ORIGINAL

Big Rivers
ELECTRIC CORPORATION

Your Touchstone Energy® Cooperative

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PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

In the Matter of:

BIG RIVERS ELECTRIC CORPORATION **2014 INTEGRATED RESOURCE PLAN**	)	**Case No.** **2014-00166**

Response to Ben Taylor and the Sierra Club's
Initial Request for Information
dated August 20, 2014

FILED: **September 10, 2014**

ORIGINAL

BIG RIVERS ELECTRIC CORPORATION

2014 INTEGRATED RESOURCE PLAN
OF BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2014-00166

Response to Ben Taylor and Sierra Club's
Initial Request for Information
Dated August 20, 2014

September 10, 2014

Item 1) Refer to page 10 and Table 1.3 on page 11 of the IRP. With regards to the forecasted replacement load discussed therein:

a. Explain in detail the bases for your projected levels of replacement load for each of the years 2016 through 2028.

b. Identify the sources of the replacement load that you forecast for each of the years 2016 through 2028.

c. Identify and produce all studies, analyses, modeling, and data that support the levels of replacement load that you are projecting for each of the years 2016 through 2028.

d. Identify the price in dollars per MWh at which you project such replacement load sales will be made.

e. Produce any analyses, studies, and other documents supporting your projected price for such replacement load sales.

f. Identify and produce all studies, analyses, modeling, or data that support your assumption that such replacement load will be at a 75% load factor.

g. Explain why you expect replacement load to be at a 75% load factor when, according to Table 1.2 of the IRP, your total system load factor averaged between 56% and 63% from 2009 through 2013.

h. Identify any year in which Big Rivers' load factor has equaled or exceeded 75%.

Response)

a. Please see Big Rivers' response to KIUC 2-32 in Case No. 2013-00199.

b. Please see Big Rivers' response to KIUC 2-32 in Case No. 2013-00199.

c. Please see Big Rivers' response to PSC 2-14 in Case No. 2013-00199.

d. Please see Big Rivers' response to PSC 2-14 in Case No. 2013-00199.

e. Please see Big Rivers' response to PSC 2-14 in Case No. 2013-00199.

f. Please see Big Rivers' response to PSC 2-14 in Case No. 2013-00199.

g. Big Rivers' historical load factor is irrelevant to future replacement load. Please see Big Rivers' response to KIUC 2-32 in Case No. 2013-00199 and page 18 of Rebuttal Testimony of Robert W. Berry in Case No. 2013-00199.

h. None; however, Big Rivers' generating units capacity factor, or in other terms, utilization factor, was 83.5% in 2013. Thus Big Rivers sold 83.5% of all generation available from its units into the MISO market.

Witness) Lindsay Barron

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Item 2) **Refer to Table 1.3 on page 11 of the IRP, which shows replacement load growth of approximately 103MW per year from 2016 through 2019 doubling to 206 MW per year from 2019 through 2021. Explain the abrupt acceleration in projected replacement load growth that starts in 2019.**

Response) Please see Big Rivers' response to PSC 1-9.

Witness) Lindsay Barron

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Item 3) Refer to page 12 of the IRP. With regards to management's conclusion that "energy sales and peak demand" for industrial customers "would not decrease as a result of price increases planned in the near term":

a. Identify the individual(s) in management who made this conclusion.

b. Identify and produce all studies, analyses, and data upon which that conclusion is based.

c. Describe in detail the "discussion and consideration of customers' processes and operating characteristics" referenced therein.

d. Identify each industrial customer with whom such discussions occurred.

e. Produce any documentation of such discussions.

f. State whether Big Rivers has estimated the energy price at which one or more of the large industrial customers might switch to self-generation or seek to leave the Big Rivers system.

i. If so, provide such estimate.

ii. If not, explain why not.

Response)

a. Mark Bailey, CEO at time of discussion

Robert Berry, COO at time of discussion, current CEO

Lindsay Barron, VP Energy Services

Mike Mattox, Director of Resources and Forecasting at time of discussion

b. As discussed in Case No. 2012-00535 and 2013-0199, this conclusion was based on professional judgment.

c. Big Rivers' management had numerous discussions internally, as well as with Kenergy's management team, to discuss large industrial customer process and ability to modify production. Big Rivers management made the decision to hold industrial sales constant in the forecast, and that assumption has thus far proved accurate.

d. Kenergy, as the retail supplier, has consistent communications with its customers. As a normal course of business, Big Rivers has not historically participated in discussions with retail customers unless requested by Kenergy.

e. None.

f. No.

i. N/A

ii. Big Rivers does not believe it possible to quantify a price point at which customers would build self-generation or leave the system. Each customer

has a unique process and a plethora of factors that drive production decisions in addition to electricity price.

Witness) Lindsay Barron

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Item 4) **Refer to page 17 of the IRP. Produce RUS's June 2013 approval of Big Rivers' 2013 load forecast**

Response) Please see attachment.

Witness) Marlene S. Parsley

250.0.9

USDA Rural Development

United States Department of Agriculture
Rural Development

JUN 26 2013

Mr. Mark A. Bailey
President and CEO
Big Rivers Electric Corporation, Inc.
P.O. Box 24
Henderson, Kentucky 42419-0024

Dear Mr. Bailey:

We have reviewed the 2013 Load Forecast Update (Forecast) for Big Rivers Electric Corporation, Inc. (Big Rivers) and its members. The studies and board resolutions were submitted to the Rural Utilities Service (RUS) on May 6, 2013, and prepared pursuant to the 2013 Work Plan approved by the agency on May 16, 2013. The methods and assumptions used are reasonable. The Forecast was effectively coordinated with all of Big Rivers' members. A certified resolution dated April 18, 2013, from Big Rivers' Board of Directors approving the Forecast and its uses, was submitted to RUS.

This letter documents RUS approval of Big Rivers' 2013 Forecast. Member studies developed in coordination with this Forecast are also approved. The agency will consider the 2013 studies current, pursuant to 7 CFR 1710 Subpart E, Load Forecasts. Big Rivers and its members must use these Forecasts in all engineering, environmental, financial studies, financial forecasts, and in any studies in support of loan applications.

A copy of this letter is being sent to each of Big Rivers' members.

Sincerely,

LOUIS RIGGS
Acting Director
Electric Staff Division
Rural Utilities Service

RECEIVED
JUL 01 2013

cc:
Mr. Burns Mercer
President and CEO
Meade County Rural Electric Cooperative Corp.
P.O. Box 489
Brandenburg, Kentucky 40108-0489

Mr. G. Kelly Nuckols
President/ CEO
Jackson Purchase Energy Corp.
P.O. Box 4030
Paducah, Kentucky 42002-4030

Mr. Gregory Starheim
President and CEO
Kenergy Corporation
P.O. Box 18
Henderson, Kentucky 42419-0018

Mr. John Hutts
GDS Associates, Inc.
Suite 800
1850 Parkway Place SE
Marietta, Georgia 30067

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Item 5) **Refer to page 17, footnote 15 of the IRP. Produce the Indiana Technical Resource Manual referenced therein**

Response) Please refer to the attachment provided by electronic media.

Witness) Russ Pogue

BIG RIVERS ELECTRIC CORPORATION

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Item 6) Refer to page 21 of the IRP. With regards to each "forward power sales from Wilson" referenced therein:

a. Describe each forward power sales agreement, including:

i. The entity to which such sales are to be made.

ii. The price at which such sales are to be made.

iii. The amount of power to be sold.

iv. The dates when sales under such agreement are to begin and conclude.

b. Produce each forward power sales agreement.

c. State whether Big Rivers has entered into any additional forward power sales agreements for any of its generating units since those referenced in the IRP. i. If so, provide the same details regarding each such agreement as requested in subsection a above and produce any such forward power sales agreement.

Response)

a. Please see Big Rivers' response to AG1-1.

b. Big Rivers objects to this request on the grounds that it is overly broad, unduly burdensome. Notwithstanding the objection, but without waiving it, Big Rivers provides the attached confidential transaction confirmations.

c. Please see Big Rivers' response to AG1-1.

Witness) Lindsay Barron

Attachment(s) provided under petition for confidential treatment

BIG RIVERS ELECTRIC CORPORATION

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Item 7) Refer to page 22 of the IRP. With regards to the replacement load that Big Rivers has "secured":

a. Describe each replacement load agreement, including:

i. The entity making up such replacement load.

ii. The price at which such replacement load sales are to be made.

iii. The amount of replacement load to be served.

iv. The time frame covered by the agreement.

v. The load factor of such replacement load.

vi. The amount of energy to be sold under such agreement.

b. Produce each such replacement load agreement.

c. State whether Big Rivers has secured any additional replacement load since that referenced in the IRP.

i. If so, provide the same details regarding such replacement load as requested in subsection a above and produce any such replacement load agreement.

Response)

BIG RIVERS ELECTRIC CORPORATION

2014 INTEGRATED RESOURCE PLAN
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CASE NO. 2014-00166

Response to Ben Taylor and Sierra Club's
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a. Please see the attached confidential summary of the replacement contracts. Also, please see Big Rivers' response to AG1-16.

b. Please see the attached confidential agreements.

c. Yes. Please see Big Rivers' response to AG1-1 and SC1-6.

Witness) Lindsay Barron

SUMMARY OF NEBRASKA PPAS

Big Rivers Electric Corporation ("Big Rivers") proposes to enter into a "Partial and Full Requirements Agreement" with each of three municipal electric systems located in Nebraska: Northeast Nebraska Public Power District ("NeNPPD") and the Cities of Wakefield and Wayne (collectively with NeNPPD, the "Purchasers"). The following summarizes the principal obligations of the agreements.

A. General

Under the new agreements, Big Rivers will supply partial requirements service to the Purchasers until termination of their existing wholesale power contracts with their current power supplier, Nebraska Public Power District ("NPPD"). These existing wholesale power contracts permit the Purchasers to decrease the portion of their electric service requirements supplied by NPPD until the expiration of each contract's stated term. When these contracts terminate, Big Rivers then will supply full requirements service to the applicable Purchaser. Big Rivers will supply or procure all electric services required by each Purchaser, including capacity, energy, reserve capacity and transmission and ancillary services, to the extent not provided under the Purchaser's NPPD wholesale power contract or as otherwise permitted under the agreement with Big Rivers.

Each of the agreements is a separate contract between Big Rivers and a Purchaser. The obligations of each Purchaser under its agreement with Big Rivers are several and not joint obligations with other Purchasers.

B. Term and Delivery Period

The initial term of the agreements extends through December 31, 2026, unless earlier terminated. [redacted] The period during which electric services are provided under the agreements is shorter, commencing on January 1, 2018, in the case of NeNPPD, January 1, 2019, in the case of the Cities of Wakefield and Wayne. The delivery period during which Big Rivers has an obligation to provide electric services to the Purchasers extends from these dates until the end of the term of each agreement.

Big Rivers will be supplying the partial and full requirements of the Nebraska entities during the contract term. [redacted] The average aggregate quantities supplied are estimated to range from approximately [redacted] MW in 2018 to [redacted] MW in 2022. [redacted]

[redacted]

C. Conditions to Effectiveness

Each agreement is subject to several conditions to its effectiveness. Conditions to Big Rivers' obligations include approval by the KPSC and all other governmental authorities with jurisdiction, compliance with RUS notice or approval requirements, and Big Rivers' satisfaction with MISO Transmission studies related to the transactions. Both parties also must be satisfied in their sole discretion with all Southwestern Power Pool ("SPP") studies regarding the ability of firm energy to be delivered to the designated delivery points on the Purchasers' systems.

D. Nature of Service

[redacted] Each Purchaser is responsible for complying with any renewable portfolio standard. [redacted]

With respect to transmission service and associated losses, Big Rivers is responsible for delivery of energy to the interconnection point between MISO and SPP and the applicable Purchaser is responsible for the network integrated transmission service to deliver energy to the applicable delivery points within SPP. The agreements contain customary provisions relating to force majeure and curtailment. Title and risk of loss with respect to all electric services provided by Big Rivers under the agreements passes to the Purchasers at the interconnection point between MISO and SPP.

[redacted]

[redacted]

G. Required Equipment

[redacted]

H. Rates

[redacted]

Big Rivers' analysis estimated the rates to be paid by the Nebraska entities based upon the NPPD rates that are currently in effect and that are most recently projected by NPPD. Big Rivers also commissioned ACES, its external marketer, to analyze NPPD's projected rates. ACES analysis supported the reasonableness of the NPPD rate projections. The rates assumed in Big Rivers' analyses of the cost-effectiveness of this sale to the organization ranged from roughly [redacted] for wholesale capacity and energy delivered to the MISO/SPP interface. The index to NPPD's rate will be based on NPPD's actual rate at the time, not the projections assumed for purposes of analyzing the transactions.

I. Charges

In addition to the rates for capacity and energy described above, the Purchasers are responsible for other charges of Big Rivers to provide the services required under the agreements. Principally, Big Rivers also will charge the Purchasers for other electric services acquired from SPP on a pass through basis. An example would be transmission services and ancillary services. Big Rivers also will charge each Purchaser a [redacted] The Purchasers also are responsible for all applicable taxes arising out of service under the agreements.

[redacted]

K. Events of Default; Remedies

The agreements contain customary events of default, including (i) failure to make a payment when due or failure to comply with a material obligation under the agreement, in each case, following 3 business days' notice, (ii) [redacted], (iii) certain insolvency events, and (iv) non-permitted assignments of the agreement.

Remedies upon an event of default include a termination payment to non-defaulting party calculated based on a present value of the replacement cost or lost profit, as applicable, for the remaining term of the agreement. The agreements do not permit indirect or consequential damages. [redacted].

L. Additional Termination Rights

The agreements contain additional termination rights other than as a remedy for an event of default. Either party may terminate the agreement based on its failure to obtain necessary approvals from a governmental authority for the agreement to become effective or if any such approval imposes a material additional burden on the party. In addition, either party may terminate an agreement if necessary transmission studies are not completed by stated dates.

[redacted]

N. Indemnification

The agreements contain typical indemnification provisions. Each party indemnifies the other from any claims arising out of (i) periods when title to the services are held by the other party, and (ii) its acts on the premises of the other. The Purchasers also indemnify Big Rivers for claims relating to construction or operation of the Purchaser's system or the use of energy after delivery to the Purchaser.

O. Assignment

The agreements generally prohibit assignment of rights or obligations without consent, which may not be unreasonably withheld. If the assignee assumes all rights and obligations of the assignor, a party may assign the agreement to an affiliate, a successor by merger or the purchaser of substantially all of its assets if the assignee is of equal or greater creditworthiness and has adequate financial capacity, as demonstrated to the reasonable satisfaction of the non-assigning party.

P. Other

Each party agrees to perform its obligations in accordance with applicable laws, rules and regulations.

[redacted]

The Purchasers agree not to participate in any retail customer choice programs unless required by applicable law.

[redacted]

The agreements are to be construed in accordance with the laws of Kentucky, without giving effect to its conflicts of law provisions other than matters relating to a Purchaser's status as a municipal entity or the applicability of the Nebraska Public Information Act, both of which are governed by Nebraska law.

March 24, 2014

CONFIDENTIAL *Execution Version*

MARKET BASED RATE
PARTIAL AND FULL REQUIREMENTS AGREEMENT

DATED AS OF DECEMBER 31, 2013

BY AND AMONG

BIG RIVERS ELECTRIC CORPORATION

AND

CITY OF WAKEFIELD, NEBRASKA

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MARKET BASED RATE
PARTIAL AND FULL REQUIREMENTS AGREEMENT

This MARKET BASED RATE PARTIAL AND FULL REQUIREMENTS AGREEMENT is dated as of December 20, 2013 ("Effective Date") and is by and between BIG RIVERS ELECTRIC CORPORATION, ("Company"), and the CITY OF WAKEFIELD, NEBRASKA ("Customer") (each individually a "Party," or collectively, the "Parties").

RECITALS

WHEREAS, Company, a Kentucky electric generation and transmission cooperative, organized and existing under the laws of the Commonwealth of Kentucky, with a principal place of business at 201 Third Street, Henderson, KY; and

WHEREAS, Customer is a political subdivision of the State of Nebraska providing retail electric service to its residents, with a principal place of business at 405 Main Street, Wakefield, NE 68784; and

WHEREAS, Customer requires Partial Requirements and Full Requirements Service to meet Customer's Retail Load; and

WHEREAS, Customer has retained Company to act as Customer's agent in scheduling Customer's Retail Load in SPP and providing other services necessary to provide firm electric service to Customer's Retail Load in accordance with this Agreement; and

WHEREAS, Company is engaged in the business of wholesale marketing of electric energy and has proposed to supply, subject to the terms and conditions set forth herein, Partial Requirements and Full Requirements Service to meet Customer's energy needs to the Delivery Points and to act as Customer's agent;

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties hereby agree that this Agreement, together with the Appendices attached hereto, sets forth the terms under which Company will supply Partial Requirements and Full Requirements Service to Customer during the Delivery Period and provide related services, and constitutes the entire agreement among the Parties relating to the subject matter hereof and supersedes any other agreements, written or oral (including without limitation any preliminary term sheet), between the Parties concerning this Agreement.

ARTICLE 1 - DEFINITIONS

The following words and terms shall be understood to have the following meanings when used in this Agreement or in any associated documents entered into in conjunction with this Agreement. This Agreement includes certain capitalized terms that are not explicitly defined herein. Such capitalized terms shall have the meanings specified in the "Related Documents," as the same are in effect from time to time, which meanings are incorporated herein by reference and made a part hereof. In the event of any inconsistency between a definition contained herein and a definition contained in "Related Documents," the definition in this Agreement shall control for purposes of this Agreement. Certain other definitions as required appear in subsequent parts of this Agreement.

1.1 **Affiliate** means, with respect to any person or entity, any other person or entity (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such person or entity. For this purpose, "control" means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power.

1.2 **Agency Agreement** means the agreement between the Parties designated on Appendix C.

1.3 **Agreement** means this Market Based Rate Partial and Full Requirements Service Agreement, including the Appendices, as amended, modified or supplemented from time to time.

1.4 **Ancillary Services** means the following services provided by SPP or a third party that are required to serve the Retail Load under the terms of this Agreement at the Metering Points: those services set forth in the applicable OATT Tariff schedules and any supplemental or revised tariffs or schedules, adopted by the Transmission Provider, including without limitation, Scheduling, System Control and Dispatch Service, Transmission Owners Scheduling, System Control and Dispatch, Reactive Supply and Voltage Control from Generation or Other Sources Service, Regulation and Frequency Response Service, Energy Imbalance Service, Operating Reserve-Spinning Reserve Service, Operating Reserve-Supplemental Reserve Service, and Black Start Service (as each of those services is defined in the applicable OATT schedules). Also, see Appendix B – Responsibility for Charges and Credits.

1.5 **Basis Differential** means the difference in the price of Energy at Company's generators' commercial pricing node under the regional transmission organization or independent system operator of which Company is a member and at the Interconnection Point.

1.6 **Billing Period** means the calendar month, which shall be the standard period for all payments and metering measurements under this Agreement, unless otherwise specifically required by SPP or the entity providing meter reading services.

1.7 **Business Day** means a day ending at 5:00 p.m. Central Prevailing Time, other than Saturday, Sunday and any day which is a legal holiday or a day designated as a holiday by the North American Electric Reliability Council; *provided*, that, with respect to any payment due hereunder, a "Business Day" means a day ending at 5:00 p.m. Central Prevailing Time, other than Saturday, Sunday and any day which is a legal holiday or a day on which banking institutions are authorized by Law to close; and, *provided, further*, that with respect to any notices for scheduling to be delivered pursuant to any Section hereof, a "Business Day" shall be a day other than Saturday, Sunday and any day which is a legal holiday or a day designated as a holiday by SPP.

1.8 **Capacity** as such term is used in the SPP OATT as may be amended from time to time.

1.9 **Central Prevailing Time** means the prevailing time in Wakefield, Nebraska.

1.10 **Claims** means all third party claims or actions, threatened or filed, and, whether groundless, false, fraudulent or otherwise, that directly or indirectly relate to the subject matter of this Agreement, and the resulting losses, damages, expenses, attorneys' fees and court costs, whether incurred by settlement or otherwise, and whether such claims or actions are threatened or filed prior to or after the termination of this Agreement.

1.11 **Commission** means the Kentucky Public Service Commission.

1.12 **Confidential Information** means the terms of this Agreement and such other information as a Party designates as confidential. Notwithstanding the foregoing, the following shall not constitute Confidential Information:

(a) Information which was already in a Party's possession prior to its receipt from another Party and not subject to a requirement of confidentiality;

(b) Information which is obtained from a third person who, insofar as is known to the Party, is not prohibited from transmitting the information to the Party by a contractual, legal or fiduciary obligation to the other Party; and

(c) Information which is or becomes publicly available through no fault of the Party.

1.13 **Congestion Costs** means the effect on transmission line loadings as reflected in the cost of transmission (whether positive or negative) associated with either increasing the output of a generation resource or serving an increment of load at a delivery point when the transmission system serving that delivery point is operating under constrained conditions.

1.14 **Congestion Rights** means the mechanism employed by SPP to allocate, using financial rights, hedges or similar items to mitigate Congestion Costs between two Settlement Locations (whether set forth in the SPP OATT or elsewhere).

1.15 **Credit Rating** means, with respect to any entity, the rating then assigned to such entity's unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or, if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by S&P, Fitch, or Moody's.

1.16 **Defaulting Party** means the Party with respect to which an Event of Default has occurred.

1.17 **Delivery Period** means the period as defined in Section 2.2.

1.18 **Delivery Points** means the physical point or points mutually agreed by the Parties at which SPP will deliver and Customer will accept the Firm Energy.

1.19 **Early Termination Date** is the date selected by the Non-Defaulting Party to terminate this Agreement.

1.20 **Effective Date** has the meaning stated in the first sentence of this Agreement.

1.21 **Energy** means three phase, 60-cycle alternating current electric energy, expressed in megawatt hours.

1.22 **Event of Default** has the meaning set forth in Section 7.1.

1.23 **FERC** means the Federal Energy Regulatory Commission.

1.24 **Firm Energy** means Energy that Company shall sell and deliver and Customer shall purchase and receive unless relieved of their respective obligations by Force Majeure or SPP system emergency or local transmission conditions making delivery or receipt impossible, but only to the extent that, and for the period during which, the Party's performance is prevented thereby.

1.25 **Fitch** means Fitch Ratings, Inc. and its successors.

1.26 **Force Majeure** means an event or circumstance which prevents one Party from performing its obligations under this Agreement, which event or circumstance was not anticipated as of the date the Agreement was agreed to, which is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which, by the exercise of due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. The Parties agree and acknowledge that the unavailability of transmission services or other transmission constraints in SPP, MISO, or any other applicable regional transmission organization or independent system operator shall constitute an event of Force Majeure but neither (a) an insufficiency of funds, nor (b) a decline in credit rating, shall constitute a Force Majeure.

1.27 **Full Requirements Service** or **Full Requirements** means the Energy and Capacity, including associated planning reserves, supplied by Company, and the Ancillary Services and Transmission Services, procured by Company in its capacity as MP, in each case, necessary to accomplish the delivery of Firm Energy to the Interconnection Point in an amount required to serve Retail Load, as the same may fluctuate in real time. Full Requirements also means that Company shall have the exclusive right to serve all power

requirements of Customer, unless Company is unable to supply due to lack of Capacity or Force Majeure, as provided for in this Agreement or otherwise to the extent set forth in Section 2.3, 3.8 or 3.10.

1.28 **HE** means the hour ending at the time specified.

1.29 **Interconnection Point** means the physical interconnection point(s) between SPP and MISO identified in Appendix A.

1.30 **Letter(s) of Credit** means one or more irrevocable, transferable standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank having a Credit Rating of at least A- from S&P or A3 from Moody's, in a form acceptable in its sole discretion to the Party in whose favor the letter of credit is issued. Costs of a Letter of Credit shall be borne by the applicant for such Letter of Credit.

1.31 **Liquidated Gains** means, with respect to any Party, an amount equal to the present value of the economic benefit to it, if any (exclusive of Termination Costs), resulting from the termination of this Agreement, determined in a commercially reasonable manner and using a discount rate equal to the Party's average cost of capital.

1.32 **Liquidated Losses** means, with respect to any Party, an amount equal to the present value of the economic loss to it, if any (exclusive of Termination Costs), resulting from termination of this Agreement, determined in a commercially reasonable manner and using a discount rate equal to the Party's average cost of capital.

1.33 **Load Serving Entity or LSE** means any entity (or the duly designated agent of such an entity), including any transmission owner, taking transmission service on behalf of wholesale or retail power customers, which has undertaken an obligation to provide or obtain electric energy for end-use customers by statute, franchise, regulatory requirement or contract for load located within or attached to the transmission system, and has been authorized by SPP to participate in the energy markets operated by SPP serving end-users within SPP.

1.34 **Losses** means, any transmission loss, transformation loss, sub-transmission and/or distribution losses incurred in providing Partial Requirements or Full Requirements Service hereunder.

1.35 **Market Participant or MP** means any entity (or the duly designated agent of such an entity), that is qualified, pursuant to the procedures established by SPP, to do the following (with all capitalized terms used herein having the meaning set forth in the SPP OATT): (i) submit bilateral transaction schedules to SPP; (ii) submit Bids to purchase, and/or offers to supply electricity in the Day-Ahead and/or Real-Time Balancing Markets; (iii) hold Transmission Congestion Rights and submit Bids to purchase, and/or offers to sell such rights; and (iv) settle all payments and charges with SPP.

1.36 **MISO** means Midcontinent Independent System Operator, Inc. or any successor regional transmission organization or independent system operator of which Company is a member.

1.37 **MISO OATT** means MISO's Open Access Transmission and Energy Markets Tariff, as amended from time to time, or any similar tariff of a successor.

1.38 **Monthly Payment** means the monthly charges set out in Article 4 of this Agreement.

1.39 **Moody's** means Moody's Investors Service, Inc. and its successors.

1.40 **MW** means Megawatt.

1.41 **MWh** means Megawatt-hour.

1.42 **NERC** means the North American Electric Reliability Corporation.

1.43 **Network Integration Transmission Service or NITS** means firm transmission service as set forth in the SPP OATT that provides for open access to the transmission systems within SPP and for the delivery of Firm Energy from the Interconnection Point to the Delivery Points.

1.44 **Non-Defaulting Party** means the Party with respect to which an Event of Default has not occurred.

1.45 **NPPD** means the Nebraska Public Power District, or its successor.

1.46 **NPPD Contract** means the contract between Customer and NPPD which allows Customer to limit and reduce its power purchased from NPPD beginning in 2019.

1.47 **NPPD Contract Reduction Period** refers to the period of time during which Customer will be reducing its purchases of Capacity and Energy and other services from NPPD pursuant to the NPPD Contract and purchasing the remainder of its such requirements from Company. [redacted]

1.48 **NPPD GFPS Tariff** means the NPPD General Firm Power Service Tariff.

1.49 **NPPD Tariff** means the NPPD Transmission Service Rate Schedule.

1.50 [redacted]

1.51 **Party(ies)** means Customer or Company or either or both of them, as the context requires.

1.52 [redacted]

1.53 **Prime Rate** means the lesser of (i) the rate published from time to time in *The Wall Street Journal*, as the prime lending rate, and (ii) the maximum rate permitted by applicable law.

1.54 **Qualifying Capacity** means the amount of Capacity, measured in MW, that is capable of satisfying applicable resource adequacy requirements established by SPP; *provided*, that, with respect to any calendar year, such amount may not exceed the annual peak demand of the Retail Load of the prior calendar year.

1.55 **Receiving Party** is defined in Article 6.

1.56 **Related Documents** means for SPP, either collectively or individually, the SPP OATT, the SPP Market Protocols, SPP Business Practices, SPP Criteria, SPP Network Operating Agreement, Market Participant Agreement, SPP Market Participant Application, Network Integration Transmission Service Agreement, Local Security Administrator and other applicable SPP Market Rules And Procedures.

1.57 **Requesting Party** is defined in Article 6.

1.58 **Retail Load** means Customer's own requirements and its end use customers' requirements located within the franchised service territory that Customer has a statutory or contractual obligation to serve, but

excluding any customers obtained through retail marketing or retail choice programs, initiatives or similar efforts of Customer.

1.59 **RPS** refers to any future renewable portfolio supply standard of any federal, state or other governmental authority.

1.60 **S&P** means Standard & Poor's Financial Services, LLC.

1.61 **SPP** means Southwest Power Pool or any successor regional transmission organization or independent system operation in which territory Customer is located.

1.62 **SPP OATT** means SPP's Open Access Transmission Tariff, as amended from time to time, or any successor thereto.

1.63 **Term** is defined in Section 2.1.

1.64 **Termination Costs** means, with respect to the Non-Defaulting Party, brokerage fees, commissions and other similar third party transaction costs and expenses reasonably incurred by such Party either in terminating this Agreement or any arrangement pursuant to which it has hedged its obligations or entered into new arrangements which replace this Agreement; and all reasonable attorneys' fees and expenses incurred by the Non-Defaulting Party in connection with the early termination of this Agreement.

1.65 **Termination Payment** means, with respect to this Agreement and the Non-Defaulting Party, the Liquidated Losses or Liquidated Gains, and Termination Costs, expressed in U.S. dollars, which such Party incurs as a result of the early termination of this Agreement.

1.66 **Transmission Services** means NITS, with respect to the transmission of Energy from the Interconnection Point to the Delivery Point, and other transmission services necessary to deliver Energy from Company's generation resources to the Interconnection Point.

ARTICLE 2 - TERM, SERVICE AND DELIVERY PROVISIONS

2.1 Term.

(a) Subject to the condition set forth in Section 2.1(c), the term of this Agreement shall begin as of the Effective Date and, except as provided below, shall extend through and including December 31, 2026, unless either Party declares an Early Termination Date in accordance with the provisions hereof (the "Term"). The applicable provisions of this Agreement shall continue in effect following the termination or expiration hereof in accordance with Section 16.13, and to the extent necessary to provide for final accounting, billing, billing adjustments, resolution of any billing disputes, realization of any collateral or other security, set-off, final payments, payments pertaining to liability and indemnification obligations arising from acts or events that occurred during the Delivery Period, or other such provisions that, by their terms or operation, survive the termination of this Agreement. [redacted]

(b) [redacted]

(c) The effectiveness of this Agreement and the Parties obligations hereunder are subject to (i) in the case of Company unless waived, (A) the receipt of an authorization, consent, order, finding, decision or other action (an "Approval") of the Commission, and any other governmental authority required to approve, authorize or consent to the execution, delivery and performance of this Agreement by Company; (B) the compliance by Company with its obligations under its financing arrangements with the USDA Rural Utilities Service, and receipt of any necessary Approval in connection therewith; (C) satisfaction, in its sole discretion, with all MISO transmission studies relating to the ability of Company to deliver Firm Energy to the Interconnection Point during the Delivery Period requested and obtained by Company prior to the commencement of the Delivery Period; and (ii) in the case of either Party, unless waived by it, satisfaction, in its sole discretion, with all SPP transmission studies relating to the ability of Customer to cause delivery of Firm Energy to the Delivery Point during the Delivery Period requested and obtained by such Party prior to the commencement of the Delivery Period.

2.2 **Delivery Period**. The Delivery Period shall commence on January 1, 2019, and continue through the end of the Term.

2.3 [redacted]

[redacted]

2.4 [redacted]

2.5 [redacted]

2.6 [redacted]

ARTICLE 3 - SALE AND PURCHASE

3.1 [redacted]

3.2 [redacted]

3.3 [redacted]

3.4 [redacted]

3.5 [redacted]

3.6 [redacted]

3.7 [redacted]

[redacted]

[redacted]

3.8 [redacted]

3.9 [redacted]

3.10 Retail Customer Choice. During the Term, Customer shall not voluntarily participate in nor authorize or permit any retail customer to participate in any form of retail customer choice unless otherwise mandated and required by applicable law, *provided, further*, that Customer will appeal any such requirement to any governmental authority, as being non-applicable during the remaining Term of this Agreement. Customer will use diligent efforts before any such governmental authority to secure such an exemption or waiver. Except as permitted under Section 2.3 or 3.8, no Retail Load may be served by another supplier, in whole or in part, unless mutually agreed to by the Parties during Full Requirements Service.

3.11 [redacted]

[redacted]

3.12 [redacted]

3.13 [redacted]

3.14 [redacted]

3.15 [redacted]

ARTICLE 4 - MONTHLY BILLING

4.1 Monthly Payment. In each month during the Term, Company shall calculate the Monthly Payment, which shall consist of the Capacity and Energy Charges, Pass Through Items (as described in Section 4.3), and any taxes, fees and levies (as described in Section 4.4) associated with this Agreement and any other amounts due and payable hereunder. Because quantities determined under Article 4 may be estimated, and subject to a reconciliation process, quantities used in calculations shall be subject to adjustment, whether positive or negative, in subsequent months' calculations. Failure to include an amount in one month's Monthly Payment shall not be a basis for its exclusion from a subsequent Monthly Payment calculation.

4.2 [redacted]

4.3 [redacted]

4.4 Taxes, Fees and Levies.

All taxes, fees and levies relating to the Retail Load or arising out of this Agreement will be charged by Company to Customer.

4.5 Payment.

(a) **Invoice and Payment Date.** [redacted]

(b) **Payment Method and Interest.** All invoices shall be paid by electronic funds transfer of immediately available funds, or by other mutually agreeable method(s), to the account designated by the other Party. If all or any part of any amount due and payable pursuant to this Agreement shall remain unpaid after the date due, interest shall thereafter accrue and be payable to Company on such unpaid amount at a rate equal to one and one-half (1½) percent per month or portion thereof on the unpaid balance from the date such payment was due until such time as Company is paid in full; *provided, however*, that no interest shall accrue in respect of adjustment amounts calculated in accordance with Section 4.1.

4.6 Payment Netting. The Parties hereby agree that they shall discharge mutual debts and payment obligations due and owing to each other on the same date pursuant to this Agreement through netting, in which case all amounts owed by each Party to the other Party under this Agreement, interest, and payments or credits, shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it. [redacted] If no mutual debts or payment obligations exist and

only one Party owes a debt or obligation to the other during the monthly Billing Period, that Party shall pay such sum in full when due.

4.7 **Billing Disputes**. If a Party, in good faith, disputes an invoice, the disputing Party shall, as soon as practicable, notify the other Party of the basis for the dispute and pay under protest the entire invoice no later than the due date. Upon resolution of the dispute, any required payment or refund shall be made within two (2) Business Days of such resolution along with any accrued interest from and including the due date to but excluding the date paid (or, in the case of refunds, accrued interest from and including the date the payment was made to but excluding the date the refund is paid), together with interest at the Prime Rate plus two percent (2%). Payments not made when due shall bear interest at the greater of the Prime Rate plus two percent (2%) or the interest paid by the Party carrying the cost to a third party with respect to the obligation. Inadvertent overpayments shall be returned or deducted from subsequent payments at the option of the overpaying Party with interest accrued at the Prime Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment.

4.8 [redacted]

4.9 [redacted]

ARTICLE 5 - ISO IMPLEMENTATION AND CONGESTION MANAGEMENT

5.1 **Implementation**.

(a) [redacted]

(b) [redacted]

(c) [redacted]

(d) [redacted]

(e) **Information Access.** Customer further gives permission to Company to access information at SPP that Company reasonably requests to facilitate Company's performance of its obligations under this Agreement.

5.2 Management of Congestion Risks.

(a) [redacted]

(b) [redacted]

(c) [redacted]

ARTICLE 6 - CREDITWORTHINESS

6.1 Financial Information. If requested by either Party, the other Party shall deliver within 150 days following the end of each fiscal year a copy of the annual report containing its audited consolidated financial statements for such fiscal year. In all cases the statements shall be for the most recent accounting period and shall be prepared in accordance with generally accepted accounting principles and shall fairly present in all material respects the financial condition of the party as of the date thereof and the results of operations and cash flows of the party for the periods presented; *provided, however*, that should any such statements not be available on a timely basis due to a delay in preparation for certification, such delay shall not be an Event of Default so long as the relevant entity diligently pursues the preparation, certification and delivery of the statements.

6.2

[redacted]

6.3

[redacted]

6.4

[redacted]

ARTICLE 7 - DEFAULT AND REMEDIES

7.1 **Events of Default**. Any one or more of the following shall constitute an "Event of Default" hereunder with respect to either Party (the "Defaulting Party"):

(a) The failure to make, when due, any payment required pursuant to this Agreement if such failure is not remedied within three (3) Business Days after written notice;

(b) Any representation or warranty made by a Party herein is false or misleading in any material respect when made or when deemed made or repeated;

(c) The failure by either Party [redacted]

(d) The failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default as specified herein) if such failure is not remedied within three (3) Business Days after written notice;

(e) Such Party: (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due; or

(f) Such Party consolidates or amalgamates with, or merges with or into, or transfers all or substantially all of its assets to, another entity and, at the time of such consolidation, amalgamation, merger or transfer, the resulting, surviving or transferee entity fails to assume all the obligations of such Party under this Agreement by operation of law or pursuant to an agreement reasonably satisfactory to the other Party.

(g) Any attempt by a Party to transfer an interest in this Agreement other than as permitted pursuant to Article 12.

7.2 **Declaration of an Early Termination Date and Calculation of Termination Payment**. If an Event of Default with respect to a Defaulting Party shall have occurred and be continuing, the other Party (the "Non-Defaulting Party") shall have the right to (i) designate a day, no earlier than the day such notice is given and no later than 20 days after such notice is given, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate the Agreement between the Parties, (ii) withhold any payments due to the Defaulting Party under this Agreement, set off any amounts owed by the Defaulting Party against amounts owed by the Non-Defaulting Party, or both withhold payments due and set off amounts owed, (iii) suspend performance, (iv) [redacted], or (v) exercise any remedies available at law or in equity.

The Non-Defaulting Party shall calculate, in a commercially reasonable manner, a Termination Payment for this Agreement as of the Early Termination Date. The Termination Payment will be determined by the Non-Defaulting Party using the Forecasted Remaining Quantities. As used in this paragraph, "Forecasted Remaining Quantities" means the Non-Defaulting Party's commercially reasonable forecast of the quantities of Energy required to provide Partial Requirements or Full Requirements Service for the remainder of the Delivery Period as if such early termination had not occurred, which shall be based on the amount of Customer's Retail Load during each hour of the twelve (12) months preceding the Early Termination Date escalated annually for the remainder of the Delivery Period at the average annual rate of

growth of Customer's Retail Load over the three (3) full calendar years preceding the Early Termination Date.

7.3 **Net Out of Termination Payment**. The Non-Defaulting Party shall aggregate the Termination Payment into a single amount by: netting out (a) the Termination Payment that is due to the Defaulting Party, plus, at the option of the Non-Defaulting Party, any cash or other form of security then available to the Non-Defaulting Party pursuant to Article 6, plus any or all other amounts due to the Defaulting Party under this Agreement against (b) the Termination Payment that is due to the Non-Defaulting Party, plus any or all other amounts due to the Non-Defaulting Party under this Agreement, so that all such amounts shall be netted out to a single liquidated amount payable by one Party to the other. The Termination Payment shall be due to or due from the Non-Defaulting Party, as appropriate.

7.4 **Notice of Payment of Termination Payment**. As soon as practicable after a termination, notice shall be given by the Non-Defaulting Party to the Defaulting Party of the amount of the Termination Payment. The notice shall include a written statement explaining in reasonable detail the calculation of such amount. The Termination Payment shall be made by the Party that owes it within ten (10) days after such notice is effective. Notwithstanding any provision to the contrary in this Agreement, the Non-Defaulting Party shall not be required to pay the Defaulting Party any amount under Article 7 until the Non-Defaulting Party receives confirmation satisfactory to it in its reasonable discretion that any other obligations of any kind whatsoever of the Defaulting Party to make payments to or perform any obligation for the benefit of the Non-Defaulting Party under this Agreement or otherwise have been fully performed or provided for.

7.5 **Disputes With Respect to Termination Payment**. If the Defaulting Party disputes the Non-Defaulting Party's calculation of the Termination Payment, in whole or in part, the Defaulting Party shall, within five (5) Business Days of receipt of the Non-Defaulting Party's calculation of the Termination Payment, provide to the Non-Defaulting Party a detailed written explanation of the basis for such dispute; *provided, however,* [redacted].

7.6 [redacted]

7.7 **Obligations Following Expiration or Termination**. Upon the termination or expiration of this Agreement, in addition to such rights and obligations enumerated elsewhere in this Agreement, the grant of any and all right and interest to Company to supply the Partial Requirements or Full Requirements Service shall cease, and Customer and Company shall immediately make all necessary filings with SPP and perform all other acts necessary to transfer all such rights and interests back to Customer.

7.8 **Termination Based on Governmental Action**. If any approval, authorization, consent, order, finding, decision or other action required by Section 2.1(c) or 3.13 shall not be obtained and received after the exercise of commercially reasonable efforts, or shall contain any change to a material term hereof or impose a material condition or a material additional burden on a Party, the Party affected may terminate this Agreement without cost or liability (including without payment of the Termination Payment) by providing written notice thereof to the other Party no later than five (5) Business Days following the date on which any appeal, challenge, request for rehearing or similar requests have been denied and such governmental action becomes final and non-appealable.

7.9 Termination Based on Transmission Studies. If any condition to the effectiveness of this Agreement relating to any transmission studies required by Section 2.1(c) shall not be satisfied on or prior to December 31, 2018, either Party may terminate this Agreement without cost or liability (including without payment of the Termination Payment) by providing written notice thereof to the other Party at any time thereafter but prior to commencement of the Delivery Period.

ARTICLE 8 - CURTAILMENT, TEMPORARY INTERRUPTIONS AND FORCE MAJEURE

8.1 Curtailment. Upon being notified by SPP of a requirement to curtail, regardless of whether such notice is provided by SPP or other reliability authority directly or indirectly through Company, Customer will institute procedures which will cause a corresponding curtailment of the use of Energy by its Retail Load. If upon notification of a requirement to curtail Energy deliveries to its Retail Load, Customer fails to institute such procedures, Company shall be entitled to limit deliveries of Energy to Customer in order to effectuate reductions in Energy deliveries equivalent to the reduction which would have been effected had Customer fulfilled its curtailment obligation hereunder during the period any shortage exists, and, in such event, Company shall not incur any liability to Customer in connection with any such action so taken by Company.

8.2 Temporary Interruptions. Company will use reasonable diligence in undertaking its obligations under this Agreement to furnish Firm Energy to Customer, but Company does not guarantee that the supply of Firm Energy furnished to Customer will be uninterrupted or that voltage and frequency will be at all times constant. Temporary interruption of Firm Energy deliveries hereunder shall not constitute a breach of the obligations of Company under this Agreement, and Company shall not in any such case be liable to Customer for damages resulting from any such temporary interruptions of service, provided such temporary interruption is not the result of Company's ability to resell the Partial Requirements or Full Requirements Service to a third party at a price greater than the pricing set forth in this Agreement.

8.3 Force Majeure. To the extent either Party is prevented by Force Majeure from carrying out, in whole or in part, its obligations under the Agreement and such Party (the "Claiming Party") gives notice and details of the Force Majeure to the other Party as soon as practicable, then the Claiming Party shall be excused from the performance of its obligations with respect to this Agreement (other than the obligation to make payments then due or becoming due with respect to performance prior to the Force Majeure). The Claiming Party shall remedy the Force Majeure with all reasonable dispatch. The non-Claiming Party shall not be required to perform or resume performance of its obligations to the Claiming Party corresponding to the obligations of the Claiming Party excused by Force Majeure. The occurrence of a Force Majeure shall not relieve Customer of its payment obligations under Article 4, including its payment obligations with respect to any portion of the Monthly Payment. Nothing contained herein may be construed to require a Party to prevent or to settle a labor dispute against its will.

8.4 Force Majeure Exceptions. [redacted]

ARTICLE 9 - NOTICES, REPRESENTATIVES OF THE PARTIES

9.1 Notices. Any notice, demand, or request required or authorized by this Agreement to be given by one Party to another Party shall be in writing. Such notice shall be sent by facsimile, electronic messaging (confirmed by telephone), courier, personally delivered or mailed, postage prepaid, to the representative of the other Parties designated in this Article 9. Any such notice, demand, or request shall be deemed to be given (i) when received by facsimile or electronic messaging, (ii) when actually received if delivered by courier, overnight mail or personal delivery, or (iii) three (3) days after deposit in the United States mail, if sent by first class mail.

Notices and other communications by Company to Customer shall be addressed to:

Mayor
City of Wakefield
P.O. Box 78
405 Main Street
Wakefield, NE 68784
Facsimile: (402) 287-2045

Notices and other communications by Customer to Company shall be addressed to:

CEO
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42420
Facsimile: (270) 827-2558

Any Party may change its representative by written notice to the other Party.

9.2 **Authority of Representative**. The Parties' representatives designated in Section 9.1 shall have full authority to act for their respective principals in all technical matters relating to the performance of this Agreement. The Parties' representatives shall not, however, have the authority to amend, modify or waive any provision of this Agreement unless they are authorized officers of their respective entities and such amendment, modification or waiver is made pursuant to Article 16.

ARTICLE 10 - LIABILITY, INDEMNIFICATION, AND RELATIONSHIP OF PARTIES

10.1 **Limitation on Consequential, Incidental and Indirect Damages.**

TO THE FULLEST EXTENT PERMITTED BY LAW, NEITHER CUSTOMER NOR COMPANY, NOR THEIR RESPECTIVE OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, MEMBERS, PARENTS OR AFFILIATES, SUCCESSORS OR ASSIGNS, OR THEIR RESPECTIVE OFFICERS, DIRECTORS, AGENTS, OR EMPLOYEES, SUCCESSORS OR ASSIGNS, SHALL BE LIABLE TO THE OTHER PARTY OR ITS MEMBERS, PARENTS, SUBSIDIARIES, AFFILIATES, OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, SUCCESSORS OR ASSIGNS, FOR CLAIMS, SUITS, ACTIONS OR CAUSES OF ACTION FOR INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, MULTIPLE OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PERFORMANCE OR NON-PERFORMANCE OF THIS AGREEMENT, OR ANY ACTIONS UNDERTAKEN IN CONNECTION WITH OR RELATED TO THIS AGREEMENT, INCLUDING WITHOUT LIMITATION ANY SUCH DAMAGES WHICH ARE BASED UPON CAUSES OF ACTION FOR BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND MISREPRESENTATION), BREACH OF WARRANTY, STRICT LIABILITY, STATUTE, OPERATION OF LAW, UNDER ANY INDEMNITY PROVISION OR ANY OTHER THEORY OF RECOVERY. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED, UNLESS OTHERWISE SPECIFIED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. THE PROVISIONS OF THIS SECTION 10.1 SHALL APPLY REGARDLESS OF

FAULT AND SHALL SURVIVE TERMINATION, CANCELLATION, SUSPENSION, COMPLETION OR EXPIRATION OF THIS AGREEMENT.

10.2 **Indemnification.**

(a) Each Party shall indemnify, defend and hold harmless the other Party from and against any Claims arising from or out of any event, circumstance, act or incident occurring or existing during the period when control and title to Partial Requirements or Full Requirements Service is vested in such Party as provided in Section 10.4.

(b) Each Party shall indemnify and hold harmless the other Party from and against any and all legal and other expenses, claims, costs, losses, suits or judgments for damages to any person or entity or destruction of any property arising in any manner directly or indirectly by reason of the acts of such Party's authorized representatives while on the premises of the other Party under the rights of access provided herein.

(c) Company assumes no responsibility of any kind with respect to the construction, maintenance or operation of the system or other property owned or used by Customer; and Customer agrees to protect, indemnify and save harmless Company from any and all claims, demands or actions for injuries to person or property by any person or entity in any way resulting from, growing out of or arising in or in connection with (a) the construction, maintenance or operation of Customer's system or other property, or (b) the use of, or contact with, Energy delivered hereunder after it is delivered to Customer and while it is flowing through the lines of Customer, or is being distributed by Customer, or is being used by Retail Load.

(d) If any Party intends to seek indemnification under this Section 10.2 from the other Party with respect to any Claim, the Party seeking indemnification shall give such other Party notice of such Claim within fifteen (15) days of the commencement of, or actual knowledge of, such Claim. Such Party seeking indemnification shall have the right, at its sole cost and expense, to participate in the defense of any such Claim. The Party seeking indemnification shall not compromise or settle any such Claim without the prior consent of the other Party, which consent shall not be unreasonably withheld.

10.3 **Independent Contractor Status.** Nothing in this Agreement shall be construed as creating any relationship among Customer and Company other than that of independent contractors for the sale and purchase of Partial Requirements or Full Requirements Service. Except to the extent Company is authorized to act as Customer's Market Participant hereunder, no Party shall be deemed to be the agent of any other Party for any purpose by reason of this Agreement. No partnership or joint venture or fiduciary relationship among the Parties is intended to be created by this Agreement.

10.4 **Title; Risk of Loss.** Title to and risk of loss related to the Partial Requirements or Full Requirements Service shall transfer from Company to Customer at the Interconnection Point. Company warrants that it will deliver Partial Requirements or Full Requirements Service to Customer free and clear of all Claims or any interest therein or thereto by any person or entity arising prior to the Interconnection Point.

ARTICLE 11 - REPRESENTATIONS AND WARRANTIES

11.1 **Representations and Warranties of Each Party.** Company and Customer each represents and warrants to the other that:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation, and has the power and authority to execute and deliver this

Agreement, to perform its obligation hereunder, and to carry on its business as such business is now being conducted and as is contemplated hereunder to be conducted during the Term hereof;

(b) It has, or will, upon execution of this Agreement, promptly seek, all regulatory authorizations necessary for it to legally perform its obligations under this Agreement;

(c) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, including but not limited to any organizational documents, charters, bylaws, indentures, mortgages or any other contracts or documents to which it is a party or any law, rule, regulation, order or the like applicable to it;

(d) This Agreement and each other document executed and delivered in accordance with this Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, reorganization, arrangement, moratorium or other laws relating to or affecting the rights of creditors generally and by general principles of equity;

(e) It is not bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it, which would result in it being or becoming bankrupt; and

(f) There is not pending or, to its knowledge, threatened against it any legal proceedings that could materially and/or adversely affect its ability to perform its obligations under this Agreement.

11.2 **Customer Additional Covenants**. Customer represents, warrants and agrees to and with Company that except as otherwise provided herein, with respect to its contractual obligations hereunder and performance thereof, it will not claim immunity on the grounds of its status as a municipality under Federal or state law or similar grounds with respect to itself or its revenues or assets from (i) suit, (ii) jurisdiction of court (including a court located outside the jurisdiction of its organization), (iii) relief by way of injunction, order for specific performance or recovery of property, (iv) attachment of assets, or (v) execution or enforcement of any judgment.

ARTICLE 12 - ASSIGNMENT

12.1 **General Prohibition Against Assignments**. Except as provided in Section 12.2 below, no Party shall assign, pledge or otherwise transfer this Agreement or any right or obligation under this Agreement without first obtaining the other Party's written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

12.2 **Exceptions to Prohibition Against Assignments**. A Party may, without the other Party's prior written consent (and without relieving itself from liability hereunder), (i) transfer, sell, pledge, encumber or assign this Agreement or the accounts, revenues or proceeds hereof in connection with any financing or other financial arrangements; (ii) transfer or assign this Agreement to an Affiliate of such Party (which Affiliate shall be of equal or greater creditworthiness); or (iii) transfer or assign this Agreement to any person or entity succeeding by merger or by acquisition to all or substantially all of the assets whose creditworthiness is equal to or higher than that of the assigning Party; *provided, however,* [redacted]

12.3 **Limitation on Assignment**. Notwithstanding Section 12.2, in no event may either Party assign this Agreement (including as part of a sale of all or substantially all of the assets of the assigning Party or a merger with or purchase of substantially all the equity interests of such Party) (i) to any Person that does not have adequate financial capacity as demonstrated to the reasonable satisfaction of the non-assigning Party or that would otherwise be unable to perform the obligations of the assigning Party pursuant to this Agreement, (ii) to any Person that does not agree to assume all rights and obligations of the assigning Party under this Agreement and be bound by the terms and conditions hereof, or (iii) on any terms at variance from those set forth in this Agreement except as agreed to in writing by the Parties.

12.4 **Duties**. No permitted assignment or transfer will change the duties of the Parties or impair the performance under this Agreement except to the extent set forth in such permitted assignment and approved in writing by the Parties. No Party shall be released from its obligations under this Agreement pursuant to any assignment.

ARTICLE 13 - CONFIDENTIALITY

To the extent permitted by law, all Confidential Information shall be held and treated by the Parties and their agents in confidence, used solely in connection with this Agreement, and shall not, except as hereinafter provided, be disclosed without the other Party's prior written consent.

Notwithstanding the foregoing, Confidential Information may be disclosed (a) to a third party for the purpose of effectuating the supply, transmission and/or distribution of Partial Requirements or Full Requirements Service to be delivered pursuant to this Agreement, (b) to regulatory authorities of competent jurisdiction, or as otherwise required by applicable law, regulation or order including any Nebraska sunshine law (provided Company's trade secret or proprietary information is redacted to the fullest extent permitted by law), (c) as part of any required, periodic filing or disclosure with or to any regulatory authority of competent jurisdiction and (d) to third parties in connection with merger, acquisition/disposition and financing transactions provided that any such third party shall have signed a confidentiality agreement with the disclosing party containing customary terms and conditions that protect against the disclosure of the Confidential Information and that strictly limit the recipient's use of such information only for the purpose of the subject transaction and that provide for remedies for non-compliance.

In the event the non-disclosing party receives a written request, applicable to the Confidential Information, under a sunshine law such as the Nebraska Public Information Act ("Public Information Act Request"), and Customer does not believe the request is subject to the Public Information Act, the non-disclosing party shall, in accordance with the procedures in the Public Information Act, (i) timely request a ruling from the Nebraska Attorney General that the information is not subject to disclosure (ii) timely provide to the Attorney General a letter or brief explaining why the information should not be subject to public disclosure and (iii) provide to the disclosing party prompt notice of the Public Information Act Request so that the disclosing party will have an opportunity to submit a statement to the Attorney General providing the reasons why the Confidential Information should not be disclosed. To the extent any provision of this Agreement conflicts with the provisions of the Nebraska Public Information Act, the provisions of the Nebraska Public Information Act shall control, and no further liability or responsibility shall be borne by either party so long as the provisions of the Nebraska Public Information Act are followed in good faith.

In the event that a Party ("Disclosing Party") is requested or required to disclose any Confidential Information, the Disclosing Party shall provide the other Party with prompt written notice of any such request or requirement so that the other Party may seek an appropriate protective order, other confidentiality arrangement or waive compliance with the provisions of this Agreement. If, failing the entry of a protective order, other confidentiality arrangement or the receipt of a waiver hereunder, the Disclosing Party, in the opinion of counsel, is compelled to disclose Confidential Information, the Disclosing Party may disclose that portion of the Confidential Information which the Disclosing Party's counsel advises that the Disclosing Party is compelled to disclose.

The Parties shall be entitled to all remedies available at law or in equity to enforce, or seek relief in connection with, this confidentiality obligation. In addition to the foregoing, the Disclosing Party shall indemnify, defend and hold harmless the other Parties from and against any Claims, threatened or filed, and any losses, damages, expenses, attorneys' fees or court costs incurred by such Party in connection with or arising directly or indirectly from or out of the Disclosing Party's disclosure of the Confidential Information to third parties except as permitted above.

Notwithstanding the above provisions, Company shall be permitted to communicate with SPP any necessary information, including Confidential Information, with regard to implementation of this Agreement and will make all reasonable efforts to ensure that Confidential Information remains confidential.

ARTICLE 14 - REGULATORY AUTHORITIES

14.1 **Compliance with Laws.** Each Party shall perform its obligations hereunder in accordance with applicable laws, rules and regulations. Nothing contained herein shall be construed to constitute consent or acquiescence by either Party to any action of the other Party which violates the laws of the United States as those laws may be amended, supplemented or superseded, or which violates any other law or regulation, or any order, judgment or decree of any court or governmental authority of competent jurisdiction.

14.2 **Tariffs.** Each Party agrees if it seeks to amend any applicable FERC filed tariff during the Term, such amendment will not in any way affect this Agreement without the prior written consent of the other Party. Each Party further agrees that it will not assert or defend itself on the basis that any applicable tariff is inconsistent with this Agreement.

ARTICLE 15 - STANDARD OF REVIEW FOR PROPOSED CHANGES, DISPUTE RESOLUTION

15.1 **Standard of Review.** The rates, charges, terms and conditions contained in this Agreement are not subject to change under Sections 205 or 206 of the Federal Power Act absent the mutual written agreement of the Parties. It is the intent of this section that, to the maximum extent permitted by applicable law, the rates, charges, terms and conditions of this Agreement shall not be subject to such change. Absent the agreement of the Parties to the proposed change and subject to any applicable law, including the rules and regulations of the Commission, the standard of review under the Federal Power Act for changes to rates, charges, terms and conditions of this Agreement proposed by a Party shall be the "public interest" standard of review set forth in *United Gas Pipe Line Co. v. Mobile Gas Service Corp.*, 350 U.S. 332 (1956) and *Federal Power Commission v. Sierra Pacific Power Co.*, 350 U.S. 348 (1956) and clarified by *Morgan Stanley Capital Group, Inc. v. Public Util. Dist. No. 1 of Snohomish*, 554 U.S. 527 (2008) (the "*Mobile-Sierra*" doctrine); provided that the standard of review for any amendment requested by a non-contracting third party or FERC acting *sua sponte* shall be the most stringent standard permissible under applicable law.

15.2 **Dispute Resolution.**

(a) In the event of any dispute among the Parties arising out of or relating to this Agreement, the Parties shall refer the matter to their duly authorized officers for resolution who shall meet within ten (10) days after notice is given by either Party. If within thirty (30) days after such meeting, the Parties have not succeeded in negotiating a resolution to the dispute then the Parties may, upon mutual agreement of the Parties, agree to binding arbitration before a single arbitrator. If the parties fail to select an arbitrator within thirty (30) days after mutual agreement to submit a matter to arbitration, the arbitrator shall be named in accordance with AAA's Rules for Non-administered Arbitration then in effect (the "Rules"). The Rules shall govern any such proceedings. Judgment upon any award rendered by the arbitrator may be entered in any court having jurisdiction thereof. The Parties shall share equally the services and expenses of the arbitrator, and each shall pay

its own costs, expenses, and attorneys' fees. Fees and expenses of the court reporter shall be paid in equal parts by the Parties hereto.

(b) In the event the Parties do not mutually agree to binding arbitration, Company and Customer each hereby knowingly, voluntarily and intentionally waives any rights it may have to a trial by jury in respect of any litigation based hereon, or arising out of, under or in connection with, this Agreement, any course of conduct, course of dealing, statements (whether oral or written) or actions of Company and Customer related hereto, and expressly agree to have any disputes arising under or in connection with this Agreement be adjudicated by a judge in any court of competent jurisdiction sitting without a jury, and each party waives any right to a trial by jury in such courts.

(c) [redacted]

ARTICLE 16 - GENERAL PROVISIONS

16.1 **Third Party Beneficiaries**. This Agreement is intended solely for the benefit of the Parties thereto, and nothing herein will be construed to create any duty to, or standard of care with reference to, or any liability to, any person not a Party hereto.

16.2 **Waivers**. The failure of a Party to insist in any instance upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights under this Agreement shall not be construed as a general waiver of any such provision or the relinquishment of any such right, except to the extent such waiver is in writing and signed by an authorized representative of such Party.

16.3 **Interpretation**. The interpretation and performance of this Agreement shall be in accordance with and controlled by the laws of the State of Kentucky, without giving effect to its conflicts of law provisions, except that issues pertaining to Customer's status as a municipal entity or the applicability of the Nebraska Public Information Act shall be governed by Nebraska law.

16.4 **Jurisdiction**. Nothing in this Agreement prohibits a Party from referring to FERC or any other governmental authority any matter properly within its jurisdiction. In any proceeding hereunder, each Party irrevocably waives, to the fullest extent allowed by law, its right, if any, to trial by jury. Each Party hereby agrees to accept service of any papers or process in any action or proceeding arising under or relating to this Agreement, at the address set forth in Section 9.1, and agrees that such service shall be, for all purposes, good and sufficient.

16.5 **Good Faith Efforts**. The Parties agree that each will in good faith take all reasonable actions within their reasonable control as are necessary to permit the other Party to fulfill its obligations under this Agreement; *provided*, that no Party will be obligated to expend money or incur material economic loss in order to facilitate performance by the other Party. Where the consent, agreement or approval of either Party must be obtained hereunder, such consent, agreement or approval may not be unreasonably withheld, conditioned, or delayed unless otherwise provided herein. Where either Party is required or permitted to act or fail to act based upon its opinion or judgment, such opinion or judgment may not be unreasonably

exercised. Where notice to the other Party is required to be given herein, and no notice period is specified, reasonable notice shall be given.

16.6 **Further Assurances**. The Parties shall execute such additional documents and shall cause such additional actions to be taken as may be required or, in the judgment of any Party, be necessary or desirable to effect or evidence the provisions of this Agreement and the transactions contemplated hereby.

16.7 **Severability**. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality, and enforceability of the remaining provisions shall in no way be affected or impaired thereby; and the Parties hereby agree to effect such modifications to this Agreement as shall be reasonably necessary in order to give effect to the original intention of the Parties.

16.8 **Modification**. No modification to this Agreement will be binding on any Party unless it is in writing and signed by the Parties.

16.9 **Counterparts**. This Agreement may be executed in counterparts, and each executed counterpart shall have the same force and effect as an original instrument.

16.10 **Headings**. Article and section headings used throughout this Agreement are for the convenience of the Parties only and are not to be construed as part of this Agreement.

16.11 **Audit**. Each Party has the right, at its sole expense and during normal working hours, to examine the records of the other Party to the extent reasonably necessary to verify the accuracy of any invoice, charge or computation made pursuant to this Agreement. If requested, a Party shall provide to the other Party invoices evidencing the quantities of Partial Requirements or Full Requirements Service. If any such examination reveals any inaccuracy in any invoice, the necessary adjustments to such invoice and the payments thereof will be made promptly and shall bear interest calculated at the Prime Rate plus two percent (2%) from the date the overpayment or underpayment was made until paid; *provided, however*, that no adjustment for any statement or payment will be made unless objection to the accuracy thereof was made prior to the lapse of the twelve (12) months succeeding rendition thereof, and thereafter any objection shall be deemed waived.

16.12 **Records**. The Parties shall keep (or as necessary cause to be kept by their respective agents) for a period of at least three (3) years such records as may be needed to afford a clear history of the Partial Requirements or Full Requirements Service supplied pursuant to this Agreement. For any matters in dispute, the Parties shall keep the records related to such matters until the dispute is ended.

16.13 **Survival**. The provisions of Articles 4, 7, 9, 10, 13, 15 and 17 and Sections 16.11, 16.12 and 16.13 shall survive termination of this Agreement hereof, and any other section of this Agreement that specifies by its terms that it survives termination shall survive the termination or expiration of this Agreement.

ARTICLE 17 - RULES OF CONSTRUCTION

Terms used in this Agreement but not listed in this Article or defined in Article 1 shall have meanings as commonly used in the English language.

Words not otherwise defined herein that have well known and generally accepted technical or trade meanings are used herein in accordance with such recognized meanings.

The masculine shall include the feminine and neuter.

The words "include", "includes" and "including" are deemed to be followed by the words "without limitation."

References to contracts, agreements, tariffs and other documents and instruments shall be references to the same as amended, supplemented or otherwise modified from time to time.

The Appendices attached hereto are incorporated in and are intended to be a part of this Agreement.

References to laws and to terms defined in, and other provisions of, laws shall be references to the same (or a successor to the same) as amended, supplemented or otherwise modified from time to time.

References to a person or entity shall include its successors and permitted assigns and, in the case of a governmental authority, any entity succeeding to its functions and capacities.

References to "Articles," "Sections," or "Appendices" shall be to articles, sections, or appendices of this Agreement.

The word "or" need not be exclusive as the context implies.

Unless the context plainly indicates otherwise, words importing the singular number shall be deemed to include the plural number (and vice versa); terms such as "hereof," "herein," "hereunder" and other similar compounds of the word "here" shall mean and refer to the entire Agreement rather than any particular part of the same.

This Agreement was negotiated and prepared by both Parties with the advice and participation of counsel. The Parties have agreed to the wording of this Agreement and none of the provisions hereof shall be construed against one Party on the ground that such Party is the author of this Agreement or any part hereof.

[*Signatures Follow on Next Page*]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this Agreement on their behalf as of the date first above written.

BIG RIVERS ELECTRIC CORPORATION

By: _____

Name: Mark A. Bailey

Title: President and CEO

CITY OF WAKEFIELD, NEBRASKA

By: _____

Name: Jim Clark

Title: Mayor

APPENDIX A

LIST OF PHYSICAL DELIVERY POINT(S) AND INTERCONNECTION POINT

LIST OF PHYSICAL DELIVERY POINT(S)

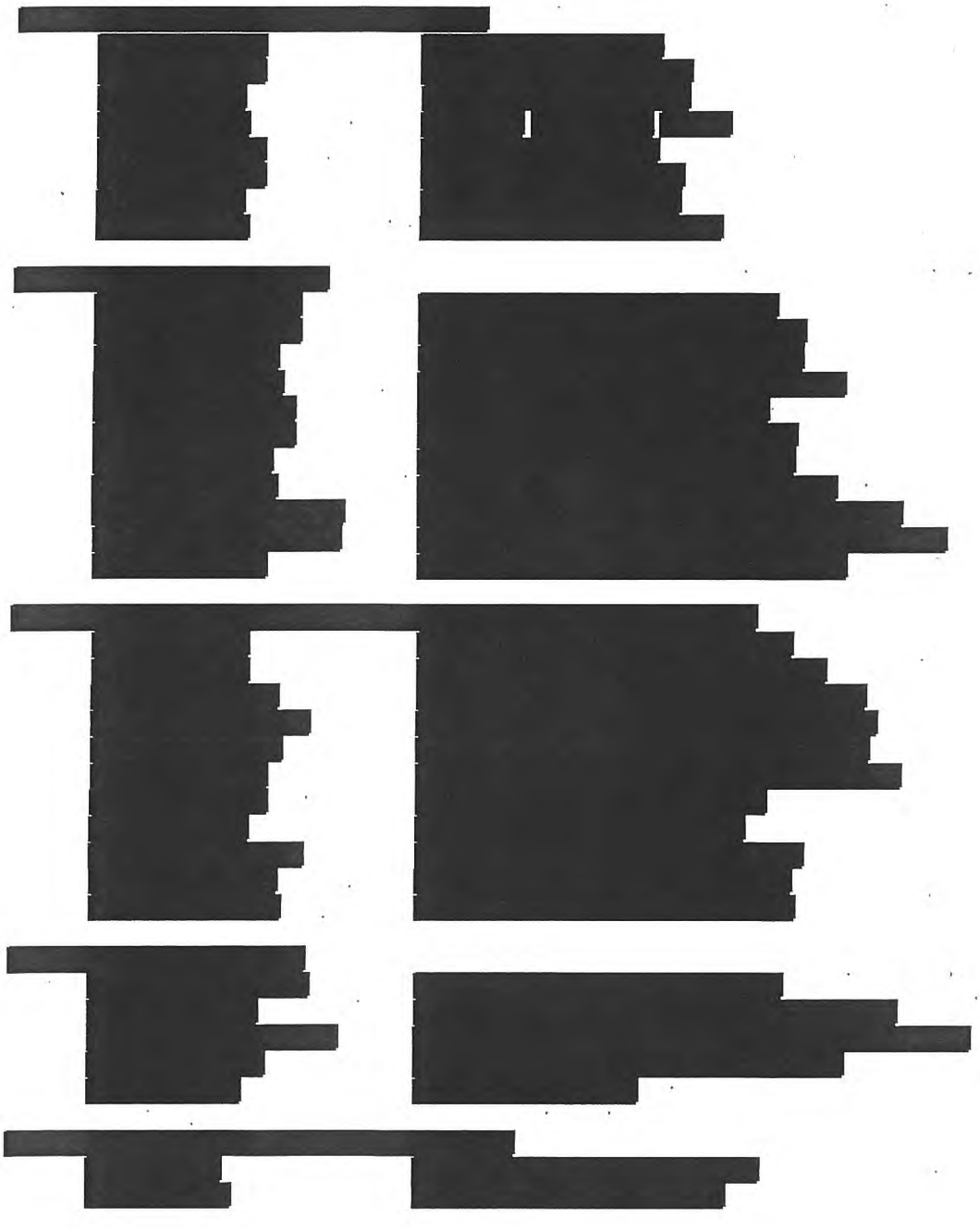
Point Name	Voltage	Adjustment Factor
As agreed by the Parties pursuant to Section 2.4	As agreed by the Parties pursuant to Section 2.4	As agreed by the Parties pursuant to Section 2.4

LIST OF INTERCONNECTION POINTS

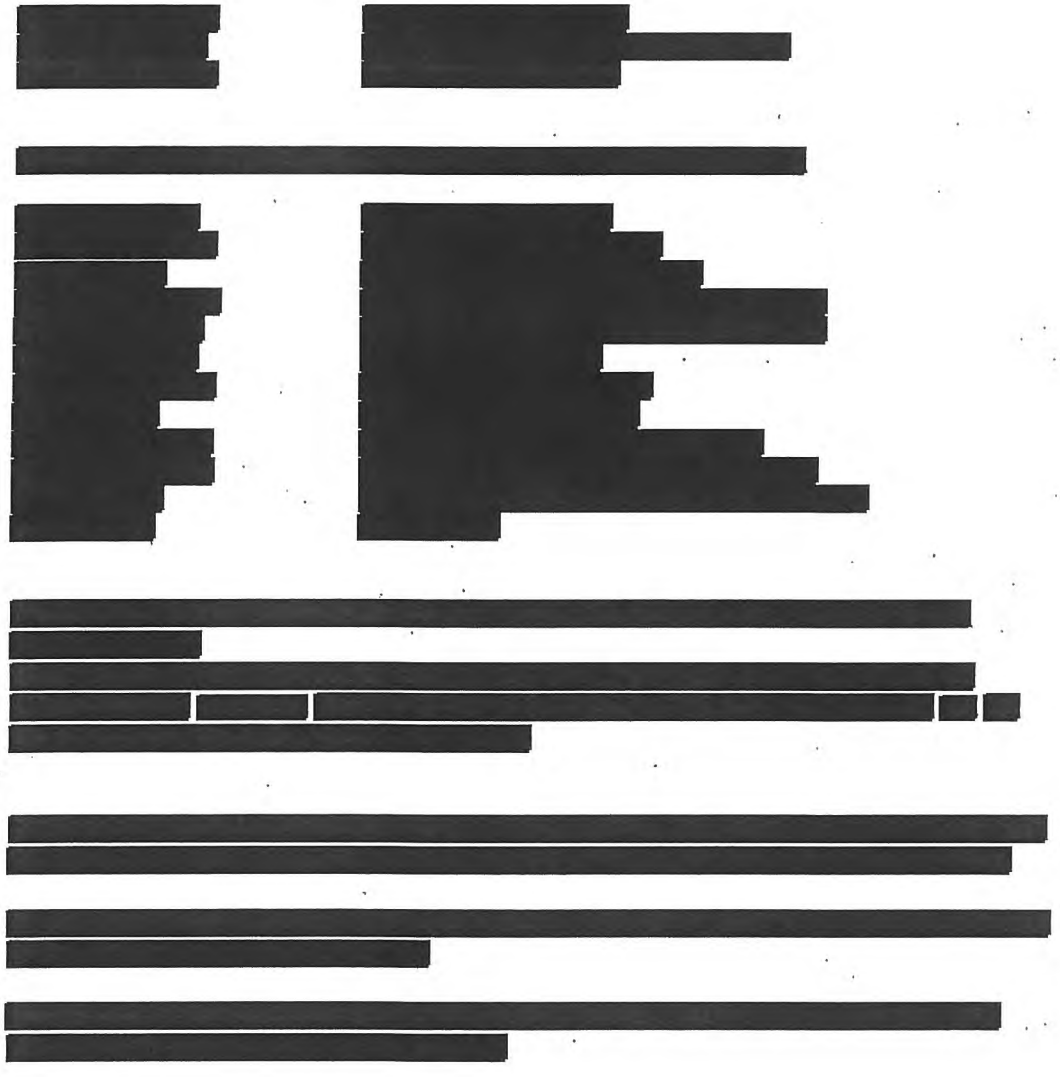
Point Name
[redacted]

APPENDIX B
RESPONSIBILITY FOR ISO/RTO CHARGES AND CREDITS

Credits/Charges Allocated to Customer, if applicable



OHSUSA:755971132.2



APPENDIX C
LETTER OF AGENCY

The City of Wakefield, Nebraska ("Customer") appoints Big Rivers Electric Corporation ("Company"), and Company accepts such appointment, as agent to act on behalf of Customer in accordance with the terms of the Market Based Rate Partial Requirements and Full Requirements Service Agreement dated December 20, 2013 ("Full Requirements Agreement") as follows:

1. [redacted]

2. [redacted]

3. [redacted]

4. Upon termination of this Agreement, Company shall not act as Market Participant on behalf of Customer (unless otherwise agreed) and shall advise SPP about this termination. Further, Company shall notify the Transmission Provider that it is no longer acting as Customer's agent.

BIG RIVERS ELECTRIC CORPORATION

By: Mark A. Bailey
Name: Mark A. Bailey
Title: President and CEO
Date: February 6, 2014

CITY OF WAKEFIELD, NEBRASKA

By: Jim Clark
Name: Jim Clark
Title: Mayor
Date:

CONFIDENTIAL *Execution Version*

MARKET BASED RATE
PARTIAL AND FULL REQUIREMENTS AGREEMENT

DATED AS OF DECEMBER 20, 2013

BY AND AMONG

BIG RIVERS ELECTRIC CORPORATION

AND

CITY OF WAYNE, NEBRASKA

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MARKET BASED RATE
PARTIAL AND FULL REQUIREMENTS AGREEMENT

This MARKET BASED RATE PARTIAL AND FULL REQUIREMENTS AGREEMENT is dated as of December 20, 2013 ("Effective Date") and is by and between BIG RIVERS ELECTRIC CORPORATION, ("Company"), and the CITY OF WAYNE, NEBRASKA ("Customer") (each individually a "Party," or collectively, the "Parties").

RECITALS

WHEREAS, Company, a Kentucky electric generation and transmission cooperative, organized and existing under the laws of the Commonwealth of Kentucky, with a principal place of business at 201 Third Street, Henderson, KY; and

WHEREAS, Customer is a political subdivision of the State of Nebraska providing retail electric service to its residents, with a principal place of business at 306 Pearl Street, Wayne, NE 68787; and

WHEREAS, Customer requires Partial Requirements and Full Requirements Service to meet Customer's Retail Load; and

WHEREAS, Customer has retained Company to act as Customer's agent in scheduling Customer's Retail Load in SPP and providing other services necessary to provide firm electric service to Customer's Retail Load in accordance with this Agreement; and

WHEREAS, Company is engaged in the business of wholesale marketing of electric energy and has proposed to supply, subject to the terms and conditions set forth herein, Partial Requirements and Full Requirements Service to meet Customer's energy needs to the Delivery Points and to act as Customer's agent;

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties hereby agree that this Agreement, together with the Appendices attached hereto, sets forth the terms under which Company will supply Partial Requirements and Full Requirements Service to Customer during the Delivery Period and provide related services, and constitutes the entire agreement among the Parties relating to the subject matter hereof and supersedes any other agreements, written or oral (including without limitation any preliminary term sheet), between the Parties concerning this Agreement.

ARTICLE 1 - DEFINITIONS

The following words and terms shall be understood to have the following meanings when used in this Agreement or in any associated documents entered into in conjunction with this Agreement. This Agreement includes certain capitalized terms that are not explicitly defined herein. Such capitalized terms shall have the meanings specified in the "Related Documents," as the same are in effect from time to time, which meanings are incorporated herein by reference and made a part hereof. In the event of any inconsistency between a definition contained herein and a definition contained in "Related Documents," the definition in this Agreement shall control for purposes of this Agreement. Certain other definitions as required appear in subsequent parts of this Agreement.

1.1 **Affiliate** means, with respect to any person or entity, any other person or entity (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such person or entity. For this purpose, "control" means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power.

1.2 **Agency Agreement** means the agreement between the Parties designated on Appendix C.

1.3 **Agreement** means this Market Based Rate Partial and Full Requirements Service Agreement, including the Appendices, as amended, modified or supplemented from time to time.

1.4 **Ancillary Services** means the following services provided by SPP or a third party that are required to serve the Retail Load under the terms of this Agreement at the Metering Points: those services set forth in the applicable OATT Tariff schedules and any supplemental or revised tariffs or schedules, adopted by the Transmission Provider, including without limitation, Scheduling, System Control and Dispatch Service, Transmission Owners Scheduling, System Control and Dispatch, Reactive Supply and Voltage Control from Generation or Other Sources Service, Regulation and Frequency Response Service, Energy Imbalance Service, Operating Reserve-Spinning Reserve Service, Operating Reserve-Supplemental Reserve Service, and Black Start Service (as each of those services is defined in the applicable OATT schedules). Also, see Appendix B – Responsibility for Charges and Credits.

1.5 **Basis Differential** means the difference in the price of Energy at Company's generators' commercial pricing node under the regional transmission organization or independent system operator of which Company is a member and at the Interconnection Point.

1.6 **Billing Period** means the calendar month, which shall be the standard period for all payments and metering measurements under this Agreement, unless otherwise specifically required by SPP or the entity providing meter reading services.

1.7 **Business Day** means a day ending at 5:00 p.m. Central Prevailing Time, other than Saturday, Sunday and any day which is a legal holiday or a day designated as a holiday by the North American Electric Reliability Council; *provided*, that, with respect to any payment due hereunder, a "Business Day" means a day ending at 5:00 p.m. Central Prevailing Time, other than Saturday, Sunday and any day which is a legal holiday or a day on which banking institutions are authorized by Law to close; and, *provided, further*, that with respect to any notices for scheduling to be delivered pursuant to any Section hereof, a "Business Day" shall be a day other than Saturday, Sunday and any day which is a legal holiday or a day designated as a holiday by SPP.

1.8 **Capacity** as such term is used in the SPP OATT as may be amended from time to time.

1.9 **Central Prevailing Time** means the prevailing time in Wayne, Nebraska.

1.10 **Claims** means all third party claims or actions, threatened or filed, and, whether groundless, false, fraudulent or otherwise, that directly or indirectly relate to the subject matter of this Agreement, and the resulting losses, damages, expenses, attorneys' fees and court costs, whether incurred by settlement or otherwise, and whether such claims or actions are threatened or filed prior to or after the termination of this Agreement.

1.11 **Commission** means the Kentucky Public Service Commission.

1.12 **Confidential Information** means the terms of this Agreement and such other information as a Party designates as confidential. Notwithstanding the foregoing, the following shall not constitute Confidential Information:

(a) Information which was already in a Party's possession prior to its receipt from another Party and not subject to a requirement of confidentiality;

(b) Information which is obtained from a third person who, insofar as is known to the Party, is not prohibited from transmitting the information to the Party by a contractual, legal or fiduciary obligation to the other Party; and

(c) Information which is or becomes publicly available through no fault of the Party.

1.13 **Congestion Costs** means the effect on transmission line loadings as reflected in the cost of transmission (whether positive or negative) associated with either increasing the output of a generation resource or serving an increment of load at a delivery point when the transmission system serving that delivery point is operating under constrained conditions.

1.14 **Congestion Rights** means the mechanism employed by SPP to allocate, using financial rights, hedges or similar items to mitigate Congestion Costs between two Settlement Locations (whether set forth in the SPP OATT or elsewhere).

1.15 **Credit Rating** means, with respect to any entity, the rating then assigned to such entity's unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or, if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by S&P, Fitch, or Moody's.

1.16 **Defaulting Party** means the Party with respect to which an Event of Default has occurred.

1.17 **Delivery Period** means the period as defined in Section 2.2.

1.18 **Delivery Points** means the physical point or points mutually agreed by the Parties at which SPP will deliver and Customer will accept the Firm Energy.

1.19 **Early Termination Date** is the date selected by the Non-Defaulting Party to terminate this Agreement.

1.20 **Effective Date** has the meaning stated in the first sentence of this Agreement.

1.21 **Energy** means three phase, 60-cycle alternating current electric energy, expressed in megawatt hours.

1.22 **Event of Default** has the meaning set forth in Section 7.1.

1.23 **FERC** means the Federal Energy Regulatory Commission.

1.24 **Firm Energy** means Energy that Company shall sell and deliver and Customer shall purchase and receive unless relieved of their respective obligations by Force Majeure or SPP system emergency or local transmission conditions making delivery or receipt impossible, but only to the extent that, and for the period during which, the Party's performance is prevented thereby.

1.25 **Fitch** means Fitch Ratings, Inc. and its successors.

1.26 **Force Majeure** means an event or circumstance which prevents one Party from performing its obligations under this Agreement, which event or circumstance was not anticipated as of the date the Agreement was agreed to, which is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which, by the exercise of due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. The Parties agree and acknowledge that the unavailability of transmission services or other transmission constraints in SPP, MISO, or any other applicable regional transmission organization or independent system operator shall constitute an event of Force Majeure but neither (a) an insufficiency of funds, nor (b) a decline in credit rating, shall constitute a Force Majeure.

1.27 **Full Requirements Service** or **Full Requirements** means the Energy and Capacity, including associated planning reserves, supplied by Company, and the Ancillary Services and Transmission Services,

procured by Company in its capacity as MP, in each case, necessary to accomplish the delivery of Firm Energy to the Interconnection Point in an amount required to serve Retail Load, as the same may fluctuate in real time. Full Requirements also means that Company shall have the exclusive right to serve all power requirements of Customer, unless Company is unable to supply due to lack of Capacity or Force Majeure, as provided for in this Agreement or otherwise to the extent set forth in Section 2.3, 3.8 or 3.10.

1.28 **HE** means the hour ending at the time specified.

1.29 **Interconnection Point** means the physical interconnection point(s) between SPP and MISO identified in Appendix A.

1.30 **Letter(s) of Credit** means one or more irrevocable, transferable standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank having a Credit Rating of at least A- from S&P or A3 from Moody's, in a form acceptable in its sole discretion to the Party in whose favor the letter of credit is issued. Costs of a Letter of Credit shall be borne by the applicant for such Letter of Credit.

1.31 **Liquidated Gains** means, with respect to any Party, an amount equal to the present value of the economic benefit to it, if any (exclusive of Termination Costs), resulting from the termination of this Agreement, determined in a commercially reasonable manner and using a discount rate equal to the Party's average cost of capital.

1.32 **Liquidated Losses** means, with respect to any Party, an amount equal to the present value of the economic loss to it, if any (exclusive of Termination Costs), resulting from termination of this Agreement, determined in a commercially reasonable manner and using a discount rate equal to the Party's average cost of capital.

1.33 **Load Serving Entity or LSE** means any entity (or the duly designated agent of such an entity), including any transmission owner, taking transmission service on behalf of wholesale or retail power customers, which has undertaken an obligation to provide or obtain electric energy for end-use customers by statute, franchise, regulatory requirement or contract for load located within or attached to the transmission system, and has been authorized by SPP to participate in the energy markets operated by SPP serving end-users within SPP.

1.34 **Losses** means, any transmission loss, transformation loss, sub-transmission and/or distribution losses incurred in providing Partial Requirements or Full Requirements Service hereunder.

1.35 **Market Participant or MP** means any entity (or the duly designated agent of such an entity), that is qualified, pursuant to the procedures established by SPP, to do the following (with all capitalized terms used herein having the meaning set forth in the SPP OATT): (i) submit bilateral transaction schedules to SPP; (ii) submit Bids to purchase, and/or offers to supply electricity in the Day-Ahead and/or Real-Time Balancing Markets; (iii) hold Transmission Congestion Rights and submit Bids to purchase, and/or offers to sell such rights; and (iv) settle all payments and charges with SPP.

1.36 **MISO** means Midcontinent Independent System Operator, Inc. or any successor regional transmission organization or independent system operator of which Company is a member.

1.37 **MISO OATT** means MISO's Open Access Transmission and Energy Markets Tariff, as amended from time to time, or any similar tariff of a successor.

1.38 **Monthly Payment** means the monthly charges set out in Article 4 of this Agreement.

1.39 **Moody's** means Moody's Investors Service, Inc. and its successors.

1.40 **MW** means Megawatt.

1.41 **MWh** means Megawatt-hour.

1.42 **NERC** means the North American Electric Reliability Corporation.

1.43 **Network Integration Transmission Service or NITS** means firm transmission service as set forth in the SPP OATT that provides for open access to the transmission systems within SPP and for the delivery of Firm Energy from the Interconnection Point to the Delivery Points.

1.44 **Non-Defaulting Party** means the Party with respect to which an Event of Default has not occurred.

1.45 **NPPD** means the Nebraska Public Power District, or its successor.

1.46 **NPPD Contract** means the contract between Customer and NPPD which allows Customer to limit and reduce its power purchased from NPPD beginning in 2019.

1.47 **NPPD Contract Reduction Period** refers to the period of time during which Customer will be reducing its purchases of Capacity and Energy and other services from NPPD pursuant to the NPPD Contract and purchasing the remainder of its such requirements from Company. [redacted].

1.48 **NPPD GFPS Tariff** means the NPPD General Firm Power Service Tariff.

1.49 **NPPD Tariff** means the NPPD Transmission Service Rate Schedule.

1.50 [redacted].

1.51 **Party(ies)** means Customer or Company or either or both of them, as the context requires.

1.52 [redacted].

1.53 **Prime Rate** means the lesser of (i) the rate published from time to time in *The Wall Street Journal*, as the prime lending rate, and (ii) the maximum rate permitted by applicable law.

1.54 **Qualifying Capacity** means the amount of Capacity, measured in MW, that is capable of satisfying applicable resource adequacy requirements established by SPP; *provided*, that, with respect to any calendar year, such amount may not exceed the annual peak demand of the Retail Load of the prior calendar year.

1.55 **Receiving Party** is defined in Article 6.

1.56 **Related Documents** means for SPP, either collectively or individually, the SPP OATT, the SPP Market Protocols, SPP Business Practices, SPP Criteria, SPP Network Operating Agreement, Market Participant Agreement, SPP Market Participant Application, Network Integration Transmission Service Agreement, Local Security Administrator and other applicable SPP Market Rules And Procedures.

1.57 **Requesting Party** is defined in Article 6.

1.58 **Retail Load** means Customer's own requirements and its end use customers' requirements located within the franchised service territory that Customer has a statutory or contractual obligation to serve, but excluding any customers obtained through retail marketing or retail choice programs, initiatives or similar efforts of Customer.

1.59 **RPS** refers to any future renewable portfolio supply standard of any federal, state or other governmental authority.

1.60 **S&P** means Standard & Poor's Financial Services, LLC.

1.61 **SPP** means Southwest Power Pool or any successor regional transmission organization or independent system operation in which territory Customer is located.

1.62 **SPP OATT** means SPP's Open Access Transmission Tariff, as amended from time to time, or any successor thereto.

1.63 **Term** is defined in Section 2.1.

1.64 **Termination Costs** means, with respect to the Non-Defaulting Party, brokerage fees, commissions and other similar third party transaction costs and expenses reasonably incurred by such Party either in terminating this Agreement or any arrangement pursuant to which it has hedged its obligations or entered into new arrangements which replace this Agreement; and all reasonable attorneys' fees and expenses incurred by the Non-Defaulting Party in connection with the early termination of this Agreement.

1.65 **Termination Payment** means, with respect to this Agreement and the Non-Defaulting Party, the Liquidated Losses or Liquidated Gains, and Termination Costs, expressed in U.S. dollars, which such Party incurs as a result of the early termination of this Agreement.

1.66 **Transmission Services** means NITS, with respect to the transmission of Energy from the Interconnection Point to the Delivery Point, and other transmission services necessary to deliver Energy from Company's generation resources to the Interconnection Point.

ARTICLE 2 - TERM, SERVICE AND DELIVERY PROVISIONS

2.1 Term.

(a) Subject to the condition set forth in Section 2.1(c), the term of this Agreement shall begin as of the Effective Date and, except as provided below, shall extend through and including December 31, 2026, unless either Party declares an Early Termination Date in accordance with the provisions hereof (the "Term"). The applicable provisions of this Agreement shall continue in effect following the termination or expiration hereof in accordance with Section 16.13, and to the extent necessary to provide for final accounting, billing, billing adjustments, resolution of any billing disputes, realization of any collateral or other security, set-off, final payments, payments pertaining to liability and indemnification obligations arising from acts or events that occurred during the Delivery Period, or other such provisions that, by their terms or operation, survive the termination of this Agreement. [redacted]

(b) [redacted]

(c) The effectiveness of this Agreement and the Parties obligations hereunder are subject to (i) in the case of Company unless waived, (A) the receipt of an authorization, consent, order, finding, decision or other action (an "Approval") of the Commission, and any other governmental authority required to approve, authorize or consent to the execution, delivery and performance of this Agreement by Company; (B) the compliance by Company with its obligations under its financing arrangements with the USDA Rural Utilities Service, and receipt of any necessary Approval in connection therewith; (C) satisfaction, in its sole discretion, with all MISO transmission studies relating to the ability of Company to deliver Firm Energy to the Interconnection Point during the Delivery Period requested and obtained by Company prior to the commencement of the Delivery Period; and (ii) in the case of either Party, unless waived by it, satisfaction, in its sole discretion, with all SPP transmission studies relating to the ability of Customer to cause delivery of Firm Energy to the Delivery Point during the Delivery Period requested and obtained by such Party prior to the commencement of the Delivery Period.

2.2 **Delivery Period**. The Delivery Period shall commence on January 1, 2019, and continue through the end of the Term.

2.3 [redacted]

[redacted]

2.4 [redacted]

2.5 [redacted]

2.6 [redacted]

ARTICLE 3 - SALE AND PURCHASE

3.1 [redacted]

- [redacted]
- [redacted]

[redacted]

[redacted]

3.2 [redacted]

3.3 [redacted]

3.4 [redacted]

3.5 [redacted]

3.6 [redacted]

3.7 [redacted]

[redacted]

3.8 [redacted]

3.9 [redacted]

3.10 **Retail Customer Choice**. During the Term, Customer shall not voluntarily participate in nor authorize or permit any retail customer to participate in any form of retail customer choice unless otherwise mandated and required by applicable law, *provided, further*, that Customer will appeal any such requirement to any governmental authority, as being non-applicable during the remaining Term of this Agreement. Customer will use diligent efforts before any such governmental authority to secure such an exemption or waiver. Except as permitted under Section 2.3 or 3.8, no Retail Load may be served by another supplier, in whole or in part, unless mutually agreed to by the Parties during Full Requirements Service.

3.11 [redacted]

[redacted]

[redacted]

3.12 [redacted]

[redacted]

3.13 [redacted]

3.14 [redacted]

3.15 [redacted]

ARTICLE 4 - MONTHLY BILLING

4.1 Monthly Payment. In each month during the Term, Company shall calculate the Monthly Payment, which shall consist of the Capacity and Energy Charges, Pass Through Items (as described in Section 4.3), and any taxes, fees and levies (as described in Section 4.4) associated with this Agreement and any other amounts due and payable hereunder. Because quantities determined under Article 4 may be estimated, and subject to a reconciliation process, quantities used in calculations shall be subject to adjustment, whether positive or negative, in subsequent months' calculations. Failure to include an amount in one month's Monthly Payment shall not be a basis for its exclusion from a subsequent Monthly Payment calculation.

4.2 [redacted]

4.3 [redacted]

4.4 Taxes, Fees and Levies.

All taxes, fees and levies relating to the Retail Load or arising out of this Agreement will be charged by Company to Customer.

4.5 Payment.

(a) Invoice and Payment Date. [redacted]

(b) Payment Method and Interest. All invoices shall be paid by electronic funds transfer of immediately available funds, or by other mutually agreeable method(s), to the account designated by the other Party. If all or any part of any amount due and payable pursuant to this Agreement shall remain unpaid after the date due, interest shall thereafter accrue and be payable to Company on such unpaid amount at a rate equal to one and one-half (1½) percent per month or portion thereof on the unpaid balance from the date such payment was due until such time as Company is paid in full; *provided, however*, that no

interest shall accrue in respect of adjustment amounts calculated in accordance with Section 4.1.

4.6 Payment Netting. The Parties hereby agree that they shall discharge mutual debts and payment obligations due and owing to each other on the same date pursuant to this Agreement through netting, in which case all amounts owed by each Party to the other Party under this Agreement, interest, and payments or credits, shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it. [redacted] If no mutual debts or payment obligations exist and only one Party owes a debt or obligation to the other during the monthly Billing Period, that Party shall pay such sum in full when due.

4.7 Billing Disputes. If a Party, in good faith, disputes an invoice, the disputing Party shall, as soon as practicable, notify the other Party of the basis for the dispute and pay under protest the entire invoice no later than the due date. Upon resolution of the dispute, any required payment or refund shall be made within two (2) Business Days of such resolution along with any accrued interest from and including the due date to but excluding the date paid (or, in the case of refunds, accrued interest from and including the date the payment was made to but excluding the date the refund is paid), together with interest at the Prime Rate plus two percent (2%). Payments not made when due shall bear interest at the greater of the Prime Rate plus two percent (2%) or the interest paid by the Party carrying the cost to a third party with respect to the obligation. Inadvertent overpayments shall be returned or deducted from subsequent payments at the option of the overpaying Party with interest accrued at the Prime Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment.

4.8 [redacted]

4.9 [redacted]

ARTICLE 5 - ISO IMPLEMENTATION AND CONGESTION MANAGEMENT

5.1 Implementation.

(a) [redacted]

(b) [redacted]

(c) [redacted]

(d) [redacted]

(e) **Information Access.** Customer further gives permission to Company to access information at SPP that Company reasonably requests to facilitate Company's performance of its obligations under this Agreement.

5.2 Management of Congestion Risks.

(a) [redacted]

(b) [redacted]

(c) [redacted]

ARTICLE 6 - CREDITWORTHINESS

6.1 **Financial Information**. If requested by either Party, the other Party shall deliver within 150 days following the end of each fiscal year a copy of the annual report containing its audited consolidated financial statements for such fiscal year. In all cases the statements shall be for the most recent accounting period and shall be prepared in accordance with generally accepted accounting principles and shall fairly present in all material respects the financial condition of the party as of the date thereof and the results of operations and cash flows of the party for the periods presented; *provided, however*, that should any such statements not be available on a timely basis due to a delay in preparation for certification, such delay shall not be an Event of Default so long as the relevant entity diligently pursues the preparation, certification and delivery of the statements.

6.2 [redacted]

6.3 [redacted]

6.4 [redacted]

[redacted]

ARTICLE 7 - DEFAULT AND REMEDIES

7.1 **Events of Default**. Any one or more of the following shall constitute an "Event of Default" hereunder with respect to either Party (the "Defaulting Party"):

(a) The failure to make, when due, any payment required pursuant to this Agreement if such failure is not remedied within three (3) Business Days after written notice;

(b) Any representation or warranty made by a Party herein is false or misleading in any material respect when made or when deemed made or repeated;

(c) The failure by either Party [redacted]

(d) The failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default as specified herein) if such failure is not remedied within three (3) Business Days after written notice;

(e) Such Party: (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due; or

(f) Such Party consolidates or amalgamates with, or merges with or into, or transfers all or substantially all of its assets to, another entity and, at the time of such consolidation, amalgamation, merger or transfer, the resulting, surviving or transferee entity fails to assume all the obligations of such Party under this Agreement by operation of law or pursuant to an agreement reasonably satisfactory to the other Party.

(g) Any attempt by a Party to transfer an interest in this Agreement other than as permitted pursuant to Article 12.

7.2 **Declaration of an Early Termination Date and Calculation of Termination Payment**. If an Event of Default with respect to a Defaulting Party shall have occurred and be continuing, the other Party (the "Non-Defaulting Party") shall have the right to (i) designate a day, no earlier than the day such notice is given and no later than 20 days after such notice is given, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate the Agreement between the Parties, (ii) withhold any payments due to the Defaulting Party under this

Agreement, set off any amounts owed by the Defaulting Party against amounts owed by the Non-Defaulting Party, or both withhold payments due and set off amounts owed, (iii) suspend performance, (iv) [redacted], or (v) exercise any remedies available at law or in equity.

The Non-Defaulting Party shall calculate, in a commercially reasonable manner, a Termination Payment for this Agreement as of the Early Termination Date. The Termination Payment will be determined by the Non-Defaulting Party using the Forecasted Remaining Quantities. As used in this paragraph, "Forecasted Remaining Quantities" means the Non-Defaulting Party's commercially reasonable forecast of the quantities of Energy required to provide Partial Requirements or Full Requirements Service for the remainder of the Delivery Period as if such early termination had not occurred, which shall be based on the amount of Customer's Retail Load during each hour of the twelve (12) months preceding the Early Termination Date escalated annually for the remainder of the Delivery Period at the average annual rate of growth of Customer's Retail Load over the three (3) full calendar years preceding the Early Termination Date.

7.3 **Net Out of Termination Payment**. The Non-Defaulting Party shall aggregate the Termination Payment into a single amount by: netting out (a) the Termination Payment that is due to the Defaulting Party, plus, at the option of the Non-Defaulting Party, any cash or other form of security then available to the Non-Defaulting Party pursuant to Article 6, plus any or all other amounts due to the Defaulting Party under this Agreement against (b) the Termination Payment that is due to the Non-Defaulting Party, plus any or all other amounts due to the Non-Defaulting Party under this Agreement, so that all such amounts shall be netted out to a single liquidated amount payable by one Party to the other. The Termination Payment shall be due to or due from the Non-Defaulting Party, as appropriate.

7.4 **Notice of Payment of Termination Payment**. As soon as practicable after a termination, notice shall be given by the Non-Defaulting Party to the Defaulting Party of the amount of the Termination Payment. The notice shall include a written statement explaining in reasonable detail the calculation of such amount. The Termination Payment shall be made by the Party that owes it within ten (10) days after such notice is effective. Notwithstanding any provision to the contrary in this Agreement, the Non-Defaulting Party shall not be required to pay the Defaulting Party any amount under Article 7 until the Non-Defaulting Party receives confirmation satisfactory to it in its reasonable discretion that any other obligations of any kind whatsoever of the Defaulting Party to make payments to or perform any obligation for the benefit of the Non-Defaulting Party under this Agreement or otherwise have been fully performed or provided for.

7.5 **Disputes With Respect to Termination Payment**. If the Defaulting Party disputes the Non-Defaulting Party's calculation of the Termination Payment, in whole or in part, the Defaulting Party shall, within five (5) Business Days of receipt of the Non-Defaulting Party's calculation of the Termination Payment, provide to the Non-Defaulting Party a detailed written explanation of the basis for such dispute; *provided, however,* [redacted].

7.6 [redacted]

7.7 **Obligations Following Expiration or Termination**. Upon the termination or expiration of this Agreement, in addition to such rights and obligations enumerated elsewhere in this Agreement, the grant of

any and all right and interest to Company to supply the Partial Requirements or Full Requirements Service shall cease, and Customer and Company shall immediately make all necessary filings with SPP and perform all other acts necessary to transfer all such rights and interests back to Customer.

7.8 Termination Based on Governmental Action. If any approval, authorization, consent, order, finding, decision or other action required by Section 2.1(c) or 3.13 shall not be obtained and received after the exercise of commercially reasonable efforts, or shall contain any change to a material term hereof or impose a material condition or a material additional burden on a Party, the Party affected may terminate this Agreement without cost or liability (including without payment of the Termination Payment) by providing written notice thereof to the other Party no later than five (5) Business Days following the date on which any appeal, challenge, request for rehearing or similar requests have been denied and such governmental action becomes final and non-appealable.

7.9 Termination Based on Transmission Studies. If any condition to the effectiveness of this Agreement relating to any transmission studies required by Section 2.1(c) shall not be satisfied on or prior to December 31, 2018, either Party may terminate this Agreement without cost or liability (including without payment of the Termination Payment) by providing written notice thereof to the other Party at any time thereafter but prior to commencement of the Delivery Period.

ARTICLE 8 - CURTAILMENT, TEMPORARY INTERRUPTIONS AND FORCE MAJEURE

8.1 Curtailment. Upon being notified by SPP of a requirement to curtail, regardless of whether such notice is provided by SPP or other reliability authority directly or indirectly through Company, Customer will institute procedures which will cause a corresponding curtailment of the use of Energy by its Retail Load. If upon notification of a requirement to curtail Energy deliveries to its Retail Load, Customer fails to institute such procedures, Company shall be entitled to limit deliveries of Energy to Customer in order to effectuate reductions in Energy deliveries equivalent to the reduction which would have been effected had Customer fulfilled its curtailment obligation hereunder during the period any shortage exists, and, in such event, Company shall not incur any liability to Customer in connection with any such action so taken by Company.

8.2 Temporary Interruptions. Company will use reasonable diligence in undertaking its obligations under this Agreement to furnish Firm Energy to Customer, but Company does not guarantee that the supply of Firm Energy furnished to Customer will be uninterrupted or that voltage and frequency will be at all times constant. Temporary interruption of Firm Energy deliveries hereunder shall not constitute a breach of the obligations of Company under this Agreement, and Company shall not in any such case be liable to Customer for damages resulting from any such temporary interruptions of service, provided such temporary interruption is not the result of Company's ability to resell the Partial Requirements or Full Requirements Service to a third party at a price greater than the pricing set forth in this Agreement.

8.3 Force Majeure. To the extent either Party is prevented by Force Majeure from carrying out, in whole or in part, its obligations under the Agreement and such Party (the "Claiming Party") gives notice and details of the Force Majeure to the other Party as soon as practicable, then the Claiming Party shall be excused from the performance of its obligations with respect to this Agreement (other than the obligation to make payments then due or becoming due with respect to performance prior to the Force Majeure). The Claiming Party shall remedy the Force Majeure with all reasonable dispatch. The non-Claiming Party shall not be required to perform or resume performance of its obligations to the Claiming Party corresponding to the obligations of the Claiming Party excused by Force Majeure. The occurrence of a Force Majeure shall not relieve Customer of its payment obligations under Article 4, including its payment obligations with respect to any portion of the Monthly Payment. Nothing contained herein may be construed to require a Party to prevent or to settle a labor dispute against its will.

8.4 Force Majeure Exceptions. [redacted]

[redacted]

ARTICLE 9 - NOTICES, REPRESENTATIVES OF THE PARTIES

9.1 Notices. Any notice, demand, or request required or authorized by this Agreement to be given by one Party to another Party shall be in writing. Such notice shall be sent by facsimile, electronic messaging (confirmed by telephone), courier, personally delivered or mailed, postage prepaid, to the representative of the other Parties designated in this Article 9. Any such notice, demand, or request shall be deemed to be given (i) when received by facsimile or electronic messaging, (ii) when actually received if delivered by courier, overnight mail or personal delivery, or (iii) three (3) days after deposit in the United States mail, if sent by first class mail.

Notices and other communications by Company to Customer shall be addressed to:

Mayor
City of Wayne
306 Pearl Street
Wakefield, NE 68787
Facsimile: (402) 375-4712

Notices and other communications by Customer to Company shall be addressed to:

CEO
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42420
Facsimile: 270.827.2558

Any Party may change its representative by written notice to the other Party.

9.2 Authority of Representative. The Parties' representatives designated in Section 9.1 shall have full authority to act for their respective principals in all technical matters relating to the performance of this Agreement. The Parties' representatives shall not, however, have the authority to amend, modify or waive any provision of this Agreement unless they are authorized officers of their respective entities and such amendment, modification or waiver is made pursuant to Article 16.

ARTICLE 10 - LIABILITY, INDEMNIFICATION, AND RELATIONSHIP OF PARTIES

10.1 Limitation on Consequential, Incidental and Indirect Damages.

TO THE FULLEST EXTENT PERMITTED BY LAW, NEITHER CUSTOMER NOR COMPANY, NOR THEIR RESPECTIVE OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, MEMBERS, PARENTS OR AFFILIATES, SUCCESSORS OR ASSIGNS, OR THEIR RESPECTIVE OFFICERS, DIRECTORS, AGENTS, OR EMPLOYEES, SUCCESSORS OR ASSIGNS, SHALL BE LIABLE TO THE OTHER PARTY OR ITS MEMBERS, PARENTS, SUBSIDIARIES, AFFILIATES, OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, SUCCESSORS OR ASSIGNS, FOR CLAIMS, SUITS, ACTIONS OR CAUSES OF ACTION FOR INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, MULTIPLE OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PERFORMANCE OR NON-PERFORMANCE OF THIS AGREEMENT, OR ANY ACTIONS UNDERTAKEN IN CONNECTION WITH OR RELATED TO THIS AGREEMENT, INCLUDING WITHOUT LIMITATION ANY SUCH DAMAGES WHICH ARE BASED UPON CAUSES OF ACTION FOR BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND MISREPRESENTATION),

BREACH OF WARRANTY, STRICT LIABILITY, STATUTE, OPERATION OF LAW, UNDER ANY INDEMNITY PROVISION OR ANY OTHER THEORY OF RECOVERY. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED, UNLESS OTHERWISE SPECIFIED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. THE PROVISIONS OF THIS SECTION 10.1 SHALL APPLY REGARDLESS OF FAULT AND SHALL SURVIVE TERMINATION, CANCELLATION, SUSPENSION, COMPLETION OR EXPIRATION OF THIS AGREEMENT.

10.2 **Indemnification**.

(a) Each Party shall indemnify, defend and hold harmless the other Party from and against any Claims arising from or out of any event, circumstance, act or incident occurring or existing during the period when control and title to Partial Requirements or Full Requirements Service is vested in such Party as provided in Section 10.4.

(b) Each Party shall indemnify and hold harmless the other Party from and against any and all legal and other expenses, claims, costs, losses, suits or judgments for damages to any person or entity or destruction of any property arising in any manner directly or indirectly by reason of the acts of such Party's authorized representatives while on the premises of the other Party under the rights of access provided herein.

(c) Company assumes no responsibility of any kind with respect to the construction, maintenance or operation of the system or other property owned or used by Customer; and Customer agrees to protect, indemnify and save harmless Company from any and all claims, demands or actions for injuries to person or property by any person or entity in any way resulting from, growing out of or arising in or in connection with (a) the construction, maintenance or operation of Customer's system or other property, or (b) the use of, or contact with, Energy delivered hereunder after it is delivered to Customer and while it is flowing through the lines of Customer, or is being distributed by Customer, or is being used by Retail Load.

(d) If any Party intends to seek indemnification under this Section 10.2 from the other Party with respect to any Claim, the Party seeking indemnification shall give such other Party notice of such Claim within fifteen (15) days of the commencement of, or actual knowledge of, such Claim. Such Party seeking indemnification shall have the right, at its sole cost and expense, to participate in the defense of any such Claim. The Party seeking indemnification shall not compromise or settle any such Claim without the prior consent of the other Party, which consent shall not be unreasonably withheld.

10.3 **Independent Contractor Status**. Nothing in this Agreement shall be construed as creating any relationship among Customer and Company other than that of independent contractors for the sale and purchase of Partial Requirements or Full Requirements Service. Except to the extent Company is authorized to act as Customer's Market Participant hereunder, no Party shall be deemed to be the agent of any other Party for any purpose by reason of this Agreement. No partnership or joint venture or fiduciary relationship among the Parties is intended to be created by this Agreement.

10.4 Title; Risk of Loss. Title to and risk of loss related to the Partial Requirements or Full Requirements Service shall transfer from Company to Customer at the Interconnection Point. Company warrants that it will deliver Partial Requirements or Full Requirements Service to Customer free and clear of all Claims or any interest therein or thereto by any person or entity arising prior to the Interconnection Point.

ARTICLE 11 - REPRESENTATIONS AND WARRANTIES

11.1 Representations and Warranties of Each Party. Company and Customer each represents and warrants to the other that:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation, and has the power and authority to execute and deliver this Agreement, to perform its obligation hereunder, and to carry on its business as such business is now being conducted and as is contemplated hereunder to be conducted during the Term hereof;

(b) It has, or will, upon execution of this Agreement, promptly seek, all regulatory authorizations necessary for it to legally perform its obligations under this Agreement;

(c) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, including but not limited to any organizational documents, charters, bylaws, indentures, mortgages or any other contracts or documents to which it is a party or any law, rule, regulation, order or the like applicable to it;

(d) This Agreement and each other document executed and delivered in accordance with this Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, reorganization, arrangement, moratorium or other laws relating to or affecting the rights of creditors generally and by general principles of equity;

(e) It is not bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it, which would result in it being or becoming bankrupt; and

(f) There is not pending or, to its knowledge, threatened against it any legal proceedings that could materially and/or adversely affect its ability to perform its obligations under this Agreement.

11.2 Customer Additional Covenants. Customer represents, warrants and agrees to and with Company that except as otherwise provided herein, with respect to its contractual obligations hereunder and performance thereof, it will not claim immunity on the grounds of its status as a municipality under Federal or state law or similar grounds with respect to itself or its revenues or assets from (i) suit, (ii) jurisdiction of court (including a court located outside the jurisdiction of its organization), (iii) relief by way of injunction, order for specific performance or recovery of property, (iv) attachment of assets, or (v) execution or enforcement of any judgment.

ARTICLE 12 - ASSIGNMENT

12.1 General Prohibition Against Assignments. Except as provided in Section 12.2 below, no Party shall assign, pledge or otherwise transfer this Agreement or any right or obligation under this Agreement

without first obtaining the other Party's written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

12.2 **Exceptions to Prohibition Against Assignments**. A Party may, without the other Party's prior written consent (and without relieving itself from liability hereunder), (i) transfer, sell, pledge, encumber or assign this Agreement or the accounts, revenues or proceeds hereof in connection with any financing or other financial arrangements; (ii) transfer or assign this Agreement to an Affiliate of such Party (which Affiliate shall be of equal or greater creditworthiness); or (iii) transfer or assign this Agreement to any person or entity succeeding by merger or by acquisition to all or substantially all of the assets whose creditworthiness is equal to or higher than that of the assigning Party; *provided, however,* [redacted]

12.3 **Limitation on Assignment**. Notwithstanding Section 12.2, in no event may either Party assign this Agreement (including as part of a sale of all or substantially all of the assets of the assigning Party or a merger with or purchase of substantially all the equity interests of such Party) (i) to any Person that does not have adequate financial capacity as demonstrated to the reasonable satisfaction of the non-assigning Party or that would otherwise be unable to perform the obligations of the assigning Party pursuant to this Agreement, (ii) to any Person that does not agree to assume all rights and obligations of the assigning Party under this Agreement and be bound by the terms and conditions hereof, or (iii) on any terms at variance from those set forth in this Agreement except as agreed to in writing by the Parties.

12.4 **Duties**. No permitted assignment or transfer will change the duties of the Parties or impair the performance under this Agreement except to the extent set forth in such permitted assignment and approved in writing by the Parties. No Party shall be released from its obligations under this Agreement pursuant to any assignment.

ARTICLE 13 - CONFIDENTIALITY

To the extent permitted by law, all Confidential Information shall be held and treated by the Parties and their agents in confidence, used solely in connection with this Agreement, and shall not, except as hereinafter provided, be disclosed without the other Party's prior written consent.

Notwithstanding the foregoing, Confidential Information may be disclosed (a) to a third party for the purpose of effectuating the supply, transmission and/or distribution of Partial Requirements or Full Requirements Service to be delivered pursuant to this Agreement, (b) to regulatory authorities of competent jurisdiction, or as otherwise required by applicable law, regulation or order including any Nebraska sunshine law (provided Company's trade secret or proprietary information is redacted to the fullest extent permitted by law), (c) as part of any required, periodic filing or disclosure with or to any regulatory authority of competent jurisdiction and (d) to third parties in connection with merger, acquisition/disposition and financing transactions provided that any such third party shall have signed a confidentiality agreement with the disclosing party containing customary terms and conditions that protect against the disclosure of the Confidential Information and that strictly limit the recipient's use of such information only for the purpose of the subject transaction and that provide for remedies for non-compliance.

In the event the non-disclosing party receives a written request applicable to the Confidential Information, under a sunshine law such as the Nebraska Public Information Act ("Public Information Act Request") and Customer does not believe the request is subject to the Public Information Act, the non-disclosing party shall, in accordance with the procedures in the Public Information Act, (i) timely request a ruling from the Nebraska Attorney General that the information is not subject to disclosure (ii) timely provide to the Attorney General a letter or brief explaining why the information should not be subject to public disclosure

and (iii) provide to the disclosing party prompt notice of the Public Information Act Request so that the disclosing party will have an opportunity to submit a statement to the Attorney General providing the reasons why the Confidential Information should not be disclosed. To the extent any provision of this Agreement conflicts with the provisions of the Nebraska Public Information Act, the provisions of the Nebraska Public Information Act shall control, and no further liability or responsibility shall be borne by either party so long as the provisions of the Nebraska Public Information Act are followed in good faith.

In the event that a Party ("Disclosing Party") is requested or required to disclose any Confidential Information, the Disclosing Party shall provide the other Party with prompt written notice of any such request or requirement so that the other Party may seek an appropriate protective order, other confidentiality arrangement or waive compliance with the provisions of this Agreement. If, failing the entry of a protective order, other confidentiality arrangement or the receipt of a waiver hereunder, the Disclosing Party, in the opinion of counsel, is compelled to disclose Confidential Information, the Disclosing Party may disclose that portion of the Confidential Information which the Disclosing Party's counsel advises that the Disclosing Party is compelled to disclose.

The Parties shall be entitled to all remedies available at law or in equity to enforce, or seek relief in connection with, this confidentiality obligation. In addition to the foregoing, the Disclosing Party shall indemnify, defend and hold harmless the other Parties from and against any Claims, threatened or filed, and any losses, damages, expenses, attorneys' fees or court costs incurred by such Party in connection with or arising directly or indirectly from or out of the Disclosing Party's disclosure of the Confidential Information to third parties except as permitted above.

Notwithstanding the above provisions, Company shall be permitted to communicate with SPP any necessary information, including Confidential Information, with regard to implementation of this Agreement and will make all reasonable efforts to ensure that Confidential Information remains confidential.

ARTICLE 14 - REGULATORY AUTHORITIES

14.1 **Compliance with Laws.** Each Party shall perform its obligations hereunder in accordance with applicable laws, rules and regulations. Nothing contained herein shall be construed to constitute consent or acquiescence by either Party to any action of the other Party which violates the laws of the United States as those laws may be amended, supplemented or superseded, or which violates any other law or regulation, or any order, judgment or decree of any court or governmental authority of competent jurisdiction.

14.2 **Tariffs.** Each Party agrees if it seeks to amend any applicable FERC filed tariff during the Term, such amendment will not in any way affect this Agreement without the prior written consent of the other Party. Each Party further agrees that it will not assert or defend itself on the basis that any applicable tariff is inconsistent with this Agreement.

ARTICLE 15 - STANDARD OF REVIEW FOR PROPOSED CHANGES, DISPUTE RESOLUTION

15.1 **Standard of Review.** The rates, charges, terms and conditions contained in this Agreement are not subject to change under Sections 205 or 206 of the Federal Power Act absent the mutual written agreement of the Parties. It is the intent of this section that, to the maximum extent permitted by applicable law, the rates, charges, terms and conditions of this Agreement shall not be subject to such change. Absent the agreement of the Parties to the proposed change and subject to any applicable law, including the rules and regulations of the Commission, the standard of review under the Federal Power Act for changes to rates, charges, terms and conditions of this Agreement proposed by a Party shall be the "public interest" standard of review set forth in *United Gas Pipe Line Co. v. Mobile Gas Service Corp.*, 350 U.S. 332 (1956) and *Federal Power Commission v. Sierra Pacific Power Co.*, 350 U.S. 348 (1956) and clarified by *Morgan Stanley Capital Group, Inc. v. Public Util. Dist. No. 1 of Snohomish*, 554 U.S. 527 (2008) (the "*Mobile-Sierra*" doctrine); provided that the standard of review for any amendment requested by a non-contracting

third party or FERC acting *sua sponte* shall be the most stringent standard permissible under applicable law.

15.2 **Dispute Resolution.**

(a) In the event of any dispute among the Parties arising out of or relating to this Agreement, the Parties shall refer the matter to their duly authorized officers for resolution who shall meet within ten (10) days after notice is given by either Party. If within thirty (30) days after such meeting, the Parties have not succeeded in negotiating a resolution to the dispute then the Parties may, upon mutual agreement of the Parties, agree to binding arbitration before a single arbitrator. If the parties fail to select an arbitrator within thirty (30) days after mutual agreement to submit a matter to arbitration, the arbitrator shall be named in accordance with AAA's Rules for Non-administered Arbitration then in effect (the "Rules"). The Rules shall govern any such proceedings. Judgment upon any award rendered by the arbitrator may be entered in any court having jurisdiction thereof. The Parties shall share equally the services and expenses of the arbitrator, and each shall pay its own costs, expenses, and attorneys' fees. Fees and expenses of the court reporter shall be paid in equal parts by the Parties hereto.

(b) In the event the Parties do not mutually agree to binding arbitration, Company and Customer each hereby knowingly, voluntarily and intentionally waives any rights it may have to a trial by jury in respect of any litigation based hereon, or arising out of, under or in connection with, this Agreement, any course of conduct, course of dealing, statements (whether oral or written) or actions of Company and Customer related hereto, and expressly agree to have any disputes arising under or in connection with this Agreement be adjudicated by a judge in any court of competent jurisdiction sitting without a jury, and each party waives any right to a trial by jury in such courts.

(c) [redacted]

ARTICLE 16 - GENERAL PROVISIONS

16.1 **Third Party Beneficiaries**. This Agreement is intended solely for the benefit of the Parties thereto, and nothing herein will be construed to create any duty to, or standard of care with reference to, or any liability to, any person not a Party hereto.

16.2 **Waivers**. The failure of a Party to insist in any instance upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights under this Agreement shall not be construed as a general waiver of any such provision or the relinquishment of any such right, except to the extent such waiver is in writing and signed by an authorized representative of such Party.

16.3 **Interpretation**. The interpretation and performance of this Agreement shall be in accordance with and controlled by the laws of the State of Kentucky, without giving effect to its conflicts of law

provisions, except that issues pertaining to Customer's status as a municipal entity or the applicability of the Nebraska Public Information Act shall be governed by Nebraska law.

16.4 **Jurisdiction**. Nothing in this Agreement prohibits a Party from referring to FERC or any other governmental authority any matter properly within its jurisdiction. In any proceeding hereunder, each Party irrevocably waives, to the fullest extent allowed by law, its right, if any, to trial by jury. Each Party hereby agrees to accept service of any papers or process in any action or proceeding arising under or relating to this Agreement, at the address set forth in Section 9.1, and agrees that such service shall be, for all purposes, good and sufficient.

16.5 **Good Faith Efforts**. The Parties agree that each will in good faith take all reasonable actions within their reasonable control as are necessary to permit the other Party to fulfill its obligations under this Agreement; *provided*, that no Party will be obligated to expend money or incur material economic loss in order to facilitate performance by the other Party. Where the consent, agreement or approval of either Party must be obtained hereunder, such consent, agreement or approval may not be unreasonably withheld, conditioned, or delayed unless otherwise provided herein. Where either Party is required or permitted to act or fail to act based upon its opinion or judgment, such opinion or judgment may not be unreasonably exercised. Where notice to the other Party is required to be given herein, and no notice period is specified, reasonable notice shall be given.

16.6 **Further Assurances**. The Parties shall execute such additional documents and shall cause such additional actions to be taken as may be required or, in the judgment of any Party, be necessary or desirable to effect or evidence the provisions of this Agreement and the transactions contemplated hereby.

16.7 **Severability**. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality, and enforceability of the remaining provisions shall in no way be affected or impaired thereby; and the Parties hereby agree to effect such modifications to this Agreement as shall be reasonably necessary in order to give effect to the original intention of the Parties.

16.8 **Modification**. No modification to this Agreement will be binding on any Party unless it is in writing and signed by the Parties.

16.9 **Counterparts**. This Agreement may be executed in counterparts, and each executed counterpart shall have the same force and effect as an original instrument.

16.10 **Headings**. Article and section headings used throughout this Agreement are for the convenience of the Parties only and are not to be construed as part of this Agreement.

16.11 **Audit**. Each Party has the right, at its sole expense and during normal working hours, to examine the records of the other Party to the extent reasonably necessary to verify the accuracy of any invoice, charge or computation made pursuant to this Agreement. If requested, a Party shall provide to the other Party invoices evidencing the quantities of Partial Requirements or Full Requirements Service. If any such examination reveals any inaccuracy in any invoice, the necessary adjustments to such invoice and the payments thereof will be made promptly and shall bear interest calculated at the Prime Rate plus two percent (2%) from the date the overpayment or underpayment was made until paid; *provided, however*, that no adjustment for any statement or payment will be made unless objection to the accuracy thereof was made prior to the lapse of the twelve (12) months succeeding rendition thereof, and thereafter any objection shall be deemed waived.

16.12 **Records**. The Parties shall keep (or as necessary cause to be kept by their respective agents) for a period of at least three (3) years such records as may be needed to afford a clear history of the Partial Requirements or Full Requirements Service supplied pursuant to this Agreement. For any matters in dispute, the Parties shall keep the records related to such matters until the dispute is ended.

16.13 **Survival**. The provisions of Articles 4, 7, 9, 10, 13, 15 and 17 and Sections 16.11, 16.12 and 16.13 shall survive termination of this Agreement hereof, and any other section of this Agreement that specifies by its terms that it survives termination shall survive the termination or expiration of this Agreement.

ARTICLE 17 - RULES OF CONSTRUCTION

Terms used in this Agreement but not listed in this Article or defined in Article 1 shall have meanings as commonly used in the English language.

Words not otherwise defined herein that have well known and generally accepted technical or trade meanings are used herein in accordance with such recognized meanings.

The masculine shall include the feminine and neuter.

The words "include", "includes" and "including" are deemed to be followed by the words "without limitation."

References to contracts, agreements, tariffs and other documents and instruments shall be references to the same as amended, supplemented or otherwise modified from time to time.

The Appendices attached hereto are incorporated in and are intended to be a part of this Agreement.

References to laws and to terms defined in, and other provisions of, laws shall be references to the same (or a successor to the same) as amended, supplemented or otherwise modified from time to time.

References to a person or entity shall include its successors and permitted assigns and, in the case of a governmental authority, any entity succeeding to its functions and capacities.

References to "Articles," "Sections," or "Appendices" shall be to articles, sections, or appendices of this Agreement.

The word "or" need not be exclusive as the context implies.

Unless the context plainly indicates otherwise, words importing the singular number shall be deemed to include the plural number (and vice versa); terms such as "hereof," "herein," "hereunder" and other similar compounds of the word "here" shall mean and refer to the entire Agreement rather than any particular part of the same.

This Agreement was negotiated and prepared by both Parties with the advice and participation of counsel. The Parties have agreed to the wording of this Agreement and none of the provisions hereof shall be construed against one Party on the ground that such Party is the author of this Agreement or any part hereof.

[Signatures Follow on Next Page]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this Agreement on their behalf as of the date first above written.

BIG RIVERS ELECTRIC CORPORATION

By: _____

Name: Mark A. Bailey

Title: President and CEO

CITY OF WAYNE, NEBRASKA

By: _____

Name: Ken Chamberlain

Title: Mayor

APPENDIX A

LIST OF PHYSICAL DELIVERY POINT(S) AND INTERCONNECTION POINT

LIST OF PHYSICAL DELIVERY POINT(S)

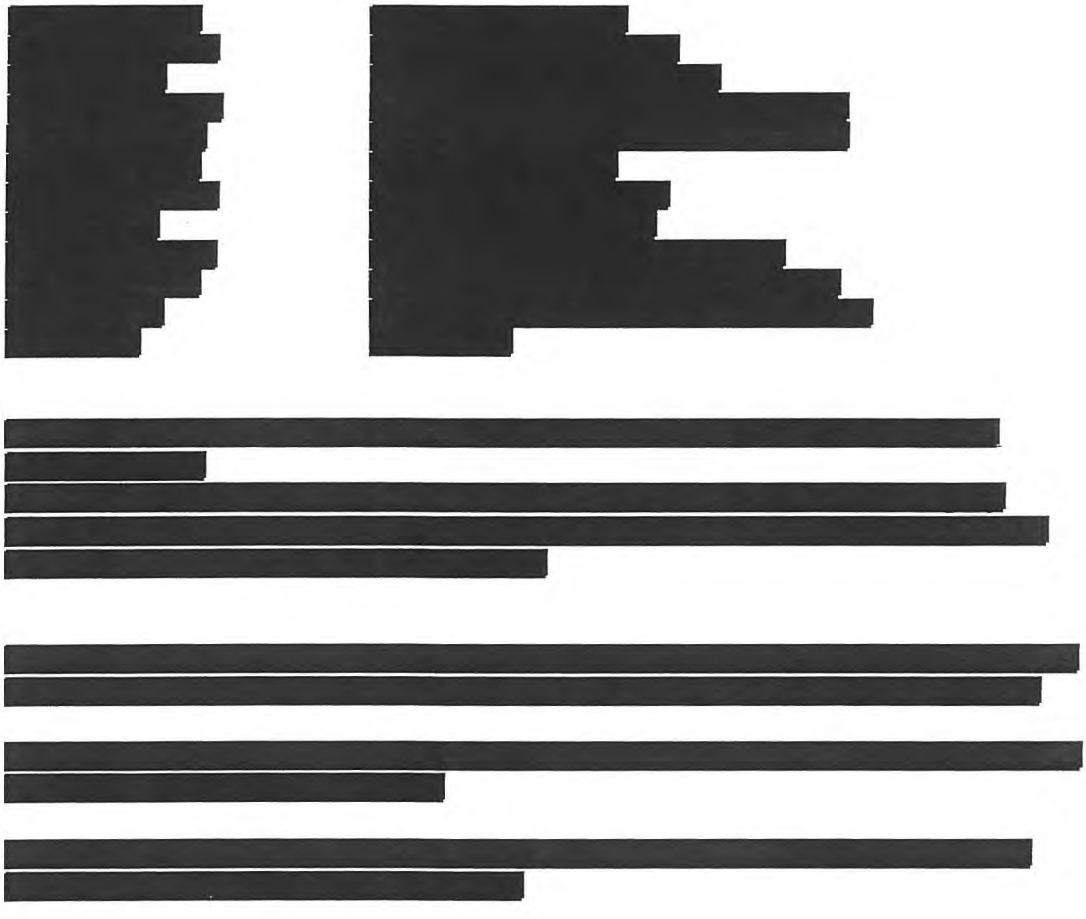
Point Name	Voltage	Adjustment Factor
As agreed by the Parties pursuant to Section 2.4	As agreed by the Parties pursuant to Section 2.4	As agreed by the Parties pursuant to Section 2.4

LIST OF INTERCONNECTION POINTS

Point Name
[redacted]

APPENDIX B
RESPONSIBILITY FOR ISO/RTO CHARGES AND CREDITS

Credits/Charges Allocated to Customer, if applicable



APPENDIX C
LETTER OF AGENCY

The City of Wakefield, Nebraska ("Customer") appoints Big Rivers Electric Corporation ("Company"), and Company accepts such appointment, as agent to act on behalf of Customer in accordance with the terms of the Market Based Rate Partial Requirements and Full Requirements Service Agreement dated December 20, 2013 ("Full Requirements Agreement") as follows:

1. [redacted]

2. [redacted]

3. [redacted]

4. Upon termination of this Agreement, Company shall not act as Market Participant on behalf of Customer (unless otherwise agreed) and shall advise SPP about this termination. Further, Company shall notify the Transmission Provider that it is no longer acting as Customer's agent.

BIG RIVERS ELECTRIC CORPORATION

By: Mark A. Bailey
Name: Mark A. Bailey
Title: President and CEO
Date: February 19, 2014

CITY OF WAYNE, NEBRASKA

By:
Name: Ken Chamberlain
Title: Mayor
Date:

CONFIDENTIAL *Execution Version*

MARKET BASED RATE
PARTIAL AND FULL REQUIREMENTS AGREEMENT

DATED AS OF DECEMBER 20, 2013

BY AND AMONG

BIG RIVERS ELECTRIC CORPORATION

AND

NORTHEAST NEBRASKA PUBLIC POWER DISTRICT

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MARKET BASED RATE
PARTIAL AND FULL REQUIREMENTS AGREEMENT

This MARKET BASED RATE PARTIAL AND FULL REQUIREMENTS AGREEMENT is dated as of December 20, 2013 ("Effective Date") and is by and between BIG RIVERS ELECTRIC CORPORATION, ("Company"), and NORTHEAST NEBRASKA PUBLIC POWER DISTRICT ("Customer") (each individually a "Party," or collectively, the "Parties").

RECITALS

WHEREAS, Company, a Kentucky electric generation and transmission cooperative, organized and existing under the laws of the Commonwealth of Kentucky, with a principal place of business at 201 Third Street, Henderson, KY; and

WHEREAS, Customer is a Public Power District chartered and existing under virtue of the laws of the State of Nebraska, with a principal place of business at 1410 W. 7th Street, Wayne, NE; and

WHEREAS, Customer requires Partial Requirements and Full Requirements Service to meet Customer's Retail Load; and

WHEREAS, Customer has retained Company to act as Customer's agent in scheduling Customer's Retail Load in SPP and providing other services necessary to provide firm electric service to Customer's Retail Load in accordance with this Agreement; and

WHEREAS, Company is engaged in the business of wholesale marketing of electric energy and has proposed to supply, subject to the terms and conditions set forth herein, Partial Requirements and Full Requirements Service to meet Customer's energy needs to the Delivery Points and to act as Customer's agent;

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties hereby agree that this Agreement, together with the Appendices attached hereto, sets forth the terms under which Company will supply Partial Requirements and Full Requirements Service to Customer during the Delivery Period and provide related services, and constitutes the entire agreement among the Parties relating to the subject matter hereof and supersedes any other agreements, written or oral (including without limitation any preliminary term sheet), between the Parties concerning this Agreement.

ARTICLE 1 - DEFINITIONS

The following words and terms shall be understood to have the following meanings when used in this Agreement or in any associated documents entered into in conjunction with this Agreement. This Agreement includes certain capitalized terms that are not explicitly defined herein. Such capitalized terms shall have the meanings specified in the "Related Documents," as the same are in effect from time to time, which meanings are incorporated herein by reference and made a part hereof. In the event of any inconsistency between a definition contained herein and a definition contained in "Related Documents," the definition in this Agreement shall control for purposes of this Agreement. Certain other definitions as required appear in subsequent parts of this Agreement.

1.1 **Affiliate** means, with respect to any person or entity, any other person or entity (other than an individual) that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with, such person or entity. For this purpose, "control" means the direct or indirect ownership of fifty percent (50%) or more of the outstanding capital stock or other equity interests having ordinary voting power.

1.2 **Agency Agreement** means the agreement between the Parties designated on Appendix C.

1.3 **Agreement** means this Market Based Rate Partial and Full Requirements Service Agreement, including the Appendices, as amended, modified or supplemented from time to time.

1.4 **Ancillary Services** means the following services provided by SPP or a third party that are required to serve the Retail Load under the terms of this Agreement at the Metering Points: those services set forth in the applicable OATT Tariff schedules and any supplemental or revised tariffs or schedules, adopted by the Transmission Provider, including without limitation, Scheduling, System Control and Dispatch Service, Transmission Owners Scheduling, System Control and Dispatch, Reactive Supply and Voltage Control from Generation or Other Sources Service, Regulation and Frequency Response Service, Energy Imbalance Service, Operating Reserve-Spinning Reserve Service, Operating Reserve-Supplemental Reserve Service, and Black Start Service (as each of those services is defined in the applicable OATT schedules). Also, see Appendix B – Responsibility for Charges and Credits.

1.5 **Basis Differential** means the difference in the price of Energy at Company's generators' commercial pricing node under the regional transmission organization or independent system operator of which Company is a member and at the Interconnection Point.

1.6 **Billing Period** means the calendar month, which shall be the standard period for all payments and metering measurements under this Agreement, unless otherwise specifically required by SPP or the entity providing meter reading services.

1.7 **Business Day** means a day ending at 5:00 p.m. Central Prevailing Time, other than Saturday, Sunday and any day which is a legal holiday or a day designated as a holiday by the North American Electric Reliability Council; *provided*, that, with respect to any payment due hereunder, a "Business Day" means a day ending at 5:00 p.m. Central Prevailing Time, other than Saturday, Sunday and any day which is a legal holiday or a day on which banking institutions are authorized by Law to close; and, *provided, further*, that with respect to any notices for scheduling to be delivered pursuant to any Section hereof, a "Business Day" shall be a day other than Saturday, Sunday and any day which is a legal holiday or a day designated as a holiday by SPP.

1.8 **Capacity** as such term is used in the SPP OATT as may be amended from time to time.

1.9 **Central Prevailing Time** means the prevailing time in Wayne, Nebraska.

1.10 **Claims** means all third party claims or actions, threatened or filed, and, whether groundless, false, fraudulent or otherwise, that directly or indirectly relate to the subject matter of this Agreement, and the resulting losses, damages, expenses, attorneys' fees and court costs, whether incurred by settlement or otherwise, and whether such claims or actions are threatened or filed prior to or after the termination of this Agreement.

1.11 **Commission** means the Kentucky Public Service Commission.

1.12 **Confidential Information** means the terms of this Agreement and such other information as a Party designates as confidential. Notwithstanding the foregoing, the following shall not constitute Confidential Information:

(a) Information which was already in a Party's possession prior to its receipt from another Party and not subject to a requirement of confidentiality;

(b) Information which is obtained from a third person who, insofar as is known to the Party, is not prohibited from transmitting the information to the Party by a contractual, legal or fiduciary obligation to the other Party; and

(c) Information which is or becomes publicly available through no fault of the Party.

1.13 **Congestion Costs** means the effect on transmission line loadings as reflected in the cost of transmission (whether positive or negative) associated with either increasing the output of a generation resource or serving an increment of load at a delivery point when the transmission system serving that delivery point is operating under constrained conditions.

1.14 **Congestion Rights** means the mechanism employed by SPP to allocate, using financial rights, hedges or similar items to mitigate Congestion Costs between two Settlement Locations (whether set forth in the SPP OATT or elsewhere).

1.15 **Credit Rating** means, with respect to any entity, the rating then assigned to such entity's unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or, if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by S&P, Fitch, or Moody's.

1.16 **Defaulting Party** means the Party with respect to which an Event of Default has occurred.

1.17 **Delivery Period** means the period as defined in Section 2.2.

1.18 **Delivery Points** means the physical point or points mutually agreed by the Parties at which SPP will deliver and Customer will accept the Firm Energy.

1.19 **Early Termination Date** is the date selected by the Non-Defaulting Party to terminate this Agreement.

1.20 **Effective Date** has the meaning stated in the first sentence of this Agreement.

1.21 **Energy** means three phase, 60-cycle alternating current electric energy, expressed in megawatt hours.

1.22 **Event of Default** has the meaning set forth in Section 7.1.

1.23 **FERC** means the Federal Energy Regulatory Commission.

1.24 **Firm Energy** means Energy that Company shall sell and deliver and Customer shall purchase and receive unless relieved of their respective obligations by Force Majeure or SPP system emergency or local transmission conditions making delivery or receipt impossible, but only to the extent that, and for the period during which, the Party's performance is prevented thereby.

1.25 **Fitch** means Fitch Ratings, Inc. and its successors.

1.26 **Force Majeure** means an event or circumstance which prevents one Party from performing its obligations under this Agreement, which event or circumstance was not anticipated as of the date the Agreement was agreed to, which is not within the reasonable control of, or the result of the negligence of, the Claiming Party, and which, by the exercise of due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. The Parties agree and acknowledge that the unavailability of transmission services or other transmission constraints in SPP, MISO, or any other applicable regional transmission organization or independent system operator shall constitute an event of Force Majeure but neither (a) an insufficiency of funds, nor (b) a decline in credit rating, shall constitute a Force Majeure.

1.27 **Full Requirements Service** or **Full Requirements** means the Energy and Capacity, including associated planning reserves, supplied by Company, and the Ancillary Services and Transmission Services, procured by Company in its capacity as MP, in each case, necessary to accomplish the delivery of Firm Energy to the Interconnection Point in an amount required to serve Retail Load, as the same may fluctuate in real time. Full Requirements also means that Company shall have the exclusive right to serve all power

requirements of Customer, unless Company is unable to supply due to lack of Capacity or Force Majeure, as provided for in this Agreement or otherwise to the extent set forth in Section 2.3, 3.8 or 3.10.

1.28 **HE** means the hour ending at the time specified.

1.29 **Interconnection Point** means the physical interconnection point(s) between SPP and MISO identified in Appendix A.

1.30 **Letter(s) of Credit** means one or more irrevocable, transferable standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank having a Credit Rating of at least A- from S&P or A3 from Moody's, in a form acceptable in its sole discretion to the Party in whose favor the letter of credit is issued. Costs of a Letter of Credit shall be borne by the applicant for such Letter of Credit.

1.31 **Liquidated Gains** means, with respect to any Party, an amount equal to the present value of the economic benefit to it, if any (exclusive of Termination Costs), resulting from the termination of this Agreement, determined in a commercially reasonable manner and using a discount rate equal to the Party's average cost of capital.

1.32 **Liquidated Losses** means, with respect to any Party, an amount equal to the present value of the economic loss to it, if any (exclusive of Termination Costs), resulting from termination of this Agreement, determined in a commercially reasonable manner and using a discount rate equal to the Party's average cost of capital.

1.33 **Load Serving Entity or LSE** means any entity (or the duly designated agent of such an entity), including any transmission owner, taking transmission service on behalf of wholesale or retail power customers, which has undertaken an obligation to provide or obtain electric energy for end-use customers by statute, franchise, regulatory requirement or contract for load located within or attached to the transmission system, and has been authorized by SPP to participate in the energy markets operated by SPP serving end-users within SPP.

1.34 **Losses** means, any transmission loss, transformation loss, sub-transmission and/or distribution losses incurred in providing Partial Requirements or Full Requirements Service hereunder.

1.35 **Market Participant or MP** means any entity (or the duly designated agent of such an entity), that is qualified, pursuant to the procedures established by SPP, to do the following (with all capitalized terms used herein having the meaning set forth in the SPP OATT): (i) submit bilateral transaction schedules to SPP; (ii) submit Bids to purchase, and/or offers to supply electricity in the Day-Ahead and/or Real-Time Balancing Markets; (iii) hold Transmission Congestion Rights and submit Bids to purchase, and/or offers to sell such rights; and (iv) settle all payments and charges with SPP.

1.36 **MISO** means Midcontinent Independent System Operator, Inc. or any successor regional transmission organization or independent system operator of which Company is a member.

1.37 **MISO OATT** means MISO's Open Access Transmission and Energy Markets Tariff, as amended from time to time, or any similar tariff of a successor.

1.38 **Monthly Payment** means the monthly charges set out in Article 4 of this Agreement.

1.39 **Moody's** means Moody's Investors Service, Inc. and its successors.

1.40 **MW** means Megawatt.

1.41 **MWh** means Megawatt-hour.

1.42 **NERC** means the North American Electric Reliability Corporation.

1.43 **Network Integration Transmission Service** or **NITS** means firm transmission service as set forth in the SPP OATT that provides for open access to the transmission systems within SPP and for the delivery of Firm Energy from the Interconnection Point to the Delivery Points.

1.44 **Non-Defaulting Party** means the Party with respect to which an Event of Default has not occurred.

1.45 **NPPD** means the Nebraska Public Power District, or its successor.

1.46 **NPPD Contract** means the contract between Customer and NPPD which allows Customer to limit and reduce its power purchased from NPPD beginning in 2018.

1.47 **NPPD Contract Reduction Period** refers to the period of time during which Customer will be reducing its purchases of Capacity and Energy and other services from NPPD pursuant to the NPPD Contract and purchasing the remainder of its such requirements from Company. [redacted]

1.48 **NPPD GFPS Tariff** means the NPPD General Firm Power Service Tariff.

1.49 **NPPD Tariff** means the NPPD Transmission Service Rate Schedule.

1.50 [redacted]

1.51 **Party(ies)** means Customer or Company or either or both of them, as the context requires.

1.52 [redacted]

1.53 **Prime Rate** means the lesser of (i) the rate published from time to time in *The Wall Street Journal*, as the prime lending rate, and (ii) the maximum rate permitted by applicable law.

1.54 **Qualifying Capacity** means the amount of Capacity, measured in MW, that is capable of satisfying applicable resource adequacy requirements established by SPP; *provided*, that, with respect to any calendar year, such amount may not exceed the annual peak demand of the Retail Load of the prior calendar year.

1.55 **Receiving Party** is defined in Article 6.

1.56 **Related Documents** means for SPP, either collectively or individually, the SPP OATT, the SPP Market Protocols, SPP Business Practices, SPP Criteria, SPP Network Operating Agreement, Market Participant Agreement, SPP Market Participant Application, Network Integration Transmission Service Agreement, Local Security Administrator and other applicable SPP Market Rules And Procedures.

1.57 **Requesting Party** is defined in Article 6.

1.58 **Retail Load** means Customer's own requirements and its end use customers' requirements located within the franchised service territory that Customer has a statutory or contractual obligation to serve, but

excluding any customers obtained through retail marketing or retail choice programs, initiatives or similar efforts of Customer.

1.59 **RPS** refers to any future renewable portfolio supply standard of any federal, state or other governmental authority.

1.60 **S&P** means Standard & Poor's Financial Services, LLC.

1.61 **SPP** means Southwest Power Pool or any successor regional transmission organization or independent system operation in which territory Customer is located.

1.62 **SPP OATT** means SPP's Open Access Transmission Tariff, as amended from time to time, or any successor thereto.

1.63 **Term** is defined in Section 2.1.

1.64 **Termination Costs** means, with respect to the Non-Defaulting Party, brokerage fees, commissions and other similar third party transaction costs and expenses reasonably incurred by such Party either in terminating this Agreement or any arrangement pursuant to which it has hedged its obligations or entered into new arrangements which replace this Agreement; and all reasonable attorneys' fees and expenses incurred by the Non-Defaulting Party in connection with the early termination of this Agreement.

1.65 **Termination Payment** means, with respect to this Agreement and the Non-Defaulting Party, the Liquidated Losses or Liquidated Gains, and Termination Costs, expressed in U.S. dollars, which such Party incurs as a result of the early termination of this Agreement.

1.66 **Transmission Services** means NITS, with respect to the transmission of Energy from the Interconnection Point to the Delivery Point, and other transmission services necessary to deliver Energy from Company's generation resources to the Interconnection Point.

ARTICLE 2 - TERM, SERVICE AND DELIVERY PROVISIONS

2.1 Term.

(a) Subject to the condition set forth in Section 2.1(c), the term of this Agreement shall begin as of the Effective Date and, except as provided below, shall extend through and including December 31, 2026, unless either Party declares an Early Termination Date in accordance with the provisions hereof (the "Term"). The applicable provisions of this Agreement shall continue in effect following the termination or expiration hereof in accordance with Section 16.13, and to the extent necessary to provide for final accounting, billing, billing adjustments, resolution of any billing disputes, realization of any collateral or other security, set-off, final payments, payments pertaining to liability and indemnification obligations arising from acts or events that occurred during the Delivery Period, or other such provisions that, by their terms or operation, survive the termination of this Agreement. [redacted]

(b) [redacted]

(c) The effectiveness of this Agreement and the Parties obligations hereunder are subject to (i) in the case of Company unless waived, (A) the receipt of an authorization, consent, order, finding, decision or other action (an "Approval") of the Commission, and any other governmental authority required to approve, authorize or consent to the execution, delivery and performance of this Agreement by Company; (B) the compliance by Company with its obligations under its financing arrangements with the USDA Rural Utilities Service, and receipt of any necessary Approval in connection therewith; (C) satisfaction, in its sole discretion, with all MISO transmission studies relating to the ability of Company to deliver Firm Energy to the Interconnection Point during the Delivery Period requested and obtained by Company prior to the commencement of the Delivery Period; and (ii) in the case of either Party, unless waived by it, satisfaction, in its sole discretion, with all SPP transmission studies relating to the ability of Customer to cause delivery of Firm Energy to the Delivery Point during the Delivery Period requested and obtained by such Party prior to the commencement of the Delivery Period.

2.2 **Delivery Period**. The Delivery Period shall commence on January 1, 2018, and continue through the end of the Term.

2.3 [redacted]

[redacted]

2.4 [redacted]

2.5 [redacted]

2.6 [redacted]

ARTICLE 3 - SALE AND PURCHASE

3.1 [redacted]

[redacted]

3.2 [redacted]

3.3 [redacted]

3.4 [redacted]

3.5 [redacted]

3.6 [redacted]

3.7 [redacted]

[redacted]

[redacted]

3.8 [redacted]

3.9 [redacted]

3.10 Retail Customer Choice. During the Term, Customer shall not voluntarily participate in nor authorize or permit any retail customer to participate in any form of retail customer choice unless otherwise mandated and required by applicable law, *provided, further*, that Customer will appeal any such requirement to any governmental authority, as being non-applicable during the remaining Term of this Agreement. Customer will use diligent efforts before any such governmental authority to secure such an exemption or waiver. Except as permitted under Section 2.3 or 3.8, no Retail Load may be served by another supplier, in whole or in part, unless mutually agreed to by the Parties during Full Requirements Service.

3.11 [redacted]

[redacted]

3.12 [redacted]

3.13 [redacted]

3.14 [redacted]

3.15 [redacted]

ARTICLE 4 - MONTHLY BILLING

4.1 Monthly Payment. In each month during the Term, Company shall calculate the Monthly Payment, which shall consist of the Capacity and Energy Charges, Pass Through Items (as described in Section 4.3), and any taxes, fees and levies (as described in Section 4.4) associated with this Agreement and any other amounts due and payable hereunder. Because quantities determined under Article 4 may be estimated, and subject to a reconciliation process, quantities used in calculations shall be subject to adjustment, whether positive or negative, in subsequent months' calculations. Failure to include an amount in one month's Monthly Payment shall not be a basis for its exclusion from a subsequent Monthly Payment calculation.

4.2 [redacted]

4.3 [redacted]

4.4 Taxes, Fees and Levies.

All taxes, fees and levies relating to the Retail Load or arising out of this Agreement will be charged by Company to Customer.

4.5 Payment.

(a) **Invoice and Payment Date.** [redacted]

(b) **Payment Method and Interest.** All invoices shall be paid by electronic funds transfer of immediately available funds, or by other mutually agreeable method(s), to the account designated by the other Party. If all or any part of any amount due and payable pursuant to this Agreement shall remain unpaid after the date due, interest shall thereafter accrue and be payable to Company on such unpaid amount at a rate equal to one and one-half (1½) percent per month or portion thereof on the unpaid balance from the date such payment was due until such time as Company is paid in full; *provided, however*, that no interest shall accrue in respect of adjustment amounts calculated in accordance with Section 4.1.

4.6 Payment Netting. The Parties hereby agree that they shall discharge mutual debts and payment obligations due and owing to each other on the same date pursuant to this Agreement through netting, in which case all amounts owed by each Party to the other Party under this Agreement, interest, and payments or credits, shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it. [redacted]. If no mutual debts or payment obligations exist and

only one Party owes a debt or obligation to the other during the monthly Billing Period, that Party shall pay such sum in full when due.

4.7 Billing Disputes. If a Party, in good faith, disputes an invoice, the disputing Party shall, as soon as practicable, notify the other Party of the basis for the dispute and pay under protest the entire invoice no later than the due date. Upon resolution of the dispute, any required payment or refund shall be made within two (2) Business Days of such resolution along with any accrued interest from and including the due date to but excluding the date paid (or, in the case of refunds, accrued interest from and including the date the payment was made to but excluding the date the refund is paid), together with interest at the Prime Rate plus two percent (2%). Payments not made when due shall bear interest at the greater of the Prime Rate plus two percent (2%) or the interest paid by the Party carrying the cost to a third party with respect to the obligation. Inadvertent overpayments shall be returned or deducted from subsequent payments at the option of the overpaying Party with interest accrued at the Prime Rate from and including the date of such overpayment to but excluding the date repaid or deducted by the Party receiving such overpayment.

4.8 [redacted]

4.9 [redacted]

ARTICLE 5 - ISO IMPLEMENTATION AND CONGESTION MANAGEMENT

5.1 Implementation.

(a) [redacted]

(b) [redacted]

(c) [redacted]

(d) [redacted]

(e) **Information Access.** Customer further gives permission to Company to access information at SPP that Company reasonably requests to facilitate Company's performance of its obligations under this Agreement.

5.2 Management of Congestion Risks.

(a) [redacted]

(b) [redacted]

(c) [redacted]

ARTICLE 6 - CREDITWORTHINESS

6.1 **Financial Information**. If requested by either Party, the other Party shall deliver within 150 days following the end of each fiscal year a copy of the annual report containing its audited consolidated financial statements for such fiscal year. In all cases the statements shall be for the most recent accounting period and shall be prepared in accordance with generally accepted accounting principles and shall fairly present in all material respects the financial condition of the party as of the date thereof and the results of operations and cash flows of the party for the periods presented; *provided, however*, that should any such statements not be available on a timely basis due to a delay in preparation for certification, such delay shall not be an Event of Default so long as the relevant entity diligently pursues the preparation, certification and delivery of the statements.

6.2 [redacted]

6.3 [redacted]

6.4 [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

ARTICLE 7 - DEFAULT AND REMEDIES

7.1 Events of Default. Any one or more of the following shall constitute an "Event of Default" hereunder with respect to either Party (the "Defaulting Party"):

(a) The failure to make, when due, any payment required pursuant to this Agreement if such failure is not remedied within three (3) Business Days after written notice;

(b) Any representation or warranty made by a Party herein is false or misleading in any material respect when made or when deemed made or repeated;

(c) The failure by either Party [redacted];

(d) The failure to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default as specified herein) if such failure is not remedied within three (3) Business Days after written notice;

(e) Such Party: (i) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar law, or has any such petition filed or commenced against it, (ii) makes an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becomes bankrupt or insolvent (however evidenced), (iv) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) is generally unable to pay its debts as they fall due; or

(f) Such Party consolidates or amalgamates with, or merges with or into, or transfers all or substantially all of its assets to, another entity and, at the time of such consolidation, amalgamation, merger or transfer, the resulting, surviving or transferee entity fails to assume all the obligations of such Party under this Agreement by operation of law or pursuant to an agreement reasonably satisfactory to the other Party.

(g) Any attempt by a Party to transfer an interest in this Agreement other than as permitted pursuant to Article 12.

7.2 Declaration of an Early Termination Date and Calculation of Termination Payment. If an Event of Default with respect to a Defaulting Party shall have occurred and be continuing, the other Party (the "Non-Defaulting Party") shall have the right to (i) designate a day, no earlier than the day such notice is given and no later than 20 days after such notice is given, as an early termination date ("Early Termination Date") to accelerate all amounts owing between the Parties and to liquidate and terminate the Agreement between the Parties, (ii) withhold any payments due to the Defaulting Party under this Agreement, set off any amounts owed by the Defaulting Party against amounts owed by the Non-Defaulting Party, or both withhold payments due and set off amounts owed, (iii) suspend performance, (iv) [redacted], or (v) exercise any remedies available at law or in equity.

The Non-Defaulting Party shall calculate, in a commercially reasonable manner, a Termination Payment for this Agreement as of the Early Termination Date. The Termination Payment will be determined by the Non-Defaulting Party using the Forecasted Remaining Quantities. As used in this paragraph, "Forecasted Remaining Quantities" means the Non-Defaulting Party's commercially reasonable forecast of the quantities of Energy required to provide Partial Requirements or Full Requirements Service for the remainder of the Delivery Period as if such early termination had not occurred, which shall be based on the amount of Customer's Retail Load during each hour of the twelve (12) months preceding the Early Termination Date escalated annually for the remainder of the Delivery Period at the average annual rate of

growth of Customer's Retail Load over the three (3) full calendar years preceding the Early Termination Date.

7.3 **Net Out of Termination Payment**. The Non-Defaulting Party shall aggregate the Termination Payment into a single amount by: netting out (a) the Termination Payment that is due to the Defaulting Party, plus, at the option of the Non-Defaulting Party, any cash or other form of security then available to the Non-Defaulting Party pursuant to Article 6, plus any or all other amounts due to the Defaulting Party under this Agreement against (b) the Termination Payment that is due to the Non-Defaulting Party, plus any or all other amounts due to the Non-Defaulting Party under this Agreement, so that all such amounts shall be netted out to a single liquidated amount payable by one Party to the other. The Termination Payment shall be due to or due from the Non-Defaulting Party, as appropriate.

7.4 **Notice of Payment of Termination Payment**. As soon as practicable after a termination, notice shall be given by the Non-Defaulting Party to the Defaulting Party of the amount of the Termination Payment. The notice shall include a written statement explaining in reasonable detail the calculation of such amount. The Termination Payment shall be made by the Party that owes it within ten (10) days after such notice is effective. Notwithstanding any provision to the contrary in this Agreement, the Non-Defaulting Party shall not be required to pay the Defaulting Party any amount under Article 7 until the Non-Defaulting Party receives confirmation satisfactory to it in its reasonable discretion that any other obligations of any kind whatsoever of the Defaulting Party to make payments to or perform any obligation for the benefit of the Non-Defaulting Party under this Agreement or otherwise have been fully performed or provided for.

7.5 **Disputes With Respect to Termination Payment**. If the Defaulting Party disputes the Non-Defaulting Party's calculation of the Termination Payment, in whole or in part, the Defaulting Party shall, within five (5) Business Days of receipt of the Non-Defaulting Party's calculation of the Termination Payment, provide to the Non-Defaulting Party a detailed written explanation of the basis for such dispute; *provided, however,* [redacted]

7.6 [redacted]

7.7 **Obligations Following Expiration or Termination**. Upon the termination or expiration of this Agreement, in addition to such rights and obligations enumerated elsewhere in this Agreement, the grant of any and all right and interest to Company to supply the Partial Requirements or Full Requirements Service shall cease, and Customer and Company shall immediately make all necessary filings with SPP and perform all other acts necessary to transfer all such rights and interests back to Customer.

7.8 **Termination Based on Governmental Action**. If any approval, authorization, consent, order, finding, decision or other action required by Section 2.1(c) or 3.13 shall not be obtained and received after the exercise of commercially reasonable efforts, or shall contain any change to a material term hereof or impose a material condition or a material additional burden on a Party, the Party affected may terminate this Agreement without cost or liability (including without payment of the Termination Payment) by providing written notice thereof to the other Party no later than five (5) Business Days following the date on which any appeal, challenge, request for rehearing or similar requests have been denied and such governmental action becomes final and non-appealable.

7.9 Termination Based on Transmission Studies. If any condition to the effectiveness of this Agreement relating to any transmission studies required by Section 2.1(c) shall not be satisfied on or prior to December 31, 2016, either Party may terminate this Agreement without cost or liability (including without payment of the Termination Payment) by providing written notice thereof to the other Party at any time thereafter but prior to commencement of the Delivery Period.

ARTICLE 8 - CURTAILMENT, TEMPORARY INTERRUPTIONS AND FORCE MAJEURE

8.1 Curtailment. Upon being notified by SPP of a requirement to curtail, regardless of whether such notice is provided by SPP or other reliability authority directly or indirectly through Company, Customer will institute procedures which will cause a corresponding curtailment of the use of Energy by its Retail Load. If upon notification of a requirement to curtail Energy deliveries to its Retail Load, Customer fails to institute such procedures, Company shall be entitled to limit deliveries of Energy to Customer in order to effectuate reductions in Energy deliveries equivalent to the reduction which would have been effected had Customer fulfilled its curtailment obligation hereunder during the period any shortage exists, and, in such event, Company shall not incur any liability to Customer in connection with any such action so taken by Company.

8.2 Temporary Interruptions. Company will use reasonable diligence in undertaking its obligations under this Agreement to furnish Firm Energy to Customer, but Company does not guarantee that the supply of Firm Energy furnished to Customer will be uninterrupted or that voltage and frequency will be at all times constant. Temporary interruption of Firm Energy deliveries hereunder shall not constitute a breach of the obligations of Company under this Agreement, and Company shall not in any such case be liable to Customer for damages resulting from any such temporary interruptions of service, provided such temporary interruption is not the result of Company's ability to resell the Partial Requirements or Full Requirements Service to a third party at a price greater than the pricing set forth in this Agreement.

8.3 Force Majeure. To the extent either Party is prevented by Force Majeure from carrying out, in whole or in part, its obligations under the Agreement and such Party (the "Claiming Party") gives notice and details of the Force Majeure to the other Party as soon as practicable, then the Claiming Party shall be excused from the performance of its obligations with respect to this Agreement (other than the obligation to make payments then due or becoming due with respect to performance prior to the Force Majeure). The Claiming Party shall remedy the Force Majeure with all reasonable dispatch. The non-Claiming Party shall not be required to perform or resume performance of its obligations to the Claiming Party corresponding to the obligations of the Claiming Party excused by Force Majeure. The occurrence of a Force Majeure shall not relieve Customer of its payment obligations under Article 4, including its payment obligations with respect to any portion of the Monthly Payment. Nothing contained herein may be construed to require a Party to prevent or to settle a labor dispute against its will.

8.4 Force Majeure Exceptions. [redacted]

ARTICLE 9 - NOTICES, REPRESENTATIVES OF THE PARTIES

9.1 Notices. Any notice, demand, or request required or authorized by this Agreement to be given by one Party to another Party shall be in writing. Such notice shall be sent by facsimile, electronic messaging (confirmed by telephone), courier, personally delivered or mailed, postage prepaid, to the representative of the other Parties designated in this Article 9. Any such notice, demand, or request shall be deemed to be given (i) when received by facsimile or electronic messaging, (ii) when actually received if delivered by courier, overnight mail or personal delivery, or (iii) three (3) days after deposit in the United States mail, if sent by first class mail.

Notices and other communications by Company to Customer shall be addressed to:

CEO
Northeast Nebraska Public Power District
1410 W. 7th Street
Wayne, NE 68787
Facsimile: 402.375.1233

Notices and other communications by Customer to Company shall be addressed to:

CEO
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42420
Facsimile: 270.827.2558

Any Party may change its representative by written notice to the other Party.

9.2 Authority of Representative. The Parties' representatives designated in Section 9.1 shall have full authority to act for their respective principals in all technical matters relating to the performance of this Agreement. The Parties' representatives shall not, however, have the authority to amend, modify or waive any provision of this Agreement unless they are authorized officers of their respective entities and such amendment, modification or waiver is made pursuant to Article 16.

ARTICLE 10 - LIABILITY, INDEMNIFICATION, AND RELATIONSHIP OF PARTIES

10.1 Limitation on Consequential, Incidental and Indirect Damages.

TO THE FULLEST EXTENT PERMITTED BY LAW, NEITHER CUSTOMER NOR COMPANY, NOR THEIR RESPECTIVE OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, MEMBERS, PARENTS OR AFFILIATES, SUCCESSORS OR ASSIGNS, OR THEIR RESPECTIVE OFFICERS, DIRECTORS, AGENTS, OR EMPLOYEES, SUCCESSORS OR ASSIGNS, SHALL BE LIABLE TO THE OTHER PARTY OR ITS MEMBERS, PARENTS, SUBSIDIARIES, AFFILIATES, OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, SUCCESSORS OR ASSIGNS, FOR CLAIMS, SUITS, ACTIONS OR CAUSES OF ACTION FOR INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, MULTIPLE OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PERFORMANCE OR NON-PERFORMANCE OF THIS AGREEMENT, OR ANY ACTIONS UNDERTAKEN IN CONNECTION WITH OR RELATED TO THIS AGREEMENT, INCLUDING WITHOUT LIMITATION ANY SUCH DAMAGES WHICH ARE BASED UPON CAUSES OF ACTION FOR BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND MISREPRESENTATION), BREACH OF WARRANTY, STRICT LIABILITY, STATUTE, OPERATION OF LAW, UNDER ANY INDEMNITY PROVISION OR ANY OTHER THEORY OF RECOVERY. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED, UNLESS OTHERWISE SPECIFIED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY, SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. THE PROVISIONS OF THIS SECTION 10.1 SHALL APPLY REGARDLESS OF

FAULT AND SHALL SURVIVE TERMINATION, CANCELLATION, SUSPENSION, COMPLETION OR EXPIRATION OF THIS AGREEMENT.

10.2 Indemnification.

(a) Each Party shall indemnify, defend and hold harmless the other Party from and against any Claims arising from or out of any event, circumstance, act or incident occurring or existing during the period when control and title to Partial Requirements or Full Requirements Service is vested in such Party as provided in Section 10.4.

(b) Each Party shall indemnify and hold harmless the other Party from and against any and all legal and other expenses, claims, costs, losses, suits or judgments for damages to any person or entity or destruction of any property arising in any manner directly or indirectly by reason of the acts of such Party's authorized representatives while on the premises of the other Party under the rights of access provided herein.

(c) Company assumes no responsibility of any kind with respect to the construction, maintenance or operation of the system or other property owned or used by Customer; and Customer agrees to protect, indemnify and save harmless Company from any and all claims, demands or actions for injuries to person or property by any person or entity in any way resulting from, growing out of or arising in or in connection with (a) the construction, maintenance or operation of Customer's system or other property, or (b) the use of, or contact with, Energy delivered hereunder after it is delivered to Customer and while it is flowing through the lines of Customer, or is being distributed by Customer, or is being used by Retail Load.

(d) If any Party intends to seek indemnification under this Section 10.2 from the other Party with respect to any Claim, the Party seeking indemnification shall give such other Party notice of such Claim within fifteen (15) days of the commencement of, or actual knowledge of, such Claim. Such Party seeking indemnification shall have the right, at its sole cost and expense, to participate in the defense of any such Claim. The Party seeking indemnification shall not compromise or settle any such Claim without the prior consent of the other Party, which consent shall not be unreasonably withheld.

10.3 Independent Contractor Status. Nothing in this Agreement shall be construed as creating any relationship among Customer and Company other than that of independent contractors for the sale and purchase of Partial Requirements or Full Requirements Service. Except to the extent Company is authorized to act as Customer's Market Participant hereunder, no Party shall be deemed to be the agent of any other Party for any purpose by reason of this Agreement. No partnership or joint venture or fiduciary relationship among the Parties is intended to be created by this Agreement.

10.4 Title; Risk of Loss. Title to and risk of loss related to the Partial Requirements or Full Requirements Service shall transfer from Company to Customer at the Interconnection Point. Company warrants that it will deliver Partial Requirements or Full Requirements Service to Customer free and clear of all Claims or any interest therein or thereto by any person or entity arising prior to the Interconnection Point.

ARTICLE 11 - REPRESENTATIONS AND WARRANTIES

11.1 Representations and Warranties of Each Party. Company and Customer each represents and warrants to the other that:

(a) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation, and has the power and authority to execute and deliver this

Agreement, to perform its obligation hereunder, and to carry on its business as such business is now being conducted and as is contemplated hereunder to be conducted during the Term hereof;

(b) It has, or will, upon execution of this Agreement, promptly seek, all regulatory authorizations necessary for it to legally perform its obligations under this Agreement;

(c) The execution, delivery and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not violate any of the terms and conditions in its governing documents, including but not limited to any organizational documents, charters, bylaws, indentures, mortgages or any other contracts or documents to which it is a party or any law, rule, regulation, order or the like applicable to it;

(d) This Agreement and each other document executed and delivered in accordance with this Agreement constitutes its legally valid and binding obligation enforceable against it in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, reorganization, arrangement, moratorium or other laws relating to or affecting the rights of creditors generally and by general principles of equity;

(e) It is not bankrupt and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it, which would result in it being or becoming bankrupt; and

(f) There is not pending or, to its knowledge, threatened against it any legal proceedings that could materially and/or adversely affect its ability to perform its obligations under this Agreement.

11.2 **Customer Additional Covenants.** Customer represents, warrants and agrees to and with Company that except as otherwise provided herein, with respect to its contractual obligations hereunder and performance thereof, it will not claim immunity on the grounds of its status as a municipality under Federal or state law or similar grounds with respect to itself or its revenues or assets from (i) suit, (ii) jurisdiction of court (including a court located outside the jurisdiction of its organization), (iii) relief by way of injunction, order for specific performance or recovery of property, (iv) attachment of assets, or (v) execution or enforcement of any judgment.

ARTICLE 12 - ASSIGNMENT

12.1 **General Prohibition Against Assignments.** Except as provided in Section 12.2 below, no Party shall assign, pledge or otherwise transfer this Agreement or any right or obligation under this Agreement without first obtaining the other Party's written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

12.2 **Exceptions to Prohibition Against Assignments.** A Party may, without the other Party's prior written consent (and without relieving itself from liability hereunder), (i) transfer, sell, pledge, encumber or assign this Agreement or the accounts, revenues or proceeds hereof in connection with any financing or other financial arrangements; (ii) transfer or assign this Agreement to an Affiliate of such Party (which Affiliate shall be of equal or greater creditworthiness); or (iii) transfer or assign this Agreement to any person or entity succeeding by merger or by acquisition to all or substantially all of the assets whose creditworthiness is equal to or higher than that of the assigning Party; *provided, however,* [redacted]

12.3 Limitation on Assignment. Notwithstanding Section 12.2, in no event may either Party assign this Agreement (including as part of a sale of all or substantially all of the assets of the assigning Party or a merger with or purchase of substantially all the equity interests of such Party) (i) to any Person that does not have adequate financial capacity as demonstrated to the reasonable satisfaction of the non-assigning Party or that would otherwise be unable to perform the obligations of the assigning Party pursuant to this Agreement, (ii) to any Person that does not agree to assume all rights and obligations of the assigning Party under this Agreement and be bound by the terms and conditions hereof, or (iii) on any terms at variance from those set forth in this Agreement except as agreed to in writing by the Parties.

12.4 Duties. No permitted assignment or transfer will change the duties of the Parties or impair the performance under this Agreement except to the extent set forth in such permitted assignment and approved in writing by the Parties. No Party shall be released from its obligations under this Agreement pursuant to any assignment.

ARTICLE 13 - CONFIDENTIALITY

To the extent permitted by law, all Confidential Information shall be held and treated by the Parties and their agents in confidence, used solely in connection with this Agreement, and shall not, except as hereinafter provided, be disclosed without the other Party's prior written consent.

Notwithstanding the foregoing, Confidential Information may be disclosed (a) to a third party for the purpose of effectuating the supply, transmission and/or distribution of Partial Requirements or Full Requirements Service to be delivered pursuant to this Agreement, (b) to regulatory authorities of competent jurisdiction, or as otherwise required by applicable law, regulation or order including any Nebraska sunshine law (provided Company's trade secret or proprietary information is redacted to the fullest extent permitted by law), (c) as part of any required, periodic filing or disclosure with or to any regulatory authority of competent jurisdiction and (d) to third parties in connection with merger, acquisition/disposition and financing transactions provided that any such third party shall have signed a confidentiality agreement with the disclosing party containing customary terms and conditions that protect against the disclosure of the Confidential Information and that strictly limit the recipient's use of such information only for the purpose of the subject transaction and that provide for remedies for non-compliance.

In the event the non-disclosing party receives a written request applicable to the Confidential Information, under a sunshine law such as the Nebraska Public Information Act ("Public Information Act Request") and Customer does not believe the request is subject to the Public Information Act, the non-disclosing party shall, in accordance with the procedures in the Public Information Act, (i) timely request a ruling from the Nebraska Attorney General that the information is not subject to disclosure (ii) timely provide to the Attorney General a letter or brief explaining why the information should not be subject to public disclosure and (iii) provide to the disclosing party prompt notice of the Public Information Act Request so that the disclosing party will have an opportunity to submit a statement to the Attorney General providing the reasons why the Confidential Information should not be disclosed. To the extent any provision of this Agreement conflicts with the provisions of the Nebraska Public Information Act, the provisions of the Nebraska Public Information Act shall control, and no further liability or responsibility shall be borne by either party so long as the provisions of the Nebraska Public Information Act are followed in good faith.

In the event that a Party ("Disclosing Party") is requested or required to disclose any Confidential Information, the Disclosing Party shall provide the other Party with prompt written notice of any such request or requirement so that the other Party may seek an appropriate protective order, other confidentiality arrangement or waive compliance with the provisions of this Agreement. If, failing the entry of a protective order, other confidentiality arrangement or the receipt of a waiver hereunder, the Disclosing Party, in the opinion of counsel, is compelled to disclose Confidential Information, the Disclosing Party may disclose that portion of the Confidential Information which the Disclosing Party's counsel advises that the Disclosing Party is compelled to disclose.

The Parties shall be entitled to all remedies available at law or in equity to enforce, or seek relief in connection with, this confidentiality obligation. In addition to the foregoing, the Disclosing Party shall indemnify, defend and hold harmless the other Parties from and against any Claims, threatened or filed, and any losses, damages, expenses, attorneys' fees or court costs incurred by such Party in connection with or arising directly or indirectly from or out of the Disclosing Party's disclosure of the Confidential Information to third parties except as permitted above.

Notwithstanding the above provisions, Company shall be permitted to communicate with SPP any necessary information, including Confidential Information, with regard to implementation of this Agreement and will make all reasonable efforts to ensure that Confidential Information remains confidential.

ARTICLE 14 - REGULATORY AUTHORITIES

14.1 **Compliance with Laws.** Each Party shall perform its obligations hereunder in accordance with applicable laws, rules and regulations. Nothing contained herein shall be construed to constitute consent or acquiescence by either Party to any action of the other Party which violates the laws of the United States as those laws may be amended, supplemented or superseded, or which violates any other law or regulation, or any order, judgment or decree of any court or governmental authority of competent jurisdiction.

14.2 **Tariffs.** Each Party agrees if it seeks to amend any applicable FERC filed tariff during the Term, such amendment will not in any way affect this Agreement without the prior written consent of the other Party. Each Party further agrees that it will not assert or defend itself on the basis that any applicable tariff is inconsistent with this Agreement.

ARTICLE 15 - STANDARD OF REVIEW FOR PROPOSED CHANGES, DISPUTE RESOLUTION

15.1 **Standard of Review.** The rates, charges, terms and conditions contained in this Agreement are not subject to change under Sections 205 or 206 of the Federal Power Act absent the mutual written agreement of the Parties. It is the intent of this section that, to the maximum extent permitted by applicable law, the rates, charges, terms and conditions of this Agreement shall not be subject to such change. Absent the agreement of the Parties to the proposed change and subject to any applicable law, including the rules and regulations of the Commission, the standard of review under the Federal Power Act for changes to rates, charges, terms and conditions of this Agreement proposed by a Party shall be the "public interest" standard of review set forth in *United Gas Pipe Line Co. v. Mobile Gas Service Corp.*, 350 U.S. 332 (1956) and *Federal Power Commission v. Sierra Pacific Power Co.*, 350 U.S. 348 (1956) and clarified by *Morgan Stanley Capital Group, Inc. v. Public Util. Dist. No. 1 of Snohomish*, 554 U.S. 527 (2008) (the "*Mobile-Sierra*" doctrine); provided that the standard of review for any amendment requested by a non-contracting third party or FERC acting *sua sponte* shall be the most stringent standard permissible under applicable law.

15.2 **Dispute Resolution.**

(a) In the event of any dispute among the Parties arising out of or relating to this Agreement, the Parties shall refer the matter to their duly authorized officers for resolution who shall meet within ten (10) days after notice is given by either Party. If within thirty (30) days after such meeting, the Parties have not succeeded in negotiating a resolution to the dispute then the Parties may, upon mutual agreement of the Parties, agree to binding arbitration before a single arbitrator. If the parties fail to select an arbitrator within thirty (30) days after mutual agreement to submit a matter to arbitration, the arbitrator shall be named in accordance with AAA's Rules for Non-administered Arbitration then in effect (the "Rules"). The Rules shall govern any such proceedings. Judgment upon any award rendered by the arbitrator may be entered in any court having jurisdiction thereof. The Parties shall share equally the services and expenses of the arbitrator, and each shall pay

its own costs, expenses, and attorneys' fees. Fees and expenses of the court reporter shall be paid in equal parts by the Parties hereto.

(b) In the event the Parties do not mutually agree to binding arbitration, Company and Customer each hereby knowingly, voluntarily and intentionally waives any rights it may have to a trial by jury in respect of any litigation based hereon, or arising out of, under or in connection with, this Agreement, any course of conduct, course of dealing, statements (whether oral or written) or actions of Company and Customer related hereto, and expressly agree to have any disputes arising under or in connection with this Agreement be adjudicated by a judge in any court of competent jurisdiction sitting without a jury, and each party waives any right to a trial by jury in such courts.

(c) [redacted]

ARTICLE 16 - GENERAL PROVISIONS

16.1 Third Party Beneficiaries. This Agreement is intended solely for the benefit of the Parties thereto, and nothing herein will be construed to create any duty to, or standard of care with reference to, or any liability to, any person not a Party hereto.

16.2 Waivers. The failure of a Party to insist in any instance upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights under this Agreement shall not be construed as a general waiver of any such provision or the relinquishment of any such right, except to the extent such waiver is in writing and signed by an authorized representative of such Party.

16.3 Interpretation. The interpretation and performance of this Agreement shall be in accordance with and controlled by the laws of the State of Kentucky, without giving effect to its conflicts of law provisions, except that issues pertaining to Customer's status as a municipal entity or the applicability of the Nebraska Public Information Act shall be governed by Nebraska law.

16.4 Jurisdiction. Nothing in this Agreement prohibits a Party from referring to FERC or any other governmental authority any matter properly within its jurisdiction. In any proceeding hereunder, each Party irrevocably waives, to the fullest extent allowed by law, its right, if any, to trial by jury. Each Party hereby agrees to accept service of any papers or process in any action or proceeding arising under or relating to this Agreement, at the address set forth in Section 9.1, and agrees that such service shall be, for all purposes, good and sufficient.

16.5 Good Faith Efforts. The Parties agree that each will in good faith take all reasonable actions within their reasonable control as are necessary to permit the other Party to fulfill its obligations under this Agreement; *provided*, that no Party will be obligated to expend money or incur material economic loss in order to facilitate performance by the other Party. Where the consent, agreement or approval of either Party must be obtained hereunder, such consent, agreement or approval may not be unreasonably withheld, conditioned, or delayed unless otherwise provided herein. Where either Party is required or permitted to act or fail to act based upon its opinion or judgment, such opinion or judgment may not be unreasonably

exercised. Where notice to the other Party is required to be given herein, and no notice period is specified, reasonable notice shall be given.

16.6 **Further Assurances**. The Parties shall execute such additional documents and shall cause such additional actions to be taken as may be required or, in the judgment of any Party, be necessary or desirable to effect or evidence the provisions of this Agreement and the transactions contemplated hereby.

16.7 **Severability**. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality, and enforceability of the remaining provisions shall in no way be affected or impaired thereby; and the Parties hereby agree to effect such modifications to this Agreement as shall be reasonably necessary in order to give effect to the original intention of the Parties.

16.8 **Modification**. No modification to this Agreement will be binding on any Party unless it is in writing and signed by the Parties.

16.9 **Counterparts**. This Agreement may be executed in counterparts, and each executed counterpart shall have the same force and effect as an original instrument.

16.10 **Headings**. Article and section headings used throughout this Agreement are for the convenience of the Parties only and are not to be construed as part of this Agreement.

16.11 **Audit**. Each Party has the right, at its sole expense and during normal working hours, to examine the records of the other Party to the extent reasonably necessary to verify the accuracy of any invoice, charge or computation made pursuant to this Agreement. If requested, a Party shall provide to the other Party invoices evidencing the quantities of Partial Requirements or Full Requirements Service. If any such examination reveals any inaccuracy in any invoice, the necessary adjustments to such invoice and the payments thereof will be made promptly and shall bear interest calculated at the Prime Rate plus two percent (2%) from the date the overpayment or underpayment was made until paid; *provided, however*, that no adjustment for any statement or payment will be made unless objection to the accuracy thereof was made prior to the lapse of the twelve (12) months succeeding rendition thereof, and thereafter any objection shall be deemed waived.

16.12 **Records**. The Parties shall keep (or as necessary cause to be kept by their respective agents) for a period of at least three (3) years such records as may be needed to afford a clear history of the Partial Requirements or Full Requirements Service supplied pursuant to this Agreement. For any matters in dispute, the Parties shall keep the records related to such matters until the dispute is ended.

16.13 **Survival**. The provisions of Articles 4, 7, 9, 10, 13, 15 and 17 and Sections 16.11, 16.12 and 16.13 shall survive termination of this Agreement hereof, and any other section of this Agreement that specifies by its terms that it survives termination shall survive the termination or expiration of this Agreement.

ARTICLE 17 - RULES OF CONSTRUCTION

Terms used in this Agreement but not listed in this Article or defined in Article 1 shall have meanings as commonly used in the English language.

Words not otherwise defined herein that have well known and generally accepted technical or trade meanings are used herein in accordance with such recognized meanings.

The masculine shall include the feminine and neuter.

The words "include", "includes" and "including" are deemed to be followed by the words "without limitation."

References to contracts, agreements, tariffs and other documents and instruments shall be references to the same as amended, supplemented or otherwise modified from time to time.

The Appendices attached hereto are incorporated in and are intended to be a part of this Agreement.

References to laws and to terms defined in, and other provisions of, laws shall be references to the same (or a successor to the same) as amended, supplemented or otherwise modified from time to time.

References to a person or entity shall include its successors and permitted assigns and, in the case of a governmental authority, any entity succeeding to its functions and capacities.

References to "Articles," "Sections," or "Appendices" shall be to articles, sections, or appendices of this Agreement.

The word "or" need not be exclusive as the context implies.

Unless the context plainly indicates otherwise, words importing the singular number shall be deemed to include the plural number (and vice versa); terms such as "hereof," "herein," "hereunder" and other similar compounds of the word "here" shall mean and refer to the entire Agreement rather than any particular part of the same.

This Agreement was negotiated and prepared by both Parties with the advice and participation of counsel. The Parties have agreed to the wording of this Agreement and none of the provisions hereof shall be construed against one Party on the ground that such Party is the author of this Agreement or any part hereof.

[Signatures Follow on Next Page]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this Agreement on their behalf as of the date first above written.

NORTHEAST NEBRASKA PUBLIC POWER DISTRICT

By: Donald R Larsen

Name: Don Larsen

Title: President

BIG RIVERS ELECTRIC CORPORATION

By: Mark A. Bailey

Name: Mark A. Bailey

Title: President and CEO

APPENDIX A

LIST OF PHYSICAL DELIVERY POINT(S) AND INTERCONNECTION POINT

LIST OF PHYSICAL DELIVERY POINT(S)

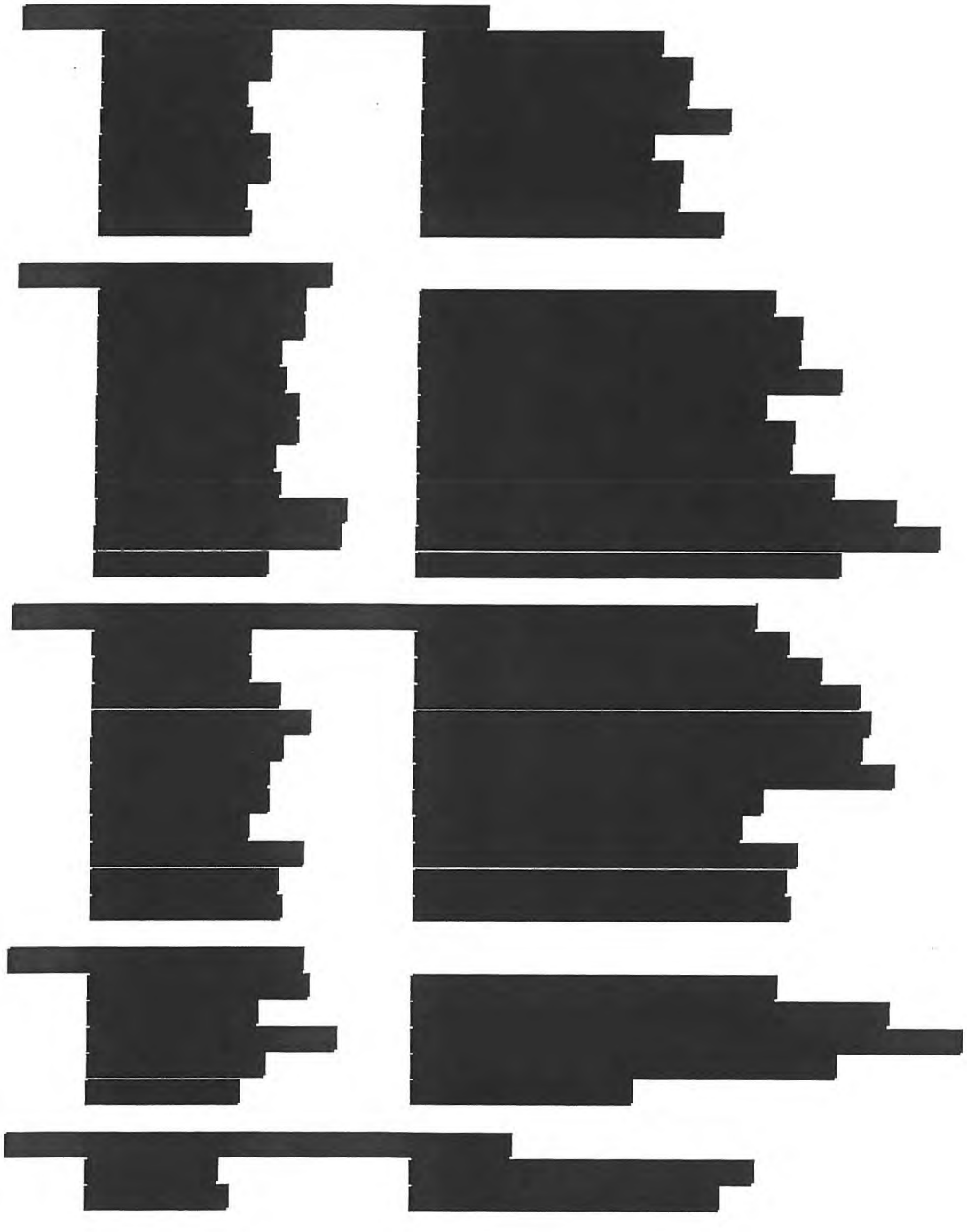
Point Name	Voltage	Adjustment Factor
As agreed by the Parties pursuant to Section 2.4	As agreed by the Parties pursuant to Section 2.4	As agreed by the Parties pursuant to Section 2.4

LIST OF INTERCONNECTION POINTS

Point Name
[redacted]

APPENDIX B
RESPONSIBILITY FOR ISO/RTO CHARGES AND CREDITS

Credits/Charges Allocated to Customer, if applicable



OHSUSA:755692100.11

Case No. 2014-00166
SC 1-7b Attachment

APPENDIX C
LETTER OF AGENCY

Northeast Nebraska Public Power District ("Customer") appoints Big Rivers Electric Corporation ("Company"), and Company accepts such appointment, as agent to act on behalf of Customer in accordance with the terms of the Market Based Rate Partial Requirements and Full Requirements Service Agreement dated December 20, 2013 ("Full Requirements Agreement") as follows:

1. [redacted]

2. [redacted]

3. [redacted]

4. Upon termination of this Agreement, Company shall not act as Market Participant on behalf of Customer (unless otherwise agreed) and shall advise SPP about this termination. Further, Company shall notify the Transmission Provider that it is no longer acting as Customer's agent.

Northeast Nebraska Public Power District

By: Donald R Larsen
Name: Don Larsen
Title: President
Date: DECEMBER 17, 2013

Big Rivers Electric Corporation

By: Mark A. Bailey
Name: Mark A. Bailey
Title: President and CEO
Date: February 10, 2014

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Item 8) **Refer to page 22 of the IRP. With regards to the 25MW of growth in native load due to customer additions, identify for each customer addition:**

a. The type of addition.

b. The amount of load.

c. The load factor.

d. The date by which such additional load came or is coming online.

e. The amount of energy expected to be sold to such customers.

Response) Big Rivers objects to this question on the grounds it is overly broad and unduly burdensome. Notwithstanding that objection, but without waiving it, please see Big Rivers' response to AG1-16.

Witness) Lindsay N. Barron

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Item 9) **Refer to page 22 of the IRP. With regards to the "potential arrangements with other businesses" that Big Rivers is "actively negotiating," identify:**

a. **Each business being negotiated with.**

b. **The status of such negotiations.**

c. **The amount of capacity and energy at issue in the negotiations.**

d. **The price at which such capacity and energy would be provided.**

e. **The date by which such additional load would come online.**

Response) Please see Big Rivers' response to AG 1-13.

Witness) Lindsay Barron

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Item 10) **Refer to page 29 of the IRP.**

a. Produce the February 2014 review of the 2013 Load Forecast referenced therein.

b. State whether Big Rivers has created any other load forecast since the 2013 Load Forecast.

c. If so, produce such forecast.

Response)

a. The February 2014 analysis and comparison of energy and peak demand projections for 2013 to actual values for the year occurred during the course of normal business, and resulted in the analysis attached.

b. The load forecast created in 2013 is the latest performed by Big Rivers.

c. Not applicable.

Witness) Marlene S. Parsley

Rural System Demand (KW)

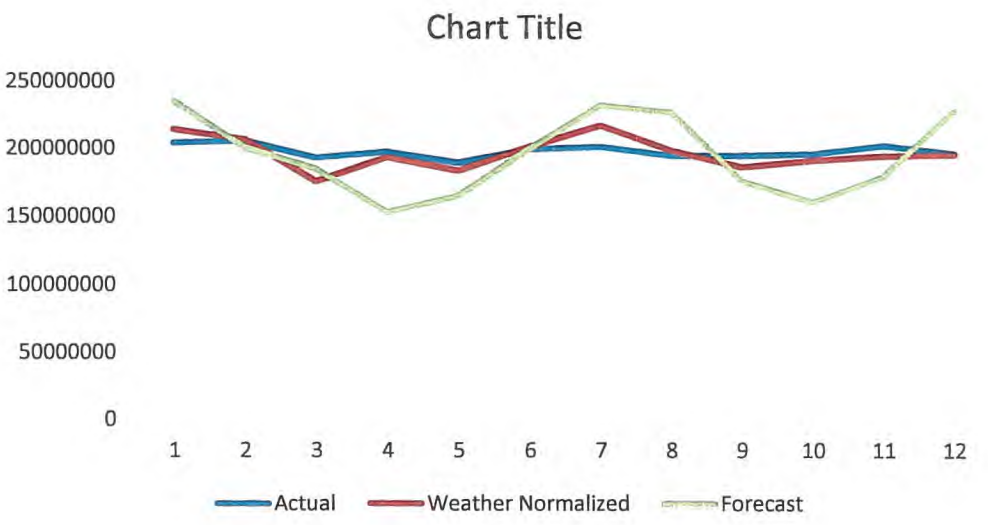
Month		Station	Weight 0.494 AVGTEMP KEVV	0.236 AVGTEMP KPAH	0.270 AVGTEMP KSDF	WGT AVG	DDAYS	DDAYS	DDAYSn	Difference	Coefficient
Jan	**Build up**	**01/20/13**	36	37	38	36.8	18.2				
	Build up	**01/21/13**	23	29	24	24.7	30.3	24.3	32.00	7.7	1,160.52
	Peak Day	**01/22/13**	19	22	17	19.2	35.8	35.8	40.35	4.5	3,563.30
Jul	**Build up**	**07/15/13**	82	79	83	81.6	16.6				
	Build up	**07/16/13**	83	80	84	82.6	17.6	17.1	17.83	0.8	6,474.77
	Peak Day	**07/17/13**	85	82	86	84.6	19.6	19.6	21.22	1.7	3,220.12

Rural System Demand (KW)

Month		Weight Station	Weather Impact (kW)	Peak kW	Weather Adjusted Peak kW	Forecast	Variance
Jan	**Build up**	**01/20/13**					
	Build up	**01/21/13**					
	Peak Day	**01/22/13**	25,071	463,400	488,471	496,126	1.6%
Jul	**Build up**	**07/15/13**					
	Build up	**07/16/13**					
	Peak Day	**07/17/13**	10,312	493,751	504,063	509,990	1.2%

Rural System Energy (KWH)

	Actual	Weather Normalized	Forecast	Forecast Variance
Jan	203,686,165	213,949,629	234,958,661	9.8%
Feb	205,413,640	206,522,868	200,453,293	-2.9%
Mar	192,727,819	175,230,350	184,372,795	5.2%
Apr	197,282,652	193,003,789	152,680,672	-20.9%
May	189,186,092	183,200,759	164,988,988	-9.9%
Jun	199,422,572	200,889,625	199,404,770	-0.7%
Jul	201,293,773	217,085,075	232,559,900	7.1%
Aug	194,684,004	198,223,989	227,432,411	14.7%
Sep	194,904,295	186,416,116	176,102,440	-5.5%
Oct	196,157,263	191,418,065	160,651,343	-16.1%
Nov	202,499,184	194,798,363	179,656,330	-7.8%
Dec	196,644,410	196,033,706	228,861,219	16.7%
	2,373,901,869	2,356,772,334	2,342,122,823	-0.6%
		-17,130		



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Item 11) Refer to Table 4.6 on page 35 of the IRP. Provide the basis for the change in Small C&I load projected over the 2015 through 2028 time frame, and all analyses, documents, modeling, and data supporting such projected change.

Response) Projections of number of customers and energy sales for Small C&I were based on an analysis of all rural system customers. Projections of rural system customers and energy were based on econometric models for each of Big Rivers' three member distribution cooperatives, and the resulting projections were broken down by retail sales class (residential, small C&I, large C&I, and street lighting) using historical proportions. At the aggregate Big Rivers level, residential customers comprise approximately 86% of rural system accounts and 64% of rural system energy. The econometric models developed to project number of customers and energy include number of households, household income, appliance market shares, appliance efficiencies, and price of electricity as independent variables and the basis for change over the forecast horizon. The econometric model files (MetrixND format), the source data used developed the econometric models, and the spreadsheets used to break rural system projections down by retail class are provided in response to AG 1-11.

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Econometric model files:

JPECModel_03-26-13.ndm

KenergyModel_03-26-13.ndm

MCRECCModel_03-26-13.ndm

Econometric Model Input Files:

Model Data_v3.xlsx

Files to Break Rural System Forecast Down by Retail Class:

Forecast_JPEC.xlsx

Forecast_Kenergy.xlsx

Forecast_MCRECC.xlsx

Witness) John W. Hutts

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Item 12) Refer to page 37 of the IRP. With regards to the idling of the Coleman Station:

a) State whether Big Rivers still estimates 2016 or 2017 as the year in which it may be justified to return the Coleman Station to operational status.

i) If not, identify when Big Rivers projects it will be justified to return the Coleman Station to operational status.

b) Produce any studies, analyses, modeling, and data regarding when it may be justified to return the Coleman Station to operational status.

c) State whether any capital or maintenance projects would be needed to return the Coleman Station to operational status:

i. If so, identify each such project and its cost, and explain why such project would be needed.

ii. If not, explain why not.

d) State whether Big Rivers has carried out any net present value revenue requirement analysis or other economic analysis of potential future operation of the Coleman Station.

i. If so, produce such analysis, including any modeling input and output files, workpapers, and other supporting data.

i) If not, explain why not.

Response)

a) Please see Big Rivers' responses to AG 1-10 and AG 1-18 in this case.

b) Please see Big Rivers' response to AG 1-10 in this case.

c) Please see Big Rivers' response to AG 1-2 in this case.

i. Each project is needed to ensure unit reliability or to meet environmental compliance.

d) Big Rivers has not performed any net present value revenue requirement analysis of potential future operation of Coleman Station.

i. Please see Big Rivers' response to AG 1-10 in this case. Big Rivers will analyze its options and will choose the least risk and lowest cost option for its Members.

Witness) Duane E. Braunecker

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Item 13) **Refer to page 37 of the IRP. With regards to Big Rivers' consideration of selling or leasing the Coleman Station or Wilson Station:**

a. Describe the terms of each offer to sell or lease Coleman or Wilson, including:

i. Price.

ii. Amount of capacity.

iii. Amount of load.

iv. Time frame.

v. Entity to which the offer was made.

b. Explain the status of each offer to sell or lease Coleman or Wilson.

Response) Please see Big Rivers' response to AG 1-12.

Witness) Lindsay Barron

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Item 14) **Refer to Table 4.15 on page 53 of the IRP. Produce any studies, analyses, modeling files, and/or data used to identify the price elasticities for Big Rivers' three members.**

Response) As described on page 53 of the IRP, price elasticity for each of the three distribution cooperatives was derived through the econometric modeling process. The econometric models and data inputs are provided in response to AG 1-11.

Witness) Marlene S. Parsley

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Item 15) With regards to each Strategist modeling run carried out as part of this IRP:

a. Produce all modeling input and output files (in electronic machine readable format with formulas intact) for each run.

b. Produce any workbooks or workpapers, in electronic, machine readable format with original formulas intact, used to develop or process inputs to the Strategist model.

c. Produce any workbooks or workpapers, in electronic, machine readable format with original formulas intact, used to review or process outputs of each Strategist model run.

Response)

a. See Big Rivers' response to AG-1-17, AG-1-19, AG-1-23, AG-1-24, AG-1-26, AG-1-27, AG-1-28, AG-1-29.

b. See Big Rivers' response to AG-1-23, AG-1-29.

c. See attachment provided on the confidential electronic media accompanying these responses.

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Witness) Marlene S. Parsley

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Item 16) State whether Big Rivers, or any of its consultants, modeled or otherwise evaluated any scenarios in which:

a. Any of the Company's generating units were retired.

b. Replacement load was assumed to remain below 800 MW through 2028.

c. MISO market energy prices were lower than in the base case assumption.

d. MISO market capacity prices were lower than in the base case assumption.

e. Higher levels of savings from demand side management programs are achieved than the levels assumed in the base case.

f. If the answer is "yes" to any of parts a-e, explain the results of such scenario, and produce any analyses, documents, modeling files, and data regarding such scenario.

g. If the answer is "no" to any of parts a-e, explain why such scenario was not modeled or otherwise evaluated.

Response)

a. No

b. No

c. We ran a low and high market price sensitivity.

d. We ran a low and high market capacity price sensitivity.

e. No

f. See response to AG 1-17.

g. The answer to part a is no because there are no plans to retire any generating units in the term of the IRP. The answer to part b is no because Big Rivers plans to pursue replacement load at the level indicated in the mitigation plan. To address flexibility in the mitigation plan, one sensitivity was studied assuming replacement load sales were realized at a quicker pace than the base case, and an additional sensitivity was studied assuming replacement load sales began later than in the base case. The answer to part e is no because Big Rivers instructed GDS to assume a level of funding for DSM programs which aligned with a $1 million annual incentive budget.

Witness) Marlene S. Parsley and Russ Pogue

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Item 17) **Refer to page 56 of the IRP. Produce the analysis of the impacts of a potential carbon tax referenced therein.**

Response) Refer to the file on electronic media named BREC LF Scenarios for Alternative Carbon Dioxide Cases_03-28-14.xlsx filed in response to AG 1-17. It is located in the AG 1-17 WK folder under the Carbon Tax subfolder.

Witness) John W. Hutts

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Item 18) Refer to the confidential version of page 57 of the IRP, which states that a carbon price scenario "may impact rural system and industrial class energy requirements by approximately 9.4% and 15.6%, respectively... assuming the industrial class is capable of responding to price increases, which Big Rivers believes is unlikely."

a. Identify the assumptions that were used to calculate the potential 9.4% impact on rural class energy requirements.

b. Identify the assumptions that were used to calculate the potential 15.6% impact on industrial class energy requirements.

c. The quoted passage suggests that it is unlikely that the industrial class responds to prices at all, but if they did, they would have a proportionally greater response than the rural class. Please explain this seeming contradiction.

Response)

a. The assumptions made in developing the Case 2 carbon price load forecast scenarios for the rural system are based on the consumption impacts developed by EIA in their analysis of a $30 per metric ton carbon tax and on a study published by Synapse Energy Economics, Inc. Results of the EIA study are published in their report entitled *Further Sensitivity Analysis of Hypothetical Policies to Limit Energy-Related*

Carbon Dioxide Emissions, Supplement to the Annual Energy Outlook 2013, July 2013. Results of the Synapse study are published in their report entitled *2013 Carbon Dioxide Price Forecast*, Synapse Energy Economics, Inc., November 1, 2013. Both of these reports are provided in response to AG-1-20. The 9.4% reduction in rural energy requirements reported on page 57 of the IRP was a preliminary estimate and does not take into consideration the delay in carbon tax impacts until 2020. The delay of impacts until 2020 is based on the Synapse study. The correct reduction is 7.5%.

b. See the response to item (a) above for the basis of assumptions. The 15.6% reduction in rural energy requirements reported on page 57 of the IRP was a preliminary estimate and does not take into consideration the delay in carbon tax impacts until 2020. The delay of impacts until 2020 is based on the Synapse study. The correct reduction is 14.4%.

The spreadsheet created to develop the carbon tax load forecast scenarios is BREC LF Scenarios for Alternative Carbon Dioxide Cases_03-28-14.xlsx and is provided on the electronic media in response to AG 1-17.

c. Big Rivers believes that its current industrial customer base will not alter operations or consumption under the near term price increases. However, there may be a price

point significantly high enough to negatively impact company profits and cause one or more existing industrial customers to cut a working shift or cease operations entirely. The specific point will be determined by each customer's individual circumstances.

Witness) John W. Hutts (a and b.) and Lindsay N. Barron (c.)

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Item 19) Refer to page 85 of the IRP. With regards to the potential EPA implementation of CSAPR in its original form discussed therein:

a) Produce any study, analysis, modeling files, and data regarding the contention that CSAPR will not have a significant impact on Big Rivers' operations because the Coleman Station has been idled.

b) Produce any study, analysis, modeling files, and data regarding the statement that further NOx emission reductions could be required if the Coleman Station is returned to service.

c) State whether the return to service of the Coleman Station would create the need for further SO2 emission reductions under CSAPR.

i. If so, identify such further SO2 emission reductions and any steps Big Rivers would need to take to achieve such further reductions.

ii. If not, explain why not.

Response)

a) This statement was based on eliminating the baseline SO2 and NOX emissions at Coleman as shown in the Sargent and Lundy 2012 Environmental Compliance Study. Please refer to Big Rivers' response to AG 1-7 for further details.

b) The Sargent and Lundy 2012 Environmental Compliance Study indicated 1 SCR at Green Station could be required for NOx compliance if all Big Rivers units were in operation.

c) The Sargent and Lundy 2012 Environmental Compliance Study indicated that additional SO2 emission reductions could be required under CSAPR if all Big Rivers units were in operation. One potential solution identified in this study was replacing the FGD at Wilson Station.

Witness) Eric M. Robeson

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Item 20) State whether Big Rivers has modeled or otherwise analyzed whether emissions from any of its coal-fired electric generating units would cause or contribute to exceedances of the 1-hour SO2 National Ambient Air Quality Standards.

a) If so:

i. Explain the results of such modeling or analysis.

ii. Produce any report documenting such results.

iii. Identify any additional or upgraded pollution controls that may be needed on any of Big Rivers' generating units to avoid such exceedances.

b) If not, explain why not.

Response)

a) Big Rivers has not modeled or otherwise analyzed whether emissions from any of its coal-fired electric generating units would cause or contribute to exceedances of the 1-hour SO2 National Ambient Air Quality Standards.

b) The counties in which Big Rivers operates its three generating stations have not been classified as non-attainment relative to the 1-hour SO2 National Ambient Air Quality Standards.

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Witness) Eric M. Robeson

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Item 21) Refer to page 86 of the IRP. With regards to MATS compliance at Big Rivers' coal-fired electric generating units:

a. Identify the most recent estimated capital cost of installing ACI and DSI systems on each of Green Units 1 and 2.

b. Identify the current schedule and estimated capital cost for installing ACI and DSI on the Wilson Station.

c. Identify the current schedule and estimated capital cost for installing ACI and DSI on the Coleman Station.

d. Explain why the cost of installing ACI and DSI on the Coleman Station are included in IRP Environmental Cases 1 and 2, but not in the IRP /Base Case.

e. For each of Big Rivers' coal-fired electric generating units, identify the estimated variable operating cost, in $/MWh, of operating DSI and ACI on the unit.

Response)

a. The current estimated capital cost to install ACI and DSI at Green Units 1 and 2 is $17.5 million excluding capitalized interest.

b. The current schedule is to install DSI equipment at Wilson prior to April 2016. The current estimate to install DSI equipment is $7.0 million excluding capitalized interest.

c. See Big Rivers response to AG-1-18 regarding Coleman Station.

d. See Big Rivers response to AG-1-18 regarding Coleman Station. Environmental Cases 1 and 2 included returning Coleman Station to service; therefore, the capital costs for Coleman ACI and DSI were included in these cases.

e. Only the Green units and Coleman units are forecasted to operate with DSI and ACI for MATS compliance. The estimated variable cost increase in April, 2015 was [redacted] for the Green units and [redacted] for the Coleman units.

Witness) Eric Robeson

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Item 22) **Refer to page 90 of the IRP. Produce any report or other documentation of the results of the Sargent and Lundy review of the Clean Water Act 316(b) regulation and estimated costs to comply.**

Response) See Sargent & Lundy 2012 Environmental Compliance Study. No additional studies have been performed.

Witness) Eric M. Robeson

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Item 23) Refer to page 90 of the IRP. Produce any analysis, study, or other document regarding the potential impact of the US EPA's proposed existing source greenhouse gas regulations on Big Rivers' electric generating units including, but not limited to, the potential need to idle the Coleman and/or Wilson Stations in order to comply.

Response) At the time of the IRP, no specific studies or analyses had been performed on the impact of the proposed GHG regulations on Coleman and/or Wilson stations. The comment above was based on general knowledge that idling either Coleman or Wilson station would reduce Big Rivers' generation fleet by approximately 25-33%. This should then lead to a corresponding mass reduction in GHG emissions. Since that time Big Rivers has performed projected emissions thru 2019 as a result of idling Coleman. Please refer to the attachment and also response to AG 1-7.

Witness) Eric M. Robeson

Big Rivers System (2004-2013 Actual, 2014-2019 Forecasted)				
Year	Generation	Net Heat Rate	CO2 Emissions	
	Net MWh	BTU/kWh	Tons	lbs/Net MWh
2004	11,753,830	11,054	14,212,443	2,418
2005	**12,172,062**	**11,073**	**14,567,131**	**2,394**
2006	12,050,790	11,189	14,271,643	2,369
2007	11,963,833	11,232	14,241,478	2,381
2008	11,783,282	11,159	14,128,707	2,398
2009	10,692,916	11,167	12,440,152	2,327
2010	12,113,885	11,063	13,983,997	2,309
2011	12,437,795	11,031	14,299,271	2,299
2012	**11,142,075**	**10,796**	**12,671,230**	**2,274**
2013	11,890,836	10,748	13,239,818	2,227
2014	9,985,599			
2015	8,784,647			
2016	8,847,098			
2017	9,063,584			
2018	8,406,662			
2019	9,117,342			
2015-2019 Avg.	**8,843,866**			
% Change (2005)	**27.3%**			

Gross Generation - MWH (2004-2013 Actual, 2014-2019 Forecasted)

Unit	Gross Capacity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman 1	160	1,015,003	972,787	1,081,188	1,127,222	848,304	994,526	1,072,065	1,200,851	1,061,238	1,076,261	375,076	0	0	0	0	0
Coleman 2	160	1,056,651	993,863	1,062,685	987,566	1,164,501	976,715	912,906	1,188,035	1,150,211	1,143,808	381,026	0	0	0	0	0
Coleman 3	165	1,046,163	1,053,560	818,420	1,153,978	1,189,245	973,117	1,176,392	1,236,305	1,218,405	1,221,138	417,419	0	0	0	0	0
Green 1	250	1,935,100	2,088,356	2,065,396	1,805,308	2,048,249	1,921,493	1,931,033	1,882,734	1,769,282	1,829,156	1,932,021	1,676,517	1,960,715	1,864,454	1,974,312	1,876,466
Green 2	242	1,908,836	1,820,002	2,004,708	1,958,378	1,935,299	1,587,865	1,962,238	1,937,441	1,456,899	1,890,581	1,849,047	1,877,939	1,780,564	1,901,729	1,624,888	1,918,498
Henderson 1	165	1,165,946	1,063,881	1,335,712	1,205,830	1,141,235	1,052,101	1,257,217	1,216,705	1,085,033	1,225,658	1,207,241	1,278,608	1,197,746	1,298,329	1,125,215	1,304,900
Henderson 2	172	1,011,496	1,240,827	1,212,873	1,141,274	1,195,102	1,292,882	1,178,960	1,151,995	1,118,391	1,030,030	1,246,667	1,183,252	1,260,485	1,201,043	1,275,097	1,181,074
Wilson 1	448	3,411,251	3,669,400	3,487,772	3,463,357	3,251,686	2,930,207	3,577,667	3,647,700	3,317,746	3,567,979	3,206,071	3,535,772	3,424,848	3,591,915	3,148,155	3,634,708
Reid 1	65	233,050	346,718	131,157	244,279	132,892	19,670	176,082	121,633	29,068	22,583	271,824	0	0	0	0	0
SYSTEM w/Reid	**1827**	**12,783,496**	**13,249,394**	**13,199,911**	**13,087,192**	**12,906,513**	**11,748,576**	**13,244,560**	**13,583,399**	**12,206,273**	**13,007,194**	**10,886,392**	**9,552,089**	**9,624,358**	**9,857,470**	**9,147,667**	**9,915,646**

Net Generation - MWH (2004-2013 Actual, 2014-2019 Forecasted)

Unit	Net Capacity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman 1	150	945,215	906,323	1,006,662	1,043,409	791,658	925,616	995,977	1,125,022	961,791	976,351	341,173	0	0	0	0	0
Coleman 2	138	980,715	920,079	933,488	854,406	1,008,388	831,323	774,373	1,027,417	1,046,232	1,041,020	347,865	0	0	0	0	0
Coleman 3	155	965,976	969,618	761,801	1,064,671	1,108,590	902,655	1,091,556	1,155,921	1,109,183	1,111,193	380,781	0	0	0	0	0
Green 1	231	1,756,430	1,904,987	1,876,343	1,649,479	1,875,290	1,744,526	1,754,072	1,708,535	1,600,571	1,657,060	1,753,372	1,521,479	1,779,394	1,692,035	1,791,735	1,702,937
Green 2	223	1,742,647	1,656,052	1,826,151	1,781,751	1,758,645	1,438,554	1,787,121	1,761,631	1,316,014	1,717,875	1,687,052	1,713,448	1,624,602	1,735,154	1,482,562	1,750,454
Henderson 1	153	1,066,140	965,804	1,226,454	1,103,823	1,043,199	959,730	1,146,423	1,108,696	990,159	1,121,093	1,107,310	1,172,820	1,098,648	1,190,909	1,032,118	1,196,936
Henderson 2	159	924,366	1,137,431	1,112,078	1,042,430	1,093,226	1,182,523	1,078,948	1,051,742	1,015,444	938,590	1,143,221	1,085,055	1,155,878	1,101,369	1,169,277	1,083,058
Wilson 1	417	3,172,128	3,404,322	3,203,632	3,210,322	2,995,194	2,707,367	3,338,582	3,403,807	3,093,436	3,324,807	2,984,980	3,291,846	3,188,575	3,344,116	2,930,970	3,383,957
Reid 1	55	200,213	307,446	104,181	213,542	109,092	622	146,833	95,024	9,245	2,846	239,845	0	0	0	0	0
SYSTEM	**1681**	**11,753,830**	**12,172,062**	**12,050,790**	**11,963,833**	**11,783,282**	**10,692,916**	**12,113,885**	**12,437,795**	**11,142,075**	**11,890,836**	**9,985,599**	**8,784,647**	**8,847,098**	**9,063,584**	**8,406,662**	**9,117,342**

Adjusted Net Heat Rate - BTU/kWH (2004-2013 Actual, 2014-2019 Forecasted)

Unit	Net Capacity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman 1	150	10,765	10,569	10,762	10,925	10,562	10,702	10,694	10,925	10,926	10,885						
Coleman 2	138	10,982	11,040	11,491	11,614	11,520	11,861	11,934	10,946	10,820	10,834						
Coleman 3	155	10,626	10,548	10,557	10,506	10,522	10,837	10,629	10,870	10,818	10,720						
Green 1	231	11,037	11,185	11,329	11,067	10,952	11,049	11,125	11,270	10,912	10,945						
Green 2	223	11,152	11,275	11,393	11,285	11,255	11,302	11,159	11,193	10,999	10,989						
Henderson 1	153	10,622	10,831	10,707	10,996	10,904	10,860	10,961	11,035	10,687	10,539						
Henderson 2	159	10,923	11,076	11,169	11,238	11,053	11,151	11,194	11,286	11,130	10,847						
Wilson 1	417	11,280	11,117	11,264	11,445	11,520	11,342	10,885	10,752	10,510	10,508						
Reid 1	65	13,433	12,804	14,721	13,622	14,222	13,403	14,200	15,027	13,362	13,046						
SYSTEM	**1691**	**11,054**	**11,073**	**11,189**	**11,232**	**11,159**	**11,167**	**11,063**	**11,031**	**10,796**	**10,748**						
SYSTEM w/o R1	**1626**	**11,012**	**11,028**	**11,158**	**11,188**	**11,130**	**11,167**	**11,025**	**11,001**	**10,794**	**10,747**						

CO2 Emissions - Tons (2004-2013 Actual, 2014-2019 Forecasted - Calculated plus 2%)

Unit		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman		3,363,125	3,338,574	3,404,057	3,653,553	3,583,946	3,218,682	3,385,305	3,856,401	3,644,184	3,605,704						
Wilson		4,047,386	4,182,682	3,758,819	3,881,863	3,761,299	3,146,404	3,716,339	3,796,180	3,350,517	3,357,326						
Green		4,098,105	4,082,404	4,215,731	3,923,035	4,095,465	3,600,215	4,103,478	4,004,676	3,372,513	3,912,971						
HMP'L (gross)		2,430,314	2,524,487	2,728,132	2,467,124	2,515,526	2,450,618	2,577,531	2,499,104	2,269,602	2,338,508						
Reid		273,513	438,984	164,904	315,903	172,471	24,233	201,344	142,910	34,414	25,308						
SYSTEM		**14,212,443**	**14,567,131**	**14,271,643**	**14,241,478**	**14,128,707**	**12,440,152**	**13,983,997**	**14,299,271**	**12,671,230**	**13,239,818**						

CO2 Emissions - Tons (Calculated using Heat Rate and Carbon Emissions for Bituminous Coal)

Unit		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman		3,209,940	3,081,811	3,044,642	3,343,422	3,254,452	3,039,046	3,239,209	3,713,074	3,479,200	3,478,247						
Wilson		3,680,138	3,892,445	3,711,415	3,778,929	3,548,802	3,158,210	3,737,617	3,764,077	3,343,860	3,593,281						
Green		3,992,608	4,111,867	4,326,121	3,945,516	4,148,118	3,654,652	4,058,105	4,008,386	3,285,057	3,806,863						
HMP'L (gross)		2,203,190	2,371,598	2,628,069	2,453,226	2,412,704	2,428,184	2,534,603	2,479,140	2,250,741	2,262,286						
Reid		276,611	404,873	157,736	299,177	159,572	857	214,445	146,862	12,705	3,818						
SYSTEM		**13,362,486**	**13,862,595**	**13,867,982**	**13,820,270**	**13,523,648**	**12,280,950**	**13,783,978**	**14,111,538**	**12,371,563**	**13,144,495**						

CO2 Emissions - lbs/Net MWh (2004-2013 Actual, 2014-2019 Forecasted)

Unit		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman		2,326	2,388	2,520	2,467	2,464	2,420	2,366	2,331	2,338	2,305						
Wilson		2,552	2,457	2,347	2,418	2,512	2,324	2,226	2,231	2,166	2,020						
Green		2,342	2,293	2,277	2,287	2,254	2,262	2,318	2,308	2,313	2,319						
HMP'L (gross)		2,442	2,401	2,333	2,299	2,355	2,288	2,316	2,314	2,263	2,271						
Reid		2,732	2,856	3,166	2,959	3,162	77,920	2,742	3,008	7,445	17,787						
SYSTEM		**2,418**	**2,394**	**2,369**	**2,381**	**2,398**	**2,327**	**2,309**	**2,299**	**2,274**	**2,227**						

CO2 Emissions - lbs/Gross MWh (2004-2013 Actual, 2014-2019 Forecasted)

Unit		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Coleman		2,157	2,211	2,298	2,235	2,239	2,186	2,142	2,128	2,125	2,096						
Wilson		2,373	2,280	2,155	2,242	2,313	2,148	2,078	2,081	2,020	1,882						
Green		2,132	2,089	2,072	2,085	2,056	2,052	2,108	2,097	2,091	2,104						
HMP'L (gross)		2,232	2,191	2,141	2,102	2,153	2,090	2,116	2,110	2,060	2,073						
Reid		2,347	2,532	2,515	2,586	2,596	2,464	2,287	2,350	2,368	2,241						
SYSTEM		**2,224**	**2,199**	**2,162**	**2,176**	**2,189**	**2,118**	**2,112**	**2,105**	**2,076**	**2,036**						

Big Rivers System		
Year	**Generation**	**Net Heat Rate**
	Net MWh	**BTU/kWh**
2005	12,172,062	11,073
2012	11,142,075	10,796
2012 - 2005	(1,029,987)	(277)
% Change from 2005	-8.5%	-2.5%
Upgrades (2015-2019)	**Annual Gen. (Est.)**	**Net Heat Rate**
	Net MWh	**BTU/kWh**
Turbine Upgrades - 3 units Burner Replacement - 1 unit	11,850,000	10,620
Estimate - 2005	(322,062)	(453)
% Change from 2005	**-2.6%**	**-4.1%**
Estimate - 2012	707,925	(176)
% Change from 2012	**6.4%**	**-1.6%**

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Item 24) Please refer to the confidential version of page 91 of the IRP.

a. For each of the "Projected Cap Ex 2018" values shown on that page, provide any analyses, reports, or other documents supporting the development of these cost estimates

b. For each of the "Projected Incremental O&M 2019" values shown on that page, provide any analyses, reports, or other documents supporting such cost estimates.

c. State whether any of the pollution controls referenced on page 91 of the IRP are included in the Base Case scenario for this IRP.

i. If so, identify which ones.

ii. If not, explain why not.

Response)

a. See Sargent and Lundy 2012 Environmental Compliance Study filed in Case No. 2012-00063 (Exhibit DePriest-2) and Burns and MacDonnell 2014 ELG Master Planning Study filed in Case No. 2013-00199 as an updated response to post-hearing data request item 15.

b. Please see response to subpart a.

c. None of the pollution control systems shown on page 91 of the IRP were included in the base case scenario for this IRP. They were included in the Environmental cases as indicated.

Witness) Eric Robeson and Marlene Parsley

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Item 25) Refer to page 92 of the IRP. With regards to the evaluation of converting a portion of Big Rivers' existing coal-fired fleet to natural gas:

a) Explain the results of any such evaluation that has occurred to date and produce any reports or other documents regarding such evaluation.

b) Produce any modeling files and workpapers (in electronic, machine-readable format with formulas intact) for any such evaluation that has occurred to date.

c) To the extent that Big Rivers is still undertaking such evaluations, identify the estimated schedule for completing such evaluations.

Response)

a) Big Rivers is proceeding with the conversion of the Reid 1 unit to burn natural gas as outlined in the CPCN Case No. 2012-00063 for MATS compliance. Reid 1 unit has received a one year extension for MATS compliance and the natural gas conversion is scheduled to be completed in the Spring of 2016. Also, Big Rivers has briefly investigated the conversion of the Green units to natural gas combustion. No reports regarding the Green units' natural gas conversion have been completed.

b) Big Rivers performed PCM model runs with the Green units on natural gas in January, 2014. Please see the three attachments in the folder SC1-25 on the confidential electronic media accompanying these responses.

c) The estimated schedule for completing such evaluations has not been determined.

Witness) Duane E. Braunecker

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Item 26) Refer to Table 10.3 on page 109 of the IRP.

a. Produce any modeling files or workpapers (in electronic, machine readable format with formulas intact) used to calculate the present value costs identified therein.

b. Identify the present value costs for the rest of the 17 sensitivity analyses that Big Rivers carried out but for which results are not identified in Table 10.3.

c. Produce any modeling files or workpapers (in electronic, machine readable format with formulas intact) used to calculate the present value costs for the rest of the 17 sensitivity analyses.

Response)

a. See attachment to SC-1-15 which contains present value calculations for market revenues which were deducted from Strategist present values.

b. Strategist present values were calculated by the model and can be found on the "ACCUM PV TOTAL RESOURCE COST" line item of the "Proview Least Cost Optimization System, System Cost Report" in the report file for each case. The report files are contained in Appendix H of the Big Rivers IRP document. Please note that the present values shown in Table 10.3 are incorrect due to an editing error.

Correct values for those cases are [redacted] (base case), [redacted] (Extreme Weather Case), [redacted] (High Economics Case), and [redacted] (RPS Case). It is important to note that the corrected values reflect the accurate results of the strategist runs which were used in our analysis, and cause no change in the outcome of the Integrated Resource Plan.

c. See Big Rivers' response to AG1-24 for the report files which are contained in Appendix H of the Big Rivers IRP.

Witness) Brian D. Smith

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Item 27) **Refer to page 110 of the IRP. With regards to natural gas prices:**

a) Identify for each of the years 2014 through 2028 the projected price of natural gas used by Big Rivers in the IRP.

b) Explain the basis for such natural gas price projection.

c) Identify and produce any natural gas price forecasts or other reports, analyses, or documents relied on by Big Rivers in developing the natural gas price projection.

d) Produce any report, analysis, or study supporting the contention that "significant questions [have] surface[d] in the industry about natural gas costs and availability" and that gas may "lose much of the favor it currently enjoys in the electric power industry."

Response)

a) Please see the attachment in the folder SC1-27 on the confidential electronic media accompanying these responses.

b) Big Rivers and GDS utilized the ACES Henry Hub natural gas monthly price projections with a quote date of 2/4/14 with the added delivery charges ([redacted]).

c) Please see the attachment in the folder SC1-27 on the confidential electronic media accompanying these responses.

d) Questions have surfaced about natural gas costs and availability from many industry group discussions, including Technical Conferences and Notices of Proposed Rulemakings regarding the Coordination of Natural Gas and Electric industries by FERC (documents and analysis available at http://www.ferc.gov/industries/electric/indus-act/electric-coord.asp), NAESB (documents and discussion are available at https://www.naesb.org/committee_activities.asp), and the MISO Electric and Natural Gas Coordination Task Force (documents, studies, and analysis available at the following link: https://www.misoenergy.org/STAKEHOLDERCENTER/COMMITTEESWORKGROUPSTASKFORCES/ENGCTF/Pages/home.aspx).

The phrases selected in request d) come from a paragraph explaining Big Rivers' Integration Analysis, following a description of the optimal expansion plans for the two sensitivities requiring new capacity: Extreme Weather and High Economics. In those cases, combined cycle generation was the chosen

resource type. Following is the actual paragraph from page 110 "...Based on the current projections of natural gas costs, the combined cycle unit was the generation choice for these sensitivities; however, recent events (extreme winter weather conditions and experiences) have caused significant questions to surface in the industry about natural gas costs and availability. If natural gas costs increase significantly, it is possible gas will lose much of the favor it currently enjoys in the electric power industry. If Big Rivers develops a need for generation in the future, a comprehensive analysis of combined cycle technology will be performed along with other technologies available at that point in time." Therefore, the decision Big Rivers faces about which resource to build to meet load needs will come sometime in the future.

Witness) Marlene S. Parsley and Duane E. Braunecker

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Item 28) With regards to Big Rivers' Base Case assumptions regarding the price of coal:

a) Identify for each of the years 2014 through 2028 Big Rivers' coal price projection

b) Explain the basis for such coal price projection.

c) Identify and produce any coal price forecasts or other reports, analyses, or documents relied on by Big Rivers in developing the coal price projection.

d) Identify the percent of Big Rivers' projected coal use for each of the years 2014 through 2028 that is already under a coal purchase contract.

Response)

a) Please see the attachments in the folder SC1-28 on the confidential electronic media as well as the confidential paper attachments accompanying these responses.

b) Big Rivers' Fuels Department provided the coal price forecasts for the years 2014 - 2017 by utilizing the coal under contract and spot coal price projections. Spot coal price projections were calculated utilizing available coal bid information (market price) and the following indices (ACES, JD Energy, Argus Coal Daily, ICAP, and Platt's Coal Trader). All units would be available for generation for the whole period.

Big Rivers utilized a JD Energy long-term forecast to determine an annual percent increase to calculate years 2018 to 2028.

c) Please see the attachments in the folder SC1-28 on the confidential electronic media as well as the confidential paper attachments accompanying these responses

d) Please see the attachments in the folder SC1-28 on the confidential electronic media as well as the confidential paper attachments accompanying these responses for the basis of the percentages below.

2014 – 44%

2015 – 47%

2016 – 17%

2017-2028 – 0% (no coal currently under contract)

Witness) Duane E. Braunecker

Attachment(s) provided under petition for confidential treatment

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Item 29) **Refer to page 110 of the IRP. Produce the reserve margin analysis referenced therein.**

Response) See Big Rivers' response to PSC-1-28.

Witness) Marlene S. Parsley

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Item 30) **Refer to Table 11.1 on page 112 of the IRP.**

a) Produce any modeling files and workpapers (in electronic, machine-readable format with formulas intact) used to develop the data in Table 11.1.

b) For each year of 2014 through 2028, identify the member revenues/sales amount in $/MWh for each of the rural, small commercial and industrial, and large industrial classes for the base case scenario reported in Table 11.1.

c) For each year of 2014 through 2028, identify the member revenues/sales amount in $/MWh for each of the rural, small commercial and industrial, and large industrial classes for each of the sensitivity cases ran as part of the IRP.

Response)

a. The electronic files used to develop the data in Table 11.1 are provided in the folder SC 1-30 on the confidential electronic media with this response.

b. In the electronic file named **SC 1-30 Attachment - Member Revenue for 2014 IRP (4-3-2014).xlsx** provided in the response to part a. above, the projected wholesale rates are provided on the "Member Revenue" worksheet in row 13 for the rural class and on row 29 for the Large Industrial class.

c. While the load forecast used in the analysis addressed price elasticities for rural and industrial classes, the revenues and sales were not calculated at the class level for the sensitivities.

Witness) Christopher A. Warren

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Item 31) Please refer to Appendix G of the IRP filing. With regards to the market energy prices presented therein:

a. State whether the values presented in confidential Appendix G are in real or nominal dollars. If the values are in nominal dollars, identify what inflation rate is assumed.

b. Explain how the forecasted market energy prices presented in confidential Appendix G were developed.

c. Identify and produce any market energy price forecast relied on in developing the prices presented in confidential Appendix G.

d. Identify the corresponding actual market energy prices for each month of January through July 2014.

Response)

a. Values presented in confidential Appendix G are shown in nominal dollars. The inflation assumptions are [redacted] and [redacted] for 2014 and 2015, then [redacted] for 2016 to the end of the forecast.

b. Forecasted market energy prices in confidential Appendix G for energy and for capacity were developed using Wood Mackenzie North America power markets long

term outlook equilibrium prices. The Wood Mackenzie North America power markets long term outlook is an equilibrium model that simulates both the supply and demand sides of the energy market. This includes simulating the interaction across the fuel commodities gas, coal, and oil. The model takes into account all announced plant retirements and construction, renewable portfolio standards, and emissions regulation. As the market dictates, the model builds generic generation resources at the margin to maintain reliability vis-à-vis reserve margins. Various economic assumptions including GDP growth and inflation are also included. The model produces three layers of prices: short run marginal cost prices which represent the production cost of the marginal MW, the scarcity premium above short run marginal cost that generators can expect to receive in the energy market that covers fixed costs and bid mark-ups, and the capacity price required for new market entry. By simulating the dispatch of all these inputs the Wood Mackenzie long term outlook arrives at the equilibrium prices.

c. See Big Rivers response to AG 1-29.

d. Indiana Hub Day Ahead LMP's are included in the folder SC 1-31 on electronic media accompanying these responses.

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Witness) Marlene S. Parsley

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Item 32) Please refer to the "High/Low Capacity Prices" table in Appendix H of the IRP

a. Provide the base, high, and low capacity prices used to calculate capacity revenues in this table, for each year from 2013 through 2028.

b. State whether the capacity prices are in real or nominal dollars. If they are in nominal dollars, identify what inflation rate is assumed in these price estimates.

c. Explain how the capacity prices used to calculate capacity revenues identified in confidential Appendix H were developed.

d. Identify and produce any capacity price forecast relied on in developing the capacity revenues presented in confidential Appendix H.

Response)

a. See confidential attachment containing annual base, low, and high capacity prices for each year of the IRP study period.

b. The capacity prices are in nominal dollars. The inflation assumptions are [redacted] and [redacted] for 2014 and 2015, then [redacted] for 2016 to the end of the forecast.

c. See Big Rivers' response to SC 1-31b.

d. See Big Rivers' response to AG 1-29.

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1 **Witness)** Marlene S. Parsley

Market Capacity Price
($/kW - Yr)

	Base Market Capacity Price	High Market Capacity Price	Low Market Capacity Price
2013	0.40	0.48	0.32
2014	[redacted]		
2015			
2016			
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			

Market Capacity Sales Revenues
($000)

	Base Market Capacity Price	High Market Capacity Price	Low Market Capacity Price
2013	346	415	277
2014	[redacted]		
2015			
2016			
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
PV			

BIG RIVERS ELECTRIC CORPORATION

2014 INTEGRATED RESOURCE PLAN
OF BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2014-00166

Response to Ben Taylor and Sierra Club's
Initial Request for Information
Dated August 20, 2014

September 10, 2014

Item 33) **Produce, in machine readable format with formulas intact, the most recent version of Big Rivers' long-term financial model, including all inputs and outputs through the year 2028.**

Response) The most recent version of Big Rivers' long-term financial model is available through 2017 and is provided on the confidential electronic media in response to AG 1-6.

Witness) Christopher A. Warren

BIG RIVERS ELECTRIC CORPORATION

2014 INTEGRATED RESOURCE PLAN
OF BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2014-00166

Response to Ben Taylor and Sierra Club's
Initial Request for Information
Dated August 20, 2014

September 10, 2014

Item 34) **State whether Big Rivers has evaluated the retirement, rather than idling, of any of its generating units as an option for mitigating the impact of the termination of the smelter contracts.**

a. If so:

i. Identify which unit or units were evaluated

ii. Explain the results of that evaluation

iii. Produce any report or other document regarding that evaluation

b. If not, identify and explain each reason why not.

Response) No. See Big Rivers' response to SC 1-16g.

Witness) Lindsay Barron

BIG RIVERS ELECTRIC CORPORATION

2014 INTEGRATED RESOURCE PLAN
OF BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2014-00166

Response to Ben Taylor and Sierra Club's
Initial Request for Information
Dated August 20, 2014

September 10, 2014

Item 35) For each of the Wilson, Green, Coleman, Reid, and HMP&L generating units:

a) Identify the estimated retirement date.

b) Produce any analysis or assessment of the economics of continued operation of such unit.

c) Produce the most recent condition assessment for each unit.

d) Produce any analysis or assessment of the impact that retirement of each unit would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability.

e) Identify any transmission grid upgrades or changes that would be needed to allow for the retirement of any of the units.

f) Produce any analysis or assessment of the need for the continued operation of each unit.

g) Provide the remaining book value (plant balance) at the start of 2014.

h) Provide the estimated market value of each unit at the start of 2014.

i) Describe how Big Rivers estimated the market value of each unit.

Response)

a) Please see Big Rivers' response to KIUC 1-46 in CN 2013-00199.

b) Please see Big Rivers' response to KIUC 1-46 in CN 2013-00199.

c) Please see the November 2012 Depreciation Study that was provided as Exhibit Kelly-1 in the Direct Testimony of Mr. Ted J. Kelly in Case No. 2012-00535.

d) Big Rivers has performed no studies to assess the impact that unit retirements would have on capacity adequacy, transmission grid stability, transmission grid support, voltage support, or transmission system reliability. However, Big Rivers is required to file an Attachment Y with MISO prior to retiring or suspending the operation of any unit, at which time MISO will perform such an analysis. MISO will also perform an informational Attachment Y-2 study if requested. Redacted Attachment Y study reports for the Coleman units and for Wilson are attached, and a redacted Green units Attachment Y-2 report is provided in the folder SC 1-35 on the electronic media accompanying these responses.

e) As indicated in the MISO Attachment Y study report, the Coleman units were initially designated as SSR units until Century installed the necessary equipment to eliminate the SSR condition. No transmission grid upgrades or changes were identified in the Green and Wilson study reports.

f) Please see Big Rivers' response to KIUC 1-46 in CN 2013-00199.

g) Please see attachment displaying the Big Rivers' remaining book value at the start of 2014.

h) Please see Big Rivers' responses to SC 2-6 and PSC 2-18 in Case No. 2012-00535

i) Please see response to part h above.

Witness) Duane E. Braunecker, Christopher Bradley, Nicholas Castlen

Big Rivers Electric Corporation
Case No. 2014-00166

Net Book Value of Plants at 1/1/2014

		Net Book Value 1/1/2014
Reid	$	7,748,400
Coleman		179,364,740
Green		152,053,290
Wilson		441,390,137
HMP&L		85,355,138
Combustion Turbine		2,210,885
Total	**$**	**868,122,590**

Attachment Y Study
Coleman Units 1, 2 & 3: 443 MW Coal
28 Month Suspension 9/01/2013 – 1/1/2016

ATTACHMENT Y STUDY REPORT

July 18, 2013

DRAFT

PUBLIC/REDACTED

EXECUTIVE SUMMARY

The completed Attachment Y Notification of Potential Generation Resource/SCU change of Status (Attachment Y Notice) submitted by Big Rivers Electric Cooperation (BREC) on May 24, 2013. The request was for suspension of units 1, 2 & 3 from September 1, 2013 to January1, 2016.

After being reviewed for Transmission System reliability impacts as provided for under Section 38.2.7 of the MISO Open Access Transmission, Energy and Operating Reserve Markets Tariff (Tariff), MISO determined that potential reliability issues exist that would require the need for Coleman Units 1, 2 and 3 to enter into an System Support Resource (SSR) Agreement if a mitigation plan is not developed and implemented prior to the potential unit change of status.

Contents

I. INTRODUCTION

The completed Attachment Y Notification of Potential Generation Resource/SCU change of Status (Attachment Y Notice) submitted by Big Rivers Electric Cooperation (BREC) on May 24, 2013. The request was for suspension of units 1, 2 & 3 from September 1, 2013 to January 1, 2016.

After being reviewed for Transmission System reliability impacts as provided for under Section 38.2.7 of the MISO Open Access Transmission, Energy and Operating Reserve Markets Tariff (Tariff), MISO determined that potential reliability issues exist that would require the need for Coleman Units 1, 2 and 3 to enter into an System Support Resource (SSR) Agreement if a mitigation plan is not developed and implemented prior to the potential unit change of status.

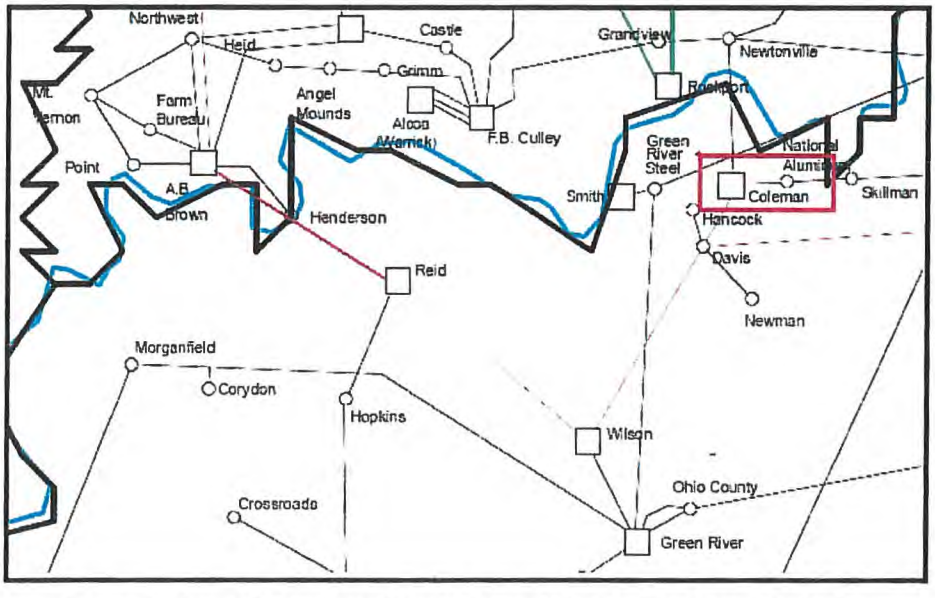

Figure 1: General Location of the Coleman Plant in Northern Kentucky

II. STUDY OBJECTIVES

The purpose of this study was to assess the reliability impacts from the suspension of the Coleman Station coal generation located in Hawesville, Kentucky. The operator of the Coleman generating station, Big Rivers Electric Cooperation (BRPS), submitted an Attachment Y notification to MISO for the consideration of suspending the generating station effective from September 1, 2013 to January 1, 2016.

III. MODELS AND ASSUMPTIONS

Corresponding to the anticipated suspension of the Coleman Units 1, 2, & 3 the following power system analysis source models were used for the study:

- 2014 Summer Peak
- 2014 Summer Peak with Stressed 2000MW MISO – TVA transfer
- 2017 Summer Peak
- 2017 Shoulder

The Attachment Y study models were created following the MISO Transmission Planning Business Practice Manual (BPM-020-r8) Section 6.2.2. This includes creating a set of models from each source model in which the units being studied are at full generation or taken out of service.

a. Model Assumptions

1. Load Sensitivity to Century Aluminium Plant (485 MW)

b. Transmission Projects

1. LGEE / KU Matanzas 161 kV Substation The new Matanzas 161 kV Substation has an anticipated in-service date of December 1, 2012. This new substation will be included in the 2014 and 2017 models since the substation will be in-service during the time Coleman Generation is unavailable.

c. Table of Models

n	Model	Coleman 1,2,3	Century Aluminum	Contingency Categories
1	2014SP	off	off	B, C1, C2, C5
2	2014SP	off	on	B, C1, C2, C5
3	2014SP	on	off	B, C1, C2, C5
4	2014SP	on	on	B, C1, C2, C5
5	2017SH	off	off	B, C1, C2, C3, C5
6	2017SH	off	on	B, C1, C2, C3, C5
7	2017SH	on	off	B, C1, C2, C3, C5
8	2017SH	on	on	B, C1, C2, C3, C5
9	2017SP	off	off	B, C1, C2, C5
10	2017SP	off	on	B, C1, C2, C5
11	2017SP	on	off	B, C1, C2, C5
12	2017SP	on	on	B, C1, C2, C5
13	2014SP Stressed	on	on	B, C1, C2, C5
14	2014SP Stressed	off	on at 338MW, with 200MVar cap bank at Coleman 161kV bus	B, C1, C2, C5

IV. STUDY CRITERIA AND METHODOLOGY

Siemens PTI's Power System Simulator for Engineering (PSS/E) and Managing and Utilizing System Transmission (MUST) were used to perform AC contingency analysis.

Two phases of study have been studied. In phase 1, the system impact of Coleman generating units were evaluated by comparing the contingency analysis study result of the before Coleman suspension and after Coleman suspension case. The models were solved with automatic control of Load Tap Changers (LTCs), phase shifters, DC taps, switched shunts enabled (regulating), and area interchange disabled. The results are compared to determine if there were any criteria violations due to the change in the status for the unit(s).

Since reliability issues have been identified in Phase 1 study, and Coleman Units are identified as required SSR units, Phase 2 study was performed to evaluate the potential alternative to mitigate the reliability issue caused by Coleman generating units' suspension. In this case, the potential reduction of Century Load was evaluated.

a. Applicable Transmission Planning Criteria

MISO Transmission Owners

AMIL Transmission Planning Criteria applied for the thermal analysis:

- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for AMIL System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for AMIL System

AMIL Transmission Planning Criteria applied for the voltage analysis:
- For Category A contingencies, all substation voltages less than 95% or above 105%
- For Category B and C contingencies, all substation voltages less than 90% or above 110%

BREC Transmission Planning Criteria applied for the thermal analysis:
- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for BREC System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for BREC System

BREC Transmission Planning Criteria applied for the voltage analysis:
- For Category A contingencies, all substation voltages less than 95% or above 105%
- For Category B and C contingencies, all substation voltages less than 92% or above 105%

DEI Transmission Planning Criteria applied for the thermal analysis:
- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for DEI System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for BREC System

DEI Transmission Planning Criteria applied for the voltage analysis:
- For Category A contingencies, >100 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 90% or above 105%

HE Transmission Planning Criteria applied for the thermal analysis:
- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for HE System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for HE System

HE Transmission Planning Criteria applied for the voltage analysis:
- For Category A contingencies, >100 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 90% or above 110%

SIGE Transmission Planning Criteria applied for the thermal analysis:
- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for SIGE System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for SIGE System

SIGE Transmission Planning Criteria applied for the voltage analysis:
- For Category A contingencies, >100 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 95% or above 105%

SIPC Transmission Planning Criteria applied for the thermal analysis:

- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for SIGE System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for SIGE System

SIPC Transmission Planning Criteria applied for the voltage analysis:

- For Category A contingencies, >100 kV substation voltages less than 91% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 91% or above 105%

Non–MISO Transmission Owners

LGEE Transmission Planning Criteria applied for the thermal analysis:

- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for LGEE System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for LGEE System

LGEE Transmission Planning Criteria applied for the voltage analysis:

- For Category A contingencies, >100 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 90% or above 110%

TVA Transmission Planning Criteria applied for the thermal analysis:

- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for TVA System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for TVA System

TVA Transmission Planning Criteria applied for the voltage analysis:

- For Category A contingencies, >100 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 90% or above 110%

AECI Transmission Planning Criteria applied for the thermal analysis:

- For Category A contingencies, all thermal loadings exceeding 100% of the normal rating for AECI System
- For Category B and C contingencies, all thermal loadings exceeding 100% of the emergency rating for AECI System

AECI Transmission Planning Criteria applied for the voltage analysis:

- For Category A contingencies, >100 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >100 kV substation voltages less than 90% or above 110%

Under category C contingencies, for the valid thermal and voltage violations as specified above, generation re-dispatch, system reconfiguration, and/or load shedding will be considered if applicable.

b. MISO Transmission Planning BPM - SSR Criteria

As specified in MISO BPM-020-r7, the SSR criteria for determining if an identified facility is impacted by the generator's change of status will be:

- Under system intact and contingent events, branch thermal violations are only valid if the flow increase on the element in the "after" retirement scenario is equal to or greater than:
  a) 5% of the "to-be-retired" unit(s) MW amount (i.e. 5% Power Transfer Distribution Factor (PTDF)) for a "base" violation compared with the "before" retirement scenario, or
  b) 3% of the "to-be-retired" unit(s) amount (i.e. 3% Outage Transfer Distribution Factor (OTDF)) for a "contingency" violation compared with the "before" retirement scenario.
- Under system intact and contingent events, high and low voltage violations are only valid if the change in voltage is greater than 1% as compared to the "before" retirement voltage calculation.

c. Contingencies

A subset of the MISO Transmission Expansion Plan (MTEP) contingencies in the central region was used for AC contingency analysis. Additional contingencies from TVA, LG&E, and AECI were included in this analysis to provide coverage for events on those adjacent transmission systems.

The following North American Electric Reliability Corporation (NERC) Categories of contingencies were evaluated:

1. Category A when the system is under normal conditions.
2. Category B contingencies resulting in the loss of a single element.
3. Category C contingencies resulting in the loss of two or more (multiple) elements.
4. Maintenance outage condition with forced outage during shoulder load conditions.

V. STUDY RESULTS

a. Phase 1 Study Results

1 Branch Results (Appendix A Table 1a)

Table 1a in Appendix A shows contingent conditions causing branch criteria violations without Coleman Units 1 & 2 & 3 and the improvements resulting from the operation of Coleman Units 1 & 2 & 3. Contingent events causing branch violations include NERC Categories B, C1, C2, and C3. While the study scenario with Century Aluminum off does indicate fewer constraints, there remain a few thermal loading issues resulting from Category C contingencies that exist in the MISO Transmission system even with the load removed.

2 Voltage Results (Appendix A Table 1b)

Significant voltage criteria violations associated with the suspension of Coleman Units 1, 2, & 3 and continued operation of Century Aluminum were identified when compared to the continued

availability of the units. Table 1 in Appendix A shows contingent conditions causing criteria violations without Coleman Units 1, 2, & 3 and the improvements resulting from the operation of Coleman Units 1, 2, & 3. Contingent events causing voltage criteria violations include NERC Categories B, C1, C2, and C3. The acceptable post-contingency voltage range is between 0.92 per unit to 1.05 per unit. Therefore, voltages less than 0.92 or greater than 1.05 per unit are a criteria violation. If Century Aluminum were to cease operations, with a load of 0 MVA, the voltage issues within the MISO would be eliminated.

b. Phase 2 Study Results

1 FCITC Transfer Study

FCITC studies were performed to determine the maximum Century Loading without causing transmission system violation.

Three scenarios were studied to determine the maximum Century Loading

- 2014 summer peak
- 2017 summer shoulder
- 2014 summer peak with stressed 2000MW MISO-TVA transfer

The Stressed 2014 summer peak scenario was identified as the worst scenario. The maximum Century Loading was identified as 338MW under system intact and N-1 condition, 200MVar Capacitor Bank at Coleman 161kV bus is required to mitigate voltage violations. The most limiting element is Newtonville – Coleman 161 kV branch and the most critical contingency is [REDACTED].

The Prior-outage scenario was evaluated using the 2014 summer peak stressed case, the maximum Century Loading was identified as 132MW under prior outage of [REDACTED]. The most limiting element is Newtonville – Coleman 161 kV branch and the most critical contingency is [REDACTED]. The results are available at Appendix B.

2 Voltage Analysis (PV analysis) on C3 Contingency Event

The C3 contingency events was studied and the not-converged (blow up) event was selected for PV analysis. The double outage of [REDACTED] was identified causing voltage collapse.

PV analysis was performed to identify the maximum century loading before the voltage collapse. Figure below shows the PV curve of the transfer from AMIL to Century Load. The maximum Century Load before voltage collapse was identified as 230MW.

The study assumptions are summarized as follows,

- Study case: 2014 Summer Peak with 2000MW transfer from MISO to TVA
- C3 Contingency: [REDACTED]
- Capacitor Bank: 200Mvar Capbank at Coleman 161kV bus
- Transfer: AMIL to Century Load

Figure 2 below shows the PV curve of power transfer from AMIL to Century Load against bus voltage of Coleman 161kV bus, Skillman 161kV bus and Davis 161kV bus under [REDACTED]. The maximum Century Load before voltage collapse was identified as 230MW.

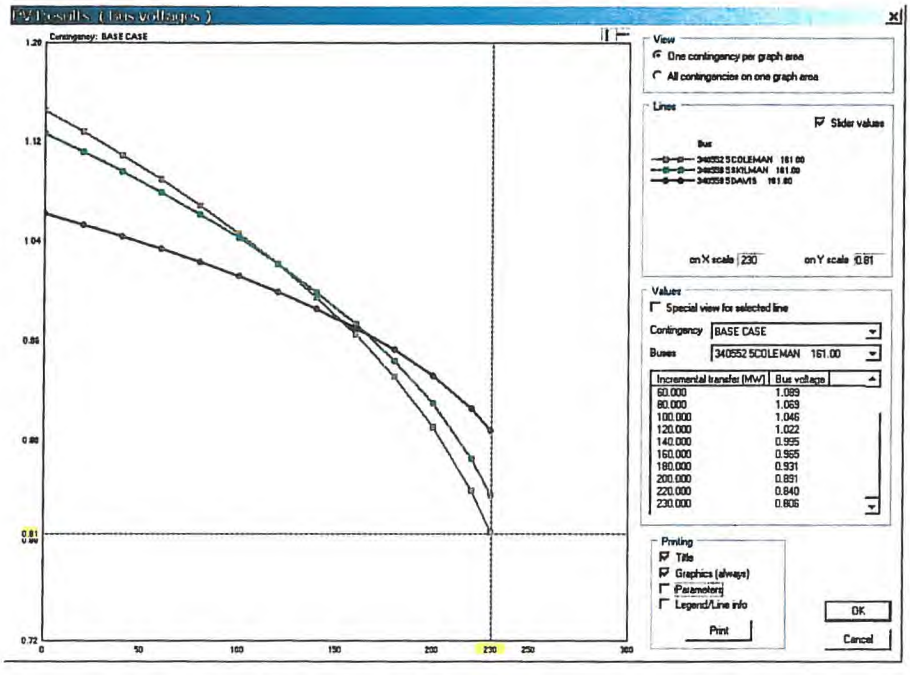

Figure 2: PV Curve on Dbl Contingency of [REDACTED]

VI. CONCLUSION

The study results indicate that potential reliability issues exist which would require the need for Coleman Units 1, 2 and 3 to enter into an SSR Agreement if a mitigation plan is not developed and implemented prior to the potential unit change of status, in accordance with Section 38.2.7 of the MISO Open Access Transmission, Energy & Operating Reserve Markets Tariff ("Tariff"). In addition to determining if reliability issues result from the suspension, further analysis was performed to identify the areas that are subject to allocation of the SSR costs. The areas identified for the cost allocation are Big Rivers Electric Corporation (BREC) and Southern Illinois Gas & Electric (SIGE).

The reduction of Century Load is identified as a potential alternative to avoid entering Coleman SSR agreement. The reductions are summarized as follows,

Century Load Maximum Loading Study Result

- System intact condition
  - Maximum Century Loading: 338MW
  - Most limiting element/Critical contingency
    - Newtonville – Coleman 161/ [REDACTED]
- Prior outage condition
  - Maximum Century Loading: 132MW
  - Most limiting prior outage
    - [REDACTED]
  - Most limiting element/Critical contingency under prior outage
    - Newtonville – Coleman 161 / [REDACTED]
- Voltage Collapse
  - Maximum Century Loading: 230MW
  - Most limiting C3 Contingency
    - [REDACTED]

VII. SSR AGREEMENT COST ALLOCATION

MISO utilizes a load shed methodology to determine the reliability benefits to each MISO Local Balancing Area (LBA) of operation, without the SSR unit(s). Although load shed is not permitted for NERC Category A or B events, this methodology determines the load shed amount needed to relieve all Category B reliability issues and the most severe Category C reliability issues identified, as a proxy for the reliability benefit of the SSR unit operation. The potential SSR Agreement LBA shares that were calculated for this Attachment Y-2 study are included below in Table 2.

Table 2: SSR Agreement LBA Shares

LBA	Load Shed (MW)	LBA Share
BREC	1504	99.5%
SIGE	7	.5%
Total	1511	100.00%

VIII. ANALYSIS OF ALTERNATIVES

c. New Generation or Generation Redispatch

No new dispatchable generation is currently planned for the impacted region.

d. System Reconfiguration and Operation Guidelines

Currently no operating procedures are available that would address specific contingency events to maintain transmission loading within limits

e. Demand Response or Load Curtailment

FCITC studies were performed to determine the maximum Century Loading without causing transmission system violation.

Three scenarios were studied to determine the maximum Century Loading

- 2014 summer peak
- 2017 summer shoulder
- 2014 summer peak with stressed 2000MW MISO-TVA transfer

The Stressed 2014 summer peak scenario was identified as the worst scenario. The maximum Century Loading was identified as 338MW under system intact and N-1 condition, 200MVar Capacitor Bank at Coleman 161kV bus is required to mitigate voltage violations. The most limiting element is Newtonville – Coleman 161 kV branch and the most critical contingency is [REDACTED].

The Prior-outage scenario was evaluated using the 2014 summer peak stressed case, the maximum Century Loading was identified as 132MW under prior outage of [REDACTED]. The most limiting element is Newtonville – Coleman 161 kV branch and the most critical contingency is [REDACTED].

The results are available at Appendix B.

The C3 contingency events were studied and the not-converged (blow up) event was selected for PV analysis. [REDACTED] was identified causing voltage collapse.

PV analysis was performed to identify the maximum century loading before the voltage collapse. Figure below shows the PV curve of the transfer from AMIL to Century Load. The maximum Century Load before voltage collapse was identified as 230MW.

f. Transmission Projects

BREC has not identified transmission upgrades that would be completed to alleviate the loading during the period of suspension. The loading is closely aligned with the local industrial load and mitigation by load curtailment is preferred during the suspension period.

IX. SUMMARY OF POTENTIAL SOLUTION

The suspension period is from 2013 – 2016 and the unit is planned to return to service. This will forego any need for transmission upgrades since the load may be adequately managed by curtailment of industrial load.

Curtailment of load via demand response is one of the alternatives to relieve transmission system overload. Century load would need to be reduced to mitigate potential constraints. The maximum Century loading is 338MW under system intact conditions, 132MW under prior outage of

[REDACTED] due to thermal loading and 230MW under prior outage of [REDACTED]to avoid potential voltage collapse.

A special protection scheme on Newtonsville to Coleman 161kV may provide automated post-contingent response to relieve the system constraints. While the Century plant may operate at 480MW under system intact conditions, curtailment of Century load to 230MW in following the contingent loss of [REDACTED] would be needed to avoid potential voltage collapse. Century Load will be reduced to 132MW at the outage of [REDACTED]. SPS may also be required in other branches with different settings.

X. APPENDICES

Appendix A: Steady-State AC Contingency Results

Table 1a: Branch Results

Table 1b: Voltage Results

Appendix B: FCITC Study Results

Table 2a: 2014SP FCITC

Table 2b: 2017SH FCITC

Table 2c: 2014SP Stressed FCITC

Table 2d: 2014SP Stressed FCITC under Double Outage Condition

Table 2e: PSS/e verification on 2014SP Stressed Scenario

MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Branch Results
CONFIDENTIAL / CEII - DO NOT RELEASE

		Limiting Element			Coleman 1, 2, & 3 OFF			Coleman 1,2, & 3 ON			Unit Impact			
Model	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	Cont MVA	Base Flow	Loading %	Cont MVA	Base Flow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	MISO Comments
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.0	239.6	100.0	#N/A	#N/A	#N/A	#N/A		#N/A	
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.0	239.6	100.0	#N/A	#N/A	#N/A	#N/A		#N/A	
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.3	239.6	100.1	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.3	239.6	100.1	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.9	25.6	102.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.9	25.6	102.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.9	25.6	102.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	253580 10NTVL16 161 253581 10NTVL13 138 T5	TR	176	217.4	91.9	123.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.9	25.6	102.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.3	239.6	100.1	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.3	239.6	100.1	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	491.0	239.6	146.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.9	25.6	102.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	324094 2TRTLE CRK T69.0 324562 2HAR557 69.0 1	LN	35	37.8	13.3	108.0	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	324543 2FOUR M 69.0 324686 2PINEVI 69.0 1	LN	32	33.6	15.4	105.0	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	249631 08THRNTN 230 991964 THORNTWN 1.00 1	TR	69.9	87.3	48.7	125.0	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250310 08BRINGH 69.0 250451 08FLORAJ 69.0 1	LN	34	37.4	3.0	110.0	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250321 08BURROW 69.0 250790 08ROCKFL 69.0 1	LN	34	47.6	8.1	139.9	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250441 08FFWSTJ 69.0 250457 08FRAK B 69.0 1	LN	100.3	112.0	57.8	111.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250451 08FLORAJ 69.0 250790 08ROCKFL 69.0 1	LN	34	43.6	4.5	128.2	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250457 08FRAK B 69.0 250683 08MIDLFO 69.0 1	LN	45	87.1	31.3	193.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250608 08KOK HP 69.0 250610 08KOHAJ1 69.0 1	LN	45	129.0	10.3	286.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250608 08KOK HP 69.0 250614 08KOSE 69.0 1	LN	65	69.7	44.0	107.2	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250610 08KOHAJ1 69.0 250798 08RUSIAV 69.0 1	LN	45	129.5	10.3	287.9	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250625 08LAF 69.0 250948 08WVMONI 69.0 1	LN	45	66.9	18.0	148.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250683 08MIDLFO 69.0 250795 08ROSSVL 69.0 1	LN	44	52.7	6.1	119.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250683 08MIDLFO 69.0 250798 08RUSIAV 69.0 1	LN	44	150.2	9.6	341.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250795 08ROSSVL 69.0 250948 08WVMONI 69.0 1	LN	45	65.9	17.0	146.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	250847 08THRNTW 69.0 991964 THORNTWN 1.00 1	TR	69.9	84.1	47.2	120.4	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	342.6	248.6	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	342.6	248.7	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	354.5	248.6	105.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	354.5	248.7	105.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	497.6	248.6	148.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	497.7	248.7	148.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.8	24.9	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	497.6	248.6	148.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	497.7	248.7	148.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.8	24.9	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	497.6	248.6	148.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	497.7	248.7	148.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.8	24.9	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	253510 10NE13 138 253511 10NE69 69.0 T2	TR	72	72.0	70.4	100.0	#N/A	#N/A	#N/A	#N/A		#N/A	
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	497.6	248.6	148.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	497.7	248.7	148.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.8	24.9	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248807 07DOGWOD 69.0 248808 07MAUKPT 69.0 1	LN	25	27.5	26.5	109.9	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248807 07DOGWOD 69.0 248808 07MAUKPT 69.0 1	LN	25	27.5	26.5	109.9	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	354.5	248.6	105.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	354.5	248.7	105.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	497.6	248.6	148.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	497.7	248.7	148.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension

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		Limiting Element			Coleman 1, 2, & 3 OFF			Coleman 1,2, & 3 ON			Unit Impact			
Model	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	Cont MVA	Base Flow	Loading %	Cont MVA	Base Flow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	MISO Comments
.2017SP	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	35.8	24.9	102.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	362186 2WATAUGA HP 69.0 362187 2ELIZABETHTN69.0 1	LN	58.4	62.7	61.4	107.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SPCentoff	[REDACTED CONTINGENCY]	248807 07DOGWOD 69.0 248808 07MAUKPT 69.0 1	LN	25	28.2	27.2	112.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SPCentoff	[REDACTED CONTINGENCY]	248807 07DOGWOD 69.0 248808 07MAUKPT 69.0 1	LN	25	28.2	27.2	112.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SPCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	62.2	61.2	106.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SPCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	60.0	61.2	102.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SPCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	62.2	61.2	106.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	347946 4PANA 138 348788 4SCHRAMCY TP 138 1	LN	202	232.8	38.0	115.2	219.4	35.0	108.6	13.4		3.0248307	Violation made worse by suspension
2017SH	[REDACTED CONTINGENCY]	348067 7RAMSEY 345 348068 4RAMSEY CIPS 138 1	TR	382	388.9	94.9	101.8	371.0	95.6	97.1	17.9		4.0406321	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	348067 7RAMSEY 345 348068 4RAMSEY CIPS 138 1	TR	382	388.3	94.9	101.7	370.5	95.6	97.0	17.8		4.0180587	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	434.2	133.5	129.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	434.4	133.6	129.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	248642 07MIDWAY 69.0 248861 07TRY_69 69.0 1	LN	35	37.1	24.6	106.0	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	324578 2HRDSTB 69.0 324769 2WALKRKU 69.0 1	LN	28	29.0	11.0	103.4	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	324628 2MARI S 69.0 324629 2MARONKU 69.0 1	LN	28	28.4	19.6	101.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.6	62.7	105.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	325077 5COLEMAN TAP 161 325078 5PADUCAH PRI 161 1	LN	245	251.4	181.2	102.6	236.0	172.3	96.3	15.4		3.476298	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340618 5LIVING 161 360016 5MARSHALL KY 161 1	LN	223	238.1	63.0	106.8	214.2	56.1	96.1	23.9		5.3950339	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340618 5LIVING 161 360326 5BARKLEY HP 161 1	LN	223	281.2	92.6	126.1	250.2	79.5	112.2	31.0		6.9977427	Violation made worse by suspension
2017SH	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.7	62.7	105.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.7	62.7	105.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.7	62.7	105.6	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	325077 5COLEMAN TAP 161 325078 5PADUCAH PRI 161 1	LN	245	248.9	181.2	101.6	233.5	172.3	95.3	15.4		3.476298	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340618 5LIVING 161 360016 5MARSHALL KY 161 1	LN	223	232.5	63.0	104.3	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340618 5LIVING 161 360326 5BARKLEY HP 161 1	LN	223	274.7	92.6	123.2	243.6	79.5	109.2	31.1		7.020316	Violation made worse by suspension
2017SH	[REDACTED CONTINGENCY]	362186 2WATAUGA HP 69.0 362187 2ELIZABETHTN69.0 1	LN	58.4	60.6	61.6	103.8	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348774 7BALDWIN 345 348776 7TURKEY HILL 345 1	LN	956	1177.0	693.4	123.1	1161.5	692.2	121.5	15.5		3.4988713	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348728 4W MT VERN W 138 348827 7W MT VERNON 345 1	TR	448	465.3	250.7	103.9	451.7	249.1	100.8	13.6		3.0699774	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	347016 4EFFGHMNW 138 347024 4EFFINGHM 138 1	LN	263	293.2	60.8	111.5	279.5	60.2	106.3	13.7		3.0925508	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	347016 4EFFGHMNW 138 347024 4EFFINGHM 138 1	LN	263	293.5	60.8	111.6	279.7	60.2	106.4	13.8		3.1151242	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	347946 4PANA 138 348788 4SCHRAMCY TP 138 1	LN	202	236.0	39.5	116.9	220.2	35.8	109.0	15.8		3.5665914	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348730 4MIDWAY E 138 348788 4SCHRAMCY TP 138 1	LN	202	266.3	73.5	131.8	251.0	70.2	124.2	15.3		3.4537246	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	347946 4PANA 138 348068 4RAMSEY CIPS 138 1	LN	264	266.4	44.5	100.9	251.3	44.8	95.2	15.1		3.4085779	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348067 7RAMSEY 345 348068 4RAMSEY CIPS 138 1	TR	382	390.9	95.5	102.3	370.2	96.0	96.9	20.7		4.6726862	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	347946 4PANA 138 348068 4RAMSEY CIPS 138 1	LN	264	266.3	44.5	100.9	251.2	44.8	95.1	15.1		3.4085779	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348067 7RAMSEY 345 348068 4RAMSEY CIPS 138 1	TR	382	390.4	95.5	102.2	369.6	96.0	96.8	20.8		4.6952596	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348774 7BALDWIN 345 348776 7TURKEY HILL 345 1	LN	956	1054.9	693.4	110.3	1039.9	692.2	108.8	15.0		3.3860045	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	348774 7BALDWIN 345 348775 4BALDWIN 138 1	TR	448	470.3	293.8	105.0	456.3	287.1	101.8	14.0		3.1602709	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	350204 4CAMPBELLHIL 138 350205 5CAMPBELLHIL 161 1	TR	224	323.8	25.8	144.5	295.9	22.6	132.1	27.9		6.2979684	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	300061 5BOONE 161 300493 2BOONE 69.0 1	TR	112	126.0	92.7	112.5	111.6	92.8	99.7	14.4		3.2505643	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	324512 2EDDY P 69.0 324693 2PRINCE 69.0 1	LN	64	67.8	32.1	106.0	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	324512 2EDDY P 69.0 362916 2KY DAM 69.0 1	LN	70	71.5	35.8	102.1	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	360103 5PHIPPS B NP 161 360705 5JSEV C34 TP 161 3	LN	472.1	492.1	319.4	104.2	478.7	314.4	101.4	13.4		3.0248307	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.6	62.7	105.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	340618 5LIVING 161 360016 5MARSHALL KY 161 1	LN	223	224.2	59.3	100.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	340618 5LIVING 161 360326 5BARKLEY HP 161 1	LN	223	261.8	83.9	117.4	230.1	70.6	103.2	31.7		7.1557562	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	63.9	62.7	109.5	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.7	62.7	105.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	340618 5LIVING 161 360326 5BARKLEY HP 161 1	LN	223	255.3	83.9	114.5	223.6	70.6	100.3	31.7		7.1557562	Violation made worse by suspension
2017SHCentoff	[REDACTED CONTINGENCY]	362124 2LOVELLTN 69.0 362496 2WATTROAD TN69.0 1	LN	58.4	61.7	62.7	105.7	#N/A	#N/A	#N/A	#N/A		#N/A	Violation caused by suspension

MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Voltage Results
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		Limiting Element							Coleman 1, 2, & 3 OFF			Coleman 1,2, & 3 ON			Unit Impact	
Model	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	MISO Comments
2014SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8516	0.9693	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.873	0.9793	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8125	0.9607	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8214	0.9669	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8487	0.9798	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9081	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8235	0.97	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8958	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8171	0.9676	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8516	0.9693	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.873	0.9793	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8125	0.9607	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8214	0.9669	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8487	0.9798	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9081	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8171	0.9928	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8235	0.97	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8958	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8171	0.9676	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8516	0.9693	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.873	0.9793	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8125	0.9607	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8214	0.9669	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8487	0.9798	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9081	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8171	0.9928	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8235	0.97	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8958	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8171	0.9676	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9029	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8905	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9028	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8905	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9028	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8905	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9028	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8905	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9028	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8905	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248431	07BRISTW	161	207	1207	0.9	1.1	0.846	1.0033	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.7325	0.9693	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248865	07TRY161	161	207	1207	0.9	1.1	0.7926	0.9907	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.7605	0.9793	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.6378	0.9607	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8516	0.9693	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.873	0.9793	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8125	0.9607	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8214	0.9669	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8487	0.9798	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension

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		Limiting Element							Coleman 1, 2, & 3 OFF			Coleman 1,2, & 3 ON			Unit Impact	
Model	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Volt-Von (>0.01)	MISO Comments
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9081	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8236	0.97	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8959	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8172	0.9676	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340566	5MEADE	161	314	1314	0.92	1.05	0.8775	0.9851	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8616	0.9957	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340566	5MEADE	161	314	1314	0.92	1.05	0.8775	0.9851	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8616	0.9957	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9031	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8907	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8516	0.9693	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.873	0.9793	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8125	0.9607	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8214	0.9669	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8487	0.9798	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9081	0.9855	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8171	0.9928	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8235	0.97	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8958	0.9743	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8171	0.9676	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	324139	5DORCHST	161	363	379	0.9	1.1	0.8832	1.0034	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	324149	5IMBODEN	161	363	379	0.9	1.1	0.8724	1.0025	L	1.1048	1.003	H	-0.232	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	324157	5POCK N	161	363	379	0.9	1.1	0.8677	1.0048	L	1.111	1.0053	H	-0.243	Violation caused by suspension
2014SP	[REDACTED CONTINGENCY]	324158	5POCKET	161	363	379	0.9	1.1	0.8677	1.0047	L	1.111	1.0052	H	-0.243	Violation caused by suspension
2014SPCentoff	[REDACTED CONTINGENCY]	324310	4SPENC	138	363	380	0.9	1.1	0.8823	0.9699	L	0.8718	0.9699	L	0.011	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	[illegible]	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	[illegible]	0.979	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8085	0.9602	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8173	0.9662	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8454	0.9791	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9049	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8197	0.9694	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8928	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8132	0.967	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8482	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.8697	0.979	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8085	0.9602	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8173	0.9662	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8454	0.9791	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9049	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8132	0.9921	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8197	0.9694	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8928	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8132	0.967	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8482	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	253581	10NTVL13	138	210	1210	0.95	1.05	0.9354	0.9903	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8085	0.9602	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8173	0.9662	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8454	0.9791	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension

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2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9049	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8132	0.9921	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8197	0.9694	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8928	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8132	0.967	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8924	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.88	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8923	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.88	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	253580	10NTVL16	161	210	1210	0.95	1.05	0.9349	0.9697	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8923	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.88	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8923	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.88	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8923	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.88	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248431	07BRISTW	161	207	1207	0.9	1.1	0.8436	1.0012	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.7285	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248865	07TRY161	161	207	1207	0.9	1.1	0.7892	0.9896	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.7568	0.979	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.6327	0.9602	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8482	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.8697	0.979	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8085	0.9602	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8174	0.9662	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8455	0.9791	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9049	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8198	0.9694	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8928	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8132	0.967	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340566	5MEADE	161	314	1314	0.92	1.05	0.8653	0.9846	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8484	0.9956	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	253580	10NTVL16	161	210	1210	0.95	1.05	0.9367	0.9697	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	253580	10NTVL16	161	210	1210	0.95	1.05	0.9367	0.9697	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340566	5MEADE	161	314	1314	0.92	1.05	0.8654	0.9846	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8484	0.9956	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8952	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8829	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8482	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.8697	0.979	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8085	0.9602	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8173	0.9662	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8454	0.9791	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9049	0.984	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8132	0.9921	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8197	0.9694	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8928	0.973	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.8132	0.967	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SP	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.7649	1.0426	L	0.7822	1.0427	L	-0.017	Pre-exsting

MISO Coleman Units 1, 2, & 3 Attachment Y-2 Study - Compare Voltage Results
CONFIDENTIAL / CEII - DO NOT RELEASE

		Limiting Element							Coleman 1, 2, & 3 OFF			Coleman 1,2, & 3 ON			Unit Impact	
Model	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Volt-Von (>0.01)	MISO Comments
2017SP	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.7641	1.0477	L	0.7815	1.0477	L	-0.017	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7638	1.0474	L	0.7812	1.0474	L	-0.017	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.6888	1.0426	L	0.7309	1.0427	L	-0.042	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.6889	1.0477	L	0.7311	1.0477	L	-0.042	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.6885	1.0474	L	0.7307	1.0474	L	-0.042	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361383	5W OAK RIDGT	161	347	1368	0.9	1.1	0.689	1.0479	L	0.7312	1.0479	L	-0.042	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.6979	1.0426	L	0.7309	1.0427	L	-0.033	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	360692	5ROANE B#2	161	347	1368	0.9	1.1	0.6981	1.0479	L	0.7312	1.0479	L	-0.033	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.6981	1.0477	L	0.7311	1.0477	L	-0.033	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.6976	1.0474	L	0.7307	1.0474	L	-0.033	Pre-exsting
2017SP	[REDACTED CONTINGENCY]	361383	5W OAK RIDGT	161	347	1368	0.9	1.1	0.6981	1.0479	L	0.7312	1.0479	L	-0.033	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.7308	1.0426	L	0.6782	1.0426	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.731	1.0477	L	0.6784	1.0477	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7306	1.0474	L	0.6779	1.0474	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361383	5W OAK RIDGT	161	347	1368	0.9	1.1	0.731	1.0479	L	0.6784	1.0479	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.7556	1.0426	L	0.7821	1.0426	L	-0.027	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.7548	1.0477	L	0.7814	1.0477	L	-0.027	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7544	1.0474	L	0.781	1.0474	L	-0.027	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.7308	1.0426	L	0.6782	1.0426	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.731	1.0477	L	0.6784	1.0477	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7306	1.0474	L	0.6779	1.0474	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361383	5W OAK RIDGT	161	347	1368	0.9	1.1	0.731	1.0479	L	0.6784	1.0479	L	0.053	Pre-exsting
2017SPCentoff	[REDACTED CONTINGENCY]	361364	5WEAVER GA	161	347	1367	0.9	1.1	0.5784	1.0104	L	0.5537	1.0104	L	0.025	Pre-exsting
2017SH	[REDACTED CONTINGENCY]	340566	5MEADE	161	314	1314	0.92	1.05	0.9011	0.9887	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8889	0.998	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	248435	07NWTVL1	161	207	1207	0.9	1.1	0.8438	0.9768	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	248865	07TRY161	161	207	1207	0.9	1.1	0.8832	0.9902	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.8622	0.9831	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.8062	0.9699	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340557	5HANCO	161	314	1314	0.92	1.05	0.8109	0.9696	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.8386	0.9824	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9048	0.9902	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.8062	0.9931	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340564	5NATAL	161	314	1314	0.92	1.05	0.8128	0.9724	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8933	0.9798	L	#N/A	#N/A	#N/A	#N/A	Violation caused by suspension
2017SH	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.757	1.0422	L	0.7804	1.0424	L	-0.023	Pre-exsting
2017SH	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.7562	1.0473	L	0.7797	1.0474	L	-0.024	Pre-exsting
2017SH	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7558	1.047	L	0.7793	1.0472	L	-0.024	Pre-exsting
2017SH	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.757	1.0422	L	0.7803	1.0424	L	-0.023	Pre-exsting
2017SH	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.7562	1.0473	L	0.7796	1.0474	L	-0.023	Pre-exsting
2017SH	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7558	1.047	L	0.7793	1.0472	L	-0.024	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	324310	4SPENC	138	363	380	0.9	1.1	0.8782	0.9682	L	0.8646	0.9682	L	0.014	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.757	1.0422	L	0.7803	1.0423	L	-0.023	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.7562	1.0473	L	0.7796	1.0474	L	-0.023	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7558	1.047	L	0.7793	1.0471	L	-0.024	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	360033	8UNION MS	500	347	1356	0.9	1.1	0.8606	1.0475	L	0.8793	1.0476	L	-0.019	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	360430	5HARRIMAN TN	161	347	1368	0.9	1.1	0.757	1.0422	L	0.7803	1.0423	L	-0.023	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	361099	5BLAIR RD TP	161	347	1368	0.9	1.1	0.7562	1.0473	L	0.7796	1.0474	L	-0.023	Pre-exsting
2017SHCentoff	[REDACTED CONTINGENCY]	361146	5BLAIR RD TN	161	347	1368	0.9	1.1	0.7558	1.047	L	0.7793	1.0471	L	-0.024	Pre-exsting

Table 2a: 2014SP FCITC(Century Load is modeled as 10MW initial vaule)

From	To	Transfer Level	AC FCITC	DC FCITC	Delta FCITC	Limiting Constraint	Contingency	Ncon	PreShift	PostShift	Rating	AC TDF	DC TDF	LODF	PTDF
AMIL	LD_CENTURY	1000.0	331.9	367.0	-35.1	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			111.0	334.7	335.0	0.67398	0.64514	-	0.36806
							[REDACTED]	1162							
							[REDACTED]								
							[REDACTED]								
							[REDACTED]								
			331.9	367.0	-35.1	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			111.0	334.7	335.0	0.67398	0.64514	-	0.36806
							[REDACTED]	1164							
							[REDACTED]								
							[REDACTED]								
			331.9	367.0	-35.1	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			111.0	334.7	335.0	0.67398	0.64514	-	0.36806
							[REDACTED]	2598							
							[REDACTED]								
			543.8	630.5	-86.6	L:340552 5COLEMAN 161 340621 5COLEEHV 161 2			49.9	334.8	335.0	0.52388	-0.52289	-	-0.33043
							[REDACTED]	2414							
							[REDACTED]								
			543.8	630.6	-86.9	L:340552 5COLEMAN 161 340621 5COLEEHV 161 2			49.4	335.0	335.0	0.52512	-0.52289	-	-0.33043
							[REDACTED]	1188							
							[REDACTED]								

Table 2b: 2017SH FCITC(Century Load is modeled as 10MW initial vaule)

From	To	Transfer Level	AC FCITC	DC FCITC	Delta FCITC	Limiting Constraint	Contingency	Ncon	PreShift	PostShift	Rating	AC TDF	DC TDF	LODF	PTDF
AMIL	LD_CENTURY	1000.0	381.5	463.8	-82.2	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			72.8	334.1	335.0	0.68488	0.63341	-	0.33698
							[REDACTED]	2591							
							[REDACTED]								
			481.3	719.6	-238.4	L:340551 5REID 161 340559 5DAVIS 161 1			172.4	335.4	335.0	0.33873	0.22198	-	0.10687
							[REDACTED]	2591							
							[REDACTED]								
			662.0	750.8	-88.8	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			72.7	334.7	335.0	0.39583	0.38043	-	0.33698
							[REDACTED]	1158							
							[REDACTED]								
			662.0	750.8	-88.8	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			72.7	334.7	335.0	0.39583	0.38043	-	0.33698
							[REDACTED]	2590							
							[REDACTED]								
			544.0	855.6	-311.6	L:340557 5HANCO 161 340559 5DAVIS 161 1			79.0	265.6	265.0	0.34287	-0.22198	-	-0.10687
							[REDACTED]	2591							
							[REDACTED]								

Table 2c: 2014SP Stressed FCITC (Century Load is modeled as 10MW as initial value)

From	To	Transfer Level	AC FCITC	DC FCITC	Delta FCITC	Limiting Constraint	Contingency	Ncon	PreShift	PostShift	Rating	AC TDF	DC TDF	LODF	PTDF
AMIL	LD_CENTURY	1000.0	307.5	348.7	-41.2	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			123.2	334.6	335.0	0.68752	0.64547	-	0.36848
							[REDACTED]	1167							
							[REDACTED]								
							[REDACTED]								
							[REDACTED]								
			307.5	348.7	-41.2	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			123.2	334.6	335.0	0.68752	0.64547	-	0.36848
							[REDACTED]	2607							
							[REDACTED]								
			307.5	348.7	-41.2	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			123.2	334.6	335.0	0.68752	0.64547	-	0.36848
							[REDACTED]	1168							
							[REDACTED]								
							[REDACTED]								
			542.7	630.3	-87.6	L:340552 5COLEMAN 161 340621 5COLEEHV 161 2			49.9	334.6	335.0	0.52468	-0.52289	-	-0.33021
							[REDACTED]	2423							
							[REDACTED]								
			541.7	630.6	-88.9	L:340552 5COLEMAN 161 340621 5COLEEHV 161 2			49.4	334.1	335.0	0.52558	-0.52289	-	-0.33021
							[REDACTED]	1193							
							[REDACTED]								

Table 2d: 2014SP Stressed FCITC under Double Outage Condition(Century Load is modeled as 10MW as initial value)
(to Capture Prior-outage Impact)

From	To	Transfer Level	AC FCITC	DC FCITC	Delta FCITC	Limiting Constraint	Contingency	Ncon	PreShift	PostShift	Rating	AC TDF	DC TDF	LODF	PTDF
AMIL	LD_CENTURY	1000.0	122.2	121.2	0.9	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			252.5	334.9	335.0	0.67494	0.82009	-	0.36849
							[REDACTED]	209							
							[REDACTED]								
							[REDACTED]								
			183.2	172.1	11.1	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			263.6	335.0	335.0	0.38952	0.45046	-	0.36849
							[REDACTED]	533							
							[REDACTED]								
							[REDACTED]								
			197.1	187.3	9.9	L:248435 07NWTVL1 161 340552 5COLEMAN 161 1			255.0	335.0	335.0	0.40555	0.46281	-	0.36849
							[REDACTED]	161							
							[REDACTED]								
							[REDACTED]								
			177.7	202.0	-24.3	L:340551 5REID 161 340559 5DAVIS 161 1			232.9	335.3	335.0	0.57636	0.58200	-	0.10449
							[REDACTED]	4							
							[REDACTED]								
							[REDACTED]								
			NotConv	277.2	-277.2	L:340557 5HANCO 161 340559 5DAVIS 161 1			*****	*****	*****	*******	-0.58200	-	-0.10449
							[REDACTED]	4							
							[REDACTED]								
							[REDACTED]								

Table 2e: PSS/e Verfication on 2014SP Stressed Case on the outage of BERC_B3

	Century Load (MW)	P	Q	S	I	MVA-Rating	V p.u.	V kV	I-rating	Current Loading%
Coleman	318	306.9	105.5	324.5271	1142.097196	335	1.019	164.059	1201.354	95.07%
Newtonsville	318	310.1	87.5	322.2084	1142.909792	335	1.011	162.771	1201.354	95.14%
Coleman	338	319.3	96	333.4194	1181.507757	335	1.012	162.932	1201.354	98.35%
Newtonsville	338	322.8	76.7	331.7872	1182.736096	335	1.006	161.966	1201.354	98.45%
Coleman	348	325.5	91.3	338.062	1201.521295	335	1.009	162.449	1201.354	100.01%
Newtonsville	348	329.1	71.2	336.7139	1202.689634	335	1.004	161.644	1201.354	100.11%

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Attachment Y Study
Wilson Unit 1: 417 MW Coal
35 Month Suspension
February 2, 2014 – January 1, 2017

ATTACHMENT Y STUDY REPORT
DRAFT

January 20, 2014

PUBLIC/REDACTED

EXECUTIVE SUMMARY

On June 18, 2013, MISO received an Attachment Y2- Request for Non-Binding Study Regarding Potential SSR Status from Big Rivers Electric Corporation (BREC) for for suspension of Wilson Unit 1 from February 1, 2014 until January 1, 2017. BREC requested that MISO analysis a number of scenarios with varying assumptions for area industrial load and other generation plans. After review of the Transmission System reliability impacts as provided for under Section 38.2.7 of MISO's Open Access Transmission, Energy & Operating Reserve Markets Tariff ("Tariff"), no unresolved reliability issue was identified that would require Wilson generating station Unit 1 to be designated as a System Support Resource (SSR) unit and MISO provided a the analysis results to BREC on October 15, 2013.

On October 28, 2013, BREC submitted an Attachment Y Notice to MISO to convert the Attachment Y-2 request to a definitive plan for suspension of the Wilson Unit 1 effective from February 1, 2014 until January 1, 2017. After further review of the Transmission System reliability impacts as provided for under Section 38.2.7 of MISO's Open Access Transmission, Energy & Operating Reserve Markets Tariff ("Tariff"), Wilson Unit 1 may Suspend operation without the need to be designated as a System Support Resource (SSR) unit.

Contents

I. INTRODUCTION

On June 18, 2013, MISO received an Attachment Y2- Request for Non-Binding Study Regarding Potential SSR Status from Big Rivers Electric Corporation (BREC) for the suspension of Wilson Unit 1 from February 1, 2014 until January 1, 2017. BREC requested that MISO analysis a number of scenarios with varying assumptions for area industrial load and other generation plans. After review of the Transmission System reliability impacts as provided for under Section 38.2.7 of MISO's Open Access Transmission, Energy & Operating Reserve Markets Tariff ("Tariff"), no unresolved reliability issue was identified that would require Wilson generating station Unit 1 to be designated as a System Support Resource (SSR) unit and MISO provided a the analysis results to BREC on October 15, 2013.

Following the receipt of the Attachment Y-2 study results, BREC subsequently submitted an Attachment Y Notice to MISO on October 28, 2013 to convert the Attachment Y-2 request to a definitive plan for suspension of the Wilson Unit 1 effective from February 1, 2014 until January 1, 2017.

The Wilson generating station is a 417MW coal fired plant located in Centertown, KY with 345kV and 161kV Transmission facilities.

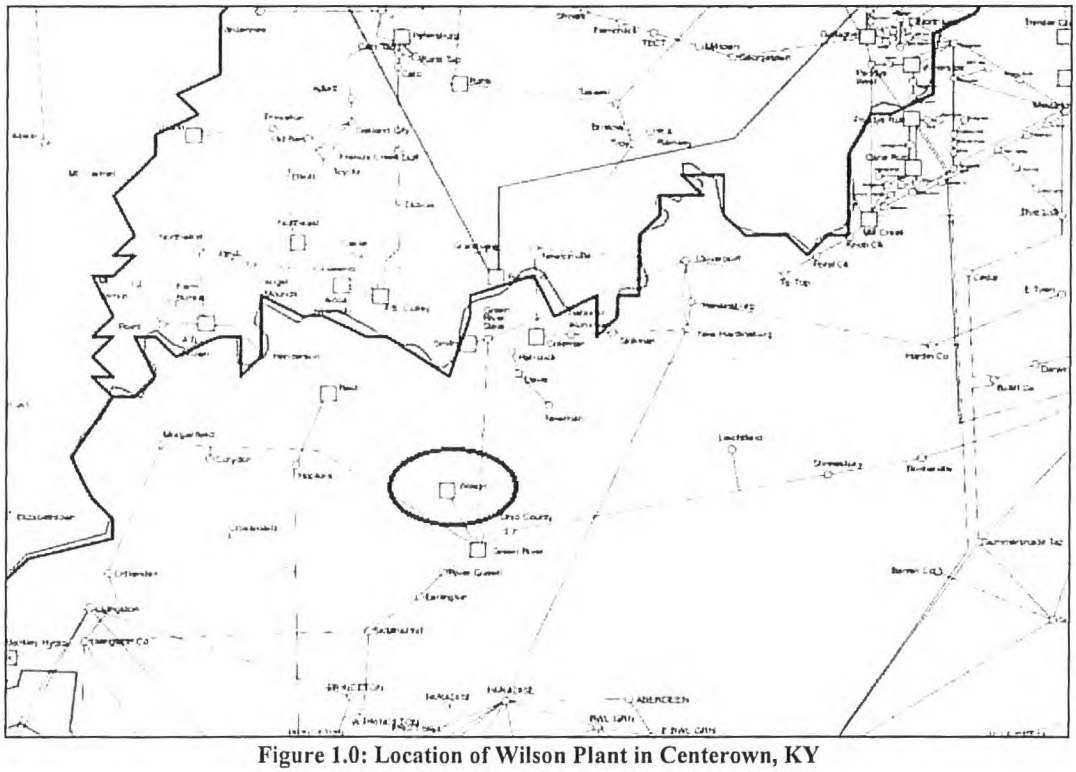

Figure 1.0: Location of Wilson Plant in Centerown, KY

II. STUDY OBJECTIVES

Under Section 38.2.7 of MISO's Tariff, SSR procedures maintain system reliability by providing a mechanism for MISO to enter into agreements with Market Participants (MP) that own or operate Generation Resources or Synchronous Condenser Units (SCUs) that have requested to either Retire or Suspend, but are required to maintain system reliability.

The principal objective of an Attachment Y study is to determine if the unit(s) for which a change in status is requested is necessary for system reliability based on the criteria set forth in the MISO Business Practices Manuals. The study work included monitoring and identifying the steady state branch/voltage violations on transmission facilities due to the unavailability of the Generation Resource or SCU. The relevant MISO Transmission Owner and/or regional reliability criteria are used for monitoring such violations.

III. MODELS AND ASSUMPTIONS

Corresponding to the anticipated suspension of the Wilson Unit 1, the following power system analysis models were used for the study:

- 2014 Summer Peak

The Attachment Y study models were created in accordance with the MISO Transmission Planning Business Practice Manual (BPM-020-r8) Section 6.2.2. This includes creating a set of Security Constrained Economic Dispatch (SCED) models from each source model in which the units being studied are taken out of service to represent the "After" retirement scenario. To create the "Before" retirement scenario, generation in MISO was scaled down in each model and then the to-be-retired unit was fully dispatched.

a. Model Assumptions

1. Study scenario with nearby Coleman generation online
2. Study scenario with nearby Coleman generation offline subject to SPS for mitigation of issues related to the suspension of the plant
3. Study scenario with nearby Ratts Generation offline

b. Transmission Projects

1. None

c. Monitoring and Contingencies

Monitor: BREC(Big Rivers Electric Corporation), SIPC(Southern Illinois Power Cooperative), SIGE(Southern Indiana Gas & Electric Company)(Vectren) , HE(Hoosier Energy), DEI(Duke Energy Indiana), LGEE(Louisville Gas and Electric Company) and TVA(Tennessee Valley Authority) Control Areas 69 kV – 999 kV

Contingencies: BREC, SIPC, SIGE, DEI, LGEE and TVA NERC Category B, C1, C2 & C5 for 100 kV and above facilities. Category B 69 kV contingencies adjacent to the generator were also studied. Category C3's in BREC area were studied as well.

IV. STUDY CRITERIA AND METHODOLOGY

PSS/E and MUST were used to perform AC contingency analysis. Cases were solved with automatic control of LTCs, phase shifters, DC taps, switched shunts enabled (regulating), and area interchange disabled. Contingency analysis was performed on before and after cases. The results were compared to find if there were any criteria violations due to the unit(s) change of status.

a. Steady State Thermal and Voltage Criteria

Transmission Owners Planning Criteria

BREC Transmission Planning Criteria applied for the thermal analysis:

- For system-intact, B, & C contingencies, all thermal loadings exceeding 100% of the normal rating for BREC System

BREC Transmission Planning Criteria applied for the voltage analysis:

- For system-intact, >60 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies
  - 69 kV substation voltages less than 91.7% or above 105.8%
  - >69 kV substation voltages less than 92% or above 105%

DEI Transmission Planning Criteria applied for the thermal analysis:

- For system-intact, all thermal loadings exceeding 100% of the continuous thermal loading capability for DEI System
- For B & C contingencies, all thermal loadings exceeding 100% of the emergency loading capability for DEI System

DEI Transmission Planning Criteria applied for the voltage analysis:

- For system-intact
  - 345 kV substation voltages less than 95% or above 105%
  - 230 kV substation voltages less than 95% or above 107%
  - 138 kV substation voltages less than 95% or above 105%
  - 132 kV substation voltages less than 95% or above 107.5%
  - 69 kV substation voltages less than 95% or above 105%
  - 66 kV substation voltages less than 95% or above 107.5%

- For Category B and C contingencies
  - 345 kV substation voltages less than 90% or above 105%
  - 230 kV substation voltages less than 90% or above 107%

- 138 kV substation voltages less than 90% or above 105%
- 132 kV substation voltages less than 90% or above 107.5%
- 69 kV substation voltages less than 90% or above 105%
- 66 kV substation voltages less than 90% or above 107.5%

SIPC Transmission Planning Criteria applied for the thermal analysis:

- For system-intact, B, & C contingencies, all thermal loadings exceeding 100% of the normal rating for SIPC System

SIPC Transmission Planning Criteria applied for the voltage analysis:

- For system-intact, >60 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >60 kV substation voltages less than 91% or above 109%

SIGE Transmission Planning Criteria applied for the thermal analysis:

- For system-untact, Category B, & C contingencies, all thermal loadings exceeding 100% of the normal rating

SIGE Transmission Planning Criteria applied for the voltage analysis:

- For system-intact, >60 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >60 kV substation voltages less than 90% or above 110%

HE Transmission Planning Criteria applied for the thermal analysis:

- For system-untact, Category B, & C contingencies, all thermal loadings exceeding 100% of the normal rating

HE Transmission Planning Criteria applied for the voltage analysis:

- For system-intact, >60 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >60 kV substation voltages less than 90% or above 110%

LGEE Transmission Planning Criteria applied for the thermal analysis:

- For system-untact, Category B, & C contingencies, all thermal loadings exceeding 100% of the normal rating

LGEE Transmission Planning Criteria applied for the voltage analysis:

- For system-intact, >60 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >60 kV substation voltages less than 90% or above 110%

TVA Transmission Planning Criteria applied for the thermal analysis:

- For system-untact, Category B, & C contingencies, all thermal loadings exceeding 100% of the normal rating

TVA Transmission Planning Criteria applied for the voltage analysis:

- For system-intact, >60 kV substation voltages less than 95% or above 105%
- For Category B and C contingencies, >60 kV substation voltages less than 90% or above 110%

b. MISO Transmission Planning BPM - SSR Criteria

As specified in the MISO BPM-020-r6, the System Support Resource criteria for determining if an identified facility is impacted by the generator change of status will be:

- Under system intact and category B contingencies, branch thermal violations are only valid if the flow increase on the element in the "after" retirement scenario is equal to or greater than:
  a) 5% of the "to-be-retired" unit(s) MW amount (i.e. 5% PTDF) for a "base" violation compared with the "before" retirement scenario, or
  b) 3% of the "to-be-retired" unit(s) amount (i.e. 3% OTDF) for a "contingency" violation compared with the "before" retirement scenario.
- Under system intact and category B contingencies, high and low voltage violations are only valid if the change in voltage is greater than 1% as compared to the "before" retirement voltage calculation.

c. Contingencies

A subset of the MISO Transmission Expansion Plan (MTEP) contingencies in [Geographic Description] was used for AC contingency analysis.

The following NERC Categories of contingencies were evaluated:

1. Category A when the system is under normal conditions.
2. Category B contingencies resulting in the loss of a single element.
3. Category C contingencies resulting in the loss of two or more (multiple) elements.
4. Selected Category C contingencies were evaluated for planned + forced outage conditions using peak model (peak model was used to represent shoulder load due to high transfers expected during off-peak periods)

V. STUDY RESULTS

a. 2014 Summer Peak Analysis with BREC Coleman Online (SSR)

The 2014 Summer Peak analysis identified no thermal violations on the MISO Transmission System for Category B or Category C contingency events.

The 2014 Summer Peak analysis identified no thermal violations on the MISO Transmission System for Category B or Category C contingency events.

b. 2014 Summer Peak Analysis with BREC Coleman Offline (suspended)

The 2014 Summer Peak analysis with Coleman offline indicated that the suspension of Wilson causes further overloading of the Newtonville- Coleman 161 kV path including the Newtonville transformers as a result of Category B and C contingent events. Coleman will remain on SSR contract until a Special Protection Scheme is implemented which includes actions to alleviate the Newtonville – Coleman and Newtonville Transformer loading. Additional thermal overloads were observed on the AB Brown-Henderson 138kV line, Henderson 161/138kV Transformer, Reid – Davis 138kV line, and Hancock – Davis 138kV line for Category C or planned plus forced events. Appendix A - Table 1a contains details of the thermal issues identified in the study.

Voltage violations were observed in the 2014 Summer Peak analysis with Coleman offline for Category C contingencies. Appendix A - Table 1b contains details of the voltage issues identified in the study.

c. 2014 Summer Peak Analysis with BREC Coleman Offline, Century at 338MW

The 2014 Summer Peak analysis with Coleman offline and Century load reduced to 338MW reflects a prior scenario evaluated under the Attachment Y-2 analysis. The thermal issues observed in the study include the Category C overloads on the Newtonville – Coleman 161kV path and Newtonville Transformer T3 that would be addressed with load shed, as well as the Henderson 161/138kV Transformer, AB Brown-Henderson 138kV line and the Reid-Davis 138 kV line which can be addressed by redispatch following the first event. Appendix A - Table 1a contains details of the thermal issues identified in the study.

A number of voltage violations observed in the 2014 Summer Peak analysis with Coleman offline and Century load reduced to 338MW are the result of the Category C contingencies. Appendix A - Table 1b contains details of the voltage issues identified in the study.

d. 2014 Summer Peak Analysis with sensitivity to Vectren Ratts Offline

The 2014 Summer Peak analysis with Vectren Ratts offline assesses the impact of the reduced generation in the area with Ratts plant modeled offline. The study identified no further thermal issues on the Transmission System under the reduced generation conditions. Appendix A - Table 1a contains details of the thermal issues identified in the study.

One Category C voltage issue was identified in the sensitivity analysis at the HE Victory 161kV bus. Appendix A - Table 1b contains details of the voltage issues identified in the study.

VI. PROPOSED MITIGATION

No problems result solely from the suspension of Wilson Unit 1. The suspension of the Wilson Unit 1 exacerbates the thermal and voltage issues related to the Coleman suspension. However, with Coleman on SSR contract, the suspension would occur only if a Special Protection Scheme is developed to mitigate the issues cause by the plant change in status which addresses the issues in the Newtonville area. The remaining Category C thermal and voltage issues observed with Coleman offline and Wilson in suspension, are mitigated by generation redispatch following the first event or load shed.

VII. CONCLUSIONS

The Attachment Y analysis for the suspension of the Wilson Unit 1 indicates that change in status will aggravate issues related to the Coleman plant suspension. The Coleman plant would be released from SSR obligations only after mitigation is in place that would address the thermal/voltage issues in the Newtonville/Coleman area. The remaining issues directly attributable to the Wilson suspension are the result of Category C events that can be addressed with redispatch of nearby generation or load shed. After being reviewed for power system reliability impacts as provided for under Section 38.2.7 of the MISO's Open Access Transmission, Energy & Operating Reserve Markets Tariff ("Tariff"), Wilson Unit 1 may Suspend operation without the need for the generators to be designated as a System Support Resource ("SSR") unit as defined in the Tariff.

VIII. APPENDICES

Appendix A:

Table 1a - Thermal Analysis Results

Table 1b - Voltage Analysis Results

Appendix A

Steady-State AC Contingency Analysis Results

MISO BREC Wilson Attachment Y Study - Compare Branch Results
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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	387.5	264	115.7	320.4	226	95.6	67.1		16.0911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	1	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	387.5	264	115.7	320.4	226	95.6	67.1		16.0911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	1	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.8	264	108.9	305.1	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	1	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.8	264	108.9	305.1	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	1	[redacted]	340560 5HENDR 161 340617 4HENDR 138 1	TR	224	254.1	67.4	113.4	205.5	57.3	91.7	48.6		11.6547	; MISO comment: Cat-C event, could be mitigated by load shed, P+F: reduce [redacted] Generation

MISO BREC Wilson Attachment Y Study - Compare Branch Results
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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1	[redacted]	253621 10ABB_R 138 340617 4HENDR 138 1	LN	239	252.1	66.4	105.5	203.3	56.3	85.1	48.8		11.7026	Vectren:There is a 4.5% reactor on this line that can be put in service. It is from Bus 1ABBRWN (25355) to 1ABB_R (253621) with a circuit ID of 1; MISO comment: Cat-C event, could be mitigated by load shed, P+F: reduce [redacted] Generation
2014SP[Coleman off]	2	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	2	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	3	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	3	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS

MISO BREC Wilson Attachment Y Study - Compare Branch Results
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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	8	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.8	264	108.9	305.1	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	8	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.8	264	108.9	305.1	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: can be mitigated by Century SPS
2014SP[Coleman off]	16	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	197.4	131.7	101.7	92.2	92	47.5	105.2		25.2278	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP[Coleman off]	16	[redacted]	362116 2KY HYDRO 69.0 B50229 1.00 1	TR	66.7	72.2	63.8	108.2	58.9	58.9	88.3	13.3		3.18945	; MISO comment: Cat-C event, could be mitigated by load shed, TVA
2014SP[Coleman off]	25	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

MISO BREC Wilson Attachment Y Study - Compare Branch Results
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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	25	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	26	[redacted]	340551 5REID 161 340559 5DAVIS 161 1	LN	335	386.1	197.3	115.3	337.9	195.2	100.9	48.2		11.5588	; MISO comment: Cat-C event, could be mitigated by load shed, P+F: reduce [redacted] Generation, [redacted] generation
2014SP[Coleman off]	26	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	26	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	26	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	340.5	264	101.7	300.3	226	89.6	40.2		9.64029	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	26	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	340.5	264	101.7	300.3	226	89.6	40.2		9.64029	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	26	[redacted]	340557 5HANCO 161 340559 5DAVIS 161 1	LN	265	266.7	84.9	100.6	223.9	83.5	84.5	42.8		10.2638	; MISO comment: Cat-C event, could be mitigated by load shed,P+F: reduce [redacted] Generation, [redacted] generation
2014SP[Coleman off]	26	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	203.7	131.7	105	142.1	92	73.2	61.6		14.7722	; MISO comment: Cat-C event, could be mitigated by load shed,LGE
2014SP[Coleman off]	28	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	28	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	29	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	29	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	52	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	423.8	264	126.5	351.7	226	105	72.1		17.2902	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	52	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	423.8	264	126.5	351.7	226	105	72.1		17.2902	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	52	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T5	TR	176	187.9	103.2	106.8	169	92.7	96	18.9		4.53237	Vectren:Open ckt 78; MISO comment: SSR Constraint, can be mitigated by open branch from bus [redacted] to bus [redacted] ckt 78 and open branch from bus [redacted] to bus [redacted] ckt 1, Century SPS (Action 5)

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	53	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	375.1	264	112	340.5	226	101.6	34.6		8.29736	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	53	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	375.1	264	112	340.5	226	101.6	34.6		8.29736	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	53	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T3	TR	176	189.4	107.2	107.6	170.3	96.3	96.8	19.1		4.58034	Vectren:Open ckt 78; MISO comment: SSR Constraint, can be mitigated by open branch from bus [redacted] to bus [redacted] ckt 78 and open branch from bus [redacted] to bus [redacted] ckt 1, Century SPS (Action 5)
2014SP[Coleman off]	54	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	499.3	264	149.1	474.3	226	141.6	25		5.9952	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	54	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	499.4	264	149.1	474.3	226	141.6	25.1		6.01918	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	55	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	359.7	264	107.4	294.2	226	87.8	65.5		15.7074	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	55	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	359.7	264	107.4	294.2	226	87.8	65.5		15.7074	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	56	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.8	264	109.5	307.6	226	91.8	59.2		14.1966	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	56	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.8	264	109.5	307.6	226	91.8	59.2		14.1966	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	57	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.7	264	109.5	307.5	226	91.8	59.2		14.1966	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	57	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.7	264	109.5	307.5	226	91.8	59.2		14.1966	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	58	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.1	264	108.7	304.4	226	90.9	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	58	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.1	264	108.7	304.4	226	90.9	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	59	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	362.8	264	108.3	301.7	226	90.1	61.1		14.6523	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	59	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	362.8	264	108.3	301.7	226	90.1	61.1		14.6523	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	60	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.8	264	108.9	305.1	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element				BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	60	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.8	264	108.9	305.1	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	61	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	414.8	264	123.8	355.5	226	106.1	59.3		14.2206	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	61	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	414.8	264	123.8	355.5	226	106.1	59.3		14.2206	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	62	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.4	264	110.3	307.7	226	91.8	61.7		14.7962	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	62	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.4	264	110.3	307.7	226	91.8	61.7		14.7962	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	64	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.7	264	108.9	305	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	64	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.7	264	108.9	305	226	91.1	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	65	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.8	264	108.9	305	226	91.1	59.8		14.3405	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	65	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.8	264	108.9	305	226	91.1	59.8		14.3405	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC
2014SP[Coleman off]	66	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	368.3	264	109.9	310.2	226	92.6	58.1		13.9329	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed ERC

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	66	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	368.3	264	109.9	310.2	226	92.6	58.1		13.9329	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	67	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369	264	110.1	311.2	226	92.9	57.8		13.8609	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	67	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369	264	110.1	311.2	226	92.9	57.8		13.8609	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	68	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.8	264	110.4	306.6	226	91.5	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	68	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.8	264	110.4	306.6	226	91.5	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	69	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	370.4	264	110.6	307.1	226	91.7	63.3		15.1799	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	69	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	370.3	264	110.6	307.1	226	91.7	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	70	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	379.3	264	113.2	321.1	226	95.8	58.2		13.9568	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	70	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	379.3	264	113.2	321.1	226	95.8	58.2		13.9568	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	71	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	354.6	264	105.9	297	226	88.7	57.6		13.8129	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	71	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	354.6	264	105.9	297	226	88.7	57.6		13.8129	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	72	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	362	264	108.1	298.8	226	89.2	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	72	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	362	264	108.1	298.8	226	89.2	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	73	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	373.2	264	111.4	309.8	226	92.5	63.4		15.2038	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	73	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	373.2	264	111.4	309.8	226	92.5	63.4		15.2038	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	74	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	355.9	264	106.3	296.4	226	88.5	59.5		14.2686	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	74	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	355.9	264	106.3	296.4	226	88.5	59.5		14.2686	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	75	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	404.4	264	120.7	332.7	226	99.3	71.7		17.1942	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	75	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	404.4	264	120.7	332.7	226	99.3	71.7		17.1942	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	76	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	387.5	264	115.7	320.4	226	95.6	67.1		16.0911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	76	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	387.5	264	115.7	320.4	226	95.6	67.1		16.0911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	77	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	360	264	107.5	296.8	226	88.6	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	77	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	360	264	107.5	296.8	226	88.6	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	78	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	396	264	118.2	332.3	226	99.2	63.7		15.2758	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	78	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	396	264	118.2	332.3	226	99.2	63.7		15.2758	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	79	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.9	264	109.2	306.2	226	91.4	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	79	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.9	264	109.2	306.2	226	91.4	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	80	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.6	264	109.1	305.9	226	91.3	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	80	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.6	264	109.1	305.9	226	91.3	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	81	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.9	264	109.8	307.6	226	91.8	60.3		14.4604	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	81	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.9	264	109.8	307.6	226	91.8	60.3		14.4604	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	82	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.4	264	109.1	305.1	226	91.1	60.3		14.4604	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	82	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.4	264	109.1	305.1	226	91.1	60.3		14.4604	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	83	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.4	264	109.7	307.1	226	91.7	60.3		14.4604	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	83	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.4	264	109.7	307.1	226	91.7	60.3		14.4604	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	84	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.9	264	109.5	306.9	226	91.6	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	84	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.9	264	109.5	306.9	226	91.6	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	85	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.1	264	109	305.3	226	91.1	59.8		14.3405	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	85	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.1	264	109	305.3	226	91.1	59.8		14.3405	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	86	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.8	264	109.2	305.8	226	91.3	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	86	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.8	264	109.2	305.8	226	91.3	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	87	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.6	264	109.7	304.9	226	91	62.7		15.036	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	87	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.6	264	109.7	304.9	226	91	62.7		15.036	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	88	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.6	264	109.4	306.7	226	91.6	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	88	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.6	264	109.4	306.7	226	91.6	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	89	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.6	264	109.1	305.9	226	91.3	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	89	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.6	264	109.1	305.9	226	91.3	59.7		14.3165	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	90	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.5	264	108.8	304.5	226	90.9	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	90	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.5	264	108.8	304.5	226	90.9	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	91	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.5	264	108.8	304.5	226	90.9	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	91	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.5	264	108.8	304.5	226	90.9	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	92	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	361.4	264	107.9	306.2	226	91.4	55.2		13.2374	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	92	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	361.4	264	107.9	306.2	226	91.4	55.2		13.2374	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	93	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	361.4	264	107.9	306.2	226	91.4	55.2		13.2374	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	93	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	361.4	264	107.9	306.2	226	91.4	55.2		13.2374	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	94	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	423.8	264	126.5	351.7	226	105	72.1		17.2902	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	94	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	423.8	264	126.5	351.7	226	105	72.1		17.2902	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	95	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.5	264	109.7	307	226	91.6	60.5		14.5084	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	95	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.5	264	109.7	307	226	91.6	60.5		14.5084	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	96	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.5	264	109.7	307	226	91.6	60.5		14.5084	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	96	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.5	264	109.7	307	226	91.6	60.5		14.5084	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	97	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	383.9	264	114.6	329.6	226	98.4	54.3		13.0216	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	97	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	383.9	264	114.6	329.6	226	98.4	54.3		13.0216	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	98	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	383.9	264	114.6	329.6	226	98.4	54.3		13.0216	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	98	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	383.9	264	114.6	329.6	226	98.4	54.3		13.0216	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	99	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	368.4	264	110	311.1	226	92.9	57.3		13.741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	99	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	368.4	264	110	311.1	226	92.9	57.3		13.741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	100	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.2	264	109	305.2	226	91.1	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	100	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.2	264	109	305.2	226	91.1	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	101	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.7	264	109.5	306.7	226	91.6	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	101	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.7	264	109.5	306.7	226	91.6	60		14.3885	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	110	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.9	264	100.3	294.9	226	88	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	110	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.9	264	100.3	294.9	226	88	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	125	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	370.1	264	110.5	305	226	91	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	125	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	370.1	264	110.5	305	226	91	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	129	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T5	TR	176	184.3	103.2	104.7	163.5	92.7	92.9	20.8		4.98801	; MISO comment: Cat-C event, could be mitigated by load shed, Century SPS (Action 5)
2014SP[Coleman off]	130	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T3	TR	176	185.5	107.2	105.4	164.5	96.3	93.5	21		5.03597	; MISO comment: Cat-C event, could be mitigated by load shed, Century SPS (Action 5)
2014SP[Coleman off]	145	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	93	63.8	139.4	79.6	58.9	119.4	13.4		3.21343	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP[Coleman off]	145	[redacted]	324512 2EDDY P 69.0 362916 2KY DAM 69.0 1	LN	70	74.2	34.1	106	54.7	26.8	78.1	19.5		4.67626	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP[Coleman off]	145	[redacted]	324512 2EDDY P 69.0 324693 2PRINCE 69.0 1	LN	64	70.4	30.5	110	51.1	23.2	79.8	19.3		4.6283	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP[Coleman off]	151	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	444.2	264	132.6	430.2	226	128.4	14		3.35731	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	151	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	444	264	132.6	430.1	226	128.4	13.9		3.33333	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	173	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	215.2	131.7	110.9	106.6	92	54.9	108.6		26.0432	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP[Coleman off]	173	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	347.8	264	103.8	320	226	95.5	27.8		6.66667	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	173	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	347.8	264	103.8	320	226	95.5	27.8		6.66667	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	173	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	74.9	63.8	112.3	61.4	58.9	92.1	13.5		3.23741	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP[Coleman off]	175	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	356.6	264	106.5	343.6	226	102.6	13		3.11751	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	175	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	356.6	264	106.5	343.6	226	102.6	13		3.11751	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	266	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	363.6	264	108.6	291.3	226	87	72.3		17.3381	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	266	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	363.6	264	108.5	291.3	226	87	72.3		17.3381	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	296	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	334.8	264	100	295.1	226	88.1	39.7		9.52038	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	296	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	334.8	264	100	295.1	226	88.1	39.7		9.52038	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	311	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	368.6	264	110	304.3	226	90.8	64.3		15.4197	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	311	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	368.6	264	110	304.3	226	90.8	64.3		15.4197	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	355	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	368.5	264	110	304.2	226	90.8	64.3		15.4197	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	355	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	368.5	264	110	304.2	226	90.8	64.3		15.4197	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	398	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.9	264	109.2	301.2	226	89.9	64.7		15.5156	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	398	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.9	264	109.2	301.2	226	89.9	64.7		15.5156	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	440	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.2	264	109	298.6	226	89.1	66.6		15.9712	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	440	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.2	264	109	298.6	226	89.1	66.6		15.9712	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	480	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.8	264	109.5	302	226	90.1	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	480	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.8	264	109.5	302	226	90.1	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	510	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	337.6	264	100.8	298.5	226	89.1	39.1		9.3765	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	510	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	337.6	264	100.8	298.5	226	89.1	39.1		9.3765	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	511	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	338.6	264	101.1	299.7	226	89.5	38.9		9.32854	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	511	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	338.6	264	101.1	299.7	226	89.5	38.9		9.32854	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	517	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	344.1	264	102.7	300.7	226	89.7	43.4		10.4077	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	517	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	344.1	264	102.7	300.7	226	89.7	43.4		10.4077	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	520	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	514.9	264	153.7	428.9	226	128	86		20.6235	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	520	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	514.9	264	153.7	428.9	226	128	86		20.6235	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	520	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T3	TR	176	187.8	107.2	106.7	168.9	96.3	96	18.9		4.53237	; MISO comment: Cat-C event, could be mitigated by load shed, Century SPS (Action 5)
2014SP[Coleman off]	520	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T5	TR	176	180.8	103.2	102.7	162.6	92.7	92.4	18.2		4.36451	; MISO comment: Cat-C event, could be mitigated by load shed, Century SPS (Action 5)
2014SP[Coleman off]	520	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	204.5	131.7	105.4	144.8	92	74.6	59.7		14.3165	; MISO comment: Cat-C event, could be mitigated by load shed,LGE
2014SP[Coleman off]	522	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	370	264	110.5	325.8	226	97.2	44.2		10.5995	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	522	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	370	264	110.5	325.8	226	97.2	44.2		10.5995	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	527	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.6	264	100.2	294.8	226	88	40.8		9.78417	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	527	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.6	264	100.2	294.8	226	88	40.8		9.78417	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	538	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.9	264	100.3	294.9	226	88	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	538	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.9	264	100.3	294.9	226	88	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	539	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.1	264	100	294.1	226	87.8	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	539	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.1	264	100	294.1	226	87.8	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	540	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.1	264	100	294.1	226	87.8	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	540	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.1	264	100	294.1	226	87.8	41		9.83213	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	541	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	385.5	264	115.1	349.6	226	104.4	35.9		8.60911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	541	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	385.5	264	115.1	349.6	226	104.4	35.9		8.60911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	542	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	385.5	264	115.1	349.6	226	104.4	35.9		8.60911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	542	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	385.5	264	115.1	349.6	226	104.4	35.9		8.60911	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	543	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	339.1	264	101.2	301	226	89.8	38.1		9.13669	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	543	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	339.1	264	101.2	301	226	89.8	38.1		9.13669	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	559	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	365.5	264	109.1	300.5	226	89.7	65		15.5875	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	559	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	365.5	264	109.1	300.5	226	89.7	65		15.5875	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	634	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.8	264	109.5	302	226	90.1	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	634	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.8	264	109.5	302	226	90.1	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	670	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.8	264	109.5	302	226	90.1	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	670	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.8	264	109.5	302	226	90.1	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	705	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	371.1	264	110.8	307.6	226	91.8	63.5		15.2278	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	705	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	371.1	264	110.8	307.6	226	91.8	63.5		15.2278	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	739	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	372	264	111	308.7	226	92.1	63.3		15.1799	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	739	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	371.9	264	111	308.7	226	92.1	63.2		15.1559	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	774	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.4	264	109.7	302.6	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	774	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.4	264	109.7	302.6	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	806	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.4	264	109.7	302.6	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	806	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.4	264	109.7	302.6	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	837	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	454	264	135.5	375.1	226	112	78.9		18.9209	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	837	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	454	264	135.5	375.1	226	112	78.9		18.9209	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	837	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	195.1	131.7	100.6	137.8	92	71	57.3		13.741	; MISO comment: Cat-C event, could be mitigated by load shed,LGE
2014SP[Coleman off]	867	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	411.7	264	122.9	336	226	100.3	75.7		18.1535	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	867	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	411.7	264	122.9	336	226	100.3	75.7		18.1535	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	896	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.5	264	108.8	295.2	226	88.1	69.3		16.6187	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	896	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.5	264	108.8	295.2	226	88.1	69.3		16.6187	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	924	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	374.6	264	111.8	305.6	226	91.2	69		16.5468	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	924	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	374.6	264	111.8	305.6	226	91.2	69		16.5468	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	951	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	359.9	264	107.4	295.5	226	88.2	64.4		15.4436	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	951	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	359.9	264	107.4	295.5	226	88.2	64.4		15.4436	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	977	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	363.9	264	108.6	298.7	226	89.2	65.2		15.6355	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	977	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	363.9	264	108.6	298.7	226	89.2	65.2		15.6355	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1003	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	362.4	264	108.2	293.3	226	87.5	69.1		16.5707	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1003	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	362.4	264	108.2	293.3	226	87.5	69.1		16.5707	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1004	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	398.7	264	119	328.2	226	98	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1004	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	398.7	264	119	328.2	226	98	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1005	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.6	264	109.7	302.7	226	90.4	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1005	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.6	264	109.7	302.7	226	90.4	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1006	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.3	264	109.6	302.5	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1006	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.3	264	109.6	302.5	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1007	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.1	264	109.6	302.3	226	90.2	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1007	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.1	264	109.6	302.3	226	90.2	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1008	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.2	264	109.3	301.3	226	89.9	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1008	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.2	264	109.3	301.3	226	89.9	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1009	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	371.1	264	110.8	304.7	226	91	66.4		15.9233	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1009	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	371	264	110.8	304.7	226	91	66.3		15.8993	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1010	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.9	264	109.8	303.1	226	90.5	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1010	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.9	264	109.8	303.1	226	90.5	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1011	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.9	264	109.5	302	226	90.1	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1011	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.9	264	109.5	302	226	90.1	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1012	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367	264	109.5	302.2	226	90.2	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1012	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367	264	109.5	302.2	226	90.2	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1013	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.5	264	109.7	302.7	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1013	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.5	264	109.7	302.7	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1014	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	368.1	264	109.9	303.1	226	90.5	65		15.5875	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1014	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	368.1	264	109.9	303.1	226	90.5	65		15.5875	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1015	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.3	264	109.7	302.5	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1015	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.3	264	109.7	302.5	226	90.3	64.8		15.5396	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1016	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.6	264	109.4	301.4	226	90	65.2		15.6355	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1016	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.6	264	109.4	301.4	226	90	65.2		15.6355	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1017	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	366.6	264	109.4	301.4	226	90	65.2		15.6355	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1017	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	366.6	264	109.4	301.4	226	90	65.2		15.6355	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1018	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1018	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1019	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1019	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	364.2	264	108.7	304.3	226	90.8	59.9		14.3645	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1020	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	370.1	264	110.5	305	226	91	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1020	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	370.1	264	110.5	305	226	91	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1021	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1021	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1022	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1022	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.7	264	110.4	304.6	226	90.9	65.1		15.6115	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1023	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	374.1	264	111.7	317.1	226	94.7	57		13.6691	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1023	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	374.1	264	111.7	317.1	226	94.7	57		13.6691	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1024	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	374.1	264	111.7	317.1	226	94.7	57		13.6691	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1024	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	374.1	264	111.7	317.1	226	94.7	57		13.6691	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1025	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.9	264	109.8	305.9	226	91.3	62		14.8681	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1025	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.9	264	109.8	305.9	226	91.3	62		14.8681	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1026	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	367.5	264	109.7	302.6	226	90.3	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1026	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	367.5	264	109.7	302.6	226	90.3	64.9		15.5635	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1027	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	368	264	109.8	303	226	90.4	65		15.5875	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1027	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	368	264	109.8	303	226	90.4	65		15.5875	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event, could be mitigated by load shed, SPS
2014SP[Coleman off]	1283	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	197.4	131.7	101.7	92.2	92	47.5	105.2		25.2278	; MISO comment: Cat-C event, could be mitigated by load shed, LGE

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP[Coleman off]	1283	[redacted]	362116 2KY HYDRO 69.0 BS0229 1.00 1	TR	66.7	72.2	63.8	108.2	58.9	58.9	88.3	13.3		3.18945	; MISO comment: Cat-C event, could be mitigated by load shed, TVA
2014SP[Rattsoff]	16	[redacted]	362116 2KY HYDRO 69.0 b50229 1.00 1	TR	66.7	71.5	62.4	107.2	58.3	57.7	87.4	13.2		3.16547	; MISO comment: Cat-C event, can be mitigated by load shed,TVA
2014SP[Rattsoff]	145	[redacted]	324512 2EDDY P 69.0 324693 2PRINCE 69.0 1	LN	64	64	28.1	100.1	45.7	21	71.4	18.3		4.38849	; MISO comment: Cat-C event, can be mitigated by load shed,LGE
2014SP[Rattsoff]	145	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	88.8	62.4	133.2	76.1	57.7	114.1	12.7		3.04556	; MISO comment: Cat-C event, can be mitigated by load shed,TVA
2014SP[Rattsoff]	173	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	202.2	118.7	104.2	96.6	81.1	49.8	105.6		25.3237	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP[Rattsoff]	173	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	73.5	62.4	110.2	60.3	57.7	90.4	13.2		3.16547	; MISO comment: Cat-C event, can be mitigated by load shed,TVA
2014SP[Rattsoff]	1283	[redacted]	362116 2KY HYDRO 69.0 b50229 1.00 1	TR	66.7	71.5	62.4	107.2	58.3	57.7	87.4	13.2		3.16547	; MISO comment: Cat-C event, can be mitigated by load shed,TVA
2014SP_1A[Coleman on]	16	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	71.3	62	107	58.1	57.3	87.1	13.2		3.16547	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP_1A[Coleman on]	145	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	88	62	131.9	75.1	57.3	112.7	12.9		3.09353	; MISO comment: Cat-C event, could be mitigated by load shed,TVA

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_1A[Colemanon]	173	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	200.3	115.8	103.3	94.6	78.2	48.8	105.7		25.3477	; MISO comment: Cat-C event, could be mitigated by load shed,LGE
2014SP_1A[Colemanon]	173	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	73.3	62	109.9	60.1	57.3	90.1	13.2		3.16547	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP_1A[Colemanon]	1283	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	71.3	62	107	58.1	57.3	87.1	13.2		3.16547	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP_2A[Colemanoff,Century338]	1	[redacted]	253621 10ABB_R 138 340617 4HENDR 138 1	LN	239	240.3	67	100.5	190.6	56.6	79.8	49.7		11.9185	Vectren:There is a 4.5% reactor on this line that can be put in service. It is from Bus 1ABBRWN (25355) to 1ABB_R (253621) with a circuit ID of 1; MISO comment: caused by study generator ; can be mitigated by load shed. P+F: reduce [redacted] Generation
2014SP_2A[Colemanoff,Century338]	1	[redacted]	340560 5HENDR 161 340617 4HENDR 138 1	TR	224	242.4	68	108.2	192.8	57.5	86.1	49.6		11.8945	; MISO comment: caused by study generator ; can be mitigated by load shed, P+F: reduce [redacted] Generation
2014SP_2A[Colemanoff,Century338]	16	[redacted]	362116 2KY HYDRO 69.0 B50229 1.00 1	TR	66.7	71.8	63.2	107.7	58.7	58.4	87.9	13.1		3.14149	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP_2A[Colemanoff,Century338]	26	[redacted]	340551 5REID 161 340559 5DAVIS 161 1	LN	335	343.5	176.9	102.5	301.8	175.9	90.1	41.7		10	; MISO comment: caused by study generator ; can be mitigated by load shed,P+F: reduce [redacted] Generation, [redacted] generation
2014SP_2A[Colemanoff,Century338]	52	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.8	213.7	110.4	299.3	177.6	89.3	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed,SPS
2014SP_2A[Colemanoff,Century338]	52	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.8	213.7	110.4	299.3	177.6	89.3	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_2A[Colemanoff,Century338]	54	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	393.8	213.7	117.5	368.1	177.6	109.9	25.7		6.16307	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	54	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	393.8	213.7	117.5	368.1	177.6	109.9	25.7		6.16307	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	61	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	354.2	213.7	105.7	295.8	177.6	88.3	58.4		14.0048	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	61	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	354.2	213.7	105.7	295.8	177.6	88.3	58.4		14.0048	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	75	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	350.7	213.7	104.7	280.4	177.6	83.7	70.3		16.8585	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	75	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	350.7	213.7	104.7	280.4	177.6	83.7	70.3		16.8585	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	78	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	337.5	213.7	100.8	275.6	177.6	82.3	61.9		14.8441	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	78	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	337.5	213.7	100.8	275.6	177.6	82.3	61.9		14.8441	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	94	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	369.8	213.7	110.4	299.3	177.6	89.3	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_2A[Colemanoff,Century338]	94	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	369.8	213.7	110.4	299.3	177.6	89.3	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	103	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	344.9	213.7	102.9	329.9	177.6	98.5	15		3.59712	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	103	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	344.8	213.7	102.9	329.8	177.6	98.4	15		3.59712	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	145	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	91.1	63.2	136.6	78.3	58.4	117.4	12.8		3.06954	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP_2A[Colemanoff,Century338]	145	[redacted]	324512 2EDDY P 69.0 362916 2KY DAM 69.0 1	LN	70	71.3	33	101.8	52.6	26	75.2	18.7		4.48441	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP_2A[Colemanoff,Century338]	145	[redacted]	324512 2EDDY P 69.0 324693 2PRINCE 69.0 1	LN	64	67.6	29.4	105.6	49	22.4	76.6	18.6		4.46043	; MISO comment: Cat-C event, could be mitigated by load shed, LGE
2014SP_2A[Colemanoff,Century338]	173	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	208.4	126	107.4	102.7	87.9	52.9	105.7		25.3477	; MISO comment: Cat-C event, could be mitigated by load shed,LGE
2014SP_2A[Colemanoff,Century338]	173	[redacted]	362116 2KY HYDRO 69.0 990229 1.00 1	TR	66.7	74.2	63.2	111.2	60.9	58.4	91.4	13.3		3.18945	; MISO comment: Cat-C event, could be mitigated by load shed,TVA
2014SP_2A[Colemanoff,Century338]	199	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.5	213.7	100.1	322.4	177.6	96.2	13.1		3.14149	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_2A[Colemanoff,Century338]	199	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.4	213.7	100.1	322.3	177.6	96.2	13.1		3.14149	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	203	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	336.2	213.7	100.4	323.5	177.6	96.6	12.7		3.04556	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	203	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	336.1	213.7	100.3	323.5	177.6	96.6	12.6		3.02158	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	206	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.7	213.7	100.2	323	177.6	96.4	12.7		3.04556	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	206	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.6	213.7	100.2	322.9	177.6	96.4	12.7		3.04556	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	212	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	335.7	213.7	100.2	322.2	177.6	96.2	13.5		3.23741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	212	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.6	213.7	100.2	322.1	177.6	96.2	13.5		3.23741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	213	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	336	213.7	100.3	322.5	177.6	96.3	13.5		3.23741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	213	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	335.9	213.7	100.3	322.4	177.6	96.3	13.5		3.23741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_2A[Colemanoff,Century338]	219	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	337.8	213.7	100.8	324	177.6	96.7	13.8		3.30935	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	219	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	337.8	213.7	100.8	323.9	177.6	96.7	13.9		3.33333	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	226	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	336	213.7	100.3	323.4	177.6	96.5	12.6		3.02158	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	227	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	350	213.7	104.5	337.4	177.6	100.7	12.6		3.02158	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	227	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	350	213.7	104.5	337.4	177.6	100.7	12.6		3.02158	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	228	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	337.3	213.7	100.7	324.7	177.6	96.9	12.6		3.02158	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	230	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	336.9	213.7	100.6	324.3	177.6	96.8	12.6		3.02158	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	230	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	336.8	213.7	100.5	324.2	177.6	96.8	12.6		3.02158	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	231	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	334.8	213.7	100	321.5	177.6	96	13.3		3.18945	HE comment: Violating Elements [248435 07NWTVL1 161 253580 10NTVL16 161 1) and [248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_2A[Colemanoff,Century338]	232	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	337.2	213.7	100.6	324.6	177.6	96.9	12.6		3.02158	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	238	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	344.9	213.7	102.9	329.9	177.6	98.5	15		3.59712	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	238	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	344.8	213.7	102.9	329.8	177.6	98.4	15		3.59712	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	244	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	336.5	213.7	100.4	323.9	177.6	96.7	12.6		3.02158	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	520	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	455.5	213.7	136	362.2	177.6	108.1	93.3		22.3741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: pre-existing violation, made worse by study generator mitigated by generation redispatch and can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	520	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	455.5	213.7	136	362.2	177.6	108.1	93.3		22.3741	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: pre-existing violation, made worse by study generator mitigated by generation redispatch and can be mitigated by load shed, SPS
2014SP_2A[Colemanoff,Century338]	520	[redacted]	253580 10NTVL16 161 253581 10NTVL13 138 T3	TR	176	181.8	94.2	103.3	151.3	85	86	30.5		7.31415	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, Century SPS (Action 5)
2014SP_2A[Colemanoff,Century338]	520	[redacted]	324151 5LIVNG C 161 325079 5N PRINCETON 161 1	LN	194	194.2	126	100.1	136.5	87.9	70.4	57.7		13.8369	; MISO comment: Cat-C event, could be mitigated by load shed,LGE

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	Contingency		Limiting Element			BREC Wilson OFF			BREC Wilson On			Unit Impact			
Model	Ncon	Contingency Description	** From bus ** ** To bus ** CKT	Type	Rating	ContMW	BaseFlow	Loading %	ContMW	BaseFlow	Loading %	MWoff-MWon	PTDF (> 5%)	OTDF (> 3%)	Comments
2014SP_2A[Coleman off,Century 338]	837	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	387.9	213.7	115.8	311.7	177.6	93	76.2		18.2734	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active. ; MISO comment: caused by study generator ; can be mitigated
2014SP_2A[Coleman off,Century 338]	837	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	387.9	213.7	115.8	311.7	177.6	93	76.2		18.2734	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed,SPS
2014SP_2A[Coleman off,Century 338]	867	[redacted]	248435 07NWTVL1 161 253580 10NTVL16 161 1	LN	335	345.9	213.7	103.3	275.4	177.6	82.2	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Coleman off,Century 338]	867	[redacted]	248435 07NWTVL1 161 340552 5COLEMAN 161 1	LN	335	345.9	213.7	103.3	275.4	177.6	82.2	70.5		16.9065	HE comment: Violating Elements (248435 07NWTVL1 161 253580 10NTVL16 161 1) and (248435 07NWTVL1 161 340552 5COLEMAN 161 1) are the same element just modeled as separate. Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: caused by study generator ; can be mitigated by load shed, SPS
2014SP_2A[Coleman off,Century 338]	1283	[redacted]	362116 2KY HYDRO 69.0 BS0229 1.00 1	TR	66.7	71.8	63.2	107.7	58.7	58.4	87.9	13.1		3.14149	; MISO comment: Cat-C event, could be mitigated by load shed,TVA

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP[Coleman off]	6	[redacted]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8808	1	L	0.894	1.0026	L	-0.013	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	6	[redacted]	340566	5MEADE	161	314	1314	0.92	1.05	0.8963	0.9919	L	0.9093	0.9964	L	-0.013	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	11	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8701	0.9805	L	0.9053	0.9847	L	-0.035	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	11	[redacted]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8828	0.9916	L	0.9174	0.9958	L	-0.035	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	11	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.918	0.9763	L	0.9486	0.9854	L X	-0.031	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	11	[redacted]	340557	5HANCO	161	314	1314	0.92	1.05	0.9181	0.9796	L	0.9486	0.9883	L X	-0.031	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	12	[redacted]	248865	07TRY161	161	207	1207	0.9	1.1	0.8935	0.9965	L	0.8203	1.0033	L X	0.073	HE comment: Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	16	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9194	1	L	1.028	1.028	H X	-0.109	Cat-C event. Can be mitigated by load shed; review in PSSE confirmed no voltage violation .985pu
2014SP[Coleman off]	16	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9198	0.9954	L	1.0205	1.0206	H X	-0.101	Cat-C event. Can be mitigated by load shed; review in PSSE confirmed no voltage violation .986pu
2014SP[Coleman off]	26	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9092	0.9763	L	0.9674	0.9854	L X	-0.058	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	26	[redacted]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.9154	0.9808	L	0.9726	0.9899	L X	-0.057	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	26	[redacted]	340564	5NATAL	161	314	1314	0.92	1.05	0.9185	0.9829	L	0.9747	0.9917	L X	-0.056	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	26	[redacted]	340557	5HANCO	161	314	1314	0.92	1.05	0.9132	0.9796	L	0.9693	0.9883	L X	-0.056	; MISO comment: Cat-C event. Can be mitigated by load shed

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP[Coleman off]	30	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8742	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	39	[redacted]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8808	1	L	0.894	1.0026	L	-0.013	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	39	[redacted]	340566	5MEADE	161	314	1314	0.92	1.05	0.8964	0.9919	L	0.9093	0.9964	L	-0.013	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	103	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8742	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	173	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9077	1	L	1.028	1.028	H X	-0.120	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	173	[redacted]	340561	7WILSON	345	314	1314	0.92	1.05	0.9077	1.0062	L	1.028	1.0216	H X	-0.120	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	173	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9083	0.9954	L	1.0208	1.0206	H X	-0.113	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	199	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9169	0.9914	L	0.8739	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	200	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9165	0.9914	L	0.8733	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	201	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9164	0.9914	L	0.8731	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	203	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.917	0.9914	L	0.874	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	204	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	206	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.917	0.9914	L	0.874	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP[Coleman off]	208	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	209	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	210	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9178	0.9914	L	0.8755	0.9994	L X	0.042	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	211	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.918	0.9914	L	0.8758	0.9994	L X	0.042	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	212	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9169	0.9914	L	0.874	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	213	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	217	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.9193	0.9805	L	0.886	0.9847	L X	0.033	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	219	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9168	0.9914	L	0.8739	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	221	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.9195	0.9805	L	0.8879	0.9847	L X	0.032	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	222	[redacted]	248887	07NWTNVL	161	207	1207	0.9	1.1	0.8963	0.9873	L	0.8375	0.9951	L X	0.059	HE comment: Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	223	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	224	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9169	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	225	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP[Coleman off]	226	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	228	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9168	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	229	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	230	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9168	0.9914	L	0.8736	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	231	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.874	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	232	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	233	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9169	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	234	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	235	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	236	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.917	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	237	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.917	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	238	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8743	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	239	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.917	0.9914	L	0.8742	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP[Coleman off]	240	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.917	0.9914	L	0.8742	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	241	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	242	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	244	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9173	0.9914	L	0.8741	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	245	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8742	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	520	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8629	0.9805	L	0.9192	0.9847	L	-0.056	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	520	[redacted]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8758	0.9916	L	0.9066	0.9958	L X	-0.031	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	520	[redacted]	340557	5HANCO	161	314	1314	0.92	1.05	0.9119	0.9796	L	0.9391	0.9883	L X	-0.027	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	520	[redacted]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.918	0.9808	L	0.9447	0.9899	L X	-0.027	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	520	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9136	0.9763	L	0.9378	0.9854	L X	-0.024	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	541	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8922	0.9805	L	0.9064	0.9847	L	-0.014	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	541	[redacted]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9046	0.9916	L	0.9186	0.9958	L	-0.014	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	542	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8922	0.9805	L	0.9064	0.9847	L	-0.014	; MISO comment: Cat-C event. Can be mitigated by load shed

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP[Coleman off]	542	[redacted]	340559	5DAVIS	161	314	1314	0.92	1.05	0.9046	0.9916	L	0.9186	0.9958	L	-0.014	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	696	[redacted]	248865	07TRY161	161	207	1207	0.9	1.1	0.8935	0.9965	L	0.8203	1.0033	L X	0.073	HE comment: Add this contingency to the existing OP Guide or keep Coleman active.; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	1172	[redacted]	340616	5N.HARD	161	314	1314	0.92	1.05	0.8808	1	L	0.894	1.0026	L	-0.013	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	1172	[redacted]	340566	5MEADE	161	314	1314	0.92	1.05	0.8964	0.9919	L	0.9093	0.9964	L	-0.013	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Coleman off]	1283	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9194	1	L	1.028	1.028	H X	-0.109	Cat-C event. Can be mitigated by load shed; review in PSSE confirmed no voltage violation .985pu
2014SP[Coleman off]	1283	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9198	0.9954	L	1.0205	1.0206	H X	-0.101	Cat-C event. Can be mitigated by load shed; review in PSSE confirmed no voltage violation .986pu
2014SP[Coleman off]	1318	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9171	0.9914	L	0.8742	0.9994	L X	0.043	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP[Rattsoff]	1	[redacted]	248404	07VIC161	161	207	1207	0.9	1.1	0.8326	1.0167	L	0.8206	1.0157	L	0.012	HE comment: Mitigated with 69kV switching; MISO comment: Cat-C event, can be mitigated by load shed
2014SP[Rattsoff]	16	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9196	1.0106	L	1.028	1.028	H X	-0.108	Cat-C event, can be mitigated by load shed; review in PSSE confirmed no voltage violation .985pu
2014SP[Rattsoff]	16	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9199	1.0049	L	1.0204	1.0203	H X	-0.101	Cat-C event, can be mitigated by load shed; review in PSSE confirmed no voltage violation .985pu
2014SP[Rattsoff]	1283	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9196	1.0106	L	1.028	1.028	H X	-0.108	Cat-C event, can be mitigated by load shed; review in PSSE confirmed no voltage violation .985pu
2014SP[Rattsoff]	1283	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9199	1.0049	L	1.0204	1.0203	H X	-0.101	Cat-C event, can be mitigated by load shed;; review in PSSE confirmed no voltage violation .985pu
2014SP_1A[Colema n on]	16	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9194	1.0105	L	1.028	1.028	H X	-0.109	Cat-C event. Can be mitigated by load shed; review in PSSE showed no violations .985pu

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP_1A[Colema n on]	16	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9196	1.0048	L	1.0204	1.0203	H X	-0.101	Cat-C event. Can be mitigated by load shed;review in PSSE showed no violations .985pu
2014SP_1A[Colema n on]	1283	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9194	1.0105	L	1.028	1.028	H X	-0.109	Cat-C event. Can be mitigated by load shed;review in PSSE showed no violations .985pu
2014SP_1A[Colema n on]	1283	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9196	1.0048	L	1.0204	1.0203	H X	-0.101	Cat-C event. Can be mitigated by load shed;review in PSSE showed no violations .985pu
2014SP_2A[Colem an off,Century 338]	103	[redacted]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.9194	1.0103	L	0.964	1.017	L X	-0.045	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	103	[redacted]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.9194	1.0039	L	0.964	1.01	L X	-0.045	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	103	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9173	1.002	L	0.9634	1.0081	L X	-0.046	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	173	[redacted]	340553	5WLSNBR	161	314	1314	0.92	1.05	0.9178	1.0051	L	1.028	1.028	H X	-0.110	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	173	[redacted]	340561	7WILSON	345	314	1314	0.92	1.05	0.9178	1.0122	L	1.028	1.0251	H X	-0.110	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	173	[redacted]	326563	5MTNZ	161	314	1314	0.92	1.05	0.9185	1	L	1.0208	1.0205	H X	-0.102	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	210	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9165	1.002	L	0.9629	1.0081	L X	-0.046	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	211	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9164	1.002	L	0.9629	1.0081	L X	-0.047	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	219	[redacted]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.9192	1.0103	L	0.9636	1.017	L X	-0.044	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Colem an off,Century 338]	219	[redacted]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.9192	1.0039	L	0.9636	1.01	L X	-0.044	; MISO comment: Cat-C event. Can be mitigated by load shed

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	Contingency		Limiting Element							BREC Wilson OFF			BREC Wilson On			Unit Impact	
Model	Ncon	Contingency Description	Bus #	Bus Name	KV	Area	Zone	Low Limit	Upp Limit	Cont Volt	Base Volt	Viol	Cont Volt	Base Volt	Viol	Voff-Von (>0.01)	Comments
2014SP_2A[Coleman off,Century 338]	219	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9171	1.002	L	0.9631	1.0081	L X	-0.046	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Coleman off,Century 338]	238	[redacted]	340563	7COLEMAN	345	314	1314	0.92	1.05	0.9194	1.0103	L	0.964	1.017	L X	-0.045	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Coleman off,Century 338]	238	[redacted]	340621	5COLEEHV	161	314	1314	0.92	1.05	0.9194	1.0039	L	0.964	1.01	L X	-0.045	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Coleman off,Century 338]	238	[redacted]	340552	5COLEMAN	161	314	1314	0.92	1.05	0.9173	1.002	L	0.9634	1.0081	L X	-0.046	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Coleman off,Century 338]	243	[redacted]	340558	5SKILMAN	161	314	1314	0.92	1.05	0.9199	1.0116	L	0.9701	1.017	L X	-0.050	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Coleman off,Century 338]	520	[redacted]	340559	5DAVIS	161	314	1314	0.92	1.05	0.8877	1.0034	L	0.9624	1.0063	L X	-0.075	; MISO comment: Cat-C event. Can be mitigated by load shed
2014SP_2A[Coleman off,Century 338]	520	[redacted]	340565	5NEWMAN	161	314	1314	0.92	1.05	0.8751	0.9925	L	0.9509	0.9954	L X	-0.076	; MISO comment: Cat-C event. Can be mitigated by load shed

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Dated August 20, 2014

September 10, 2014

Item 36) For each of the following existing, proposed, or potential regulatory requirements, produce any evaluation of the pollution controls that would be needed, or the estimated costs that would be incurred, to bring each of Big Rivers' coal-fired electric generating units into compliance with the requirement:

a) 1-hour SO2 NAAQS.

b) Section 316(b) of the Clean Water Act.

c) Section 316(a) of the Clean Water Act.

d) Clean Water Act effluent limitation guidelines.

e) Clean Air Interstate Rule.

f) Ozone NAAQS.

g) PM2.5 NAAQS.

h) Section 111(d) greenhouse gas regulations for existing sources.

Response)

a) No studies have been completed since the Sargent & Lundy 2012 Environmental Compliance Study.

b) No studies have been completed since the Sargent & Lundy 2012 Environmental Compliance Study.

c) No studies have been completed.

d) See Burns & McDonnell 2014 ELG Master Planning Study.

e) No studies have been completed since the Sargent & Lundy 2012 Environmental Compliance Study.

f) No studies have been completed since the Sargent & Lundy 2012 Environmental Compliance Study.

g) No studies have been completed.

h) See response in SC 1-23 and AG1-7.

Witness) Eric M. Robeson

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Item 37) Refer to Table 1-2 on page 5 of the DSM Potential Study attached as Appendix B to the IRP.

a) Identify the annual incentive budget that would be needed to achieve the savings identified for the Achievable Potential Scenario.

b) Explain how Big Rivers initially settled on a $1 million per year DSM incentives budget, and why the Company has proposed to continue that level of funding, adjusted for inflation, rather than a higher level of funding.

c) Given that Big Rivers' DSM Potential Study finds that every dollar of DSM spending would provide more than two dollars of benefits in the Achievable Potential Scenario, explain why the Company is not proposing to pursue that scenario.

d) Given that Big Rivers' DSM Potential study finds that every dollar of DSM spending would provide more than two dollars of benefits under the $2 million program scenario, explain why the Company is not proposing to pursue that scenario.

Response)

a) Please see the attachment for this response for annual incentive budgets needed to achieve the savings identified for the Achievable Potential Scenario.

b) The $1 million incentive budget was originally selected in 2010 to approximate 1% of revenue from Rural Delivery Service load, which totaled $92 million in 2009. $1 million is currently approved in base rates for DSM programs.

c) The DSM potential study is not intended to propose or define corporate pursuit of the scenarios analyzed. Rather, the study is intended to present measure and program potential costs, benefits and impact on energy consumption.

d) See part c. above.

Witness) Russ Pogue

Annual Incentive Budget - Achievable Potential Scenario

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Residential	$11,073,097	$11,327,397	$11,449,206	$11,480,156	$11,496,313	$11,557,978	$11,629,870	$11,694,488	$11,594,343	$11,630,335
Commercial	$1,846,019	$1,849,407	$1,852,796	$1,875,402	$1,883,595	$1,895,478	$1,916,264	$1,964,600	$1,968,950	$1,986,500
Total	**$12,919,116**	**$13,176,804**	**$13,302,001**	**$13,355,558**	**$13,379,908**	**$13,453,456**	**$13,546,135**	**$13,659,088**	**$13,563,292**	**$13,616,835**

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Item 38) With regards to the evaluation of demand response programs in the DSM Potential Study attached as Appendix B to the IRP:

a) Produce any modeling files and workpapers (in electronic, machine readable format with formulas intact) evaluating the cost-effectiveness of potential Big Rivers demand response programs.

b) State whether the ability to bid demand response programs into MISO was factored into the evaluation of the cost-effectiveness of potential Big Rivers demand response programs.

i. If so, explain how such ability was factored in.

ii. If not, explain why not.

c) Explain why you assumed no benefit of demand response for avoided transmission or distribution demand.

Response)

a) Please see the three files in the folder SC 1-38 on the confidential electronic media accompanying these responses.

b) The ability to bid demand response programs into MISO was considered by the assumption that the value Big Rivers would receive is reflected by MISO market

prices. The analysis uses MISO market prices as the avoided costs for demand response.

c) Currently, no growth-related investment in transmission or distribution facilities can be avoided by reducing peak demands.

Witness) Russ Pogue

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Item 39) **State whether Big Rivers has evaluated what role demand side management could play in achieving the carbon reduction goals set forth in EPA's proposed greenhouse gas emission regulations for existing sources.**

a) If so, explain the results of such evaluation and produce any report, modeling files, workpapers, or other documents regarding such evaluation.

b) If not, explain why not.

Response) Yes.

a) Appendix B of the 2014 Integrated Resource Plan evaluates the impact of demand side management on energy consumption in the Big Rivers service area. Energy consumption reductions should result in a proportional reduction in greenhouse gas emissions.

b) N/A

Witness) Russ Pogue and Eric Robeson

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Dated August 20, 2014

September 10, 2014

Item 40) Refer to Table 9.2 on page 97 of the IRP. With regards to the wind supply-side option identified therein:

a. Identify and produce any studies, analyses, or other documents upon which the estimated overnight capital cost and fixed O&M rate are based.

b. Identify the annual capacity factor you assumed for wind resources in your IRP.

c. Identify the levelized cost of energy from wind resources you assumed in your IRP.

d. State whether Big Rivers has issued any RFPs for wind power in the past three years.

i. If so, explain and produce the results of such RFP.

ii. If not, explain why not.

Response)

a. The Energy Information Administration's early release of its 2014 Annual Energy Outlook was used as the source of capital cost and fixed O&M rate. See Big Rivers' response to AG-1-23, Attachment 3.

b. A 30% annual capacity factor was assumed for potential wind resources in the development of the IRP.

c. No levelized cost of energy from wind resources was assumed or developed as part of the IRP process.

d. Big Rivers has had no need to issue RFP's for wind power in the past three years, and therefore has not done so.

Witness) Marlene S. Parsley

BIG RIVERS ELECTRIC CORPORATION

2014 INTEGRATED RESOURCE PLAN
OF BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2014-00166

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Item 41) Refer to Table 9.2 on page 97 of the IRP. With regards to the photovoltaic supply-side option identified therein:

a. Identify and produce any studies, analyses, or other documents upon which the estimated overnight capital cost and fixed O&M rate are based.

b. Identify the annual capacity factor you assumed for photovoltaic resources in your IRP.

c. Identify the levelized cost of energy from photovoltaic resources you assumed in your IRP.

d. State whether Big Rivers has issued any RFPs for photovoltaic resources in the past three years.

i. If so, explain and produce the results of such RFP.

ii. If not, explain why not.

Response)

a. The Energy Information Administration's early release of its 2014 Annual Energy Outlook was used as the source of capital cost and fixed O&M rate. See Big Rivers response to AG-1-23 Attachment 3.

b. A 25% annual capacity factor was assumed for potential photovoltaic resources in the development of the IRP.

c. No levelized cost of energy from photovoltaic resources was assumed or developed as part of the IRP process.

d. Big Rivers has had no need to issue an RFP for photovoltaic resources in the past three years and therefore has not done so.

Witness) Marlene S. Parsley

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Item 42) **Refer to Section 10.2 of the IRP. Identify and explain any correlation you assumed between any of the following in your modeling of the Base Case and 17 sensitivity cases:**

a. Natural gas prices.

b. Carbon prices.

c. Coal prices.

d. Energy prices.

e. Load.

Response) Correlation was assumed between carbon prices, energy prices, and load. For the high and low Carbon Cost Cases, variation from the base case load and energy forecast was assumed and a new forecast was developed. For these same cases, premiums were placed on market energy prices.

Witness) Marlene S. Parsley