Generation Interconnection

Feasibility Study Report

for

Queue Project AE1-150

CURDSVILLE-WILLIS MOUNTAIN 115 KV

60 MW Capacity / 100 MW Energy

January, 2019

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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 Virginia Electric and Power Company (VEPCO).

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.

An Interconnection Customer 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.

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a $10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model.

The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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.

General

The Interconnection Customer (IC) has proposed a Solar generating facility located in Prince George County, Virginia. The installed facilities will have a total capability of 100 MW with 60 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 12/1/2021. This study does not imply an ITO commitment to this in-service date.

Queue Number	**AE1-150**
Project Name	CURDSVILLE-WILLIS MOUNTAIN 115 KV
State	Virginia
County	Buckingham
Transmission Owner	Dominion
MFO	100
MWE	100
MWC	60
Fuel	Solar
Basecase Study Year	2022

Point of Interconnection

Primary Point of Interconnection

AE1-150 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Curdsville DP-Willis Mountain 115kV line.

Secondary Point of Interconnection

AE1-150 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Willis-Farmville 115kV line.

Cost Summary

The AE1-150 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,550,000
Direct Connection Network Upgrade	$5,500,000
Non Direct Connection Network Upgrades	$ 800,000
Total Costs	$7,850,000

In addition, the AE1-150 project may be responsible for a contribution to the following costs

(Reference System Reinforcements in the Network Impacts section for details):

Description	Total Cost
System Upgrades	$181,780,000

Cost allocations for these upgrades will be provided in the System Impact Study Report.

Note: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. The allocation of costs for a network upgrade will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

The Feasibility Study is used to make a preliminary determination of the type and scope of Attachment Facilities, Local Upgrades, and Network Upgrades that will be necessary to accommodate the Interconnection Request and to provide the Interconnection Customer a preliminary estimate of the time that will be required to construct any necessary facilities and upgrades and the Interconnection Customer's cost responsibility. The System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades. Facilities Studies will include, commensurate with the

degree of engineering specificity as provided in the Facilities Study Agreement, good faith estimates of the cost, determined in accordance with Section 217 of the Tariff,

(a) to be charged to each affected New Service Customer for the Facilities and System Upgrades that are necessary to accommodate this queue project;

(b) the time required to complete detailed design and construction of the facilities and upgrades; and

(c) a description of any site-specific environmental issues or requirements that could reasonably be anticipated to affect the cost or time required to complete construction of such facilities and upgrades.

Transmission Owner Scope of Work

Attachment Facilities

Generation Substation: Install metering and associated protection equipment. Estimated Cost is $550,000.

Transmission: Construct approximately one span of 115kV Attachment line between the generation substation and a new AE1-150 Switching Station. The estimated cost for this work is $1,000,000.

The estimated total cost of the Attachment Facilities is $1,550,000. It is estimated to take 18-24 months to complete this work. These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up. The single line is shown below in Attachment 1.

Description	Total Cost
Substation	$ 550,000
Transmission	$1,000,000
Total Attachment Facility Costs	$1,550,000

Direct Connection Cost Estimate

Substation: Establish the new 115kV AE1-150 Switching Substation (interconnection substation). The estimated cost of this work scope is $5,500,000. It is estimated to take 24-36 months to complete this work.

Non-Direct Connection Cost Estimate

Transmission: Install transmission structure in-line with transmission line to allow the proposed interconnection switching station to be interconnected with the transmission system. Estimated cost is $800,000 and it is estimated to take 24-30 months to complete.

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

Interconnection Customer Requirements

ITO's Facility Connection Requirements as posted on PJM's website http://www.pjm.com/~/media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx

Voltage Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Frequency Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Reactive Power - The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Revenue Metering and SCADA Requirements

PJM Requirements

The IC 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 Appendix 2.

Meteorological Data Reporting Requirement

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

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

OPTION 1

Network Impacts

The Queue Project AE1-150 was evaluated as a 100 MW (Capacity 60 MW) injection at the Willis Mountain 115 kV substation in the Dominion area. Project AE1-150 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-150 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

Generation Deliverability

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

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
428981	314562	3CLUBHSE	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 130-B	single	182.64	94.56	96.3	DC	3.18
429323	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	single	182.64	78.08	98.24	DC	36.82
429430	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 22-A	single	199.0	102.49	104.33	DC	3.65
429431	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 90	single	199.0	102.15	104.0	DC	3.68
429730	314747	6BREMO	DVP	314744	3BREMO	DVP	1	DVP_P1-2: LN 2028	single	269.78	98.6	100.71	DC	5.7
429312	314763	3KIDDSTO	DVP	314774	3SHERWOD	DVP	1	DVP_P1-2: LN 2028	single	169.2	96.39	98.2	DC	3.06
429281	927250	AC1-221 TAP	DVP	304070	6PERSON230T	CPLE	1	DVP_P1-2: LN 570	single	718.0	94.55	95.59	DC	7.53

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	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
428485	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P4-5: FARMVIL L432	breaker	239.0	94.66	136.5	DC	99.99
428486	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P4-2: 15832	breaker	239.0	94.66	136.5	DC	99.99
428487	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P4-2: 235T298	breaker	239.0	76.81	97.14	DC	48.58

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	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

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
429266	313867	6BREMODIST	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	123.75	126.66	DC	19.26
429267	313867	6BREMODIST	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	119.28	122.19	DC	19.26
428978	314562	3CLUBHSE	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 130-A	single	182.64	120.69	122.43	DC	3.18
428588	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 556T591	breaker	699.0	109.65	116.92	DC	50.79
428589	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 511T556	breaker	699.0	109.64	116.9	DC	50.79
429317	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556	single	571.52	117.44	122.77	DC	30.46
428606	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 556T591	breaker	684.0	107.84	115.27	DC	50.81
428607	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 511T556	breaker	684.0	107.83	115.26	DC	50.81
429355	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556	single	559.3	116.49	121.93	DC	30.47
429379	314697	6SEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556	single	674.92	109.03	111.16	DC	14.36
428363	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P4-6: CAROLINT122	breaker	199.0	145.59	147.28	DC	7.47
428364	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P4-2: 2202	breaker	199.0	136.83	138.31	DC	6.53
429861	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P7-1: LN 22-90-A	tower	199.0	150.86	152.53	DC	7.39
429862	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P7-1: LN 22-90-B	tower	199.0	139.31	140.98	DC	7.39
429223	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	126.08	128.99	DC	19.26
429224	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	121.61	124.52	DC	19.26
429301	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	119.94	122.85	DC	19.26
429302	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	115.48	118.39	DC	19.26
429280	927250	AC1-221 TAP	DVP	304070	6PERSON230T	CPLE	1	DVP_P1-2: LN 556	single	718.0	112.29	114.29	DC	14.36
429627	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 556	single	814.98	103.07	104.59	DC	12.39

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	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
429264	313867	6BREMODIST	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	140.25	145.11	DC	32.1
429272	313867	6BREMODIST	DVP	314765	6MTEAGLE	DVP	1	Base Case	operation	661.76	96.5	100.08	DC	23.67
429739	313868	6CARTERV	DVP	933500	AC2-165 TAP	DVP	1	DVP_P1-2: LN 2028	operation	800.88	96.8	100.11	DC	26.49
429686	314310	6JUDES F	DVP	314322	6MDLTHAN	DVP	1	DVP_P1-2: LN 2028	operation	800.88	101.3	104.61	DC	26.49
429649	314333	6POWHATN	DVP	314310	6JUDES F	DVP	1	DVP_P1-2: LN 2028	operation	800.88	105.06	108.37	DC	26.49
429316	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556	operation	571.52	131.3	140.19	DC	50.77
429752	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 556	operation	814.98	97.77	100.34	DC	20.65
429322	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	operation	182.64	95.39	128.99	DC	61.36
429354	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556	operation	559.3	129.01	138.09	DC	50.79
429378	314697	6SEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556	operation	674.92	134.54	138.1	DC	23.93
429424	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 296-A	operation	199.0	129.07	130.52	DC	6.38
429425	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 296-B	operation	199.0	129.07	130.52	DC	6.38
429429	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	Base Case	operation	199.0	118.29	119.51	DC	5.42
429568	314726	3WILLIS	DVP	314691	3FARMVIL	DVP	1	DVP_P1-2: LN 1012-B	operation	269.78	83.86	120.93	DC	99.99
429221	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	142.58	147.44	DC	32.1
429229	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	Base Case	operation	661.76	98.81	102.4	DC	23.67
429728	314747	6BREMO	DVP	313868	6CARTERV	DVP	1	DVP_P1-2: LN 2028	operation	800.88	97.5	100.81	DC	26.49
429731	314747	6BREMO	DVP	314744	3BREMO	DVP	1	DVP_P1-2: LN 2028	operation	269.78	98.74	100.33	DC	9.5

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
429299	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	137.15	142.01	DC	32.1
429279	927250	AC1-221 TAP	DVP	304070	6PERSON230T	CPLE	1	DVP_P1-2: LN 556	operation	718.0	140.7	144.05	DC	23.93
429282	927250	AC1-221 TAP	DVP	304070	6PERSON230T	CPLE	1	Base Case	operation	542.0	96.13	97.1	DC	11.69
429658	933500	AC2-165 TAP	DVP	314333	6POWHATN	DVP	1	DVP_P1-2: LN 2028	operation	800.88	104.35	107.66	DC	26.49
429626	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 556	operation	814.98	111.38	113.93	DC	20.65

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
429730	4	6BREMO 230.0 kV - 3BREMO 230.0 kV Ckt 1	Description : PJM baseline upgrade b2989: Install a second 230 -115 kV Transformer(224 MVA) approximately 1 mile north of Bremo and tie 230 kV Line #2028(Bremo – Charlottesville) and 115 kV Line #91 (Bremo-Sherwood) together. A three breaker 230 kV ring bus will split Line #2028 into two lines and Line #91 will also be split into two lines with a new three breaker 115 kV ring bus. Install a temporary 230-115 kV transformer at Bremo substation for the interim until the new substation is complete. The baseline project has a projected in-service date of 06/01/2019.	$0
429224,429223	12	6BREMO 230.0 kV - 6BREMODIST 230.0 kV Ckt 1	Description : Rebuild / Uprate 0.13 mile of the Bremo-Charlottesville 230kV Line # 2028 Time Estimate : 13-18 Months Cost : $300,000	$300,000
429323	2	3FARMVIL 115.0 kV - 6FARMVIL 115.0 kV Ckt 2	Description : Replace Transformer - install 224 MVA 230-115 kV transformer at the Farmville substation. Time Estimate : 24-30 Months Cost : $6,000,000	$6,000,000
428978,428981	1	3CLUBHSE 115.0 kV - 6CLUBHSE 115.0 kV Ckt 1	Description : Replace transformer at Clubhouse substation. Time Estimate : 12-16 Months Cost : $5,500,000	$5,500,000
429312	5	3KIDDSTO 115.0 kV - 3SHERWOD 115.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	$0
428485,428486,428487	7	AD2-063 TAP 115.0 kV - 3CHASCTY 115.0 kV Ckt 1	Description : Wreck & rebuild 6.3 miles of the Central-Chase City 115kV Line # 1012 between the AD2-063 tap and Chase City. Local approval is required. Time Estimate : 30-36 Months Cost : $12,400,000	$12,400,000
429266,429267	8	6BREMODIST 230.0 kV - 6MTEAGLE 230.0 kV Ckt 1	Description : Rebuild / uprate the 15 miles of the Bremo to Charlottesville Line #2028 between Bremo and Mt. Eagle Substations. A VA CPCN is required. Time Estimate : 36-44 Months Cost : $37,500,000	$37,500,000
429379	11	6SEDGE HILL 230.0 kV - AC1-221 TAP 230.0 kV Ckt 1	Description : The line rating at DVP side is 904MVA (normal), 904MVA (Emergency) and 1105 MVA (normal). Therefore, the line limit element is not overloaded at DVP side.	$0
428588,428589,429317	9	6BUCKING 230.0 kV - 6BREMO 230.0 kV Ckt 1	Description : Wreck & rebuild 15.51 miles of Bremo-Buckingham 230kV Line # 298. A VA CPCN Time Estimate : 44-48 Months Cost : $38,780,000	$38,780,000

ID	Index	Facility	Upgrade Description	Cost
429861,429862,428363,428364,429430,429431	3	**3KERR 115.0 kV - 3GW KING TAP 115.0 kV Ckt 1**	Dominion Description : Upgrade the Kerr-Henderson Dominion-CPLE tie line #45 from 90 deg C to 125 degree Time Estimate : 24-30 Months Cost : $3,000,000 CPLE The external (i.e. Non-PJM) Transmission Owner, CPLE, will evaluate this violation during the impact study phase.	$3,000,000
429627	14	**AD1-087 TAP 230.0 kV - 6SEDGE HILL 230.0 kV Ckt 1**	Description : Wreck & rebuild 12 miles of Sedge Hill to Clover 230kV line #2068 between the AD1-087 tap and Sedge substation. A VA CPCN is required. Time Estimate : 30-36 Months Cost : $30,000,000	$30,000,000
429355,428606,428607	10	**6FARMVIL 230.0 kV - 6BUCKING 230.0 kV Ckt 1**	Description : Wreck & rebuild 12.7 mi of 230kV Line 298 between Farmville and Buckingham substations. VA CPCN is required. Time Estimate : 44-48 Months Cost : $31,750,000	$31,750,000
429301,429302	13	**6MTEAGLE 230.0 kV - 6CHARLVL 230.0 kV Ckt 1**	Description : Rebuild & uprate Line 6.5 mi of 230kV line # 2028 between Mt. Eagle and Charlottesville substations. A VA CPCN Time Estimate : 36-44 Months Cost : $16,500,000	$16,500,000
429280,429281	6	**AC1-221 TAP 230.0 kV - 6PERSON230 T 230.0 kV Ckt 1**	Dominion Description : The line rating at DVP side is 904MVA (normal), 904MVA (Emergency) and 1105 MVA (normal). Therefore, the line limit element is not overloaded at DVP side. CPLE The external (i.e. Non-PJM) Transmission Owner, CPLE, will evaluate this violation during the System Impact study phase.	$0
		TOTAL COST	**$181,780,000**	

Flow Gate Details

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

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
428978	314562	3CLUBHSE	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 130-A	single	182.64	120.69	122.43	DC	3.18

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.18
314704	3LAWRENC	1.11
315150	1BUGGS 1	6.38
315151	1BUGGS 2	6.38
315158	1KERR 1	0.16
315159	1KERR 2	0.64
315160	1KERR 3	0.63
315161	1KERR 4	0.63
315162	1KERR 5	0.63
315163	1KERR 6	0.63
315164	1KERR 7	0.63
315266	1PLYWOOD A	0.36
923911	AB2-031 C O1	10.66
923991	AB2-040 C O1	5.37
924021	AB2-043 C O1	0.41
924161	AB2-060 C O1	1.18
924301	AB2-077 C O1	0.25
924311	AB2-078 C O1	0.25
924321	AB2-079 C O1	0.25
924401	AB2-089 C	0.87
925171	AB2-174 C O1	33.41
925611	AC1-036 C	0.1
925781	AC1-054 C O1	2.61
925831	AC1-062	0.02
926271	AC1-105 C O1	2.03
931231	AB1-173 C	1.65
931241	AB1-173AC	1.65
934201	AD1-047 C	38.18
934231	AD1-050 C	1.92
935221	AD1-157 C	0.11
935231	AD1-160 C	0.51
936261	AD2-033 C	9.24
936361	AD2-046 C O1	4.85
936481	AD2-063 C O1	11.83
936651	AD2-082 C	0.78
937571	AD2-169 C	47.72
938371	AE1-056 C	3.01
939181	AE1-148 C O1	4.95
939201	AE1-150 C O1	3.18
939371	AE1-168 C	8.62

Bus #	Bus	MW Impact
CARR	CARR	0.03
CBM-S1	CBM-S1	0.43
CBM-S2	CBM-S2	0.36
CBM-W1	CBM-W1	0.49
CBM-W2	CBM-W2	2.85
CIN	CIN	0.23
CPLE	CPLE	0.15
IPL	IPL	0.15
LGEE	LGEE	0.07
MEC	MEC	0.47
MECS	MECS	0.22
RENSSELAER	RENSSELAER	0.03
WEC	WEC	0.06

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
429323	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	single	182.64	78.08	98.24	DC	36.82

Bus #	Bus	MW Impact
314429	3JTRSVLE	1.0
314704	3LAWRENC	0.19
315150	1BUGGS 1	9.74
315151	1BUGGS 2	9.74
315158	1KERR 1	0.26
315159	1KERR 2	1.05
315160	1KERR 3	1.03
315161	1KERR 4	1.03
315162	1KERR 5	1.03
315163	1KERR 6	1.03
315164	1KERR 7	1.03
315266	1PLYWOOD A	0.56
923911	AB2-031 C O1	0.73
923991	AB2-040 C O1	0.37
924021	AB2-043 C O1	0.6
924161	AB2-060 C O1	1.79
924301	AB2-077 C O1	0.37
924311	AB2-078 C O1	0.37
924321	AB2-079 C O1	0.37
924401	AB2-089 C	1.53
925171	AB2-174 C O1	2.32
925611	AC1-036 C	0.3
925781	AC1-054 C O1	4.85
925831	AC1-062	0.14
926271	AC1-105 C O1	3.12
927261	AC1-222 C	1.32
931231	AB1-173 C	0.11
931241	AB1-173AC	0.11
934201	AD1-047 C	2.6
934231	AD1-050 C	3.38
934311	AD1-055 C	0.91
935221	AD1-157 C	0.69
935231	AD1-160 C	3.31
936261	AD2-033 C	24.72
936331	AD2-043 C	1.71
936361	AD2-046 C O1	7.7
936481	AD2-063 C O1	23.29
936651	AD2-082 C	5.07
937571	AD2-169 C	3.18
938371	AE1-056 C	19.49

Bus #	Bus	MW Impact
939181	AE1-148 C O1	7.79
939201	AE1-150 C O1	36.82
939371	AE1-168 C	37.78
CARR	CARR	0.08
CBM-S1	CBM-S1	1.63
CBM-S2	CBM-S2	2.21
CBM-W1	CBM-W1	1.34
CBM-W2	CBM-W2	10.47
CIN	CIN	0.61
CPLE	CPLE	1.19
IPL	IPL	0.38
LGEE	LGEE	0.18
MEC	MEC	1.48
MECS	MECS	0.46
RENSSELAER	RENSSELAER	0.06
WEC	WEC	0.16

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
429861	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P7-1: LN 22-90-A	tower	199.0	150.86	152.53	DC	7.39

Bus #	Bus	MW Impact
315150	1BUGGS 1	15.54
315151	1BUGGS 2	15.54
315158	1KERR 1	0.7
315159	1KERR 2	2.85
315160	1KERR 3	2.81
315161	1KERR 4	2.81
315162	1KERR 5	2.81
315163	1KERR 6	2.81
315164	1KERR 7	2.81
924022	AB2-043 E O1	6.02
924162	AB2-060 E O1	4.91
924302	AB2-077 E O1	1.58
924312	AB2-078 E O1	1.58
924322	AB2-079 E O1	1.58
924401	AB2-089 C	4.63
924402	AB2-089 E	2.38
925612	AC1-036 E	1.43
925781	AC1-054 C O1	15.6
925782	AC1-054 E O1	7.18
926271	AC1-105 C O1	2.87
926272	AC1-105 E O1	1.43
934231	AD1-050 C	10.2
934232	AD1-050 E	5.57
935222	AD1-157 E	0.64
935231	AD1-160 C	0.7
935232	AD1-160 E	0.97
936261	AD2-033 C	12.59
936262	AD2-033 E	8.39
936361	AD2-046 C O1	17.92
936362	AD2-046 E O1	8.24
936481	AD2-063 C O1	16.07
936482	AD2-063 E O1	10.72
936651	AD2-082 C	1.08
936652	AD2-082 E	0.52
938371	AE1-056 C	4.14
938372	AE1-056 E	2.26
939181	AE1-148 C O1	17.24
939182	AE1-148 E O1	11.49
939201	AE1-150 C O1	4.43
939202	AE1-150 E O1	2.95

Bus #	Bus	MW Impact
939371	AE1-168 C	11.8
939372	AE1-168 E	7.86
BAYOU	BAYOU	0.71
BIG_CAJUN1	BIG_CAJUN1	1.12
BIG_CAJUN2	BIG_CAJUN2	2.24
BLUEG	BLUEG	1.98
CALDERWOOD	CALDERWOOD	0.42
CANNELTON	CANNELTON	0.14
CATAWBA	CATAWBA	0.43
CBM-N	CBM-N	0.0
CHEOAH	CHEOAH	0.39
CHILHOWEE	CHILHOWEE	0.14
CHOCTAW	CHOCTAW	0.76
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	2.77
DEARBORN	DEARBORN	0.25
DUCKCREEK	DUCKCREEK	0.48
EDWARDS	EDWARDS	0.21
ELMERSMITH	ELMERSMITH	0.24
FARMERCITY	FARMERCITY	0.17
G-007A	G-007A	0.09
GIBSON	GIBSON	0.09
HAMLET	HAMLET	1.64
NEWTON	NEWTON	0.61
NYISO	NYISO	0.02
O-066A	O-066A	0.04
PRAIRIE	PRAIRIE	1.28
SANTEETLA	SANTEETLA	0.12
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.29
TILTON	TILTON	0.25
TRIMBLE	TRIMBLE	0.22
TVA	TVA	1.17
UNIONPOWER	UNIONPOWER	0.59
VFT	VFT	0.22

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
429730	314747	6BREMO	DVP	314744	3BREMO	DVP	1	DVP_P1-2: LN 2028	single	269.78	98.6	100.71	DC	5.7

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.16
315191	1BEARGRDN G1	3.98
315192	1BEARGRDN G2	3.98
315193	1BEARGRDN S1	8.19
920291	AA2-127	0.83
923861	AB2-026 C	0.19
924031	AB2-045 C	0.28
925611	AC1-036 C	0.05
925831	AC1-062	0.02
926761	AC1-162 C	14.45
932511	AC2-071 C	0.28
933501	AC2-165 C	5.84
934621	AD1-088 C	4.53
935221	AD1-157 C	0.11
935231	AD1-160 C	0.53
936261	AD2-033 C	4.29
936651	AD2-082 C	0.81
938371	AE1-056 C	3.1
938561	AE1-075 C	1.08
939201	AE1-150 C O1	5.7
939371	AE1-168 C	6.2
BAYOU	BAYOU	0.29
BIG_CAJUN1	BIG_CAJUN1	0.43
BIG_CAJUN2	BIG_CAJUN2	0.86
BLUEG	BLUEG	2.56
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.14
CARR	CARR	0.01
CBM-S2	CBM-S2	0.62
CHEOAH	CHEOAH	0.11
CHILHOWEE	CHILHOWEE	0.04
CHOCTAW	CHOCTAW	0.28
COFFEEN	COFFEEN	0.24
COTTONWOOD	COTTONWOOD	1.19
CPLE	CPLE	0.55
DEARBORN	DEARBORN	0.4
DUCKCREEK	DUCKCREEK	0.53
EDWARDS	EDWARDS	0.25
ELMERSMITH	ELMERSMITH	0.24
FARMERCITY	FARMERCITY	0.15

Bus #	Bus	MW Impact
G-007A	G-007A	0.09
GIBSON	GIBSON	0.1
NEWTON	NEWTON	0.64
O-066A	O-066A	0.04
PRAIRIE	PRAIRIE	1.08
RENSSELAER	RENSSELAER	0.01
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.08
TATANKA	TATANKA	0.27
TILTON	TILTON	0.3
TRIMBLE	TRIMBLE	0.29
TVA	TVA	0.54
UNIONPOWER	UNIONPOWER	0.16
VFT	VFT	0.23

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
429312	314763	3KIDDSTO	DVP	314774	3SHERWOD	DVP	1	DVP_P1-2: LN 2028	single	169.2	96.39	98.2	DC	3.06

Bus #	Bus	MW Impact
315170	1BREMO 3	13.72
315171	1BREMO 4	30.15
315191	1BEARGRDN G1	2.08
315192	1BEARGRDN G2	2.08
315193	1BEARGRDN S1	4.28
920291	AA2-127	0.43
924031	AB2-045 C	0.15
932511	AC2-071 C	0.15
933501	AC2-165 C	3.01
938071	AE1-009 C O1	2.53
938541	AE1-073 C	14.08
938821	AE1-108 C O1	17.18
939201	AE1-150 C O1	3.06
939841	AE1-220 C O1	5.32
CARR	CARR	0.05
CBM-S1	CBM-S1	0.48
CBM-S2	CBM-S2	0.9
CBM-W1	CBM-W1	0.06
CBM-W2	CBM-W2	2.74
CIN	CIN	0.05
CPLE	CPLE	0.5
DEARBORN	DEARBORN	0.04
IPL	IPL	0.03
LGEE	LGEE	0.02
MEC	MEC	0.26
RENSSELAER	RENSSELAER	0.04
WEC	WEC	0.01

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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
429280	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPLE	1	DVP_P1-2: LN 556	single	718.0	112.29	114.29	DC	14.36

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.5
315150	1BUGGS 1	17.2
315151	1BUGGS 2	17.2
315153	1CLOVER1	35.07
315154	1CLOVER2	34.61
315159	1KERR 2	1.14
315162	1KERR 5	1.12
315163	1KERR 6	1.12
315164	1KERR 7	1.12
315165	1HURT 1	5.16
315166	1HURT 2	5.16
315266	1PLYWOOD A	2.96
924021	AB2-043 C O1	0.65
924031	AB2-045 C	0.38
924161	AB2-060 C O1	1.87
924301	AB2-077 C O1	0.42
924311	AB2-078 C O1	0.42
924321	AB2-079 C O1	0.42
924401	AB2-089 C	1.61
925611	AC1-036 C	0.2
925831	AC1-062	0.07
925991	AC1-075 C	11.93
926021	AC1-080 C	3.99
926271	AC1-105 C O1	14.49
926761	AC1-162 C	56.66
927251	AC1-221 C	11.73
927261	AC1-222 C	10.12
932511	AC2-071 C	0.37
932761	AC2-100 C	26.99
932821	AC2-107 C	21.21
934231	AD1-050 C	3.55
934311	AD1-055 C	7.02
934341	AD1-058 C	29.4
934611	AD1-087 C O1	26.93
934621	AD1-088 C	31.81
934991	AD1-131 C	9.64
935171	AD1-152 C O1	26.76
935221	AD1-157 C	0.32
935231	AD1-160 C	1.55
936261	AD2-033 C	17.81

Bus #	Bus	MW Impact
936331	AD2-043 C	13.11
936361	AD2-046 C O1	8.38
936481	AD2-063 C O1	20.34
936651	AD2-082 C	2.37
937481	AD2-202 C O1	7.42
938371	AE1-056 C	9.12
939181	AE1-148 C O1	8.48
939201	AE1-150 C O1	14.36
939371	AE1-168 C	20.89
AC1-133	AC1-133	20.69
BAYOU	BAYOU	2.62
BIG_CAJUN1	BIG_CAJUN1	4.15
BIG_CAJUN2	BIG_CAJUN2	8.35
BLUEG	BLUEG	6.71
CALDERWOOD	CALDERWOOD	1.58
CANNELTON	CANNELTON	0.47
CATAWBA	CATAWBA	1.69
CBM-N	CBM-N	0.03
CHEOAH	CHEOAH	1.48
CHILHOWEE	CHILHOWEE	0.51
CHOCTAW	CHOCTAW	2.83
COFFEEN	COFFEEN	0.81
COTTONWOOD	COTTONWOOD	10.24
DEARBORN	DEARBORN	0.83
DUCKCREEK	DUCKCREEK	1.65
EDWARDS	EDWARDS	0.73
ELMERSMITH	ELMERSMITH	0.84
FARMERCITY	FARMERCITY	0.6
G-007A	G-007A	0.32
GIBSON	GIBSON	0.29
HAMLET	HAMLET	6.38
NEWTON	NEWTON	2.11
NYISO	NYISO	0.14
O-066A	O-066A	0.14
PRAIRIE	PRAIRIE	4.54
SANTEETLA	SANTEETLA	0.44
SMITHLAND	SMITHLAND	0.41
TATANKA	TATANKA	1.0
TILTON	TILTON	0.86
TRIMBLE	TRIMBLE	0.73
TVA	TVA	4.32
UNIONPOWER	UNIONPOWER	2.22
VFT	VFT	0.83

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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
428486	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P4-2: 15832	breaker	239.0	94.66	136.5	DC	99.99

Bus #	Bus	MW Impact
925611	AC1-036 C	0.87
925612	AC1-036 E	9.3
935221	AD1-157 C	1.38
935222	AD1-157 E	6.0
935231	AD1-160 C	6.6
935232	AD1-160 E	9.1
936481	AD2-063 C O1	89.99
936482	AD2-063 E O1	60.0
936651	AD2-082 C	10.1
936652	AD2-082 E	4.9
938371	AE1-056 C	38.8
938372	AE1-056 E	21.2
939201	AE1-150 C O1	60.0
939202	AE1-150 E O1	40.0
BAYOU	BAYOU	0.01
BIG_CAJUN1	BIG_CAJUN1	0.01
BIG_CAJUN2	BIG_CAJUN2	0.03
BLUEG	BLUEG	0.04
CALDERWOOD	CALDERWOOD	0.0
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.0
CHILHOWEE	CHILHOWEE	0.0
CHOCTAW	CHOCTAW	0.01
COFFEEN	COFFEEN	0.0
COTTONWOOD	COTTONWOOD	0.03
DEARBORN	DEARBORN	0.01
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.0
FARMERCITY	FARMERCITY	0.0
G-007	G-007	0.01
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.01
NEWTON	NEWTON	0.01
O-066	O-066	0.03
PRAIRIE	PRAIRIE	0.02
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0

Bus #	Bus	MW Impact
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.0
TVA	TVA	0.01
UNIONPOWER	UNIONPOWER	0.01

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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
429266	313867	6BREMODIST	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	123.75	126.66	DC	19.26

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.54
315150	1BUGGS 1	7.33
315151	1BUGGS 2	7.33
315153	1CLOVER1	6.64
315154	1CLOVER2	6.55
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	30.26
315171	1BREMO 4	66.48
315191	1BEARGRDN G1	13.63
315192	1BEARGRDN G2	13.63
315193	1BEARGRDN S1	28.05
920291	AA2-127	2.83
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.97
924161	AB2-060 C O1	1.15
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926271	AC1-105 C O1	3.21
926761	AC1-162 C	48.05
932511	AC2-071 C	0.95
933501	AC2-165 C	32.69
934621	AD1-088 C	14.59
935221	AD1-157 C	0.37
935231	AD1-160 C	1.78
936261	AD2-033 C	14.42
936361	AD2-046 C O1	5.5
936481	AD2-063 C O1	14.24
936651	AD2-082 C	2.73
938071	AE1-009 C O1	5.58
938371	AE1-056 C	10.47
938541	AE1-073 C	17.49
938821	AE1-108 C O1	38.05
939181	AE1-148 C O1	5.53
939201	AE1-150 C O1	19.26
939371	AE1-168 C	20.88
939841	AE1-220 C O1	12.08

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.48
CARR	CARR	0.28
CBM-S1	CBM-S1	2.84
CBM-S2	CBM-S2	4.09
CBM-W1	CBM-W1	1.71
CBM-W2	CBM-W2	17.5
CIN	CIN	0.86
CPLE	CPLE	2.17
IPL	IPL	0.52
LGEE	LGEE	0.25
MEC	MEC	2.25
MECS	MECS	0.26
RENSSELAER	RENSSELAER	0.22
WEC	WEC	0.22

Index 9

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
429317	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556	single	571.52	117.44	122.77	DC	30.46

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.87
315150	1BUGGS 1	13.25
315151	1BUGGS 2	13.25
315153	1CLOVER1	20.01
315154	1CLOVER2	19.75
315159	1KERR 2	1.3
315162	1KERR 5	1.28
315163	1KERR 6	1.28
315164	1KERR 7	1.28
315266	1PLYWOOD A	1.34
924021	AB2-043 C O1	0.66
924031	AB2-045 C	1.44
924161	AB2-060 C O1	1.95
924301	AB2-077 C O1	0.41
924311	AB2-078 C O1	0.41
924321	AB2-079 C O1	0.41
924401	AB2-089 C	1.91
925611	AC1-036 C	0.28
925781	AC1-054 C O1	6.06
925831	AC1-062	0.12
925991	AC1-075 C	4.95
926021	AC1-080 C	1.65
926271	AC1-105 C O1	6.76
926761	AC1-162 C	83.39
927251	AC1-221 C	1.65
927261	AC1-222 C	4.06
932511	AC2-071 C	1.42
932761	AC2-100 C	3.81
932821	AC2-107 C	8.8
934231	AD1-050 C	4.22
934311	AD1-055 C	2.82
934341	AD1-058 C	4.15
934611	AD1-087 C O1	12.04
934621	AD1-088 C	29.88
934991	AD1-131 C	1.36
935171	AD1-152 C O1	11.97
935221	AD1-157 C	0.6
935231	AD1-160 C	2.85
936261	AD2-033 C	23.74
936331	AD2-043 C	5.27

Bus #	Bus	MW Impact
936361	AD2-046 C O1	9.34
936481	AD2-063 C O1	23.81
936651	AD2-082 C	4.36
937481	AD2-202 C O1	3.32
938371	AE1-056 C	16.74
939181	AE1-148 C O1	9.39
939201	AE1-150 C O1	30.46
939371	AE1-168 C	33.74
AA2-074	AA2-074	2.33
CARR	CARR	0.24
CBM-S1	CBM-S1	5.29
CBM-S2	CBM-S2	6.51
CBM-W1	CBM-W1	4.91
CBM-W2	CBM-W2	34.29
CIN	CIN	2.24
CPLE	CPLE	3.43
IPL	IPL	1.4
LGEE	LGEE	0.65
MEC	MEC	5.12
MECS	MECS	1.93
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.6

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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
429355	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556	single	559.3	116.49	121.93	DC	30.47

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.87
315150	1BUGGS 1	13.25
315151	1BUGGS 2	13.25
315153	1CLOVER1	20.02
315154	1CLOVER2	19.76
315159	1KERR 2	1.3
315162	1KERR 5	1.28
315163	1KERR 6	1.28
315164	1KERR 7	1.28
315266	1PLYWOOD A	1.34
924021	AB2-043 C O1	0.66
924161	AB2-060 C O1	1.95
924301	AB2-077 C O1	0.41
924311	AB2-078 C O1	0.41
924321	AB2-079 C O1	0.41
924401	AB2-089 C	1.91
925611	AC1-036 C	0.28
925781	AC1-054 C O1	6.07
925831	AC1-062	0.12
925991	AC1-075 C	4.96
926021	AC1-080 C	1.66
926271	AC1-105 C O1	6.77
926761	AC1-162 C	83.41
927251	AC1-221 C	1.66
927261	AC1-222 C	4.07
932761	AC2-100 C	3.81
932821	AC2-107 C	8.81
934231	AD1-050 C	4.22
934311	AD1-055 C	2.82
934341	AD1-058 C	4.15
934611	AD1-087 C O1	12.05
934621	AD1-088 C	29.89
934991	AD1-131 C	1.36
935171	AD1-152 C O1	11.97
935221	AD1-157 C	0.6
935231	AD1-160 C	2.85
936261	AD2-033 C	23.75
936331	AD2-043 C	5.28
936361	AD2-046 C O1	9.35
936481	AD2-063 C O1	23.82

Bus #	Bus	MW Impact
936651	AD2-082 C	4.36
937481	AD2-202 C O1	3.32
938371	AE1-056 C	16.74
939181	AE1-148 C O1	9.4
939201	AE1-150 C O1	30.47
939371	AE1-168 C	33.75
AA2-074	AA2-074	2.34
CARR	CARR	0.24
CBM-S1	CBM-S1	5.33
CBM-S2	CBM-S2	6.54
CBM-W1	CBM-W1	4.99
CBM-W2	CBM-W2	34.62
CIN	CIN	2.28
CPLE	CPLE	3.44
IPL	IPL	1.42
LGEE	LGEE	0.66
MEC	MEC	5.18
MECS	MECS	1.98
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.61

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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
429379	314697	6SEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556	single	674.92	109.03	111.16	DC	14.36

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.5
315150	1BUGGS 1	17.2
315151	1BUGGS 2	17.2
315153	1CLOVER1	35.07
315154	1CLOVER2	34.61
315159	1KERR 2	1.14
315162	1KERR 5	1.12
315163	1KERR 6	1.12
315164	1KERR 7	1.12
315165	1HURT 1	5.16
315166	1HURT 2	5.16
315266	1PLYWOOD A	2.96
924021	AB2-043 C O1	0.65
924031	AB2-045 C	0.38
924161	AB2-060 C O1	1.87
924301	AB2-077 C O1	0.42
924311	AB2-078 C O1	0.42
924321	AB2-079 C O1	0.42
924401	AB2-089 C	1.61
925611	AC1-036 C	0.2
925661	AC1-042 C	1.59
925781	AC1-054 C O1	4.97
925831	AC1-062	0.07
925991	AC1-075 C	11.93
926021	AC1-080 C	3.99
926271	AC1-105 C O1	14.49
926641	AC1-145 C	1.9
926761	AC1-162 C	56.66
927261	AC1-222 C	10.12
932511	AC2-071 C	0.37
932821	AC2-107 C	21.21
934231	AD1-050 C	3.55
934311	AD1-055 C	7.02
934611	AD1-087 C O1	26.93
934621	AD1-088 C	31.81
935171	AD1-152 C O1	26.76
935221	AD1-157 C	0.32
935231	AD1-160 C	1.55
936261	AD2-033 C	17.81
936331	AD2-043 C	13.11

Bus #	Bus	MW Impact
936361	AD2-046 C O1	8.38
936481	AD2-063 C O1	20.34
936651	AD2-082 C	2.37
937481	AD2-202 C O1	7.42
938371	AE1-056 C	9.12
939181	AE1-148 C O1	8.48
939201	AE1-150 C O1	14.36
939371	AE1-168 C	20.89
939941	AE1-230 C1	0.72
AC1-133	AC1-133	20.69
BAYOU	BAYOU	2.62
BIG_CAJUN1	BIG_CAJUN1	4.15
BIG_CAJUN2	BIG_CAJUN2	8.35
BLUEG	BLUEG	6.71
CALDERWOOD	CALDERWOOD	1.58
CANNELTON	CANNELTON	0.47
CATAWBA	CATAWBA	1.69
CBM-N	CBM-N	0.03
CHEOAH	CHEOAH	1.48
CHILHOWEE	CHILHOWEE	0.51
CHOCTAW	CHOCTAW	2.83
COFFEEN	COFFEEN	0.81
COTTONWOOD	COTTONWOOD	10.24
DEARBORN	DEARBORN	0.83
DUCKCREEK	DUCKCREEK	1.65
EDWARDS	EDWARDS	0.73
ELMERSMITH	ELMERSMITH	0.84
FARMERCITY	FARMERCITY	0.6
G-007A	G-007A	0.32
GIBSON	GIBSON	0.29
HAMLET	HAMLET	6.38
NEWTON	NEWTON	2.11
NYISO	NYISO	0.14
O-066A	O-066A	0.14
PRAIRIE	PRAIRIE	4.54
SANTEETLA	SANTEETLA	0.44
SMITHLAND	SMITHLAND	0.41
TATANKA	TATANKA	1.0
TILTON	TILTON	0.86
TRIMBLE	TRIMBLE	0.73
TVA	TVA	4.32
UNIONPOWER	UNIONPOWER	2.22
VFT	VFT	0.83

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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
429223	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	126.08	128.99	DC	19.26

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.54
315150	1BUGGS 1	7.33
315151	1BUGGS 2	7.33
315153	1CLOVER1	6.64
315154	1CLOVER2	6.55
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	30.26
315171	1BREMO 4	66.48
315191	1BEARGRDN G1	13.63
315192	1BEARGRDN G2	13.63
315193	1BEARGRDN S1	28.05
920291	AA2-127	2.83
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.97
924161	AB2-060 C O1	1.15
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926271	AC1-105 C O1	3.21
926761	AC1-162 C	48.05
932511	AC2-071 C	0.95
933501	AC2-165 C	32.69
934621	AD1-088 C	14.59
935221	AD1-157 C	0.37
935231	AD1-160 C	1.78
936261	AD2-033 C	14.42
936361	AD2-046 C O1	5.5
936481	AD2-063 C O1	14.24
936651	AD2-082 C	2.73
938071	AE1-009 C O1	5.58
938371	AE1-056 C	10.47
938541	AE1-073 C	17.49
938821	AE1-108 C O1	38.05
939181	AE1-148 C O1	5.53
939201	AE1-150 C O1	19.26
939371	AE1-168 C	20.88
939841	AE1-220 C O1	12.08

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.48
CARR	CARR	0.28
CBM-S1	CBM-S1	2.84
CBM-S2	CBM-S2	4.09
CBM-W1	CBM-W1	1.71
CBM-W2	CBM-W2	17.5
CIN	CIN	0.86
CPLE	CPLE	2.17
IPL	IPL	0.52
LGEE	LGEE	0.25
MEC	MEC	2.25
MECS	MECS	0.26
RENSSELAER	RENSSELAER	0.22
WEC	WEC	0.22

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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
429301	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	119.94	122.85	DC	19.26

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.54
315150	1BUGGS 1	7.33
315151	1BUGGS 2	7.33
315153	1CLOVER1	6.64
315154	1CLOVER2	6.55
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	30.25
315171	1BREMO 4	66.47
315191	1BEARGRDN G1	13.63
315192	1BEARGRDN G2	13.63
315193	1BEARGRDN S1	28.05
920291	AA2-127	2.83
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.97
924161	AB2-060 C O1	1.15
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926451	AC1-116 C	0.56
926761	AC1-162 C	48.05
932511	AC2-071 C	0.95
933501	AC2-165 C	32.69
934621	AD1-088 C	14.59
935221	AD1-157 C	0.37
935231	AD1-160 C	1.78
936261	AD2-033 C	14.42
936361	AD2-046 C O1	5.5
936481	AD2-063 C O1	14.24
936651	AD2-082 C	2.73
938071	AE1-009 C O1	5.58
938371	AE1-056 C	10.47
938541	AE1-073 C	17.49
938821	AE1-108 C O1	38.05
939181	AE1-148 C O1	5.53
939201	AE1-150 C O1	19.26
939371	AE1-168 C	20.88
939841	AE1-220 C O1	12.08

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.47
CARR	CARR	0.28
CBM-S1	CBM-S1	2.83
CBM-S2	CBM-S2	4.08
CBM-W1	CBM-W1	1.7
CBM-W2	CBM-W2	17.43
CIN	CIN	0.85
CPLE	CPLE	2.17
IPL	IPL	0.52
LGEE	LGEE	0.25
MEC	MEC	2.24
MECS	MECS	0.24
RENSSELAER	RENSSELAER	0.23
WEC	WEC	0.22

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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
429627	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 556	single	814.98	103.07	104.59	DC	12.39

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.28
315153	1CLOVER1	46.07
315154	1CLOVER2	45.46
315170	1BREMO 3	6.22
315171	1BREMO 4	13.68
315191	1BEARGRDN G1	2.78
315192	1BEARGRDN G2	2.78
315193	1BEARGRDN S1	5.71
920291	AA2-127	0.58
923861	AB2-026 C	0.12
924031	AB2-045 C	0.42
925611	AC1-036 C	0.06
925831	AC1-062	0.04
926451	AC1-116 C	0.04
926761	AC1-162 C	68.93
932511	AC2-071 C	0.41
932823	AC2-107 BAT	10.28
933501	AC2-165 C	3.9
934611	AD1-087 C O1	35.74
934621	AD1-088 C	40.53
935171	AD1-152 C O1	35.52
935221	AD1-157 C	0.21
935231	AD1-160 C	0.98
936261	AD2-033 C	4.2
936651	AD2-082 C	1.51
937481	AD2-202 C O1	9.84
938071	AE1-009 C O1	1.15
938371	AE1-056 C	5.79
938541	AE1-073 C	3.79
938561	AE1-075 C	0.7
938821	AE1-108 C O1	7.31
939201	AE1-150 C O1	12.39
939371	AE1-168 C	9.6
BAYOU	BAYOU	2.02
BIG_CAJUN1	BIG_CAJUN1	3.19
BIG_CAJUN2	BIG_CAJUN2	6.41
BLUEG	BLUEG	6.14
CALDERWOOD	CALDERWOOD	1.2
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.15

Bus #	Bus	MW Impact
CBM-N	CBM-N	0.02
CHEOAH	CHEOAH	1.12
CHILHOWEE	CHILHOWEE	0.39
CHOCTAW	CHOCTAW	2.16
COFFEEN	COFFEEN	0.71
COTTONWOOD	COTTONWOOD	7.93
DEARBORN	DEARBORN	0.79
DUCKCREEK	DUCKCREEK	1.46
EDWARDS	EDWARDS	0.65
ELMERSMITH	ELMERSMITH	0.73
FARMERCITY	FARMERCITY	0.5
G-007A	G-007A	0.27
GIBSON	GIBSON	0.26
HAMLET	HAMLET	4.23
NEWTON	NEWTON	1.84
NYISO	NYISO	0.07
O-066A	O-066A	0.12
PRAIRIE	PRAIRIE	3.8
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.86
TILTON	TILTON	0.77
TRIMBLE	TRIMBLE	0.68
TVA	TVA	3.37
UNIONPOWER	UNIONPOWER	1.66
VFT	VFT	0.7

Contingency Name	Contingency Definition
DVP_P4-2: 15832	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P4-5: FARMVIL L432	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 556	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P4-2: 235T298	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 570	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P7-1: LN 22-90-B	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P4-2: 556T591	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P4-2: 511T556	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 90	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P7-1: LN 22-90-A	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 2027-A	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN

	C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 2027-B	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P4-6: CAROLIN T122	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P4-2: 2202	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 130-A	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 130-B	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 235-A	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 22-A	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END
DVP_P1-2: LN 2028	CONTINGENCY 'EKPC_P4-5_OWEN N44-808' /* SPURLOCK OPEN BRANCH FROM BUS 324293 TO BUS 342007 CKT 1 /* 324293 4OWEN C 138.00 342007 2OWEN CO 69.000 OPEN BRANCH FROM BUS 324290 TO BUS 324293 CKT 1 /* 324290 4OWC TAP 138.00 324293 4OWEN C 138.00 OPEN BRANCH FROM BUS 324253 TO BUS 324290 CKT 1 /* 324253 4GHENT 138.00 324290 4OWC TAP 138.00 OPEN BRANCH FROM BUS 324290 TO BUS 324305 CKT 1 /* 324290 4OWC TAP 138.00 324305 4SCOTTKU 138.00 END

Short Circuit

Short Circuit

The following Breakers are overduty:

None.

OPTION 2

Network Impacts

The Queue Project AE1-150 was evaluated as a 100 MW (Capacity 60 MW) injection tapping the Willis Mountain to Farmville 115 kV line in the ITO area. Project AE1-150 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-150 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

Generation Deliverability

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

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
396446	314562	3CLUBHSE	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 130-B	single	182.64	94.5	96.22	DC	3.15
396871	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	single	182.64	78.04	98.27	DC	36.94
397009	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 22-A	single	199.0	102.59	104.41	DC	3.62
397010	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 90	single	199.0	102.24	104.07	DC	3.65
396669	314763	3KIDDSTO	DVP	314774	3SHERWOD	DVP	1	DVP_P1-2: LN 2028-A	single	169.2	98.63	100.5	DC	3.17
396670	314763	3KIDDSTO	DVP	314774	3SHERWOD	DVP	1	DVP_P1-2: LN 2028-B	single	169.2	98.21	100.08	DC	3.17
396859	927250	AC1-221 TAP	DVP	304070	6PERSON230T	CPLE	1	DVP_P1-2: LN 570	single	718.0	94.77	95.82	DC	7.55

Multiple Facility Contingency

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

None.

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	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
396799	313867	6BREMODIST	DVP	938070	AE1-009 TAP	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	124.9	127.84	DC	19.5
396800	313867	6BREMODIST	DVP	938070	AE1-009 TAP	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	120.39	123.34	DC	19.5
396443	314562	3CLUBHSE	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 130-A	single	182.64	120.62	122.35	DC	3.15
395989	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 556T591	breaker	699.0	109.5	116.77	DC	50.88
395990	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 511T556	breaker	699.0	109.5	116.77	DC	50.88

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
395991	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 511T591	breaker	699.0	109.29	116.57	DC	50.88
396874	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556	single	571.52	117.33	122.67	DC	30.51
396012	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 511T556	breaker	684.0	107.68	115.12	DC	50.89
396013	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 556T591	breaker	684.0	107.68	115.12	DC	50.89
396014	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 511T591	breaker	684.0	107.48	114.92	DC	50.89
396899	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556	single	559.3	116.4	121.86	DC	30.52
396940	314697	6SEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556	single	674.92	109.15	111.28	DC	14.38
395708	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P4-6: CAROLINT122	breaker	199.0	145.71	147.39	DC	7.41
395709	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P4-2: 2202	breaker	199.0	136.94	138.41	DC	6.47
397434	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P7-1: LN 22-90-A	tower	199.0	150.97	152.63	DC	7.32
397435	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P7-1: LN 22-90-B	tower	199.0	139.42	141.08	DC	7.32
396765	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	127.22	130.17	DC	19.5
396766	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	122.72	125.67	DC	19.5
396828	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	122.44	125.39	DC	19.5
396829	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	117.94	120.88	DC	19.5
396858	927250	AC1-221 TAP	DVP	304070	6PERSON230T	CPLE	1	DVP_P1-2: LN 556	single	718.0	112.4	114.4	DC	14.38
397153	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 556	single	814.98	103.6	105.13	DC	12.5
396776	938070	AE1-009 TAP	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	125.69	128.63	DC	19.5
396777	938070	AE1-009 TAP	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-A	single	661.76	121.61	124.55	DC	19.5

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	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
396797	313867	6BREMODIST	DVP	938070	AE1-009 TAP	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	141.78	146.7	DC	32.51
396805	313867	6BREMODIST	DVP	938070	AE1-009 TAP	DVP	1	Base Case	operation	661.76	97.33	100.95	DC	23.9
397264	313868	6CARTERV	DVP	933500	AC2-165 TAP	DVP	1	DVP_P1-2: LN 2028-A	operation	800.88	97.93	101.29	DC	26.91
397211	314310	6JUDES F	DVP	314322	6MDLTHAN	DVP	1	DVP_P1-2: LN 2028-B	operation	800.88	102.7	106.07	DC	26.9
397184	314333	6POWHATN	DVP	314310	6JUDES F	DVP	1	DVP_P1-2: LN 2028-B	operation	800.88	106.48	109.84	DC	26.9
396873	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556	operation	571.52	131.19	140.09	DC	50.86
397288	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 556	operation	814.98	98.22	100.81	DC	20.84
396870	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	operation	182.64	95.35	129.06	DC	61.56
396898	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556	operation	559.3	128.92	138.02	DC	50.87
396939	314697	6SEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556	operation	674.92	134.66	138.23	DC	23.97
397003	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 296-A	operation	199.0	129.18	130.62	DC	6.34
397004	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P1-2: LN 296-B	operation	199.0	129.18	130.62	DC	6.34
397008	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	Base Case	operation	199.0	118.39	119.6	DC	5.37
396763	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	144.11	149.03	DC	32.51
396771	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	Base Case	operation	661.76	99.66	103.28	DC	23.9
397250	314747	6BREMO	DVP	313868	6CARTERV	DVP	1	DVP_P1-2: LN 2028-A	operation	800.88	98.63	101.99	DC	26.91
396826	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	139.69	144.61	DC	32.51
396834	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	Base Case	operation	661.76	93.65	97.26	DC	23.9
396857	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPLE	1	DVP_P1-2: LN 556	operation	718.0	140.82	144.18	DC	23.97
396860	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPLE	1	Base Case	operation	542.0	96.22	97.19	DC	11.7
397192	933500	AC2-165 TAP	DVP	314333	6POWHATN	DVP	1	DVP_P1-2: LN 2028-B	operation	800.88	105.75	109.11	DC	26.91
397152	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 556	operation	814.98	112.85	115.44	DC	20.84
396862	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P1-2: LN 84-A	operation	224.66	100.7	145.21	DC	99.99
396774	938070	AE1-009 TAP	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-B	operation	661.76	143.07	147.99	DC	32.51

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
396782	938070	AE1-009 TAP	DVP	314765	6MTEAGLE	DVP	1	Base Case	operation	661.76	98.23	101.84	DC	23.9
397119	939200	AE1-150 TAP	DVP	314691	3FARMVIL	DVP	1	DVP_P1-2: LN 1012-B	operation	269.78	83.86	120.93	DC	99.99

Flow Gate Details

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

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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
396443	314562	3CLUBHSE	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 130-A	single	182.64	120.62	122.35	DC	3.15

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.18
314704	3LAWRENC	1.11
315150	1BUGGS 1	6.38
315151	1BUGGS 2	6.38
315158	1KERR 1	0.16
315159	1KERR 2	0.64
315160	1KERR 3	0.63
315161	1KERR 4	0.63
315162	1KERR 5	0.63
315163	1KERR 6	0.63
315164	1KERR 7	0.63
315266	1PLYWOOD A	0.36
923911	AB2-031 C O1	10.66
923991	AB2-040 C O1	5.37
924021	AB2-043 C O1	0.41
924161	AB2-060 C O1	1.18
924301	AB2-077 C O1	0.25
924311	AB2-078 C O1	0.25
924321	AB2-079 C O1	0.25
924401	AB2-089 C	0.87
925171	AB2-174 C O1	33.41
925611	AC1-036 C	0.1
925781	AC1-054 C O1	2.61
925831	AC1-062	0.02
926271	AC1-105 C O1	2.03
931231	AB1-173 C	1.65
931241	AB1-173AC	1.65
934201	AD1-047 C	38.18
934231	AD1-050 C	1.92
935221	AD1-157 C	0.11
935231	AD1-160 C	0.51
936261	AD2-033 C	9.24
936361	AD2-046 C O1	4.85
936481	AD2-063 C O1	11.83
936651	AD2-082 C	0.78
937571	AD2-169 C	47.72
938371	AE1-056 C	3.01
939181	AE1-148 C O2	4.94
939201	AE1-150 C O2	3.15
939371	AE1-168 C	8.62

Bus #	Bus	MW Impact
CARR	CARR	0.03
CBM-S1	CBM-S1	0.43
CBM-S2	CBM-S2	0.36
CBM-W1	CBM-W1	0.49
CBM-W2	CBM-W2	2.85
CIN	CIN	0.23
CPLE	CPLE	0.15
IPL	IPL	0.15
LGEE	LGEE	0.07
MEC	MEC	0.47
MECS	MECS	0.22
RENSSELAER	RENSSELAER	0.03
WEC	WEC	0.06

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
396871	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	single	182.64	78.04	98.27	DC	36.94

Bus #	Bus	MW Impact
314429	3JTRSVLE	1.0
314704	3LAWRENC	0.19
315150	1BUGGS 1	9.73
315151	1BUGGS 2	9.73
315158	1KERR 1	0.26
315159	1KERR 2	1.05
315160	1KERR 3	1.03
315161	1KERR 4	1.03
315162	1KERR 5	1.03
315163	1KERR 6	1.03
315164	1KERR 7	1.03
315266	1PLYWOOD A	0.56
923911	AB2-031 C O1	0.72
923991	AB2-040 C O1	0.36
924021	AB2-043 C O1	0.6
924161	AB2-060 C O1	1.79
924301	AB2-077 C O1	0.37
924311	AB2-078 C O1	0.37
924321	AB2-079 C O1	0.37
924401	AB2-089 C	1.53
925171	AB2-174 C O1	2.31
925611	AC1-036 C	0.3
925781	AC1-054 C O1	4.84
925831	AC1-062	0.14
926271	AC1-105 C O1	3.12
927261	AC1-222 C	1.32
931231	AB1-173 C	0.11
931241	AB1-173AC	0.11
934201	AD1-047 C	2.6
934231	AD1-050 C	3.38
934311	AD1-055 C	0.91
935221	AD1-157 C	0.69
935231	AD1-160 C	3.31
936261	AD2-033 C	24.71
936331	AD2-043 C	1.71
936361	AD2-046 C O1	7.69
936481	AD2-063 C O1	23.28
936651	AD2-082 C	5.07
937571	AD2-169 C	3.18
938371	AE1-056 C	19.47

Bus #	Bus	MW Impact
939181	AE1-148 C O2	7.77
939201	AE1-150 C O2	36.94
939371	AE1-168 C	37.75
CARR	CARR	0.08
CBM-S1	CBM-S1	1.66
CBM-S2	CBM-S2	2.22
CBM-W1	CBM-W1	1.38
CBM-W2	CBM-W2	10.63
CIN	CIN	0.63
CPLE	CPLE	1.2
IPL	IPL	0.39
LGEE	LGEE	0.18
MEC	MEC	1.52
MECS	MECS	0.48
RENSSELAER	RENSSELAER	0.06
WEC	WEC	0.17

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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
397434	314702	3KERR	DVP	304102	3GW KING TAP	CPLE	1	DVP_P7-1: LN 22-90-A	tower	199.0	150.97	152.63	DC	7.32

Bus #	Bus	MW Impact
315150	1BUGGS 1	15.54
315151	1BUGGS 2	15.54
315158	1KERR 1	0.7
315159	1KERR 2	2.85
315160	1KERR 3	2.81
315161	1KERR 4	2.81
315162	1KERR 5	2.81
315163	1KERR 6	2.81
315164	1KERR 7	2.81
924022	AB2-043 E O1	6.02
924162	AB2-060 E O1	4.91
924302	AB2-077 E O1	1.58
924312	AB2-078 E O1	1.58
924322	AB2-079 E O1	1.58
924401	AB2-089 C	4.63
924402	AB2-089 E	2.38
925612	AC1-036 E	1.43
925781	AC1-054 C O1	15.6
925782	AC1-054 E O1	7.18
926271	AC1-105 C O1	2.87
926272	AC1-105 E O1	1.43
934231	AD1-050 C	10.2
934232	AD1-050 E	5.57
935222	AD1-157 E	0.64
935231	AD1-160 C	0.7
935232	AD1-160 E	0.97
936261	AD2-033 C	12.59
936262	AD2-033 E	8.4
936361	AD2-046 C O1	17.92
936362	AD2-046 E O1	8.24
936481	AD2-063 C O1	16.08
936482	AD2-063 E O1	10.72
936651	AD2-082 C	1.08
936652	AD2-082 E	0.52
938371	AE1-056 C	4.14
938372	AE1-056 E	2.26
939181	AE1-148 C O2	17.27
939182	AE1-148 E O2	11.52
939201	AE1-150 C O2	4.39
939202	AE1-150 E O2	2.93

Bus #	Bus	MW Impact
939371	AE1-168 C	11.8
939372	AE1-168 E	7.87
BAYOU	BAYOU	0.71
BIG_CAJUN1	BIG_CAJUN1	1.12
BIG_CAJUN2	BIG_CAJUN2	2.25
BLUEG	BLUEG	1.99
CALDERWOOD	CALDERWOOD	0.42
CANNELTON	CANNELTON	0.14
CATAWBA	CATAWBA	0.43
CBM-N	CBM-N	0.01
CHEOAH	CHEOAH	0.39
CHILHOWEE	CHILHOWEE	0.14
CHOCTAW	CHOCTAW	0.76
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	2.77
DEARBORN	DEARBORN	0.25
DUCKCREEK	DUCKCREEK	0.48
EDWARDS	EDWARDS	0.21
ELMERSMITH	ELMERSMITH	0.24
FARMERCITY	FARMERCITY	0.17
G-007A	G-007A	0.09
GIBSON	GIBSON	0.09
HAMLET	HAMLET	1.64
NEWTON	NEWTON	0.61
NYISO	NYISO	0.02
O-066A	O-066A	0.04
PRAIRIE	PRAIRIE	1.28
SANTEETLA	SANTEETLA	0.12
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.29
TILTON	TILTON	0.25
TRIMBLE	TRIMBLE	0.22
TVA	TVA	1.17
UNIONPOWER	UNIONPOWER	0.59
VFT	VFT	0.23

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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
396670	314763	3KIDDSTO	DVP	314774	3SHERWOD	DVP	1	DVP_P1-2: LN 2028-B	single	169.2	98.21	100.08	DC	3.17

Bus #	Bus	MW Impact
315170	1BREMO 3	14.2
315171	1BREMO 4	31.2
315191	1BEARGRDN G1	2.15
315192	1BEARGRDN G2	2.15
315193	1BEARGRDN S1	4.43
920291	AA2-127	0.45
924031	AB2-045 C	0.15
932511	AC2-071 C	0.15
933501	AC2-165 C	3.12
938071	AE1-009 C O2	1.19
938541	AE1-073 C	14.36
938821	AE1-108 C O2	20.35
939201	AE1-150 C O2	3.17
939841	AE1-220 C O2	7.29
BLUEG	BLUEG	0.01
CARR	CARR	0.05
CBM-S1	CBM-S1	0.42
CBM-S2	CBM-S2	0.89
CBM-W2	CBM-W2	2.31
CIN	CIN	0.0
CPLE	CPLE	0.5
DEARBORN	DEARBORN	0.06
LGEE	LGEE	0.0
MEC	MEC	0.17
RENSSELAER	RENSSELAER	0.04
TRIMBLE	TRIMBLE	0.0
WEC	WEC	0.0

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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
396858	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPLE	1	DVP_P1-2: LN 556	single	718.0	112.4	114.4	DC	14.38

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.5
315150	1BUGGS 1	17.21
315151	1BUGGS 2	17.21
315153	1CLOVER1	35.08
315154	1CLOVER2	34.62
315159	1KERR 2	1.14
315162	1KERR 5	1.12
315163	1KERR 6	1.12
315164	1KERR 7	1.12
315165	1HURT 1	5.14
315166	1HURT 2	5.14
315266	1PLYWOOD A	2.96
924021	AB2-043 C O1	0.65
924031	AB2-045 C	0.38
924161	AB2-060 C O1	1.87
924301	AB2-077 C O1	0.42
924311	AB2-078 C O1	0.42
924321	AB2-079 C O1	0.42
924401	AB2-089 C	1.61
925611	AC1-036 C	0.2
925831	AC1-062	0.07
925991	AC1-075 C	11.92
926021	AC1-080 C	3.98
926271	AC1-105 C O1	14.49
926761	AC1-162 C	56.71
927251	AC1-221 C	11.73
927261	AC1-222 C	10.12
932511	AC2-071 C	0.37
932761	AC2-100 C	26.99
932821	AC2-107 C	21.19
934231	AD1-050 C	3.56
934311	AD1-055 C	7.02
934341	AD1-058 C	29.4
934611	AD1-087 C O1	26.94
934621	AD1-088 C	31.83
934991	AD1-131 C	9.64
935171	AD1-152 C O1	26.77
935221	AD1-157 C	0.32
935231	AD1-160 C	1.55
936261	AD2-033 C	17.82

Bus #	Bus	MW Impact
936331	AD2-043 C	13.11
936361	AD2-046 C O1	8.38
936481	AD2-063 C O1	20.36
936651	AD2-082 C	2.38
937481	AD2-202 C O1	7.42
938371	AE1-056 C	9.13
939181	AE1-148 C O2	8.47
939201	AE1-150 C O2	14.38
939371	AE1-168 C	20.91
AC1-133	AC1-133	20.69
BAYOU	BAYOU	2.63
BIG_CAJUN1	BIG_CAJUN1	4.16
BIG_CAJUN2	BIG_CAJUN2	8.37
BLUEG	BLUEG	6.74
CALDERWOOD	CALDERWOOD	1.59
CANNELTON	CANNELTON	0.47
CATAWBA	CATAWBA	1.7
CBM-N	CBM-N	0.03
CHEOAH	CHEOAH	1.49
CHILHOWEE	CHILHOWEE	0.51
CHOCTAW	CHOCTAW	2.84
COFFEEN	COFFEEN	0.82
COTTONWOOD	COTTONWOOD	10.26
DEARBORN	DEARBORN	0.83
DUCKCREEK	DUCKCREEK	1.66
EDWARDS	EDWARDS	0.74
ELMERSMITH	ELMERSMITH	0.84
FARMERCITY	FARMERCITY	0.6
G-007A	G-007A	0.32
GIBSON	GIBSON	0.3
HAMLET	HAMLET	6.38
NEWTON	NEWTON	2.12
NYISO	NYISO	0.14
O-066A	O-066A	0.14
PRAIRIE	PRAIRIE	4.55
SANTEETLA	SANTEETLA	0.44
SMITHLAND	SMITHLAND	0.41
TATANKA	TATANKA	1.01
TILTON	TILTON	0.86
TRIMBLE	TRIMBLE	0.74
TVA	TVA	4.33
UNIONPOWER	UNIONPOWER	2.22
VFT	VFT	0.84

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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
396799	313867	6BREMODIST	DVP	938070	AE1-009 TAP	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	124.9	127.84	DC	19.5

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.55
315150	1BUGGS 1	7.37
315151	1BUGGS 2	7.37
315153	1CLOVER1	6.69
315154	1CLOVER2	6.6
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	31.23
315171	1BREMO 4	68.63
315191	1BEARGRDN G1	13.77
315192	1BEARGRDN G2	13.77
315193	1BEARGRDN S1	28.32
920291	AA2-127	2.86
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.98
924161	AB2-060 C O1	1.16
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926271	AC1-105 C O1	3.21
926761	AC1-162 C	48.49
932511	AC2-071 C	0.96
933501	AC2-165 C	33.0
934621	AD1-088 C	14.72
935221	AD1-157 C	0.38
935231	AD1-160 C	1.8
936261	AD2-033 C	14.54
936361	AD2-046 C O1	5.54
936481	AD2-063 C O1	14.35
936651	AD2-082 C	2.75
938371	AE1-056 C	10.56
938541	AE1-073 C	18.08
938821	AE1-108 C O2	44.83
939181	AE1-148 C O2	5.55
939201	AE1-150 C O2	19.5
939371	AE1-168 C	21.06
939841	AE1-220 C O2	16.3
AA2-074	AA2-074	1.47

Bus #	Bus	MW Impact
CARR	CARR	0.28
CBM-S1	CBM-S1	2.7
CBM-S2	CBM-S2	4.04
CBM-W1	CBM-W1	1.5
CBM-W2	CBM-W2	16.53
CIN	CIN	0.76
CPLE	CPLE	2.16
DEARBORN	DEARBORN	0.0
IPL	IPL	0.46
LGEE	LGEE	0.22
MEC	MEC	2.07
MECS	MECS	0.14
RENSSELAER	RENSSELAER	0.22
WEC	WEC	0.2

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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
396874	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556	single	571.52	117.33	122.67	DC	30.51

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.87
315150	1BUGGS 1	13.23
315151	1BUGGS 2	13.23
315153	1CLOVER1	19.99
315154	1CLOVER2	19.72
315159	1KERR 2	1.3
315162	1KERR 5	1.28
315163	1KERR 6	1.28
315164	1KERR 7	1.28
315266	1PLYWOOD A	1.34
924021	AB2-043 C O1	0.66
924031	AB2-045 C	1.44
924161	AB2-060 C O1	1.95
924301	AB2-077 C O1	0.41
924311	AB2-078 C O1	0.41
924321	AB2-079 C O1	0.41
924401	AB2-089 C	1.91
925611	AC1-036 C	0.28
925781	AC1-054 C O1	6.05
925831	AC1-062	0.12
925991	AC1-075 C	4.97
926021	AC1-080 C	1.66
926271	AC1-105 C O1	6.76
926761	AC1-162 C	83.25
927251	AC1-221 C	1.65
927261	AC1-222 C	4.07
932511	AC2-071 C	1.42
932761	AC2-100 C	3.81
932821	AC2-107 C	8.84
934231	AD1-050 C	4.21
934311	AD1-055 C	2.82
934341	AD1-058 C	4.15
934611	AD1-087 C O1	12.03
934621	AD1-088 C	29.83
934991	AD1-131 C	1.36
935171	AD1-152 C O1	11.95
935221	AD1-157 C	0.59
935231	AD1-160 C	2.84
936261	AD2-033 C	23.71
936331	AD2-043 C	5.28

Bus #	Bus	MW Impact
936361	AD2-046 C O1	9.33
936481	AD2-063 C O1	23.77
936651	AD2-082 C	4.35
937481	AD2-202 C O1	3.31
938371	AE1-056 C	16.71
939181	AE1-148 C O2	9.36
939201	AE1-150 C O2	30.51
939371	AE1-168 C	33.68
AA2-074	AA2-074	2.33
CARR	CARR	0.25
CBM-S1	CBM-S1	5.34
CBM-S2	CBM-S2	6.53
CBM-W1	CBM-W1	4.99
CBM-W2	CBM-W2	34.64
CIN	CIN	2.28
CPLE	CPLE	3.43
IPL	IPL	1.42
LGEE	LGEE	0.66
MEC	MEC	5.18
MECS	MECS	1.97
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.61

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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
396899	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556	single	559.3	116.4	121.86	DC	30.52

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.87
315150	1BUGGS 1	13.24
315151	1BUGGS 2	13.24
315153	1CLOVER1	19.99
315154	1CLOVER2	19.73
315159	1KERR 2	1.3
315162	1KERR 5	1.28
315163	1KERR 6	1.28
315164	1KERR 7	1.28
315266	1PLYWOOD A	1.34
924021	AB2-043 C O1	0.66
924161	AB2-060 C O1	1.95
924301	AB2-077 C O1	0.41
924311	AB2-078 C O1	0.41
924321	AB2-079 C O1	0.41
924401	AB2-089 C	1.91
925611	AC1-036 C	0.28
925781	AC1-054 C O1	6.06
925831	AC1-062	0.12
925991	AC1-075 C	4.98
926021	AC1-080 C	1.66
926271	AC1-105 C O1	6.77
926761	AC1-162 C	83.27
927251	AC1-221 C	1.66
927261	AC1-222 C	4.07
932761	AC2-100 C	3.81
932821	AC2-107 C	8.85
934231	AD1-050 C	4.22
934311	AD1-055 C	2.83
934341	AD1-058 C	4.15
934611	AD1-087 C O1	12.04
934621	AD1-088 C	29.84
934991	AD1-131 C	1.36
935171	AD1-152 C O1	11.96
935221	AD1-157 C	0.59
935231	AD1-160 C	2.84
936261	AD2-033 C	23.72
936331	AD2-043 C	5.28
936361	AD2-046 C O1	9.34
936481	AD2-063 C O1	23.79

Bus #	Bus	MW Impact
936651	AD2-082 C	4.35
937481	AD2-202 C O1	3.31
938371	AE1-056 C	16.72
939181	AE1-148 C O2	9.37
939201	AE1-150 C O2	30.52
939371	AE1-168 C	33.69
AA2-074	AA2-074	2.34
CARR	CARR	0.24
CBM-S1	CBM-S1	5.38
CBM-S2	CBM-S2	6.55
CBM-W1	CBM-W1	5.08
CBM-W2	CBM-W2	34.99
CIN	CIN	2.32
CPLE	CPLE	3.44
IPL	IPL	1.45
LGEE	LGEE	0.67
MEC	MEC	5.25
MECS	MECS	2.02
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.62

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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
396940	314697	6SEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556	single	674.92	109.15	111.28	DC	14.38

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.5
315150	1BUGGS 1	17.21
315151	1BUGGS 2	17.21
315153	1CLOVER1	35.08
315154	1CLOVER2	34.62
315159	1KERR 2	1.14
315162	1KERR 5	1.12
315163	1KERR 6	1.12
315164	1KERR 7	1.12
315165	1HURT 1	5.14
315166	1HURT 2	5.14
315266	1PLYWOOD A	2.96
924021	AB2-043 C O1	0.65
924031	AB2-045 C	0.38
924161	AB2-060 C O1	1.87
924301	AB2-077 C O1	0.42
924311	AB2-078 C O1	0.42
924321	AB2-079 C O1	0.42
924401	AB2-089 C	1.61
925611	AC1-036 C	0.2
925661	AC1-042 C	1.59
925781	AC1-054 C O1	4.97
925831	AC1-062	0.07
925991	AC1-075 C	11.92
926021	AC1-080 C	3.98
926271	AC1-105 C O1	14.49
926641	AC1-145 C	1.89
926761	AC1-162 C	56.71
927261	AC1-222 C	10.12
932511	AC2-071 C	0.37
932821	AC2-107 C	21.19
934231	AD1-050 C	3.56
934311	AD1-055 C	7.02
934611	AD1-087 C O1	26.94
934621	AD1-088 C	31.83
935171	AD1-152 C O1	26.77
935221	AD1-157 C	0.32
935231	AD1-160 C	1.55
936261	AD2-033 C	17.82
936331	AD2-043 C	13.11

Bus #	Bus	MW Impact
936361	AD2-046 C O1	8.38
936481	AD2-063 C O1	20.36
936651	AD2-082 C	2.38
937481	AD2-202 C O1	7.42
938371	AE1-056 C	9.13
939181	AE1-148 C O2	8.47
939201	AE1-150 C O2	14.38
939371	AE1-168 C	20.91
939941	AE1-230 C1	0.72
AC1-133	AC1-133	20.69
BAYOU	BAYOU	2.63
BIG_CAJUN1	BIG_CAJUN1	4.16
BIG_CAJUN2	BIG_CAJUN2	8.37
BLUEG	BLUEG	6.74
CALDERWOOD	CALDERWOOD	1.59
CANNELTON	CANNELTON	0.47
CATAWBA	CATAWBA	1.7
CBM-N	CBM-N	0.03
CHEOAH	CHEOAH	1.49
CHILHOWEE	CHILHOWEE	0.51
CHOCTAW	CHOCTAW	2.84
COFFEEN	COFFEEN	0.82
COTTONWOOD	COTTONWOOD	10.26
DEARBORN	DEARBORN	0.83
DUCKCREEK	DUCKCREEK	1.66
EDWARDS	EDWARDS	0.74
ELMERSMITH	ELMERSMITH	0.84
FARMERCITY	FARMERCITY	0.6
G-007A	G-007A	0.32
GIBSON	GIBSON	0.3
HAMLET	HAMLET	6.38
NEWTON	NEWTON	2.12
NYISO	NYISO	0.14
O-066A	O-066A	0.14
PRAIRIE	PRAIRIE	4.55
SANTEETLA	SANTEETLA	0.44
SMITHLAND	SMITHLAND	0.41
TATANKA	TATANKA	1.01
TILTON	TILTON	0.86
TRIMBLE	TRIMBLE	0.74
TVA	TVA	4.33
UNIONPOWER	UNIONPOWER	2.22
VFT	VFT	0.84

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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
396765	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	127.22	130.17	DC	19.5

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.55
315150	1BUGGS 1	7.37
315151	1BUGGS 2	7.37
315153	1CLOVER1	6.69
315154	1CLOVER2	6.6
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	31.23
315171	1BREMO 4	68.63
315191	1BEARGRDN G1	13.77
315192	1BEARGRDN G2	13.77
315193	1BEARGRDN S1	28.32
920291	AA2-127	2.86
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.98
924161	AB2-060 C O1	1.16
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926271	AC1-105 C O1	3.21
926761	AC1-162 C	48.49
932511	AC2-071 C	0.96
933501	AC2-165 C	33.0
934621	AD1-088 C	14.72
935221	AD1-157 C	0.38
935231	AD1-160 C	1.8
936261	AD2-033 C	14.54
936361	AD2-046 C O1	5.54
936481	AD2-063 C O1	14.35
936651	AD2-082 C	2.75
938371	AE1-056 C	10.56
938541	AE1-073 C	18.08
938821	AE1-108 C O2	44.83
939181	AE1-148 C O2	5.55
939201	AE1-150 C O2	19.5
939371	AE1-168 C	21.06
939841	AE1-220 C O2	16.3
AA2-074	AA2-074	1.47

Bus #	Bus	MW Impact
CARR	CARR	0.28
CBM-S1	CBM-S1	2.7
CBM-S2	CBM-S2	4.04
CBM-W1	CBM-W1	1.5
CBM-W2	CBM-W2	16.53
CIN	CIN	0.76
CPLE	CPLE	2.16
DEARBORN	DEARBORN	0.0
IPL	IPL	0.46
LGEE	LGEE	0.22
MEC	MEC	2.07
MECS	MECS	0.14
RENSSELAER	RENSSELAER	0.22
WEC	WEC	0.2

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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
396828	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	122.44	125.39	DC	19.5

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.55
315150	1BUGGS 1	7.37
315151	1BUGGS 2	7.37
315153	1CLOVER1	6.69
315154	1CLOVER2	6.6
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	31.23
315171	1BREMO 4	68.63
315191	1BEARGRDN G1	13.77
315192	1BEARGRDN G2	13.77
315193	1BEARGRDN S1	28.32
920291	AA2-127	2.86
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.98
924161	AB2-060 C O1	1.16
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926451	AC1-116 C	0.56
926761	AC1-162 C	48.49
932511	AC2-071 C	0.96
933501	AC2-165 C	33.0
934621	AD1-088 C	14.72
935221	AD1-157 C	0.38
935231	AD1-160 C	1.8
936261	AD2-033 C	14.53
936361	AD2-046 C O1	5.54
936481	AD2-063 C O1	14.34
936651	AD2-082 C	2.75
938071	AE1-009 C O2	8.93
938371	AE1-056 C	10.56
938541	AE1-073 C	18.07
938821	AE1-108 C O2	44.83
939181	AE1-148 C O2	5.55
939201	AE1-150 C O2	19.5
939371	AE1-168 C	21.06
939841	AE1-220 C O2	16.3

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.47
CARR	CARR	0.28
CBM-S1	CBM-S1	2.69
CBM-S2	CBM-S2	4.03
CBM-W1	CBM-W1	1.49
CBM-W2	CBM-W2	16.48
CIN	CIN	0.75
CPLE	CPLE	2.16
DEARBORN	DEARBORN	0.01
IPL	IPL	0.45
LGEE	LGEE	0.22
MEC	MEC	2.06
MECS	MECS	0.13
RENSSELAER	RENSSELAER	0.22
WEC	WEC	0.2

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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
397153	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 556	single	814.98	103.6	105.13	DC	12.5

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.28
315153	1CLOVER1	46.08
315154	1CLOVER2	45.48
315170	1BREMO 3	6.47
315171	1BREMO 4	14.21
315191	1BEARGRDN G1	2.8
315192	1BEARGRDN G2	2.8
315193	1BEARGRDN S1	5.76
920291	AA2-127	0.58
923861	AB2-026 C	0.12
924031	AB2-045 C	0.42
925611	AC1-036 C	0.06
925831	AC1-062	0.04
926451	AC1-116 C	0.05
926761	AC1-162 C	69.03
932511	AC2-071 C	0.41
932823	AC2-107 BAT	10.32
933501	AC2-165 C	3.94
934611	AD1-087 C O1	35.75
934621	AD1-088 C	40.56
935171	AD1-152 C O1	35.52
935221	AD1-157 C	0.21
935231	AD1-160 C	0.99
936261	AD2-033 C	4.23
936651	AD2-082 C	1.51
937481	AD2-202 C O1	9.84
938071	AE1-009 C O2	1.18
938371	AE1-056 C	5.81
938541	AE1-073 C	3.94
938561	AE1-075 C	0.71
938821	AE1-108 C O2	9.11
939201	AE1-150 C O2	12.5
939371	AE1-168 C	9.64
BAYOU	BAYOU	2.03
BIG_CAJUN1	BIG_CAJUN1	3.2
BIG_CAJUN2	BIG_CAJUN2	6.44
BLUEG	BLUEG	6.2
CALDERWOOD	CALDERWOOD	1.2
CANNELTON	CANNELTON	0.42
CATAWBA	CATAWBA	1.15

Bus #	Bus	MW Impact
CBM-N	CBM-N	0.02
CHEOAH	CHEOAH	1.12
CHILHOWEE	CHILHOWEE	0.39
CHOCTAW	CHOCTAW	2.18
COFFEEN	COFFEEN	0.71
COTTONWOOD	COTTONWOOD	7.97
DEARBORN	DEARBORN	0.8
DUCKCREEK	DUCKCREEK	1.47
EDWARDS	EDWARDS	0.66
ELMERSMITH	ELMERSMITH	0.73
FARMERCITY	FARMERCITY	0.51
G-007A	G-007A	0.28
GIBSON	GIBSON	0.27
HAMLET	HAMLET	4.23
NEWTON	NEWTON	1.85
NYISO	NYISO	0.08
O-066A	O-066A	0.12
PRAIRIE	PRAIRIE	3.83
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.87
TILTON	TILTON	0.78
TRIMBLE	TRIMBLE	0.68
TVA	TVA	3.39
UNIONPOWER	UNIONPOWER	1.67
VFT	VFT	0.72

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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
396776	938070	AE1-009 TAP	DVP	314765	6MTEAGLE	DVP	1	DVP_P1-2: LN 2027-B	single	661.76	125.69	128.63	DC	19.5

Bus #	Bus	MW Impact
314429	3JTRSVLE	0.55
315150	1BUGGS 1	7.37
315151	1BUGGS 2	7.37
315153	1CLOVER1	6.69
315154	1CLOVER2	6.6
315159	1KERR 2	0.77
315164	1KERR 7	0.76
315170	1BREMO 3	31.23
315171	1BREMO 4	68.63
315191	1BEARGRDN G1	13.77
315192	1BEARGRDN G2	13.77
315193	1BEARGRDN S1	28.32
920291	AA2-127	2.86
924021	AB2-043 C O1	0.39
924031	AB2-045 C	0.98
924161	AB2-060 C O1	1.16
924301	AB2-077 C O1	0.24
924311	AB2-078 C O1	0.24
924321	AB2-079 C O1	0.24
925611	AC1-036 C	0.17
925831	AC1-062	0.07
926761	AC1-162 C	48.49
932511	AC2-071 C	0.96
933501	AC2-165 C	33.0
934621	AD1-088 C	14.72
935221	AD1-157 C	0.38
935231	AD1-160 C	1.8
936261	AD2-033 C	14.54
936361	AD2-046 C O1	5.54
936481	AD2-063 C O1	14.35
936651	AD2-082 C	2.75
938071	AE1-009 C O2	8.93
938371	AE1-056 C	10.56
938541	AE1-073 C	18.08
938821	AE1-108 C O2	44.83
939181	AE1-148 C O2	5.55
939201	AE1-150 C O2	19.5
939371	AE1-168 C	21.06
939841	AE1-220 C O2	16.3
AA2-074	AA2-074	1.47

Bus #	Bus	MW Impact
CARR	CARR	0.28
CBM-S1	CBM-S1	2.7
CBM-S2	CBM-S2	4.04
CBM-W1	CBM-W1	1.5
CBM-W2	CBM-W2	16.53
CIN	CIN	0.76
CPLE	CPLE	2.16
DEARBORN	DEARBORN	0.0
IPL	IPL	0.46
LGEE	LGEE	0.22
MEC	MEC	2.07
MECS	MECS	0.14
RENSSELAER	RENSSELAER	0.22
WEC	WEC	0.2

Contingency Name	Contingency Definition
DVP_P4-6: CAROLIN T122	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 556	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 570	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P7-1: LN 22-90-B	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P4-2: 556T591	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P4-2: 511T556	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 90	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P7-1: LN 22-90-A	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 2027-A	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 2027-B	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P4-2: 2202	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 2028-B	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 2028-A	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 130-A	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 130-B	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 235-A	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P1-2: LN 22-A	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND
DVP_P4-2: 511T591	CONTINGENCY 'AEP_P1-2_#768' OPEN BRANCH FROM BUS 241901 TO BUS 242936 CKT 1 / 241901 02LALLEND

Short Circuit

Short Circuit

The following Breakers are overduty:

None.