

**Ameren Transmission Company of Illinois's
Response to ICC Staff Data Requests
Docket No. 12-0598**

Petition for a Certificate of Public Convenience and Necessity, pursuant to Section 8-406.1 of the Illinois Public Utilities Act, and an Order pursuant to Section 8-503 of the Public Utilities Act, to Construct, Operate and Maintain a New High Voltage Electric Service Line and Related Facilities in Various Counties in the State of Illinois.

Data Request on Rehearing Response Date: 12/16/2013

ENG 13.08

Please provide the results of a power flow study, similar to ATXI Ex. 4.4, assuming:

- a) A 345 kV connection between Kansas and the proposed substation site at Moweaqua using Staff's alternate route.
- b) A 345 kV connection between Kincaid and the proposed substation site at Moweaqua using Staff's alternative route.
- c) Both (a) a 345 kV connection between Kansas and the proposed substation site at Moweaqua using Staff's alternate route, and (b) a 345 kV connection between Kincaid and the proposed substation site at Moweaqua using Staff's alternative route.

RESPONSE

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This response is limited to only examining the effect of the loss of both Oreana 345/138 kV transformers and the resultant impact on Decatur area post-contingency voltage recovery with the indicated combination of transmission lines and Mt. Zion area substation in service in the year that is listed. In all system configurations, the analysis uses the same loading assumptions as were used in ATXI Ex. 4.1 (RH) through ATXI Ex. 4.4 (RH) and ATXI Ex. 11.1. In order to maintain consistency in the analysis, the Decatur area loads in the system model do not include the expected additional customer load of approximately 70 MVA that is expected to occur by 2016.

The analysis is predicated upon the assumption that a new MVP sequencing study does not identify a major obstacle to accelerating the implementation of the Mt. Zion to Kansas 345 kV line to be in service in 2016 and that the actual design and construction of the Mt. Zion to Kansas 345 kV line can be accomplished to support a 2016 in service date.

The analysis assumes a 345 kV connection at Kincaid and related 345 kV line to any Mt. Zion area substation site cannot be accomplished before 2018. The justification for this assumption is documented in Mr. Kramer's and Mr. Hackman's rehearing testimony. ATXI does not consider it appropriate to perform an analysis of any scenario that assumes a 345 kV line from Kincaid can be in service and connected to any Mt. Zion area substation before 2018.

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I.C.C. Docket No. 12-0598
ICC Staff
Dennis Kramer
12-17-13

- a) Subject to the conditions stated above, the results of a supplemental power flow analysis for the year 2016 are provided as Attachments 5 and 7.
- b) Because a 345 kV connection at Kincaid and related 345 kV line to any Mt. Zion area substation cannot be accomplished before 2018, by the time a 345 kV line from Kincaid is in service, a 345 kV line from Kansas would also be in service. Therefore, see ATXI's response to ENG 13.08c.
- c) Subject to the conditions stated above, the results of a supplemental power flow analysis for the year 2018 are provided as ENG 13.08 Attach 6 and 8.

ATXI also provides the additional analysis that Mr. Rockrohr requests at lines 119-124 of his surebuttal testimony for the ATXI proposed Mt. Zion substation site, the Staff's proposed Mt. Zion substation site and Mr. Rockrohr's proposed Moweaqua substation site. Attachments 2, 4, 6 and 8 provide the response to Mr. Rockrohr's surebuttal testimony request and also provide ATXI's response to DR ENG 14.01. Attachments 1 and 3 provide additional analysis of potential system configurations in 2016 that Staff may find useful.

ENG Attach 1 – Reflects the analysis results for a 2016 system configuration with only a 345 kV line from Kansas to ATXI's Mt. Zion substation site with two 138 kV connectors to the PPG substation.

ENG 13.08 Attach 2 – Reflects the analysis results for a 2018 system configuration with a 345 kV line from Kansas to ATXI's Mt. Zion substation site and a 345 kV line from Kincaid to ATXI's Zion site with two 138 kV connectors to the PPG substation.

ENG 13.08 Attach 3 – Reflects the analysis results for a 2016 system configuration with only a 345 kV line from Kansas to Staff's Mt. Zion substation site with two 138 kV connectors to the PPG substation.

ENG 13.08 Attach 4 – Reflects the analysis results for a 2018 system configuration with a 345 kV line from Kansas to Staff's Mt. Zion substation site and with a 345 kV line from Kincaid to Staff's Mt. Zion substation with two 138 kV connectors to the PPG substation.

ENG 13.08 Attach 5 – Reflects the analysis results for a 2016 system configuration with only a 345 kV line from Kansas to Staff's Moweaqua substation site. The existing 138 kV line to Route 51 substation is assumed to connect to the Moweaqua substation and a new 138 kV line from Moweaqua North substation to PPG substation is also assumed. [Note: This is the analysis requested in DR ENG 13.08 a)]

ENG 13.08 Attach 6 – Reflects the analysis results for a 2018 system configuration with a 345 kV line from Kansas to Staff's Moweaqua substation site and with a 345 kV line from Kincaid to Staff's Moweaqua substation site. The existing 138 kV line to Route 51 substation is assumed to connect to the Moweaqua substation and a new 138 kV line from Moweaqua North substation to PPG substation is also assumed. [Note: This is the analysis requested in DR ENG 13.08c]

ENG 13.08 Attach 7 – Reflects the analysis results for a 2016 system configuration with only a 345 kV line from Kansas to Staff's Moweaqua substation site. The existing 138 kV line to Route 51 substation is assumed to connect to the Moweaqua substation. No additional 138 kV line from the Moweaqua substation to the Decatur area is assumed in the analysis.

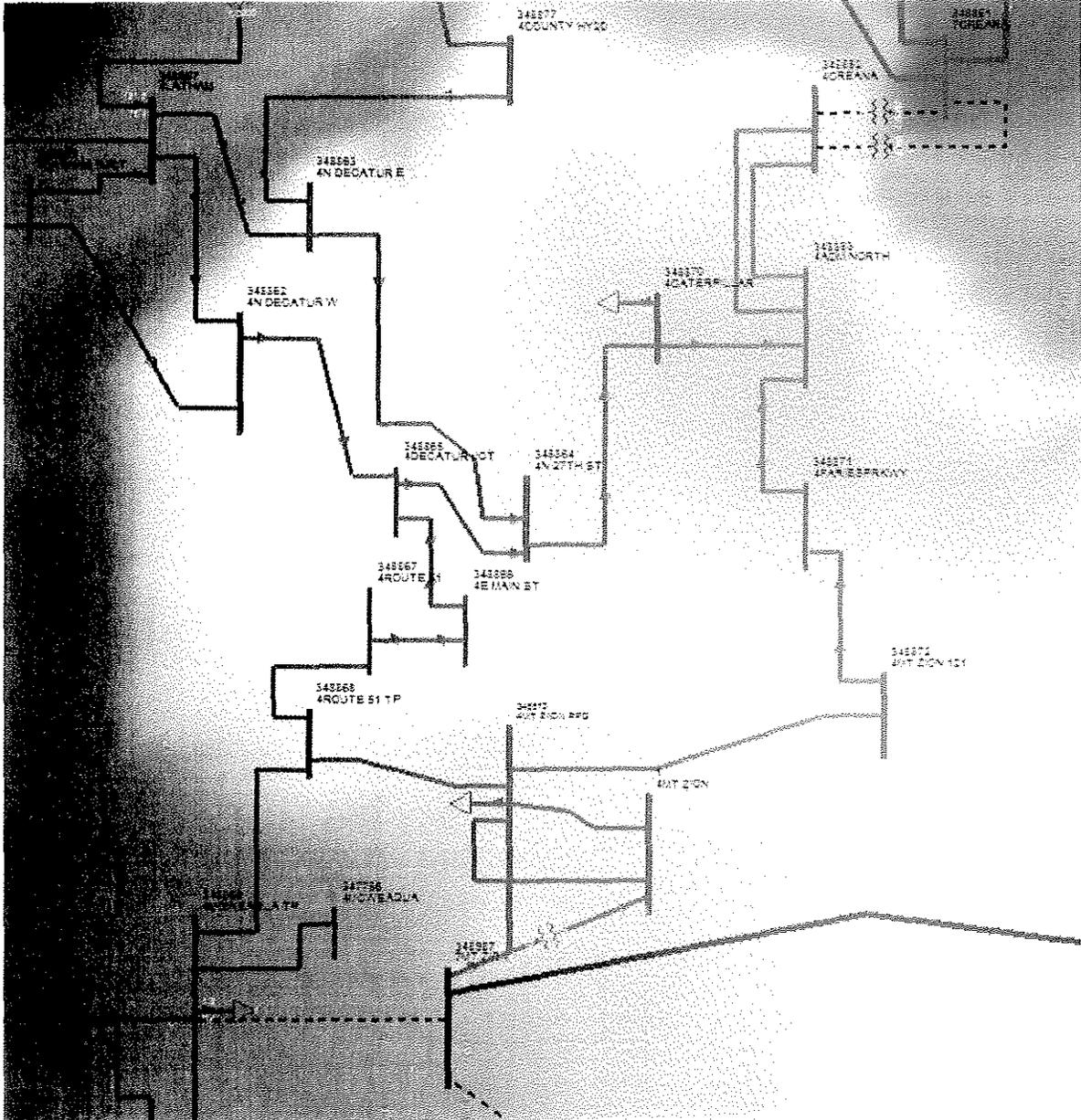
ENG 13.08 Attach 8 – Reflects the analysis results for a 2018 system configuration with a 345 kV line from Kansas to Staff's Moweaqua substation site and with a 345 kV line from Kincaid to Staff's Moweaqua substation site. The existing 138 kV line to Route 51 substation is assumed to connect to the Moweaqua substation. No additional 138 kV line from the Moweaqua substation to the Decatur area is assumed in the analysis.

Modeled conditions:

Kansas - ATXI's Mt. Zion Substation 345 kV in service in 2016 (Kincaid - Mt. Zion not in service)

Added two new 2.5 mile, 138 kV lines from Zion to PPG.

Contingency: Both Oreana 345/138 kV transformers out of service



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 2010 SERIES, ERAG/MMWG BASE CASE LIBRARY
 2021 SUMMER PEAK CASE, FINAL BUSES WITH VOLTAGE LESS THAN 0.9600:

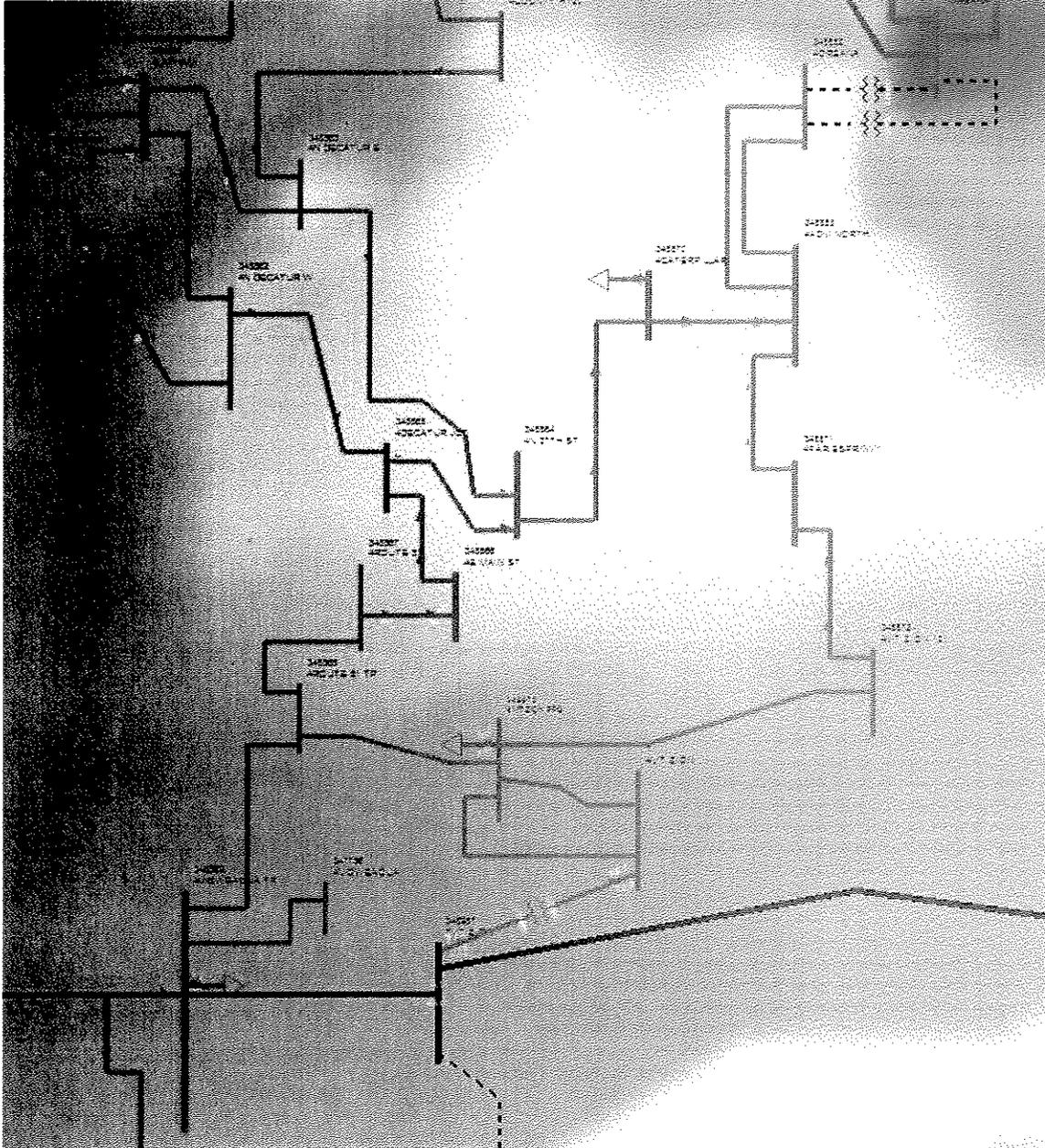
BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
348852		4CREANA		138.00	357	0.9416	132.54	348851		4CREANA		138.00	357	0.9416	132.54
348863		4N DECATUR E		138.00	357	0.9569	132.05	348864		4N 27TH ST		138.00	357	0.9513	131.28
348865		4N DECATUR W		138.00	357	0.9576	132.14	348866		4E MAIN ST		138.00	357	0.9582	132.23
348866		4N DECATUR JCT		138.00	357	0.9449	132.57	348871		4PARKWAY		138.00	357	0.9416	132.54
348870		4CATEPILLAR		138.00	357	0.9416	132.54	348872		4MT ZION 101		138.00	357	0.9416	132.54
348877		4COUNTY HY20		138.00	357	0.9591	132.35	348873		4MT ZION PPG		138.00	357	0.9416	132.54

Modeled conditions:

Kansas - Staff's Mt Zion Substation - Kincaid 345 kV in service in 2018

Added two new 8 mile, 138 kV lines from Zion to PPG.

Contingency: Both Oreana 345/138 kV transformers out of service



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 2010 SERIES, ERAG/MMWG BASE CASE LIBRARY
 2021 SUMMER PEAK CASE, FINAL BUSES WITH VOLTAGE LESS THAN 0.9600:

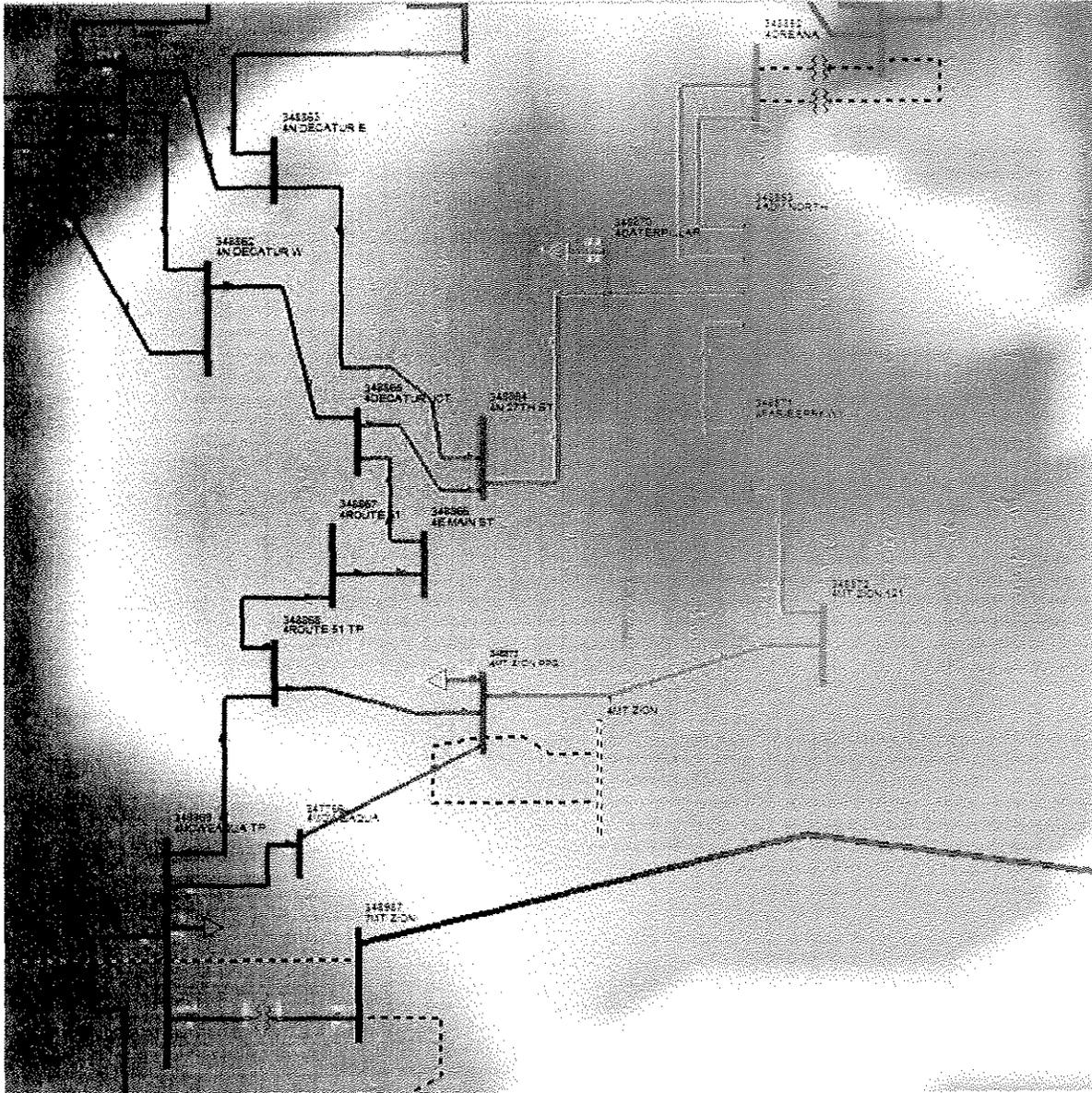
BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
348852		4OREANA		138.00	357	0.9512	131.26	348853		4ADM NORTH		138.00	357	0.9514	131.29
348870		4CATERPILLAR		138.00	357	0.9542	131.67	348871		4FARIESPRKWAY		138.00	357	0.9526	131.45

Modeled conditions:

Kansas - Staff's Moweaqua Tap Substation 345 kV in service in 2016

Rebuilt Moweaqua Tap - Moweaqua North and added a new 138 kV line from Moweaqua North to PPG.

Contingency: Both Oreana 345/138 kV transformers out of service



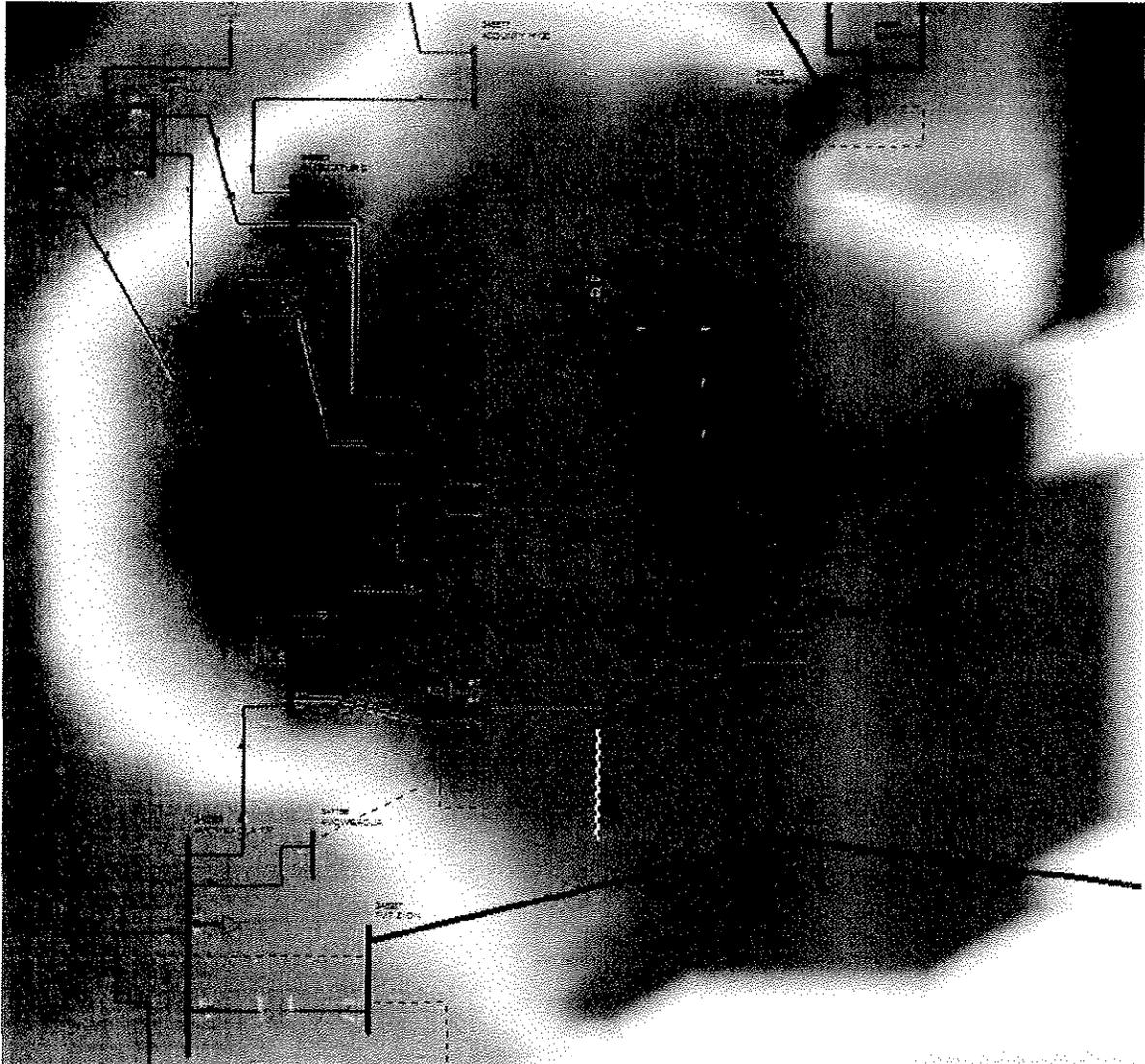
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 2010 SERIES, ERAG/MMWG BASE CASE LIBRARY
 2021 SUMMER PEAK CASE, FINAL BUSES WITH VOLTAGE LESS THAN 0.9600:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
348852		4CREANA		138.00	357	0.9223	127.35	348855		4MORNING STAR		138.00	357	0.9223	127.35
348862		4N DECATUR		138.00	357	0.9444	130.83	348863		4N DECATUR		138.00	357	0.9444	130.83
348864		4N 27TH ST		138.00	357	0.9331	128.77	348865		4N DECATUR		138.00	357	0.9444	130.83
348866		4E MAIN ST		138.00	357	0.9403	129.17	348866		4ROUTE 51		138.00	357	0.9403	129.17
348868		4ROUTE 51 TP		138.00	357	0.9403	129.17	348868		4ROUTE 51 TP		138.00	357	0.9403	129.17
348871		4FARIESPRKWAY		138.00	357	0.9223	127.35	348871		4FARIESPRKWAY		138.00	357	0.9223	127.35
348873		4MT ZON PPG		138.00	357	0.9419	129.08	348873		4MT ZON PPG		138.00	357	0.9419	129.08

Modeled conditions:

Kansas - Staff's Moweaqua Tap 345 kV in service (no new 138 kV line from Moweaqua North to PPG)

Contingency: Both Oreana 345/138 kV transformers out of service



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 2010 SERIES, ERAG/MMWG BASE CASE LIBRARY
 2021 SUMMER PEAK CASE, FINAL BUSES WITH VOLTAGE LESS THAN 0.9600:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
348842		4SCLENTON TP		138.00	357	0.9541	131.67	348852		4OREANA		138.00	357	0.9035	124.69
348853		4ADM NORTH		138.00	357	0.9037	124.72	348862		4N DECATUR W		138.00	357	0.9290	128.20
348863		4N DECATUR E		138.00	357	0.9234	127.42	348864		4N 27TH ST		138.00	357	0.9159	126.39
348865		4DECATUR JCT		138.00	357	0.9236	127.45	348866		4E MAIN ST		138.00	357	0.9237	127.48
348867		4ROUTE 51		138.00	357	0.9209	127.98	348868		4ROUTE 51 TP		138.00	357	0.9278	128.04
348870		4CATEPILLAR		138.00	357	0.9077	125.26	348871		4FARTESPRKWAY		138.00	357	0.9033	124.65
348872		4MT ZION		138.00	357	0.9108	125.47	348873		4MT ZION PPG		138.00	357	0.9174	126.60
348876		4CLINTN RT		54138.00	357	0.9574	132.12	348877		4COUNTRY H		20138.00	357	0.9093	128.24

