited Operation Studies are conducted under GIA Section 5.9.

This study assumed that only the higher queued projects identified in Table 3 of this study might go into service before the completion of all Network Upgrades identified in DISIS-2011-001. If any additional generation projects not identified in Table 3 but with queue priority equal to or over GEN-2011-011, those projects listed in Table 4, request to go into commercial operation before all Network Upgrades identified through the DISIS-2011-001 study process as required, then this study must be conducted again to determine whether sufficient limited interconnection capacity exists to interconnect the GEN-2011-011 interconnection request in addition to all higher priority requests in operation or pending operation. For the study for GEN-2011-011, all higher queued projects were included in this analysis.

A power flow analysis shows that the Customer’s coal facility can interconnect its full 50.0 MW of interconnection capacity. This interconnection capacity is available without the Balanced Portfolio Project; Iatan - Nashua 345kV project in-service. Powerflow analysis was based on both summer and winter peak conditions and light loading cases.

The coal generation facility was studied as a 50.0 MW request with a single coal turbine generator. This Impact study addresses the dynamic stability effects of interconnecting the plant to the rest of the KCP&L transmission system for the system condition as it will be on December 31, 2011. Two seasonal base cases were used in the study to analyze the stability impacts of the proposed generation facility. The cases studied were modified 2011 summer peak and 2011 winter peak cases that were adjusted to reflect system conditions at the requested in-service date. Each case was modified to include prior queued projects that are listed in the body of the report. Thirty-five (35) contingencies were identified for use in this study. The coal turbines were modeled using information provided by the Customer.

Nothing in this study should be construed as a guarantee of transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service shall be requested on Southwest Power Pool’s OASIS by the Customer.

Table of Contents

Introduction

<OMITTED TEXT> (Customer) has requested a Limited Operation Impact Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for the interconnection of an additional 50.0 MW of coal generation within the balancing authority of Kansas City Power & Light (KCP&L) in Weston County, Missouri. Customer has requested this Limited Operation Impact Study (LOIS) to determine the impacts of interconnecting its generating facility to the transmission system before all required Network Upgrades identified in the DISIS-2011-001 Impact Study can be placed into service. Limited Operation Studies are conducted under GIA Section 5.9.

This Impact study addresses the dynamic stability effects of interconnecting the plant to the rest of the KCP&L transmission system for the system condition as it will be on December 31, 2011. The coal generation facility was studied as a 50.0 MW request with a single coal turbine generator. Two seasonal base cases were used in the study to analyze the stability impacts of the proposed generation facility. The cases studied were modified versions of the 2011 summer peak and 2011 winter peak to reflect the system conditions at the requested in-service date. Each case was modified to include prior queued projects that are listed in the body of the report. Thirty-five (35) contingencies were identified for this study.

Purpose

The purpose of this Limited Operation Impact Study (LOIS) is to evaluate the impact of the proposed interconnection on the reliability of the Transmission System. The LOIS considers the Base Case as well as all Generating Facilities (and with respect to (b) below, any identified Network Upgrades associated with such higher queued interconnection) that, on the date the LOIS is commenced:

a) are directly interconnected to the Transmission System;
b) are interconnected to Affected Systems and may have an impact on the Interconnection Request;
c) have a pending higher queued Interconnection Request to interconnect to the Transmission System listed in Table 3; or
d) have no Queue Position but have executed an LGIA or requested that an unexecuted LGIA be filed with FERC.

Any changes to these assumptions, for example, one or more of the previously queued projects not included in this study signing an interconnection agreement, may require a re-study of this request at the expense of the customer.

Nothing in this System Impact Study constitutes a request for transmission service or confers upon the Interconnection Customer any right to receive transmission service.

Facilities

Generating Facility

The project was modeled with the existing plant as an equivalent coal turbine generator of 900.0 MW output. The coal turbine is connected to a 25/345kV substation transformer at the POI. This equivalent model representation is illustrated in Figure 2.

Interconnection Facility

The Point of Interconnection will be at the Transmission Owners Iatan 345kV switching station. Figure 1 shows a one-line illustration of the facility and the POI. Figure 2 shows a one-line bus interconnection of the Point of Interconnection.

Cost to interconnect on a Limited basis is estimated at $0.

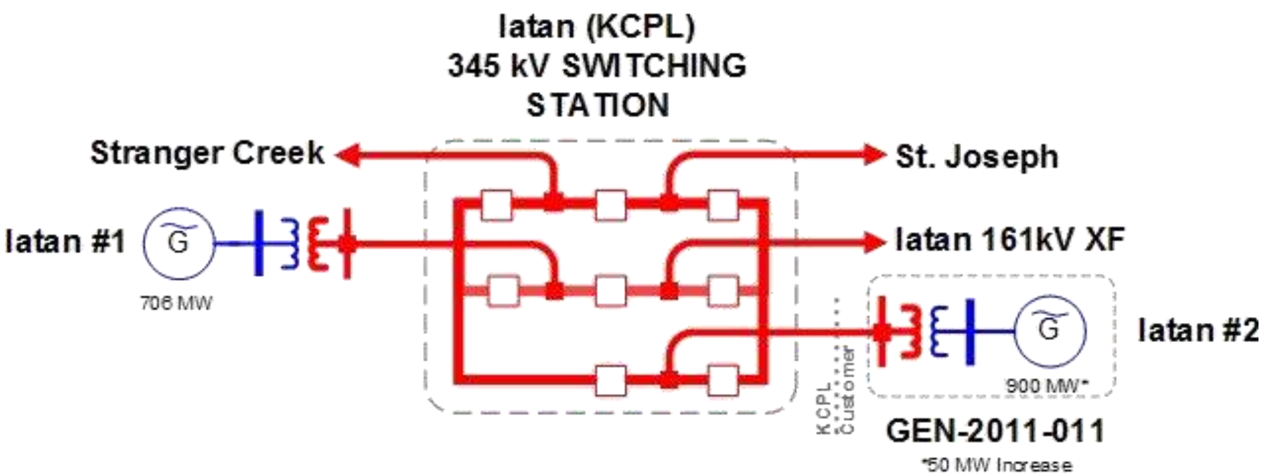

Figure 1: *GEN-2011-011 Facility and Proposed Interconnection Configuration*

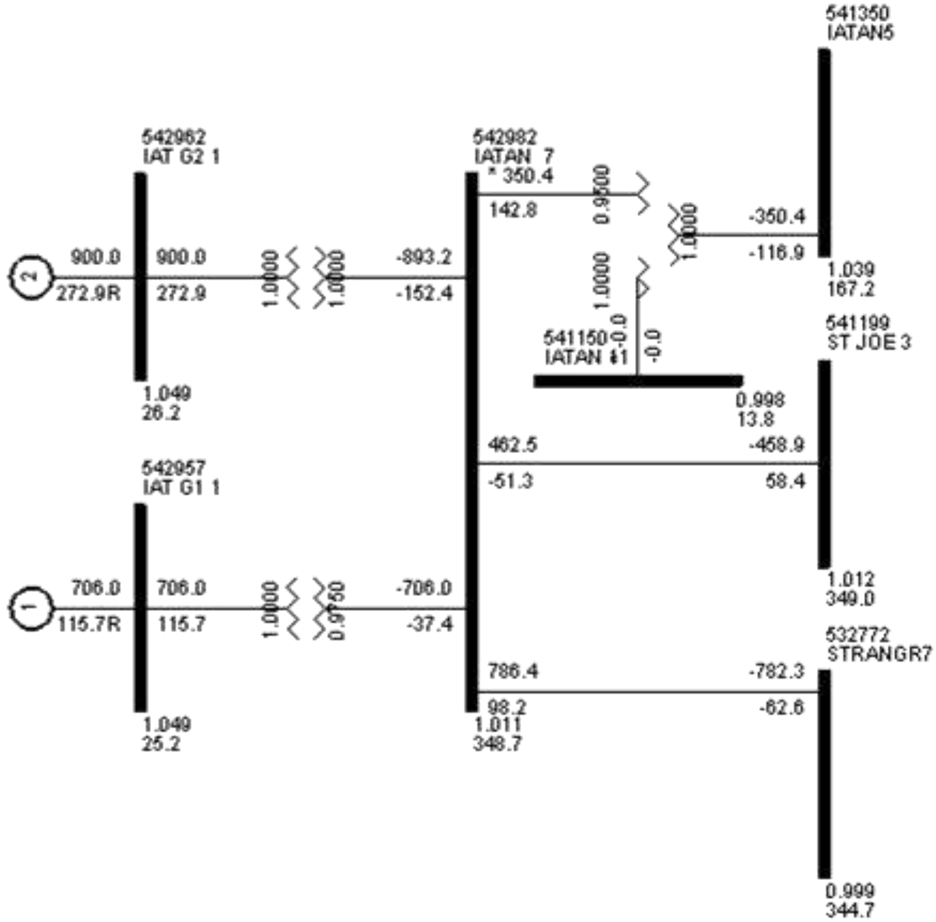

Figure 2: *GEN-2011-011 Bus Interconnection*

Powerflow Analysis

A powerflow analysis was conducted for the Interconnection Customer's facility using a modified version of the 2011 spring, 2012 summer, and 2012 winter seasonal models. The output of the Interconnection Customer's facility was offset in the model by a reduction in output of existing online SPP generation. This method allows the request to be studied as an Energy Resource (ERIS) Interconnection Request. This analysis was conducted assuming that previous queued requests listed in Table 3 were in-service.

The Southwest Power Pool (SPP) Criteria states that:

> "The transmission system of the SPP region shall be planned and constructed so that the contingencies as set forth in the Criteria will meet the applicable NERC Reliability Standards for transmission planning. All MDWG power flow models shall be tested to verify compliance with the System Performance Standards from NERC Table 1 – Category A."

The ACCC function of PSS/E was used to simulate single contingencies in portions of or all of the control area of KCP&L and other control areas within SPP and the resulting data analyzed. This satisfies the "more probable" contingency testing criteria mandated by NERC and the SPP criteria.

Higher queued projects listed in Table 4 were not modeled as in service. If any of these come in service, this study will need to be performed again to determine if any limited interconnection service is available.

The ACCC analysis indicates that the Customer's project can interconnect the requested 50.0 MW of generation into the KCP&L transmission system.

***Table 1**: ACCC Analysis for GEN-2011-011*

SEASON	SOURCE	DIRECTION	MONTCOMMONNAME	RATEA	RATEB	TDF	TC%LOADING	MW Available	CONTNAME
			None						

Stability Analysis

Contingencies Simulated

Thirty-five (35) contingencies were considered for the transient stability simulations. These contingencies included three phase faults and single phase line faults at locations defined by SPP. Single-phase line faults were simulated by applying a fault impedance to the positive sequence network at the fault location to represent the effect of the negative and zero sequence networks on the positive sequence network. The fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage. This method is in agreement with SPP current practice.

The faults that were defined and simulated are listed in Table 2 below.

***Table 2**: Contingencies Evaluated*

Cont. No.	Cont. Name	Description
1.	FLT_7FAIRPT_COOPER3_345kV_3PH	3 phase fault on the Fairport (300039) to Cooper (640139) 345kV line, near Fairport. a. Apply fault at Fairport 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2.	FLT_7FAIRPT_COOPER3_345kV_1PH	*Single phase fault and sequence like previous*
3.	FLT_COOPER3_ATCHSNT3_345kV_3PH	3 phase fault on the Cooper (640139) to Atchison (635017) 345kV line, near Cooper. a. Apply fault at Cooper 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4.	FLT_COOPER3_ATCHSNT3_345kV_1PH	*Single phase fault and sequence like previous*
5.	FLT_MOORE3_COOPER3_345kV_3PH	3 phase fault on the Moore (640277) to Cooper (640139) 345kV line, near Moore. a. Apply fault at Moore 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6.	FLT_MOORE3_COOPER3_345kV_1PH	*Single phase fault and sequence like previous*
7.	FLT_COOPER3_S34583_345kV_3PH	3 phase fault on the Nebraska City, S3458 (645458) to Cooper (640139) 345kV line, near Cooper. a. Apply fault at Cooper 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
8.	FLT_COOPER3_S34583_345kV_1PH	*Single phase fault and sequence like previous*
9.	FLT_COOPER3_COOPER5_345_161kV_3PH	3 phase fault on the Cooper 345kv (640139) to 161kV (640140) transformer on the 345kV bus. a. Apply fault at Cooper 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Cont. No.	Cont. Name	Description
10.	FLT_HARBINE7_STEELEC7_115kV_3PH	3 phase fault on the Steele City (640426) to Harbine (640208) 115kV line, near Harbine. a. Apply fault at Harbine 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11.	FLT_HARBINE7_STEELEC7_115kV_1PH	*Single phase fault and sequence like previous*
12.	FLT_STEELEC7_KNOBHL3_115kV_3PH	3 phase fault on the Steele City (640426) to Knob Hill (533332) 115kV line, near Steele City. a. Apply fault at Steele City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
13.	FLT_STEELEC7_KNOBHL3_115kV_1PH	*Single phase fault and sequence like previous*
14.	FLT_KNOBHL3_GRNLEAF3_115kV_3PH	3 phase fault on the Knob Hill (533332) to Greenleaf (539665) 115kV line, near Knob Hill. a. Apply fault at Knob Hill 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
15.	FLT_KNOBHL3_GRNLEAF3_115kV_1PH	*Single phase fault and sequence like previous*
16.	FLT_KNOBHL3_G09040TAP_115kV_3PH	3 phase fault on the Knob Hill (533332) to GEN-2009-040 Tap (560287) 115kV line, near Knob Hill. a. Apply fault at Knob Hill 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
17.	FLT_KNOBHL3_G09040TAP_115kV_1PH	*Single phase fault and sequence like previous*
18.	FLT_HARBINE7_FAIRBRY7_115kV_3PH	3 phase fault on the Harbine (640208) to Fairbury (640169) 115kV line, near Harbine. a. Apply fault at Harbine 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
19.	FLT_HARBINE7_FAIRBRY7_115kV_1PH	*Single phase fault and sequence like previous*
20.	FLT_HARBINE7_G10047TAP_115kV_3PH	3 phase fault on the GEN-2010-047 Tap (580056) to Harbine (640208) 115kV line, near Harbine. a. Apply fault at Harbine 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21.	FLT_HARBINE7_G10047TAP_115kV_1PH	*Single phase fault and sequence like previous*
22.	FLT_G10047TAP_BEATRCE7_115kV_3PH	3 phase fault on the GEN-2010-047 Tap (580056) to Beatrice (640076) 115kV line, near GEN-2010-047 Tap. a. Apply fault at the GEN-2010-047 Tap 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
23.	FLT_G10047TAP_BEATRCE7_115kV_1PH	*Single phase fault and sequence like previous*
24.	FLT_BEATRCE7_BPSSUB7_115kV_3PH	3 phase fault on one of the Beatrice (640076) to Beatrice Power Station (640088) 115kV lines, near Beatrice. a. Apply fault at Beatrice 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
25.	FLT_BEATRCE7_BPSSUB7_115kV_1PH	*Single phase fault and sequence like previous*
26.	FLT_BEATRCE7_STEINER7_115kV_3PH	3 phase fault on the Beatrice (640076) to Steiner (640361) 115kV line, near Beatrice. a. Apply fault at Beatrice 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27.	FLT_BEATRCE7_STEINER7_115kV_1PH	*Single phase fault and sequence like previous*
28.	FLT_BPSSUB7_CLATONA7_115kV_3PH	3 phase fault on the Beatrice Power Station (640088) to Clatonia (640111) 115kV lines, near Beatrice. a. Apply fault at Beatrice 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
29.	FLT_BPSSUB7_CLATONA7_115kV_1PH	*Single phase fault and sequence like previous*
30.	FLT_MOORE3_SHELDON7_345_115kV_3PH	3 phase fault on the Sheldon 115kV (640278) to Moore 345kV (640277) transformer on the 345kV bus. a. Apply fault at Cooper 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
31.	FLT_IATAN7_IATAN5_345_161kV_3PH	3 phase fault on the Iatan 161kV (541350) to Iatan 345kV (542982) transformer on the 345kV bus. a. Apply fault at Iatan 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
32.	FLT_IATAN7_STRANGR7_345kV_3PH	3 phase fault on the Iatan (542982) to Stranger (532772) 345kV line, near Iatan. a. Apply fault at Iatan 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
33.	FLT_IATAN7_STRANGR7_345kV_1PH	*Single phase fault and sequence like previous*
34.	FLT_IATAN7_STJOE3_345kV_3PH	3 phase fault on the Iatan (542982) to St Joe (541199) 345kV line, near Iatan. a. Apply fault at Iatan 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
35.	FLT_IATAN7_STJOE3_345kV_1PH	*Single phase fault and sequence like previous*

Further Model Preparation

The base cases contain prior queued projects as shown in Table 3.

The coal generation from the study customer and the previously queued customers were dispatched into the SPP footprint.

Initial simulations were carried out on both base cases and cases with the added generation for a no-disturbance run of 20 seconds to verify the numerical stability of the model. All cases were confirmed to be stable.

***Table 3**: Prior Queued Projects Included*

Project	MW
GEN-2006-014	300
GEN-2006-017	300
GEN-2007-015	135
GEN-2007-017	100.5
GEN-2007-053	110
GEN-2008-119O	60
GEN-2008-129	80
GEN-2009-040	73.8
GEN-2010-036	4.6
GEN-2010-041	10.5
GEN-2010-056	151
GEN-2011-018	73.6
ASGI-2010-001	400
ASGI-2010-004	50
ASGI-2010-005	99
ASGI-2010-009	201

The projects listed in Table 4 are higher or equally queued projects that are not included in this analysis. If any of these projects come into service, this study will need to be re-performed to determine if any limited capacity is available.

***Table 4**: Prior Queued Projects Not Included*

Project	MW
NONE	

Results

Results of the stability analysis are summarized in Table 5. These results are valid for GEN-2011-011 interconnecting with a generation amount of 50.0 MW with the Balanced Portfolio Project; Iatan – Nashua 345kV project not in-service. The results indicate that for all contingencies studied the transmission system remains stable.

***Table 5**: Contingencies Evaluated*

Cont. No.	Cont. Name	Description	2011 Summer	2011 Winter
1.	FLT_7FAIRPT_COOPER3_345kV_3PH	3 phase fault on the Fairport (300039) to Cooper (640139) 345kV line, near Fairport.	Stable	Stable
2.	FLT_7FAIRPT_COOPER3_345kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
3.	FLT_COOPER3_ATCHSNT3_345kV_3PH	3 phase fault on the Cooper (640139) to Atchison (635017) 345kV line, near Cooper.	Stable	Stable
4.	FLT_COOPER3_ATCHSNT3_345kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable

Cont. No.	Cont. Name	Description	2011 Summer	2011 Winter
5.	FLT_MOORE3_COOPER3_345kV_3PH	3 phase fault on the Moore (640277) to Cooper (640139) 345kV line, near Moore.	Stable	Stable
6.	FLT_MOORE3_COOPER3_345kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
7.	FLT_COOPER3_S34583_345kV_3PH	3 phase fault on the Nebraska City, S3458 (645458) to Cooper (640139) 345kV line, near Cooper.	Stable	Stable
8.	FLT_COOPER3_S34583_345kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
9.	FLT_COOPER3_COOPER5_345_161kV_3PH	3 phase fault on the Cooper 345kv (640139) to 161kV (640140) transformer on the 345kV bus.	Stable	Stable
10.	FLT_HARBINE7_STEELEC7_115kV_3PH	3 phase fault on the Steele City (640426) to Harbine (640208) 115kV line, near Harbine.	Stable	Stable
11.	FLT_HARBINE7_STEELEC7_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
12.	FLT_STEELEC7_KNOBHL3_115kV_3PH	3 phase fault on the Steele City (640426) to Knob Hill (533332) 115kV line, near Steele City.	Stable	Stable
13.	FLT_STEELEC7_KNOBHL3_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
14.	FLT_KNOBHL3_GRNLEAF3_115kV_3PH	3 phase fault on the Knob Hill (533332) to Greenleaf (539665) 115kV line, near Knob Hill.	Stable	Stable
15.	FLT_KNOBHL3_GRNLEAF3_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
16.	FLT_KNOBHL3_G09040TAP_115kV_3PH	3 phase fault on the Knob Hill (533332) to GEN-2009-040 Tap (560287) 115kV line, near Knob Hill.	Stable	Stable
17.	FLT_KNOBHL3_G09040TAP_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
18.	FLT_HARBINE7_FAIRBRY7_115kV_3PH	3 phase fault on the Harbine (640208) to Fairbury (640169) 115kV line, near Harbine.	Stable	Stable
19.	FLT_HARBINE7_FAIRBRY7_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
20.	FLT_HARBINE7_G10047TAP_115kV_3PH	3 phase fault on the GEN-2010-047 Tap (580056) to Harbine (640208) 115kV line, near Harbine.	Stable	Stable
21.	FLT_HARBINE7_G10047TAP_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
22.	FLT_G10047TAP_BEATRCE7_115kV_3PH	3 phase fault on the GEN-2010-047 Tap (580056) to Beatrice (640076) 115kV line, near GEN-2010-047 Tap.	Stable	Stable
23.	FLT_G10047TAP_BEATRCE7_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
24.	FLT_BEATRCE7_BPSSUB7_115kV_3PH	3 phase fault on one of the Beatrice (640076) to Beatrice Power Station (640088) 115kV lines, near Beatrice.	Stable	Stable
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29.	FLT_BPSSUB7_CLATONA7_115kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
30.	FLT_MOORE3_SHELDON7_345_115kV_3PH	3 phase fault on the Sheldon 115kV (640278) to Moore 345kV (640277) transformer on the 345kV bus.	Stable	Stable

Cont. No.	Cont. Name	Description	2011 Summer	2011 Winter
31.	FLT_IATAN7_IATAN5_345_161kV_3PH	3 phase fault on the Iatan 161kV (541350) to Iatan 345kV (542982) transformer on the 345kV bus.	Stable	Stable
32.	FLT_IATAN7_STRANGR7_345kV_3PH	3 phase fault on the Iatan (542982) to Stranger (532772) 345kV line, near Iatan.	Stable	Stable
33.	FLT_IATAN7_STRANGR7_345kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable
34.	FLT_IATAN7_STJOE3_345kV_3PH	3 phase fault on the Iatan (542982) to St Joe (541199) 345kV line, near Iatan.	Stable	Stable
35.	FLT_IATAN7_STJOE3_345kV_1PH	*Single phase fault and sequence like previous*	Stable	Stable

FERC LVRT Compliance

FERC Order #661A places specific requirements on wind farms through its Low Voltage Ride Through (LVRT) provisions. For Interconnection Agreements signed after December 31, 2006, wind farms shall stay on line for faults at the POI that draw the voltage down at the POI to 0.0 pu.

GEN-2011-011 is not a wind generating facility and is not subject to FERC Order #661A.

Conclusion

<OMITTED TEXT> (Customer) has requested a Limited Operation Impact Study for limited interconnection service of an additional 50.0 MW of coal generation within the balancing authority of Kansas City Power & Light (KCP&L) in Weston County, Missouri, in accordance with Article 5.9 of the Standard Generation Interconnection Agreement (GIA) in the SPP OATT.

Power flow analysis showed that the Customer's coal facility can interconnect the additional 50.0 MW of coal generation without the Balanced Portfolio Project; Iatan – Nashua 345kV project in-service.

The stability analysis results of this study show that the coal generation facility and the transmission system remain stable for all contingencies studied.

The projects listed in Table 4 are higher or equally queued projects that are not included in this analysis. If any of these projects come into service, this study will need to be re-performed to determine if any limited capacity is available.

The estimates do not include any costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer requests transmission service through Southwest Power Pool's OASIS. It should be noted that the models used for simulation do not contain all SPP transmission service.