Generation Interconnection

Feasibility Study Report

for

Queue Project AE1-248

BELL AVENUE 115 KV

90 MW Capacity / 150 MW Energy

February, 2019

Table Of Contents

Preface	
General	
Attachment Facilities	
Direct Connection Cost Estimate	
Non-Direct Connection Cost Estimate	
Schedule	
Transmission Owner Analysis	
Interconnection Customer Requirements	
Revenue Metering and SCADA Requirements	
Analysis : Summer Peak	
Generation Deliverability	
Multiple Facility	
Contribution to Previously Identified	
Analysis : Short Circuit	
Oneline Diagram	

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).

© PJM Interconnection 2019. All rights reserved.

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.

An Interconnection Customer entering the New Services Queue on or after October 1, 2018 (except those regulated by the United States Nuclear Regulatory Commission) shall provide primary frequency response in accordance with Section 4.7.2 of Appendix 2 to the Interconnection Service Agreement. See PJM Manual 14D Section 7.1.1 for more 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

© PJM Interconnection 2019. All rights reserved.

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.

© PJM Interconnection 2019. All rights reserved.

General

The Interconnection Customer (IC) has proposed a hybrid Solar- Battery Storage generating facility located in South Hampton County, VA. The installed facilities will have a total capability of 150 MW with 90 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 9/30/2021. This study does not imply a TO commitment to this in-service date.

Queue Number	**AE1-248**
Project Name	BELL AVENUE 115 KV
State	Virginia
County	Southampton
Transmission Owner	Dominion
MFO	150
MWE	150
MWC	90
Fuel	Solar; Storage
Basecase Study Year	2022

© PJM Interconnection 2019. All rights reserved.

Point of Interconnection

AE1-248 will interconnect with the ITO transmission system via one of the following options:

Primary Point of Interconnection

AE1-248 will interconnect with the ITO transmission system via a direct connection into the Bell Avenue 115kV substation.

Secondary Point of Interconnection

AE1-248 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Bell Avenue – Wakefield 115 kV line #15.

Cost Summary

The AE1-248 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,550,000
Direct Connection Network Upgrade	$0
Non Direct Connection Network Upgrades	$5,500,000
Total Costs	$7,050,000

In addition, the AE1-248 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	$506,308,000

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,

© PJM Interconnection 2019. All rights reserved.

(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.

© PJM Interconnection 2019. All rights reserved.

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 115 kV Attachment line between the generation substation and the Bell Avenue Substation. 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.

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

Direct Connection Cost Estimate

None.

Non-Direct Connection Cost Estimate

Substation: Add three breakers to Bell Ave 115kV substation. The estimated cost of this work scope is $5,500,000.

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.

© PJM Interconnection 2019. All rights reserved.

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 Sections 24.1 and 24.2.

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

© PJM Interconnection 2019. All rights reserved.

OPTION 1

Network Impacts

The Queue Project AE1-248 was evaluated as a 150 MW (Capacity 90 MW) injection at the Bell Ave 2 115kV substation in the ITO area. Project AE1-248 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-248 was studied with a commercial probability of 53%. Potential network impacts were as follows:

© PJM Interconnection 2019. All rights reserved.

Summer Peak Load Flow

© PJM Interconnection 2019. All rights reserved.

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
586332	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	single	110.92	111.16	192.3	DC	90.0
586337	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-A	single	110.92	55.99	137.13	DC	90.0
586341	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	Base Case	single	110.92	63.8	108.27	DC	49.32
586356	313879	3BELL AVE 2	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 23-B	single	110.92	74.83	155.97	DC	90.0
586357	313879	3BELL AVE 2	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 23-A	single	110.92	55.99	137.13	DC	90.0
586304	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	115.85	196.99	DC	90.0
586305	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-A	single	110.92	97.01	178.15	DC	90.0
586324	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	105.84	186.98	DC	90.0
586325	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-A	single	110.92	87.0	168.14	DC	90.0
586431	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	single	449.32	102.57	104.24	DC	7.48
586344	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	single	110.92	100.88	182.02	DC	90.0
586349	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-A	single	110.92	45.8	126.94	DC	90.0
586316	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-B	single	110.92	108.28	189.42	DC	90.0
586317	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-A	single	110.92	53.1	134.24	DC	90.0
586453	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 2028	single	2442.12	99.99	100.35	DC	19.15
586284	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	single	110.92	130.0	211.14	DC	90.0
586285	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-A	single	110.92	74.83	155.97	DC	90.0
586289	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	Base Case	single	110.92	75.15	119.61	DC	49.32
586292	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	single	110.92	130.0	211.14	DC	90.0
586293	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-A	single	110.92	111.16	192.3	DC	90.0

© PJM Interconnection 2019. All rights reserved.

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
586134	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.8	112.99	DC	28.07
586135	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	108.19	111.95	DC	20.33
586136	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.8	112.99	DC	28.07
586137	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	108.21	111.96	DC	20.33
585995	314528	3IVOR106	DVP	313879	3BELL AVE 2	DVP	1	DVP_P4-5: L552	breaker	136.0	19.85	130.15	DC	150.0
585996	314528	3IVOR106	DVP	313879	3BELL AVE 2	DVP	1	DVP_P4-5: POE L652	breaker	136.0	19.85	130.15	DC	150.0
585997	314528	3IVOR106	DVP	313879	3BELL AVE 2	DVP	1	DVP_P4-2: 1552	breaker	136.0	19.85	130.15	DC	150.0
585952	314532	3OAKRI23	DVP	932590	AC2-079 TAP	DVP	1	DVP_P4-2: 1552	breaker	136.0	28.24	138.53	DC	150.0
585953	314532	3OAKRI23	DVP	932590	AC2-079 TAP	DVP	1	DVP_P4-5: POE L652	breaker	136.0	28.24	138.53	DC	150.0
585954	314532	3OAKRI23	DVP	932590	AC2-079 TAP	DVP	1	DVP_P4-5: L552	breaker	136.0	28.24	138.53	DC	150.0
585824	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	DVP_P4-5: POE L652	breaker	136.0	45.96	156.25	DC	150.0
585825	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	DVP_P4-5: L552	breaker	136.0	45.96	156.25	DC	150.0
585826	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	DVP_P4-2: 1552	breaker	136.0	45.96	156.25	DC	150.0
585973	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-3: SUFFOLK H542	breaker	297.2	113.92	134.74	DC	61.86
585974	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	113.53	134.54	DC	62.44
586001	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	108.54	128.38	DC	60.9
586229	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	99.9	100.29	DC	26.84
585948	932590	AC2-079 TAP	DVP	314528	3IVOR106	DVP	1	DVP_P4-5: L552	breaker	136.0	28.24	138.53	DC	150.0
585949	932590	AC2-079 TAP	DVP	314528	3IVOR106	DVP	1	DVP_P4-5: POE L652	breaker	136.0	28.24	138.53	DC	150.0
585950	932590	AC2-079 TAP	DVP	314528	3IVOR106	DVP	1	DVP_P4-2: 1552	breaker	136.0	28.24	138.53	DC	150.0

© PJM Interconnection 2019. All rights reserved.

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
585803	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	161.19	162.41	DC	28.28
587354	314269	6PRGEORG	DVP	314291	3PRGEORG	DVP	1	DVP_P7-1: LN 211-228	tower	219.8	144.14	146.73	DC	10.91
585779	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	165.72	168.54	DC	15.36
586422	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	156.67	158.78	DC	9.31
586424	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	single	449.32	144.49	146.83	DC	10.47
586812	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	116.18	118.48	DC	10.31
586813	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 217	single	449.32	114.37	116.66	DC	10.3
585899	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	144.42	145.0	DC	40.41
585900	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	139.91	140.43	DC	35.91
586214	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	100.57	102.4	DC	17.32
585819	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	155.83	156.48	DC	47.9
585820	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	155.83	156.48	DC	47.9
586392	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	166.3	166.85	DC	28.75
586396	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 534	single	2442.12	139.84	140.32	DC	25.75
585927	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	141.91	142.22	DC	44.95
586448	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	146.78	147.25	DC	25.15

© PJM Interconnection 2019. All rights reserved.

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
586330	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	198.16	333.39	DC	150.0
586336	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	Base Case	operation	110.92	100.63	174.74	DC	82.2
586354	313879	3BELL AVE 2	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	172.56	307.79	DC	150.0
586361	313879	3BELL AVE 2	DVP	938630	AE1-085 TAP	DVP	1	Base Case	operation	110.92	56.95	118.08	DC	67.8
587239	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	99.01	99.94	DC	17.24
587083	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	116.2	117.13	DC	18.08
587120	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	112.57	113.47	DC	18.17
587142	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	107.45	109.07	DC	15.71
586302	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	250.36	385.59	DC	150.0
586309	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	Base Case	operation	110.92	109.65	170.78	DC	67.8
586774	314273	3BAKRS P	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	10.46	145.69	DC	150.0
586322	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	240.35	375.59	DC	150.0
586329	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	Base Case	operation	110.92	99.64	160.77	DC	67.8
586639	314280	3NEWBOHE	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	24.61	159.84	DC	150.0
586420	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	194.15	197.64	DC	15.51
586429	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	operation	449.32	111.36	112.62	DC	12.47
587121	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	111.17	112.79	DC	15.71

© PJM Interconnection 2019. All rights reserved.

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
587166	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	operation	441.8	102.66	107.31	DC	20.57
586807	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	operation	449.32	142.35	143.95	DC	15.6
586816	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	operation	449.32	104.59	106.03	DC	14.11
586553	314329	3POE	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	34.62	169.85	DC	150.0
586558	314329	3POE	DVP	314280	3NEWBOHE	DVP	1	Base Case	operation	110.92	41.67	102.79	DC	67.8
587104	314329	3POE	DVP	314291	3PRGEORG	DVP	1	DVP_P1-2: LN 23-B	operation	224.66	91.69	115.77	DC	54.1
587163	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	operation	441.8	102.68	107.34	DC	20.57
586342	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	187.88	323.12	DC	150.0
586348	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	Base Case	operation	110.92	90.36	164.46	DC	82.2
586904	314528	3IVOR106	DVP	313879	3BELL AVE 2	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	0.18	135.41	DC	150.0
586905	314528	3IVOR106	DVP	313879	3BELL AVE 2	DVP	1	DVP_P1-2: LN 106-A	operation	110.92	0.18	135.41	DC	150.0
586310	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	242.79	378.02	DC	150.0
586315	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	Base Case	operation	110.92	123.43	197.53	DC	82.2
586766	314532	3OAKRI23	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-A	operation	110.92	10.46	145.69	DC	150.0
586767	314532	3OAKRI23	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	10.46	145.69	DC	150.0
586576	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	32.19	167.42	DC	150.0
586577	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-A	operation	110.92	32.19	167.42	DC	150.0
586696	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	150.65	151.05	DC	35.08
586506	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	178.31	179.02	DC	37.83
586511	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	141.69	142.25	DC	30.09
587183	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	103.82	105.9	DC	17.24
586611	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	163.66	164.21	DC	29.32
586389	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	213.68	214.57	DC	47.91
586397	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	136.58	137.17	DC	31.93

© PJM Interconnection 2019. All rights reserved.

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
586719	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	149.36	149.86	DC	29.8
586923	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	operation	2442.12	132.91	133.38	DC	24.75
586444	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	193.12	193.64	DC	41.91
586450	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	140.46	141.0	DC	30.35
586865	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	138.33	138.8	DC	32.57
587057	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	119.11	119.67	DC	30.13
586824	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	operation	3218.56	143.03	143.48	DC	32.23
586278	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	264.51	399.75	DC	150.0
586283	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	Base Case	operation	110.92	145.15	219.26	DC	82.2
586776	932590	AC2-079 TAP	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	10.46	145.69	DC	150.0
586290	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	264.51	399.75	DC	150.0
586297	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	Base Case	operation	110.92	123.81	184.93	DC	67.8
586768	938630	AE1-085 TAP	DVP	313879	3BELL AVE 2	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	10.46	145.69	DC	150.0
586773	938630	AE1-085 TAP	DVP	313879	3BELL AVE 2	DVP	1	Base Case	operation	110.92	42.43	103.56	DC	67.8

© PJM Interconnection 2019. All rights reserved.

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
586344,586349, 585948,585949,585950	6, 19	3IVOR106 115.0 kV - AC2-079 TAP 115.0 kV Ckt 1	Description : Wreck & rebuild 19.6 miles of 115kV line between Bell Avenue and Oakridge substations. Note: Bell Avenue-Ivor-AC2-079 tap-Oakridge 115kV is line #23 Poe-Bakers Pond-AE1-085 Tap-Bell Avenue 2 115kV is line #106 Time Estimate : 30-36 Months Cost : $11,200,000	$11,200,000
586289,586284,586285, 585952,585953,585954	9, 14	AC2-079 TAP 115.0 kV - 3OAKRI23 115.0 kV Ckt 1		
586356,586357	2	3BELL AVE 2 115.0 kV - AE1-085 TAP 115.0 kV Ckt 1		
586001	17	3SUFFOLK 115.0 kV - 6SUFFOLK 115.0 kV Ckt 3	Description: Install back to back breaker to mitigate breaker failure string; Adequate space is available at Suffolk substation to accommodate upgrade. Time Estimate : 16-24 Months Cost : $1,200,000	$1,200,000
585973,585974	16	3SUFFOLK 115.0 kV - 6SUFFOLK 115.0 kV Ckt 1		
586136,586137	12	6POE 230.0 kV - 6HARROWG 230.0 kV Ckt 1	Description: Wreck & rebuild 2 miles of the Poe-Harrowgate 230kV line. The remaining 7 miles has 2-721 ACAR. A VA CPCN is required. Time Estimate : 40-44 Months Cost : $6,000,000	$6,000,000
585899,585900	23	8CHCKAHM 500.0 kV - 8ELMONT 500.0 kV Ckt 1	Description: Rebuild & Uprate 28 miles of the Chickahominy Elmont 500kV Line # 557. A VA CPCN is required. Time Estimate : 36-44 Months Cost : $84,000,000	$84,000,000
586292,586293	10	AE1-085 TAP 115.0 kV - 3BAKRS P 115.0 kV Ckt 1	Description: Wreck and rebuild 8.4 mi of 115kV line from the AE1-085 Tap to the Bakers Pond substation. Note: the Bakers Pond-AE1-Tap line is on the Poe -Bell Avenue 115kV line #106. Time Estimate : 30-36 Months Cost : $10,008,000	$10,008,000
586229	18	8SURRY 500.0 kV - 8CHCKAHM 500.0 kV Ckt 1	Description: Wreck & rebuild 45 miles of 500kV Line #567 from Surry-Chickahominy. A VA CPCN is required. Time Estimate : 44-48 Months Cost : $133,200,000	$133,200,000
586324,586325	4	3NEWBOHE 115.0 kV - 3POE 115.0 kV Ckt 1	Description: Wreck & rebuild 2.6 miles of 115kV line from New Bohemia DP – Poe substations. Note: The above line segment is on the Poe – Bell Avenue line # 106. Time Estimate : 30-36 Months Cost : $3,750,000	$3,750,000

© PJM Interconnection 2019. All rights reserved.

ID	Index	Facility	Upgrade Description	Cost
586337,586332,586341	1	3BELL AVE 2 115.0 kV - 3IVOR106 115.0 kV Ckt 1	Description: Wreck and rebuild 1 mile of 115kV line #44 from Bell Avenue to Ivor Substations. Time Estimate : 30-36 Months Cost : $2,000,000	$2,000,000
585995,585996,585997	13	3IVOR106 115.0 kV - 3BELL AVE 2 115.0 kV Ckt 1		
586424,585779,586422,586431	5	6CHESTF B 230.0 kV - 6BASIN 230.0 kV Ckt 1	Description: Re-Conductor line and replace transmission structures on the Chesterfield-Basin 230kV line. Time Estimate : 30-36 Months Cost : $16,500,000	$16,500,000
587354	21	6PRGEORG 230.0 kV - 3PRGEORG 230.0 kV Ckt 1	Description: Install 2nd 230-115 kV Transformer at the Prince George 230kV substation; Significant site expansion is required. Time Estimate : 24-30 Months Cost : $10,000,000	$10,000,000
586392,586396,585819,585820	25	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	Description: PJM baseline upgrade b3020: Rebuild 500kV Line #574 Ladysmith to Elmont - 26.2 miles long. The baseline project has a projected in-service date of 12/31/2022. In addition to PJM baseline project b3020, a 2nd 230 kV circuit is required from Elmont-Ladysmith. Time Estimate : 36-44 Months Cost : $30,000,000	$30,000,000
586812,586813	22	6HOPEWLL 230.0 kV - 6CHESTF A 230.0 kV Ckt 1	Description: PJM baseline upgrade b2922: Rebuild 8 of 11 miles of 230kV Lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR. The baseline project has a projected in-service date of 12/01/2020. Time Estimate : Months Cost : $0	$0
586304,586305	3	3BAKRS P 115.0 kV - 3NEWBOHE 115.0 kV Ckt 1	Description: Wreck and rebuild 2.5 miles of transmission line from Bakers Pond-New Bohemia Substations. Time Estimate : 30-36 Months Cost : $3,750,000	$3,750,000
586134,586135	11	6HARROWG 230.0 kV - 6TYLER1 230.0 kV Ckt 1	Description: Wreck & rebuild 2 miles of the Harrowgate to Tyler 230kV line. A VA CPCN is required. The remaining 87 miles has 2-636 ACSR Time Estimate : 40-48 Months Cost : $17,000,000	$17,000,000
586214	24	8CHCKAHM 500.0 kV - 6CHCKAHM 500.0 kV Ckt 1	Description: Add 2nd 500-230 kV Transformer at the Chickahominy substation; Substation expansion required. Time Estimate : 24-30 Months Cost : $20,000,000	$20,000,000

© PJM Interconnection 2019. All rights reserved.

ID	Index	Facility	Upgrade Description	Cost
585803	20	**6ELMONT 230.0 kV - 8ELMONT 230.0 kV Ckt 1**	Description: Add 3rd 500-230kV Transformer at the Elmont Substation; Site expansion is required. Time Estimate : 24-30 Months Cost : $30,000,000	$30,000,000
586448,586453,585927	8	**8MDLTHAN 500.0 kV - 8NO ANNA 500.0 kV Ckt 1**	Description: Wreck & Rebuild 41.13 miles of Line # 576. A VA CPCN. Also, add a breaker at Chickahominy 500kV substation to keep transformer energized. Time Estimate : 24-30 Months Cost : $124,400,000	$124,400,000
585824,585825,585826, 586316,586317	15, 7	**3SUFFOLK 115.0 kV - 3OAKRI23 115.0 kV Ckt 1**	Description: Wreck and rebuild approximately 2.6 mi of line between the Suffolk and Oakridge 115 kV. Time Estimate : 30-36 Months Cost : $3,300,000	$3,300,000
		TOTAL COST	**$506,308,000**	

© PJM Interconnection 2019. All rights reserved.

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.

© PJM Interconnection 2019. All rights reserved.

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
586332	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	single	110.92	111.16	192.3	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

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
586356	313879	3BELL AVE 2	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 23-B	single	110.92	74.83	155.97	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

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
586304	314273	3BAKRSP	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	115.85	196.99	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

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
586324	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	105.84	186.98	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

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
585779	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	165.72	168.54	DC	15.36

Bus #	Bus	MW Impact
314314	3LOCKS	0.17
314539	3UNCAMP	0.93
314541	3WATKINS	0.27
314554	3BTLEBRO	0.3
314557	3BETHELC	0.3
314572	3EMPORIA	0.21
314574	6EVERETS	1.53
314578	3HORNRTN	1.41
314582	3KELFORD	1.36
314594	6PLYMOTH	0.3
314603	3SCOT NK	1.29
314617	3TUNIS	0.33
314620	6CASHIE	0.31
314623	3WITAKRS	0.52
315065	1CHESTF6	26.38
315073	1STONECA	4.95
315074	1HOPCGN1	5.97
315075	1HOPCGN2	5.89
315076	1HOPPOLC	1.05
315077	1HOPHCF1	1.64
315078	1HOPHCF2	1.64
315079	1HOPHCF3	1.64
315080	1HOPHCF4	2.49
315131	1EDGECMA	3.51
315132	1EDGECMB	3.51
900672	V4-068 E	0.12
907092	X1-038 E	2.32
916302	Z1-086 E	3.66
917332	Z2-043 E	0.39
917342	Z2-044 E	0.22
917512	Z2-088 E OP1	1.44
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.66
918532	AA1-067 E	0.27
918562	AA1-072 E	0.06
919692	AA2-053 E	1.57
919701	AA2-057 C	2.76
919702	AA2-057 E	1.38
920042	AA2-088 E OP	4.19
920592	AA2-165 E	0.18

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
920672	AA2-174 E	0.18
923801	AB2-015 C O1	3.33
923802	AB2-015 E O1	2.73
923851	AB2-025 C	0.26
923852	AB2-025 E	0.77
923911	AB2-031 C O1	1.08
923912	AB2-031 E O1	0.53
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05
923992	AB2-040 E O1	2.89
924152	AB2-059 E O1	2.04
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924491	AB2-098 C	0.21
924492	AB2-098 E	0.09
924501	AB2-099 C	0.23
924502	AB2-099 E	0.1
924511	AB2-100 C	6.68
924512	AB2-100 E	3.29
924812	AB2-134 E O1	6.69
925051	AB2-160 C O1	3.53
925052	AB2-160 E O1	5.77
925061	AB2-161 C O1	1.95
925062	AB2-161 E O1	3.17
925122	AB2-169 E	2.1
925171	AB2-174 C O1	3.46
925172	AB2-174 E O1	3.13
925331	AB2-190 C	11.44
925332	AB2-190 E	4.9
925591	AC1-034 C	2.57
925592	AC1-034 E	1.94
925821	AC1-061	0.0
926071	AC1-086 C	9.77
926072	AC1-086 E	4.45
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.81
926212	AC1-099 E	0.48
927021	AC1-189 C	3.2
927022	AC1-189 E	1.6
927141	AC1-208 C	3.62
927142	AC1-208 E	1.61
927221	AC1-216 C O1	5.37
927222	AC1-216 E O1	4.23
930402	AB1-081 E O1	1.44
930862	AB1-132 E O1	2.84
931232	AB1-173 E	0.51
931242	AB1-173AE	0.51
932581	AC2-078 C O1	3.0
932582	AC2-078 E O1	4.9
932591	AC2-079 C O1	2.72
932592	AC2-079 E O1	4.44

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
932631	AC2-084 C	3.46
932632	AC2-084 E	1.71
933991	AD1-023 C	4.73
933992	AD1-023 E	2.57
934011	AD1-025 C	9.24
934012	AD1-025 E	5.47
934201	AD1-047 C	3.86
934202	AD1-047 E	2.57
934331	AD1-057 C O1	4.2
934332	AD1-057 E O1	2.24
934521	AD1-076 C	19.28
934522	AD1-076 E	9.82
934571	AD1-082 C	4.43
934572	AD1-082 E	2.53
935161	AD1-151 C O1	9.19
935162	AD1-151 E O1	6.13
935211	AD1-156 C	0.32
935212	AD1-156 E	1.39
936041	AD2-007	0.98
936051	AD2-008 C	1.61
936052	AD2-008 E	3.5
936401	AD2-051 C O1	3.38
936402	AD2-051 E O1	1.45
936661	AD2-085 C	1.65
936662	AD2-085 E	2.7
936701	AD2-089 C	2.71
936702	AD2-089 E	1.81
936711	AD2-090 C O1	2.82
936712	AD2-090 E O1	1.88
937571	AD2-169 C	4.7
937572	AD2-169 E	3.13
938171	AE1-026 C1 O	10.16
938172	AE1-026 C2 O	1.47
938173	AE1-026 E O1	3.07
938221	AE1-035 C	0.84
938222	AE1-035 E	0.42
938491	AE1-068 C O1	23.35
938492	AE1-068 E O1	12.89
938501	AE1-069 C O1	18.25
938502	AE1-069 E O1	10.43
938631	AE1-085 C O1	7.84
938632	AE1-085 E O1	5.23
938661	AE1-088	0.64
938771	AE1-103 C O1	1.39
938772	AE1-103 E O1	1.93
938841	AE1-109AC O1	5.24
938842	AE1-109AE O1	3.49
939071	AE1-135 C O1	12.27
939072	AE1-135 E O1	8.18
939191	AE1-149 C O1	8.26
939192	AE1-149 E O1	5.51
939311	AE1-162 C	0.81

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
939312	AE1-162 E	0.54
939411	AE1-173 C	32.0
939412	AE1-173 E	21.33
940061	AE1-248 C O1	9.22
940062	AE1-248 E O1	6.15
940071	AE1-249 C	4.66
940072	AE1-249 E	3.48
AA2-074	AA2-074	1.86
CARR	CARR	0.34
CBM-S1	CBM-S1	4.04
CBM-S2	CBM-S2	5.21
CBM-W1	CBM-W1	3.24
CBM-W2	CBM-W2	25.75
CIN	CIN	1.52
CPLE	CPLE	2.73
G-007	G-007	1.1
IPL	IPL	0.94
LGEE	LGEE	0.44
MEC	MEC	3.65
MECS	MECS	1.03
O-066	O-066	3.66
RENSSELAER	RENSSELAER	0.27
WEC	WEC	0.4

© PJM Interconnection 2019. All rights reserved.

Index 6

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
586344	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	single	110.92	100.88	182.02	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

Index 7

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
586316	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-B	single	110.92	108.28	189.42	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

Index 8

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
586448	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	146.78	147.25	DC	25.15

Bus #	Bus	MW Impact
314507	3THOMPSN	0.5
315053	1BELMED1	25.07
315054	1BELMED2	25.07
315055	1BELMED3	20.8
315058	1CHESTF3	25.13
315059	1CHESTF4	40.74
315074	1HOPCGN1	12.12
315075	1HOPCGN2	11.96
315083	1SPRUNCA	16.04
315084	1SPRUNCB	16.04
315085	1SPRUNCC	11.89
315086	1SPRUNCD	11.89
315090	1YORKTN1	42.49
315091	1YORKTN2	44.09
315098	1CHESPKA	0.66
315099	1CHESPKB	1.63
315102	1BRUNSWICKG1	12.98
315103	1BRUNSWICKG2	12.98
315104	1BRUNSWICKG3	12.98
315105	1BRUNSWICKS1	26.96
315108	1ELIZAR1	4.83
315109	1ELIZAR2	4.74
315110	1ELIZAR3	4.89
315131	1EDGECMA	13.54
315132	1EDGECMB	13.54
315150	1BUGGS 1	15.63
315151	1BUGGS 2	15.63
315260	1GOSPORTA	0.52
315261	1GOSPORTB	0.67
315262	1GOSPORTC	0.57
916191	Z1-068 C	0.07
916301	Z1-086 C	78.97
919151	AA1-139 C	3.68
919701	AA2-057 C	10.53
923801	AB2-015 C O1	13.5
923911	AB2-031 C O1	3.44
923941	AB2-035 C	0.5
924241	AB2-068 O1	245.63
924391	AB2-088 C	0.64
924401	AB2-089 C	3.06

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
924491	AB2-098 C	0.86
924501	AB2-099 C	0.9
924511	AB2-100 C	18.0
925051	AB2-160 C O1	8.2
925061	AB2-161 C O1	5.31
925171	AB2-174 C O1	10.81
925281	AB2-186 C	0.97
925291	AB2-188 C O1	3.7
925331	AB2-190 C	30.02
925521	AC1-027 C	0.49
925591	AC1-034 C	9.97
925781	AC1-054 C O1	10.42
925861	AC1-065 C	4.35
926071	AC1-086 C	31.65
926201	AC1-098 C	9.25
926211	AC1-099 C	3.1
926291	AC1-107 O1	370.77
926661	AC1-147 C	0.56
926751	AC1-161 C O1	49.16
926761	AC1-162 C	38.58
926781	AC1-164 C	52.71
927021	AC1-189 C	12.98
927141	AC1-208 C	13.55
927221	AC1-216 C O1	14.74
932041	AC2-012 C	16.38
932581	AC2-078 C O1	6.32
932591	AC2-079 C O1	9.07
932631	AC2-084 C	13.19
932831	AC2-110 C	1.74
933061	AC2-130	3.31
933071	AC2-131 1	2.24
933081	AC2-131 2	1.02
933111	AC2-132 1	1.18
933121	AC2-132 2	0.6
933291	AC2-141 C	49.16
933501	AC2-165 C	14.55
933731	AC2-196 C	0.44
933991	AD1-023 C	20.37
934011	AD1-025 C	25.34
934061	AD1-033 C	12.08
934141	AD1-041 C	6.82
934201	AD1-047 C	12.31
934231	AD1-050 C	6.75
934331	AD1-057 C O1	14.91
934521	AD1-076 C	84.65
934571	AD1-082 C	12.1
934611	AD1-087 C O1	12.17
934621	AD1-088 C	18.66
935161	AD1-151 C O1	24.12
935171	AD1-152 C O1	12.09
936041	AD2-007	2.69
936051	AD2-008 C	4.41

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
936151	AD2-021	0.31
936301	AD2-039 C	1.74
936361	AD2-046 C O1	12.51
936391	AD2-049 C	2.72
936401	AD2-051 C O1	13.42
936481	AD2-063 C O1	20.28
936531	AD2-068 C	7.59
936661	AD2-085 C	5.44
936701	AD2-089 C	10.71
936711	AD2-090 C O1	11.21
937221	AD2-160 C O1	9.39
937251	AD2-164	7.18
937481	AD2-202 C O1	3.35
937541	AD2-215 C	2.76
937571	AD2-169 C	15.32
938031	AE1-004 C	1.74
938171	AE1-026 C1 O	43.34
938172	AE1-026 C2 O	6.27
938181	AE1-027 C	3.76
938191	AE1-028 C	2.18
938221	AE1-035 C	3.45
938461	AE1-065 C O1	45.67
938471	AE1-066 C O1	46.93
938481	AE1-067 C O1	42.68
938491	AE1-068 C O1	102.7
938501	AE1-069 C O1	80.41
938531	AE1-072 C O1	28.11
938551	AE1-074 C	4.0
938561	AE1-075 C	3.3
938631	AE1-085 C O1	16.99
938661	AE1-088	2.7
938771	AE1-103 C O1	5.7
938841	AE1-109AC O1	14.25
939041	AE1-133 C	56.57
939071	AE1-135 C O1	32.44
939181	AE1-148 C O1	12.32
939191	AE1-149 C O1	16.61
939311	AE1-162 C	3.35
939411	AE1-173 C	152.61
939421	AE1-174 C	0.27
939431	AE1-175 C	3.42
939611	AE1-191 C	13.63
940061	AE1-248 C O1	25.15
940071	AE1-249 C	10.82
AA2-074	AA2-074	8.51
AB2-013	AB2-013	6.46
AE1-033	AE1-033	6.73
AE1-042	AE1-042	15.03
CARR	CARR	2.05
CBM-S1	CBM-S1	23.41
CBM-S2	CBM-S2	25.03
CBM-W1	CBM-W1	22.82

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	152.33
CIN	CIN	10.66
CPLE	CPLE	12.51
IPL	IPL	6.68
LGEE	LGEE	3.13
MEC	MEC	23.39
MECS	MECS	9.02
RENSSELAER	RENSSELAER	1.62
WEC	WEC	2.81
Z1-043	Z1-043	11.06

© PJM Interconnection 2019. All rights reserved.

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
586284	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	single	110.92	130.0	211.14	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

Index 10

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
586292	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	single	110.92	130.0	211.14	DC	90.0

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

© PJM Interconnection 2019. All rights reserved.

Index 11

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
586134	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.8	112.99	DC	28.07

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.97
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.36
315126	1ROARAP2	1.17
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	2.16
315137	1ROSEMS1	1.34
315138	1ROSEMG2	1.01
315139	1GASTONA	3.2
315141	1GASTONB	3.2
315150	1BUGGS 1	5.21
315151	1BUGGS 2	5.21
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.65
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.18
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.87
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.56
923802	AB2-015 E O1	3.74

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
923851	AB2-025 C	0.89
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72
923912	AB2-031 E O1	1.34
923941	AB2-035 C	0.2
923942	AB2-035 E	0.09
923991	AB2-040 C O1	1.37
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924391	AB2-088 C	0.26
924392	AB2-088 E	0.12
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.37
924502	AB2-099 E	0.16
924511	AB2-100 C	19.94
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925122	AB2-169 E	2.72
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.13
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.46
926072	AC1-086 E	10.68
926201	AC1-098 C	4.34
926202	AC1-098 E	2.59
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	2.44
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.42
931232	AB1-173 E	1.28
931241	AB1-173AC	0.42
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.19
932632	AC2-084 E	3.05
933991	AD1-023 C	5.91
933992	AD1-023 E	3.22
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59
934331	AD1-057 C O1	8.58
934332	AD1-057 E O1	4.58
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	1.05
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.88
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936481	AD2-063 C O1	6.87
936482	AD2-063 E O1	4.58
936531	AD2-068 C	2.4
936532	AD2-068 E	1.24
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.48
937572	AD2-169 E	7.66
938171	AE1-026 C1 O	13.17
938172	AE1-026 C2 O	1.91
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.85
938632	AE1-085 E O1	11.23
938661	AE1-088	0.82
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
938841	AE1-109AC O1	9.6
938842	AE1-109AE O1	6.4
939071	AE1-135 C O1	37.34
939072	AE1-135 E O1	24.89
939181	AE1-148 C O1	4.78
939182	AE1-148 E O1	3.19
939191	AE1-149 C O1	18.48
939192	AE1-149 E O1	12.32
940061	AE1-248 C O1	16.84
940062	AE1-248 E O1	11.23

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.83
CBM-S2	CBM-S2	4.45
CBM-W1	CBM-W1	3.86
CBM-W2	CBM-W2	25.14
CIN	CIN	1.74
CPLE	CPLE	2.41
G-007	G-007	0.54
IPL	IPL	1.09
LGEE	LGEE	0.51
MEC	MEC	3.87
MECS	MECS	1.64
O-066	O-066	1.81
RENSSELAER	RENSSELAER	0.12
WEC	WEC	0.47

© PJM Interconnection 2019. All rights reserved.

Index 12

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
586136	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.8	112.99	DC	28.07

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.97
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.36
315126	1ROARAP2	1.17
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	2.16
315137	1ROSEMS1	1.34
315138	1ROSEMG2	1.01
315139	1GASTONA	3.2
315141	1GASTONB	3.2
315150	1BUGGS 1	5.21
315151	1BUGGS 2	5.21
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.65
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.18
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.87
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.56
923802	AB2-015 E O1	3.74

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
923851	AB2-025 C	0.89
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72
923912	AB2-031 E O1	1.34
923941	AB2-035 C	0.2
923942	AB2-035 E	0.09
923991	AB2-040 C O1	1.37
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924391	AB2-088 C	0.26
924392	AB2-088 E	0.12
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.37
924502	AB2-099 E	0.16
924511	AB2-100 C	19.94
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925122	AB2-169 E	2.72
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.13
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.46
926072	AC1-086 E	10.68
926201	AC1-098 C	4.34
926202	AC1-098 E	2.59
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	2.44
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.42
931232	AB1-173 E	1.28
931241	AB1-173AC	0.42
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.19
932632	AC2-084 E	3.05
933991	AD1-023 C	5.91
933992	AD1-023 E	3.22
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59
934331	AD1-057 C O1	8.58
934332	AD1-057 E O1	4.58
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	1.05
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.88
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936481	AD2-063 C O1	6.87
936482	AD2-063 E O1	4.58
936531	AD2-068 C	2.4
936532	AD2-068 E	1.24
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.48
937572	AD2-169 E	7.66
938171	AE1-026 C1 O	13.17
938172	AE1-026 C2 O	1.91
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.85
938632	AE1-085 E O1	11.23
938661	AE1-088	0.82
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
938841	AE1-109AC O1	9.6
938842	AE1-109AE O1	6.4
939071	AE1-135 C O1	37.34
939072	AE1-135 E O1	24.89
939181	AE1-148 C O1	4.78
939182	AE1-148 E O1	3.19
939191	AE1-149 C O1	18.48
939192	AE1-149 E O1	12.32
940061	AE1-248 C O1	16.84
940062	AE1-248 E O1	11.23

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.83
CBM-S2	CBM-S2	4.45
CBM-W1	CBM-W1	3.86
CBM-W2	CBM-W2	25.14
CIN	CIN	1.74
CPLE	CPLE	2.41
G-007	G-007	0.54
IPL	IPL	1.09
LGEE	LGEE	0.51
MEC	MEC	3.87
MECS	MECS	1.64
O-066	O-066	1.81
RENSSELAER	RENSSELAER	0.12
WEC	WEC	0.47

© PJM Interconnection 2019. All rights reserved.

Index 13

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
585997	314528	3IVOR106	DVP	313879	3BELL AVE 2	DVP	1	DVP_P4-2: 1552	breaker	136.0	19.85	130.15	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 14

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
585954	314532	3OAKRI23	DVP	932590	AC2-079 TAP	DVP	1	DVP_P4-5: L552	breaker	136.0	28.24	138.53	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 15

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
585826	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	DVP_P4-2: 1552	breaker	136.0	45.96	156.25	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 16

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
585974	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	113.53	134.54	DC	62.44

Bus #	Bus	MW Impact
314539	3UNCAMP	6.35
314541	3WATKINS	1.58
314589	3MURPHYS	0.09
314617	3TUNIS	0.59
315115	1S HAMPT1	3.14
900672	V4-068 E	0.33
907092	X1-038 E	15.88
920041	AA2-088 C OP	1.58
920042	AA2-088 E OP	16.86
923801	AB2-015 C O1	20.96
923802	AB2-015 E O1	17.19
924501	AB2-099 C	0.27
924502	AB2-099 E	0.11
925061	AB2-161 C O1	7.91
925062	AB2-161 E O1	12.9
932581	AC2-078 C O1	4.76
932582	AC2-078 E O1	7.76
932591	AC2-079 C O1	17.59
932592	AC2-079 E O1	28.7
934571	AD1-082 C	18.03
934572	AD1-082 E	10.28
936661	AD2-085 C	10.41
936662	AD2-085 E	16.98
936711	AD2-090 C O1	14.78
936712	AD2-090 E O1	9.85
938631	AE1-085 C O1	14.33
938632	AE1-085 E O1	9.56
938771	AE1-103 C O1	9.53
938772	AE1-103 E O1	13.16
938841	AE1-109AC O1	21.13
938842	AE1-109AE O1	14.08
939191	AE1-149 C O1	9.99
939192	AE1-149 E O1	6.66
940061	AE1-248 C O1	37.47
940062	AE1-248 E O1	24.98
CARR	CARR	0.02
CBM-S1	CBM-S1	0.4
CBM-S2	CBM-S2	0.47
CBM-W1	CBM-W1	0.4
CBM-W2	CBM-W2	2.62
CIN	CIN	0.18

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CPLE	CPLE	0.26
G-007	G-007	0.07
IPL	IPL	0.11
LGEE	LGEE	0.05
MEC	MEC	0.4
MECS	MECS	0.17
O-066	O-066	0.22
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.05

© PJM Interconnection 2019. All rights reserved.

Index 17

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
586001	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	108.54	128.38	DC	60.9

Bus #	Bus	MW Impact
314539	3UNCAMP	6.19
314541	3WATKINS	1.54
314589	3MURPHYS	0.09
314617	3TUNIS	0.56
315115	1S HAMPT1	3.06
900672	V4-068 E	0.32
907092	X1-038 E	15.46
920041	AA2-088 C OP	1.54
920042	AA2-088 E OP	16.36
923801	AB2-015 C O1	20.4
923802	AB2-015 E O1	16.73
925061	AB2-161 C O1	7.71
925062	AB2-161 E O1	12.59
932581	AC2-078 C O1	4.64
932582	AC2-078 E O1	7.57
932591	AC2-079 C O1	17.16
932592	AC2-079 E O1	28.0
934571	AD1-082 C	17.58
934572	AD1-082 E	10.03
936661	AD2-085 C	10.15
936662	AD2-085 E	16.56
936711	AD2-090 C O1	14.37
936712	AD2-090 E O1	9.58
938631	AE1-085 C O1	13.97
938632	AE1-085 E O1	9.32
938771	AE1-103 C O1	9.28
938772	AE1-103 E O1	12.81
938841	AE1-109AC O1	20.6
938842	AE1-109AE O1	13.74
939191	AE1-149 C O1	9.74
939192	AE1-149 E O1	6.49
940061	AE1-248 C O1	36.54
940062	AE1-248 E O1	24.36
CARR	CARR	0.02
CBM-S1	CBM-S1	0.35
CBM-S2	CBM-S2	0.41
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	2.31
CIN	CIN	0.16
CPLE	CPLE	0.22
G-007	G-007	0.06

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.36
MECS	MECS	0.15
O-066	O-066	0.19
RENSSELAER	RENSSELAER	0.01
WEC	WEC	0.04

© PJM Interconnection 2019. All rights reserved.

Index 18

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
586229	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	99.9	100.29	DC	26.84

Bus #	Bus	MW Impact
314539	3UNCAMP	3.29
314541	3WATKINS	0.91
314554	3BTLEBRO	0.85
314557	3BETHELC	0.9
314566	3CRESWEL	3.48
314574	6EVERETS	5.04
314578	3HORNRTN	3.35
314582	3KELFORD	4.11
314594	6PLYMOTH	1.19
314603	3SCOT NK	3.72
314617	3TUNIS	1.02
314620	6CASHIE	1.13
314623	3WITAKRS	1.43
314648	6SUNBURY	1.43
314651	6WINFALL	2.8
315090	1YORKTN1	39.44
315091	1YORKTN2	40.93
315099	1CHESPKB	1.73
315108	1ELIZAR1	5.14
315109	1ELIZAR2	5.05
315110	1ELIZAR3	5.2
315131	1EDGECMA	9.79
315132	1EDGECMB	9.79
315150	1BUGGS 1	10.25
315151	1BUGGS 2	10.25
315233	1SURRY 2	50.93
900672	V4-068 E	0.36
901082	W1-029 E	73.46
907092	X1-038 E	8.23
913392	Y1-086 E	3.62
916042	Z1-036 E	70.58
916191	Z1-068 C	0.07
916192	Z1-068 E	3.22
916302	Z1-086 E	14.14
917122	Z2-027 E	1.73
917332	Z2-043 E	1.17
917342	Z2-044 E	0.61
917512	Z2-088 E OP1	4.53
918492	AA1-063AE OP	4.36
918512	AA1-065 E OP	5.61
918532	AA1-067 E	0.89

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
918562	AA1-072 E	0.2
919152	AA1-139 E	10.88
919692	AA2-053 E	3.93
919701	AA2-057 C	7.58
919702	AA2-057 E	3.79
920042	AA2-088 E OP	13.0
920592	AA2-165 E	0.5
920672	AA2-174 E	0.45
920692	AA2-178 E	5.97
923801	AB2-015 C O1	11.51
923802	AB2-015 E O1	9.44
923832	AB2-022 E	2.04
923911	AB2-031 C O1	1.97
923912	AB2-031 E O1	0.97
923941	AB2-035 C	0.38
923942	AB2-035 E	0.16
923992	AB2-040 E O1	5.3
924152	AB2-059 E O1	5.75
924391	AB2-088 C	0.48
924392	AB2-088 E	0.23
924401	AB2-089 C	2.01
924402	AB2-089 E	1.03
924491	AB2-098 C	0.69
924492	AB2-098 E	0.3
924501	AB2-099 C	0.72
924502	AB2-099 E	0.31
925061	AB2-161 C O1	3.4
925062	AB2-161 E O1	5.55
925122	AB2-169 E	7.62
925281	AB2-186 C	0.97
925282	AB2-186 E	0.41
925291	AB2-188 C O1	3.43
925292	AB2-188 E O1	1.54
925521	AC1-027 C	0.53
925522	AC1-027 E	1.96
925591	AC1-034 C	7.23
925592	AC1-034 E	5.45
925781	AC1-054 C O1	6.84
925782	AC1-054 E O1	3.15
926071	AC1-086 C	19.43
926072	AC1-086 E	8.84
926201	AC1-098 C	6.77
926202	AC1-098 E	4.04
926211	AC1-099 C	2.27
926212	AC1-099 E	1.33
926271	AC1-105 C O1	5.32
926272	AC1-105 E O1	2.65
926662	AC1-147 E	2.25
926751	AC1-161 C O1	60.99
926752	AC1-161 E O1	26.03
927021	AC1-189 C	10.23
927022	AC1-189 E	5.1

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
927141	AC1-208 C	9.62
927142	AC1-208 E	4.27
927251	AC1-221 C	2.27
927252	AC1-221 E	2.27
927261	AC1-222 C	3.46
927262	AC1-222 E	3.3
930402	AB1-081 E O1	4.06
930862	AB1-132 E O1	5.65
931232	AB1-173 E	0.93
931242	AB1-173AE	0.93
932041	AC2-012 C	17.32
932042	AC2-012 E	28.26
932591	AC2-079 C O1	7.16
932592	AC2-079 E O1	11.68
932631	AC2-084 C	9.66
932632	AC2-084 E	4.76
932761	AC2-100 C	5.22
932762	AC2-100 E	2.55
933291	AC2-141 C	60.99
933292	AC2-141 E	26.03
933731	AC2-196 C	0.47
933732	AC2-196 E	2.06
933991	AD1-023 C	17.86
933992	AD1-023 E	9.72
934061	AD1-033 C	12.96
934062	AD1-033 E	8.64
934201	AD1-047 C	7.06
934202	AD1-047 E	4.71
934231	AD1-050 C	4.43
934232	AD1-050 E	2.42
934311	AD1-055 C	2.41
934312	AD1-055 E	0.62
934331	AD1-057 C O1	10.03
934332	AD1-057 E O1	5.35
934341	AD1-058 C	5.69
934342	AD1-058 E	1.44
934521	AD1-076 C	75.69
934522	AD1-076 E	38.54
934571	AD1-082 C	7.75
934572	AD1-082 E	4.42
934611	AD1-087 C O1	9.44
934612	AD1-087 E O1	4.43
934621	AD1-088 C	12.82
934622	AD1-088 E	6.02
934991	AD1-131 C	1.86
934992	AD1-131 E	1.24
935112	AD1-144 E	1.46
935171	AD1-152 C O1	9.38
935172	AD1-152 E O1	6.25
936331	AD2-043 C	4.5
936332	AD2-043 E	5.33
936361	AD2-046 C O1	8.11

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
936362	AD2-046 E O1	3.73
936391	AD2-049 C	2.52
936392	AD2-049 E	2.52
936401	AD2-051 C O1	10.68
936402	AD2-051 E O1	4.59
936531	AD2-068 C	5.95
936532	AD2-068 E	3.07
936661	AD2-085 C	4.25
936662	AD2-085 E	6.93
936701	AD2-089 C	8.08
936702	AD2-089 E	5.38
936711	AD2-090 C O1	9.28
936712	AD2-090 E O1	6.19
937221	AD2-160 C O1	9.98
937222	AD2-160 E O1	5.23
937251	AD2-164	6.64
937481	AD2-202 C O1	2.6
937482	AD2-202 E O1	1.31
937541	AD2-215 C	2.7
937542	AD2-215 E	1.43
937571	AD2-169 C	9.1
937572	AD2-169 E	6.07
938171	AE1-026 C1 O	37.54
938172	AE1-026 C2 O	5.43
938173	AE1-026 E O1	11.34
938181	AE1-027 C	4.03
938182	AE1-027 E	2.12
938191	AE1-028 C	2.34
938192	AE1-028 E	1.35
938221	AE1-035 C	2.85
938222	AE1-035 E	1.4
938461	AE1-065 C O1	48.64
938462	AE1-065 E O1	196.27
938471	AE1-066 C O1	49.99
938472	AE1-066 E O1	194.92
938481	AE1-067 C O1	45.46
938482	AE1-067 E O1	199.45
938491	AE1-068 C O1	90.34
938492	AE1-068 E O1	49.89
938501	AE1-069 C O1	70.54
938502	AE1-069 E O1	40.33
938531	AE1-072 C O1	29.61
938532	AE1-072 E O1	15.44
938661	AE1-088	2.31
938771	AE1-103 C O1	4.94
938772	AE1-103 E O1	6.82
938841	AE1-109AC O1	9.09
938842	AE1-109AE O1	6.06
939041	AE1-133 C	57.9
939042	AE1-133 E	28.52
939181	AE1-148 C O1	7.96
939182	AE1-148 E O1	5.31

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
939311	AE1-162 C	2.95
939312	AE1-162 E	1.97
939411	AE1-173 C	149.6
939412	AE1-173 E	99.73
939421	AE1-174 C	0.17
939422	AE1-174 E	0.26
939431	AE1-175 C	2.18
939432	AE1-175 E	1.08
940061	AE1-248 C O1	16.11
940062	AE1-248 E O1	10.74
AA2-074	AA2-074	6.41
AE1-042	AE1-042	9.43
CARR	CARR	1.1
CBM-S1	CBM-S1	14.08
CBM-S2	CBM-S2	18.06
CBM-W1	CBM-W1	11.43
CBM-W2	CBM-W2	89.86
CIN	CIN	5.34
CPLE	CPLE	9.42
G-007	G-007	3.56
IPL	IPL	3.31
LGEE	LGEE	1.55
MEC	MEC	12.76
MECS	MECS	3.74
O-066	O-066	11.89
RENSSELAER	RENSSELAER	0.87
WEC	WEC	1.42

© PJM Interconnection 2019. All rights reserved.

Index 19

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
585950	932590	AC2-079 TAP	DVP	314528	3IVOR106	DVP	1	DVP_P4-2: 1552	breaker	136.0	28.24	138.53	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

Index 20

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
585803	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	161.19	162.41	DC	28.28

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.74
314229	6MT RD221	0.22
314236	6NRTHEST	0.29
314250	6ROCKVILLE	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.61
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	5.34
315044	1FOUR RIVERB	4.14
315045	1FOUR RIVERC	5.34
315046	1FOUR RIVERD	4.14
315047	1FOUR RIVERE	4.14
315048	1FOUR RIVERF	5.34
315053	1BELMED1	25.29
315054	1BELMED2	25.29
315055	1BELMED3	20.99
315058	1CHESTF3	26.85
315059	1CHESTF4	43.53
315067	1DARBY 1	3.87
315068	1DARBY 2	3.88
315069	1DARBY 3	3.89
315070	1DARBY 4	3.89
315073	1STONECA	9.29
315074	1HOPCGN1	11.2
315075	1HOPCGN2	11.06
315083	1SPRUNCA	14.79
315084	1SPRUNCB	14.79
315085	1SPRUNCC	10.96
315086	1SPRUNCD	10.96
315090	1YORKTN1	30.64
315091	1YORKTN2	31.8
901082	W1-029 E	41.26
907092	X1-038 E	5.41
913392	Y1-086 E	1.98
916042	Z1-036 E	40.25
916192	Z1-068 E	1.74
917122	Z2-027 E	0.95
919152	AA1-139 E	5.85
919211	AA1-145	15.45

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
923801	AB2-015 C O1	7.64
923802	AB2-015 E O1	6.26
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.91
924241	AB2-068 O1	176.04
924511	AB2-100 C	10.32
924512	AB2-100 E	5.08
924812	AB2-134 E O1	14.72
925051	AB2-160 C O1	7.08
925052	AB2-160 E O1	11.55
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.84
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925331	AB2-190 C	24.56
925332	AB2-190 E	10.52
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.07
926291	AC1-107 O1	265.73
926411	AC1-112 C	0.53
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	2.27
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.86
926752	AC1-161 E O1	11.47
926781	AC1-164 C	57.98
926782	AC1-164 E	26.05
927041	AC1-191 C O1	17.44
927042	AC1-191 E O1	8.69
927221	AC1-216 C O1	11.83
927222	AC1-216 E O1	9.3
930121	AB1-027 C	0.68
930122	AB1-027 E	1.89
932041	AC2-012 C	9.52
932042	AC2-012 E	15.53
932501	AC2-070 C	0.44
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.66
932591	AC2-079 C O1	5.74
932592	AC2-079 E O1	9.37
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
933121	AC2-132 2	0.63
933261	AC2-137 C	0.48
933262	AC2-137 E	2.03
933272	AC2-138 E	1.08
933291	AC2-141 C	26.86
933292	AC2-141 E	11.47
933732	AC2-196 E	1.09
934011	AD1-025 C	20.33
934012	AD1-025 E	12.04
934061	AD1-033 C	6.89
934062	AD1-033 E	4.59
934141	AD1-041 C	6.72
934142	AD1-041 E	4.48
934211	AD1-048 C	0.58
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.16
934572	AD1-082 E	4.66
934781	AD1-105 C	11.45
934782	AD1-105 E	7.96
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.73
935162	AD1-151 E O1	13.16
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.7
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.73
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.3
936391	AD2-049 C	1.86
936392	AD2-049 E	1.86
936581	AD2-073 C	2.22
936582	AD2-073 E	1.1
936591	AD2-074 C	6.33
936592	AD2-074 E	10.33
936661	AD2-085 C	3.46
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.27
936712	AD2-090 E O1	4.18
937221	AD2-160 C O1	5.34
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68
937542	AD2-215 E	0.89
938031	AE1-004 C	1.73
938032	AE1-004 E	2.83
938181	AE1-027 C	2.14

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O1	26.28
938462	AE1-065 E O1	106.06
938471	AE1-066 C O1	27.01
938472	AE1-066 E O1	105.33
938481	AE1-067 C O1	24.56
938482	AE1-067 E O1	107.78
938531	AE1-072 C O1	15.96
938532	AE1-072 E O1	8.32
938551	AE1-074 C	3.1
938552	AE1-074 E	1.56
938631	AE1-085 C O1	12.47
938632	AE1-085 E O1	8.31
938771	AE1-103 C O1	3.25
938772	AE1-103 E O1	4.48
938841	AE1-109AC O1	9.62
938842	AE1-109AE O1	6.42
939041	AE1-133 C	31.98
939042	AE1-133 E	15.75
939071	AE1-135 C O1	18.72
939072	AE1-135 E O1	12.48
939191	AE1-149 C O1	12.56
939192	AE1-149 E O1	8.37
939241	AE1-155 C	17.03
939242	AE1-155 E	11.35
939281	AE1-159 C O1	12.03
939282	AE1-159 E O1	7.12
939311	AE1-162 C	2.22
939312	AE1-162 E	1.48
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.87
939432	AE1-175 E	1.42
939611	AE1-191 C	13.45
939612	AE1-191 E	8.97
939751	AE1-206 C O1	56.75
939752	AE1-206 E O1	37.83
940061	AE1-248 C O1	16.97
940062	AE1-248 E O1	11.31
940071	AE1-249 C	9.34
940072	AE1-249 E	6.97
AA2-074	AA2-074	3.26
CARR	CARR	0.77
CBM-S1	CBM-S1	4.24
CBM-S2	CBM-S2	8.55
CBM-W1	CBM-W1	0.08
CBM-W2	CBM-W2	23.98
CIN	CIN	0.25
CPLE	CPLE	4.79
DEARBORN	DEARBORN	0.48

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
G-007	G-007	2.33
IPL	IPL	0.09
LGEE	LGEE	0.07
MEC	MEC	2.01
O-066	O-066	7.81
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.06

© PJM Interconnection 2019. All rights reserved.

Index 21

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
587354	314269	6PRGEORG	DVP	314291	3PRGEORG	DVP	1	DVP_P7-1: LN 211-228	tower	219.8	144.14	146.73	DC	10.91

Bus #	Bus	MW Impact
315073	1STONECA	10.78
315074	1HOPCGN1	13.0
315075	1HOPCGN2	12.83
315076	1HOPPOLC	2.29
315077	1HOPHCF1	3.57
315078	1HOPHCF2	3.57
315079	1HOPHCF3	3.57
315080	1HOPHCF4	5.42
315116	1SURRY 1	14.87
315120	1GRAVEL4	1.53
315122	1GRAVEL6	1.53
924811	AB2-134 C O1	2.04
924812	AB2-134 E O1	12.63
925331	AB2-190 C	22.15
925332	AB2-190 E	9.49
927221	AC1-216 C O1	10.15
927222	AC1-216 E O1	7.98
934011	AD1-025 C	17.45
934012	AD1-025 E	10.33
935161	AD1-151 C O1	17.8
935162	AD1-151 E O1	11.87
936041	AD2-007	1.85
936051	AD2-008 C	3.04
936052	AD2-008 E	6.61
939311	AE1-162 C	1.03
939312	AE1-162 E	0.68
940063	AE1-248 EBAT	5.78
BAYOU	BAYOU	0.1
BIG_CAJUN1	BIG_CAJUN1	0.14
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.64
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.04
CARR	CARR	0.07
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
CHOCTAW	CHOCTAW	0.09
COFFEEN	COFFEEN	0.06
COTTONWOOD	COTTONWOOD	0.38

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CPLE	CPLE	0.03
DEARBORN	DEARBORN	0.12
DUCKCREEK	DUCKCREEK	0.14
EDWARDS	EDWARDS	0.07
ELMERSMITH	ELMERSMITH	0.06
FARMERCITY	FARMERCITY	0.04
G-007	G-007	0.2
GIBSON	GIBSON	0.03
NEWTON	NEWTON	0.17
O-066	O-066	0.68
PRAIRIE	PRAIRIE	0.3
RENSSELAER	RENSSELAER	0.05
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.08
TILTON	TILTON	0.08
TRIMBLE	TRIMBLE	0.07
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.06

© PJM Interconnection 2019. All rights reserved.

Index 22

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
586812	314303	6HOPEWLL	DVP	314286	6CHESTFA	DVP	1	DVP_P1-2: LN 259	single	449.32	116.18	118.48	DC	10.31

Bus #	Bus	MW Impact
314314	3LOCKS	0.14
314507	3THOMPSN	0.11
315065	1CHESTF6	20.29
315074	1HOPCGN1	17.65
315075	1HOPCGN2	17.42
315076	1HOPPOLC	3.1
315077	1HOPHCF1	4.85
315078	1HOPHCF2	4.85
315079	1HOPHCF3	4.85
315080	1HOPHCF4	7.37
315098	1CHESPKA	0.15
315099	1CHESPKB	0.37
315116	1SURRY 1	20.71
315117	1GRAVELC	0.73
315119	1GRAVEL3	2.1
315120	1GRAVEL4	2.13
315121	1GRAVEL5	2.1
315122	1GRAVEL6	2.13
315260	1GOSPORTA	0.12
315261	1GOSPORTB	0.15
315262	1GOSPORTC	0.13
923851	AB2-025 C	0.2
924511	AB2-100 C	5.06
924811	AB2-134 C O1	2.79
925051	AB2-160 C O1	2.91
925061	AB2-161 C O1	2.18
925331	AB2-190 C	30.31
925821	AC1-061	0.0
926661	AC1-147 C	0.13
927221	AC1-216 C O1	13.91
932041	AC2-012 C	3.75
932581	AC2-078 C O1	3.43
932591	AC2-079 C O1	2.98
934011	AD1-025 C	23.91
934571	AD1-082 C	4.96
935111	AD1-144 C	0.11
935161	AD1-151 C O1	24.35
935211	AD1-156 C	0.27
936041	AD2-007	2.54
936051	AD2-008 C	4.16

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
936661	AD2-085 C	1.81
937541	AD2-215 C	0.7
938631	AE1-085 C O1	8.95
938841	AE1-109AC O1	5.86
939071	AE1-135 C O1	9.29
939191	AE1-149 C O1	9.47
939311	AE1-162 C	1.49
940061	AE1-248 C O1	10.31
940071	AE1-249 C	3.84
CARR	CARR	0.22
CBM-S1	CBM-S1	2.17
CBM-S2	CBM-S2	3.06
CBM-W1	CBM-W1	1.5
CBM-W2	CBM-W2	13.63
CIN	CIN	0.72
CPLE	CPLE	1.65
IPL	IPL	0.44
LGEE	LGEE	0.21
MEC	MEC	1.82
MECS	MECS	0.36
RENSSELAER	RENSSELAER	0.17
WEC	WEC	0.19

© PJM Interconnection 2019. All rights reserved.

Index 23

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
585899	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	144.42	145.0	DC	40.41

Bus #	Bus	MW Impact
314189	6PAPERMILL	10.93
314421	6WINCHST	0.25
314539	3UNCAMP	3.9
314541	3WATKINS	1.09
314554	3BTLEBRO	1.02
314557	3BETHELC	1.08
314566	3CRESWEL	3.91
314572	3EMPORIA	0.55
314574	6EVERETS	5.92
314578	3HORNRTN	4.48
314582	3KELFORD	5.03
314594	6PLYMOTH	1.35
314603	3SCOT NK	4.6
314617	3TUNIS	1.25
314620	6CASHIE	1.31
314623	3WITAKRS	1.76
314648	6SUNBURY	1.55
314651	6WINFALL	3.05
315073	1STONECA	8.71
315074	1HOPCGN1	10.5
315075	1HOPCGN2	10.37
315090	1YORKTN1	53.47
315091	1YORKTN2	55.48
315092	1YORKTN3	40.79
315110	1ELIZAR3	5.54
315131	1EDGECMA	11.91
315132	1EDGECMB	11.91
315233	1SURRY 2	49.18
900672	V4-068 E	0.45
901082	W1-029 E	79.97
907092	X1-038 E	9.74
913392	Y1-086 E	3.89
916042	Z1-036 E	77.57
916192	Z1-068 E	3.42
916302	Z1-086 E	13.63
917122	Z2-027 E	1.86
917332	Z2-043 E	1.43
917342	Z2-044 E	0.75
917512	Z2-088 E OP1	5.37
918492	AA1-063AE OP	5.61

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
918512	AA1-065 E OP	6.65
918532	AA1-067 E	1.04
918562	AA1-072 E	0.24
919152	AA1-139 E	11.56
919692	AA2-053 E	5.17
919701	AA2-057 C	9.39
919702	AA2-057 E	4.69
920042	AA2-088 E OP	15.96
920592	AA2-165 E	0.62
920672	AA2-174 E	0.6
920692	AA2-178 E	6.71
923801	AB2-015 C O1	13.72
923802	AB2-015 E O1	11.25
923832	AB2-022 E	2.19
923842	AB2-024 E	1.84
923852	AB2-025 E	1.45
923911	AB2-031 C O1	2.98
923912	AB2-031 E O1	1.47
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	8.02
924152	AB2-059 E O1	6.97
924241	AB2-068 O1	619.41
924391	AB2-088 C	0.58
924392	AB2-088 E	0.28
924491	AB2-098 C	0.81
924492	AB2-098 E	0.35
924501	AB2-099 C	0.87
924502	AB2-099 E	0.37
924511	AB2-100 C	15.33
924512	AB2-100 E	7.55
924812	AB2-134 E O1	18.11
925051	AB2-160 C O1	6.26
925052	AB2-160 E O1	10.22
925061	AB2-161 C O1	5.12
925062	AB2-161 E O1	8.35
925122	AB2-169 E	8.8
925171	AB2-174 C O1	9.33
925172	AB2-174 E O1	8.44
925281	AB2-186 C	1.06
925282	AB2-186 E	0.45
925291	AB2-188 C O1	3.86
925292	AB2-188 E O1	1.73
925331	AB2-190 C	29.18
925332	AB2-190 E	12.5
925522	AC1-027 E	2.08
925591	AC1-034 C	8.76
925592	AC1-034 E	6.61
925861	AC1-065 C	5.36
925862	AC1-065 E	8.75
926071	AC1-086 C	28.13
926072	AC1-086 E	12.8

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
926201	AC1-098 C	8.44
926202	AC1-098 E	5.03
926211	AC1-099 C	2.83
926212	AC1-099 E	1.66
926291	AC1-107 O1	934.96
926662	AC1-147 E	2.41
926751	AC1-161 C O1	59.48
926752	AC1-161 E O1	25.39
926781	AC1-164 C	67.95
926782	AC1-164 E	30.53
927021	AC1-189 C	12.09
927022	AC1-189 E	6.02
927141	AC1-208 C	12.18
927142	AC1-208 E	5.41
927221	AC1-216 C O1	14.56
927222	AC1-216 E O1	11.45
930402	AB1-081 E O1	4.92
930862	AB1-132 E O1	8.19
931232	AB1-173 E	1.4
931242	AB1-173AE	1.4
932041	AC2-012 C	18.55
932042	AC2-012 E	30.26
932532	AC2-073 E	1.95
932581	AC2-078 C O1	5.51
932582	AC2-078 E O1	9.0
932591	AC2-079 C O1	9.25
932592	AC2-079 E O1	15.1
932631	AC2-084 C	12.04
932632	AC2-084 E	5.93
932831	AC2-110 C	2.15
932832	AC2-110 E	3.5
933061	AC2-130	3.1
933071	AC2-131 1	2.1
933081	AC2-131 2	0.95
933111	AC2-132 1	1.1
933121	AC2-132 2	0.56
933262	AC2-137 E	1.87
933272	AC2-138 E	1.18
933291	AC2-141 C	59.48
933292	AC2-141 E	25.39
933732	AC2-196 E	2.17
933991	AD1-023 C	20.57
933992	AD1-023 E	11.2
934011	AD1-025 C	25.02
934012	AD1-025 E	14.82
934061	AD1-033 C	13.69
934062	AD1-033 E	9.13
934141	AD1-041 C	8.49
934142	AD1-041 E	5.66
934201	AD1-047 C	10.69
934202	AD1-047 E	7.13
934212	AD1-048 E	1.38

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
934331	AD1-057 C O1	13.17
934332	AD1-057 E O1	7.03
934392	AD1-063 E	1.75
934521	AD1-076 C	86.33
934522	AD1-076 E	43.96
934571	AD1-082 C	11.67
934572	AD1-082 E	6.65
934611	AD1-087 C O1	9.63
934612	AD1-087 E O1	4.53
935112	AD1-144 E	1.67
935161	AD1-151 C O1	23.45
935162	AD1-151 E O1	15.63
935171	AD1-152 C O1	9.57
935172	AD1-152 E O1	6.38
935212	AD1-156 E	1.73
936041	AD2-007	2.66
936051	AD2-008 C	4.36
936052	AD2-008 E	9.48
936151	AD2-021	0.33
936241	AD2-030 C	3.71
936242	AD2-030 E	1.9
936301	AD2-039 C	2.15
936302	AD2-039 E	3.5
936341	AD2-044 C	0.29
936342	AD2-044 E	0.33
936391	AD2-049 C	3.25
936392	AD2-049 E	3.25
936401	AD2-051 C O1	12.92
936402	AD2-051 E O1	5.55
936531	AD2-068 C	6.83
936532	AD2-068 E	3.52
936591	AD2-074 C	7.45
936592	AD2-074 E	12.16
936661	AD2-085 C	5.53
936662	AD2-085 E	9.03
936701	AD2-089 C	9.68
936702	AD2-089 E	6.45
936711	AD2-090 C O1	11.2
936712	AD2-090 E O1	7.47
937221	AD2-160 C O1	10.58
937222	AD2-160 E O1	5.55
937251	AD2-164	8.86
937481	AD2-202 C O1	2.65
937482	AD2-202 E O1	1.34
937541	AD2-215 C	3.09
937542	AD2-215 E	1.64
937571	AD2-169 C	13.39
937572	AD2-169 E	8.93
938031	AE1-004 C	2.15
938032	AE1-004 E	3.5
938171	AE1-026 C1 O	43.48
938172	AE1-026 C2 O	6.29

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
938173	AE1-026 E O1	13.13
938181	AE1-027 C	4.25
938182	AE1-027 E	2.24
938191	AE1-028 C	2.47
938192	AE1-028 E	1.43
938221	AE1-035 C	3.38
938222	AE1-035 E	1.66
938461	AE1-065 C O1	51.72
938462	AE1-065 E O1	208.71
938471	AE1-066 C O1	53.15
938472	AE1-066 E O1	207.28
938481	AE1-067 C O1	48.34
938482	AE1-067 E O1	212.1
938491	AE1-068 C O1	86.96
938492	AE1-068 E O1	48.03
938501	AE1-069 C O1	68.0
938502	AE1-069 E O1	38.87
938531	AE1-072 C O1	31.52
938532	AE1-072 E O1	16.43
938631	AE1-085 C O1	15.01
938632	AE1-085 E O1	10.01
938661	AE1-088	2.67
938771	AE1-103 C O1	5.85
938772	AE1-103 E O1	8.07
938841	AE1-109AC O1	13.73
938842	AE1-109AE O1	9.15
939041	AE1-133 C	62.46
939042	AE1-133 E	30.76
939071	AE1-135 C O1	27.48
939072	AE1-135 E O1	18.32
939191	AE1-149 C O1	14.18
939192	AE1-149 E O1	9.45
939241	AE1-155 C	19.75
939242	AE1-155 E	13.16
939311	AE1-162 C	3.68
939312	AE1-162 E	2.45
939411	AE1-173 C	146.92
939412	AE1-173 E	97.95
939421	AE1-174 C	0.66
939422	AE1-174 E	1.0
939431	AE1-175 C	4.42
939432	AE1-175 E	2.19
939611	AE1-191 C	16.97
939612	AE1-191 E	11.32
940061	AE1-248 C O1	24.25
940062	AE1-248 E O1	16.17
940071	AE1-249 C	8.26
940072	AE1-249 E	6.16
AA2-074	AA2-074	6.78
AE1-042	AE1-042	9.38
CARR	CARR	1.33
CBM-S1	CBM-S1	13.77

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CBM-S2	CBM-S2	18.81
CBM-W1	CBM-W1	9.82
CBM-W2	CBM-W2	86.63
CIN	CIN	4.7
CPLE	CPLE	9.96
G-007	G-007	4.24
IPL	IPL	2.88
LGEE	LGEE	1.37
MEC	MEC	11.75
MECS	MECS	2.52
O-066	O-066	14.17
RENSSELAER	RENSSELAER	1.05
WEC	WEC	1.24

© PJM Interconnection 2019. All rights reserved.

Index 24

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
586214	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	100.57	102.4	DC	17.32

Bus #	Bus	MW Impact
924241	AB2-068 O1	314.46
926291	AC1-107 O1	474.66
936391	AD2-049 C	1.48
936392	AD2-049 E	1.48
939421	AE1-174 C	0.42
939422	AE1-174 E	0.63
940063	AE1-248 EBAT	17.32
BAYOU	BAYOU	1.32
BIG_CAJUN1	BIG_CAJUN1	2.13
BIG_CAJUN2	BIG_CAJUN2	4.28
BLUEG	BLUEG	1.36
CALDERWOOD	CALDERWOOD	0.87
CANNELTON	CANNELTON	0.14
CATAWBA	CATAWBA	1.08
CBM-N	CBM-N	0.92
CHEOAH	CHEOAH	0.82
CHILHOWEE	CHILHOWEE	0.28
CHOCTAW	CHOCTAW	1.47
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	5.1
DUCKCREEK	DUCKCREEK	0.39
EDWARDS	EDWARDS	0.16
ELMERSMITH	ELMERSMITH	0.26
FARMERCITY	FARMERCITY	0.2
G-007A	G-007A	3.16
GIBSON	GIBSON	0.07
HAMLET	HAMLET	4.7
MECS	MECS	0.22
NEWTON	NEWTON	0.58
NYISO	NYISO	4.0
O-066A	O-066A	1.47
PRAIRIE	PRAIRIE	1.6
SANTEETLA	SANTEETLA	0.25
SMITHLAND	SMITHLAND	0.17
TATANKA	TATANKA	0.3
TILTON	TILTON	0.18
TRIMBLE	TRIMBLE	0.14
TVA	TVA	2.17
UNIONPOWER	UNIONPOWER	1.18
VFT	VFT	8.47

© PJM Interconnection 2019. All rights reserved.

© PJM Interconnection 2019. All rights reserved.

Index 25

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
586392	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	166.3	166.85	DC	28.75

Bus #	Bus	MW Impact
314229	6MT RD221	0.21
314236	6NRTHEST	0.33
314309	6IRON208	0.78
315053	1BELMED1	31.58
315054	1BELMED2	31.58
315055	1BELMED3	26.21
315058	1CHESTF3	33.54
315059	1CHESTF4	54.37
315060	1CHESTF5	17.65
315061	1CHESTG7	6.92
315062	1CHESTS7	3.14
315063	1CHESTG8	6.79
315064	1CHESTS8	3.5
315067	1DARBY 1	4.51
315068	1DARBY 2	4.52
315069	1DARBY 3	4.54
315070	1DARBY 4	4.54
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.11
315084	1SPRUNCB	19.11
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.32
315091	1YORKTN2	55.33
315092	1YORKTN3	40.59
315233	1SURRY 2	44.07
923801	AB2-015 C O1	14.87
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.58
924501	AB2-099 C	0.97
924511	AB2-100 C	19.05
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.42
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.15
925861	AC1-065 C	6.03
926071	AC1-086 C	33.56

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
926291	AC1-107 O1	646.91
926411	AC1-112 C	0.59
926751	AC1-161 C O1	55.61
926781	AC1-164 C	77.77
927041	AC1-191 C O1	17.06
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.76
932041	AC2-012 C	18.51
932501	AC2-070 C	0.5
932581	AC2-078 C O1	7.33
932591	AC2-079 C O1	10.28
932831	AC2-110 C	2.41
933061	AC2-130	4.51
933071	AC2-131 1	3.06
933081	AC2-131 2	1.39
933111	AC2-132 1	1.61
933121	AC2-132 2	0.82
933261	AC2-137 C	0.61
933291	AC2-141 C	55.61
933991	AD1-023 C	22.2
934011	AD1-025 C	31.21
934061	AD1-033 C	13.57
934141	AD1-041 C	9.42
934201	AD1-047 C	13.01
934211	AD1-048 C	0.71
934521	AD1-076 C	92.46
934571	AD1-082 C	13.83
935161	AD1-151 C O1	29.85
936041	AD2-007	3.31
936051	AD2-008 C	5.43
936151	AD2-021	0.45
936241	AD2-030 C	4.05
936301	AD2-039 C	2.41
936391	AD2-049 C	3.31
936401	AD2-051 C O1	14.45
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.53
937251	AD2-164	8.9
937541	AD2-215 C	3.16
937571	AD2-169 C	16.21
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.14
938172	AE1-026 C2 O	6.82
938181	AE1-027 C	4.22
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O1	51.45
938471	AE1-066 C O1	52.88
938481	AE1-067 C O1	48.08
938491	AE1-068 C O1	93.3
938501	AE1-069 C O1	73.18

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
938531	AE1-072 C O1	31.5
938551	AE1-074 C	4.28
938631	AE1-085 C O1	19.65
938661	AE1-088	2.92
938771	AE1-103 C O1	6.3
938841	AE1-109AC O1	16.29
939041	AE1-133 C	63.16
939071	AE1-135 C O1	34.32
939191	AE1-149 C O1	19.3
939311	AE1-162 C	3.93
939411	AE1-173 C	149.5
939421	AE1-174 C	0.68
939431	AE1-175 C	4.55
939611	AE1-191 C	18.84
939751	AE1-206 C O1	50.38
940061	AE1-248 C O1	28.75
940071	AE1-249 C	13.06
AA2-074	AA2-074	8.68
AB2-013	AB2-013	7.98
AE1-033	AE1-033	8.32
AE1-042	AE1-042	16.97
CARR	CARR	2.56
CBM-S1	CBM-S1	26.97
CBM-S2	CBM-S2	26.18
CBM-W1	CBM-W1	28.38
CBM-W2	CBM-W2	177.18
CIN	CIN	13.24
CPLE	CPLE	12.76
IPL	IPL	8.34
LGEE	LGEE	3.9
MEC	MEC	28.14
MECS	MECS	11.92
RENSSELAER	RENSSELAER	2.03
WEC	WEC	3.48
Z1-043	Z1-043	13.69

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: 1552	CONTINGENCY 'DVP_P4-2: 1552' /* POE 115 KV OPEN BRANCH FROM BUS 939190 TO BUS 314329 CKT 1 /* AE1-149 TAP 115.00 - 3POE 115.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P4-2: G2T567	CONTINGENCY 'DVP_P4-2: G2T567' /* SURRY 500 KV OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 OPEN BRANCH FROM BUS 314924 TO BUS 315233 CKT 1 /* 8SURRY 500.00 - 1SURRY 2 22.000 OPEN BUS 315233 /* ISLAND: 1SURRY 2 22.000 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-5: L552	CONTINGENCY 'DVP_P4-5: L552' /* POE 115 KV OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 211-228	CONTINGENCY 'DVP_P7-1: LN 211-228' OPEN BRANCH FROM BUS 314287 TO BUS 314303 CKT 1 /* 6CHESTF B 230.00 - 6HOPEWLL 230.00 OPEN BRANCH FROM BUS 314286 TO BUS 314303 CKT 1 /* 6CHESTF A 230.00 - 6HOPEWLL 230.00 END

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P4-5: POE L652	CONTINGENCY 'DVP_P4-5: POE L652' /* POE 115 KV OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P1-2: LN 106-B	CONTINGENCY 'DVP_P1-2: LN 106-B' OPEN BRANCH FROM BUS 938630 TO BUS 314273 CKT 1 /* AE1-085 TAP 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 END
DVP_P1-2: LN 106-A	CONTINGENCY 'DVP_P1-2: LN 106-A' OPEN BRANCH FROM BUS 313879 TO BUS 938630 CKT 1 /* 3BELL AVE 2 115.00 - AE1-085 TAP 115.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_P1-2: LN 217	CONTINGENCY 'DVP_P1-2: LN 217' OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P4-3: SUFFOLK H542	CONTINGENCY 'DVP_P4-3: SUFFOLK H542' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 534	CONTINGENCY 'DVP_P1-2: LN 534' OPEN BRANCH FROM BUS 314907 TO BUS 314910 CKT 1 /* 8DOOMS 500.00 - 8CUNINGHAM 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	
DVP_P1-2: LN 2028	CONTINGENCY 'DVP_P1-2: LN 2028' OPEN BRANCH FROM BUS 313867 TO BUS 314747 CKT 1 /* 6BREMODIST 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 313867 TO BUS 314765 CKT 1 /* 6BREMODIST 230.00 - 6MTEAGLE 230.00 OPEN BRANCH FROM BUS 314749 TO BUS 314765 CKT 1 /* 6CHARLVL 230.00 - 6MTEAGLE 230.00 OPEN BUS 313867 /* ISLAND: 6BREMODIST 230.00 OPEN BUS 314765 /* ISLAND: 6MTEAGLE 230.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P4-5: L1TL5	CONTINGENCY 'DVP_P4-5: L1TL5' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 END
DVP_P1-2: LN 23-A	CONTINGENCY 'DVP_P1-2: LN 23-A' OPEN BRANCH FROM BUS 313879 TO BUS 314528 CKT 1 /* 3BELL AVE 2 115.00 - 3IVOR106 115.00 OPEN BRANCH FROM BUS 314528 TO BUS 932590 CKT 1 /* 3IVOR106 115.00 - AC2-079 TAP 115.00 OPEN BUS 314528 /* ISLAND: 3IVOR106 115.00 END
DVP_P1-2: LN 23-B	CONTINGENCY 'DVP_P1-2: LN 23-B' OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 END
DVP_P4-2: 24972-4	CONTINGENCY 'DVP_P4-2: 24972-4' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314285 CKT 1 /* 6CARSON 230.00 - 6CHRL249 230.00 OPEN BRANCH FROM BUS 314285 TO BUS 314316 CKT 1 /* 6CHRL249 230.00 - 6LOCKS 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 2 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314285 /* ISLAND: 6CHRL249 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P4-3: YTH5	CONTINGENCY 'DVP_P4-3: YTH5' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 1 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 1 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 REMOVE SWSHUNT FROM BUS 314537 END

Short Circuit

© PJM Interconnection 2019. All rights reserved.

Short Circuit

The following Breakers are over duty

None.

OPTION 2

Network Impacts

The Queue Project AE1-248 was evaluated as a 150 MW (Capacity 90 MW) injection tapping the Bell Ave 1 to Wakefield 115kV line in the Dominion area. Project AE1-248 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-248 was studied with a commercial probability of 53%. Potential network impacts were as follows:

© PJM Interconnection 2019. All rights reserved.

Summer Peak Load Flow

© PJM Interconnection 2019. All rights reserved.

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
583134	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.49	134.67	DC	90.0
583136	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	59.4	114.12	DC	90.0
583171	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.45	136.58	DC	90.0
583176	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	59.04	116.03	DC	90.0
583304	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	single	449.32	102.56	104.24	DC	7.53
583199	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 44	single	110.92	55.81	132.98	DC	90.0
583200	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	55.81	132.98	DC	90.0
583142	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.49	134.67	DC	90.0
583144	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	59.4	114.12	DC	90.0
583126	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	single	110.92	63.81	144.95	DC	90.0
583128	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	57.45	124.4	DC	90.0
583191	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	55.45	136.58	DC	90.0
583192	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	single	110.92	55.45	136.58	DC	90.0
583270	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 44	single	110.92	59.04	116.03	DC	90.0
583271	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	59.04	116.03	DC	90.0
583179	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.45	136.58	DC	90.0
583184	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	59.04	116.03	DC	90.0

© PJM Interconnection 2019. All rights reserved.

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
582655	313803	3OAKRI44	DVP	314531	3MYRTLE	DVP	1	DVP_P4-5: POE L652	breaker	136.0	35.29	145.59	DC	150.0
582656	313803	3OAKRI44	DVP	314531	3MYRTLE	DVP	1	DVP_P4-2: 10652	breaker	136.0	35.29	145.59	DC	150.0
582657	313803	3OAKRI44	DVP	314531	3MYRTLE	DVP	1	DVP_P4-5: L552	breaker	136.0	35.29	145.59	DC	150.0
582778	313878	3BELL AVE 1	DVP	940060	AE1-248 TAP	DVP	1	DVP_P4-2: 10652	breaker	136.0	19.49	129.78	DC	150.0
582779	313878	3BELL AVE 1	DVP	940060	AE1-248 TAP	DVP	1	DVP_P4-5: POE L652	breaker	136.0	19.49	129.78	DC	150.0
582780	313878	3BELL AVE 1	DVP	940060	AE1-248 TAP	DVP	1	DVP_P4-5: L552	breaker	136.0	19.49	129.78	DC	150.0
582963	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.56	112.81	DC	28.36
582964	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	108.1	111.89	DC	20.51
582961	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.58	112.83	DC	28.36
582962	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	108.11	111.9	DC	20.51
582714	314531	3MYRTLE	DVP	314542	3WINDSOR	DVP	1	DVP_P4-5: L552	breaker	136.0	26.91	137.21	DC	150.0
582715	314531	3MYRTLE	DVP	314542	3WINDSOR	DVP	1	DVP_P4-5: POE L652	breaker	136.0	26.91	137.21	DC	150.0
582716	314531	3MYRTLE	DVP	314542	3WINDSOR	DVP	1	DVP_P4-2: 10652	breaker	136.0	26.91	137.21	DC	150.0
582651	314536	3SUFFOLK	DVP	313803	3OAKRI44	DVP	1	DVP_P4-5: POE L652	breaker	136.0	35.29	145.59	DC	150.0
582652	314536	3SUFFOLK	DVP	313803	3OAKRI44	DVP	1	DVP_P4-2: 10652	breaker	136.0	35.29	145.59	DC	150.0
582653	314536	3SUFFOLK	DVP	313803	3OAKRI44	DVP	1	DVP_P4-5: L552	breaker	136.0	35.29	145.59	DC	150.0
582741	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-3: SUFFOLK H542	breaker	297.2	114.79	135.41	DC	61.28
582742	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	114.44	135.25	DC	61.86
582788	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	109.36	129.01	DC	60.33
582774	314542	3WINDSOR	DVP	313878	3BELL AVE 1	DVP	1	DVP_P4-5: L552	breaker	136.0	19.49	129.78	DC	150.0
582775	314542	3WINDSOR	DVP	313878	3BELL AVE 1	DVP	1	DVP_P4-5: POE L652	breaker	136.0	19.49	129.78	DC	150.0
582776	314542	3WINDSOR	DVP	313878	3BELL AVE 1	DVP	1	DVP_P4-2: 10652	breaker	136.0	19.49	129.78	DC	150.0
583059	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	99.93	100.31	DC	26.64

© PJM Interconnection 2019. All rights reserved.

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
582553	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	161.04	162.27	DC	28.33
584338	314269	6PRGEORG	DVP	314291	3PRGEORG	DVP	1	DVP_P7-1: LN 211-228	tower	219.8	144.14	146.78	DC	11.09
582527	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	164.85	167.69	DC	15.44
583295	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	156.67	158.78	DC	9.35
583296	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	single	449.32	144.46	146.8	DC	10.54
583772	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	116.45	118.76	DC	10.37
583773	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 217	single	449.32	114.37	116.67	DC	10.36
582659	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	144.43	145.01	DC	40.33
582660	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	139.92	140.44	DC	35.79
583041	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	100.53	102.37	DC	17.33
582563	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	154.71	155.37	DC	47.92
582564	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	154.71	155.36	DC	47.92
583248	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.39	165.93	DC	28.76
583252	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 534	single	2442.12	139.76	140.25	DC	25.76
582692	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	141.93	142.24	DC	44.94
583318	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	146.83	147.29	DC	25.15

© PJM Interconnection 2019. All rights reserved.

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
583129	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	152.36	287.59	DC	150.0
583135	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	Base Case	operation	110.92	60.94	134.25	DC	81.31
583452	313803	3OAKRI44	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	39.67	174.9	DC	150.0
583453	313803	3OAKRI44	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-B-C	operation	110.92	39.67	174.9	DC	150.0
583169	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	125.77	261.0	DC	150.0
583175	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	Base Case	operation	110.92	46.72	120.02	DC	81.31
583605	313878	3BELL AVE 1	DVP	940060	AE1-248 TAP	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	20.28	155.52	DC	150.0
583606	313878	3BELL AVE 1	DVP	940060	AE1-248 TAP	DVP	1	DVP_P1-2: LN 15-B-C	operation	110.92	20.28	155.52	DC	150.0
584186	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 15-B-B	operation	110.92	96.46	100.56	DC	8.58
584190	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	99.03	99.97	DC	17.24
584032	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	116.07	117.01	DC	18.12
584076	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	112.7	113.6	DC	18.2
584103	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	107.44	109.07	DC	15.78
583293	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	192.88	196.39	DC	15.58
583302	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	operation	449.32	111.39	112.66	DC	12.55
584077	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	111.15	112.77	DC	15.78

© PJM Interconnection 2019. All rights reserved.

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
583193	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	122.16	257.39	DC	150.0
583194	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 44	operation	110.92	122.16	257.39	DC	150.0
583198	314292	3DISPUTN	DVP	314329	3POE	DVP	1	Base Case	operation	110.92	94.56	156.49	DC	68.69
583611	314292	3DISPUTN	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	20.28	155.52	DC	150.0
583612	314292	3DISPUTN	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 44	operation	110.92	20.28	155.52	DC	150.0
584136	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	operation	441.8	102.56	107.26	DC	20.75
583767	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	operation	449.32	142.34	143.95	DC	15.65
583776	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	operation	449.32	104.6	106.05	DC	14.19
583570	314329	3POE	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	operation	110.92	23.89	159.12	DC	150.0
583571	314329	3POE	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	23.89	159.12	DC	150.0
584113	314329	3POE	DVP	314291	3PRGEORG	DVP	1	DVP_P1-2: LN 23-B	operation	224.66	97.02	108.89	DC	26.67
584134	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	operation	441.8	102.58	107.28	DC	20.75
583883	314347	3WAKEFLD	DVP	940060	AE1-248 TAP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	0.09	135.32	DC	150.0
583884	314347	3WAKEFLD	DVP	940060	AE1-248 TAP	DVP	1	DVP_P1-2: LN 44	operation	110.92	0.09	135.32	DC	150.0
583888	314347	3WAKEFLD	DVP	940060	AE1-248 TAP	DVP	1	Base Case	operation	110.92	46.81	108.73	DC	68.69
583971	314347	3WAKEFLD	DVP	314351	3WAVERLY	DVP	1	DVP_P1-2: LN 44	operation	110.92	7.12	128.11	DC	150.0
583972	314347	3WAKEFLD	DVP	314351	3WAVERLY	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	7.12	128.11	DC	150.0
583739	314350	3WVLY DP	DVP	314351	3WAVERLY	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	11.36	146.59	DC	150.0
583740	314350	3WVLY DP	DVP	314351	3WAVERLY	DVP	1	DVP_P1-2: LN 44	operation	110.92	11.36	146.59	DC	150.0
583744	314350	3WVLY DP	DVP	314351	3WAVERLY	DVP	1	Base Case	operation	110.92	58.07	120.0	DC	68.69
584055	314350	3WVLY DP	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 44	operation	110.92	20.19	115.04	DC	150.0
584056	314350	3WVLY DP	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	20.19	115.04	DC	150.0
583803	314351	3WAVERLY	DVP	314347	3WAKEFLD	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	7.12	142.35	DC	150.0
583804	314351	3WAVERLY	DVP	314347	3WAKEFLD	DVP	1	DVP_P1-2: LN 44	operation	110.92	7.12	142.35	DC	150.0
583808	314351	3WAVERLY	DVP	314347	3WAKEFLD	DVP	1	Base Case	operation	110.92	53.75	115.67	DC	68.69
583998	314351	3WAVERLY	DVP	314350	3WVLY DP	DVP	1	DVP_P1-2: LN 44	operation	110.92	11.36	123.87	DC	150.0
583999	314351	3WAVERLY	DVP	314350	3WVLY DP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	11.36	123.87	DC	150.0

© PJM Interconnection 2019. All rights reserved.

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
583137	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	152.36	287.59	DC	150.0
583143	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	Base Case	operation	110.92	60.94	134.25	DC	81.31
583516	314531	3MYRTLE	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-B-C	operation	110.92	29.39	164.62	DC	150.0
583517	314531	3MYRTLE	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	29.39	164.62	DC	150.0
583447	314536	3SUFFOLK	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	39.67	174.9	DC	150.0
583448	314536	3SUFFOLK	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-B-C	operation	110.92	39.67	174.9	DC	150.0
583121	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	162.64	297.87	DC	150.0
583127	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	Base Case	operation	110.92	71.13	144.44	DC	81.31
583608	314542	3WINDSOR	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-B-C	operation	110.92	20.28	155.52	DC	150.0
583609	314542	3WINDSOR	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	20.28	155.52	DC	150.0
583673	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	150.63	151.04	DC	34.98
583394	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	178.32	179.03	DC	37.74
583399	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	141.71	142.27	DC	30.03
584146	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	103.78	105.86	DC	17.24
583539	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	161.12	161.67	DC	29.34
583245	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	212.15	213.04	DC	47.93
583253	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	136.45	137.05	DC	31.94
583725	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	147.04	147.54	DC	29.81
583912	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	operation	2442.12	131.78	132.25	DC	24.76
583315	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	193.17	193.68	DC	41.91
583321	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	140.49	141.04	DC	30.34
583855	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	137.92	138.38	DC	32.59
584008	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	118.87	119.42	DC	29.99
583792	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	operation	3218.56	141.82	142.28	DC	32.24

© PJM Interconnection 2019. All rights reserved.

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
583185	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	operation	110.92	125.77	261.0	DC	150.0
583186	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	125.77	261.0	DC	150.0
583190	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	Base Case	operation	110.92	98.17	160.09	DC	68.69
583599	932580	AC2-078 TAP	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 44	operation	110.92	20.28	155.52	DC	150.0
583600	932580	AC2-078 TAP	DVP	938630	AE1-085 TAP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	20.28	155.52	DC	150.0
583604	932580	AC2-078 TAP	DVP	938630	AE1-085 TAP	DVP	1	Base Case	operation	110.92	42.68	104.61	DC	68.69
583264	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	95.82	206.91	DC	150.0
583265	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 44	operation	110.92	95.82	206.91	DC	150.0
583269	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	Base Case	operation	110.92	67.23	118.62	DC	68.69
583616	938630	AE1-085 TAP	DVP	314350	3WVLY DP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	20.19	155.43	DC	150.0
583617	938630	AE1-085 TAP	DVP	314350	3WVLY DP	DVP	1	DVP_P1-2: LN 44	operation	110.92	20.19	155.43	DC	150.0
583621	938630	AE1-085 TAP	DVP	314350	3WVLY DP	DVP	1	Base Case	operation	110.92	66.91	128.84	DC	68.69
583177	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	125.77	261.0	DC	150.0
583183	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	Base Case	operation	110.92	46.72	120.02	DC	81.31
583889	940060	AE1-248 TAP	DVP	314347	3WAKEFLD	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	0.09	135.14	DC	150.0
583890	940060	AE1-248 TAP	DVP	314347	3WAKEFLD	DVP	1	DVP_P1-2: LN 44	operation	110.92	0.09	135.14	DC	150.0

© PJM Interconnection 2019. All rights reserved.

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.

© PJM Interconnection 2019. All rights reserved.

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
583134	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.49	134.67	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
936661	AD2-085 C	19.38
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

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
583171	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.45	136.58	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

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
582527	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	164.85	167.69	DC	15.44

Bus #	Bus	MW Impact
314314	3LOCKS	0.17
314539	3UNCAMP	0.93
314541	3WATKINS	0.27
314554	3BTLEBRO	0.3
314557	3BETHELC	0.3
314572	3EMPORIA	0.21
314574	6EVERETS	1.53
314578	3HORNRTN	1.41
314582	3KELFORD	1.36
314594	6PLYMOTH	0.3
314603	3SCOT NK	1.29
314617	3TUNIS	0.33
314620	6CASHIE	0.31
314623	3WITAKRS	0.52
315065	1CHESTF6	26.38
315073	1STONECA	4.95
315074	1HOPCGN1	5.97
315075	1HOPCGN2	5.89
315076	1HOPPOLC	1.05
315077	1HOPHCF1	1.64
315078	1HOPHCF2	1.64
315079	1HOPHCF3	1.64
315080	1HOPHCF4	2.49
315131	1EDGECMA	3.51
315132	1EDGECMB	3.51
900672	V4-068 E	0.12
907092	X1-038 E	2.32
916302	Z1-086 E	3.66
917332	Z2-043 E	0.39
917342	Z2-044 E	0.22
917512	Z2-088 E OP1	1.44
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.66
918532	AA1-067 E	0.27
918562	AA1-072 E	0.06
919692	AA2-053 E	1.57
919701	AA2-057 C	2.76
919702	AA2-057 E	1.38
920042	AA2-088 E OP	4.19
920592	AA2-165 E	0.18

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
920672	AA2-174 E	0.18
923801	AB2-015 C O1	3.33
923802	AB2-015 E O1	2.73
923851	AB2-025 C	0.26
923852	AB2-025 E	0.77
923911	AB2-031 C O1	1.08
923912	AB2-031 E O1	0.53
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05
923992	AB2-040 E O1	2.89
924152	AB2-059 E O1	2.04
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924491	AB2-098 C	0.21
924492	AB2-098 E	0.09
924501	AB2-099 C	0.23
924502	AB2-099 E	0.1
924511	AB2-100 C	6.67
924512	AB2-100 E	3.29
924812	AB2-134 E O1	6.68
925051	AB2-160 C O1	3.53
925052	AB2-160 E O1	5.76
925061	AB2-161 C O1	1.95
925062	AB2-161 E O1	3.17
925122	AB2-169 E	2.1
925171	AB2-174 C O1	3.46
925172	AB2-174 E O1	3.13
925331	AB2-190 C	11.43
925332	AB2-190 E	4.9
925591	AC1-034 C	2.57
925592	AC1-034 E	1.94
925821	AC1-061	0.0
926071	AC1-086 C	9.77
926072	AC1-086 E	4.44
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.81
926212	AC1-099 E	0.48
927021	AC1-189 C	3.2
927022	AC1-189 E	1.59
927141	AC1-208 C	3.62
927142	AC1-208 E	1.61
927221	AC1-216 C O1	5.37
927222	AC1-216 E O1	4.22
930402	AB1-081 E O1	1.44
930862	AB1-132 E O1	2.84
931232	AB1-173 E	0.51
931242	AB1-173AE	0.51
932581	AC2-078 C O1	3.0
932582	AC2-078 E O1	4.9
932591	AC2-079 C O1	2.72
932592	AC2-079 E O1	4.44

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
932631	AC2-084 C	3.46
932632	AC2-084 E	1.71
933991	AD1-023 C	4.72
933992	AD1-023 E	2.57
934011	AD1-025 C	9.23
934012	AD1-025 E	5.47
934201	AD1-047 C	3.86
934202	AD1-047 E	2.57
934331	AD1-057 C O1	4.2
934332	AD1-057 E O1	2.24
934521	AD1-076 C	19.27
934522	AD1-076 E	9.81
934571	AD1-082 C	4.43
934572	AD1-082 E	2.53
935161	AD1-151 C O1	9.19
935162	AD1-151 E O1	6.12
935211	AD1-156 C	0.32
935212	AD1-156 E	1.39
936041	AD2-007	0.98
936051	AD2-008 C	1.61
936052	AD2-008 E	3.5
936401	AD2-051 C O1	3.37
936402	AD2-051 E O1	1.45
936661	AD2-085 C	1.65
936662	AD2-085 E	2.7
936701	AD2-089 C	2.71
936702	AD2-089 E	1.81
936711	AD2-090 C O1	2.82
936712	AD2-090 E O1	1.88
937571	AD2-169 C	4.7
937572	AD2-169 E	3.13
938171	AE1-026 C1 O	10.15
938172	AE1-026 C2 O	1.47
938173	AE1-026 E O2	3.07
938221	AE1-035 C	0.84
938222	AE1-035 E	0.42
938491	AE1-068 C O2	23.1
938492	AE1-068 E O2	12.76
938501	AE1-069 C O2	18.34
938502	AE1-069 E O2	10.48
938631	AE1-085 C O2	7.89
938632	AE1-085 E O2	5.26
938661	AE1-088	0.64
938771	AE1-103 C O2	1.39
938772	AE1-103 E O2	1.92
938841	AE1-109AC O2	4.94
938842	AE1-109AE O2	3.29
939071	AE1-135 C O2	12.25
939072	AE1-135 E O2	8.17
939191	AE1-149 C O2	8.38
939192	AE1-149 E O2	5.59
939311	AE1-162 C	0.81

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
939312	AE1-162 E	0.54
939411	AE1-173 C	31.98
939412	AE1-173 E	21.32
940061	AE1-248 C O2	9.26
940062	AE1-248 E O2	6.18
940071	AE1-249 C	4.66
940072	AE1-249 E	3.48
AA2-074	AA2-074	1.86
CARR	CARR	0.34
CBM-S1	CBM-S1	4.05
CBM-S2	CBM-S2	5.21
CBM-W1	CBM-W1	3.25
CBM-W2	CBM-W2	25.82
CIN	CIN	1.53
CPLE	CPLE	2.73
G-007	G-007	1.1
IPL	IPL	0.95
LGEE	LGEE	0.45
MEC	MEC	3.65
MECS	MECS	1.04
O-066	O-066	3.67
RENSSELAER	RENSSELAER	0.27
WEC	WEC	0.41

© PJM Interconnection 2019. All rights reserved.

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
583200	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	55.81	132.98	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

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
583142	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.49	134.67	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
936661	AD2-085 C	19.38
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

Index 6

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
583126	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	single	110.92	63.81	144.95	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
936661	AD2-085 C	19.38
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

Index 7

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
583192	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	single	110.92	55.45	136.58	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

Index 8

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
583271	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	59.04	116.03	DC	90.0

Bus #	Bus	MW Impact
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

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
583179	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	single	110.92	55.45	136.58	DC	90.0

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

© PJM Interconnection 2019. All rights reserved.

Index 10

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
582657	313803	3OAKRI44	DVP	314531	3MYRTLE	DVP	1	DVP_P4-5: L552	breaker	136.0	35.29	145.59	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 11

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
582780	313878	3BELL AVE 1	DVP	940060	AE1-248 TAP	DVP	1	DVP_P4-5: L552	breaker	136.0	19.49	129.78	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 12

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
582963	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.56	112.81	DC	28.36

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.96
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.36
315126	1ROARAP2	1.17
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	2.16
315137	1ROSEMS1	1.34
315138	1ROSEMG2	1.01
315139	1GASTONA	3.2
315141	1GASTONB	3.2
315150	1BUGGS 1	5.21
315151	1BUGGS 2	5.21
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.64
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.17
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.86
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.56
923802	AB2-015 E O1	3.74

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
923851	AB2-025 C	0.89
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72
923912	AB2-031 E O1	1.34
923941	AB2-035 C	0.2
923942	AB2-035 E	0.09
923991	AB2-040 C O1	1.37
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924391	AB2-088 C	0.26
924392	AB2-088 E	0.12
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.36
924502	AB2-099 E	0.16
924511	AB2-100 C	19.93
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925122	AB2-169 E	2.71
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.13
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.45
926072	AC1-086 E	10.67
926201	AC1-098 C	4.34
926202	AC1-098 E	2.58
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	2.44
930862	AB1-132 E O1	6.82
931231	AB1-173 C	0.42
931232	AB1-173 E	1.28
931241	AB1-173AC	0.42
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.18
932632	AC2-084 E	3.05
933991	AD1-023 C	5.91
933992	AD1-023 E	3.22
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59
934331	AD1-057 C O1	8.57
934332	AD1-057 E O1	4.57
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	1.05
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.87
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936481	AD2-063 C O1	6.87
936482	AD2-063 E O1	4.58
936531	AD2-068 C	2.4
936532	AD2-068 E	1.23
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.49
937572	AD2-169 E	7.66
938171	AE1-026 C1 O	13.13
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O2	3.96
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O2	17.01
938632	AE1-085 E O2	11.34
938661	AE1-088	0.82
938771	AE1-103 C O2	1.76
938772	AE1-103 E O2	2.43
938841	AE1-109AC O2	8.59
938842	AE1-109AE O2	5.72
939071	AE1-135 C O2	37.3
939072	AE1-135 E O2	24.86
939181	AE1-148 C O2	4.79
939182	AE1-148 E O2	3.19
939191	AE1-149 C O2	18.91
939192	AE1-149 E O2	12.6
940061	AE1-248 C O2	17.01
940062	AE1-248 E O2	11.34

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.83
CBM-S2	CBM-S2	4.45
CBM-W1	CBM-W1	3.86
CBM-W2	CBM-W2	25.16
CIN	CIN	1.75
CPLE	CPLE	2.41
G-007	G-007	0.54
IPL	IPL	1.09
LGEE	LGEE	0.51
MEC	MEC	3.87
MECS	MECS	1.65
O-066	O-066	1.81
RENSSELAER	RENSSELAER	0.12
WEC	WEC	0.47

© PJM Interconnection 2019. All rights reserved.

Index 13

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
582961	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	107.58	112.83	DC	28.36

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.96
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.36
315126	1ROARAP2	1.17
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	2.16
315137	1ROSEMS1	1.34
315138	1ROSEMG2	1.01
315139	1GASTONA	3.2
315141	1GASTONB	3.2
315150	1BUGGS 1	5.21
315151	1BUGGS 2	5.21
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.64
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.17
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.86
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.56
923802	AB2-015 E O1	3.74

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
923851	AB2-025 C	0.89
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72
923912	AB2-031 E O1	1.34
923941	AB2-035 C	0.2
923942	AB2-035 E	0.09
923991	AB2-040 C O1	1.37
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924391	AB2-088 C	0.26
924392	AB2-088 E	0.12
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.36
924502	AB2-099 E	0.16
924511	AB2-100 C	19.93
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925122	AB2-169 E	2.71
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.13
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.45
926072	AC1-086 E	10.67
926201	AC1-098 C	4.34
926202	AC1-098 E	2.58
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	2.44
930862	AB1-132 E O1	6.82
931231	AB1-173 C	0.42
931232	AB1-173 E	1.28
931241	AB1-173AC	0.42
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.18
932632	AC2-084 E	3.05
933991	AD1-023 C	5.91
933992	AD1-023 E	3.22
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59
934331	AD1-057 C O1	8.57
934332	AD1-057 E O1	4.57
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	1.05
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.87
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936481	AD2-063 C O1	6.87
936482	AD2-063 E O1	4.58
936531	AD2-068 C	2.4
936532	AD2-068 E	1.23
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.49
937572	AD2-169 E	7.66
938171	AE1-026 C1 O	13.13
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O2	3.96
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O2	17.01
938632	AE1-085 E O2	11.34
938661	AE1-088	0.82
938771	AE1-103 C O2	1.76
938772	AE1-103 E O2	2.43
938841	AE1-109AC O2	8.59
938842	AE1-109AE O2	5.72
939071	AE1-135 C O2	37.3
939072	AE1-135 E O2	24.86
939181	AE1-148 C O2	4.79
939182	AE1-148 E O2	3.19
939191	AE1-149 C O2	18.91
939192	AE1-149 E O2	12.6
940061	AE1-248 C O2	17.01
940062	AE1-248 E O2	11.34

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.83
CBM-S2	CBM-S2	4.45
CBM-W1	CBM-W1	3.86
CBM-W2	CBM-W2	25.16
CIN	CIN	1.75
CPLE	CPLE	2.41
G-007	G-007	0.54
IPL	IPL	1.09
LGEE	LGEE	0.51
MEC	MEC	3.87
MECS	MECS	1.65
O-066	O-066	1.81
RENSSELAER	RENSSELAER	0.12
WEC	WEC	0.47

© PJM Interconnection 2019. All rights reserved.

Index 14

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
582716	314531	3MYRTLE	DVP	314542	3WINDSOR	DVP	1	DVP_P4-2: 10652	breaker	136.0	26.91	137.21	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 15

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
582653	314536	3SUFFOLK	DVP	313803	3OAKRI44	DVP	1	DVP_P4-5: L552	breaker	136.0	35.29	145.59	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 16

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
582742	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	114.44	135.25	DC	61.86

Bus #	Bus	MW Impact
314539	3UNCAMP	6.35
314541	3WATKINS	1.58
314589	3MURPHYS	0.09
314617	3TUNIS	0.59
315115	1S HAMPT1	3.14
900672	V4-068 E	0.33
907092	X1-038 E	15.88
920041	AA2-088 C OP	1.58
920042	AA2-088 E OP	16.86
923801	AB2-015 C O1	20.96
923802	AB2-015 E O1	17.19
924501	AB2-099 C	0.27
924502	AB2-099 E	0.11
925061	AB2-161 C O1	7.91
925062	AB2-161 E O1	12.9
932581	AC2-078 C O1	4.76
932582	AC2-078 E O1	7.76
932591	AC2-079 C O1	17.59
932592	AC2-079 E O1	28.7
934571	AD1-082 C	18.03
934572	AD1-082 E	10.28
936661	AD2-085 C	10.41
936662	AD2-085 E	16.98
936711	AD2-090 C O1	14.78
936712	AD2-090 E O1	9.85
938631	AE1-085 C O2	13.99
938632	AE1-085 E O2	9.33
938771	AE1-103 C O2	10.05
938772	AE1-103 E O2	13.88
938841	AE1-109AC O2	23.21
938842	AE1-109AE O2	15.48
939191	AE1-149 C O2	9.12
939192	AE1-149 E O2	6.08
940061	AE1-248 C O2	37.12
940062	AE1-248 E O2	24.74
CARR	CARR	0.02
CBM-S1	CBM-S1	0.4
CBM-S2	CBM-S2	0.47
CBM-W1	CBM-W1	0.4
CBM-W2	CBM-W2	2.62
CIN	CIN	0.18

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CPLE	CPLE	0.26
G-007	G-007	0.07
IPL	IPL	0.11
LGEE	LGEE	0.05
MEC	MEC	0.4
MECS	MECS	0.17
O-066	O-066	0.22
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.05

© PJM Interconnection 2019. All rights reserved.

Index 17

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
582788	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	109.36	129.01	DC	60.33

Bus #	Bus	MW Impact
314539	3UNCAMP	6.19
314541	3WATKINS	1.54
314589	3MURPHYS	0.09
314617	3TUNIS	0.56
315115	1S HAMPT1	3.06
900672	V4-068 E	0.32
907092	X1-038 E	15.46
920041	AA2-088 C OP	1.54
920042	AA2-088 E OP	16.36
923801	AB2-015 C O1	20.4
923802	AB2-015 E O1	16.73
925061	AB2-161 C O1	7.71
925062	AB2-161 E O1	12.59
932581	AC2-078 C O1	4.64
932582	AC2-078 E O1	7.57
932591	AC2-079 C O1	17.16
932592	AC2-079 E O1	28.0
934571	AD1-082 C	17.58
934572	AD1-082 E	10.03
936661	AD2-085 C	10.15
936662	AD2-085 E	16.56
936711	AD2-090 C O1	14.37
936712	AD2-090 E O1	9.58
938631	AE1-085 C O2	13.64
938632	AE1-085 E O2	9.09
938771	AE1-103 C O2	9.79
938772	AE1-103 E O2	13.52
938841	AE1-109AC O2	22.64
938842	AE1-109AE O2	15.09
939191	AE1-149 C O2	8.89
939192	AE1-149 E O2	5.92
940061	AE1-248 C O2	36.2
940062	AE1-248 E O2	24.13
CARR	CARR	0.02
CBM-S1	CBM-S1	0.35
CBM-S2	CBM-S2	0.41
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	2.31
CIN	CIN	0.16
CPLE	CPLE	0.22
G-007	G-007	0.06

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.36
MECS	MECS	0.15
O-066	O-066	0.19
RENSSELAER	RENSSELAER	0.01
WEC	WEC	0.04

© PJM Interconnection 2019. All rights reserved.

Index 18

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
582776	314542	3WINDSOR	DVP	313878	3BELL AVE 1	DVP	1	DVP_P4-2: 10652	breaker	136.0	19.49	129.78	DC	150.0

Bus #	Bus	MW Impact
940063	AE1-248 EBAT	150.0

© PJM Interconnection 2019. All rights reserved.

Index 19

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
583059	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	99.93	100.31	DC	26.64

Bus #	Bus	MW Impact
314539	3UNCAMP	3.29
314541	3WATKINS	0.91
314554	3BTLEBRO	0.85
314557	3BETHELC	0.9
314566	3CRESWEL	3.48
314574	6EVERETS	5.04
314578	3HORNRTN	3.35
314582	3KELFORD	4.11
314594	6PLYMOTH	1.19
314603	3SCOT NK	3.72
314617	3TUNIS	1.02
314620	6CASHIE	1.13
314623	3WITAKRS	1.43
314648	6SUNBURY	1.43
314651	6WINFALL	2.8
315090	1YORKTN1	39.42
315091	1YORKTN2	40.91
315099	1CHESPKB	1.73
315108	1ELIZAR1	5.14
315109	1ELIZAR2	5.05
315110	1ELIZAR3	5.2
315131	1EDGECMA	9.8
315132	1EDGECMB	9.8
315150	1BUGGS 1	10.25
315151	1BUGGS 2	10.25
315233	1SURRY 2	50.92
900672	V4-068 E	0.36
901082	W1-029 E	73.45
907092	X1-038 E	8.23
913392	Y1-086 E	3.62
916042	Z1-036 E	70.57
916191	Z1-068 C	0.07
916192	Z1-068 E	3.21
916302	Z1-086 E	14.15
917122	Z2-027 E	1.73
917332	Z2-043 E	1.17
917342	Z2-044 E	0.61
917512	Z2-088 E OP1	4.53
918492	AA1-063AE OP	4.36
918512	AA1-065 E OP	5.61
918532	AA1-067 E	0.89

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
918562	AA1-072 E	0.2
919152	AA1-139 E	10.88
919692	AA2-053 E	3.93
919701	AA2-057 C	7.58
919702	AA2-057 E	3.79
920042	AA2-088 E OP	13.0
920592	AA2-165 E	0.5
920672	AA2-174 E	0.45
920692	AA2-178 E	5.97
923801	AB2-015 C O1	11.51
923802	AB2-015 E O1	9.44
923832	AB2-022 E	2.04
923911	AB2-031 C O1	1.97
923912	AB2-031 E O1	0.97
923941	AB2-035 C	0.38
923942	AB2-035 E	0.16
923992	AB2-040 E O1	5.29
924152	AB2-059 E O1	5.75
924391	AB2-088 C	0.48
924392	AB2-088 E	0.23
924401	AB2-089 C	2.01
924402	AB2-089 E	1.03
924491	AB2-098 C	0.69
924492	AB2-098 E	0.3
924501	AB2-099 C	0.72
924502	AB2-099 E	0.31
925061	AB2-161 C O1	3.4
925062	AB2-161 E O1	5.55
925122	AB2-169 E	7.62
925281	AB2-186 C	0.97
925282	AB2-186 E	0.41
925291	AB2-188 C O1	3.43
925292	AB2-188 E O1	1.54
925521	AC1-027 C	0.53
925522	AC1-027 E	1.96
925591	AC1-034 C	7.23
925592	AC1-034 E	5.45
925781	AC1-054 C O1	6.84
925782	AC1-054 E O1	3.15
926071	AC1-086 C	19.43
926072	AC1-086 E	8.84
926201	AC1-098 C	6.78
926202	AC1-098 E	4.04
926211	AC1-099 C	2.27
926212	AC1-099 E	1.33
926271	AC1-105 C O1	5.32
926272	AC1-105 E O1	2.65
926662	AC1-147 E	2.25
926751	AC1-161 C O1	60.97
926752	AC1-161 E O1	26.03
927021	AC1-189 C	10.23
927022	AC1-189 E	5.1

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
927141	AC1-208 C	9.62
927142	AC1-208 E	4.27
927251	AC1-221 C	2.27
927252	AC1-221 E	2.27
927261	AC1-222 C	3.47
927262	AC1-222 E	3.3
930402	AB1-081 E O1	4.06
930862	AB1-132 E O1	5.65
931232	AB1-173 E	0.93
931242	AB1-173AE	0.93
932041	AC2-012 C	17.32
932042	AC2-012 E	28.25
932591	AC2-079 C O1	7.15
932592	AC2-079 E O1	11.67
932631	AC2-084 C	9.66
932632	AC2-084 E	4.76
932761	AC2-100 C	5.22
932762	AC2-100 E	2.55
933291	AC2-141 C	60.97
933292	AC2-141 E	26.03
933731	AC2-196 C	0.47
933732	AC2-196 E	2.06
933991	AD1-023 C	17.86
933992	AD1-023 E	9.72
934061	AD1-033 C	12.96
934062	AD1-033 E	8.64
934201	AD1-047 C	7.06
934202	AD1-047 E	4.71
934231	AD1-050 C	4.43
934232	AD1-050 E	2.42
934311	AD1-055 C	2.41
934312	AD1-055 E	0.62
934331	AD1-057 C O1	10.03
934332	AD1-057 E O1	5.35
934341	AD1-058 C	5.69
934342	AD1-058 E	1.45
934521	AD1-076 C	75.68
934522	AD1-076 E	38.53
934571	AD1-082 C	7.75
934572	AD1-082 E	4.42
934611	AD1-087 C O1	9.44
934612	AD1-087 E O1	4.44
934621	AD1-088 C	12.82
934622	AD1-088 E	6.02
934991	AD1-131 C	1.87
934992	AD1-131 E	1.24
935112	AD1-144 E	1.46
935171	AD1-152 C O1	9.38
935172	AD1-152 E O1	6.25
936331	AD2-043 C	4.5
936332	AD2-043 E	5.33
936361	AD2-046 C O1	8.11

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
936362	AD2-046 E O1	3.73
936391	AD2-049 C	2.52
936392	AD2-049 E	2.52
936401	AD2-051 C O1	10.68
936402	AD2-051 E O1	4.59
936531	AD2-068 C	5.95
936532	AD2-068 E	3.07
936661	AD2-085 C	4.24
936662	AD2-085 E	6.92
936701	AD2-089 C	8.08
936702	AD2-089 E	5.39
936711	AD2-090 C O1	9.28
936712	AD2-090 E O1	6.18
937221	AD2-160 C O1	9.98
937222	AD2-160 E O1	5.23
937251	AD2-164	6.64
937481	AD2-202 C O1	2.6
937482	AD2-202 E O1	1.31
937541	AD2-215 C	2.7
937542	AD2-215 E	1.43
937571	AD2-169 C	9.1
937572	AD2-169 E	6.06
938171	AE1-026 C1 O	37.58
938172	AE1-026 C2 O	5.44
938173	AE1-026 E O2	11.35
938181	AE1-027 C	4.02
938182	AE1-027 E	2.12
938191	AE1-028 C	2.33
938192	AE1-028 E	1.35
938221	AE1-035 C	2.85
938222	AE1-035 E	1.4
938461	AE1-065 C O2	48.64
938462	AE1-065 E O2	196.29
938471	AE1-066 C O2	49.99
938472	AE1-066 E O2	194.94
938481	AE1-067 C O2	45.46
938482	AE1-067 E O2	199.47
938491	AE1-068 C O2	89.34
938492	AE1-068 E O2	49.34
938501	AE1-069 C O2	70.94
938502	AE1-069 E O2	40.56
938531	AE1-072 C O2	29.6
938532	AE1-072 E O2	15.43
938661	AE1-088	2.31
938771	AE1-103 C O2	5.01
938772	AE1-103 E O2	6.92
938841	AE1-109AC O2	9.78
938842	AE1-109AE O2	6.52
939041	AE1-133 C	57.88
939042	AE1-133 E	28.51
939181	AE1-148 C O2	7.97
939182	AE1-148 E O2	5.31

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
939311	AE1-162 C	2.95
939312	AE1-162 E	1.97
939411	AE1-173 C	149.54
939412	AE1-173 E	99.7
939421	AE1-174 C	0.17
939422	AE1-174 E	0.26
939431	AE1-175 C	2.18
939432	AE1-175 E	1.08
940061	AE1-248 C O2	15.98
940062	AE1-248 E O2	10.66
AA2-074	AA2-074	6.41
AE1-042	AE1-042	9.44
CARR	CARR	1.1
CBM-S1	CBM-S1	14.1
CBM-S2	CBM-S2	18.08
CBM-W1	CBM-W1	11.46
CBM-W2	CBM-W2	90.0
CIN	CIN	5.36
CPLE	CPLE	9.43
G-007	G-007	3.56
IPL	IPL	3.31
LGEE	LGEE	1.56
MEC	MEC	12.78
MECS	MECS	3.75
O-066	O-066	11.9
RENSSELAER	RENSSELAER	0.87
WEC	WEC	1.42

© PJM Interconnection 2019. All rights reserved.

Index 20

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
582553	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	161.04	162.27	DC	28.33

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.74
314229	6MT RD221	0.22
314236	6NRTHEST	0.29
314250	6ROCKVILLE	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.61
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	5.34
315044	1FOUR RIVERB	4.14
315045	1FOUR RIVERC	5.34
315046	1FOUR RIVERD	4.14
315047	1FOUR RIVERE	4.14
315048	1FOUR RIVERF	5.34
315053	1BELMED1	25.3
315054	1BELMED2	25.3
315055	1BELMED3	20.99
315058	1CHESTF3	26.86
315059	1CHESTF4	43.54
315067	1DARBY 1	3.87
315068	1DARBY 2	3.88
315069	1DARBY 3	3.89
315070	1DARBY 4	3.89
315073	1STONECA	9.29
315074	1HOPCGN1	11.21
315075	1HOPCGN2	11.06
315083	1SPRUNCA	14.79
315084	1SPRUNCB	14.79
315085	1SPRUNCC	10.97
315086	1SPRUNCD	10.97
315090	1YORKTN1	30.65
315091	1YORKTN2	31.8
901082	W1-029 E	41.27
907092	X1-038 E	5.41
913392	Y1-086 E	1.98
916042	Z1-036 E	40.26
916192	Z1-068 E	1.74
917122	Z2-027 E	0.95
919152	AA1-139 E	5.85
919211	AA1-145	15.45

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
923801	AB2-015 C O1	7.64
923802	AB2-015 E O1	6.26
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.91
924241	AB2-068 O1	176.08
924511	AB2-100 C	10.32
924512	AB2-100 E	5.08
924812	AB2-134 E O1	14.72
925051	AB2-160 C O1	7.08
925052	AB2-160 E O1	11.56
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.85
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925331	AB2-190 C	24.56
925332	AB2-190 E	10.53
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.07
926291	AC1-107 O1	265.78
926411	AC1-112 C	0.53
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	2.27
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.86
926752	AC1-161 E O1	11.47
926781	AC1-164 C	57.99
926782	AC1-164 E	26.05
927041	AC1-191 C O1	17.44
927042	AC1-191 E O1	8.69
927221	AC1-216 C O1	11.83
927222	AC1-216 E O1	9.3
930121	AB1-027 C	0.68
930122	AB1-027 E	1.89
932041	AC2-012 C	9.52
932042	AC2-012 E	15.53
932501	AC2-070 C	0.44
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.66
932591	AC2-079 C O1	5.75
932592	AC2-079 E O1	9.37
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
933121	AC2-132 2	0.63
933261	AC2-137 C	0.48
933262	AC2-137 E	2.03
933272	AC2-138 E	1.08
933291	AC2-141 C	26.86
933292	AC2-141 E	11.47
933732	AC2-196 E	1.09
934011	AD1-025 C	20.33
934012	AD1-025 E	12.04
934061	AD1-033 C	6.89
934062	AD1-033 E	4.6
934141	AD1-041 C	6.73
934142	AD1-041 E	4.48
934211	AD1-048 C	0.58
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.17
934572	AD1-082 E	4.66
934781	AD1-105 C	11.45
934782	AD1-105 E	7.96
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.74
935162	AD1-151 E O1	13.16
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.71
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.73
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.31
936391	AD2-049 C	1.87
936392	AD2-049 E	1.87
936581	AD2-073 C	2.22
936582	AD2-073 E	1.1
936591	AD2-074 C	6.33
936592	AD2-074 E	10.33
936661	AD2-085 C	3.46
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.27
936712	AD2-090 E O1	4.18
937221	AD2-160 C O1	5.34
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68
937542	AD2-215 E	0.89
938031	AE1-004 C	1.73
938032	AE1-004 E	2.83
938181	AE1-027 C	2.14

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O2	26.27
938462	AE1-065 E O2	106.02
938471	AE1-066 C O2	27.0
938472	AE1-066 E O2	105.29
938481	AE1-067 C O2	24.55
938482	AE1-067 E O2	107.74
938531	AE1-072 C O2	15.97
938532	AE1-072 E O2	8.32
938551	AE1-074 C	3.11
938552	AE1-074 E	1.56
938631	AE1-085 C O2	12.5
938632	AE1-085 E O2	8.33
938771	AE1-103 C O2	3.27
938772	AE1-103 E O2	4.52
938841	AE1-109AC O2	9.45
938842	AE1-109AE O2	6.3
939041	AE1-133 C	31.98
939042	AE1-133 E	15.75
939071	AE1-135 C O2	18.72
939072	AE1-135 E O2	12.48
939191	AE1-149 C O2	12.64
939192	AE1-149 E O2	8.42
939241	AE1-155 C	17.03
939242	AE1-155 E	11.36
939261	AE1-157 C O2	12.42
939262	AE1-157 E O2	6.74
939271	AE1-158 C O2	12.67
939272	AE1-158 E O2	6.48
939311	AE1-162 C	2.22
939312	AE1-162 E	1.48
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.87
939432	AE1-175 E	1.42
939611	AE1-191 C	13.45
939612	AE1-191 E	8.97
939751	AE1-206 C O2	50.24
939752	AE1-206 E O2	33.49
940061	AE1-248 C O2	17.0
940062	AE1-248 E O2	11.33
940071	AE1-249 C	9.34
940072	AE1-249 E	6.97
AA2-074	AA2-074	3.26
CARR	CARR	0.77
CBM-S1	CBM-S1	4.23
CBM-S2	CBM-S2	8.54
CBM-W1	CBM-W1	0.06
CBM-W2	CBM-W2	23.91
CIN	CIN	0.24

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CPLE	CPLE	4.79
DEARBORN	DEARBORN	0.48
G-007	G-007	2.33
IPL	IPL	0.09
LGEE	LGEE	0.07
MEC	MEC	2.0
O-066	O-066	7.8
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.06

© PJM Interconnection 2019. All rights reserved.

Index 21

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
584338	314269	6PRGEORG	DVP	314291	3PRGEORG	DVP	1	DVP_P7-1: LN 211-228	tower	219.8	144.14	146.78	DC	11.09

Bus #	Bus	MW Impact
315073	1STONECA	10.78
315074	1HOPCGN1	13.0
315075	1HOPCGN2	12.83
315076	1HOPPOLC	2.29
315077	1HOPHCF1	3.57
315078	1HOPHCF2	3.57
315079	1HOPHCF3	3.57
315080	1HOPHCF4	5.42
315116	1SURRY 1	14.87
315120	1GRAVEL4	1.53
315122	1GRAVEL6	1.53
924811	AB2-134 C O1	2.04
924812	AB2-134 E O1	12.63
925331	AB2-190 C	22.15
925332	AB2-190 E	9.49
927221	AC1-216 C O1	10.15
927222	AC1-216 E O1	7.98
934011	AD1-025 C	17.45
934012	AD1-025 E	10.33
935161	AD1-151 C O1	17.8
935162	AD1-151 E O1	11.87
936041	AD2-007	1.85
936051	AD2-008 C	3.04
936052	AD2-008 E	6.61
939311	AE1-162 C	1.03
939312	AE1-162 E	0.68
940063	AE1-248 EBAT	5.88
BAYOU	BAYOU	0.1
BIG_CAJUN1	BIG_CAJUN1	0.14
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.64
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.04
CARR	CARR	0.07
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
CHOCTAW	CHOCTAW	0.09
COFFEEN	COFFEEN	0.06
COTTONWOOD	COTTONWOOD	0.38

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CPLE	CPLE	0.03
DEARBORN	DEARBORN	0.12
DUCKCREEK	DUCKCREEK	0.14
EDWARDS	EDWARDS	0.07
ELMERSMITH	ELMERSMITH	0.06
FARMERCITY	FARMERCITY	0.04
G-007	G-007	0.2
GIBSON	GIBSON	0.03
NEWTON	NEWTON	0.17
O-066	O-066	0.68
PRAIRIE	PRAIRIE	0.3
RENSSELAER	RENSSELAER	0.05
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.08
TILTON	TILTON	0.08
TRIMBLE	TRIMBLE	0.07
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.06

© PJM Interconnection 2019. All rights reserved.

Index 22

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
583772	314303	6HOPEWLL	DVP	314286	6CHESTFA	DVP	1	DVP_P1-2: LN 259	single	449.32	116.45	118.76	DC	10.37

Bus #	Bus	MW Impact
314314	3LOCKS	0.14
314507	3THOMPSN	0.11
315065	1CHESTF6	20.29
315074	1HOPCGN1	17.65
315075	1HOPCGN2	17.42
315076	1HOPPOLC	3.1
315077	1HOPHCF1	4.85
315078	1HOPHCF2	4.85
315079	1HOPHCF3	4.85
315080	1HOPHCF4	7.37
315098	1CHESPKA	0.15
315099	1CHESPKB	0.37
315116	1SURRY 1	20.71
315117	1GRAVELC	0.73
315119	1GRAVEL3	2.1
315120	1GRAVEL4	2.13
315121	1GRAVEL5	2.1
315122	1GRAVEL6	2.13
315260	1GOSPORTA	0.12
315261	1GOSPORTB	0.15
315262	1GOSPORTC	0.13
923851	AB2-025 C	0.2
924511	AB2-100 C	5.06
924811	AB2-134 C O1	2.79
925051	AB2-160 C O1	2.91
925061	AB2-161 C O1	2.18
925331	AB2-190 C	30.3
925821	AC1-061	0.0
926661	AC1-147 C	0.13
927221	AC1-216 C O1	13.91
932041	AC2-012 C	3.75
932581	AC2-078 C O1	3.43
932591	AC2-079 C O1	2.98
934011	AD1-025 C	23.91
934571	AD1-082 C	4.96
935111	AD1-144 C	0.11
935161	AD1-151 C O1	24.35
935211	AD1-156 C	0.27
936041	AD2-007	2.54
936051	AD2-008 C	4.16

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
936661	AD2-085 C	1.81
937541	AD2-215 C	0.7
938631	AE1-085 C O2	9.0
938771	AE1-103 C O2	1.35
938841	AE1-109AC O2	5.5
939071	AE1-135 C O2	9.28
939191	AE1-149 C O2	9.63
939311	AE1-162 C	1.49
940061	AE1-248 C O2	10.37
940071	AE1-249 C	3.84
CARR	CARR	0.22
CBM-S1	CBM-S1	2.18
CBM-S2	CBM-S2	3.06
CBM-W1	CBM-W1	1.51
CBM-W2	CBM-W2	13.65
CIN	CIN	0.72
CPLE	CPLE	1.65
IPL	IPL	0.44
LGEE	LGEE	0.21
MEC	MEC	1.83
MECS	MECS	0.36
RENSSELAER	RENSSELAER	0.17
WEC	WEC	0.19

© PJM Interconnection 2019. All rights reserved.

Index 23

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
582659	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	144.43	145.01	DC	40.33

Bus #	Bus	MW Impact
314189	6PAPERMILL	10.93
314421	6WINCHST	0.25
314539	3UNCAMP	3.9
314541	3WATKINS	1.09
314554	3BTLEBRO	1.02
314557	3BETHELC	1.08
314566	3CRESWEL	3.91
314572	3EMPORIA	0.55
314574	6EVERETS	5.92
314578	3HORNRTN	4.48
314582	3KELFORD	5.03
314594	6PLYMOTH	1.35
314603	3SCOT NK	4.6
314617	3TUNIS	1.25
314620	6CASHIE	1.31
314623	3WITAKRS	1.76
314648	6SUNBURY	1.55
314651	6WINFALL	3.05
315073	1STONECA	8.71
315074	1HOPCGN1	10.5
315075	1HOPCGN2	10.37
315090	1YORKTN1	53.46
315091	1YORKTN2	55.48
315092	1YORKTN3	40.78
315110	1ELIZAR3	5.54
315131	1EDGECMA	11.91
315132	1EDGECMB	11.91
315233	1SURRY 2	49.17
900672	V4-068 E	0.45
901082	W1-029 E	79.96
907092	X1-038 E	9.74
913392	Y1-086 E	3.89
916042	Z1-036 E	77.56
916192	Z1-068 E	3.42
916302	Z1-086 E	13.64
917122	Z2-027 E	1.86
917332	Z2-043 E	1.43
917342	Z2-044 E	0.75
917512	Z2-088 E OP1	5.37
918492	AA1-063AE OP	5.61

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
918512	AA1-065 E OP	6.65
918532	AA1-067 E	1.04
918562	AA1-072 E	0.24
919152	AA1-139 E	11.56
919692	AA2-053 E	5.17
919701	AA2-057 C	9.39
919702	AA2-057 E	4.69
920042	AA2-088 E OP	15.96
920592	AA2-165 E	0.62
920672	AA2-174 E	0.6
920692	AA2-178 E	6.71
923801	AB2-015 C O1	13.72
923802	AB2-015 E O1	11.25
923832	AB2-022 E	2.19
923842	AB2-024 E	1.84
923852	AB2-025 E	1.45
923911	AB2-031 C O1	2.98
923912	AB2-031 E O1	1.47
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	8.02
924152	AB2-059 E O1	6.97
924241	AB2-068 O1	619.38
924391	AB2-088 C	0.58
924392	AB2-088 E	0.28
924491	AB2-098 C	0.81
924492	AB2-098 E	0.35
924501	AB2-099 C	0.87
924502	AB2-099 E	0.37
924511	AB2-100 C	15.33
924512	AB2-100 E	7.55
924812	AB2-134 E O1	18.11
925051	AB2-160 C O1	6.26
925052	AB2-160 E O1	10.22
925061	AB2-161 C O1	5.12
925062	AB2-161 E O1	8.35
925122	AB2-169 E	8.8
925171	AB2-174 C O1	9.33
925172	AB2-174 E O1	8.44
925281	AB2-186 C	1.06
925282	AB2-186 E	0.45
925291	AB2-188 C O1	3.86
925292	AB2-188 E O1	1.73
925331	AB2-190 C	29.17
925332	AB2-190 E	12.5
925522	AC1-027 E	2.08
925591	AC1-034 C	8.76
925592	AC1-034 E	6.61
925861	AC1-065 C	5.36
925862	AC1-065 E	8.75
926071	AC1-086 C	28.13
926072	AC1-086 E	12.8

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
926201	AC1-098 C	8.44
926202	AC1-098 E	5.03
926211	AC1-099 C	2.83
926212	AC1-099 E	1.66
926291	AC1-107 O1	934.91
926662	AC1-147 E	2.41
926751	AC1-161 C O1	59.47
926752	AC1-161 E O1	25.39
926781	AC1-164 C	67.94
926782	AC1-164 E	30.53
927021	AC1-189 C	12.09
927022	AC1-189 E	6.02
927141	AC1-208 C	12.18
927142	AC1-208 E	5.41
927221	AC1-216 C O1	14.55
927222	AC1-216 E O1	11.45
930402	AB1-081 E O1	4.92
930862	AB1-132 E O1	8.19
931232	AB1-173 E	1.4
931242	AB1-173AE	1.4
932041	AC2-012 C	18.54
932042	AC2-012 E	30.26
932532	AC2-073 E	1.95
932581	AC2-078 C O1	5.51
932582	AC2-078 E O1	9.0
932591	AC2-079 C O1	9.25
932592	AC2-079 E O1	15.1
932631	AC2-084 C	12.04
932632	AC2-084 E	5.93
932831	AC2-110 C	2.15
932832	AC2-110 E	3.5
933061	AC2-130	3.1
933071	AC2-131 1	2.1
933081	AC2-131 2	0.95
933111	AC2-132 1	1.1
933121	AC2-132 2	0.56
933262	AC2-137 E	1.87
933272	AC2-138 E	1.18
933291	AC2-141 C	59.47
933292	AC2-141 E	25.39
933732	AC2-196 E	2.17
933991	AD1-023 C	20.57
933992	AD1-023 E	11.2
934011	AD1-025 C	25.02
934012	AD1-025 E	14.82
934061	AD1-033 C	13.69
934062	AD1-033 E	9.12
934141	AD1-041 C	8.49
934142	AD1-041 E	5.66
934201	AD1-047 C	10.69
934202	AD1-047 E	7.13
934212	AD1-048 E	1.38

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
934331	AD1-057 C O1	13.17
934332	AD1-057 E O1	7.03
934392	AD1-063 E	1.75
934521	AD1-076 C	86.33
934522	AD1-076 E	43.96
934571	AD1-082 C	11.67
934572	AD1-082 E	6.65
934611	AD1-087 C O1	9.64
934612	AD1-087 E O1	4.53
935112	AD1-144 E	1.67
935161	AD1-151 C O1	23.44
935162	AD1-151 E O1	15.63
935171	AD1-152 C O1	9.58
935172	AD1-152 E O1	6.38
935212	AD1-156 E	1.73
936041	AD2-007	2.66
936051	AD2-008 C	4.36
936052	AD2-008 E	9.48
936151	AD2-021	0.33
936241	AD2-030 C	3.71
936242	AD2-030 E	1.9
936301	AD2-039 C	2.15
936302	AD2-039 E	3.5
936341	AD2-044 C	0.29
936342	AD2-044 E	0.33
936391	AD2-049 C	3.25
936392	AD2-049 E	3.25
936401	AD2-051 C O1	12.92
936402	AD2-051 E O1	5.55
936531	AD2-068 C	6.83
936532	AD2-068 E	3.52
936591	AD2-074 C	7.45
936592	AD2-074 E	12.16
936661	AD2-085 C	5.53
936662	AD2-085 E	9.03
936701	AD2-089 C	9.68
936702	AD2-089 E	6.45
936711	AD2-090 C O1	11.2
936712	AD2-090 E O1	7.47
937221	AD2-160 C O1	10.58
937222	AD2-160 E O1	5.55
937251	AD2-164	8.86
937481	AD2-202 C O1	2.65
937482	AD2-202 E O1	1.34
937541	AD2-215 C	3.09
937542	AD2-215 E	1.64
937571	AD2-169 C	13.39
937572	AD2-169 E	8.93
938031	AE1-004 C	2.15
938032	AE1-004 E	3.5
938171	AE1-026 C1 O	43.51
938172	AE1-026 C2 O	6.29

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
938173	AE1-026 E O2	13.14
938181	AE1-027 C	4.25
938182	AE1-027 E	2.24
938191	AE1-028 C	2.47
938192	AE1-028 E	1.43
938221	AE1-035 C	3.38
938222	AE1-035 E	1.66
938461	AE1-065 C O2	51.72
938462	AE1-065 E O2	208.69
938471	AE1-066 C O2	53.15
938472	AE1-066 E O2	207.25
938481	AE1-067 C O2	48.33
938482	AE1-067 E O2	212.07
938491	AE1-068 C O2	86.13
938492	AE1-068 E O2	47.57
938501	AE1-069 C O2	68.35
938502	AE1-069 E O2	39.07
938531	AE1-072 C O2	31.51
938532	AE1-072 E O2	16.43
938631	AE1-085 C O2	14.96
938632	AE1-085 E O2	9.97
938661	AE1-088	2.67
938771	AE1-103 C O2	5.91
938772	AE1-103 E O2	8.16
938841	AE1-109AC O2	14.0
938842	AE1-109AE O2	9.33
939041	AE1-133 C	62.45
939042	AE1-133 E	30.76
939071	AE1-135 C O2	27.48
939072	AE1-135 E O2	18.32
939191	AE1-149 C O2	14.06
939192	AE1-149 E O2	9.37
939241	AE1-155 C	19.74
939242	AE1-155 E	13.16
939311	AE1-162 C	3.68
939312	AE1-162 E	2.45
939411	AE1-173 C	146.89
939412	AE1-173 E	97.93
939421	AE1-174 C	0.66
939422	AE1-174 E	1.0
939431	AE1-175 C	4.42
939432	AE1-175 E	2.19
939611	AE1-191 C	16.97
939612	AE1-191 E	11.31
940061	AE1-248 C O2	24.2
940062	AE1-248 E O2	16.13
940071	AE1-249 C	8.26
940072	AE1-249 E	6.16
AA2-074	AA2-074	6.78
AE1-042	AE1-042	9.38
CARR	CARR	1.33
CBM-S1	CBM-S1	13.78

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CBM-S2	CBM-S2	18.81
CBM-W1	CBM-W1	9.83
CBM-W2	CBM-W2	86.66
CIN	CIN	4.7
CPLE	CPLE	9.96
G-007	G-007	4.24
IPL	IPL	2.89
LGEE	LGEE	1.37
MEC	MEC	11.75
MECS	MECS	2.52
O-066	O-066	14.17
RENSSELAER	RENSSELAER	1.05
WEC	WEC	1.24

© PJM Interconnection 2019. All rights reserved.

Index 24

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
583041	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	100.53	102.37	DC	17.33

Bus #	Bus	MW Impact
924241	AB2-068 O1	314.45
926291	AC1-107 O1	474.64
936391	AD2-049 C	1.48
936392	AD2-049 E	1.48
939421	AE1-174 C	0.42
939422	AE1-174 E	0.63
940063	AE1-248 EBAT	17.33
BAYOU	BAYOU	1.32
BIG_CAJUN1	BIG_CAJUN1	2.13
BIG_CAJUN2	BIG_CAJUN2	4.28
BLUEG	BLUEG	1.35
CALDERWOOD	CALDERWOOD	0.87
CANNELTON	CANNELTON	0.14
CATAWBA	CATAWBA	1.08
CBM-N	CBM-N	0.92
CHEOAH	CHEOAH	0.82
CHILHOWEE	CHILHOWEE	0.28
CHOCTAW	CHOCTAW	1.47
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	5.1
DUCKCREEK	DUCKCREEK	0.39
EDWARDS	EDWARDS	0.16
ELMERSMITH	ELMERSMITH	0.26
FARMERCITY	FARMERCITY	0.2
G-007A	G-007A	3.16
GIBSON	GIBSON	0.07
HAMLET	HAMLET	4.71
MECS	MECS	0.22
NEWTON	NEWTON	0.58
NYISO	NYISO	4.0
O-066A	O-066A	1.47
PRAIRIE	PRAIRIE	1.6
SANTEETLA	SANTEETLA	0.25
SMITHLAND	SMITHLAND	0.17
TATANKA	TATANKA	0.3
TILTON	TILTON	0.18
TRIMBLE	TRIMBLE	0.14
TVA	TVA	2.17
UNIONPOWER	UNIONPOWER	1.18
VFT	VFT	8.47

© PJM Interconnection 2019. All rights reserved.

© PJM Interconnection 2019. All rights reserved.

Index 25

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
583248	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.39	165.93	DC	28.76

Bus #	Bus	MW Impact
314229	6MT RD221	0.21
314236	6NRTHEST	0.33
314309	6IRON208	0.78
315053	1BELMED1	31.58
315054	1BELMED2	31.58
315055	1BELMED3	26.21
315058	1CHESTF3	33.55
315059	1CHESTF4	54.38
315060	1CHESTF5	17.66
315061	1CHESTG7	6.92
315062	1CHESTS7	3.15
315063	1CHESTG8	6.79
315064	1CHESTS8	3.5
315067	1DARBY 1	4.52
315068	1DARBY 2	4.52
315069	1DARBY 3	4.54
315070	1DARBY 4	4.54
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.11
315084	1SPRUNCB	19.11
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.33
315091	1YORKTN2	55.34
315092	1YORKTN3	40.59
315233	1SURRY 2	44.08
923801	AB2-015 C O1	14.87
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.63
924501	AB2-099 C	0.97
924511	AB2-100 C	19.06
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.42
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.15
925861	AC1-065 C	6.04
926071	AC1-086 C	33.57

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
926291	AC1-107 O1	646.99
926411	AC1-112 C	0.59
926751	AC1-161 C O1	55.61
926781	AC1-164 C	77.78
927041	AC1-191 C O1	17.06
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.76
932041	AC2-012 C	18.51
932501	AC2-070 C	0.5
932581	AC2-078 C O1	7.33
932591	AC2-079 C O1	10.28
932831	AC2-110 C	2.41
933061	AC2-130	4.51
933071	AC2-131 1	3.06
933081	AC2-131 2	1.39
933111	AC2-132 1	1.61
933121	AC2-132 2	0.82
933261	AC2-137 C	0.61
933291	AC2-141 C	55.61
933991	AD1-023 C	22.2
934011	AD1-025 C	31.21
934061	AD1-033 C	13.58
934141	AD1-041 C	9.42
934201	AD1-047 C	13.01
934211	AD1-048 C	0.71
934521	AD1-076 C	92.47
934571	AD1-082 C	13.83
935161	AD1-151 C O1	29.86
936041	AD2-007	3.31
936051	AD2-008 C	5.43
936151	AD2-021	0.45
936241	AD2-030 C	4.05
936301	AD2-039 C	2.41
936391	AD2-049 C	3.31
936401	AD2-051 C O1	14.46
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.53
937251	AD2-164	8.91
937541	AD2-215 C	3.16
937571	AD2-169 C	16.21
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.16
938172	AE1-026 C2 O	6.82
938181	AE1-027 C	4.22
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O2	51.45
938471	AE1-066 C O2	52.87
938481	AE1-067 C O2	48.08
938491	AE1-068 C O2	92.69
938501	AE1-069 C O2	73.46

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
938531	AE1-072 C O2	31.5
938551	AE1-074 C	4.28
938631	AE1-085 C O2	19.66
938661	AE1-088	2.92
938771	AE1-103 C O2	6.34
938841	AE1-109AC O2	16.28
939041	AE1-133 C	63.17
939071	AE1-135 C O2	34.32
939191	AE1-149 C O2	19.32
939311	AE1-162 C	3.93
939411	AE1-173 C	149.52
939421	AE1-174 C	0.68
939431	AE1-175 C	4.55
939611	AE1-191 C	18.84
940061	AE1-248 C O2	28.76
940071	AE1-249 C	13.06
AA2-074	AA2-074	8.68
AB2-013	AB2-013	7.98
AE1-033	AE1-033	8.31
AE1-042	AE1-042	16.96
CARR	CARR	2.56
CBM-S1	CBM-S1	26.96
CBM-S2	CBM-S2	26.18
CBM-W1	CBM-W1	28.37
CBM-W2	CBM-W2	177.11
CIN	CIN	13.23
CPLE	CPLE	12.76
IPL	IPL	8.34
LGEE	LGEE	3.9
MEC	MEC	28.13
MECS	MECS	11.91
RENSSELAER	RENSSELAER	2.03
WEC	WEC	3.47
Z1-043	Z1-043	13.68

© PJM Interconnection 2019. All rights reserved.

Index 26

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
583318	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	146.83	147.29	DC	25.15

Bus #	Bus	MW Impact
314507	3THOMPSN	0.5
315053	1BELMED1	25.07
315054	1BELMED2	25.07
315055	1BELMED3	20.81
315058	1CHESTF3	25.14
315059	1CHESTF4	40.75
315074	1HOPCGN1	12.12
315075	1HOPCGN2	11.96
315083	1SPRUNCA	16.05
315084	1SPRUNCB	16.05
315085	1SPRUNCC	11.9
315086	1SPRUNCD	11.9
315090	1YORKTN1	42.5
315091	1YORKTN2	44.1
315098	1CHESPKA	0.66
315099	1CHESPKB	1.63
315102	1BRUNSWICKG1	12.99
315103	1BRUNSWICKG2	12.99
315104	1BRUNSWICKG3	12.99
315105	1BRUNSWICKS1	26.98
315108	1ELIZAR1	4.83
315109	1ELIZAR2	4.74
315110	1ELIZAR3	4.89
315131	1EDGECMA	13.54
315132	1EDGECMB	13.54
315150	1BUGGS 1	15.64
315151	1BUGGS 2	15.64
315260	1GOSPORTA	0.52
315261	1GOSPORTB	0.67
315262	1GOSPORTC	0.57
916191	Z1-068 C	0.07
916301	Z1-086 C	79.05
919151	AA1-139 C	3.68
919701	AA2-057 C	10.53
923801	AB2-015 C O1	13.5
923911	AB2-031 C O1	3.44
923941	AB2-035 C	0.5
924241	AB2-068 O1	245.7
924391	AB2-088 C	0.64
924401	AB2-089 C	3.06

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
924491	AB2-098 C	0.86
924501	AB2-099 C	0.9
924511	AB2-100 C	18.01
925051	AB2-160 C O1	8.2
925061	AB2-161 C O1	5.31
925171	AB2-174 C O1	10.81
925281	AB2-186 C	0.97
925291	AB2-188 C O1	3.7
925331	AB2-190 C	30.03
925521	AC1-027 C	0.49
925591	AC1-034 C	9.97
925781	AC1-054 C O1	10.43
925861	AC1-065 C	4.35
926071	AC1-086 C	31.65
926201	AC1-098 C	9.25
926211	AC1-099 C	3.1
926291	AC1-107 O1	370.86
926661	AC1-147 C	0.56
926751	AC1-161 C O1	49.17
926761	AC1-162 C	38.64
926781	AC1-164 C	52.72
927021	AC1-189 C	12.98
927141	AC1-208 C	13.55
927221	AC1-216 C O1	14.74
932041	AC2-012 C	16.38
932581	AC2-078 C O1	6.32
932591	AC2-079 C O1	9.07
932631	AC2-084 C	13.19
932831	AC2-110 C	1.74
933061	AC2-130	3.31
933071	AC2-131 1	2.24
933081	AC2-131 2	1.02
933111	AC2-132 1	1.18
933121	AC2-132 2	0.6
933291	AC2-141 C	49.17
933501	AC2-165 C	14.57
933731	AC2-196 C	0.44
933991	AD1-023 C	20.38
934011	AD1-025 C	25.34
934061	AD1-033 C	12.08
934141	AD1-041 C	6.82
934201	AD1-047 C	12.31
934231	AD1-050 C	6.76
934331	AD1-057 C O1	14.91
934521	AD1-076 C	84.66
934571	AD1-082 C	12.1
934611	AD1-087 C O1	12.17
934621	AD1-088 C	18.68
935161	AD1-151 C O1	24.13
935171	AD1-152 C O1	12.1
936041	AD2-007	2.69
936051	AD2-008 C	4.41

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
936151	AD2-021	0.31
936301	AD2-039 C	1.74
936361	AD2-046 C O1	12.51
936391	AD2-049 C	2.72
936401	AD2-051 C O1	13.42
936481	AD2-063 C O1	20.3
936531	AD2-068 C	7.59
936661	AD2-085 C	5.44
936701	AD2-089 C	10.71
936711	AD2-090 C O1	11.21
937221	AD2-160 C O1	9.39
937251	AD2-164	7.18
937481	AD2-202 C O1	3.35
937541	AD2-215 C	2.76
937571	AD2-169 C	15.32
938031	AE1-004 C	1.74
938171	AE1-026 C1 O	43.36
938172	AE1-026 C2 O	6.27
938181	AE1-027 C	3.76
938191	AE1-028 C	2.18
938221	AE1-035 C	3.45
938461	AE1-065 C O2	45.68
938471	AE1-066 C O2	46.94
938481	AE1-067 C O2	42.69
938491	AE1-068 C O2	101.87
938501	AE1-069 C O2	80.8
938531	AE1-072 C O2	28.11
938551	AE1-074 C	4.01
938561	AE1-075 C	3.3
938631	AE1-085 C O2	16.99
938661	AE1-088	2.71
938771	AE1-103 C O2	5.73
938841	AE1-109AC O2	14.27
939041	AE1-133 C	56.58
939071	AE1-135 C O2	32.44
939181	AE1-148 C O2	12.33
939191	AE1-149 C O2	16.61
939311	AE1-162 C	3.35
939411	AE1-173 C	152.63
939421	AE1-174 C	0.27
939431	AE1-175 C	3.42
939611	AE1-191 C	13.63
940061	AE1-248 C O2	25.15
940071	AE1-249 C	10.82
AA2-074	AA2-074	8.51
AB2-013	AB2-013	6.46
AE1-033	AE1-033	6.73
AE1-042	AE1-042	15.02
CARR	CARR	2.05
CBM-S1	CBM-S1	23.39
CBM-S2	CBM-S2	25.03
CBM-W1	CBM-W1	22.8

© PJM Interconnection 2019. All rights reserved.

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	152.26
CIN	CIN	10.65
CPLE	CPLE	12.51
IPL	IPL	6.67
LGEE	LGEE	3.12
MEC	MEC	23.37
MECS	MECS	9.01
RENSSELAER	RENSSELAER	1.62
WEC	WEC	2.8
Z1-043	Z1-043	11.04

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: G2T567	CONTINGENCY 'DVP_P4-2: G2T567' /* SURRY 500 KV OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 OPEN BRANCH FROM BUS 314924 TO BUS 315233 CKT 1 /* 8SURRY 500.00 - 1SURRY 2 22.000 OPEN BUS 315233 /* ISLAND: 1SURRY 2 22.000 END
DVP_P1-2: LN 15-B-C	CONTINGENCY 'DVP_P1-2: LN 15-B-C' OPEN BRANCH FROM BUS 932580 TO BUS 938630 CKT 1 /* AC2-078 TAP 115.00 - AE1-085 TAP 115.00 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-5: L552	CONTINGENCY 'DVP_P4-5: L552' /* POE 115 KV OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P1-2: LN 15-A	CONTINGENCY 'DVP_P1-2: LN 15-A' OPEN BRANCH FROM BUS 314292 TO BUS 314329 CKT 1 /* 3DISPUTN 115.00 - 3POE 115.00 OPEN BRANCH FROM BUS 314292 TO BUS 932580 CKT 1 /* 3DISPUTN 115.00 - AC2-078 TAP 115.00 OPEN BUS 314292 /* ISLAND: 3DISPUTN 115.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 211-228	CONTINGENCY 'DVP_P7-1: LN 211-228' OPEN BRANCH FROM BUS 314287 TO BUS 314303 CKT 1 /* 6CHESTF B 230.00 - 6HOPEWLL 230.00 OPEN BRANCH FROM BUS 314286 TO BUS 314303 CKT 1 /* 6CHESTF A 230.00 - 6HOPEWLL 230.00 END

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P1-2: LN 44	CONTINGENCY 'DVP_P1-2: LN 44' OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 313878 TO BUS 314542 CKT 1 /* 3BELL AVE 1 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 314542 CKT 1 /* 3MYRTLE 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314542 /* ISLAND: 3WINDSOR 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
DVP_P4-5: POE L652	CONTINGENCY 'DVP_P4-5: POE L652' /* POE 115 KV OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P4-2: 10652	CONTINGENCY 'DVP_P4-2: 10652' /* POE 115 KV OPEN BRANCH FROM BUS 313879 TO BUS 314273 CKT 1 /* 3BELL AVE 2 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 OPEN BUS 314329 /* 3POE 115.00 KV OPEN BUS 314454 /* ISLAND: 3POE_1 115.00 END
DVP_P1-2: LN 15-B-A	CONTINGENCY 'DVP_P1-2: LN 15-B-A' OPEN BRANCH FROM BUS 313878 TO BUS 940060 CKT 1 /* 3BELL AVE 1 115.00 - AE1-248 TAP 115.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P1-2: LN 217	CONTINGENCY 'DVP_P1-2: LN 217' OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-3: SUFFOLK H542	CONTINGENCY 'DVP_P4-3: SUFFOLK H542' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 534	CONTINGENCY 'DVP_P1-2: LN 534' OPEN BRANCH FROM BUS 314907 TO BUS 314910 CKT 1 /* 8DOOMS 500.00 - 8CUNINGHAM 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	

© PJM Interconnection 2019. All rights reserved.

Contingency Name	Contingency Definition
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P4-5: L1TL5	CONTINGENCY 'DVP_P4-5: L1TL5' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 END
DVP_P4-2: 24972-4	CONTINGENCY 'DVP_P4-2: 24972-4' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314285 CKT 1 /* 6CARSON 230.00 - 6CHRL249 230.00 OPEN BRANCH FROM BUS 314285 TO BUS 314316 CKT 1 /* 6CHRL249 230.00 - 6LOCKS 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 2 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314285 /* ISLAND: 6CHRL249 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P4-3: YTH5	CONTINGENCY 'DVP_P4-3: YTH5' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 1 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 1 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 REMOVE SWSHUNT FROM BUS 314537 END

© PJM Interconnection 2019. All rights reserved.

Short Circuit

© PJM Interconnection 2019. All rights reserved.

Short Circuit

The following Breakers are overduty:

None.

© PJM Interconnection 2019. All rights reserved.