



**All of Illinois Rivers Project In-Service except with Mt. Zion substation modeled farther south per Staff proposal. The six listed buses are all below the 95% voltage limit after the contingency event.**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS®E      WED, APR 17 2013 14:52  
 2010 SERIES, ERAG/MMWG BASE CASE LIBRARY  
 2021 SUMMER PEAK CASE, FINAL

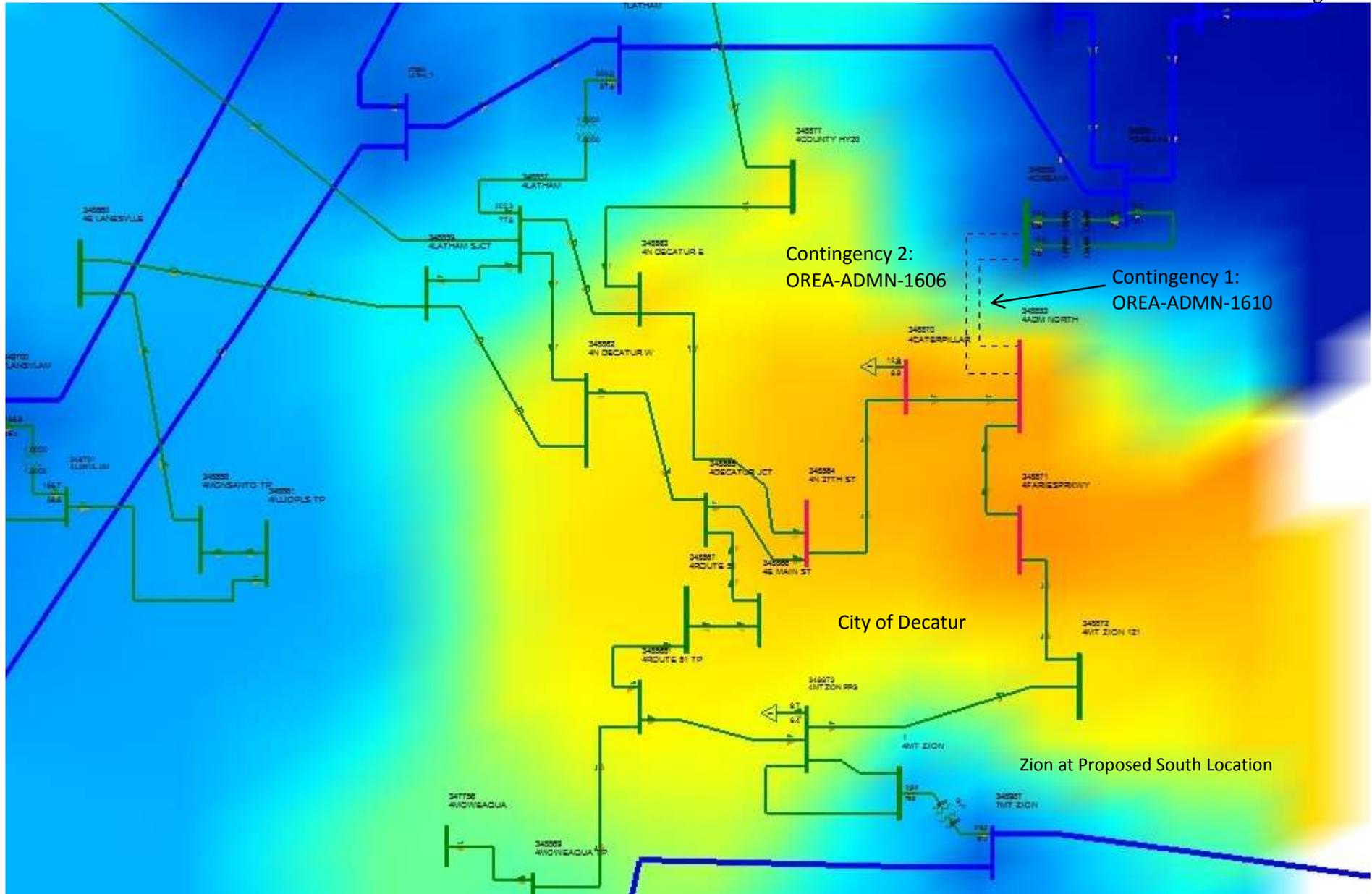
BUSES WITH VOLTAGE LESS THAN 0.9500:

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	0.9340	128.90	348853		4ADM NORTH		138.00	357	0.9342	128.93
348863		4N DECATUR E		138.00	357	0.9498	131.07	348864		4N 27TH ST		138.00	357	0.9440	130.28
348870		4CATERPILLAR		138.00	357	0.9374	129.36	348871		4FARIESPRKWY		138.00	357	0.9349	129.02

**The below data is from ATXI Exhibit 2.13 which is the same conditions as above but with the Mt. Zion substation located as proposed by ATXI. The buses are all above the 95% voltage limit after the contingency event.**

BUSES WITH VOLTAGE LESS THAN 0.9736:

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	0.9605	132.54	348853		4ADM NORTH		138.00	357	0.9607	132.57
348863		4N DECATUR E		138.00	357	0.9734	134.33	348864		4N 27TH ST		138.00	357	0.9690	133.72
348870		4CATERPILLAR		138.00	357	0.9633	132.94	348871		4FARIESPRKWY		138.00	357	0.9620	132.76





**Exhibit 11.2****Results of analysis of the impact of a NERC TPL Standards Category D8 contingency event at Oreana substation**

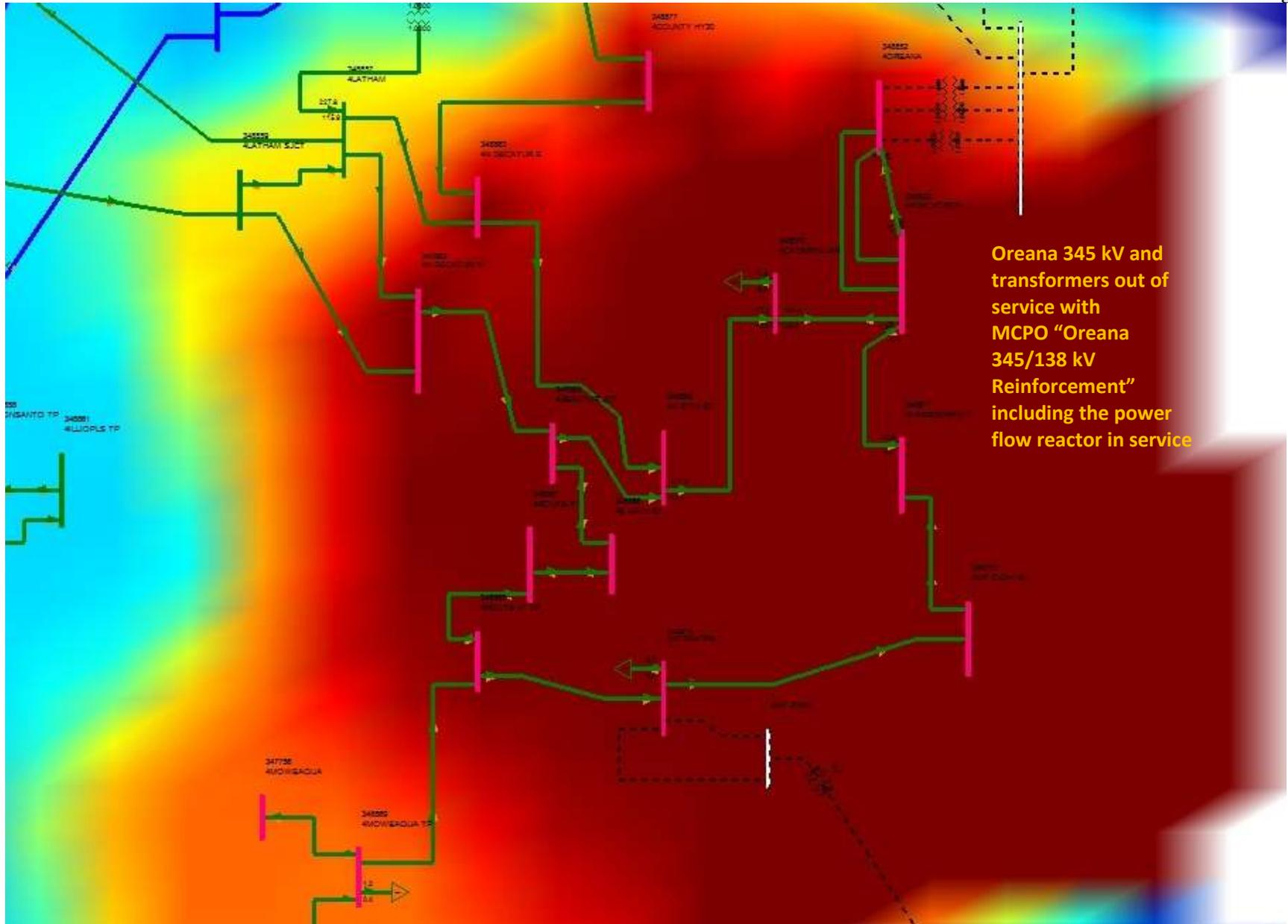
NERC TPL Standards Category D8 contingency considers the loss of a substation (one voltage level plus transformers)

Analysis Method = Ameren Reviewed MCPO provided Model: 2021 Summer Peak w\_IRP wo\_MZ w\_3rd\_Orna+27th-Cat\_Rctr\_lo\_2x\_Oreana\_345\_138\_T.sav. Ameren modeled Mr. Dauphinais' proposed "Oreana 345/138 kV Reinforcement" (a 3<sup>rd</sup> Oreana 345/138 kV transformer and a 3rd Oreana to ADM North 138 kV single-circuit transmission line) and a 0.433% reactor in the Caterpillar-27<sup>th</sup> Street 138 kV line for the two D8 Contingency Events listed below with the MCPO proposed alternative implemented in place of the ATXI Mt. Zion substation. ATXI then ran the same simulation with the proposed ATXI Mt. Zion substation in service.

Event #1 - Oreana 345 kV outage and transformers

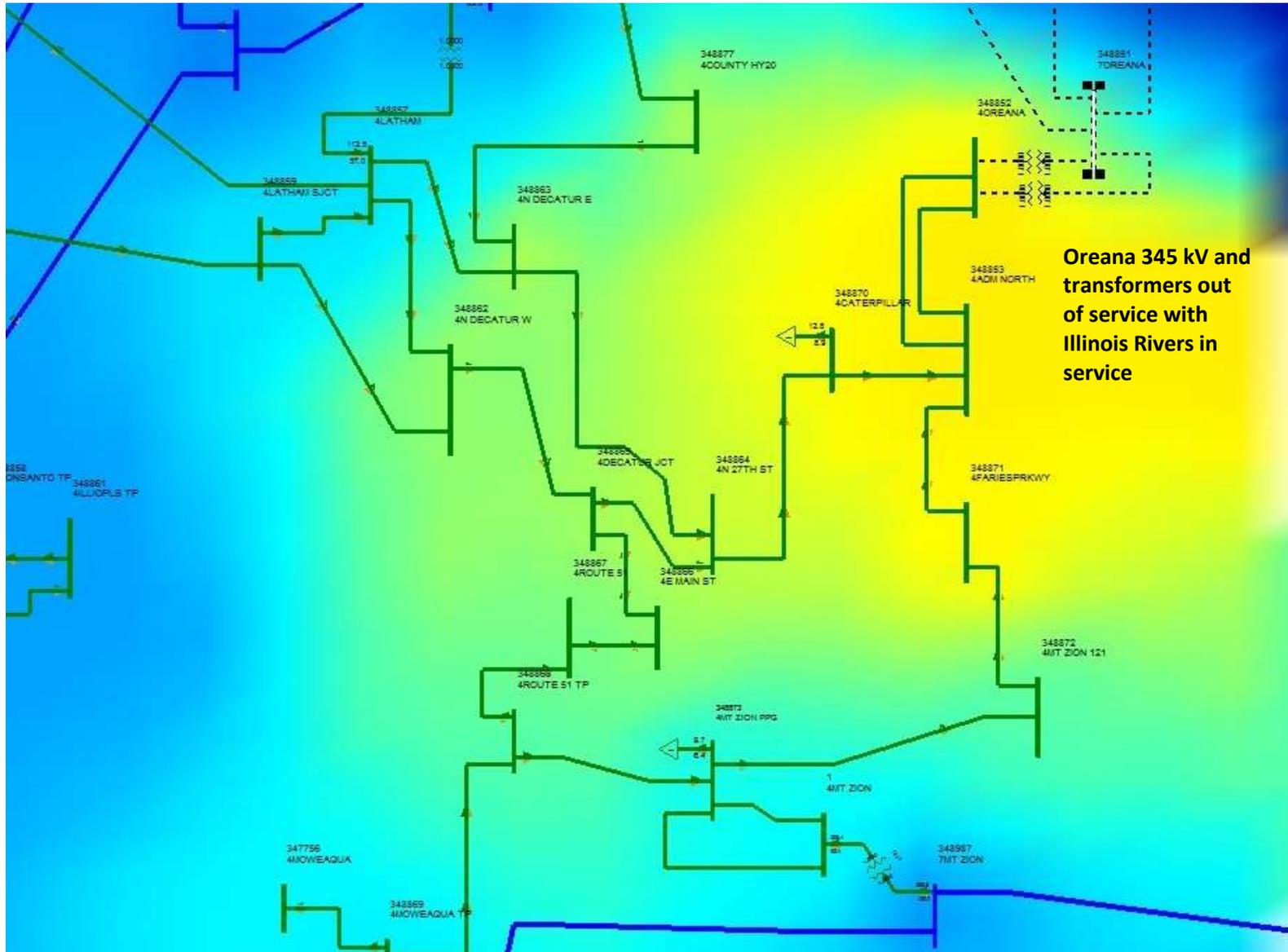
Event #2 - Oreana 138 kV outage and transformers

Analysis Results = The MCPO proposed alternative results in voltage collapse to the Decatur area for both NERC Category D8 contingency events. With the Illinois Rivers project including the Mt. Zion substation in service, adequate voltages are maintained and the voltage collapse is avoided for both NERC Category D8 contingency events.



Oreana 345 kV and transformers out of service with MCPO "Oreana 345/138 kV Reinforcement" including the power flow reactor in service





**Oreana 345 kV and transformers out of service with Illinois Rivers Project in-service**

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#	X--	NAME	--X	BASKV	AREA	V (PU)	V (KV)	BUS#	X--	NAME	--X	BASKV	AREA	V (PU)	V (KV)
* NONE *															







**PROJECT COST COMPARISON AND IMPACT ON AMEREN ILLINOIS CUSTOMERS**  
in \$ millions

DATA SOURCE

MCPO PROPOSED ALTERNATIVE:

Estimated cost of Oreana 345/138kV Reinforcement and necessary additional system reinforcements	\$34.4	MCPO Exhibit 1.0 Dauphinais testimony, Page 8, Table footnote 2
Cost of MCPO Pana to Kansas line (MCPO-PK)	\$167.6	MCPO Exhibit 1.0 Dauphinais testimony, Page 8, Table
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Total estimated project cost	\$202.0	
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Total cost paid by Ameren Illinois area customers because 100% of total project cost is allocated to them	\$202.0	

ATXI Project:

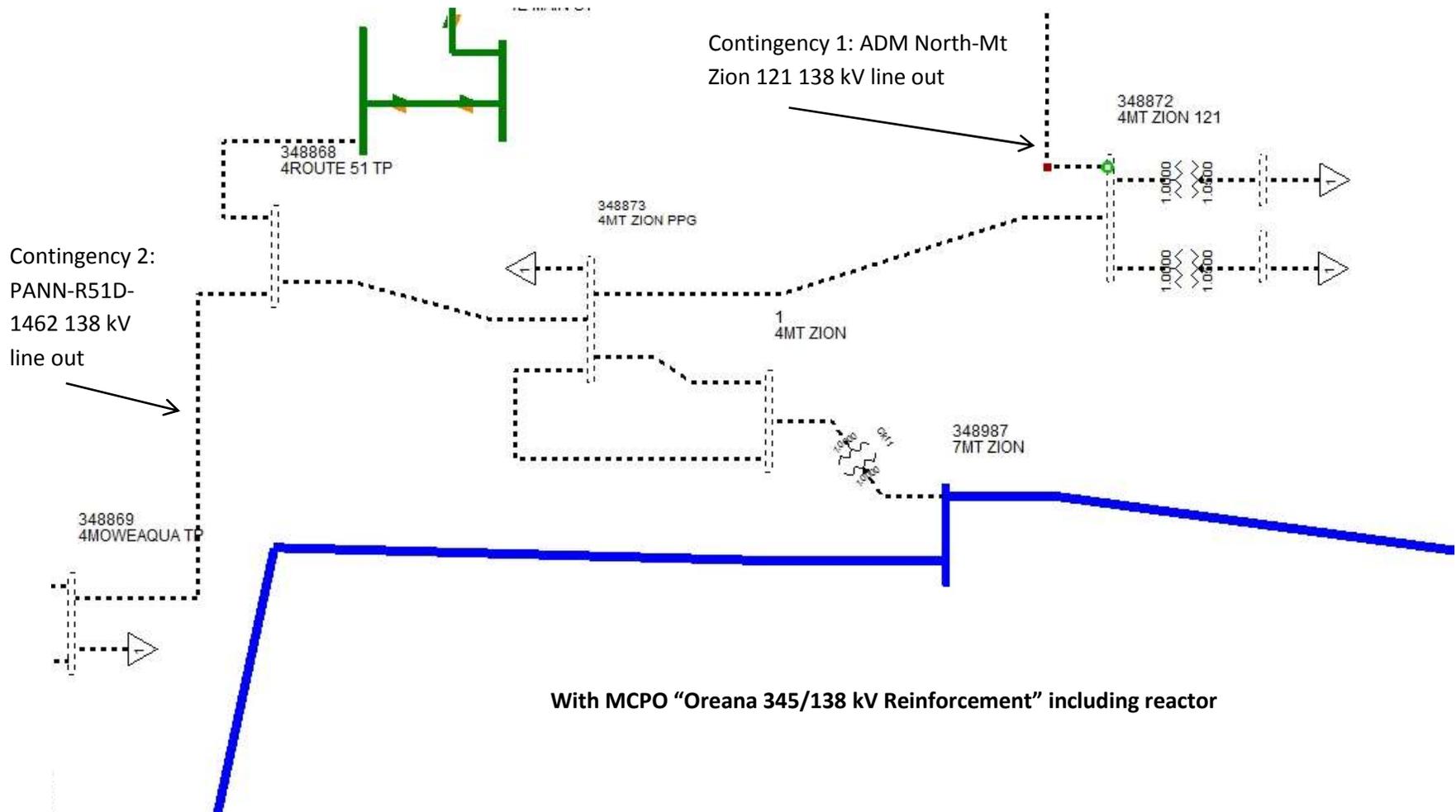
Estimated cost of ATXI Mt. Zion substation, and two 138kV connections to the Mt. Zion PPG substation	\$25.8	MCPO Exhibit 1.0 Dauphinais testimony, Page 8, Table footnote 1, High Estimate
ATXI Primary Route Pana to Mt Zion 345kV line & Alternate Route Mt. Zion to Kansas 345kV line	\$225.8	MCPO Exhibit 1.0 Dauphinais testimony, Page 8, Table, ATXI-P-A
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Total estimated cost for this portion of the Illinois River Project	\$251.6	
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Total cost paid by Ameren Illinois customers for this portion of the Illinois River Project because they are allocated 9% of cost	\$22.6	
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TOTAL SAVINGS TO AMEREN ILLINOIS AREA CUSTOMERS FROM ILLINOIS RIVERS PROJECT COMPARED TO MCPO ALTERNATIVE	\$179.4	

Possible alternative reliability projects if ATXI did not construct the Project.

Ameren Services has performed a review of previous system planning studies. The review verified that if the Illinois Rivers Project is not constructed, then additional projects will need to be constructed to address the anticipated future reliability issues in Illinois by 2022.

Below is a list of potential projects to address some of the identified reliability issues that will need to be mitigated by 2022 if the Illinois Rivers project is not constructed, and a high level estimate of the cost. This list is not exhaustive and is based upon the information available from previous studies. Additional study through the MISO MTEP process would be needed to determine whether these would constitute the final approved projects and the expected in service date. ATXI notes that the alternative projects would be needed to address local reliability issues and therefore may be classified as Baseline Reliability Projects (BRP). Therefore, if constructed, it is expected that most of the cost of these projects would be borne by Ameren Illinois customers, subject to the MISO Tariff language at the time of project approval by the MISO Board of Directors.

<b>Projects</b>	<b>Reliability Issues</b>	<b>Possible In-Service Dates</b>	<b>High Level Estimated Cost</b>
Palmyra Tap Substation,  Palmyra tap - SE Quincy - Meredosia - Ipava 345 kV line,  345/138 kV transformer at SE Quincy,  345/138 kV transformer at Meredosia	Palmyra transformer contingency loading, voltage support to Quincy area and Meredosia area, relieve 138 kV contingency loadings.	2016-2017	\$384,000,000
Pana – Mt. Zion 345 kV line and Mt. Zion 345/138 kV transformer	Decatur Area voltage support and contingency loadings.	2016	\$125,000,000
Mt Zion - Oreana 345 kV (assumed 22 mile line length) and associated Oreana substation work	Decatur Area voltage support and contingency loadings.	2022	\$56,000,000
Sidney-Rising 345 kV line and associated substation work	Champaign area voltage support and contingency loadings.	2019	\$48,000,000
<b>TOTAL</b>			<b>\$613,000,000</b>



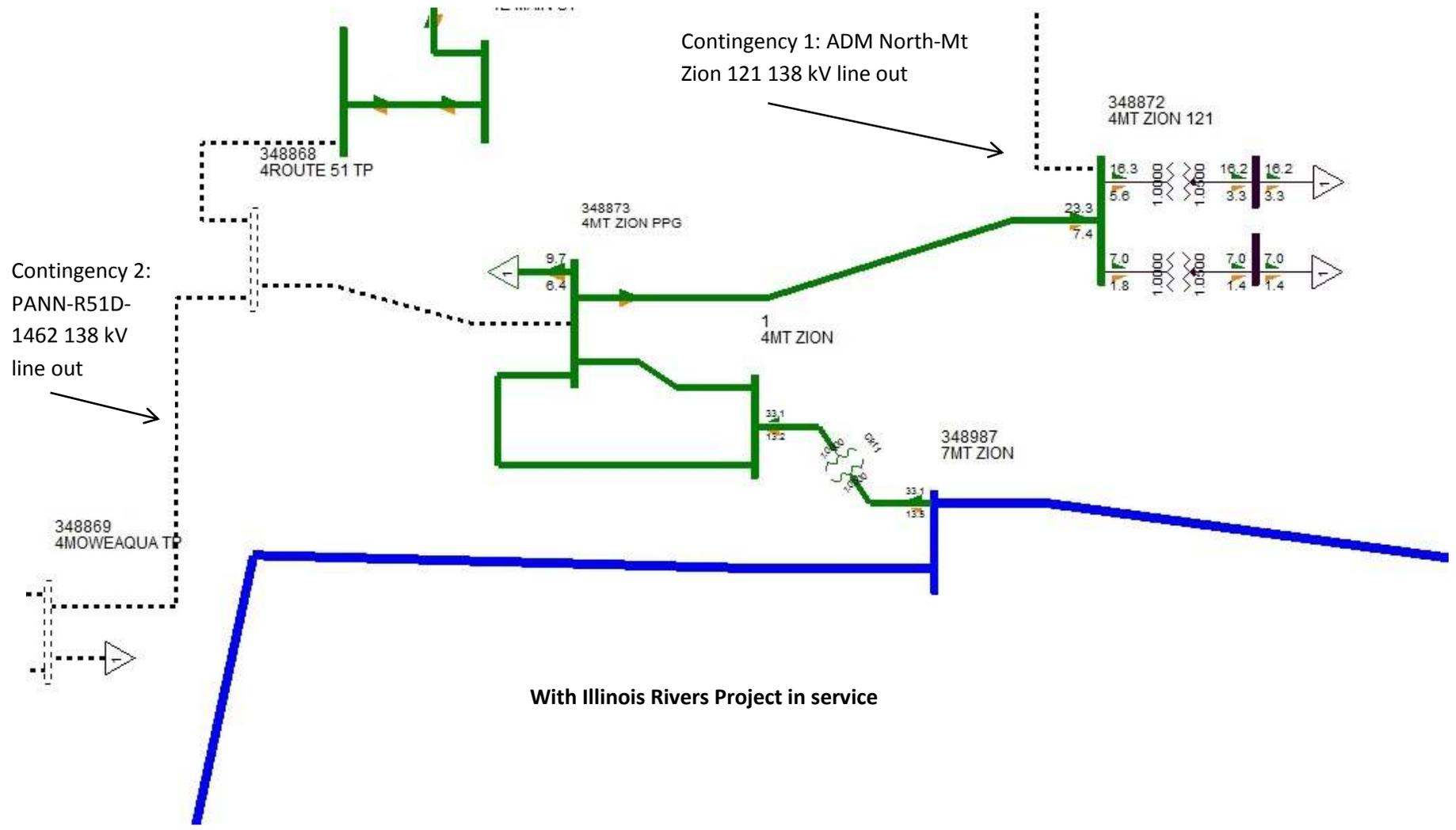
With MCPO "Oreana 345/138 kV Reinforcement" including reactor

ISLAND

BUS#	X--	NAME	--X	BASKV	AREA	BUS#	X--	NAME	--X	BASKV	AREA	BUS#	X--	NAME	--X	BASKV	AREA
84569	1RTE.	12		12.500	357	84614	1RTE.	12		12.500	357	348872	4MT ZION	121	138.00	357	
348873	4MT ZION	PPG		138.00	357												

ISLAND CONTAINS		4 BUSES AND		0 PLANTS WITH TOTALS OF:		S H U N T	
PLOAD	QLOAD	I - L O A D	Y - L O A D				
32.9	11.0	0.0	0.0	0.0	0.0	0.0	0.0
PGEN	QGEN	QMAX	QMIN				
0.0	0.0	0.0	0.0				

ISLAND DISCONNECTED



PPG and Mt Zion 121 substations remain in service