Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-096

RINEYVILLE 69 KV

36.6667 MW Capacity / 55 MW Energy

January 2021

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1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is EKPC.

2 Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

3 General

The Interconnection Customer (IC), has proposed a Solar; Storage generating facility located in Hardin County, Kentucky. The installed facilities will have a total capability of 55 MW with 36.6667 MW of this output being recognized by PJM as Capacity.

The proposed in-service date for this project is October 31, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	**AG1-096**
Project Name	RINEYVILLE 69 KV
State	Kentucky
County	Hardin
Transmission Owner	EKPC
MFO	55
MWE	55
MWC	36.6667
Fuel	Solar; Storage
Basecase Study Year	2024

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AG1-096 will interconnect with the EKPC transmission system along one of the following Points of Interconnection:

Primary POI: Rineyville 69 kV substation.

Secondary POI: Rineyville to Vine Grove 69 kV line.

5 Cost Summary

The AG1-096 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$5,970,000
Total System Network Upgrade Costs	$5,675,000
Total Costs	**$11,645,000**

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 2016-36, 2016-25 I.R.B. (6/20/2016). If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

6 Transmission Owner Scope of Work

The total physical interconnection costs is given in the table below:

6.1 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Install necessary equipment (a 69 kV isolation switch structure and associated switch, plus interconnection metering, fiber-optic connection and telecommunications equipment, circuit breaker and associated switches, and relay panel) at the new Rineyville switching station, to accept the IC generator lead line/bus (Estimated time to implement is 21 months)	$1,170,000
Total Attachment Facility Costs	**$1,170,000**

6.2 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Construct a new 69 kV switching station (Rineyville) to facilitate connection of the IC solar generation project to the existing Rineyville 69 kV radial tap line (Estimated time to implement is 21 months)	$2,810,000
Total Direct Connection Facility Costs	**$2,810,000**

6.3 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Construct facilities to loop the existing Rineyville 69 kV radial tap line into the new Rineyville switching station (Estimated time to implement is 21 months)	$185,000
Modify relays and/or settings at the Patriot Parkway substation for the existing line to the new Rineyville switching station (Estimated time to implement is 9 months)	$115,000
Install OPGW on the Rineyville Tap 69 kV line (5.1 miles) (Estimated time to implement is 18 months)	$1,690,000
Total Non-Direct Connection Facility Costs	**$1,990,000**

7 Interconnection Customer Requirements

It is understood that the Interconnection Customer (IC) is responsible for all costs associated with this interconnection. The costs above are reimbursable to the Transmission Owner. The cost of the IC's generating plant and the costs for the line connecting the generating plant to the Point of Interconnection are not included in this report; these are assumed to be the IC's responsibility.

The Generation Interconnection Agreement does not in or by itself establish a requirement for the Transmission Owner to provide power for consumption at the developer's facilities. A separate agreement may be reached with the local utility that provides service in the area to ensure that infrastructure is in place to meet this demand and proper metering equipment is installed. It is the responsibility of the developer to contact the local service provider to determine if a local service agreement is required.

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

8 Revenue Metering and SCADA Requirements

8.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

8.2 Meteorological Data Reporting Requirements

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Back Panel temperature (Fahrenheit) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Irradiance (Watts/meter2) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Ambient air temperature (Fahrenheit) - (Accepted, not required)
- Wind speed (meters/second) - (Accepted, not required)
- Wind direction (decimal degrees from true north) - (Accepted, not required)

8.3 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

http://www.pjm.com/planning/design-engineering/to-tech-standards/

9 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-096 was evaluated as a 55.0 MW (Capacity 36.7 MW) injection at the Rineyville 69 kV substation in the EKPC area. Project AG1-096 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-096 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

9.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

9.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16523567 5	32457 5	2HODGEN V KU	69. 0	LGEE	34163 2	2HODGENVILL E	69. 0	EKPC	1	EKPC_P2 - 2_STEPB G 69	bus	53.0	98.74	101.28	DC	2.99

9.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16523557 4	32451 9	2ETOW N KU	69. 0	LGEE	34171 3	2KARGLE	69. 0	EKPC	1	EKPC_P2- 2_CENT HARD 138	bus	86.0	178.03	179.8	DC	3.38
16986709 3	95969 0	AF2-260 TAP	69. 0	EKPC	34230 7	2STEPHENSBR G	69. 0	EKPC	1	EXT_32410 2 7BROWN NORTH 345 324106 7HARDIN CO 345 1	singl e	98.0	116.74	118.81	DC	2.03
16667330 1	96017 0	AF2-308 TAP	69. 0	EKPC	34128 7	2CENT HARDIN	69. 0	EKPC	1	EKPC_P2- 2_KU HODG 69	bus	98.0	134.94	135.71	DC	1.43
16667330 2	96017 0	AF2-308 TAP	69. 0	EKPC	34128 7	2CENT HARDIN	69. 0	EKPC	1	EKPC_P2- 2_BONNIE 138/69	bus	98.0	121.86	122.61	DC	1.39

9.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
169332540	341287	2CENTHARDIN	69.0	EKPC	341713	2KARGLE	69.0	EKPC	1	EKPC_P2-1_4HARDINCO 138.00 TO 4CENTHARDIN138.00	operation	98.0	250.1	253.6	DC	3.43
169332542	341287	2CENTHARDIN	69.0	EKPC	341713	2KARGLE	69.0	EKPC	1	Base Case	operation	89.0	158.55	161.99	DC	3.07
169332536	341713	2KARGLE	69.0	EKPC	324519	2ETOWN KU	69.0	LGEE	1	EKPC_P2-1_4HARDINCO 138.00 TO 4CENTHARDIN138.00	operation	86.0	266.27	270.27	DC	3.43
169332537	341713	2KARGLE	69.0	EKPC	324519	2ETOWN KU	69.0	LGEE	1	Base Case	operation	68.0	183.98	188.49	DC	3.07
169332696	342568	4CENTHARDIN	138.0	EKPC	324261	4HARDIN CO	138.0	LGEE	1	EKPC_P1-2_C HAR-KU ETN69	operation	265.0	113.02	114.14	DC	2.98
169332621	960170	AF2-308 TAP	69.0	EKPC	341287	2CENTHARDIN	69.0	EKPC	1	EXT_P12:345:BREC:WILSON EHV-DAVIESS EHV [TIE] [NO SPS]:7WILSON:7DAVIESS:1::::	operation	98.0	124.76	125.52	DC	1.4

9.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
166673302,166673301	4	AF2-308 TAP 69.0 kV - 2CENT HARDIN 69.0 kV Ckt 1	**EKPC** **EKPC-r0087 (1910) : Increase the maximum operating temperature of the 556 MCM ACSR conductor in the AF2-308 Tap-Central Hardin 69 kV line section to 302 degrees F (4.15 miles)** **Project Type : FAC** **Cost : $280,000** **Time Estimate : 9.0 Months** **EKPC** **EKPC-r0087b (1911) : Replace the 556 MCM ACSR jumpers at the Central Hardin substation using bundled 500 MCM copper or equivalent** **Project Type : FAC** **Cost : $25,000** **Time Estimate : 6.0 Months** **EKPC** **EKPC-r0087c (1912) : Rebuild the AF2-308 Tap-Central Hardin 69 kV line section using 954 MCM ACSS conductor at 392 degrees F (4.15 miles)** **Project Type : FAC** **Cost : $3,210,000** **Time Estimate : 16.0 Months**	$3,515,000
165235675	1	2HODGENV KU 69.0 kV - 2HODGENVILLE 69.0 kV Ckt 1	**LGEE** **NonPJMArea (1886) : The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase.** **Project Type : FAC** **Cost : $0** **Time Estimate : 0.0 Months** **Not a violation for EKPC portion (1986) : Not a violation for EKPC portion** **Project Type : FAC** **Cost : $0** **Time Estimate : 0.0 Months**	$0
169867093	3	AF2-260 TAP 69.0 kV - 2STEPHENSBRG 69.0 kV Ckt 1	**EKPC** **EKPC-r0107a (1962) : Increase the maximum operating temperature of the 556 MCM ACSR conductor in the AF2-260 Tap-Stephensburg 69 kV line section to 302 degrees F (2.1 miles)** **Project Type : FAC** **Cost : $150,000** **Time Estimate : 9.0 Months**	$150,000

ID	Idx	Facility	Upgrade Description	Cost
165235574	2	2ETOWN KU 69.0 kV - 2KARGLE 69.0 kV Ckt 1	**LGEE** **NonPJMArea (1886) : The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase.** **Project Type : FAC** **Cost : $0** **Time Estimate : 0.0 Months** **EKPC** **EKPC-r0090b (1920) : Rebuild the 556 MCM ACSR conductor section of the Kargle-KU Elizabethtown 69 kV line section using 954 MCM ACSR conductor (1.45 miles)** **Project Type : FAC** **Cost : $2,010,000** **Time Estimate : 15.0 Months**	$2,010,000
			TOTAL COST	**$5,675,000**

9.6 Flow Gate Details - Primary POI

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

9.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165235675	324575	2HODGENVKU	LGEE	341632	2HODGENVILLE	EKPC	1	EKPC_P2-2_STEPBG69	bus	53.0	98.74	101.28	DC	2.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959691	AF2-260 C	2.6500	Adder	3.12
959692	AF2-260 E	1.3250	Adder	1.56
960171	AF2-308	1.2366	Adder	1.45
960181	AF2-309 C	1.8550	Adder	2.18
960182	AF2-309 E	1.2366	Adder	1.45
961001	AF2-391 C O1	3.1800	Adder	3.74
961002	AF2-391 E O1	2.1200	Adder	2.49
962471	AG1-096 C O1	0.8966	Adder	1.99
962472	AG1-096 E O1	0.4483	Adder	1.0
966221	AG1-491 C O1	0.9831	Adder	2.18
966222	AG1-491 E O1	0.6554	Adder	1.45
WEC	WEC	0.0176	Confirmed LTF	0.0176
LGEE	LGEE	0.1037	Confirmed LTF	0.1037
CALDERWOOD	CALDERWOOD	0.0885	Confirmed LTF	0.0885
CBM-W2	CBM-W2	0.1344	Confirmed LTF	0.1344
NY	NY	0.0066	Confirmed LTF	0.0066
O-066	O-066	0.0942	Confirmed LTF	0.0942
SIGE	SIGE	0.0493	Confirmed LTF	0.0493
CHEOAH	CHEOAH	0.0871	Confirmed LTF	0.0871
COTTONWOOD	COTTONWOOD	0.1785	Confirmed LTF	0.1785
G-007	G-007	0.0147	Confirmed LTF	0.0147
HAMLET	HAMLET	0.0439	Confirmed LTF	0.0439
MEC	MEC	0.0493	Confirmed LTF	0.0493
CATAWBA	CATAWBA	0.0298	Confirmed LTF	0.0298
CBM-W1	CBM-W1	0.6309	Confirmed LTF	0.6309

9.6.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165235574	324519	2ETOWN KU	LGEE	341713	2KARGLE	EKPC	1	EKPC_P2-2_CENT HARD 138	bus	86.0	178.03	179.8	DC	3.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960172	AF2-308 BAT	16.3094	50/50	16.3094
961003	AF2-391 BAT	92.5596	50/50	92.5596
962471	AG1-096 C O1	1.0142	Adder	2.25
962472	AG1-096 E O1	0.5071	Adder	1.13
LGEE	LGEE	0.2350	Confirmed LTF	0.2350
CALDERWOOD	CALDERWOOD	0.1362	Confirmed LTF	0.1362
NY	NY	0.0039	Confirmed LTF	0.0039
PRAIRIE	PRAIRIE	0.4339	Confirmed LTF	0.4339
O-066	O-066	0.0673	Confirmed LTF	0.0673
SIGE	SIGE	0.0137	Confirmed LTF	0.0137
CHEOAH	CHEOAH	0.1351	Confirmed LTF	0.1351
COTTONWOOD	COTTONWOOD	0.5817	Confirmed LTF	0.5817
G-007	G-007	0.0105	Confirmed LTF	0.0105
HAMLET	HAMLET	0.0722	Confirmed LTF	0.0722
CATAWBA	CATAWBA	0.0494	Confirmed LTF	0.0494

9.6.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
169867093	959690	AF2-260 TAP	EKPC	342307	2STEPHENSBRG	EKPC	1	EXT_324102 7BROWN NORTH 345 324106 7HARDIN CO 345 1	single	98.0	116.74	118.81	DC	2.03

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957961	AF2-090 C	4.1142	80/20	4.1142
959691	AF2-260 C	24.1434	80/20	24.1434
960171	AF2-308	10.1301	80/20	10.1301
960181	AF2-309 C	15.1952	80/20	15.1952
961001	AF2-391 C O1	11.2550	80/20	11.2550
962471	AG1-096 C O1	2.0255	80/20	2.0255
966221	AG1-491 C O1	6.5654	80/20	6.5654
WEC	WEC	0.0107	Confirmed LTF	0.0107
LGEE	LGEE	0.3142	Confirmed LTF	0.3142
CALDERWOOD	CALDERWOOD	0.1675	Confirmed LTF	0.1675
NY	NY	0.0083	Confirmed LTF	0.0083
PRAIRIE	PRAIRIE	0.2893	Confirmed LTF	0.2893
SIGE	SIGE	0.0462	Confirmed LTF	0.0462
CHEOAH	CHEOAH	0.1662	Confirmed LTF	0.1662
COTTONWOOD	COTTONWOOD	0.5775	Confirmed LTF	0.5775
HAMLET	HAMLET	0.0889	Confirmed LTF	0.0889
CATAWBA	CATAWBA	0.0609	Confirmed LTF	0.0609
CBM-W1	CBM-W1	0.3365	Confirmed LTF	0.3365

9.6.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166673301	960170	AF2-308 TAP	EKPC	341287	2CENT HARDIN	EKPC	1	EKPC_P2-2_KU HODG 69	bus	98.0	134.94	135.71	DC	1.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959691	AF2-260 C	41.8212	50/50	41.8212
959692	AF2-260 E	20.9106	50/50	20.9106
960171	AF2-308	20.3420	50/50	20.3420
960181	AF2-309 C	30.5130	50/50	30.5130
960182	AF2-309 E	20.3420	50/50	20.3420
960741	AF2-365 C O1	3.4533	50/50	3.4533
960742	AF2-365 E O1	2.3022	50/50	2.3022
961003	AF2-391 BAT	14.9160	50/50	14.9160
962473	AG1-096 BAT	0.7580	Merchant Transmission	0.7580
964571	AG1-320 C O1	34.1968	50/50	34.1968
964572	AG1-320 E O1	16.9736	50/50	16.9736
966031	AG1-472 C	1.2488	Adder	2.77
966032	AG1-472 E	0.8325	Adder	1.85
WEC	WEC	0.0110	Confirmed LTF	0.0110
CPLE	CPLE	0.0908	Confirmed LTF	0.0908
G-007A	G-007A	0.0240	Confirmed LTF	0.0240
VFT	VFT	0.0645	Confirmed LTF	0.0645
CBM-W2	CBM-W2	2.1683	Confirmed LTF	2.1683
TVA	TVA	0.6412	Confirmed LTF	0.6412
CBM-S2	CBM-S2	1.8374	Confirmed LTF	1.8374
CBM-S1	CBM-S1	0.1102	Confirmed LTF	0.1102
CBM-N	CBM-N	0.0108	Confirmed LTF	0.0108
MEC	MEC	0.2050	Confirmed LTF	0.2050
GIBSON	GIBSON	0.0426	Confirmed LTF	0.0426
BLUEG	BLUEG	0.9496	Confirmed LTF	0.9496
TRIMBLE	TRIMBLE	0.2660	Confirmed LTF	0.2660
LAGN	LAGN	0.6247	Confirmed LTF	0.6247
CBM-W1	CBM-W1	0.4907	Confirmed LTF	0.4907

9.7 Queue Dependencies – Primary POI

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AF2-090	Central Hardin 138 kV	Active
AF2-260	Stephensburg 69 kV	Active
AF2-308	Central Hardin-Stephensburg 69 kV	Active
AF2-309	Central Hardin-Stephensburg 69 kV	Active
AF2-365	Munfordville KU Tap-Horse Cave Jct. 69 kV	Active
AF2-391	Central Hardin 69 kV	Active
AG1-096	Rineyville 69 kV	Active
AG1-320	Glendale-Stephensburg 69 kV	Active
AG1-472	Seymour-Cave City 69 kV	Active
AG1-491	Central Hardin 69 kV	Active

9.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
EXT_324102 7BROWN NORTH 345 324106 7HARDIN CO 345 1	CONTINGENCY 'EXT_324102 7BROWN NORTH 345 324106 7HARDIN CO 345 1' OPEN BRANCH FROM BUS 324102 TO BUS 324106 CKT 1 END
EKPC_P2-2_STEPBG 69	CONTINGENCY 'EKPC_P2-2_STEPBG 69' /* STEPHENSBURG 69 BUS OPEN BUS 342307 /* 2STEPHENSBRG END
EKPC_P2-1_4HARDIN CO 138.00 TO 4CENT HARDIN138.00	CONTINGENCY 'EKPC_P2-1_4HARDIN CO 138.00 TO 4CENT HARDIN138.00' OPEN BRANCH FROM BUS 324261 TO BUS 342568 CKT 1 /*4HARDIN CO 138.004CENT HARDIN138.00 END
EKPC_P2-2_BONNIE 138/69	CONTINGENCY 'EKPC_P2-2_BONNIE 138/69' /* KU BONNIEVILLE 138/69 TIE OPEN BUS 324213 /* 4BONNIE END
EXT_P12:345:BREC:WILSON EHV-DAVIESS EHV [TIE] [NO SPS]:7WILSON:7DAVIESS:1::::	CONTINGENCY 'EXT_P12:345:BREC:WILSON EHV-DAVIESS EHV [TIE] [NO SPS]:7WILSON:7DAVIESS:1::::'/ 9162 OPEN BRANCH FROM BUS 324104 TO BUS 340561 CKT 1 / 324104 7DAVIESS 345 340561 7WILSON 345 1 END
EKPC_P2-2_CENT HARD 138	CONTINGENCY 'EKPC_P2-2_CENT HARD 138' /* CENTRAL HARDIN 138 BUS OPEN BRANCH FROM BUS 341287 TO BUS 342568 CKT 1 /* 341287 2CENT HARDIN69.000 342568 4CENT HARDIN138.00 END
Base Case	
EKPC_P1-2_C HAR-KU ETN69	CONTINGENCY 'EKPC_P1-2_C HAR-KU ETN69' /* CENTRAL HARDIN - KU ETOWN OPEN BRANCH FROM BUS 341287 TO BUS 341713 CKT 1 /* 341287 2CENT HARDIN69.000 341713 2KARGLE 69.000 OPEN BRANCH FROM BUS 324519 TO BUS 341713 CKT 1 /* 324519 2ETOWN KU 69.000 341713 2KARGLE 69.000 END
EKPC_P2-2_KU HODG 69	CONTINGENCY 'EKPC_P2-2_KU HODG 69' /* KU HODGENVILLE 69 TIE OPEN BUS 341632 /* 2HODGENVILLE END

10 Short Circuit Analysis - Primary POI

The following Breakers are overdutied:

None.

11 Summer Peak - Load Flow Analysis - Secondary POI

The Queue Project AG1-096 was evaluated as a 55.0 MW (Capacity 36.7 MW) injection tapping the Rineyville to Vine Grove 69 kV line in the EKPC area. Project AG1-096 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-096 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

11.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16523567 5	32457 5	2HODGEN V KU	69. 0	LGEE	34163 2	2HODGENVILL E	69. 0	EKPC	1	EKPC_P2 - 2_STEPB G 69	bus	53.0	98.55	101.07	DC	2.97

11.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16523557 4	32451 9	2ETOW N KU	69. 0	LGEE	34171 3	2KARGL E	69. 0	EKPC	1	EKPC_P2- 2_CENT HARD 138	bus	86.0	178.03	179.79	DC	3.36
16667329 6	34128 7	2CENT HARDIN	69. 0	EKPC	34171 3	2KARGL E	69. 0	EKPC	1	EKPC_P2- 2_HARD- CHARD 138	bus	98.0	250.1	253.59	DC	3.42
16667329 7	34128 7	2CENT HARDIN	69. 0	EKPC	34171 3	2KARGL E	69. 0	EKPC	1	EKPC_P2- 2_STEPBG 69	bus	98.0	220.32	221.57	DC	2.3
16667349 9	34128 7	2CENT HARDIN	69. 0	EKPC	34171 3	2KARGL E	69. 0	EKPC	1	EKPC_P7- 1_BULL 161 DBL	tower	98.0	146.01	149.13	DC	3.05
16667350 0	34128 7	2CENT HARDIN	69. 0	EKPC	34171 3	2KARGL E	69. 0	EKPC	1	EKPC_P7- 1_COOP 161 DBL 2	tower	98.0	144.72	147.82	DC	3.04
17379457 1	34128 7	2CENT HARDIN	69. 0	EKPC	34171 3	2KARGL E	69. 0	EKPC	1	EKPC_P4- 5_BULL W84- 1024	breake r	98.0	146.24	149.38	DC	3.08
16523556 9	34171 3	2KARGL E	69. 0	EKPC	32451 9	2ETOW N KU	69. 0	LGEE	1	EKPC_P2- 2_HARD- CHARD 138	bus	86.0	266.27	270.25	DC	3.42
16523557 0	34171 3	2KARGL E	69. 0	EKPC	32451 9	2ETOW N KU	69. 0	LGEE	1	EKPC_P2- 2_STEPBG 69	bus	86.0	232.46	233.88	DC	2.3
16523582 2	34171 3	2KARGL E	69. 0	EKPC	32451 9	2ETOW N KU	69. 0	LGEE	1	EKPC_P7- 1_BULL 161 DBL	tower	86.0	147.78	151.33	DC	3.05
16523582 3	34171 3	2KARGL E	69. 0	EKPC	32451 9	2ETOW N KU	69. 0	LGEE	1	EKPC_P7- 1_COOP 161 DBL 2	tower	86.0	146.31	149.84	DC	3.04
17379453 3	34171 3	2KARGL E	69. 0	EKPC	32451 9	2ETOW N KU	69. 0	LGEE	1	EKPC_P2- 4_CHARD W124- 91T	breake r	86.0	292.55	293.65	DC	1.78

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
17222020 2	960170	AF2-308 TAP	69.0	EKPC	966220	AG1-491 TAP	69.0	EKPC	1	EKPC_P2-2_KU HODG 69	bus	98.0	134.93	135.71	DC	1.43
17222020 3	960170	AF2-308 TAP	69.0	EKPC	966220	AG1-491 TAP	69.0	EKPC	1	EKPC_P2-2_BONNIE 138/69	bus	98.0	121.95	122.7	DC	1.38

11.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16933254 2	341287	2CENT HARDIN	69.0	EKPC	341713	2KARGLE	69.0	EKPC	1	Base Case	operation	89.0	158.55	161.96	DC	3.04
16933253 7	341713	2KARGLE	69.0	EKPC	324519	2ETOWN KU	69.0	LGEE	1	Base Case	operation	68.0	183.98	188.45	DC	3.04
16933269 6	342568	4CENT HARDIN	138.0	EKPC	324261	4HARDIN CO	138.0	LGEE	1	EKPC_P1-2_CHAR-KU ETN69	operation	265.0	113.02	114.14	DC	2.98

11.5 Flow Gate Details - Secondary POI

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

11.5.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165235675	324575	2HODGENV KU	LGEE	341632	2HODGENVILLE	EKPC	1	EKPC_P2-2_STEPBG 69	bus	53.0	98.55	101.07	DC	2.97

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959691	AF2-260 C	2.6500	Adder	3.12
959692	AF2-260 E	1.3250	Adder	1.56
960171	AF2-308	1.2366	Adder	1.45
960181	AF2-309 C	1.8550	Adder	2.18
960182	AF2-309 E	1.2366	Adder	1.45
961001	AF2-391 C O1	3.1800	Adder	3.74
961002	AF2-391 E O1	2.1200	Adder	2.49
962471	AG1-096 C O2	0.8917	Adder	1.98
962472	AG1-096 E O2	0.4458	Adder	0.99
966221	AG1-491 C O2	0.9831	Adder	2.18
966222	AG1-491 E O2	0.6554	Adder	1.45
WEC	WEC	0.0176	Confirmed LTF	0.0176
LGEE	LGEE	0.1037	Confirmed LTF	0.1037
CALDERWOOD	CALDERWOOD	0.0885	Confirmed LTF	0.0885
CBM-W2	CBM-W2	0.1344	Confirmed LTF	0.1344
NY	NY	0.0066	Confirmed LTF	0.0066
O-066	O-066	0.0942	Confirmed LTF	0.0942
SIGE	SIGE	0.0493	Confirmed LTF	0.0493
CHEOAH	CHEOAH	0.0871	Confirmed LTF	0.0871
COTTONWOOD	COTTONWOOD	0.1785	Confirmed LTF	0.1785
G-007	G-007	0.0147	Confirmed LTF	0.0147
HAMLET	HAMLET	0.0439	Confirmed LTF	0.0439
MEC	MEC	0.0493	Confirmed LTF	0.0493
CATAWBA	CATAWBA	0.0298	Confirmed LTF	0.0298
CBM-W1	CBM-W1	0.6309	Confirmed LTF	0.6309

11.5.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165235574	324519	2ETOWN KU	LGEE	341713	2KARGLE	EKPC	1	EKPC_P2-2_CENT HARD 138	bus	86.0	178.03	179.79	DC	3.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960172	AF2-308 BAT	16.3094	50/50	16.3094
961003	AF2-391 BAT	92.5596	50/50	92.5596
962471	AG1-096 C O2	1.0089	Adder	2.24
962472	AG1-096 E O2	0.5045	Adder	1.12
LGEE	LGEE	0.2350	Confirmed LTF	0.2350
CALDERWOOD	CALDERWOOD	0.1362	Confirmed LTF	0.1362
NY	NY	0.0039	Confirmed LTF	0.0039
PRAIRIE	PRAIRIE	0.4339	Confirmed LTF	0.4339
O-066	O-066	0.0673	Confirmed LTF	0.0673
SIGE	SIGE	0.0137	Confirmed LTF	0.0137
CHEOAH	CHEOAH	0.1351	Confirmed LTF	0.1351
COTTONWOOD	COTTONWOOD	0.5817	Confirmed LTF	0.5817
G-007	G-007	0.0105	Confirmed LTF	0.0105
HAMLET	HAMLET	0.0722	Confirmed LTF	0.0722
CATAWBA	CATAWBA	0.0494	Confirmed LTF	0.0494

11.5.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166673296	341287	2CENT HARDIN	EKPC	341713	2KARGLE	EKPC	1	EKPC_P2-2_HARD-CHARD 138	bus	98.0	250.1	253.59	DC	3.42

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
952821	J762	14.3260	PJM External (MISO)	14.3260
957961	AF2-090 C	31.5295	50/50	31.5295
957962	AF2-090 E	15.5934	50/50	15.5934
959691	AF2-260 C	25.1352	50/50	25.1352
959692	AF2-260 E	12.5676	50/50	12.5676
960171	AF2-308	12.5731	50/50	12.5731
960181	AF2-309 C	18.8597	50/50	18.8597
960182	AF2-309 E	12.5731	50/50	12.5731
960741	AF2-365 C O1	1.5657	Adder	1.84
960742	AF2-365 E O1	1.0438	Adder	1.23
961001	AF2-391 C O1	43.3087	50/50	43.3087
961002	AF2-391 E O1	28.8725	50/50	28.8725
962473	AG1-096 BAT	3.4180	50/50	3.4180
964571	AG1-320 C O2	10.3369	50/50	10.3369
964572	AG1-320 E O2	5.1307	50/50	5.1307
966221	AG1-491 C O2	21.8698	50/50	21.8698
966222	AG1-491 E O2	14.5799	50/50	14.5799
WEC	WEC	0.0482	Confirmed LTF	0.0482
CPLE	CPLE	0.0949	Confirmed LTF	0.0949
CBM-W2	CBM-W2	4.3546	Confirmed LTF	4.3546
NY	NY	0.0044	Confirmed LTF	0.0044
TVA	TVA	0.8820	Confirmed LTF	0.8820
O-066	O-066	0.0336	Confirmed LTF	0.0336
SIGE	SIGE	0.1227	Confirmed LTF	0.1227
CBM-S2	CBM-S2	2.0045	Confirmed LTF	2.0045
CBM-S1	CBM-S1	0.1436	Confirmed LTF	0.1436
G-007	G-007	0.0052	Confirmed LTF	0.0052
MEC	MEC	0.4497	Confirmed LTF	0.4497
BLUEG	BLUEG	1.3402	Confirmed LTF	1.3402
TRIMBLE	TRIMBLE	0.3740	Confirmed LTF	0.3740
LAGN	LAGN	0.9118	Confirmed LTF	0.9118
CBM-W1	CBM-W1	1.8787	Confirmed LTF	1.8787

11.5.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
173794533	341713	2KARGLE	EKPC	324519	2ETOWN KU	LGEE	1	EKPC_P2-4_CHARD W124-91T	breaker	86.0	292.55	293.65	DC	1.78

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957961	AF2-090 C	56.5506	50/50	56.5506
957962	AF2-090 E	27.9679	50/50	27.9679
959691	AF2-260 C	32.5698	50/50	32.5698
959692	AF2-260 E	16.2849	50/50	16.2849
960171	AF2-308	16.2411	50/50	16.2411
960181	AF2-309 C	24.3617	50/50	24.3617
960182	AF2-309 E	16.2411	50/50	16.2411
960741	AF2-365 C O1	2.1568	Adder	2.54
960742	AF2-365 E O1	1.4379	Adder	1.69
961001	AF2-391 C O1	55.3212	50/50	55.3212
961002	AF2-391 E O1	36.8808	50/50	36.8808
962473	AG1-096 BAT	0.9413	Merchant Transmission	0.9413
964571	AG1-320 C O2	14.8640	50/50	14.8640
964572	AG1-320 E O2	7.3777	50/50	7.3777
966031	AG1-472 C O2	1.3891	Adder	3.08
966032	AG1-472 E O2	0.9261	Adder	2.06
966221	AG1-491 C O2	28.0791	50/50	28.0791
966222	AG1-491 E O2	18.7194	50/50	18.7194
WEC	WEC	0.0085	Confirmed LTF	0.0085
CPLE	CPLE	0.0778	Confirmed LTF	0.0778
G-007A	G-007A	0.0216	Confirmed LTF	0.0216
VFT	VFT	0.0581	Confirmed LTF	0.0581
CBM-W2	CBM-W2	1.8099	Confirmed LTF	1.8099
TVA	TVA	0.5432	Confirmed LTF	0.5432
CBM-S2	CBM-S2	1.5660	Confirmed LTF	1.5660
CBM-S1	CBM-S1	0.0923	Confirmed LTF	0.0923
CBM-N	CBM-N	0.0096	Confirmed LTF	0.0096
MEC	MEC	0.1684	Confirmed LTF	0.1684
GIBSON	GIBSON	0.0388	Confirmed LTF	0.0388
BLUEG	BLUEG	0.8489	Confirmed LTF	0.8489
TRIMBLE	TRIMBLE	0.2365	Confirmed LTF	0.2365
LAGN	LAGN	0.5250	Confirmed LTF	0.5250
CBM-W1	CBM-W1	0.3785	Confirmed LTF	0.3785

11.5.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
172220202	960170	AF2-308 TAP	EKPC	966220	AG1-491 TAP	EKPC	1	EKPC_P2-2_KU HODG 69	bus	98.0	134.93	135.71	DC	1.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959691	AF2-260 C	41.8206	50/50	41.8206
959692	AF2-260 E	20.9103	50/50	20.9103
960171	AF2-308	20.3420	50/50	20.3420
960181	AF2-309 C	30.5130	50/50	30.5130
960182	AF2-309 E	20.3420	50/50	20.3420
960741	AF2-365 C O1	3.4533	50/50	3.4533
960742	AF2-365 E O1	2.3022	50/50	2.3022
961003	AF2-391 BAT	14.9160	50/50	14.9160
962473	AG1-096 BAT	0.7557	Merchant Transmission	0.7557
964571	AG1-320 C O2	34.1968	50/50	34.1968
964572	AG1-320 E O2	16.9736	50/50	16.9736
966031	AG1-472 C O2	1.8657	Adder	4.14
966032	AG1-472 E O2	1.2438	Adder	2.76
WEC	WEC	0.0110	Confirmed LTF	0.0110
CPLE	CPLE	0.0908	Confirmed LTF	0.0908
G-007A	G-007A	0.0240	Confirmed LTF	0.0240
VFT	VFT	0.0645	Confirmed LTF	0.0645
CBM-W2	CBM-W2	2.1683	Confirmed LTF	2.1683
TVA	TVA	0.6412	Confirmed LTF	0.6412
CBM-S2	CBM-S2	1.8374	Confirmed LTF	1.8374
CBM-S1	CBM-S1	0.1102	Confirmed LTF	0.1102
CBM-N	CBM-N	0.0108	Confirmed LTF	0.0108
MEC	MEC	0.2050	Confirmed LTF	0.2050
GIBSON	GIBSON	0.0426	Confirmed LTF	0.0426
BLUEG	BLUEG	0.9496	Confirmed LTF	0.9496
TRIMBLE	TRIMBLE	0.2660	Confirmed LTF	0.2660
LAGN	LAGN	0.6247	Confirmed LTF	0.6247
CBM-W1	CBM-W1	0.4907	Confirmed LTF	0.4907

11.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
EKPC_P2-2_HARD-CHARD 138	CONTINGENCY 'EKPC_P2-2_HARD-CHARD 138' /* KU HARDIN - CENTRAL HARDIN 138 TIE OPEN BRANCH FROM BUS 324261 TO BUS 342568 CKT 1 /* 324261 4HARDN 138.00 342568 4CENT HARDIN138.00 END
EKPC_P2-4_CHARD W124-91T	CONTINGENCY 'EKPC_P2-4_CHARD W124-91T' / 148 OPEN BRANCH FROM BUS 324047 TO BUS 342568 CKT 1 / 324047 4BLACKBRANCH 138 342568 4CENT HARDIN 138 1 OPEN BRANCH FROM BUS 324047 TO BUS 324260 CKT 1 / 324047 4BLACKBRANCH 138 324260 4HARDINSBURG 138 1 OPEN BRANCH FROM BUS 324261 TO BUS 342568 CKT 1 / 324261 4HARDIN CO 138 342568 4CENT HARDIN 138 1 END
EKPC_P4-5_BULL W84-1024	CONTINGENCY 'EKPC_P4-5_BULL W84-1024' / 130 OPEN BRANCH FROM BUS 326975 TO BUS 342700 CKT 1 / 326975 5CEDAR GRV 161 342700 5BULLITT CO 161 1 OPEN BRANCH FROM BUS 326998 TO BUS 342700 CKT 1 / 326998 5BULLITT TAP 161 342700 5BULLITT CO 161 1 OPEN BRANCH FROM BUS 342700 TO BUS 342766 CKT 1 / 342700 5BULLITT CO 161 342766 5LITTLE MT T 161 1 OPEN BRANCH FROM BUS 342700 TO BUS 341215 CKT 1 / 342700 5BULLITT CO 161 341215 2BULLITT CO 69.0 1 OPEN BRANCH FROM BUS 326998 TO BUS 361788 CKT 1 / 326998 5BULLITT TAP 161 361788 5SUM SHAD TP 161 1 OPEN BRANCH FROM BUS 342814 TO BUS 361788 CKT 1 / 342814 5SUMM SHADE 161 361788 5SUM SHAD TP 161 1 OPEN BRANCH FROM BUS 360334 TO BUS 361788 CKT 1 / 360334 5SUMMER SHAD 161 361788 5SUM SHAD TP 161 1 END
EKPC_P2-2_STEPBG 69	CONTINGENCY 'EKPC_P2-2_STEPBG 69' /* STEPHENSBURG 69 BUS OPEN BUS 342307 /* 2STEPHENSBRG END
EKPC_P2-2_BONNIE 138/69	CONTINGENCY 'EKPC_P2-2_BONNIE 138/69' /* KU BONNIEVILLE 138/69 TIE OPEN BUS 324213 /* 4BONNIE END

Contingency Name	Contingency Definition
EKPC_P7-1_COOP 161 DBL 2	CONTINGENCY 'EKPC_P7-1_COOP 161 DBL 2' /* COOPER - ELIHU 161 & COOPER - LAUREL DAM 161 OPEN BRANCH FROM BUS 324141 TO BUS 342718 CKT 1 /* 324141 5ELIHU 161.00 342718 5COOPER2 161.00 OPEN BRANCH FROM BUS 342718 TO BUS 342757 CKT 1 /* 342718 5COOPER2 161.00 342757 5LAUREL DAM 161.00 END
EKPC_P2-2_CENT HARD 138	CONTINGENCY 'EKPC_P2-2_CENT HARD 138' /* CENTRAL HARDIN 138 BUS OPEN BRANCH FROM BUS 341287 TO BUS 342568 CKT 1 /* 341287 2CENT HARDIN69.000 342568 4CENT HARDIN138.00 END
EKPC_P7-1_BULL 161 DBL	CONTINGENCY 'EKPC_P7-1_BULL 161 DBL' /* BULLITT - BLUE LICK 161 & BULLITT - SUMMERSHADE 161 OPEN BUS 326975 /* 326975 5CEDAR GRV 161.00 OPEN BUS 361788 /* 361788 5SUM SHAD TP161.00 END
Base Case	
EKPC_P1-2_C HAR-KU ETN69	CONTINGENCY 'EKPC_P1-2_C HAR-KU ETN69' / 125 OPEN BRANCH FROM BUS 341287 TO BUS 341713 CKT 1 / 341287 2CENT HARDIN 69.0 341713 2KARGLE 69.0 1 OPEN BRANCH FROM BUS 324519 TO BUS 341713 CKT 1 / 324519 2ETOWN KU 69.0 341713 2KARGLE 69.0 1 END
EKPC_P2-2_KU HODG 69	CONTINGENCY 'EKPC_P2-2_KU HODG 69' /* KU HODGENVILLE 69 TIE OPEN BUS 341632 /* 2HODGENVILLE END

12 Affected Systems

12.1 TVA

TVA Impacts to be determined during later study phases (as applicable).

12.2 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

12.3 MISO

MISO Impacts to be determined during later study phases (as applicable).

12.4 LG&E

LG&E Impacts to be determined during later study phases (as applicable).