Generation Interconnection

Feasibility Study Report

for

Queue Project AE2-037

KELFORD-EARLEYS 115 KV

48.2 MW Capacity / 71.5 MW Energy

July, 2019

Table of Contents

1 Introduction 5
2 Preface 5
3 General 6
3.1 Primary Point of Interconnection 6
3.2 Secondary Point of Interconnection 7
3.3 Cost Summary 7
4 Transmission Owner Scope of Work 8
5 Attachment Facilities 8
6 Direct Connection Cost Estimate 9
7 Non-Direct Connection Cost Estimate 9
8 Schedule 11
9 Transmission Owner Analysis 11
9.1 Power Flow Analysis 11
9.2 Short Circuit Analysis 11
9.3 Stability Analysis 11
10 Interconnection Customer Requirements 11
10.1 System Protection 11
10.2 Compliance Issues and Interconnection Customer Requirements 11
10.3 Power Factor Requirements 12
11 Revenue Metering and SCADA Requirements 12
11.1 PJM Requirements 12
11.1.1 Meteorological Data Reporting Requirement 12
1.1 Dominion Requirements 13
12 Network Impacts 13
12.1 Generation Deliverability 15
12.2 Multiple Facility Contingency 15
12.3 Contribution to Previously Identified Overloads 15
12.4 Potential Congestion due to Local Energy Deliverability 17
12.5 System Reinforcements 20
12.6 Flow Gate Details 24
12.6.1 Contingency Descriptions 24

© PJM Interconnection 2019. All rights reserved

12.6.2 Index 1 33
12.6.3 Index 2 36
12.6.4 Index 3 39
12.6.5 Index 4 42
12.6.6 Index 5 45
12.6.7 Index 6 49
12.6.8 Index 7 51
12.6.9 Index 8 53
12.6.10 Index 9 57
12.6.11 Index 10 61
12.6.12 Index 11 65
12.6.13 Index 13 67
12.6.14 Index 14 70
12.6.15 Index 15 72
12.6.16 Index 16 74
12.6.17 Index 17 78
12.6.18 Index 18 82
12.6.19 Index 19 85
12.6.20 Index 20 87
12.6.21 Index 21 91
12.6.22 Index 22 93
12.6.23 Index 23 95
12.6.24 Index 24 97
12.6.25 Index 25 100
12.6.26 Index 26 102
12.6.27 Index 27 105
12.6.28 Index 28 108
12.6.29 Index 29 110
12.7 Short Circuit 113
13 Network Impacts – Secondary Point of Interconnection 114
13.1 Generation Deliverability 116
13.2 Multiple Facility Contingency 116
13.3 Contribution to Previously Identified Overloads 116

© PJM Interconnection 2019. All rights reserved

13.4 Potential Congestion due to Local Energy Deliverability 118
13.5 Flow Gate Details 121
13.5.1 Contingency Descriptions 121
13.5.2 Index 1 125
13.5.3 Index 2 128
13.5.4 Index 3 131
13.5.5 Index 4 135
13.5.6 Index 5 139
13.5.7 Index 6 143
13.5.8 Index 7 146
13.5.9 Index 8 148
13.5.10 Index 9 152
13.5.11 Index 10 156
13.5.12 Index 11 160
13.5.13 Index 12 163
13.5.14 Index 13 165
13.5.15 Index 14 169
13.5.16 Index 15 171
13.5.17 Index 16 173
13.5.18 Index 17 176
13.5.19 Index 18 179
13.5.20 Index 19 182
13.5.21 Index 20 184
13.5.22 Index 21 186
13.6 Short Circuit 190
14 Affected Systems 192
14.1 LG&E 192
14.2 MISO 192
14.3 TVA 192
14.4 Duke Energy Progress 192
14.5 NYISO 192
Attachment 1 193

© PJM Interconnection 2019. All rights reserved

1 Introduction

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

2 Preface

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

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

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

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

© PJM Interconnection 2019. All rights reserved

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.

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Bertie County, Aulander, North Carolina. The installed facilities will have a total capability of 71.5 MW with 48.2 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 9/17/2021. This study does not imply a TO commitment to this in-service date.

Queue Number	AE2-037
Project Name	KELFORD-EARLEYS 115 KV
Interconnection Customer	
State	North Carolina
County	Bertie
Transmission Owner	Dominion
MFO	71.5
MWE	71.5
MWC	48.2
Fuel	Solar
Basecase Study Year	2022

3.1 Primary Point of Interconnection

AE2-037 "Kelford – Earleys 115 kV" will interconnect with the Dominion's transmission system through a new three breaker 115 kV switching station which will be adjacent to the transmission right-of-way. This is the primary Point of Interconnection (POI) chose by the IC with the ITO's transmission system. The IC is responsible for securing right-of-way, permits and constructing the proposed attachment line from the solar facility site to the proposed new switching station. Attachment 1 shows a one-line diagram of the proposed interconnection facilities. The IC may not install any facilities on Dominion's right-of-way without first obtaining the necessary approval from Dominion Energy.

© PJM Interconnection 2019. All rights reserved

3.2 Secondary Point of Interconnection

The IC requested that a secondary POI "Earleys – Everetts 230 kV" be reviewed for network impacts (Option 2). This report does not provide costs for the physical interconnection of Option 2. It was just analyzed for network impacts. Results are shown in the Network Impacts – Secondary Point of Interconnection section of this report.

3.3 Cost Summary

The AE2-037 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$ 1,700,000
Direct Connection Network Upgrade	$ 7,100,000
Non Direct Connection Network Upgrades	$ 0
Total Costs	**$ 8,800,000**

In addition, the AE2-037 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	**$932,517,000**

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

The Feasibility Study is used to make a preliminary determination of the type and scope of Attachment Facilities, Local Upgrades, and Network Upgrades that will be necessary to accommodate the Interconnection Request and to provide the Interconnection Customer a preliminary estimate of the time that will be required to construct any necessary facilities and upgrades and the Interconnection Customer's cost responsibility. The System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades. Facilities Studies will include, commensurate with the degree of engineering specificity as provided in the Facilities Study Agreement, good faith estimates of the cost, determined in accordance with Section 217 of the Tariff,

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

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

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

© PJM Interconnection 2019. All rights reserved

4 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AE2-037 was evaluated as a 48.2 MW Capacity (71.5 MW energy) injection at the AE2-037 115 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2022 AE2 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at: http://www.dominionenergy.com.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically in Planning Studies NERC Category C Contingency Conditions (Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For Dominion Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of the AE2-037 generation project to the Dominion Transmission System is detailed in the following sections. The associated one-line with the generation project attachment facilities and primary direct and non-direct connection are shown in Attachment 1.

Note that the ITO findings were made from a conceptual review of this project. A more detailed review of the connection facilities and their cost will be identified in a future study phases. Further note that the cost estimate data contained in this document should be considered high level estimates since it was produced without a detailed engineering review. The applicant will be responsible for the actual cost of construction. ITO herein reserves the right to return to any issues in this document and, upon appropriate justification, request additional monies to complete any reinforcements to the transmission systems.

5 Attachment Facilities

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

© PJM Interconnection 2019. All rights reserved

Description	Total Cost
Substation (Metering)	$ 500,000
Transmission (one span)	$ 1,200,000
Total Attachment Facility Costs	**$ 1,700,000**

It is estimated to take 18-24 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). 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. See Attachment 1.

6 Direct Connection Cost Estimate

To accommodate the proposed AE2-037 Project, Dominion Energy will build a new three breaker 115 kV Switching Station and re-arrange the existing section of line between Kelford and Earleys Substations to allow for the proposed interconnection. The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Substation (Metering)	$ 5,500,000
Transmission (one span)	$ 1,600,000
Total Direct Connection Facility Costs	**$ 7,100,000**

It is estimated to take 24-30 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). 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. See Attachment 1.

7 Non-Direct Connection Cost Estimate

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

Description	Total Cost
Rebuild 13.7 miles of 230 kV Line 246 from Earleys to Nucor Tap	$20,550,000
Add additional 230/115 kV transformer at Earleys substation.	$18,000,000
Add additional 230/115 kV transformer at Carolina substation.	$18,000,000
Rebuild 13.35 miles of 230 kV Line 246 from Nucor Tap to AA1-138 Tap	$20,025,000
Rebuild 2.47 miles of 230 kV Line 238 from AE2-033 TAP to Sapony	$3,705,000

© PJM Interconnection 2019. All rights reserved

Description	Total Cost
Rebuild 17.3 miles of 230 kV Line 246 from AA1-138 Tap to Suffolk	$25,950,000
Rebuild 3.3 miles of 230 kV Line 2131 from South Hertford to Winfall	$4,950,000
Rebuild 0.41 miles of 115 kV Line 1001 from Whitakers to Consolidated Diesel	$533,000
Rebuild 3.09 miles of 115 kV Line 81 from Hornertown to Carolina	$4,017,000
For DEV portion, rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP	$4,500,000
Add additional 230/115 kV transformer at Earleys substation.	$6,000,000
Rebuild 2.0 miles of 230 kV Line 254 from Clubhouse to AB2-100 Tap	$3,000,000
For DEV portion, rebuild 4.13 miles of 230 kV Line 2058 from Hathaway to Rocky Mountain	$10,325,000
Rebuild 4.55 miles of 115 kV Line 1001 from Whitakers to Chestnut	$5,915,000
Rebuild 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap	$26,250,000
For DEV portion, rebuild 3.3 miles of 230 kV Line 2181 from Nash to Parmount	$8,250,000
Build new 500 kV line between Everetts and Suffolk.	$570,000,000
Rebuild 14.02 miles of 500 kV Line 573 from North Anna to Spotsylvania	$43,462,000
Rebuild 4.65 miles of 230 kV Line 2131 from Perquimans to South Hertford	$6,975,000
Rebuild 4.24 miles of 115 kV Line 1001 from Consolidated Diesel to Battleboro	$5,512,000
Rebuild 12.3 miles of 230 kV Line 2003 from Poe to Harrowgate	$30,750,000
Rebuild 0.76 miles of 230 kV Line 2181 from Hathaway to Nash	$1,900,000
Rebuild 11.79 miles of 230 kV Line 238 from Sapony to Carson	$17,685,000
Rebuild 3.21 miles of 115 kV Line 126 from AE2-037 Tap to Earleys	$4,173,000
Rebuild 10.28 miles of 230 kV Line 2021 from Elizabeth City to Shawboro	$15,420,000
Rebuild 14.28 miles of 230 kV Line 238 from Clubhouse to AE2-033 Tap	$21,420,000
Rebuild 16.0 miles of 230 kV Line 254 from AB2-100 Tap to Lakeview	$24,000,000
Rebuild 4.5 miles of 230 kV Line 2003 from Harrowgate to Tyler	$11,250,000
Total Non-Direct Connection Facility Costs	**$932,517,000**

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

8 Schedule

The schedule for the required Network Impact Reinforcements will be more clearly identified in future study phases. The estimate elapsed time to complete each of the required reinforcements is identified in the "System Reinforcements" section of the report.

9 Transmission Owner Analysis

9.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2022 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system. At the Primary POI, the AE2-037 project contributes to overloads on the Dominion transmission system as shown in the "Network Impact – Option 1" section of the report. The estimated cost of system reinforcements necessary to mitigate these overloads is also provided. At the Secondary POI, the AE2-027 project contributes to overloads on the Dominion transmission system as shown in the "Network Impacts – Option 2" section of the report. Cost estimates are not provided for the secondary POI.

9.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by Dominion. The connection of AE2-027 project to the system does not result in any newly overdutied circuit breakers on the Dominion transmission system and does not have a significant fault current contribution to existing overdutied circuit breakers

9.3 Stability Analysis

PJM will complete a dynamic stability analysis, if necessary, as part of the System Impact Study. The results of this analysis will be reviewed by Dominion. Should stability concerns be identified in PJM's study, Dominion will develop appropriate system reinforcement(s) and included the estimated cost of any reinforcement(s) in Dominion's System Impact Study report.

10 Interconnection Customer Requirements

10.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in Dominion's "Dominion Energy Electric Transmission Generator Interconnection Requirements" documented in Dominion's Facility Interconnection Requirements "Exhibit C" located at: https://www.dominionenergy.com/company/moving-energy/electric-transmission-access. Preliminary Protection requirements will be provided as part of the Facilities Study. Detailed Protection Requirements will be provided once the project enters the construction phase.

10.2 Compliance Issues and Interconnection Customer Requirements

The proposed Customer Facilities must be designed in accordance with Dominion's "Dominion's Facility Interconnection Requirements" document located at: https://www.dominionenergy.com/company/moving-energy/electric-transmission-access. In particular, the IC is responsible for the following:

© PJM Interconnection 2019. All rights reserved

1. The purchase and installation of a fully rated protection device (circuit breaker, circuit switcher, fuse) to protect the IC's GSU transformer(s).

2. The purchase and installation of the minimum required Dominion generation interconnection relaying and control facilities as described in the System Protection noted above. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

3. The purchase and installation of supervisory control and data acquisition ("SCADA") equipment to provide information in a compatible format to the Dominion Transmission System Control Center.

4. Compliance with the Dominion and PJM generator power factor and voltage control requirements.

The GSU(s) associated with the IC queue request shall meet the grounding requirements as noted in Dominion's "Dominion's Facility Interconnection Requirements" document located at: https://www.dominionenergy.com/company/moving-energy/electric-transmission-access.

The IC will also be required to meet all PJM, SERC, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and SERC audits. Failure to comply with these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the Dominion system.

10.3 Power Factor Requirements

The IC shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading (absorbing VARs) to 0.95 lagging (supplying VARs) measured at the high-side of the facility substation transformer(s) connected to the Dominion transmission system.

11 Revenue Metering and SCADA Requirements

11.1 PJM Requirements

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

11.1.1 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

1.1 Dominion Requirements

See Section 3.4.6 “Metering and telecommunications” of Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: https://www.dominionenergy.com/company/moving-energy/electric-transmission-access.

12 Network Impacts

The Queue Project AE2-037 was evaluated as a 71.5 MW (Capacity 48.2 MW) injection tapping the Earleys to Kelford 115 kV line in the Dominion area. Project AE2-037 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-037 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

12.1 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
1686760	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 218-A	single	374.0	98.44	99.66	DC	4.57
1686944	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 218-A	single	449.32	98.72	99.83	DC	4.99
7798650	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2056-A	single	678.68	93.94	94.88	DC	8.02
7798651	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2056-B	single	678.68	90.83	91.83	DC	8.02
1687108	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P1-2: LN 2181	single	164.0	92.53	94.19	DC	2.73
1687109	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P1-3: 6HATHAWAY-TX#1	single	164.0	89.85	91.54	DC	2.79
1686919	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	single	598.78	92.45	93.69	DC	7.47
1686819	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P1-3: 6EARLEYS-TX#4	single	175.78	89.1	104.13	DC	26.42
1686826	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P1-3: 6EARLEYS-TX#3	single	175.78	88.87	103.9	DC	26.42
1687080	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 550	single	3218.56	99.94	100.04	DC	7.57
1686907	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	Base Case	single	478.0	98.67	100.07	DC	6.73
1686773	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	single	598.78	98.53	99.77	DC	7.47
1686553	940520	AE2-037 TAP	DVP	314568	3EARLEYS	DVP	1	DVP_P1-2: LN 1015-A	single	142.88	81.58	115.31	DC	48.2
1686554	940520	AE2-037 TAP	DVP	314568	3EARLEYS	DVP	1	DVP_P1-2: LN 1001	single	142.88	74.54	104.59	DC	42.93

12.2 Multiple Facility Contingency

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

None

12.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	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
1686327	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 24642	breaker	897.0	112.87	114.31	DC	12.94
1686794	313719	3CHESTNUT	DVP	314623	3WITAKRS	DVP	1	DVP_P1-2: LN 2056-A	single	165.44	115.54	118.58	DC	5.03
7798531	313719	3CHESTNUT	DVP	314623	3WITAKRS	DVP	1	DVP_P1-2: LN 126-B	single	165.44	101.89	118.04	DC	26.72
1686755	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 2181	single	374.0	137.56	139.12	DC	5.83
1686940	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	123.48	124.8	DC	5.95
1686653	313854	3CONSLDL	DVP	314554	3BTLEBRO	DVP	1	DVP_P1-2: LN 2056-A	single	165.44	122.67	125.71	DC	5.03
7798376	313854	3CONSLDL	DVP	314554	3BTLEBRO	DVP	1	DVP_P1-2: LN 126-B	single	165.44	109.13	125.28	DC	26.72

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
1686323	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.89	109.51	DC	7.43
1686322	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.91	109.53	DC	7.43
1686317	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 201262	breaker	830.0	112.77	113.33	DC	10.2
1686320	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-1: G1TG2	breaker	830.0	111.3	111.77	DC	8.68
1687666	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 2058-2181	tower	830.0	112.21	112.89	DC	12.52
1686096	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P4-2: 205802	breaker	164.0	136.15	137.37	DC	4.44
1686097	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P4-2: 216702	breaker	164.0	131.3	132.41	DC	4.04
1687473	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	164.0	294.72	296.75	DC	7.36
1686086	314559	3CAROLNA	DVP	314561	6CAROLNA	DVP	1	DVP_P4-2: 102952	breaker	288.6	144.88	145.78	DC	5.75
1686873	314559	3CAROLNA	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 1029-A	single	239.89	106.46	108.12	DC	3.97
7798504	314559	3CAROLNA	DVP	314561	6CAROLNA	DVP	1	DVP_P1-3: 6CLUBHSE-TX#1	single	239.89	104.38	105.8	DC	3.43
1686120	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 205602	breaker	637.0	139.83	140.68	DC	11.93
1686121	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 2056T2081	breaker	637.0	139.49	140.33	DC	11.9
1686915	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	105.14	106.45	DC	8.02
1686917	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-B	single	598.78	101.11	102.42	DC	8.02
1687554	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	142.29	143.18	DC	12.53
1685954	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: 201262	breaker	208.0	148.18	166.61	DC	38.34
1685955	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: WT2171	breaker	208.0	121.48	140.33	DC	39.2
1686125	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 217162	breaker	208.0	121.67	140.52	DC	39.2
1686690	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	118.85	121.33	DC	14.19
1686691	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	118.07	120.55	DC	14.2
1686840	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	131.68	133.15	DC	6.62
1686842	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2167	single	449.32	115.3	117.04	DC	7.79
1686846	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	single	449.32	100.8	102.3	DC	6.73
1687505	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	168.55	171.13	DC	12.47
7798595	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	131.68	133.15	DC	6.62
7798596	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	131.68	133.15	DC	6.62
1686737	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	112.46	114.95	DC	14.19
1686738	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	111.68	114.17	DC	14.2
1686390	314578	3HORNRTN	DVP	314559	3CAROLNA	DVP	1	DVP_P4-2: 12342	breaker	202.0	101.29	105.15	DC	7.81

© 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
1686391	314578	3HORNRTN	DVP	314559	3CAROLNA	DVP	1	DVP_P4-2: 101442	breaker	202.0	101.29	105.15	DC	7.81
1686883	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	110.26	112.49	DC	8.53
1686884	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	109.86	111.78	DC	7.33
1687032	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPLE	1	DVP_P1-2: LN 2058	single	470.0	112.6	113.86	DC	5.95
1686663	314623	3WITAKRS	DVP	313854	3CONSLDL	DVP	1	DVP_P1-2: LN 2056-A	single	165.44	122.73	125.77	DC	5.03
7798366	314623	3WITAKRS	DVP	313854	3CONSLDL	DVP	1	DVP_P1-2: LN 126-B	single	165.44	109.13	125.28	DC	26.72
1685980	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	146.44	148.16	DC	11.31
1685981	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 24742	breaker	658.0	121.07	122.17	DC	7.24
1686337	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	109.44	110.88	DC	12.94
1686726	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	112.45	114.93	DC	14.19
1686727	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	111.66	114.15	DC	14.2
1686808	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	single	375.06	121.59	123.82	DC	8.53
1686809	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	120.41	122.33	DC	7.33
1686813	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	single	346.86	106.38	108.17	DC	6.2
1686901	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 570	single	478.0	127.6	128.98	DC	6.62
1687500	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	478.0	176.04	178.66	DC	12.47
7798635	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 6002_FSA	single	478.0	127.62	129.0	DC	6.62
7798637	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 570_FSA	single	478.0	127.6	128.98	DC	6.62
1686015	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 201262	breaker	637.0	149.87	150.6	DC	10.21
1686769	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	111.13	112.45	DC	8.02
1686772	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-B	single	598.78	107.12	108.44	DC	8.02
1687529	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	159.19	160.08	DC	12.53
1687530	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 56-2060	tower	637.0	152.08	152.66	DC	8.12
1687484	940520	AE2-037 TAP	DVP	314568	3EARLEYS	DVP	1	DVP_P7-1: LN 81-1001-A	tower	175.0	160.26	201.11	DC	71.49

12.4 Potential Congestion due to Local Energy Deliverability

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

© PJM Interconnection 2019. All rights reserved

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
1686607	313713	6SWAMP	DVP	313721	6ACORN HILL	DVP	1	DVP_P1-2: LN 2020	operation	449.32	165.7	166.32	DC	6.18
1687123	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P1-2: LN 246	operation	733.2	137.93	139.7	DC	12.99
1687128	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	Base Case	operation	733.2	112.12	113.22	DC	8.07
1686793	313719	3CHESTNUT	DVP	314623	3WITAKRS	DVP	1	Base Case	operation	165.44	121.71	123.65	DC	7.09
7798524	313719	3CHESTNUT	DVP	314623	3WITAKRS	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	150.63	174.59	DC	39.64
1686602	313721	6ACORN HILL	DVP	314648	6SUNBURY	DVP	1	DVP_P1-2: LN 2020	operation	449.32	165.7	166.32	DC	6.18
1686754	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 2181	operation	374.0	171.22	172.26	DC	8.65
1686938	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	operation	449.32	152.05	152.94	DC	8.83
1686652	313854	3CONSLDL	DVP	314554	3BTLEBRO	DVP	1	Base Case	operation	165.44	127.76	129.69	DC	7.09
7798369	313854	3CONSLDL	DVP	314554	3BTLEBRO	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	161.5	185.46	DC	39.63
7798798	313858	3SO JUSTICE	DVP	314577	3COX DP	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	124.2	148.16	DC	39.64
1687345	313885	6WALBMRL	DVP	313714	6PERQUIMANS	DVP	1	DVP_P1-2: LN 246	operation	733.2	108.87	110.64	DC	13.0
1687301	314203	6MACKEYS	DVP	314637	6EDENTON	DVP	1	DVP_P1-2: LN 246	operation	731.32	113.21	114.99	DC	13.0
1686570	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	174.67	175.13	DC	4.54
1686959	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2060	operation	678.68	136.1	136.67	DC	8.68
1686963	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	operation	678.68	125.03	125.77	DC	11.08
7799311	314524	3FRNKLN	DVP	314539	3UNCAMP	DVP	1	DVP_P1-2: LN 238-A	operation	224.66	105.18	106.29	DC	5.55
1687442	314527	3HOLLAND	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 238-A	operation	269.78	101.63	102.56	DC	5.55
1687102	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P1-3: 6HATHAWAY-TX#1	operation	164.0	130.33	131.47	DC	4.13
1687107	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	Base Case	operation	164.0	104.32	105.3	DC	3.59
1686872	314559	3CAROLNA	DVP	314561	6CAROLNA	DVP	1	Base Case	operation	226.54	121.15	122.01	DC	4.27
1686909	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-A	operation	598.78	148.38	149.27	DC	11.9
1686913	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	operation	598.78	134.55	135.38	DC	11.09
1687391	314564	6EDGECOM	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 218-A	operation	441.8	103.99	105.67	DC	7.4
1686814	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P1-3: 6EARLEYS-TX#4	operation	175.78	142.2	164.5	DC	39.2
1686820	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	Base Case	operation	167.41	81.97	96.09	DC	23.64
1686821	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P1-3: 6EARLEYS-TX#3	operation	175.78	141.98	164.28	DC	39.2
1686827	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	Base Case	operation	167.41	81.31	95.43	DC	23.64
1686685	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	178.01	181.7	DC	21.06
1686693	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	Base Case	operation	571.52	109.49	112.56	DC	17.55
1686835	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 246	operation	449.32	160.92	163.96	DC	13.61
1686841	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	operation	449.32	136.02	138.25	DC	9.99
1686732	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	171.62	175.31	DC	21.06

© 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
1686740	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	Base Case	operation	571.52	103.08	106.16	DC	17.55
7798900	314577	3COX DP	DVP	313719	3CHESTNUT	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	117.43	141.39	DC	39.64
1687257	314578	3HORNRTN	DVP	314559	3CAROLNA	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	102.41	121.67	DC	31.85
1687049	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	141.53	142.15	DC	6.05
1686878	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	operation	375.06	146.0	149.38	DC	12.65
1686882	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	Base Case	operation	346.86	123.08	124.28	DC	9.19
1687318	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	114.28	114.9	DC	6.11
1687030	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPLE	1	DVP_P1-2: LN 2058	operation	470.0	139.91	140.76	DC	8.83
7799260	314598	3ROAN DP	DVP	314578	3HORNRTN	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	89.26	108.51	DC	31.85
1686662	314623	3WITAKRS	DVP	313854	3CONSLDL	DVP	1	Base Case	operation	165.44	127.76	129.69	DC	7.09
7798359	314623	3WITAKRS	DVP	313854	3CONSLDL	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	161.5	185.46	DC	39.63
7799203	314628	3DARLINGT DP	DVP	314598	3ROAN DP	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	93.31	112.56	DC	31.85
1687348	314637	6EDENTON	DVP	313885	6WALBMRL	DVP	1	DVP_P1-2: LN 246	operation	733.2	108.87	110.64	DC	13.0
7798691	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P1-2: LN 6001	operation	571.52	139.42	139.99	DC	7.12
1686630	314648	6SUNBURY	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2020	operation	449.32	163.39	164.01	DC	6.18
1687258	314651	6WINFALL	DVP	313713	6SWAMP	DVP	1	DVP_P1-2: LN 2020	operation	449.32	121.41	122.03	DC	6.2
1687146	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P1-2: LN 246	operation	733.2	133.72	135.5	DC	12.99
1687151	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	Base Case	operation	733.2	104.63	105.73	DC	8.07
1686721	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	operation	571.52	171.6	175.3	DC	21.06
1686729	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	Base Case	operation	571.52	103.08	106.16	DC	17.55
1686802	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	operation	375.06	162.91	166.29	DC	12.65
1686807	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	operation	346.86	138.38	139.58	DC	9.19
1687386	925170	AB2-174 TAP	DVP	314572	3EMPORIA	DVP	1	DVP_P1-2: LN 254-A	operation	315.84	104.73	105.49	DC	5.29
7799178	927140	AC1-208 TAP	DVP	314628	3DARLINGT DP	DVP	1	DVP_P1-2: LN 126-B	operation	165.44	96.88	116.13	DC	31.85
1686947	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	152.28	152.9	DC	6.05
1686896	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 246	operation	478.0	157.59	160.44	DC	13.61
1686902	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	Base Case	operation	478.0	132.48	134.57	DC	9.99
1686763	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 239	operation	598.78	157.43	159.42	DC	11.92
1686767	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	operation	598.78	145.62	146.46	DC	11.09
1686547	940520	AE2-037 TAP	DVP	314568	3EARLEYS	DVP	1	DVP_P1-2: LN 1015-A	operation	142.88	154.57	204.61	DC	71.49
1686552	940520	AE2-037 TAP	DVP	314568	3EARLEYS	DVP	1	Base Case	operation	142.88	90.25	133.05	DC	61.15

© PJM Interconnection 2019. All rights reserved

12.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
1686691,1686690	19	6EARLEYS 230.0 kV - 6NUCO TP 230.0 kV Ckt 1	dom-017 (76) : Rebuild 13.7 miles of 230 kV Line 246 from Earleys to Nucor Tap with 2-636 ACSR. Project Type : FAC Cost : $20,550,000 Time Estimate : 30-36 Months	$20,550,000
1685955,1685954,1686826	7	3EARLEYS 115.0 kV - 6EARLEYS 230.0 kV Ckt 2	dom-016 (75) : Add additional 230/115 kV transformer at Earleys substation. Project Type : CON Cost : $6,000,000 Time Estimate : 16-18 Months	$18,000,000
1686086,1686873,7798504	18	3CAROLNA 115.0 kV - 6CAROLNA 230.0 kV Ckt 1	dom-020 (81) : Add additional 230/115 kV transformer at Carolina substation. Project Type : CON Cost : $6,000,000 Time Estimate : 16-18 Months	$18,000,000
1686737,1686738	21	6NUCO TP 230.0 kV - AA1-138 TAP 230.0 kV Ckt 1	dom-064 (154) : Rebuild 13.35 miles of 230 kV Line 246 from Nucor Tap to AA1-138 Tap with 2-636 ACSR. Project Type : FAC Cost : $20,025,000 Time Estimate : 30-36 Months	$20,025,000
1686772,1686773,1686769,1686015,1687529,1687530	10	AE2-033 TAP 230.0 kV - 6SAPONY 230.0 kV Ckt 1	dom-050 (132) : Rebuild 2.47 miles of 230 kV Line 238 from AE2-033 TAP to Sapony with 2-795 150C ACSR. Project Type : FAC Cost : $3,705,000 Time Estimate : 30-36 Months	$3,705,000
1686727,1686726	28	AA1-138 TAP 230.0 kV - 6SUFFOLK 230.0 kV Ckt 1	dom-065 (156) : Rebuild 17.3 miles of 230 kV Line 246 from AA1-138 Tap to Suffolk with 2-636 ACSR. Project Type : FAC Cost : $25,950,000 Time Estimate : 36-40 Months	$25,950,000
1686337	27	6S HERTFORD 230.0 kV - 6WINFALL 230.0 kV Ckt 1	dom-094 (196) : Rebuild 3.3 miles of 230 kV Line 2131 from South Hertford to Winfall with 2-636 ACSR. Project Type : FAC Cost : $4,950,000 Time Estimate : 30-36 Months	$4,950,000
1686663,7798366	25	3WITAKRS 115.0 kV - 3CONSLDL 115.0 kV Ckt 1	dom-113 (228) : Rebuild 0.41 miles of 115 kV Line 1001 from Whitakers to Consolidated Diesel with 636 ACSR. Project Type : FAC Cost : $533,000 Time Estimate : 30-36 Months	$533,000

© PJM Interconnection 2019. All rights reserved

ID	Index	Facility	Upgrade Description	Cost
1686390,1686391	22	3HORNRTN 115.0 kV - 3CAROLNA 115.0 kV Ckt 1	**dom-103 (210) : Rebuild 3.09 miles of 115 kV Line 81 from Hornertown to Carolina with 636 ACSR.** **Project Type : FAC** **Cost : $4,017,000** **Time Estimate : 30-36 Months**	$4,017,000
1686907,7798637,7798635,1687500,1686901	9	AD2-068 TAP 230.0 kV - 6GREENVILE T 230.0 kV Ckt 1	**dom-004 (57) :** For DEV portion, rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP **with 2-636 ACSR.** **Project Type : FAC** **Cost : $4,500,000** **Time Estimate : 30-36 Months**	$4,500,000
1686819,1686125	6	3EARLEYS 115.0 kV - 6EARLEYS 230.0 kV Ckt 1	**dom-016 (75) : Add additional 230/115 kV transformer at Earleys substation.** **Project Type : CON** **Cost : $6,000,000** **Time Estimate : 16-18 Months**	$6,000,000
1686813,1686808,1686809	29	AB2-100 TAP 230.0 kV - 6CLUBHSE 230.0 kV Ckt 1	**dom-048 (127) : Rebuild 2.0 miles of 230 kV Line 254 from Clubhouse to AB2-100 Tap with 2-636 ACSR.** **Project Type : FAC** **Cost : $3,000,000** **Time Estimate : 30-36 Months**	$3,000,000
1686760,1686755	1	6HATHAWAY 230.0 kV - 6ROCKYMT230T 230.0 kV Ckt 1	**dom-003 (56) : For DEV portion, rebuild 4.13 miles of 230 kV Line 2058 from Hathaway to Rocky Mountain with 2-636 ACSR.** **Project Type : FAC** **Cost : $10,325,000** **Time Estimate : 30-36 Months**	$10,325,000
7798531,1686794	14	3CHESTNUT 115.0 kV - 3WITAKRS 115.0 kV Ckt 1	**dom-114 (229) : Rebuild 4.55 miles of 115 kV Line 1001 from Whitakers to Chestnut with 636 ACSR.** **Project Type : FAC** **Cost : $5,915,000** **Time Estimate : 30-36 Months**	$5,915,000
7798596,7798595,1686842,1686840,1686846,1687505	20	6EVERETS 230.0 kV - AD2-068 TAP 230.0 kV Ckt 1	**dom-070 (163) : Rebuild 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap with 2-636 ACSR.** **Project Type : FAC** **Cost : $26,250,000** **Time Estimate : 36-40 Months**	$26,250,000
1687032	24	6NASH 230.0 kV - 6PA-RMOUNT#4 230.0 kV Ckt 1	**dom-005 (58) : For DEV portion, rebuild 3.3 miles of 230 kV Line 2181 from Nash to Parmount with 2-636 ACSR.** **Project Type : FAC** **Cost : $8,250,000** **Time Estimate : 30-36 Months**	$8,250,000

© PJM Interconnection 2019. All rights reserved

ID	Index	Facility	Upgrade Description	Cost
1687108,1687109,1687473,1686097,1686096	4	3BTLEBRO 115.0 kV - 3ROCKYMT115T 115.0 kV Ckt 1	dom-007 (63) : Build new 500 kV line between Everetts and Suffolk. Project Type : CON Cost : $570,000,000 Time Estimate : 48-60 Months	$570,000,000
1687080	8	8NO ANNA 500.0 kV - 8SPOTSYL 500.0 kV Ckt 1	dom-045 (119) : Rebuild 14.02 miles of 500 kV Line 573 from North Anna to Spotsylvania with 3-1351.5 113C ACSR. Project Type : FAC Cost : $43,462,000 Time Estimate : 48-60 Months	$43,462,000
1686327	13	6PERQUIMANS 230.0 kV - 6S HERTFORD 230.0 kV Ckt 1	dom-090 (191) : Rebuild 4.65 miles of 230 kV Line 2131 from Perquimans to South Hertford with 2-636 ACSR. Project Type : FAC Cost : $6,975,000 Time Estimate : 30-36 Months	$6,975,000
7798376,1686653	15	3CONSLDL 115.0 kV - 3BTLEBRO 115.0 kV Ckt 1	dom-112 (227) : Rebuild 4.24 miles of 115 kV Line 1001 from Consolidated Diesel to Battleboro with 636 ACSR. Project Type : FAC Cost : $5,512,000 Time Estimate : 30-36 Months	$5,512,000
1686322	17	6POE 230.0 kV - 6HARROWG 230.0 kV Ckt 1	dom-037 (106) : Rebuild 12.3 miles of 230 kV Line 2003 from Poe to Harrowgate with 2-636 ACSR. Project Type : FAC Cost : $30,750,000 Time Estimate : 30-36 Months	$30,750,000
1686940,1686944	2	6HATHAWAY 230.0 kV - 6NASH 230.0 kV Ckt 1	dom-143 (272) : Rebuild 0.76 miles of 230 kV Line 2181 from Hathaway to Nash with 2-636 ACSR. Project Type : FAC Cost : $1,900,000 Time Estimate : 30-36 Months	$1,900,000
1687666,1686320,7798651,7798650,1686317	3	6SAPONY 230.0 kV - 6CARSON 230.0 kV Ckt 1	dom-051 (134) : Rebuild 11.79 miles of 230 kV Line 238 from Sapony to Carson with 2-795 150C ACSR. Project Type : FAC Cost : $17,685,000 Time Estimate : 30-36 Months	$17,685,000
1686554,1687484,1686553	11	AE2-037 TAP 115.0 kV - 3EARLEYS 115.0 kV Ckt 1	dom-110 (224) : Rebuild 3.21 miles of 115 kV Line 126 from AE2-037 Tap to Earleys with 768 ACSS. Project Type : FAC Cost : $4,173,000 Time Estimate : 30-36 Months	$4,173,000

© PJM Interconnection 2019. All rights reserved

ID	Index	Facility	Upgrade Description	Cost
1685980,1685981	26	6ELIZ CT 230.0 kV - 6SHAWBRO 230.0 kV Ckt 1	dom-011 (68) : Rebuild 10.28 miles of 230 kV Line 2021 from Elizabeth City to Shawboro with 2-636 ACSR. Project Type : FAC Cost : $15,420,000 Time Estimate : 30-36 Months	$15,420,000
1686915,1686917,1687554,1686121,1686120,1686919	5	6CLUBHSE 230.0 kV - AE2-033 TAP 230.0 kV Ckt 1	dom-047 (124) : Rebuild 14.28 miles of 230 kV Line 238 from Clubhouse to AE2-033 Tap with 2-795 150C ACSR. Project Type : FAC Cost : $21,420,000 Time Estimate : 30-36 Months	$21,420,000
1686884,1686883	23	6LAKEVEW 230.0 kV - AB2-100 TAP 230.0 kV Ckt 1	dom-049 (129) : Rebuild 16.0 miles of 230 kV Line 254 from AB2-100 Tap to Lakeview with 2-636 ACSR. Project Type : FAC Cost : $24,000,000 Time Estimate : 30-36 Months	$24,000,000
1686323	16	6HARROWG 230.0 kV - 6TYLER1 230.0 kV Ckt 1	dom-036 (104) : Rebuild 4.5 miles of 230 kV Line 2003 from Harrowgate to Tyler with 2-636 ACSR. Project Type : FAC Cost : $11,250,000 Time Estimate : 30-36 Months	$11,250,000
			TOTAL COST	$932,517,000

© PJM Interconnection 2019. All rights reserved

12.6 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.

12.6.1 Contingency Descriptions

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: 2056T2081	CONTINGENCY 'DVP_P4-2: 2056T2081' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 314010 TO BUS 314082 CKT 1 /* 6BEAMEAD 230.00 - 6STERLNG 230.00 END
DVP_P1-2: LN 246	CONTINGENCY 'DVP_P1-2: LN 246' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 END
DVP_P1-2: LN 1029-A	CONTINGENCY 'DVP_P1-2: LN 1029-A' OPEN BRANCH FROM BUS 314562 TO BUS 314570 CKT 1 /* 3CLUBHSE 115.00 - 3METCATP 115.00 OPEN BRANCH FROM BUS 314570 TO BUS 314572 CKT 1 /* 3METCATP 115.00 - 3EMPORIA 115.00 OPEN BRANCH FROM BUS 314570 TO BUS 314588 CKT 1 /* 3METCATP 115.00 - 3METCALF 115.00 OPEN BRANCH FROM BUS 314572 TO BUS 925170 CKT 1 /* 3EMPORIA 115.00 - AB2-174 TAP 115.00 OPEN BRANCH FROM BUS 314572 TO BUS 314863 CKT 1 /* 3EMPORIA 115.00 - 3EMPOR_1 115.00 OPEN BUS 314570 /* ISLAND: 3METCATP 115.00 OPEN BUS 314572 /* ISLAND: 3EMPORIA 115.00 OPEN BUS 314588 /* ISLAND: 3METCALF 115.00 OPEN BUS 314863 /* ISLAND: 3EMPOR_1 115.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P4-2: 205602	CONTINGENCY 'DVP_P4-2: 205602' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 1 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END
DVP_P7-1: LN 81-1001-A	CONTINGENCY 'DVP_P7-1: LN 81-1001-A' OPEN BRANCH FROM BUS 313858 TO BUS 927140 CKT 1 /* 3SO JUSTICE 115.00 - AC1-208 TAP 115.00 OPEN BRANCH FROM BUS 927140 TO BUS 314628 CKT 1 /* AC1-208 TAP 115.00 - 3DARLINGT DP 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314578 CKT 1 /* 3CAROLNA 115.00 - 3HORNRTN 115.00 OPEN BRANCH FROM BUS 314578 TO BUS 314598 CKT 1 /* 3HORNRTN 115.00 - 3ROAN DP 115.00 OPEN BRANCH FROM BUS 314598 TO BUS 314628 CKT 1 /* 3ROAN DP 115.00 - 3DARLINGT DP115.00 OPEN BUS 314578 /* ISLAND: 3HORNRTN 115.00 OPEN BUS 314598 /* ISLAND: 3ROAN DP 115.00 OPEN BUS 314628 /* ISLAND: 3DARLINGT DP115.00 OPEN BRANCH FROM BUS 313719 TO BUS 314623 CKT 1 /* 3CHESTNUT 115.00 - 3WITAKRS 115.00 OPEN BRANCH FROM BUS 313854 TO BUS 314554 CKT 1 /* 3CONSLDL 115.00 - 3BTLEBRO 115.00 OPEN BRANCH FROM BUS 313854 TO BUS 314623 CKT 1 /* 3CONSLDL 115.00 - 3WITAKRS 115.00 OPEN BUS 313854 /* ISLAND: 3CONSLDL 115.00 OPEN BUS 314623 /* ISLAND: 3WITAKRS 115.00 OPEN BUS 917341 /* ISLAND: Z2-044 C 115.00 OPEN BUS 917342 /* ISLAND: Z2-044 E 115.00 END
DVP_P4-2: 216702	CONTINGENCY 'DVP_P4-2: 216702' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECOM 230.00 OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 1 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 550	CONTINGENCY 'DVP_P1-2: LN 550' OPEN BRANCH FROM BUS 314917 TO BUS 314926 CKT 1 /* 8MT STM 500.00 - 8VALLEY 500.00 END
DVP_P1-3: 6HATHAWAY-TX#1	CONTINGENCY 'DVP_P1-3: 6HATHAWAY-TX#1' OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 1 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 1015-A	CONTINGENCY 'DVP_P1-2: LN 1015-A' OPEN BRANCH FROM BUS 313858 TO BUS 926200 CKT 1 /* 3SO JUSTICE 115.00 - AC1-098 TAP 115.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P4-2: 217162	CONTINGENCY 'DVP_P4-2: 217162' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 313709 TO BUS 314569 CKT Z1 /* 6HOLLOMAN 230.00 - 6EARLEYS 230.00 OPEN BUS 313709 /* ISLAND: 6HOLLOMAN 230.00 OPEN BUS 918511 /* ISLAND: AA1-065 C OP230.00 OPEN BUS 918512 /* ISLAND: AA1-065 E OP230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P4-2: 24742	CONTINGENCY 'DVP_P4-2: 24742' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 1 /* 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
DVP_P7-1: LN 2058-2181	CONTINGENCY 'DVP_P7-1: LN 2058-2181' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P4-1: G1TG2	CONTINGENCY 'DVP_P4-1: G1TG2' /* ROANOKE VALLEY NUG 230 KV OPEN BUS 314599 /* 6ROA VAL 230.00 KV END
DVP_P1-2: LN 570_FSA	CONTINGENCY 'DVP_P1-2: LN 570_FSA' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 END
DVP_P4-2: 12342	CONTINGENCY 'DVP_P4-2: 12342' /* BATTLEBORO 115 KV OPEN BRANCH FROM BUS 304223 TO BUS 314554 CKT 1 /* 3ROCKYMT115T115.00 - 3BTLEBRO 115.00 OPEN BRANCH FROM BUS 313854 TO BUS 314554 CKT 1 /* 3CONSLDL 115.00 - 3BTLEBRO 115.00 OPEN BRANCH FROM BUS 313844 TO BUS 314554 CKT 1 /* 3HATHAWAY 115.00 - 3BTLEBRO 115.00 OPEN BUS 314554 /* 3BTLEBRO 115.00 KV OPEN BUS 314834 /* ISLAND: 3BTLEB_1 115.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P1-2: LN 2167	CONTINGENCY 'DVP_P1-2: LN 2167' OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECOM 230.00 END
DVP_P4-2: 201262	CONTINGENCY 'DVP_P4-2: 201262' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-2: LN 2181	CONTINGENCY 'DVP_P1-2: LN 2181' OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P1-2: LN 6002_FSA	CONTINGENCY 'DVP_P1-2: LN 6002_FSA' OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 END
DVP_P1-2: LN 238-A	CONTINGENCY 'DVP_P1-2: LN 238-A' OPEN BRANCH FROM BUS 940480 TO BUS 314563 CKT 1 /* AE2-033 TAP 230.00 - 6CLUBHSE 230.00 OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 END
DVP_P1-2: LN 1029-B	CONTINGENCY 'DVP_P1-2: LN 1029-B' OPEN BRANCH FROM BUS 925170 TO BUS 314615 CKT 1 /* AB2-174 TAP 115.00 - 3TREGOTP 115.00 END
DVP_P4-2: 24642	CONTINGENCY 'DVP_P4-2: 24642' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P4-2: 246T247	CONTINGENCY 'DVP_P4-2: 246T247' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 END
DVP_P1-2: LN 238-B	CONTINGENCY 'DVP_P1-2: LN 238-B' OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 END
DVP_P1-2: LN 2056-A	CONTINGENCY 'DVP_P1-2: LN 2056-A' OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 END
DVP_P1-2: LN 2056-B	CONTINGENCY 'DVP_P1-2: LN 2056-B' OPEN BRANCH FROM BUS 934330 TO BUS 314579 CKT 1 /* AD1-057 TAP 230.00 - 6HORNRTN 230.00 END
DVP_P1-3: 6EARLEYS-TX#3	CONTINGENCY 'DVP_P1-3: 6EARLEYS-TX#3' OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P1-3: 6EARLEYS-TX#4	CONTINGENCY 'DVP_P1-3: 6EARLEYS-TX#4' OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 2 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END
DVP_P4-2: 205802	CONTINGENCY 'DVP_P4-2: 205802' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 2 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00 END
DVP_P7-1: LN 56-2060	CONTINGENCY 'DVP_P7-1: LN 56-2060' OPEN BRANCH FROM BUS 314259 TO BUS 314604 CKT 1 /* 3CAROL56_1 115.00 - 3SEABORD 115.00 OPEN BRANCH FROM BUS 314558 TO BUS 314587 CKT 1 /* 3BOYKINS 115.00 - 3MARGTSV 115.00 OPEN BRANCH FROM BUS 314587 TO BUS 314604 CKT 1 /* 3MARGTSV 115.00 - 3SEABORD 115.00 OPEN BUS 314587 /* ISLAND: 3MARGTSV 115.00 OPEN BUS 314604 /* ISLAND: 3SEABORD 115.00 OPEN BRANCH FROM BUS 314561 TO BUS 314599 CKT 1 /* 6CAROLNA 230.00 - 6ROA VAL 230.00 END
DVP_P1-2: LN 239	CONTINGENCY 'DVP_P1-2: LN 239' OPEN BRANCH FROM BUS 314579 TO BUS 314583 CKT 1 /* 6HORNRTN 230.00 - 6LAKEVEW 230.00 END
DVP_P1-2: LN 2020	CONTINGENCY 'DVP_P1-2: LN 2020' OPEN BRANCH FROM BUS 313851 TO BUS 314638 CKT 1 /* 6ECITYDP2 230.00 - 6ELIZ CT 230.00 OPEN BRANCH FROM BUS 313851 TO BUS 314639 CKT 1 /* 6ECITYDP2 230.00 - 6TANGLEW 230.00 OPEN BRANCH FROM BUS 314639 TO BUS 314651 CKT 1 /* 6TANGLEW 230.00 - 6WINFALL 230.00 OPEN BUS 313851 /* ISLAND: 6ECITYDP2 230.00 OPEN BUS 314639 /* ISLAND: 6TANGLEW 230.00 OPEN BUS 917122 /* ISLAND: Z2-027 E 230.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P4-2: 102952	CONTINGENCY 'DVP_P4-2: 102952' /* CLUBHOUSE 115 KV OPEN BRANCH FROM BUS 314312 TO BUS 314325 CKT 1 /* 3JARRATT 115.00 - 3PURDYSW 115.00 OPEN BRANCH FROM BUS 314325 TO BUS 314562 CKT 1 /* 3PURDYSW 115.00 - 3CLUBHSE 115.00 OPEN BUS 314312 /* ISLAND: 3JARRATT 115.00 OPEN BUS 314325 /* ISLAND: 3PURDYSW 115.00 OPEN BRANCH FROM BUS 314562 TO BUS 314570 CKT 1 /* 3CLUBHSE 115.00 - 3METCATP 115.00 OPEN BRANCH FROM BUS 314570 TO BUS 314572 CKT 1 /* 3METCATP 115.00 - 3EMPORIA 115.00 OPEN BRANCH FROM BUS 314570 TO BUS 314588 CKT 1 /* 3METCATP 115.00 - 3METCALF 115.00 OPEN BRANCH FROM BUS 314572 TO BUS 925170 CKT 1 /* 3EMPORIA 115.00 - AB2-174 TAP 115.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 314572 TO BUS 314863 CKT 1 /* 3EMPORIA 115.00 - 3EMPOR_1 115.00 OPEN BUS 314570 /* ISLAND: 3METCATP 115.00 OPEN BUS 314572 /* ISLAND: 3EMPORIA 115.00 OPEN BUS 314588 /* ISLAND: 3METCALF 115.00 OPEN BUS 314863 /* ISLAND: 3EMPOR_1 115.00 OPEN BRANCH FROM BUS 314562 TO BUS 314565 CKT Z1 /* 3CLUBHSE 115.00 - 3CLUBHSE71 115.00 OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 OPEN BUS 314562 /* 3CLUBHSE 115.00 KV END
Base Case	
DVP_P4-2: 101442	CONTINGENCY 'DVP_P4-2: 101442' /* BATTLEBORO 115 KV OPEN BRANCH FROM BUS 313844 TO BUS 314554 CKT 1 /* 3HATHAWAY 115.00 - 3BTLEBRO 115.00 OPEN BRANCH FROM BUS 313854 TO BUS 314554 CKT 1 /* 3CONSLDL 115.00 - 3BTLEBRO 115.00 OPEN BUS 314834 /* 3BTLEB_1 115.00 KV END
DVP_P1-2: LN 6001	CONTINGENCY 'DVP_P1-2: LN 6001' OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 END
DVP_P1-2: LN 2060	CONTINGENCY 'DVP_P1-2: LN 2060' OPEN BRANCH FROM BUS 314561 TO BUS 314599 CKT 1 /* 6CAROLNA 230.00 - 6ROA VAL 230.00 END
DVP_P1-2: LN 254-A	CONTINGENCY 'DVP_P1-2: LN 254-A' OPEN BRANCH FROM BUS 314563 TO BUS 924510 CKT 1 /* 6CLUBHSE 230.00 - AB2-100 TAP 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2058	CONTINGENCY 'DVP_P1-2: LN 2058' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 2092	CONTINGENCY 'DVP_P1-2: LN 2092' OPEN BRANCH FROM BUS 313714 TO BUS 314662 CKT 1 /* 6PERQUIMANS 230.00 - 6S HERTFORD 230.00 OPEN BRANCH FROM BUS 314651 TO BUS 314662 CKT 1 /* 6WINFALL 230.00 - 6S HERTFORD 230.00 OPEN BUS 314662 /* ISLAND: 6S HERTFORD 230.00 END
DVP_P1-2: LN 1001	CONTINGENCY 'DVP_P1-2: LN 1001' OPEN BRANCH FROM BUS 313719 TO BUS 314623 CKT 1 /* 3CHESTNUT 115.00 - 3WITAKRS 115.00 OPEN BRANCH FROM BUS 313854 TO BUS 314554 CKT 1 /* 3CONSLDL 115.00 - 3BTLEBRO 115.00 OPEN BRANCH FROM BUS 313854 TO BUS 314623 CKT 1 /* 3CONSLDL 115.00 - 3WITAKRS 115.00 OPEN BUS 313854 /* ISLAND: 3CONSLDL 115.00 OPEN BUS 314623 /* ISLAND: 3WITAKRS 115.00 OPEN BUS 917341 /* ISLAND: Z2-044 C 115.00 OPEN BUS 917342 /* ISLAND: Z2-044 E 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_P1-2: LN 2131	CONTINGENCY 'DVP_P1-2: LN 2131' OPEN BRANCH FROM BUS 313714 TO BUS 313885 CKT 1 /* 6PERQUIMANS 230.00 - 6WALBMRL 230.00 OPEN BRANCH FROM BUS 313885 TO BUS 314637 CKT 1 /* 6WALBMRL 230.00 - 6EDENTON 230.00 OPEN BRANCH FROM BUS 314203 TO BUS 314637 CKT 1 /* 6MACKEYS 230.00 - 6EDENTON 230.00 OPEN BUS 313885 /* ISLAND: 6WALBMRL 230.00 OPEN BUS 314637 /* ISLAND: 6EDENTON 230.00 END
DVP_P4-2: WT2171	CONTINGENCY 'DVP_P4-2: WT2171' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 313709 TO BUS 314569 CKT Z1 /* 6HOLLOMAN 230.00 - 6EARLEYS 230.00 OPEN BUS 313709 /* ISLAND: 6HOLLOMAN 230.00 OPEN BUS 918511 /* ISLAND: AA1-065 C OP230.00 OPEN BUS 918512 /* ISLAND: AA1-065 E OP230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END

Contingency Name	Contingency Definition
DVP_P1-3: 6CLUBHSE-TX#1	CONTINGENCY 'DVP_P1-3: 6CLUBHSE-TX#1' OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 END
DVP_P1-2: LN 218-A	CONTINGENCY 'DVP_P1-2: LN 218-A' OPEN BRANCH FROM BUS 304451 TO BUS 936530 CKT 1 /* 6GREENVILE T230.00 - AD2-068 TAP 230.00 END
DVP_P1-2: LN 126-B	CONTINGENCY 'DVP_P1-2: LN 126-B' OPEN BRANCH FROM BUS 314568 TO BUS 940520 CKT 1 /* 3EARLEYS 115.00 - AE2-037 TAP 115 END

© PJM Interconnection 2019. All rights reserved

12.6.2 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
1686755	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 2181	single	374.0	137.56	139.12	DC	5.83

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.54
315126	1ROARAP2	0.81
315128	1ROARAP4	0.78
315131	1EDGECMA	24.75
315132	1EDGECMB	24.75
315136	1ROSEMG1	2.1
315137	1ROSEMS1	1.3
315138	1ROSEMG2	0.98
315139	1GASTONA	2.52
315141	1GASTONB	2.52
315292	1DOMTR78	0.58
315293	1DOMTR9	0.48
315294	1DOMTR10	0.86
901081	W1-029 C	0.25
916041	Z1-036 C	0.29
917331	Z2-043 C	0.23
917341	Z2-044 C	0.2
917511	Z2-088 C OP1	1.46
918491	AA1-063AC OP	0.79
918511	AA1-065 C OP	0.72
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.83
919701	AA2-057 C	8.14
920041	AA2-088 C OP	0.46
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.54
923801	AB2-015 C O1	3.95
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.61
923991	AB2-040 C O1	0.64
924151	AB2-059 C O1	2.06
924401	AB2-089 C	0.73
924491	AB2-098 C	0.41
924501	AB2-099 C	0.4
924511	AB2-100 C	8.39
925121	AB2-169 C	0.49
925171	AB2-174 C O1	4.93

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925591	AC1-034 C	10.93
925781	AC1-054 C O1	2.83
926071	AC1-086 C	23.24
926201	AC1-098 C	5.92
926211	AC1-099 C	1.98
927021	AC1-189 C	9.72
927141	AC1-208 C	9.06
930401	AB1-081 C O1	1.74
930861	AB1-132 C O1	1.92
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.44
933991	AD1-023 C	7.4
934201	AD1-047 C	5.77
934231	AD1-050 C	1.6
934331	AD1-057 C O1	19.81
934521	AD1-076 C	28.78
936401	AD2-051 C O1	6.14
936701	AD2-089 C	14.05
936711	AD2-090 C O1	3.69
937571	AD2-169 C	7.4
938171	AE1-026 C1 O	16.32
938172	AE1-026 C2 O	2.36
938221	AE1-035 C	1.48
938661	AE1-088	2.05
938771	AE1-103 C O1	1.56
939071	AE1-135 C O1	14.1
940481	AE2-033 C	7.06
940491	AE2-034 C	3.88
940521	AE2-037 C O1	5.83
940541	AE2-040	1.29
940571	AE2-044 C	7.16
941501	AE2-147 C	4.64
941541	AE2-151 C	0.76
941951	AE2-207	4.63
942471	AE2-260 C O1	9.71
942711	AE2-287 C O1	6.3
942851	AE2-304 C	0.2
943171	AE2-346 C	1.2
BLUEG	BLUEG	5.91
CALDERWOOD	CALDERWOOD	1.2
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	1.17
CBM-N	CBM-N	0.12
CHEOAH	CHEOAH	1.12
CHILHOWEE	CHILHOWEE	0.39
COFFEEN	COFFEEN	0.69
COTTONWOOD	COTTONWOOD	4.01
DUCKCREEK	DUCKCREEK	1.41
EDWARDS	EDWARDS	0.63
ELMERSMITH	ELMERSMITH	0.71
FARMERCITY	FARMERCITY	0.49

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007A	G-007A	0.65
GIBSON	GIBSON	0.25
HAMLET	HAMLET	2.3
NEWTON	NEWTON	1.79
NYISO	NYISO	0.54
PRAIRIE	PRAIRIE	3.73
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.84
TILTON	TILTON	0.75
TRIMBLE	TRIMBLE	0.65
TVA	TVA	3.37
UNIONPOWER	UNIONPOWER	1.66
VFT	VFT	1.72

© PJM Interconnection 2019. All rights reserved

12.6.3 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
1686940	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	123.48	124.8	DC	5.95

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECMA	25.25
315132	1EDGECMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O1	5.95
940541	AE2-040	1.32
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942471	AE2-260 C O1	9.91
942711	AE2-287 C O1	6.42
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

© PJM Interconnection 2019. All rights reserved

12.6.4 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
1686317	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 201262	breaker	830.0	112.77	113.33	DC	10.2

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.84
314557	3BETHELC	0.71
314572	3EMPORIA	1.08
314578	3HORNRTN	5.54
314582	3KELFORD	3.32
314603	3SCOT NK	3.56
314617	3TUNIS	0.74
314623	3WITAKRS	1.5
314704	3LAWRENC	0.53
315126	1ROARAP2	1.75
315131	1EDGECMA	10.0
315132	1EDGECMB	10.0
315136	1ROSEMG1	3.53
315137	1ROSEMS1	2.19
315138	1ROSEMG2	1.65
315139	1GASTONA	5.3
315141	1GASTONB	5.3
315150	1BUGGS 1	8.93
315151	1BUGGS 2	8.93
900672	V4-068 E	0.28
917332	Z2-043 E	0.94
917342	Z2-044 E	0.64
917512	Z2-088 E OP1	2.74
918492	AA1-063AE OP	5.48
918562	AA1-072 E	0.16
919692	AA2-053 E	5.75
919701	AA2-057 C	8.3
919702	AA2-057 E	4.15
920042	AA2-088 E OP	9.69
920592	AA2-165 E	0.55
920672	AA2-174 E	0.66
923851	AB2-025 C	1.28
923852	AB2-025 E	4.73
923911	AB2-031 C O1	5.11
923912	AB2-031 E O1	2.52
923991	AB2-040 C O1	2.04
923992	AB2-040 E O1	13.73
924022	AB2-043 E O1	4.51
924152	AB2-059 E O1	5.72
924162	AB2-060 E O1	3.67
924302	AB2-077 E O1	1.15

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
924312	AB2-078 E O1	1.15
924322	AB2-079 E O1	1.15
924401	AB2-089 C	2.37
924402	AB2-089 E	1.22
924501	AB2-099 C	0.5
924502	AB2-099 E	0.21
924511	AB2-100 C	37.75
924512	AB2-100 E	18.59
925171	AB2-174 C O1	16.85
925172	AB2-174 E O1	15.25
925591	AC1-034 C	7.2
925592	AC1-034 E	5.43
925781	AC1-054 C O1	8.53
925782	AC1-054 E O1	3.93
926071	AC1-086 C	48.88
926072	AC1-086 E	22.25
926201	AC1-098 C	7.18
926202	AC1-098 E	4.28
926211	AC1-099 C	2.4
926212	AC1-099 E	1.41
927141	AC1-208 C	11.8
927142	AC1-208 E	5.24
930402	AB1-081 E O1	4.04
930861	AB1-132 C O1	4.04
930862	AB1-132 E O1	14.23
931231	AB1-173 C	0.63
931232	AB1-173 E	2.4
931241	AB1-173AC	0.63
931242	AB1-173AE	2.4
932631	AC2-084 C	10.23
932632	AC2-084 E	5.04
934201	AD1-047 C	18.31
934202	AD1-047 E	12.2
934231	AD1-050 C	5.23
934232	AD1-050 E	2.86
934331	AD1-057 C O1	16.53
934332	AD1-057 E O1	8.82
936261	AD2-033 C	9.3
936262	AD2-033 E	6.2
936361	AD2-046 C O1	8.6
936362	AD2-046 E O1	3.95
936401	AD2-051 C O1	7.21
936402	AD2-051 E O1	3.1
936481	AD2-063 C O1	11.98
936482	AD2-063 E O1	7.98
936701	AD2-089 C	6.35
936702	AD2-089 E	4.23
936711	AD2-090 C O1	5.32
936712	AD2-090 E O1	3.55
937571	AD2-169 C	21.58
937572	AD2-169 E	14.39
939071	AE1-135 C O1	70.14

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
939072	AE1-135 E O1	46.76
939181	AE1-148 C O1	8.44
939182	AE1-148 E O1	5.62
940481	AE2-033 C	65.53
940482	AE2-033 E	44.18
940521	AE2-037 C O1	6.88
940522	AE2-037 E O1	3.33
940541	AE2-040	13.53
940571	AE2-044 C	4.71
940572	AE2-044 E	2.02
940661	AE2-053	3.14
941541	AE2-151 C	0.89
941542	AE2-151 E	0.48
941951	AE2-207	3.05
942451	AE2-258	2.05
942471	AE2-260 C O1	48.34
942472	AE2-260 E O1	68.56
942711	AE2-287 C O1	26.29
942712	AE2-287 E O1	17.53
943171	AE2-346 C	1.49
943172	AE2-346 E	0.64
AA2-074	AA2-074	2.05
CARR	CARR	0.21
CBM-S1	CBM-S1	4.69
CBM-S2	CBM-S2	5.5
CBM-W1	CBM-W1	4.73
CBM-W2	CBM-W2	30.61
CIN	CIN	2.14
CPLE	CPLE	3.02
G-007	G-007	0.72
IPL	IPL	1.34
LGEE	LGEE	0.62
MEC	MEC	4.75
MECS	MECS	2.0
O-066	O-066	4.6
RENSSELAER	RENSSELAER	0.17
WEC	WEC	0.57

© PJM Interconnection 2019. All rights reserved

12.6.5 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
1687473	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	164.0	294.72	296.75	DC	7.36

Bus #	Bus	MW Impact
314541	3WATKINS	0.25
314554	3BTLEBRO	1.96
314557	3BETHELC	0.86
314572	3EMPORIA	0.2
314574	6EVERETS	1.77
314578	3HORNRTN	2.52
314582	3KELFORD	2.87
314603	3SCOT NK	3.65
314617	3TUNIS	0.43
314620	6CASHIE	0.32
314623	3WITAKRS	2.92
315131	1EDGECMA	13.53
315132	1EDGECMB	13.53
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315139	1GASTONA	1.55
315141	1GASTONB	1.55
900672	V4-068 E	0.15
917331	Z2-043 C	0.23
917332	Z2-043 E	0.82
917341	Z2-044 C	0.36
917342	Z2-044 E	1.25
917511	Z2-088 C OP1	0.83
917512	Z2-088 E OP1	2.91
918492	AA1-063AE OP	2.41
918512	AA1-065 E OP	1.91
918532	AA1-067 E	0.31
918561	AA1-072 C	0.03
918562	AA1-072 E	0.14
919692	AA2-053 E	2.32
919701	AA2-057 C	13.32
919702	AA2-057 E	6.66
920042	AA2-088 E OP	4.75
920591	AA2-165 C	0.22
920592	AA2-165 E	0.88
920672	AA2-174 E	0.27
923801	AB2-015 C O1	2.99
923802	AB2-015 E O1	2.45
923911	AB2-031 C O1	1.2
923912	AB2-031 E O1	0.59

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.22
924151	AB2-059 C O1	2.89
924152	AB2-059 E O1	12.22
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.31
924502	AB2-099 E	0.13
924511	AB2-100 C	5.31
924512	AB2-100 E	2.62
925122	AB2-169 E	2.21
925171	AB2-174 C O1	3.6
925172	AB2-174 E O1	3.26
925591	AC1-034 C	15.36
925592	AC1-034 E	11.59
926071	AC1-086 C	14.34
926072	AC1-086 E	6.53
926201	AC1-098 C	7.95
926202	AC1-098 E	4.74
926211	AC1-099 C	2.66
926212	AC1-099 E	1.56
927021	AC1-189 C	5.57
927022	AC1-189 E	2.77
927141	AC1-208 C	12.51
927142	AC1-208 E	5.56
930401	AB1-081 C O1	2.45
930402	AB1-081 E O1	8.62
930861	AB1-132 C O1	1.19
930862	AB1-132 E O1	4.17
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932631	AC2-084 C	11.33
932632	AC2-084 E	5.58
933991	AD1-023 C	4.78
933992	AD1-023 E	2.6
934201	AD1-047 C	4.3
934202	AD1-047 E	2.86
934331	AD1-057 C O1	11.18
934332	AD1-057 E O1	5.96
936401	AD2-051 C O1	4.79
936402	AD2-051 E O1	2.06
936701	AD2-089 C	7.78
936702	AD2-089 E	5.19
936711	AD2-090 C O1	2.83
936712	AD2-090 E O1	1.89
937571	AD2-169 C	5.61
937572	AD2-169 E	3.74
938171	AE1-026 C1 O	10.58
938172	AE1-026 C2 O	1.53
938173	AE1-026 E O1	3.19
938221	AE1-035 C	0.97
938222	AE1-035 E	0.48
938661	AE1-088	0.67

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
939071	AE1-135 C O1	8.96
939072	AE1-135 E O1	5.98
940521	AE2-037 C O1	4.96
940522	AE2-037 E O1	2.4
940571	AE2-044 C	10.06
940572	AE2-044 E	4.31
941541	AE2-151 C	0.59
941542	AE2-151 E	0.32
941951	AE2-207	6.5
942471	AE2-260 C O1	6.18
942472	AE2-260 E O1	8.76
943171	AE2-346 C	0.94
943172	AE2-346 E	0.4
BLUEG	BLUEG	3.99
CALDERWOOD	CALDERWOOD	0.81
CANNELTON	CANNELTON	0.27
CATAWBA	CATAWBA	0.79
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.76
CHILHOWEE	CHILHOWEE	0.26
COFFEEN	COFFEEN	0.46
COTTONWOOD	COTTONWOOD	2.71
DUCKCREEK	DUCKCREEK	0.95
EDWARDS	EDWARDS	0.43
ELMERSMITH	ELMERSMITH	0.48
FARMERCITY	FARMERCITY	0.33
G-007A	G-007A	0.39
GIBSON	GIBSON	0.17
HAMLET	HAMLET	1.57
NEWTON	NEWTON	1.21
NYISO	NYISO	0.3
PRAIRIE	PRAIRIE	2.52
SANTEETLA	SANTEETLA	0.22
SMITHLAND	SMITHLAND	0.22
TATANKA	TATANKA	0.57
TILTON	TILTON	0.5
TRIMBLE	TRIMBLE	0.44
TVA	TVA	2.27
UNIONPOWER	UNIONPOWER	1.13
VFT	VFT	1.03

© PJM Interconnection 2019. All rights reserved

12.6.6 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
1687554	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	142.29	143.18	DC	12.53

Bus #	Bus	MW Impact
314541	3WATKINS	0.48
314554	3BTLEBRO	0.94
314557	3BETHELC	0.99
314572	3EMPORIA	1.03
314574	6EVERETS	3.69
314578	3HORNRTN	5.22
314582	3KELFORD	3.89
314594	6PLYMOTH	0.53
314603	3SCOT NK	3.94
314617	3TUNIS	0.85
314620	6CASHIE	0.64
314623	3WITAKRS	1.64
314704	3LAWRENC	0.5
315126	1ROARAP2	1.63
315131	1EDGECMA	13.26
315132	1EDGECMB	13.26
315136	1ROSEMG1	3.2
315137	1ROSEMS1	1.98
315138	1ROSEMG2	1.5
315139	1GASTONA	4.65
315141	1GASTONB	4.65
315150	1BUGGS 1	8.22
315151	1BUGGS 2	8.22
900672	V4-068 E	0.3
917332	Z2-043 E	1.11
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.11
918492	AA1-063AE OP	5.52
918512	AA1-065 E OP	4.05
918532	AA1-067 E	0.65
918562	AA1-072 E	0.18
919692	AA2-053 E	5.57
919701	AA2-057 C	8.93
919702	AA2-057 E	4.46
920042	AA2-088 E OP	9.98
920592	AA2-165 E	0.59
920672	AA2-174 E	0.64
923801	AB2-015 C O1	5.53
923802	AB2-015 E O1	4.53
923911	AB2-031 C O1	4.82
923912	AB2-031 E O1	2.38

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923991	AB2-040 C O1	1.93
923992	AB2-040 E O1	12.96
924022	AB2-043 E O1	4.19
924152	AB2-059 E O1	6.69
924162	AB2-060 E O1	3.41
924302	AB2-077 E O1	1.07
924312	AB2-078 E O1	1.07
924322	AB2-079 E O1	1.07
924401	AB2-089 C	2.19
924402	AB2-089 E	1.13
924491	AB2-098 C	0.51
924492	AB2-098 E	0.22
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	4.43
925171	AB2-174 C O1	15.94
925172	AB2-174 E O1	14.42
925591	AC1-034 C	8.42
925592	AC1-034 E	6.35
925612	AC1-036 E	0.54
925781	AC1-054 C O1	7.88
925782	AC1-054 E O1	3.63
926071	AC1-086 C	42.94
926072	AC1-086 E	19.54
926201	AC1-098 C	7.71
926202	AC1-098 E	4.59
926211	AC1-099 C	2.58
926212	AC1-099 E	1.52
927021	AC1-189 C	8.68
927022	AC1-189 E	4.32
927141	AC1-208 C	12.14
927142	AC1-208 E	5.39
930402	AB1-081 E O1	4.72
930861	AB1-132 C O1	3.55
930862	AB1-132 E O1	12.5
931231	AB1-173 C	0.59
931232	AB1-173 E	2.27
931241	AB1-173AC	0.59
931242	AB1-173AE	2.27
932631	AC2-084 C	10.99
932632	AC2-084 E	5.41
933991	AD1-023 C	9.41
933992	AD1-023 E	5.12
934201	AD1-047 C	17.28
934202	AD1-047 E	11.52
934231	AD1-050 C	4.83
934232	AD1-050 E	2.64
934331	AD1-057 C O1	17.19
934332	AD1-057 E O1	9.17
934521	AD1-076 C	35.16

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934522	AD1-076 E	17.91
936261	AD2-033 C	8.64
936262	AD2-033 E	5.76
936361	AD2-046 C O1	7.93
936362	AD2-046 E O1	3.65
936401	AD2-051 C O1	9.01
936402	AD2-051 E O1	3.87
936481	AD2-063 C O1	11.12
936482	AD2-063 E O1	7.41
936531	AD2-068 C	3.5
936532	AD2-068 E	1.8
936701	AD2-089 C	8.9
936702	AD2-089 E	5.93
936711	AD2-090 C O1	5.61
936712	AD2-090 E O1	3.74
937571	AD2-169 C	20.32
937572	AD2-169 E	13.54
938171	AE1-026 C1 O	21.19
938172	AE1-026 C2 O	3.07
938173	AE1-026 E O1	6.4
938221	AE1-035 C	2.06
938222	AE1-035 E	1.01
938661	AE1-088	1.34
939071	AE1-135 C O1	67.05
939072	AE1-135 E O1	44.7
939181	AE1-148 C O1	7.78
939182	AE1-148 E O1	5.19
940241	AE2-006	0.3
940521	AE2-037 C O1	8.44
940522	AE2-037 E O1	4.08
940542	AE2-040 BAT	2.33
940571	AE2-044 C	5.51
940572	AE2-044 E	2.36
940661	AE2-053	2.9
941541	AE2-151 C	1.12
941542	AE2-151 E	0.6
941951	AE2-207	3.56
942451	AE2-258	1.9
942471	AE2-260 C O1	46.21
942472	AE2-260 E O1	65.54
942711	AE2-287 C O1	24.9
942712	AE2-287 E O1	16.6
943171	AE2-346 C	1.8
943172	AE2-346 E	0.77
AA2-074	AA2-074	1.72
CARR	CARR	0.19
CBM-S1	CBM-S1	3.72
CBM-S2	CBM-S2	4.5
CBM-W1	CBM-W1	3.64
CBM-W2	CBM-W2	24.17
CIN	CIN	1.65
CPLE	CPLE	2.53

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007	G-007	0.64
IPL	IPL	1.03
LGEE	LGEE	0.48
MEC	MEC	3.71
MECS	MECS	1.49
O-066	O-066	4.06
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.44

© PJM Interconnection 2019. All rights reserved

12.6.7 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
1686125	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 217162	breaker	208.0	121.67	140.52	DC	39.2

Bus #	Bus	MW Impact
314539	3UNCAMP	1.46
314541	3WATKINS	0.52
314578	3HORNRTN	2.4
314582	3KELFORD	9.59
314589	3MURPHYS	0.12
314603	3SCOT NK	6.48
314617	3TUNIS	2.18
314623	3WITAKRS	0.63
315115	1S HAMPT1	0.86
315126	1ROARAP2	0.69
315128	1ROARAP4	0.66
900672	V4-068 E	0.55
907092	X1-038 E	3.64
917331	Z2-043 C	0.78
917332	Z2-043 E	2.73
917342	Z2-044 E	0.27
918491	AA1-063AC OP	1.87
918492	AA1-063AE OP	7.23
918561	AA1-072 C	0.12
918562	AA1-072 E	0.45
919691	AA2-053 C	1.39
919692	AA2-053 E	4.89
919701	AA2-057 C	4.87
919702	AA2-057 E	2.43
920041	AA2-088 C OP	0.84
920042	AA2-088 E OP	11.24
920591	AA2-165 C	0.08
920592	AA2-165 E	0.32
920671	AA2-174 C	0.06
920672	AA2-174 E	0.56
923801	AB2-015 C O1	5.93
923802	AB2-015 E O1	4.86
923911	AB2-031 C O1	0.99
923912	AB2-031 E O1	0.49
923992	AB2-040 E O1	2.66
924501	AB2-099 C	1.8
924502	AB2-099 E	0.77
926201	AC1-098 C	9.12
926202	AC1-098 E	5.44
926211	AC1-099 C	3.06
926212	AC1-099 E	1.8

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
927141	AC1-208 C	8.65
927142	AC1-208 E	3.84
931232	AB1-173 E	0.47
931242	AB1-173AE	0.47
932631	AC2-084 C	13.01
932632	AC2-084 E	6.41
934201	AD1-047 C	3.55
934202	AD1-047 E	2.37
936401	AD2-051 C O1	30.42
936402	AD2-051 E O1	13.06
936711	AD2-090 C O1	6.19
936712	AD2-090 E O1	4.12
937571	AD2-169 C	4.99
937572	AD2-169 E	3.33
938771	AE1-103 C O1	2.18
938772	AE1-103 E O1	3.01
940521	AE2-037 C O1	26.42
940522	AE2-037 E O1	12.77
941541	AE2-151 C	3.77
941542	AE2-151 E	2.03
943171	AE2-346 C	5.4
943172	AE2-346 E	2.31
CARR	CARR	0.02
CBM-S1	CBM-S1	0.03
CBM-S2	CBM-S2	0.01
CBM-W2	CBM-W2	0.12
EDWARDS	EDWARDS	0.0
G-007	G-007	0.06
LGEE	LGEE	0.0
MEC	MEC	0.01
O-066	O-066	0.4
RENSSELAER	RENSSELAER	0.02

© PJM Interconnection 2019. All rights reserved

12.6.8 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
1685954	314568	3EARLEYS	DVP	314569	6EARLEYS	DVP	2	DVP_P4-2: 201262	breaker	208.0	148.18	166.61	DC	38.34

Bus #	Bus	MW Impact
314539	3UNCAMP	1.46
314541	3WATKINS	0.52
314572	3EMPORIA	0.18
314578	3HORNRTN	2.81
314582	3KELFORD	9.44
314589	3MURPHYS	0.12
314603	3SCOT NK	6.48
314617	3TUNIS	2.15
314623	3WITAKRS	0.69
315115	1S HAMPT1	0.87
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
900672	V4-068 E	0.55
907092	X1-038 E	3.65
917331	Z2-043 C	0.76
917332	Z2-043 E	2.68
917342	Z2-044 E	0.3
918491	AA1-063AC OP	1.92
918492	AA1-063AE OP	7.42
918561	AA1-072 C	0.11
918562	AA1-072 E	0.45
919691	AA2-053 C	1.48
919692	AA2-053 E	5.21
919701	AA2-057 C	5.22
919702	AA2-057 E	2.61
920041	AA2-088 C OP	0.86
920042	AA2-088 E OP	11.54
920591	AA2-165 C	0.09
920592	AA2-165 E	0.34
920671	AA2-174 C	0.07
920672	AA2-174 E	0.6
923801	AB2-015 C O1	6.0
923802	AB2-015 E O1	4.92
923911	AB2-031 C O1	1.29
923912	AB2-031 E O1	0.63
923992	AB2-040 E O1	3.46
924501	AB2-099 C	1.76
924502	AB2-099 E	0.76
925171	AB2-174 C O1	3.68
925172	AB2-174 E O1	3.33
925781	AC1-054 C O1	3.34

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925782	AC1-054 E O1	1.54
926201	AC1-098 C	9.29
926202	AC1-098 E	5.53
926211	AC1-099 C	3.11
926212	AC1-099 E	1.83
927141	AC1-208 C	9.21
927142	AC1-208 E	4.09
931232	AB1-173 E	0.61
931242	AB1-173AE	0.61
932631	AC2-084 C	13.24
932632	AC2-084 E	6.52
934201	AD1-047 C	4.61
934202	AD1-047 E	3.07
936401	AD2-051 C O1	29.7
936402	AD2-051 E O1	12.75
936711	AD2-090 C O1	6.31
936712	AD2-090 E O1	4.2
937571	AD2-169 C	6.32
937572	AD2-169 E	4.21
938174	AE1-026 CBAT	1.16
938175	AE1-026 EBAT	4.65
938661	AE1-088	0.77
938771	AE1-103 C O1	2.19
938772	AE1-103 E O1	3.03
940521	AE2-037 C O1	25.85
940522	AE2-037 E O1	12.49
941541	AE2-151 C	3.68
941542	AE2-151 E	1.98
943171	AE2-346 C	5.29
943172	AE2-346 E	2.27
CARR	CARR	0.02
CBM-S1	CBM-S1	0.06
CBM-S2	CBM-S2	0.03
CBM-W1	CBM-W1	0.02
CBM-W2	CBM-W2	0.35
CIN	CIN	0.02
G-007	G-007	0.08
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
O-066	O-066	0.48
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.0

© PJM Interconnection 2019. All rights reserved

12.6.9 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
1687080	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 550	single	3218.56	99.94	100.04	DC	7.57

Bus #	Bus	MW Impact
314250	6ROCKVILLE	0.24
314314	3LOCKS	0.21
314507	3THOMPSN	0.25
314643	3O INLET	0.32
315053	1BELMED1	16.86
315054	1BELMED2	16.86
315055	1BELMED3	13.99
315058	1CHESTF3	17.34
315059	1CHESTF4	28.12
315074	1HOPCGN1	8.1
315075	1HOPCGN2	7.99
315083	1SPRUNCA	10.53
315084	1SPRUNCB	10.53
315085	1SPRUNCC	7.81
315086	1SPRUNCD	7.81
315090	1YORKTN1	27.76
315091	1YORKTN2	28.81
315098	1CHESPKA	0.32
315099	1CHESPKB	0.81
315102	1BRUNSWICKG1	5.93
315103	1BRUNSWICKG2	5.93
315104	1BRUNSWICKG3	5.93
315105	1BRUNSWICKS1	12.31
315108	1ELIZAR1	2.38
315109	1ELIZAR2	2.34
315110	1ELIZAR3	2.41
315116	1SURRY 1	18.13
315120	1GRAVEL4	1.87
315122	1GRAVEL6	1.86
315225	1N ANNA1	39.81
315226	1N ANNA2	39.9
315233	1SURRY 2	18.27
315260	1GOSPORTA	0.26
315261	1GOSPORTB	0.33
315262	1GOSPORTC	0.28
916191	Z1-068 C	0.03
916301	Z1-086 C	36.01
919151	AA1-139 C	1.81
923801	AB2-015 C O1	8.37
923861	AB2-026 C	0.3
923911	AB2-031 C O1	2.12

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
924241	AB2-068 O1	178.1
924501	AB2-099 C	0.55
924511	AB2-100 C	11.06
925021	AB2-158 C	1.44
925051	AB2-160 C O1	5.36
925061	AB2-161 C O1	3.35
925171	AB2-174 C O1	6.67
925331	AB2-190 C	19.66
925521	AC1-027 C	0.24
925821	AC1-061	0.0
925861	AC1-065 C	3.13
926071	AC1-086 C	19.44
926291	AC1-107 O1	268.83
926661	AC1-147 C	0.27
926751	AC1-161 C O1	30.37
926781	AC1-164 C	37.46
927041	AC1-191 C O1	8.56
927221	AC1-216 C O1	9.63
932041	AC2-012 C	10.17
932581	AC2-078 C O1	4.03
932591	AC2-079 C O1	5.68
932831	AC2-110 C	1.25
933061	AC2-130	2.28
933291	AC2-141 C	30.37
933501	AC2-165 C	9.7
933731	AC2-196 C	0.22
933991	AD1-023 C	12.55
934011	AD1-025 C	16.55
934061	AD1-033 C	7.48
934141	AD1-041 C	4.92
934201	AD1-047 C	7.6
934521	AD1-076 C	52.17
934571	AD1-082 C	7.63
934621	AD1-088 C	11.77
935161	AD1-151 C O1	15.8
935211	AD1-156 C	0.26
936041	AD2-007	1.76
936051	AD2-008 C	2.88
936151	AD2-021	0.22
936241	AD2-030 C	2.14
936301	AD2-039 C	1.25
936391	AD2-049 C	1.75
936401	AD2-051 C O1	8.26
936661	AD2-085 C	3.41
936711	AD2-090 C O1	6.94
937221	AD2-160 C O1	5.81
937251	AD2-164	4.67
937541	AD2-215 C	1.73
937571	AD2-169 C	9.46
938031	AE1-004 C	1.25
938171	AE1-026 C1 O	26.7
938172	AE1-026 C2 O	3.86

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
938181	AE1-027 C	2.33
938191	AE1-028 C	1.35
938221	AE1-035 C	2.12
938491	AE1-068 C O1	58.86
938501	AE1-069 C O1	46.14
938531	AE1-072 C O1	17.39
938551	AE1-074 C	2.52
938561	AE1-075 C	2.13
938631	AE1-085 C O1	10.81
938661	AE1-088	1.66
938771	AE1-103 C O1	3.54
939071	AE1-135 C O1	19.94
939191	AE1-149 C O1	10.61
939231	AE1-154 C	1.93
939311	AE1-162 C	2.12
939411	AE1-173 C	89.54
939421	AE1-174 C	0.18
939431	AE1-175 C	2.3
939611	AE1-191 C	9.85
939751	AE1-206 C O1	28.87
940061	AE1-248 C O1	15.85
940071	AE1-249 C	7.07
940231	AE2-005 C	1.25
940251	AE2-007	172.68
940421	AE2-026 C	3.67
940431	AE2-027 C O1	12.62
940471	AE2-031 C O1	32.22
940481	AE2-033 C	15.4
940491	AE2-034 C	8.11
940521	AE2-037 C O1	7.57
940541	AE2-040	3.09
940551	AE2-041	6.63
940641	AE2-051 C O1	17.04
940651	AE2-052	3.55
940891	AE2-078 C	2.32
940901	AE2-079 C	2.32
940911	AE2-080 C	2.32
941031	AE2-094 C	38.42
941101	AE2-104 C O1	3.45
941281	AE2-122 C O1	28.31
941291	AE2-123 C O1	29.09
941301	AE2-124 C O1	26.45
941501	AE2-147 C	15.58
941541	AE2-151 C	1.02
941581	AE2-155 C	0.59
941591	AE2-156	17.86
941601	AE2-157 C O1	10.58
941791	AE2-182 C	2.13
942001	AE2-212 C	2.12
942131	AE2-225 C	2.12
942151	AE2-227 C O1	2.12
942161	AE2-228 C O1	2.12

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942171	AE2-229 C	2.12
942211	AE2-233 C	12.55
942341	AE2-247 C	1.48
942371	AE2-250 C O1	9.52
942401	AE2-253 C	6.11
942471	AE2-260 C O1	13.74
942531	AE2-268 C	1.59
942551	AE2-270	26.35
942851	AE2-304 C	0.62
942921	AE2-311 C O1	44.88
942931	AE2-313 C	34.73
943171	AE2-346 C	1.66
AA2-074	AA2-074	5.15
CARR	CARR	1.65
CBM-S1	CBM-S1	12.78
CBM-S2	CBM-S2	15.13
CBM-W1	CBM-W1	8.49
CBM-W2	CBM-W2	77.91
CIN	CIN	4.48
CPLE	CPLE	7.57
IPL	IPL	2.76
LGEE	LGEE	1.37
MEC	MEC	10.7
MECS	MECS	1.39
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.12

© PJM Interconnection 2019. All rights reserved

12.6.10 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
1687500	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	478.0	176.04	178.66	DC	12.47

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHELC	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECMA	8.55
315132	1EDGECMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936531	AD2-068 C	19.17
936532	AD2-068 E	9.88
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O1	8.41
940522	AE2-037 E O1	4.06
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942471	AE2-260 C O1	7.13
942472	AE2-260 E O1	10.11
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

© PJM Interconnection 2019. All rights reserved

12.6.11 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
1687529	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	159.19	160.08	DC	12.53

Bus #	Bus	MW Impact
314541	3WATKINS	0.48
314554	3BTLEBRO	0.94
314557	3BETHELC	0.99
314572	3EMPORIA	1.03
314574	6EVERETS	3.69
314578	3HORNRTN	5.22
314582	3KELFORD	3.89
314594	6PLYMOTH	0.53
314603	3SCOT NK	3.94
314617	3TUNIS	0.85
314620	6CASHIE	0.64
314623	3WITAKRS	1.64
314704	3LAWRENC	0.5
315126	1ROARAP2	1.63
315131	1EDGECMA	13.26
315132	1EDGECMB	13.26
315136	1ROSEMG1	3.2
315137	1ROSEMS1	1.98
315138	1ROSEMG2	1.5
315139	1GASTONA	4.65
315141	1GASTONB	4.65
315150	1BUGGS 1	8.22
315151	1BUGGS 2	8.22
900672	V4-068 E	0.3
917332	Z2-043 E	1.11
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.11
918492	AA1-063AE OP	5.52
918512	AA1-065 E OP	4.05
918532	AA1-067 E	0.65
918562	AA1-072 E	0.18
919692	AA2-053 E	5.57
919701	AA2-057 C	8.93
919702	AA2-057 E	4.46
920042	AA2-088 E OP	9.98
920592	AA2-165 E	0.59
920672	AA2-174 E	0.64
923801	AB2-015 C O1	5.53
923802	AB2-015 E O1	4.53
923911	AB2-031 C O1	4.82
923912	AB2-031 E O1	2.38

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923991	AB2-040 C O1	1.93
923992	AB2-040 E O1	12.96
924022	AB2-043 E O1	4.19
924152	AB2-059 E O1	6.69
924162	AB2-060 E O1	3.41
924302	AB2-077 E O1	1.07
924312	AB2-078 E O1	1.07
924322	AB2-079 E O1	1.07
924401	AB2-089 C	2.19
924402	AB2-089 E	1.13
924491	AB2-098 C	0.51
924492	AB2-098 E	0.22
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	4.43
925171	AB2-174 C O1	15.94
925172	AB2-174 E O1	14.42
925591	AC1-034 C	8.42
925592	AC1-034 E	6.35
925612	AC1-036 E	0.54
925781	AC1-054 C O1	7.88
925782	AC1-054 E O1	3.63
926071	AC1-086 C	42.94
926072	AC1-086 E	19.54
926201	AC1-098 C	7.71
926202	AC1-098 E	4.59
926211	AC1-099 C	2.58
926212	AC1-099 E	1.52
927021	AC1-189 C	8.68
927022	AC1-189 E	4.32
927141	AC1-208 C	12.14
927142	AC1-208 E	5.39
930402	AB1-081 E O1	4.72
930861	AB1-132 C O1	3.55
930862	AB1-132 E O1	12.5
931231	AB1-173 C	0.59
931232	AB1-173 E	2.27
931241	AB1-173AC	0.59
931242	AB1-173AE	2.27
932631	AC2-084 C	10.99
932632	AC2-084 E	5.41
933991	AD1-023 C	9.41
933992	AD1-023 E	5.12
934201	AD1-047 C	17.28
934202	AD1-047 E	11.52
934231	AD1-050 C	4.83
934232	AD1-050 E	2.64
934331	AD1-057 C O1	17.19
934332	AD1-057 E O1	9.17
934521	AD1-076 C	35.16

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934522	AD1-076 E	17.91
936261	AD2-033 C	8.64
936262	AD2-033 E	5.76
936361	AD2-046 C O1	7.93
936362	AD2-046 E O1	3.65
936401	AD2-051 C O1	9.01
936402	AD2-051 E O1	3.87
936481	AD2-063 C O1	11.12
936482	AD2-063 E O1	7.41
936531	AD2-068 C	3.5
936532	AD2-068 E	1.8
936701	AD2-089 C	8.9
936702	AD2-089 E	5.93
936711	AD2-090 C O1	5.61
936712	AD2-090 E O1	3.74
937571	AD2-169 C	20.32
937572	AD2-169 E	13.54
938171	AE1-026 C1 O	21.19
938172	AE1-026 C2 O	3.07
938173	AE1-026 E O1	6.4
938221	AE1-035 C	2.06
938222	AE1-035 E	1.01
938661	AE1-088	1.34
939071	AE1-135 C O1	67.05
939072	AE1-135 E O1	44.7
939181	AE1-148 C O1	7.78
939182	AE1-148 E O1	5.19
940241	AE2-006	0.3
940481	AE2-033 C	64.29
940482	AE2-033 E	43.34
940521	AE2-037 C O1	8.44
940522	AE2-037 E O1	4.08
940542	AE2-040 BAT	2.33
940571	AE2-044 C	5.51
940572	AE2-044 E	2.36
940661	AE2-053	2.9
941541	AE2-151 C	1.12
941542	AE2-151 E	0.6
941951	AE2-207	3.56
942451	AE2-258	1.9
942471	AE2-260 C O1	46.21
942472	AE2-260 E O1	65.54
942711	AE2-287 C O1	24.9
942712	AE2-287 E O1	16.6
943171	AE2-346 C	1.8
943172	AE2-346 E	0.77
AA2-074	AA2-074	1.72
CARR	CARR	0.19
CBM-S1	CBM-S1	3.72
CBM-S2	CBM-S2	4.5
CBM-W1	CBM-W1	3.64
CBM-W2	CBM-W2	24.17

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
CIN	CIN	1.65
CPLE	CPLE	2.53
G-007	G-007	0.64
IPL	IPL	1.03
LGEE	LGEE	0.48
MEC	MEC	3.71
MECS	MECS	1.49
O-066	O-066	4.06
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.44

© PJM Interconnection 2019. All rights reserved

12.6.12 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
1687484	940520	AE2-037 TAP	DVP	314568	3EARLEYS	DVP	1	DVP_P7-1: LN 81-1001-A	tower	175.0	160.26	201.11	DC	71.49

Bus #	Bus	MW Impact
314582	3KELFORD	21.1
314603	3SCOT NK	20.0
917331	Z2-043 C	1.71
917332	Z2-043 E	6.0
918561	AA1-072 C	0.26
918562	AA1-072 E	1.0
919701	AA2-057 C	43.99
919702	AA2-057 E	22.0
920591	AA2-165 C	0.73
920592	AA2-165 E	2.9
926201	AC1-098 C	37.6
926202	AC1-098 E	22.4
926211	AC1-099 C	12.6
926212	AC1-099 E	7.4
932631	AC2-084 C	53.59
932632	AC2-084 E	26.4
940521	AE2-037 C O1	48.19
940522	AE2-037 E O1	23.3
BLUEG	BLUEG	0.06
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.03
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.01
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.0
G-007	G-007	0.01
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.01
NEWTON	NEWTON	0.02
O-066	O-066	0.08
PRAIRIE	PRAIRIE	0.03
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01
TVA	TVA	0.02
UNIONPOWER	UNIONPOWER	0.01

© PJM Interconnection 2019. All rights reserved

12.6.13 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
1686327	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P4-2: 24642	breaker	897.0	112.87	114.31	DC	12.94

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.52
314557	3BETHELC	0.69
314566	3CRESWEL	7.34
314574	6EVERETS	4.87
314578	3HORNRTN	2.04
314582	3KELFORD	3.49
314594	6PLYMOTH	2.21
314603	3SCOT NK	2.88
314617	3TUNIS	0.73
314620	6CASHIE	1.71
314623	3WITAKRS	0.9
315131	1EDGECMA	6.16
315132	1EDGECMB	6.16
315141	1GASTONB	1.48
315292	1DOMTR78	2.26
315293	1DOMTR9	1.84
315294	1DOMTR10	3.34
900672	V4-068 E	0.19
916041	Z1-036 C	3.29
916042	Z1-036 E	180.94
917331	Z2-043 C	0.28
917332	Z2-043 E	0.99
917342	Z2-044 E	0.39
917511	Z2-088 C OP1	1.12
917512	Z2-088 E OP1	3.94
918491	AA1-063AC OP	0.83
918492	AA1-063AE OP	3.22
918511	AA1-065 C OP	1.45
918512	AA1-065 E OP	5.87
918531	AA1-067 C	0.24
918532	AA1-067 E	0.86
918561	AA1-072 C	0.04
918562	AA1-072 E	0.17
919691	AA2-053 C	0.76
919692	AA2-053 E	2.67
919701	AA2-057 C	4.9
919702	AA2-057 E	2.45
920591	AA2-165 C	0.08
920592	AA2-165 E	0.32
920671	AA2-174 C	0.03
920672	AA2-174 E	0.31
920691	AA2-178 C	3.58

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
920692	AA2-178 E	12.59
923911	AB2-031 C O1	1.09
923912	AB2-031 E O1	0.54
923992	AB2-040 E O1	2.92
924152	AB2-059 E O1	3.53
924491	AB2-098 C	0.67
924492	AB2-098 E	0.29
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
925121	AB2-169 C	1.49
925122	AB2-169 E	10.97
925591	AC1-034 C	4.44
925592	AC1-034 E	3.35
926071	AC1-086 C	13.64
926072	AC1-086 E	6.21
926201	AC1-098 C	4.9
926202	AC1-098 E	2.92
926211	AC1-099 C	1.64
926212	AC1-099 E	0.96
927021	AC1-189 C	9.24
927022	AC1-189 E	4.6
927141	AC1-208 C	6.37
927142	AC1-208 E	2.83
930402	AB1-081 E O1	2.49
930862	AB1-132 E O1	3.97
931232	AB1-173 E	0.51
931242	AB1-173AE	0.51
932631	AC2-084 C	6.99
932632	AC2-084 E	3.44
933991	AD1-023 C	28.94
933992	AD1-023 E	15.76
934201	AD1-047 C	3.9
934202	AD1-047 E	2.6
934331	AD1-057 C O1	6.61
934332	AD1-057 E O1	3.53
934521	AD1-076 C	136.52
934522	AD1-076 E	69.51
936401	AD2-051 C O1	9.77
936402	AD2-051 E O1	4.19
936531	AD2-068 C	4.42
936532	AD2-068 E	2.28
936701	AD2-089 C	6.19
936702	AD2-089 E	4.13
937571	AD2-169 C	5.13
937572	AD2-169 E	3.42
938171	AE1-026 C1 O	56.72
938172	AE1-026 C2 O	8.21
938173	AE1-026 E O1	17.13
938221	AE1-035 C	2.98
938222	AE1-035 E	1.47
938661	AE1-088	6.27
940491	AE2-034 C	25.71

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
940492	AE2-034 E	11.02
940521	AE2-037 C O1	8.72
940522	AE2-037 E O1	4.22
940571	AE2-044 C	2.91
940572	AE2-044 E	1.25
941541	AE2-151 C	1.21
941542	AE2-151 E	0.65
941951	AE2-207	1.88
943171	AE2-346 C	1.76
943172	AE2-346 E	0.75
AA2-074	AA2-074	1.81
CARR	CARR	0.13
CBM-S1	CBM-S1	3.9
CBM-S2	CBM-S2	4.65
CBM-W1	CBM-W1	4.0
CBM-W2	CBM-W2	25.56
CIN	CIN	1.79
CPLE	CPLE	2.66
G-007	G-007	0.48
IPL	IPL	1.12
LGEE	LGEE	0.52
MEC	MEC	3.98
MECS	MECS	1.73
O-066	O-066	3.02
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.48

© PJM Interconnection 2019. All rights reserved

12.6.14 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
7798531	313719	3CHESTNUT	DVP	314623	3WITAKRS	DVP	1	DVP_P1-2: LN 126-B	single	165.44	101.89	118.04	DC	26.72

Bus #	Bus	MW Impact
315126	1ROARAP2	0.61
315128	1ROARAP4	0.59
917331	Z2-043 C	0.95
918491	AA1-063AC OP	0.43
918561	AA1-072 C	0.14
919691	AA2-053 C	0.53
919701	AA2-057 C	30.27
920041	AA2-088 C OP	0.24
920591	AA2-165 C	0.5
920671	AA2-174 C	0.02
923911	AB2-031 C O1	0.9
923991	AB2-040 C O1	0.36
925171	AB2-174 C O1	2.52
925781	AC1-054 C O1	2.34
926201	AC1-098 C	20.84
926211	AC1-099 C	6.99
927141	AC1-208 C	28.0
931231	AB1-173 C	0.11
931241	AB1-173AC	0.11
932631	AC2-084 C	29.71
934201	AD1-047 C	3.23
937571	AD2-169 C	4.52
940521	AE2-037 C O1	26.72
BLUEG	BLUEG	1.04
CALDERWOOD	CALDERWOOD	0.22
CANNELTON	CANNELTON	0.07
CATAWBA	CATAWBA	0.21
CBM-N	CBM-N	0.02
CHEOAH	CHEOAH	0.2
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.12
COTTONWOOD	COTTONWOOD	0.73
DUCKCREEK	DUCKCREEK	0.25
EDWARDS	EDWARDS	0.11
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.09
G-007A	G-007A	0.1
GIBSON	GIBSON	0.04
HAMLET	HAMLET	0.45
NEWTON	NEWTON	0.32
NYISO	NYISO	0.08

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
PRAIRIE	PRAIRIE	0.67
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.15
TILTON	TILTON	0.13
TRIMBLE	TRIMBLE	0.11
TVA	TVA	0.61
UNIONPOWER	UNIONPOWER	0.3
VFT	VFT	0.26

© PJM Interconnection 2019. All rights reserved

12.6.15 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
7798376	313854	3CONSLDL	DVP	314554	3BTLEBRO	DVP	1	DVP_P1-2: LN 126-B	single	165.44	109.13	125.28	DC	26.72

Bus #	Bus	MW Impact
315126	1ROARAP2	0.61
315128	1ROARAP4	0.59
917331	Z2-043 C	0.95
917341	Z2-044 C	0.8
918491	AA1-063AC OP	0.43
918561	AA1-072 C	0.14
919691	AA2-053 C	0.53
919701	AA2-057 C	30.27
920041	AA2-088 C OP	0.24
920591	AA2-165 C	0.5
920671	AA2-174 C	0.02
923911	AB2-031 C O1	0.9
923991	AB2-040 C O1	0.36
925171	AB2-174 C O1	2.52
925781	AC1-054 C O1	2.34
926201	AC1-098 C	20.84
926211	AC1-099 C	6.98
927141	AC1-208 C	28.0
931231	AB1-173 C	0.11
931241	AB1-173AC	0.11
932631	AC2-084 C	29.71
934201	AD1-047 C	3.23
937571	AD2-169 C	4.52
940521	AE2-037 C O1	26.72
BLUEG	BLUEG	1.06
CALDERWOOD	CALDERWOOD	0.22
CANNELTON	CANNELTON	0.07
CATAWBA	CATAWBA	0.22
CBM-N	CBM-N	0.01
CHEOAH	CHEOAH	0.21
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.12
COTTONWOOD	COTTONWOOD	0.74
DUCKCREEK	DUCKCREEK	0.25
EDWARDS	EDWARDS	0.11
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.09
G-007A	G-007A	0.09
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.45
NEWTON	NEWTON	0.32

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
NYISO	NYISO	0.06
PRAIRIE	PRAIRIE	0.68
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.15
TILTON	TILTON	0.13
TRIMBLE	TRIMBLE	0.12
TVA	TVA	0.62
UNIONPOWER	UNIONPOWER	0.31
VFT	VFT	0.23

© PJM Interconnection 2019. All rights reserved

12.6.16 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
1686323	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.89	109.51	DC	7.43

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	0.29
315126	1ROARAP2	0.93
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
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	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
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
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
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
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	2.58
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	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
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
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
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	0.84
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
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	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
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
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O1	5.01
940522	AE2-037 E O1	2.42
940541	AE2-040	7.45
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O1	13.21
941602	AE2-157 E O1	8.81
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49
942451	AE2-258	1.17

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942471	AE2-260 C O1	25.73
942472	AE2-260 E O1	36.5
942711	AE2-287 C O1	14.19
942712	AE2-287 E O1	9.46
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPLE	CPLE	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

© PJM Interconnection 2019. All rights reserved

12.6.17 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
1686322	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.91	109.53	DC	7.43

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	0.29
315126	1ROARAP2	0.93
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
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	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
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
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
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
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	2.58
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	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
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
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
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	0.84
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
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	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
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
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O1	5.01
940522	AE2-037 E O1	2.42
940541	AE2-040	7.45
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O1	13.21
941602	AE2-157 E O1	8.81
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49
942451	AE2-258	1.17

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942471	AE2-260 C O1	25.73
942472	AE2-260 E O1	36.5
942711	AE2-287 C O1	14.19
942712	AE2-287 E O1	9.46
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPLE	CPLE	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

© PJM Interconnection 2019. All rights reserved

12.6.18 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
1686086	314559	3CAROLNA	DVP	314561	6CAROLNA	DVP	1	DVP_P4-2: 102952	breaker	288.6	144.88	145.78	DC	5.75

Bus #	Bus	MW Impact
314539	3UNCAMP	1.77
314541	3WATKINS	0.62
314578	3HORNRTN	8.18
314582	3KELFORD	2.17
314589	3MURPHYS	0.07
314603	3SCOT NK	2.68
314617	3TUNIS	0.64
315126	1ROARAP2	2.72
315128	1ROARAP4	2.61
315150	1BUGGS 1	7.88
315151	1BUGGS 2	7.88
315159	1KERR 2	1.08
315162	1KERR 5	1.07
315163	1KERR 6	1.07
315164	1KERR 7	1.07
900672	V4-068 E	0.31
907092	X1-038 E	4.43
917332	Z2-043 E	0.62
918491	AA1-063AC OP	1.84
918492	AA1-063AE OP	7.14
918562	AA1-072 E	0.1
919691	AA2-053 C	2.33
919692	AA2-053 E	8.21
919701	AA2-057 C	4.74
919702	AA2-057 E	2.37
920041	AA2-088 C OP	0.99
920042	AA2-088 E OP	13.29
920592	AA2-165 E	0.31
920671	AA2-174 C	0.11
920672	AA2-174 E	0.95
923801	AB2-015 C O1	7.16
923802	AB2-015 E O1	5.87
923911	AB2-031 C O1	6.01
923912	AB2-031 E O1	2.96
923991	AB2-040 C O1	2.41
923992	AB2-040 E O1	16.16
924022	AB2-043 E O1	3.26
924162	AB2-060 E O1	2.66
924302	AB2-077 E O1	0.85
924312	AB2-078 E O1	0.85
924322	AB2-079 E O1	0.85

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
924401	AB2-089 C	2.81
924402	AB2-089 E	1.45
924501	AB2-099 C	0.34
924502	AB2-099 E	0.15
925171	AB2-174 C O1	18.85
925172	AB2-174 E O1	17.06
925612	AC1-036 E	0.43
925781	AC1-054 C O1	10.61
925782	AC1-054 E O1	4.89
926201	AC1-098 C	5.78
926202	AC1-098 E	3.44
926211	AC1-099 C	1.94
926212	AC1-099 E	1.14
927141	AC1-208 C	11.25
927142	AC1-208 E	5.0
931231	AB1-173 C	0.74
931232	AB1-173 E	2.83
931241	AB1-173AC	0.74
931242	AB1-173AE	2.83
932631	AC2-084 C	8.24
932632	AC2-084 E	4.06
934201	AD1-047 C	21.54
934202	AD1-047 E	14.36
934231	AD1-050 C	6.19
934232	AD1-050 E	3.38
936261	AD2-033 C	6.8
936262	AD2-033 E	4.53
936361	AD2-046 C O1	8.68
936362	AD2-046 E O1	3.99
936481	AD2-063 C O1	8.7
936482	AD2-063 E O1	5.8
936711	AD2-090 C O1	7.38
936712	AD2-090 E O1	4.92
937571	AD2-169 C	26.93
937572	AD2-169 E	17.95
938771	AE1-103 C O1	2.66
938772	AE1-103 E O1	3.67
939181	AE1-148 C O1	8.39
939182	AE1-148 E O1	5.59
940241	AE2-006	0.24
940521	AE2-037 C O1	3.88
940522	AE2-037 E O1	1.87
940661	AE2-053	3.12
942451	AE2-258	1.48
942711	AE2-287 C O1	8.21
942712	AE2-287 E O1	5.47
943171	AE2-346 C	1.03
943172	AE2-346 E	0.44
CARR	CARR	0.04
CBM-S1	CBM-S1	0.34
CBM-S2	CBM-S2	0.31
CBM-W1	CBM-W1	0.34

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	2.17
CIN	CIN	0.16
CPLE	CPLE	0.12
G-007	G-007	0.14
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.34
MECS	MECS	0.13
O-066	O-066	0.9
RENSSELAER	RENSSELAER	0.03
WEC	WEC	0.04

© PJM Interconnection 2019. All rights reserved

12.6.19 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
1686690	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	118.85	121.33	DC	14.19

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECMA	9.42
315132	1EDGECMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O1	14.19
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942471	AE2-260 C O1	8.05
942711	AE2-287 C O1	7.0
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPLE	CPLE	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

© PJM Interconnection 2019. All rights reserved

12.6.20 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
1687505	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	168.55	171.13	DC	12.47

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHELC	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECMA	8.55
315132	1EDGECMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938531	AE1-072 C O1	6.69
938532	AE1-072 E O1	3.49
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O1	8.41
940522	AE2-037 E O1	4.06
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942471	AE2-260 C O1	7.13
942472	AE2-260 E O1	10.11
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

© PJM Interconnection 2019. All rights reserved

12.6.21 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
1686738	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	111.68	114.17	DC	14.2

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECMA	9.42
315132	1EDGECMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.12
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.21
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
926071	AC1-086 C	21.85
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.7
927141	AC1-208 C	10.09
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.15
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.33
934521	AD1-076 C	110.74
936401	AD2-051 C O1	15.92
936531	AD2-068 C	6.56
936701	AD2-089 C	9.29
937571	AD2-169 C	8.21
938171	AE1-026 C1 O	58.58
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.69
940491	AE2-034 C	16.92
940521	AE2-037 C O1	14.2
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942471	AE2-260 C O1	8.06
942711	AE2-287 C O1	7.01
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.74
CARR	CARR	0.19
CBM-S1	CBM-S1	6.01
CBM-S2	CBM-S2	7.07
CBM-W1	CBM-W1	6.25
CBM-W2	CBM-W2	39.45
CIN	CIN	2.8
CPLE	CPLE	4.02
IPL	IPL	1.76
LGEE	LGEE	0.81
MEC	MEC	6.18
MECS	MECS	2.74
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

© PJM Interconnection 2019. All rights reserved

12.6.22 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
1686391	314578	3HORNRTN	DVP	314559	3CAROLNA	DVP	1	DVP_P4-2: 101442	breaker	202.0	101.29	105.15	DC	7.81

Bus #	Bus	MW Impact
314578	3HORNRTN	18.07
314582	3KELFORD	5.04
314603	3SCOT NK	8.38
314623	3WITAKRS	5.41
917331	Z2-043 C	0.41
917332	Z2-043 E	1.43
917341	Z2-044 C	0.66
917342	Z2-044 E	2.32
918561	AA1-072 C	0.06
918562	AA1-072 E	0.24
919701	AA2-057 C	28.31
919702	AA2-057 E	14.16
920591	AA2-165 C	0.47
920592	AA2-165 E	1.87
926201	AC1-098 C	19.97
926202	AC1-098 E	11.9
926211	AC1-099 C	6.69
926212	AC1-099 E	3.93
927141	AC1-208 C	37.47
927142	AC1-208 E	16.64
932631	AC2-084 C	28.47
932632	AC2-084 E	14.02
940521	AE2-037 C O1	5.27
940522	AE2-037 E O1	2.55
BLUEG	BLUEG	0.04
CALDERWOOD	CALDERWOOD	0.0
CANNELTON	CANNELTON	0.0
CATAWBA	CATAWBA	0.0
CBM-N	CBM-N	0.0
CBM-S2	CBM-S2	0.01
CHEOAH	CHEOAH	0.0
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.0
COTTONWOOD	COTTONWOOD	0.01
CPLE	CPLE	0.02
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.0
FARMERCITY	FARMERCITY	0.0
G-007A	G-007A	0.01
GIBSON	GIBSON	0.0

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.01
NYISO	NYISO	0.02
PRAIRIE	PRAIRIE	0.02
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.0
TILTON	TILTON	0.0
TRIMBLE	TRIMBLE	0.0
TVA	TVA	0.01
UNIONPOWER	UNIONPOWER	0.0
VFT	VFT	0.04

© PJM Interconnection 2019. All rights reserved

12.6.23 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
1686883	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	110.26	112.49	DC	8.53

Bus #	Bus	MW Impact
314589	3MURPHYS	0.05
315115	1S HAMPT1	0.51
315126	1ROARAP2	0.99
315128	1ROARAP4	0.95
315131	1EDGECMA	10.43
315132	1EDGECMB	10.43
315136	1ROSEMG1	3.27
315137	1ROSEMS1	2.03
315138	1ROSEMG2	1.53
315139	1GASTONA	4.87
315141	1GASTONB	4.87
315159	1KERR 2	0.35
315292	1DOMTR78	0.83
315293	1DOMTR9	0.68
315294	1DOMTR10	1.23
916041	Z1-036 C	0.27
917331	Z2-043 C	0.3
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.16
918491	AA1-063AC OP	1.05
918511	AA1-065 C OP	1.24
918531	AA1-067 C	0.21
918561	AA1-072 C	0.04
919691	AA2-053 C	1.06
919701	AA2-057 C	7.33
920041	AA2-088 C OP	0.51
920591	AA2-165 C	0.12
920671	AA2-174 C	0.05
920691	AA2-178 C	0.69
923801	AB2-015 C O1	3.46
924151	AB2-059 C O1	1.36
924401	AB2-089 C	0.94
924491	AB2-098 C	0.58
924501	AB2-099 C	0.58
925121	AB2-169 C	0.69
925591	AC1-034 C	7.22
925781	AC1-054 C O1	3.62
926071	AC1-086 C	44.94
926201	AC1-098 C	6.36
926211	AC1-099 C	2.13
927021	AC1-189 C	8.97

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
927141	AC1-208 C	9.23
930401	AB1-081 C O1	1.15
930861	AB1-132 C O1	3.72
932631	AC2-084 C	9.07
933991	AD1-023 C	11.19
934231	AD1-050 C	2.08
934331	AD1-057 C O1	15.93
934521	AD1-076 C	41.0
936401	AD2-051 C O1	9.31
936531	AD2-068 C	4.32
936701	AD2-089 C	7.84
936711	AD2-090 C O1	3.67
938171	AE1-026 C1 O	25.42
938172	AE1-026 C2 O	3.68
938221	AE1-035 C	2.54
938661	AE1-088	2.91
938771	AE1-103 C O1	1.26
940491	AE2-034 C	4.98
940521	AE2-037 C O1	8.53
940571	AE2-044 C	4.73
941541	AE2-151 C	1.16
941951	AE2-207	3.06
943171	AE2-346 C	1.75
AA2-074	AA2-074	2.2
CARR	CARR	0.18
CBM-S1	CBM-S1	4.75
CBM-S2	CBM-S2	5.72
CBM-W1	CBM-W1	4.78
CBM-W2	CBM-W2	31.05
CIN	CIN	2.15
CPLE	CPLE	3.23
IPL	IPL	1.35
LGEE	LGEE	0.62
MEC	MEC	4.8
MECS	MECS	2.03
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.58

© PJM Interconnection 2019. All rights reserved

12.6.24 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
1687032	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPLE	1	DVP_P1-2: LN 2058	single	470.0	112.6	113.86	DC	5.95

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECMA	25.25
315132	1EDGECMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O1	5.95
940541	AE2-040	1.32
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942471	AE2-260 C O1	9.91
942711	AE2-287 C O1	6.42
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

© PJM Interconnection 2019. All rights reserved

12.6.25 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
7798366	314623	3WITAKRS	DVP	313854	3CONSLDL	DVP	1	DVP_P1-2: LN 126-B	single	165.44	109.13	125.28	DC	26.72

Bus #	Bus	MW Impact
315126	1ROARAP2	0.61
315128	1ROARAP4	0.59
917331	Z2-043 C	0.95
917341	Z2-044 C	0.8
918491	AA1-063AC OP	0.43
918561	AA1-072 C	0.14
919691	AA2-053 C	0.53
919701	AA2-057 C	30.27
920041	AA2-088 C OP	0.24
920591	AA2-165 C	0.5
920671	AA2-174 C	0.02
923911	AB2-031 C O1	0.9
923991	AB2-040 C O1	0.36
925171	AB2-174 C O1	2.52
925781	AC1-054 C O1	2.34
926201	AC1-098 C	20.84
926211	AC1-099 C	6.98
927141	AC1-208 C	28.0
931231	AB1-173 C	0.11
931241	AB1-173AC	0.11
932631	AC2-084 C	29.71
934201	AD1-047 C	3.23
937571	AD2-169 C	4.52
940521	AE2-037 C O1	26.72
BLUEG	BLUEG	1.06
CALDERWOOD	CALDERWOOD	0.22
CANNELTON	CANNELTON	0.07
CATAWBA	CATAWBA	0.22
CBM-N	CBM-N	0.01
CHEOAH	CHEOAH	0.21
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.12
COTTONWOOD	COTTONWOOD	0.74
DUCKCREEK	DUCKCREEK	0.25
EDWARDS	EDWARDS	0.11
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.09
G-007A	G-007A	0.09
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.45
NEWTON	NEWTON	0.32

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
NYISO	NYISO	0.06
PRAIRIE	PRAIRIE	0.68
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.15
TILTON	TILTON	0.13
TRIMBLE	TRIMBLE	0.12
TVA	TVA	0.62
UNIONPOWER	UNIONPOWER	0.31
VFT	VFT	0.23

© PJM Interconnection 2019. All rights reserved

12.6.26 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
1685980	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	146.44	148.16	DC	11.31

Bus #	Bus	MW Impact
314557	3BETHELC	0.6
314566	3CRESWEL	6.39
314574	6EVERETS	4.25
314582	3KELFORD	3.05
314594	6PLYMOTH	1.92
314603	3SCOT NK	2.51
314617	3TUNIS	0.64
314620	6CASHIE	1.49
314638	6ELIZ CT	0.72
314639	6TANGLEW	1.26
314651	6WINFALL	6.71
315292	1DOMTR78	1.97
315293	1DOMTR9	1.61
315294	1DOMTR10	2.91
901081	W1-029 C	3.19
901082	W1-029 E	175.15
913392	Y1-086 E	9.58
916041	Z1-036 C	2.86
916042	Z1-036 E	157.45
917122	Z2-027 E	4.42
917331	Z2-043 C	0.25
917332	Z2-043 E	0.87
917511	Z2-088 C OP1	0.98
917512	Z2-088 E OP1	3.44
918491	AA1-063AC OP	0.73
918492	AA1-063AE OP	2.82
918511	AA1-065 C OP	1.27
918512	AA1-065 E OP	5.12
918531	AA1-067 C	0.21
918532	AA1-067 E	0.75
918561	AA1-072 C	0.04
918562	AA1-072 E	0.14
919691	AA2-053 C	0.66
919692	AA2-053 E	2.34
920671	AA2-174 C	0.03
920672	AA2-174 E	0.27
920691	AA2-178 C	3.12
920692	AA2-178 E	10.96
923831	AB2-022 C	1.22
923832	AB2-022 E	5.41
924491	AB2-098 C	0.58

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
924492	AB2-098 E	0.25
924501	AB2-099 C	0.51
924502	AB2-099 E	0.22
925121	AB2-169 C	1.3
925122	AB2-169 E	9.55
926201	AC1-098 C	4.28
926202	AC1-098 E	2.55
926211	AC1-099 C	1.44
926212	AC1-099 E	0.84
927021	AC1-189 C	8.05
927022	AC1-189 E	4.01
927141	AC1-208 C	5.57
927142	AC1-208 E	2.47
932631	AC2-084 C	6.11
932632	AC2-084 E	3.01
933991	AD1-023 C	25.21
933992	AD1-023 E	13.72
934521	AD1-076 C	118.85
934522	AD1-076 E	60.52
936401	AD2-051 C O1	8.54
936402	AD2-051 E O1	3.67
936531	AD2-068 C	3.85
936532	AD2-068 E	1.98
936701	AD2-089 C	5.39
936702	AD2-089 E	3.59
938171	AE1-026 C1 O	49.4
938172	AE1-026 C2 O	7.15
938173	AE1-026 E O1	14.92
938221	AE1-035 C	2.6
938222	AE1-035 E	1.28
938661	AE1-088	5.46
940491	AE2-034 C	22.38
940492	AE2-034 E	9.59
940521	AE2-037 C O1	7.63
940522	AE2-037 E O1	3.69
941501	AE2-147 C	60.4
941502	AE2-147 E	40.27
941541	AE2-151 C	1.06
941542	AE2-151 E	0.57
942851	AE2-304 C	2.31
942852	AE2-304 E	0.9
943171	AE2-346 C	1.54
943172	AE2-346 E	0.66
AA2-074	AA2-074	1.56
CARR	CARR	0.13
CBM-S1	CBM-S1	3.29
CBM-S2	CBM-S2	4.0
CBM-W1	CBM-W1	3.28
CBM-W2	CBM-W2	21.46
CIN	CIN	1.48
CPLE	CPLE	2.29
G-007	G-007	0.45

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
IPL	IPL	0.93
LGEE	LGEE	0.43
MEC	MEC	3.31
MECS	MECS	1.39
O-066	O-066	2.85
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.4

© PJM Interconnection 2019. All rights reserved

12.6.27 Index 27

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
1686337	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	109.44	110.88	DC	12.94

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.52
314557	3BETHELC	0.69
314566	3CRESWEL	7.34
314574	6EVERETS	4.87
314578	3HORNRTN	2.04
314582	3KELFORD	3.49
314594	6PLYMOTH	2.21
314603	3SCOT NK	2.88
314617	3TUNIS	0.73
314620	6CASHIE	1.71
314623	3WITAKRS	0.9
315131	1EDGECMA	6.16
315132	1EDGECMB	6.16
315141	1GASTONB	1.48
315292	1DOMTR78	2.26
315293	1DOMTR9	1.84
315294	1DOMTR10	3.34
900672	V4-068 E	0.19
916041	Z1-036 C	3.29
916042	Z1-036 E	180.94
917331	Z2-043 C	0.28
917332	Z2-043 E	0.99
917342	Z2-044 E	0.39
917511	Z2-088 C OP1	1.12
917512	Z2-088 E OP1	3.94
918491	AA1-063AC OP	0.83
918492	AA1-063AE OP	3.22
918511	AA1-065 C OP	1.45
918512	AA1-065 E OP	5.87
918531	AA1-067 C	0.24
918532	AA1-067 E	0.86
918561	AA1-072 C	0.04
918562	AA1-072 E	0.17
919691	AA2-053 C	0.76
919692	AA2-053 E	2.67
919701	AA2-057 C	4.9
919702	AA2-057 E	2.45
920591	AA2-165 C	0.08
920592	AA2-165 E	0.32
920671	AA2-174 C	0.03
920672	AA2-174 E	0.31
920691	AA2-178 C	3.58

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
920692	AA2-178 E	12.59
924152	AB2-059 E O1	3.53
924491	AB2-098 C	0.67
924492	AB2-098 E	0.29
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
925121	AB2-169 C	1.49
925122	AB2-169 E	10.97
925591	AC1-034 C	4.44
925592	AC1-034 E	3.35
926071	AC1-086 C	13.64
926072	AC1-086 E	6.21
926201	AC1-098 C	4.9
926202	AC1-098 E	2.92
926211	AC1-099 C	1.64
926212	AC1-099 E	0.96
927021	AC1-189 C	9.24
927022	AC1-189 E	4.6
927141	AC1-208 C	6.37
927142	AC1-208 E	2.83
930402	AB1-081 E O1	2.49
930862	AB1-132 E O1	3.97
932631	AC2-084 C	6.99
932632	AC2-084 E	3.44
933991	AD1-023 C	28.94
933992	AD1-023 E	15.76
934331	AD1-057 C O1	6.61
934332	AD1-057 E O1	3.53
934521	AD1-076 C	136.52
934522	AD1-076 E	69.51
936401	AD2-051 C O1	9.77
936402	AD2-051 E O1	4.19
936531	AD2-068 C	4.42
936532	AD2-068 E	2.28
936701	AD2-089 C	6.19
936702	AD2-089 E	4.13
938171	AE1-026 C1 O	56.72
938172	AE1-026 C2 O	8.21
938173	AE1-026 E O1	17.13
938221	AE1-035 C	2.98
938222	AE1-035 E	1.47
938661	AE1-088	6.27
940491	AE2-034 C	25.71
940492	AE2-034 E	11.02
940521	AE2-037 C O1	8.72
940522	AE2-037 E O1	4.22
940571	AE2-044 C	2.91
940572	AE2-044 E	1.25
941541	AE2-151 C	1.21
941542	AE2-151 E	0.65
941951	AE2-207	1.88
942851	AE2-304 C	2.66

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942852	AE2-304 E	1.03
943171	AE2-346 C	1.76
943172	AE2-346 E	0.75
AA2-074	AA2-074	1.81
CARR	CARR	0.13
CBM-S1	CBM-S1	3.9
CBM-S2	CBM-S2	4.65
CBM-W1	CBM-W1	4.0
CBM-W2	CBM-W2	25.56
CIN	CIN	1.79
CPLE	CPLE	2.66
G-007	G-007	0.48
IPL	IPL	1.12
LGEE	LGEE	0.52
MEC	MEC	3.98
MECS	MECS	1.73
O-066	O-066	3.02
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.48

© PJM Interconnection 2019. All rights reserved

12.6.28 Index 28

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
1686727	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	111.66	114.15	DC	14.2

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECMA	9.42
315132	1EDGECMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.12
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.21
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
926071	AC1-086 C	21.85
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.7
927141	AC1-208 C	10.09
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.15
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.33
934521	AD1-076 C	110.74
936401	AD2-051 C O1	15.92
936531	AD2-068 C	6.56
936701	AD2-089 C	9.29
937571	AD2-169 C	8.21
938171	AE1-026 C1 O	58.58
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.69
940491	AE2-034 C	16.92
940521	AE2-037 C O1	14.2
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942471	AE2-260 C O1	8.06
942711	AE2-287 C O1	7.01
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.74
CARR	CARR	0.19
CBM-S1	CBM-S1	6.01
CBM-S2	CBM-S2	7.07
CBM-W1	CBM-W1	6.25
CBM-W2	CBM-W2	39.45
CIN	CIN	2.8
CPLE	CPLE	4.02
IPL	IPL	1.76
LGEE	LGEE	0.81
MEC	MEC	6.18
MECS	MECS	2.74
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

© PJM Interconnection 2019. All rights reserved

12.6.29 Index 29

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
1686808	924510	AB2-100 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 246	single	375.06	121.59	123.82	DC	8.53

Bus #	Bus	MW Impact
314589	3MURPHYS	0.05
315115	1S HAMPT1	0.51
315126	1ROARAP2	0.99
315128	1ROARAP4	0.95
315131	1EDGECMA	10.43
315132	1EDGECMB	10.43
315136	1ROSEMG1	3.27
315137	1ROSEMS1	2.03
315138	1ROSEMG2	1.53
315139	1GASTONA	4.87
315141	1GASTONB	4.87
315159	1KERR 2	0.35
315292	1DOMTR78	0.83
315293	1DOMTR9	0.68
315294	1DOMTR10	1.23
916041	Z1-036 C	0.27
917331	Z2-043 C	0.3
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.16
918491	AA1-063AC OP	1.05
918511	AA1-065 C OP	1.24
918531	AA1-067 C	0.21
918561	AA1-072 C	0.04
919691	AA2-053 C	1.06
919701	AA2-057 C	7.33
920041	AA2-088 C OP	0.51
920591	AA2-165 C	0.12
920671	AA2-174 C	0.05
920691	AA2-178 C	0.69
923801	AB2-015 C O1	3.46
924151	AB2-059 C O1	1.36
924401	AB2-089 C	0.94
924491	AB2-098 C	0.58
924501	AB2-099 C	0.58
924511	AB2-100 C	42.5
925121	AB2-169 C	0.69
925591	AC1-034 C	7.22
925781	AC1-054 C O1	3.62
926071	AC1-086 C	44.94
926201	AC1-098 C	6.36
926211	AC1-099 C	2.13

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
927021	AC1-189 C	8.97
927141	AC1-208 C	9.23
930401	AB1-081 C O1	1.15
930861	AB1-132 C O1	3.72
932631	AC2-084 C	9.07
933991	AD1-023 C	11.19
934231	AD1-050 C	2.08
934331	AD1-057 C O1	15.93
934521	AD1-076 C	41.0
936401	AD2-051 C O1	9.31
936531	AD2-068 C	4.32
936701	AD2-089 C	7.84
936711	AD2-090 C O1	3.67
938171	AE1-026 C1 O	25.42
938172	AE1-026 C2 O	3.68
938221	AE1-035 C	2.54
938661	AE1-088	2.91
938771	AE1-103 C O1	1.26
940491	AE2-034 C	4.98
940521	AE2-037 C O1	8.53
940571	AE2-044 C	4.73
941541	AE2-151 C	1.16
941951	AE2-207	3.06
943171	AE2-346 C	1.75
AA2-074	AA2-074	2.2
CARR	CARR	0.18
CBM-S1	CBM-S1	4.75
CBM-S2	CBM-S2	5.72
CBM-W1	CBM-W1	4.78
CBM-W2	CBM-W2	31.05
CIN	CIN	2.15
CPLE	CPLE	3.23
IPL	IPL	1.35
LGEE	LGEE	0.62
MEC	MEC	4.8
MECS	MECS	2.03
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.58

© PJM Interconnection 2019. All rights reserved

Short Circuit

© PJM Interconnection 2019. All rights reserved

12.7 Short Circuit

The following Breakers are overduty: none

13 Network Impacts – Secondary Point of Interconnection

The Queue Project AE2-037 was evaluated as a 71.5 MW (Capacity 48.2 MW) injection tapping the Earleys to Everetts 230kV line in the Dominion area. Project AE2-037 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-037 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

13.1 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
1686760	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 218-A	single	374.0	98.44	99.86	DC	5.3
1686944	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 218-A	single	449.32	98.72	100.0	DC	5.78
1686919	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	single	598.78	92.44	93.48	DC	6.28
1686907	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	Base Case	single	478.0	98.67	101.02	DC	11.23
1686773	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	single	598.78	97.82	98.86	DC	6.28

13.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	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
1686409	314651	6WINFALL	DVP	314639	6TANGLEW	DVP	1	DVP_P4-2: 246T247	breaker	1163.0	93.62	94.73	DC	12.9

13.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	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
1687677	313844	3HATHAWAY	DVP	314554	3BTLEBRO	DVP	1	DVP_P7-1: LN 2058-2181	tower	301.0	102.82	103.51	DC	4.6
1686755	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 2181	single	374.0	137.56	139.02	DC	5.46
1686940	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	123.48	124.72	DC	5.57
1686323	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.91	109.44	DC	6.36
1686322	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.92	109.45	DC	6.36
1687666	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 2058-2181	tower	830.0	120.23	120.81	DC	10.66
12303594	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 205602	breaker	830.0	111.68	112.19	DC	9.35
12303595	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 2056T2081	breaker	830.0	111.45	111.96	DC	9.35
1687473	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	164.0	294.72	296.12	DC	5.07
1686915	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	100.42	101.46	DC	6.31
1686917	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-B	single	598.78	101.11	102.14	DC	6.31

© 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
1687554	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	142.29	143.05	DC	10.66
1686690	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	118.85	121.57	DC	15.57
1686691	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	118.07	120.79	DC	15.57
1686840	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	131.68	134.12	DC	11.03
1686842	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2167	single	449.32	115.3	118.41	DC	13.98
1686846	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	single	449.32	100.8	103.3	DC	11.23
1687505	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	167.6	171.52	DC	18.99
7798595	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	131.68	134.12	DC	11.03
7798596	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	131.68	134.12	DC	11.03
1686737	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	112.46	115.19	DC	15.57
1686738	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	111.68	114.41	DC	15.57
1686883	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	110.26	112.5	DC	8.54
1686884	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 1029-B	single	375.06	109.86	111.56	DC	6.52
1687032	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPLE	1	DVP_P1-2: LN 2058	single	470.0	112.6	113.78	DC	5.57
1685980	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	146.44	148.4	DC	12.88
1686337	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	109.44	111.09	DC	14.78
1686726	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	112.45	115.17	DC	15.57
1686727	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	111.66	114.39	DC	15.57
13612425	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	121.59	123.83	DC	8.54
13612426	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	DVP_P1-2: AA1-138_FSA	single	375.06	119.73	121.96	DC	8.54
13612427	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	DVP_P1-2: LN 6005_FSA	single	375.06	119.73	121.96	DC	8.54
13612430	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	Base Case	single	346.86	106.4	108.13	DC	6.02
1686901	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 570	single	478.0	127.6	129.89	DC	11.03
1687500	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	478.0	176.04	180.03	DC	18.99
7798635	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 6002_FSA	single	478.0	127.62	129.91	DC	11.03
7798637	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 570_FSA	single	478.0	127.6	129.89	DC	11.03
1686016	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 205602	breaker	637.0	149.09	149.75	DC	9.35
1686017	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 2056T2081	breaker	637.0	148.81	149.47	DC	9.36
1686769	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	111.15	112.19	DC	6.31
1686772	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-B	single	598.78	107.13	108.18	DC	6.31

© 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
1687529	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	159.19	159.95	DC	10.66
12303388	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P4-2: 205602	breaker	427.0	127.87	128.82	DC	8.99
12303389	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P4-2: 2056T2081	breaker	427.0	127.6	128.55	DC	8.99
13612286	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 2056-A	single	375.06	117.13	118.73	DC	6.06
13612287	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 2056-B	single	375.06	111.35	112.95	DC	6.06
13612289	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	single	346.86	106.4	108.13	DC	6.02
13974574	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P7-1: LN 2058-2181	tower	427.0	136.99	138.08	DC	10.37

13.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	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
1323066	242631	05EDAN 1	AEP	242620	05DANVL2	AEP	1	AEP_P1-2_#1377	operation	402.0	128.17	128.65	DC	4.23
1686607	313713	6SWAMP	DVP	313721	6ACORN HILL	DVP	1	DVP_P1-2: LN 2020	operation	449.32	165.7	167.34	DC	7.37
1687123	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	DVP_P1-2: LN 246	operation	733.2	137.93	139.95	DC	14.83
1687128	313714	6PERQUIMANS	DVP	314662	6S HERTFORD	DVP	1	Base Case	operation	733.2	112.12	113.42	DC	9.52
1686602	313721	6ACORN HILL	DVP	314648	6SUNBURY	DVP	1	DVP_P1-2: LN 2020	operation	449.32	165.7	167.34	DC	7.37
1686754	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 2181	operation	374.0	171.22	172.2	DC	8.11
1686938	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	operation	449.32	152.05	152.88	DC	8.27
1687345	313885	6WALBMRL	DVP	313714	6PERQUIMANS	DVP	1	DVP_P1-2: LN 246	operation	733.2	108.87	110.89	DC	14.85
1687301	314203	6MACKEYS	DVP	314637	6EDENTON	DVP	1	DVP_P1-2: LN 246	operation	731.32	113.21	115.24	DC	14.85
1686962	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2056-A	operation	678.68	136.28	136.9	DC	9.36

© 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
1686963	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	operation	678.68	125.7	126.32	DC	9.31
1686912	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-B	operation	598.78	142.18	142.89	DC	9.36
1686913	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	operation	598.78	134.53	135.23	DC	9.31
1687391	314564	6EDGECOM	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 218-A	operation	441.8	104.0	107.6	DC	15.92
1686685	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	178.01	182.05	DC	23.09
1686693	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	Base Case	operation	571.52	109.49	112.81	DC	18.95
1686835	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 246	operation	449.32	160.93	165.52	DC	20.58
1686841	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	operation	449.32	135.66	139.37	DC	16.66
1686732	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	171.62	175.67	DC	23.09
1686740	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	Base Case	operation	571.52	103.08	106.41	DC	18.95
1686878	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	operation	375.06	146.0	149.38	DC	12.67
1686882	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	Base Case	operation	346.86	123.09	124.26	DC	8.94
1687030	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPLE	1	DVP_P1-2: LN 2058	operation	470.0	139.91	140.71	DC	8.27
1687348	314637	6EDENTON	DVP	313885	6WALBMRL	DVP	1	DVP_P1-2: LN 246	operation	733.2	108.87	110.89	DC	14.85
1686932	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	Base Case	operation	530.16	109.36	109.88	DC	6.02
7798691	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P1-2: LN 6001	operation	571.52	139.45	140.91	DC	8.34
1686630	314648	6SUNBURY	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2020	operation	449.32	163.39	165.03	DC	7.37
1687258	314651	6WINFALL	DVP	313713	6SWAMP	DVP	1	DVP_P1-2: LN 2020	operation	449.32	121.41	123.05	DC	7.39
1687146	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P1-2: LN 246	operation	733.2	133.72	135.75	DC	14.83
1687151	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	Base Case	operation	733.2	104.63	105.92	DC	9.52
1686721	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	operation	571.52	171.6	175.65	DC	23.09
1686729	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	Base Case	operation	571.52	103.08	106.41	DC	18.95
13612419	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	DVP_P1-2: LN 246	operation	375.06	162.91	166.3	DC	12.67
13612424	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	Base Case	operation	346.86	138.39	139.56	DC	8.94
1686896	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P1-2: LN 246	operation	478.0	157.36	161.68	DC	20.58
1686902	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	Base Case	operation	478.0	131.68	135.17	DC	16.66

© 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
1686764	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-A	operation	598.78	158.28	158.98	DC	9.36
1686767	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	operation	598.78	144.33	145.03	DC	9.31
13612281	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 2056-A	operation	375.06	145.25	146.33	DC	8.99
13612282	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	operation	346.86	138.32	139.48	DC	8.94

© PJM Interconnection 2019. All rights reserved

13.5 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.

13.5.1 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 6005_FSA	CONTINGENCY 'DVP_P1-2: LN 6005_FSA' OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 END
DVP_P1-2: LN 6001	CONTINGENCY 'DVP_P1-2: LN 6001' OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 END
DVP_P4-2: 2056T2081	CONTINGENCY 'DVP_P4-2: 2056T2081' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 314010 TO BUS 314082 CKT 1 /* 6BEAMEAD 230.00 - 6STERLNG 230.00 END
DVP_P1-2: LN 1029-B	CONTINGENCY 'DVP_P1-2: LN 1029-B' OPEN BRANCH FROM BUS 925170 TO BUS 314615 CKT 1 /* AB2-174 TAP 115.00 - 3TREGOTP 115.00 END
DVP_P4-2: 205602	CONTINGENCY 'DVP_P4-2: 205602' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 1 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END
DVP_P1-2: AA1-138_FSA	CONTINGENCY 'DVP_P1-2: AA1-138_FSA' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P1-2: LN 2131	CONTINGENCY 'DVP_P1-2: LN 2131' OPEN BRANCH FROM BUS 313714 TO BUS 313885 CKT 1 /* 6PERQUIMANS 230.00 - 6WALBMRL 230.00 OPEN BRANCH FROM BUS 313885 TO BUS 314637 CKT 1 /* 6WALBMRL 230.00 - 6EDENTON 230.00 OPEN BRANCH FROM BUS 314203 TO BUS 314637 CKT 1 /* 6MACKEYS 230.00 - 6EDENTON 230.00 OPEN BUS 313885 /* ISLAND: 6WALBMRL 230.00 OPEN BUS 314637 /* ISLAND: 6EDENTON 230.00 END
DVP_P7-1: LN 2058-2181	CONTINGENCY 'DVP_P7-1: LN 2058-2181' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P1-2: LN 570_FSA	CONTINGENCY 'DVP_P1-2: LN 570_FSA' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 END
DVP_P1-2: LN 2167	CONTINGENCY 'DVP_P1-2: LN 2167' OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECOM 230.00 END
DVP_P1-2: LN 2181	CONTINGENCY 'DVP_P1-2: LN 2181' OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P1-2: LN 6002_FSA	CONTINGENCY 'DVP_P1-2: LN 6002_FSA' OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 END
DVP_P1-2: LN 246	CONTINGENCY 'DVP_P1-2: LN 246' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
DVP_P4-2: 24642	CONTINGENCY 'DVP_P4-2: 24642' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
DVP_P4-2: 246T247	CONTINGENCY 'DVP_P4-2: 246T247' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 313713 TO BUS 313721 CKT 1 /* 6SWAMP 230.00 - 6ACORN HILL 230.00 OPEN BRANCH FROM BUS 313721 TO BUS 314648 CKT 1 /* 6ACORN HILL 230.00 - 6SUNBURY 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314648 CKT 1 /* 6SUFFOLK 230.00 - 6SUNBURY 230.00 OPEN BUS 313721 /* ISLAND: 6ACORN HILL 230.00 OPEN BUS 314648 /* ISLAND: 6SUNBURY 230.00 END
DVP_P1-2: LN 2056-A	CONTINGENCY 'DVP_P1-2: LN 2056-A' OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 END
DVP_P1-2: LN 2056-B	CONTINGENCY 'DVP_P1-2: LN 2056-B' OPEN BRANCH FROM BUS 934330 TO BUS 314579 CKT 1 /* AD1-057 TAP 230.00 - 6HORNRTN 230.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00 END

© PJM Interconnection 2019. All rights reserved

Contingency Name	Contingency Definition
AEP_P1-2_#1377	CONTINGENCY 'AEP_P1-2_#1377' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END
DVP_P1-2: LN 2020	CONTINGENCY 'DVP_P1-2: LN 2020' OPEN BRANCH FROM BUS 313851 TO BUS 314638 CKT 1 /* 6ECITYDP2 230.00 - 6ELIZ CT 230.00 OPEN BRANCH FROM BUS 313851 TO BUS 314639 CKT 1 /* 6ECITYDP2 230.00 - 6TANGLEW 230.00 OPEN BRANCH FROM BUS 314639 TO BUS 314651 CKT 1 /* 6TANGLEW 230.00 - 6WINFALL 230.00 OPEN BUS 313851 /* ISLAND: 6ECITYDP2 230.00 OPEN BUS 314639 /* ISLAND: 6TANGLEW 230.00 OPEN BUS 917122 /* ISLAND: Z2-027 E 230.00 END
Base Case	
DVP_P1-2: LN 2058	CONTINGENCY 'DVP_P1-2: LN 2058' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 2092	CONTINGENCY 'DVP_P1-2: LN 2092' OPEN BRANCH FROM BUS 313714 TO BUS 314662 CKT 1 /* 6PERQUIMANS 230.00 - 6S HERTFORD 230.00 OPEN BRANCH FROM BUS 314651 TO BUS 314662 CKT 1 /* 6WINFALL 230.00 - 6S HERTFORD 230.00 OPEN BUS 314662 /* ISLAND: 6S HERTFORD 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_P1-2: LN 218-A	CONTINGENCY 'DVP_P1-2: LN 218-A' OPEN BRANCH FROM BUS 304451 TO BUS 936530 CKT 1 /* 6GREENVILE T230.00 - AD2-068 TAP 230.00 END

13.5.2 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
1686755	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPLE	1	DVP_P1-2: LN 2181	single	374.0	137.56	139.02	DC	5.46

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.54
315126	1ROARAP2	0.81
315128	1ROARAP4	0.78
315131	1EDGECMA	24.75
315132	1EDGECMB	24.75
315136	1ROSEMG1	2.1
315137	1ROSEMS1	1.3
315138	1ROSEMG2	0.98
315139	1GASTONA	2.52
315141	1GASTONB	2.52
315292	1DOMTR78	0.58
315293	1DOMTR9	0.48
315294	1DOMTR10	0.86
901081	W1-029 C	0.25
916041	Z1-036 C	0.29
917331	Z2-043 C	0.23
917341	Z2-044 C	0.2
917511	Z2-088 C OP1	1.46
918491	AA1-063AC OP	0.79
918511	AA1-065 C OP	0.72
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.83
919701	AA2-057 C	8.14
920041	AA2-088 C OP	0.46
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.54
923801	AB2-015 C O1	3.95
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.61
923991	AB2-040 C O1	0.64
924151	AB2-059 C O1	2.06
924401	AB2-089 C	0.73
924491	AB2-098 C	0.41
924501	AB2-099 C	0.4
924511	AB2-100 C	8.39
925121	AB2-169 C	0.49
925171	AB2-174 C O1	4.93

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925591	AC1-034 C	10.93
925781	AC1-054 C O1	2.83
926071	AC1-086 C	23.24
926201	AC1-098 C	5.92
926211	AC1-099 C	1.98
927021	AC1-189 C	9.72
927141	AC1-208 C	9.06
930401	AB1-081 C O1	1.74
930861	AB1-132 C O1	1.92
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.44
933991	AD1-023 C	7.4
934201	AD1-047 C	5.77
934231	AD1-050 C	1.6
934331	AD1-057 C O1	19.81
934521	AD1-076 C	28.78
936401	AD2-051 C O1	6.14
936701	AD2-089 C	14.05
936711	AD2-090 C O1	3.69
937571	AD2-169 C	7.4
938171	AE1-026 C1 O	16.32
938172	AE1-026 C2 O	2.36
938221	AE1-035 C	1.48
938661	AE1-088	2.05
938771	AE1-103 C O1	1.56
939071	AE1-135 C O1	14.1
940481	AE2-033 C	7.06
940491	AE2-034 C	3.88
940521	AE2-037 C O2	5.46
940571	AE2-044 C	7.16
941501	AE2-147 C	4.64
941541	AE2-151 C	0.76
941951	AE2-207	4.63
942371	AE2-250 C O2	5.95
942471	AE2-260 C O2	9.81
942711	AE2-287 C O2	6.22
942851	AE2-304 C	0.2
943171	AE2-346 C	1.2
BLUEG	BLUEG	5.91
CALDERWOOD	CALDERWOOD	1.2
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	1.17
CBM-N	CBM-N	0.12
CHEOAH	CHEOAH	1.12
CHILHOWEE	CHILHOWEE	0.39
COFFEEN	COFFEEN	0.69
COTTONWOOD	COTTONWOOD	4.01
DUCKCREEK	DUCKCREEK	1.41
EDWARDS	EDWARDS	0.63
ELMERSMITH	ELMERSMITH	0.71
FARMERCITY	FARMERCITY	0.49

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007A	G-007A	0.65
GIBSON	GIBSON	0.25
HAMLET	HAMLET	2.3
NEWTON	NEWTON	1.79
NYISO	NYISO	0.54
PRAIRIE	PRAIRIE	3.73
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.84
TILTON	TILTON	0.75
TRIMBLE	TRIMBLE	0.65
TVA	TVA	3.37
UNIONPOWER	UNIONPOWER	1.66
VFT	VFT	1.72

© PJM Interconnection 2019. All rights reserved

13.5.3 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
1686940	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	123.48	124.72	DC	5.57

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECMA	25.25
315132	1EDGECMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O2	5.57
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942371	AE2-250 C O2	6.07
942471	AE2-260 C O2	10.01
942711	AE2-287 C O2	6.34
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

© PJM Interconnection 2019. All rights reserved

13.5.4 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
1687554	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	142.29	143.05	DC	10.66

Bus #	Bus	MW Impact
314541	3WATKINS	0.48
314554	3BTLEBRO	0.94
314557	3BETHELC	0.99
314572	3EMPORIA	1.03
314574	6EVERETS	3.69
314578	3HORNRTN	5.22
314582	3KELFORD	3.89
314594	6PLYMOTH	0.53
314603	3SCOT NK	3.94
314617	3TUNIS	0.85
314620	6CASHIE	0.64
314623	3WITAKRS	1.64
314704	3LAWRENC	0.5
315126	1ROARAP2	1.63
315131	1EDGECMA	13.26
315132	1EDGECMB	13.26
315136	1ROSEMG1	3.2
315137	1ROSEMS1	1.98
315138	1ROSEMG2	1.5
315139	1GASTONA	4.65
315141	1GASTONB	4.65
315150	1BUGGS 1	8.22
315151	1BUGGS 2	8.22
900672	V4-068 E	0.3
917332	Z2-043 E	1.11
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.11
918492	AA1-063AE OP	5.52
918512	AA1-065 E OP	4.05
918532	AA1-067 E	0.65
918562	AA1-072 E	0.18
919692	AA2-053 E	5.57
919701	AA2-057 C	8.93
919702	AA2-057 E	4.46
920042	AA2-088 E OP	9.98
920592	AA2-165 E	0.59
920672	AA2-174 E	0.64
923801	AB2-015 C O1	5.53
923802	AB2-015 E O1	4.53
923911	AB2-031 C O1	4.82
923912	AB2-031 E O1	2.38

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923991	AB2-040 C O1	1.93
923992	AB2-040 E O1	12.96
924022	AB2-043 E O1	4.19
924152	AB2-059 E O1	6.69
924162	AB2-060 E O1	3.41
924302	AB2-077 E O1	1.07
924312	AB2-078 E O1	1.07
924322	AB2-079 E O1	1.07
924401	AB2-089 C	2.19
924402	AB2-089 E	1.13
924491	AB2-098 C	0.51
924492	AB2-098 E	0.22
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	4.43
925171	AB2-174 C O1	15.94
925172	AB2-174 E O1	14.42
925591	AC1-034 C	8.42
925592	AC1-034 E	6.35
925612	AC1-036 E	0.54
925781	AC1-054 C O1	7.88
925782	AC1-054 E O1	3.63
926071	AC1-086 C	42.94
926072	AC1-086 E	19.54
926201	AC1-098 C	7.71
926202	AC1-098 E	4.59
926211	AC1-099 C	2.58
926212	AC1-099 E	1.52
927021	AC1-189 C	8.68
927022	AC1-189 E	4.32
927141	AC1-208 C	12.14
927142	AC1-208 E	5.39
930402	AB1-081 E O1	4.72
930861	AB1-132 C O1	3.55
930862	AB1-132 E O1	12.5
931231	AB1-173 C	0.59
931232	AB1-173 E	2.27
931241	AB1-173AC	0.59
931242	AB1-173AE	2.27
932631	AC2-084 C	10.99
932632	AC2-084 E	5.41
933991	AD1-023 C	9.41
933992	AD1-023 E	5.12
934201	AD1-047 C	17.28
934202	AD1-047 E	11.52
934231	AD1-050 C	4.83
934232	AD1-050 E	2.64
934331	AD1-057 C O1	17.19
934332	AD1-057 E O1	9.17
934521	AD1-076 C	35.16

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934522	AD1-076 E	17.91
936261	AD2-033 C	8.64
936262	AD2-033 E	5.76
936361	AD2-046 C O1	7.93
936362	AD2-046 E O1	3.65
936401	AD2-051 C O1	9.01
936402	AD2-051 E O1	3.87
936481	AD2-063 C O1	11.12
936482	AD2-063 E O1	7.41
936531	AD2-068 C	3.5
936532	AD2-068 E	1.8
936701	AD2-089 C	8.9
936702	AD2-089 E	5.93
936711	AD2-090 C O1	5.61
936712	AD2-090 E O1	3.74
937571	AD2-169 C	20.32
937572	AD2-169 E	13.54
938171	AE1-026 C1 O	21.19
938172	AE1-026 C2 O	3.07
938173	AE1-026 E O1	6.4
938221	AE1-035 C	2.06
938222	AE1-035 E	1.01
938661	AE1-088	1.34
939071	AE1-135 C O1	67.05
939072	AE1-135 E O1	44.7
939181	AE1-148 C O1	7.78
939182	AE1-148 E O1	5.19
940241	AE2-006	0.3
940521	AE2-037 C O2	7.19
940522	AE2-037 E O2	3.47
940571	AE2-044 C	5.51
940572	AE2-044 E	2.36
940661	AE2-053	2.9
941541	AE2-151 C	1.12
941542	AE2-151 E	0.6
941951	AE2-207	3.56
942371	AE2-250 C O2	23.29
942372	AE2-250 E O2	12.29
942451	AE2-258	1.9
942471	AE2-260 C O2	45.92
942472	AE2-260 E O2	65.13
942711	AE2-287 C O2	24.59
942712	AE2-287 E O2	16.39
943171	AE2-346 C	1.8
943172	AE2-346 E	0.77
AA2-074	AA2-074	1.72
CARR	CARR	0.19
CBM-S1	CBM-S1	3.72
CBM-S2	CBM-S2	4.5
CBM-W1	CBM-W1	3.64
CBM-W2	CBM-W2	24.17
CIN	CIN	1.65

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
CPLE	CPLE	2.53
G-007	G-007	0.64
IPL	IPL	1.03
LGEE	LGEE	0.48
MEC	MEC	3.71
MECS	MECS	1.49
O-066	O-066	4.06
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.44

© PJM Interconnection 2019. All rights reserved

13.5.5 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
1687500	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	478.0	176.04	180.03	DC	18.99

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHELC	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECMA	8.55
315132	1EDGECMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936531	AD2-068 C	19.17
936532	AD2-068 E	9.88
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O2	12.8
940522	AE2-037 E O2	6.19
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942371	AE2-250 C O2	4.5
942372	AE2-250 E O2	2.37
942471	AE2-260 C O2	7.19
942472	AE2-260 E O2	10.19
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

© PJM Interconnection 2019. All rights reserved

13.5.6 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
1687529	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	159.19	159.95	DC	10.66

Bus #	Bus	MW Impact
314541	3WATKINS	0.48
314554	3BTLEBRO	0.94
314557	3BETHELC	0.99
314572	3EMPORIA	1.03
314574	6EVERETS	3.69
314578	3HORNRTN	5.22
314582	3KELFORD	3.89
314594	6PLYMOTH	0.53
314603	3SCOT NK	3.94
314617	3TUNIS	0.85
314620	6CASHIE	0.64
314623	3WITAKRS	1.64
314704	3LAWRENC	0.5
315126	1ROARAP2	1.63
315131	1EDGECMA	13.26
315132	1EDGECMB	13.26
315136	1ROSEMG1	3.2
315137	1ROSEMS1	1.98
315138	1ROSEMG2	1.5
315139	1GASTONA	4.65
315141	1GASTONB	4.65
315150	1BUGGS 1	8.22
315151	1BUGGS 2	8.22
900672	V4-068 E	0.3
917332	Z2-043 E	1.11
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.11
918492	AA1-063AE OP	5.52
918512	AA1-065 E OP	4.05
918532	AA1-067 E	0.65
918562	AA1-072 E	0.18
919692	AA2-053 E	5.57
919701	AA2-057 C	8.93
919702	AA2-057 E	4.46
920042	AA2-088 E OP	9.98
920592	AA2-165 E	0.59
920672	AA2-174 E	0.64
923801	AB2-015 C O1	5.53
923802	AB2-015 E O1	4.53
923911	AB2-031 C O1	4.82
923912	AB2-031 E O1	2.38

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923991	AB2-040 C O1	1.93
923992	AB2-040 E O1	12.96
924022	AB2-043 E O1	4.19
924152	AB2-059 E O1	6.69
924162	AB2-060 E O1	3.41
924302	AB2-077 E O1	1.07
924312	AB2-078 E O1	1.07
924322	AB2-079 E O1	1.07
924401	AB2-089 C	2.19
924402	AB2-089 E	1.13
924491	AB2-098 C	0.51
924492	AB2-098 E	0.22
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	4.43
925171	AB2-174 C O1	15.94
925172	AB2-174 E O1	14.42
925591	AC1-034 C	8.42
925592	AC1-034 E	6.35
925612	AC1-036 E	0.54
925781	AC1-054 C O1	7.88
925782	AC1-054 E O1	3.63
926071	AC1-086 C	42.94
926072	AC1-086 E	19.54
926201	AC1-098 C	7.71
926202	AC1-098 E	4.59
926211	AC1-099 C	2.58
926212	AC1-099 E	1.52
927021	AC1-189 C	8.68
927022	AC1-189 E	4.32
927141	AC1-208 C	12.14
927142	AC1-208 E	5.39
930402	AB1-081 E O1	4.72
930861	AB1-132 C O1	3.55
930862	AB1-132 E O1	12.5
931231	AB1-173 C	0.59
931232	AB1-173 E	2.27
931241	AB1-173AC	0.59
931242	AB1-173AE	2.27
932631	AC2-084 C	10.99
932632	AC2-084 E	5.41
933991	AD1-023 C	9.41
933992	AD1-023 E	5.12
934201	AD1-047 C	17.28
934202	AD1-047 E	11.52
934231	AD1-050 C	4.83
934232	AD1-050 E	2.64
934331	AD1-057 C O1	17.19
934332	AD1-057 E O1	9.17
934521	AD1-076 C	35.16

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934522	AD1-076 E	17.91
936261	AD2-033 C	8.64
936262	AD2-033 E	5.76
936361	AD2-046 C O1	7.93
936362	AD2-046 E O1	3.65
936401	AD2-051 C O1	9.01
936402	AD2-051 E O1	3.87
936481	AD2-063 C O1	11.12
936482	AD2-063 E O1	7.41
936531	AD2-068 C	3.5
936532	AD2-068 E	1.8
936701	AD2-089 C	8.9
936702	AD2-089 E	5.93
936711	AD2-090 C O1	5.61
936712	AD2-090 E O1	3.74
937571	AD2-169 C	20.32
937572	AD2-169 E	13.54
938171	AE1-026 C1 O	21.19
938172	AE1-026 C2 O	3.07
938173	AE1-026 E O1	6.4
938221	AE1-035 C	2.06
938222	AE1-035 E	1.01
938661	AE1-088	1.34
939071	AE1-135 C O1	67.05
939072	AE1-135 E O1	44.7
939181	AE1-148 C O1	7.78
939182	AE1-148 E O1	5.19
940241	AE2-006	0.3
940481	AE2-033 C	64.29
940482	AE2-033 E	43.34
940521	AE2-037 C O2	7.19
940522	AE2-037 E O2	3.47
940571	AE2-044 C	5.51
940572	AE2-044 E	2.36
940661	AE2-053	2.9
941541	AE2-151 C	1.12
941542	AE2-151 E	0.6
941951	AE2-207	3.56
942371	AE2-250 C O2	23.29
942372	AE2-250 E O2	12.29
942451	AE2-258	1.9
942471	AE2-260 C O2	45.92
942472	AE2-260 E O2	65.13
942711	AE2-287 C O2	24.59
942712	AE2-287 E O2	16.39
943171	AE2-346 C	1.8
943172	AE2-346 E	0.77
AA2-074	AA2-074	1.72
CARR	CARR	0.19
CBM-S1	CBM-S1	3.72
CBM-S2	CBM-S2	4.5
CBM-W1	CBM-W1	3.64

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	24.17
CIN	CIN	1.65
CPLE	CPLE	2.53
G-007	G-007	0.64
IPL	IPL	1.03
LGEE	LGEE	0.48
MEC	MEC	3.71
MECS	MECS	1.49
O-066	O-066	4.06
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.44

© PJM Interconnection 2019. All rights reserved

13.5.7 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
1686409	314651	6WINFALL	DVP	314639	6TANGLEW	DVP	1	DVP_P4-2: 246T247	breaker	1163.0	93.62	94.73	DC	12.9

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.45
314557	3BETHELC	0.6
314566	3CRESWEL	6.4
314574	6EVERETS	4.25
314578	3HORNRTN	1.79
314582	3KELFORD	3.06
314594	6PLYMOTH	1.92
314603	3SCOT NK	2.52
314617	3TUNIS	0.64
314620	6CASHIE	1.49
314623	3WITAKRS	0.79
314651	6WINFALL	6.71
315131	1EDGECMA	5.38
315132	1EDGECMB	5.38
315292	1DOMTR78	1.97
315293	1DOMTR9	1.61
315294	1DOMTR10	2.91
900672	V4-068 E	0.17
901081	W1-029 C	3.19
901082	W1-029 E	175.2
916041	Z1-036 C	2.86
916042	Z1-036 E	157.5
917331	Z2-043 C	0.25
917332	Z2-043 E	0.87
917342	Z2-044 E	0.34
917511	Z2-088 C OP1	0.98
917512	Z2-088 E OP1	3.44
918491	AA1-063AC OP	0.73
918492	AA1-063AE OP	2.83
918511	AA1-065 C OP	1.27
918512	AA1-065 E OP	5.12
918531	AA1-067 C	0.21
918532	AA1-067 E	0.75
918561	AA1-072 C	0.04
918562	AA1-072 E	0.14
919691	AA2-053 C	0.67
919692	AA2-053 E	2.35
919701	AA2-057 C	4.28
919702	AA2-057 E	2.14
920592	AA2-165 E	0.28
920671	AA2-174 C	0.03

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
920672	AA2-174 E	0.27
920691	AA2-178 C	3.12
920692	AA2-178 E	10.96
924152	AB2-059 E O1	3.08
924491	AB2-098 C	0.58
924492	AB2-098 E	0.25
924501	AB2-099 C	0.51
924502	AB2-099 E	0.22
925121	AB2-169 C	1.3
925122	AB2-169 E	9.56
925591	AC1-034 C	3.88
925592	AC1-034 E	2.92
926071	AC1-086 C	11.93
926072	AC1-086 E	5.43
926201	AC1-098 C	4.29
926202	AC1-098 E	2.56
926211	AC1-099 C	1.44
926212	AC1-099 E	0.84
927021	AC1-189 C	8.06
927022	AC1-189 E	4.02
927141	AC1-208 C	5.58
927142	AC1-208 E	2.48
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	3.47
932631	AC2-084 C	6.12
932632	AC2-084 E	3.01
933991	AD1-023 C	25.22
933992	AD1-023 E	13.73
934331	AD1-057 C O1	5.78
934332	AD1-057 E O1	3.08
934521	AD1-076 C	118.92
934522	AD1-076 E	60.55
936401	AD2-051 C O1	8.55
936402	AD2-051 E O1	3.67
936531	AD2-068 C	3.85
936532	AD2-068 E	1.99
936701	AD2-089 C	5.4
936702	AD2-089 E	3.6
938171	AE1-026 C1 O	49.43
938172	AE1-026 C2 O	7.15
938173	AE1-026 E O1	14.93
938221	AE1-035 C	2.6
938222	AE1-035 E	1.28
938661	AE1-088	5.46
940491	AE2-034 C	22.39
940492	AE2-034 E	9.59
940521	AE2-037 C O2	8.69
940522	AE2-037 E O2	4.2
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	60.42
941502	AE2-147 E	40.28

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
941541	AE2-151 C	1.06
941542	AE2-151 E	0.57
941951	AE2-207	1.64
942851	AE2-304 C	2.31
942852	AE2-304 E	0.9
943171	AE2-346 C	1.54
943172	AE2-346 E	0.66
AA2-074	AA2-074	1.57
CARR	CARR	0.12
CBM-S1	CBM-S1	3.35
CBM-S2	CBM-S2	4.03
CBM-W1	CBM-W1	3.39
CBM-W2	CBM-W2	21.91
CIN	CIN	1.53
CPLE	CPLE	2.31
G-007	G-007	0.43
IPL	IPL	0.96
LGEE	LGEE	0.44
MEC	MEC	3.4
MECS	MECS	1.45
O-066	O-066	2.73
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.41

© PJM Interconnection 2019. All rights reserved

13.5.8 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
1687677	313844	3HATHAWAY	DVP	314554	3BTLEBRO	DVP	1	DVP_P7-1: LN 2058-2181	tower	301.0	102.82	103.51	DC	4.6

Bus #	Bus	MW Impact
314557	3BETHELC	1.09
314574	6EVERETS	1.88
315131	1EDGECMA	17.55
315132	1EDGECMB	17.55
315136	1ROSEMG1	1.25
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315139	1GASTONA	1.41
315141	1GASTONB	1.41
917511	Z2-088 C OP1	1.0
917512	Z2-088 E OP1	3.5
918532	AA1-067 E	0.33
924151	AB2-059 C O1	4.0
924152	AB2-059 E O1	16.89
924491	AB2-098 C	0.26
924492	AB2-098 E	0.11
924511	AB2-100 C	4.38
924512	AB2-100 E	2.16
925591	AC1-034 C	21.24
925592	AC1-034 E	16.02
926071	AC1-086 C	12.97
926072	AC1-086 E	5.9
927021	AC1-189 C	6.54
927022	AC1-189 E	3.26
930401	AB1-081 C O1	3.39
930402	AB1-081 E O1	11.92
930861	AB1-132 C O1	1.07
930862	AB1-132 E O1	3.77
934331	AD1-057 C O1	13.29
934332	AD1-057 E O1	7.09
936701	AD2-089 C	9.82
936702	AD2-089 E	6.55
940521	AE2-037 C O2	3.1
940522	AE2-037 E O2	1.5
940571	AE2-044 C	13.91
940572	AE2-044 E	5.96
941951	AE2-207	8.99
BLUEG	BLUEG	2.91
CALDERWOOD	CALDERWOOD	0.58
CANNELTON	CANNELTON	0.2
CATAWBA	CATAWBA	0.56

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
CBM-N	CBM-N	0.05
CHEOAH	CHEOAH	0.54
CHILHOWEE	CHILHOWEE	0.19
COFFEEN	COFFEEN	0.34
COTTONWOOD	COTTONWOOD	1.94
DUCKCREEK	DUCKCREEK	0.69
EDWARDS	EDWARDS	0.31
ELMERSMITH	ELMERSMITH	0.35
FARMERCITY	FARMERCITY	0.24
G-007A	G-007A	0.27
GIBSON	GIBSON	0.12
HAMLET	HAMLET	1.1
NEWTON	NEWTON	0.88
NYISO	NYISO	0.2
PRAIRIE	PRAIRIE	1.82
SANTEETLA	SANTEETLA	0.16
SMITHLAND	SMITHLAND	0.16
TATANKA	TATANKA	0.41
TILTON	TILTON	0.37
TRIMBLE	TRIMBLE	0.32
TVA	TVA	1.63
UNIONPOWER	UNIONPOWER	0.81
VFT	VFT	0.71

© PJM Interconnection 2019. All rights reserved

13.5.9 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
1686323	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.91	109.44	DC	6.36

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	0.29
315126	1ROARAP2	0.93
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
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	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
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
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
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
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	2.58
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	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
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
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
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	0.84
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
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	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
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
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O2	4.29
940522	AE2-037 E O2	2.07
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940641	AE2-051 C O2	44.63
940642	AE2-051 E O2	29.75
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O2	12.15
941602	AE2-157 E O2	8.1
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942371	AE2-250 C O2	13.07
942372	AE2-250 E O2	6.9
942451	AE2-258	1.17
942471	AE2-260 C O2	25.56
942472	AE2-260 E O2	36.26
942711	AE2-287 C O2	14.02
942712	AE2-287 E O2	9.35
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPLE	CPLE	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

© PJM Interconnection 2019. All rights reserved

13.5.10 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
1686322	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	108.92	109.45	DC	6.36

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	0.29
315126	1ROARAP2	0.93
315131	1EDGECMA	5.88
315132	1EDGECMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
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	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
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
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
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
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	2.58
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	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
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
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
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	0.84
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
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	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
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
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O2	4.29
940522	AE2-037 E O2	2.07
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940641	AE2-051 C O2	44.63
940642	AE2-051 E O2	29.75
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O2	12.15
941602	AE2-157 E O2	8.1
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942371	AE2-250 C O2	13.07
942372	AE2-250 E O2	6.9
942451	AE2-258	1.17
942471	AE2-260 C O2	25.56
942472	AE2-260 E O2	36.26
942711	AE2-287 C O2	14.02
942712	AE2-287 E O2	9.35
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPLE	CPLE	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

© PJM Interconnection 2019. All rights reserved

13.5.11 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
1687666	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 2058-2181	tower	830.0	120.23	120.81	DC	10.66

Bus #	Bus	MW Impact
314541	3WATKINS	0.48
314554	3BTLEBRO	0.94
314557	3BETHELC	0.99
314572	3EMPORIA	1.03
314574	6EVERETS	3.69
314578	3HORNRTN	5.22
314582	3KELFORD	3.89
314603	3SCOT NK	3.94
314617	3TUNIS	0.85
314620	6CASHIE	0.64
314623	3WITAKRS	1.64
314704	3LAWRENC	0.5
315126	1ROARAP2	1.63
315131	1EDGECMA	13.26
315132	1EDGECMB	13.26
315136	1ROSEMG1	3.2
315137	1ROSEMS1	1.98
315138	1ROSEMG2	1.5
315139	1GASTONA	4.65
315141	1GASTONB	4.65
315150	1BUGGS 1	8.21
315151	1BUGGS 2	8.21
900672	V4-068 E	0.3
917332	Z2-043 E	1.11
917342	Z2-044 E	0.7
917512	Z2-088 E OP1	4.11
918492	AA1-063AE OP	5.52
918512	AA1-065 E OP	4.05
918532	AA1-067 E	0.65
918562	AA1-072 E	0.18
919692	AA2-053 E	5.56
919701	AA2-057 C	8.93
919702	AA2-057 E	4.46
920042	AA2-088 E OP	9.98
920592	AA2-165 E	0.59
920672	AA2-174 E	0.64
923801	AB2-015 C O1	5.52
923802	AB2-015 E O1	4.53
923851	AB2-025 C	1.26
923852	AB2-025 E	4.65
923911	AB2-031 C O1	4.82

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923912	AB2-031 E O1	2.38
923991	AB2-040 C O1	1.93
923992	AB2-040 E O1	12.96
924022	AB2-043 E O1	4.19
924152	AB2-059 E O1	6.69
924162	AB2-060 E O1	3.41
924302	AB2-077 E O1	1.07
924312	AB2-078 E O1	1.07
924322	AB2-079 E O1	1.07
924401	AB2-089 C	2.19
924402	AB2-089 E	1.13
924491	AB2-098 C	0.51
924492	AB2-098 E	0.22
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	35.86
924512	AB2-100 E	17.66
925122	AB2-169 E	4.42
925171	AB2-174 C O1	15.94
925172	AB2-174 E O1	14.42
925591	AC1-034 C	8.41
925592	AC1-034 E	6.35
925781	AC1-054 C O1	7.88
925782	AC1-054 E O1	3.63
926071	AC1-086 C	42.93
926072	AC1-086 E	19.54
926201	AC1-098 C	7.71
926202	AC1-098 E	4.59
926211	AC1-099 C	2.58
926212	AC1-099 E	1.52
927021	AC1-189 C	8.68
927022	AC1-189 E	4.32
927141	AC1-208 C	12.13
927142	AC1-208 E	5.39
930402	AB1-081 E O1	4.72
930861	AB1-132 C O1	3.55
930862	AB1-132 E O1	12.49
931231	AB1-173 C	0.59
931232	AB1-173 E	2.27
931241	AB1-173AC	0.59
931242	AB1-173AE	2.27
932631	AC2-084 C	10.99
932632	AC2-084 E	5.41
933991	AD1-023 C	9.4
933992	AD1-023 E	5.12
934201	AD1-047 C	17.27
934202	AD1-047 E	11.52
934231	AD1-050 C	4.83
934232	AD1-050 E	2.64
934331	AD1-057 C O1	17.19
934332	AD1-057 E O1	9.17
934521	AD1-076 C	35.14

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934522	AD1-076 E	17.89
936261	AD2-033 C	8.63
936262	AD2-033 E	5.75
936361	AD2-046 C O1	7.92
936362	AD2-046 E O1	3.64
936401	AD2-051 C O1	9.01
936402	AD2-051 E O1	3.87
936481	AD2-063 C O1	11.11
936482	AD2-063 E O1	7.41
936701	AD2-089 C	8.89
936702	AD2-089 E	5.93
936711	AD2-090 C O1	5.61
936712	AD2-090 E O1	3.74
937571	AD2-169 C	20.31
937572	AD2-169 E	13.54
938171	AE1-026 C1 O	21.18
938172	AE1-026 C2 O	3.06
938173	AE1-026 E O1	6.39
938221	AE1-035 C	2.06
938222	AE1-035 E	1.01
938661	AE1-088	1.34
939071	AE1-135 C O1	67.04
939072	AE1-135 E O1	44.69
939181	AE1-148 C O1	7.78
939182	AE1-148 E O1	5.18
940481	AE2-033 C	64.28
940482	AE2-033 E	43.33
940521	AE2-037 C O2	7.18
940522	AE2-037 E O2	3.47
940571	AE2-044 C	5.51
940572	AE2-044 E	2.36
940661	AE2-053	2.9
941541	AE2-151 C	1.12
941542	AE2-151 E	0.6
941951	AE2-207	3.56
942371	AE2-250 C O2	23.29
942372	AE2-250 E O2	12.29
942451	AE2-258	1.9
942471	AE2-260 C O2	45.91
942472	AE2-260 E O2	65.12
942711	AE2-287 C O2	24.58
942712	AE2-287 E O2	16.39
943171	AE2-346 C	1.8
943172	AE2-346 E	0.77
AA2-074	AA2-074	1.72
CARR	CARR	0.19
CBM-S1	CBM-S1	3.7
CBM-S2	CBM-S2	4.48
CBM-W1	CBM-W1	3.59
CBM-W2	CBM-W2	23.98
CIN	CIN	1.63
CPLE	CPLE	2.53

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007	G-007	0.65
IPL	IPL	1.02
LGEE	LGEE	0.47
MEC	MEC	3.67
MECS	MECS	1.46
O-066	O-066	4.11
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.44

© PJM Interconnection 2019. All rights reserved

13.5.12 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
1687473	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPLE	1	DVP_P7-1: LN 2058-2181	tower	164.0	294.72	296.12	DC	5.07

Bus #	Bus	MW Impact
314541	3WATKINS	0.25
314554	3BTLEBRO	1.96
314557	3BETHELC	0.86
314572	3EMPORIA	0.2
314574	6EVERETS	1.77
314578	3HORNRTN	2.52
314582	3KELFORD	2.87
314603	3SCOT NK	3.65
314617	3TUNIS	0.43
314620	6CASHIE	0.32
314623	3WITAKRS	2.92
315131	1EDGECMA	13.53
315132	1EDGECMB	13.53
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315139	1GASTONA	1.55
315141	1GASTONB	1.55
900672	V4-068 E	0.15
917331	Z2-043 C	0.23
917332	Z2-043 E	0.82
917341	Z2-044 C	0.36
917342	Z2-044 E	1.25
917511	Z2-088 C OP1	0.83
917512	Z2-088 E OP1	2.91
918492	AA1-063AE OP	2.41
918512	AA1-065 E OP	1.91
918532	AA1-067 E	0.31
918561	AA1-072 C	0.03
918562	AA1-072 E	0.14
919692	AA2-053 E	2.32
919701	AA2-057 C	13.32
919702	AA2-057 E	6.66
920042	AA2-088 E OP	4.75
920591	AA2-165 C	0.22
920592	AA2-165 E	0.88
920672	AA2-174 E	0.27
923801	AB2-015 C O1	2.99
923802	AB2-015 E O1	2.45
923911	AB2-031 C O1	1.2
923912	AB2-031 E O1	0.59

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.22
924151	AB2-059 C O1	2.89
924152	AB2-059 E O1	12.22
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.31
924502	AB2-099 E	0.13
924511	AB2-100 C	5.31
924512	AB2-100 E	2.62
925122	AB2-169 E	2.21
925171	AB2-174 C O1	3.6
925172	AB2-174 E O1	3.26
925591	AC1-034 C	15.36
925592	AC1-034 E	11.59
926071	AC1-086 C	14.34
926072	AC1-086 E	6.53
926201	AC1-098 C	7.95
926202	AC1-098 E	4.74
926211	AC1-099 C	2.66
926212	AC1-099 E	1.56
927021	AC1-189 C	5.57
927022	AC1-189 E	2.77
927141	AC1-208 C	12.51
927142	AC1-208 E	5.56
930401	AB1-081 C O1	2.45
930402	AB1-081 E O1	8.62
930861	AB1-132 C O1	1.19
930862	AB1-132 E O1	4.17
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932631	AC2-084 C	11.33
932632	AC2-084 E	5.58
933991	AD1-023 C	4.78
933992	AD1-023 E	2.6
934201	AD1-047 C	4.3
934202	AD1-047 E	2.86
934331	AD1-057 C O1	11.18
934332	AD1-057 E O1	5.96
936401	AD2-051 C O1	4.79
936402	AD2-051 E O1	2.06
936701	AD2-089 C	7.78
936702	AD2-089 E	5.19
936711	AD2-090 C O1	2.83
936712	AD2-090 E O1	1.89
937571	AD2-169 C	5.61
937572	AD2-169 E	3.74
938171	AE1-026 C1 O	10.58
938172	AE1-026 C2 O	1.53
938173	AE1-026 E O1	3.19
938221	AE1-035 C	0.97
938222	AE1-035 E	0.48
938661	AE1-088	0.67

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
939071	AE1-135 C O1	8.96
939072	AE1-135 E O1	5.98
940521	AE2-037 C O2	3.42
940522	AE2-037 E O2	1.65
940571	AE2-044 C	10.06
940572	AE2-044 E	4.31
941541	AE2-151 C	0.59
941542	AE2-151 E	0.32
941951	AE2-207	6.5
942371	AE2-250 C O2	4.11
942372	AE2-250 E O2	2.17
942471	AE2-260 C O2	6.23
942472	AE2-260 E O2	8.84
943171	AE2-346 C	0.94
943172	AE2-346 E	0.4
BLUEG	BLUEG	3.99
CALDERWOOD	CALDERWOOD	0.81
CANNELTON	CANNELTON	0.27
CATAWBA	CATAWBA	0.79
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.76
CHILHOWEE	CHILHOWEE	0.26
COFFEEN	COFFEEN	0.46
COTTONWOOD	COTTONWOOD	2.71
DUCKCREEK	DUCKCREEK	0.95
EDWARDS	EDWARDS	0.43
ELMERSMITH	ELMERSMITH	0.48
FARMERCITY	FARMERCITY	0.33
G-007A	G-007A	0.39
GIBSON	GIBSON	0.17
HAMLET	HAMLET	1.57
NEWTON	NEWTON	1.21
NYISO	NYISO	0.3
PRAIRIE	PRAIRIE	2.52
SANTEETLA	SANTEETLA	0.22
SMITHLAND	SMITHLAND	0.22
TATANKA	TATANKA	0.57
TILTON	TILTON	0.5
TRIMBLE	TRIMBLE	0.44
TVA	TVA	2.27
UNIONPOWER	UNIONPOWER	1.13
VFT	VFT	1.03

© PJM Interconnection 2019. All rights reserved

13.5.13 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
1686690	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	118.85	121.57	DC	15.57

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECMA	9.42
315132	1EDGECMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O2	15.57
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942371	AE2-250 C O2	5.81
942471	AE2-260 C O2	8.16
942711	AE2-287 C O2	6.95
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPLE	CPLE	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

© PJM Interconnection 2019. All rights reserved

13.5.14 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
1687505	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	167.6	171.52	DC	18.99

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHELC	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECMA	8.55
315132	1EDGECMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O2	12.8
940522	AE2-037 E O2	6.19
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942371	AE2-250 C O2	4.5
942372	AE2-250 E O2	2.37
942471	AE2-260 C O2	7.19
942472	AE2-260 E O2	10.19
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

© PJM Interconnection 2019. All rights reserved

13.5.15 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
1686737	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	112.46	115.19	DC	15.57

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECMA	9.42
315132	1EDGECMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O2	15.57
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942371	AE2-250 C O2	5.81
942471	AE2-260 C O2	8.16
942711	AE2-287 C O2	6.95
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPLE	CPLE	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

© PJM Interconnection 2019. All rights reserved

13.5.16 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
1686883	314583	6LAKEVEW	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	110.26	112.5	DC	8.54

Bus #	Bus	MW Impact
314589	3MURPHYS	0.05
315115	1S HAMPT1	0.51
315126	1ROARAP2	0.99
315128	1ROARAP4	0.95
315131	1EDGECMA	10.43
315132	1EDGECMB	10.43
315136	1ROSEMG1	3.27
315137	1ROSEMS1	2.03
315138	1ROSEMG2	1.53
315139	1GASTONA	4.87
315141	1GASTONB	4.87
315159	1KERR 2	0.35
315292	1DOMTR78	0.83
315293	1DOMTR9	0.68
315294	1DOMTR10	1.23
916041	Z1-036 C	0.27
917331	Z2-043 C	0.3
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.16
918491	AA1-063AC OP	1.05
918511	AA1-065 C OP	1.24
918531	AA1-067 C	0.21
918561	AA1-072 C	0.04
919691	AA2-053 C	1.06
919701	AA2-057 C	7.33
920041	AA2-088 C OP	0.51
920591	AA2-165 C	0.12
920671	AA2-174 C	0.05
920691	AA2-178 C	0.69
923801	AB2-015 C O1	3.46
924151	AB2-059 C O1	1.36
924401	AB2-089 C	0.94
924491	AB2-098 C	0.58
924501	AB2-099 C	0.58
925121	AB2-169 C	0.69
925591	AC1-034 C	7.22
925781	AC1-054 C O1	3.62
926071	AC1-086 C	44.94
926201	AC1-098 C	6.36
926211	AC1-099 C	2.13
927021	AC1-189 C	8.97

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
927141	AC1-208 C	9.23
930401	AB1-081 C O1	1.15
930861	AB1-132 C O1	3.72
932631	AC2-084 C	9.07
933991	AD1-023 C	11.19
934231	AD1-050 C	2.08
934331	AD1-057 C O1	15.93
934521	AD1-076 C	41.0
936401	AD2-051 C O1	9.31
936531	AD2-068 C	4.32
936701	AD2-089 C	7.84
936711	AD2-090 C O1	3.67
938171	AE1-026 C1 O	25.42
938172	AE1-026 C2 O	3.68
938221	AE1-035 C	2.54
938661	AE1-088	2.91
938771	AE1-103 C O1	1.26
940491	AE2-034 C	4.98
940521	AE2-037 C O2	8.54
940571	AE2-044 C	4.73
941541	AE2-151 C	1.16
941951	AE2-207	3.06
943171	AE2-346 C	1.75
AA2-074	AA2-074	2.2
CARR	CARR	0.18
CBM-S1	CBM-S1	4.76
CBM-S2	CBM-S2	5.72
CBM-W1	CBM-W1	4.78
CBM-W2	CBM-W2	31.05
CIN	CIN	2.15
CPLE	CPLE	3.23
IPL	IPL	1.35
LGEE	LGEE	0.62
MEC	MEC	4.8
MECS	MECS	2.03
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.58

© PJM Interconnection 2019. All rights reserved

13.5.17 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
1687032	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPLE	1	DVP_P1-2: LN 2058	single	470.0	112.6	113.78	DC	5.57

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECMA	25.25
315132	1EDGECMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O2	5.57
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942371	AE2-250 C O2	6.07
942471	AE2-260 C O2	10.01
942711	AE2-287 C O2	6.34
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

© PJM Interconnection 2019. All rights reserved

13.5.18 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
1685980	314638	6ELIZ CT	DVP	314647	6SHAWBRO	DVP	1	DVP_P4-2: 246T247	breaker	658.0	146.44	148.4	DC	12.88

Bus #	Bus	MW Impact
314557	3BETHELC	0.6
314566	3CRESWEL	6.39
314574	6EVERETS	4.25
314582	3KELFORD	3.05
314594	6PLYMOTH	1.92
314603	3SCOT NK	2.51
314617	3TUNIS	0.64
314620	6CASHIE	1.49
314638	6ELIZ CT	0.72
314639	6TANGLEW	1.26
314651	6WINFALL	6.71
315292	1DOMTR78	1.97
315293	1DOMTR9	1.61
315294	1DOMTR10	2.91
901081	W1-029 C	3.19
901082	W1-029 E	175.15
913392	Y1-086 E	9.58
916041	Z1-036 C	2.86
916042	Z1-036 E	157.45
917122	Z2-027 E	4.42
917331	Z2-043 C	0.25
917332	Z2-043 E	0.87
917511	Z2-088 C OP1	0.98
917512	Z2-088 E OP1	3.44
918491	AA1-063AC OP	0.73
918492	AA1-063AE OP	2.82
918511	AA1-065 C OP	1.27
918512	AA1-065 E OP	5.12
918531	AA1-067 C	0.21
918532	AA1-067 E	0.75
918561	AA1-072 C	0.04
918562	AA1-072 E	0.14
919691	AA2-053 C	0.66
919692	AA2-053 E	2.34
920671	AA2-174 C	0.03
920672	AA2-174 E	0.27
920691	AA2-178 C	3.12
920692	AA2-178 E	10.96
923831	AB2-022 C	1.22
923832	AB2-022 E	5.41
924491	AB2-098 C	0.58

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
924492	AB2-098 E	0.25
924501	AB2-099 C	0.51
924502	AB2-099 E	0.22
925121	AB2-169 C	1.3
925122	AB2-169 E	9.55
926201	AC1-098 C	4.28
926202	AC1-098 E	2.55
926211	AC1-099 C	1.44
926212	AC1-099 E	0.84
927021	AC1-189 C	8.05
927022	AC1-189 E	4.01
927141	AC1-208 C	5.57
927142	AC1-208 E	2.47
932631	AC2-084 C	6.11
932632	AC2-084 E	3.01
933991	AD1-023 C	25.21
933992	AD1-023 E	13.72
934521	AD1-076 C	118.85
934522	AD1-076 E	60.52
936401	AD2-051 C O1	8.54
936402	AD2-051 E O1	3.67
936531	AD2-068 C	3.85
936532	AD2-068 E	1.98
936701	AD2-089 C	5.39
936702	AD2-089 E	3.59
938171	AE1-026 C1 O	49.4
938172	AE1-026 C2 O	7.15
938173	AE1-026 E O1	14.92
938221	AE1-035 C	2.6
938222	AE1-035 E	1.28
938661	AE1-088	5.46
940491	AE2-034 C	22.38
940492	AE2-034 E	9.59
940521	AE2-037 C O2	8.68
940522	AE2-037 E O2	4.2
941501	AE2-147 C	60.4
941502	AE2-147 E	40.27
941541	AE2-151 C	1.06
941542	AE2-151 E	0.57
942851	AE2-304 C	2.31
942852	AE2-304 E	0.9
943171	AE2-346 C	1.54
943172	AE2-346 E	0.66
AA2-074	AA2-074	1.56
CARR	CARR	0.13
CBM-S1	CBM-S1	3.29
CBM-S2	CBM-S2	4.0
CBM-W1	CBM-W1	3.28
CBM-W2	CBM-W2	21.46
CIN	CIN	1.48
CPLE	CPLE	2.29
G-007	G-007	0.45

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
IPL	IPL	0.93
LGEE	LGEE	0.43
MEC	MEC	3.31
MECS	MECS	1.39
O-066	O-066	2.85
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.4

© PJM Interconnection 2019. All rights reserved

13.5.19 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
1686337	314662	6S HERTFORD	DVP	314651	6WINFALL	DVP	1	DVP_P4-2: 24642	breaker	897.0	109.44	111.09	DC	14.78

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.52
314557	3BETHELC	0.69
314566	3CRESWEL	7.34
314574	6EVERETS	4.87
314578	3HORNRTN	2.04
314582	3KELFORD	3.49
314594	6PLYMOTH	2.21
314603	3SCOT NK	2.88
314617	3TUNIS	0.73
314620	6CASHIE	1.71
314623	3WITAKRS	0.9
315131	1EDGECMA	6.16
315132	1EDGECMB	6.16
315141	1GASTONB	1.48
315292	1DOMTR78	2.26
315293	1DOMTR9	1.84
315294	1DOMTR10	3.34
900672	V4-068 E	0.19
916041	Z1-036 C	3.29
916042	Z1-036 E	180.94
917331	Z2-043 C	0.28
917332	Z2-043 E	0.99
917342	Z2-044 E	0.39
917511	Z2-088 C OP1	1.12
917512	Z2-088 E OP1	3.94
918491	AA1-063AC OP	0.83
918492	AA1-063AE OP	3.22
918511	AA1-065 C OP	1.45
918512	AA1-065 E OP	5.87
918531	AA1-067 C	0.24
918532	AA1-067 E	0.86
918561	AA1-072 C	0.04
918562	AA1-072 E	0.17
919691	AA2-053 C	0.76
919692	AA2-053 E	2.67
919701	AA2-057 C	4.9
919702	AA2-057 E	2.45
920591	AA2-165 C	0.08
920592	AA2-165 E	0.32
920671	AA2-174 C	0.03
920672	AA2-174 E	0.31
920691	AA2-178 C	3.58

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
920692	AA2-178 E	12.59
924152	AB2-059 E O1	3.53
924491	AB2-098 C	0.67
924492	AB2-098 E	0.29
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
925121	AB2-169 C	1.49
925122	AB2-169 E	10.97
925591	AC1-034 C	4.44
925592	AC1-034 E	3.35
926071	AC1-086 C	13.64
926072	AC1-086 E	6.21
926201	AC1-098 C	4.9
926202	AC1-098 E	2.92
926211	AC1-099 C	1.64
926212	AC1-099 E	0.96
927021	AC1-189 C	9.24
927022	AC1-189 E	4.6
927141	AC1-208 C	6.37
927142	AC1-208 E	2.83
930402	AB1-081 E O1	2.49
930862	AB1-132 E O1	3.97
932631	AC2-084 C	6.99
932632	AC2-084 E	3.44
933991	AD1-023 C	28.94
933992	AD1-023 E	15.76
934331	AD1-057 C O1	6.61
934332	AD1-057 E O1	3.53
934521	AD1-076 C	136.52
934522	AD1-076 E	69.51
936401	AD2-051 C O1	9.77
936402	AD2-051 E O1	4.19
936531	AD2-068 C	4.42
936532	AD2-068 E	2.28
936701	AD2-089 C	6.19
936702	AD2-089 E	4.13
938171	AE1-026 C1 O	56.72
938172	AE1-026 C2 O	8.21
938173	AE1-026 E O1	17.13
938221	AE1-035 C	2.98
938222	AE1-035 E	1.47
938661	AE1-088	6.27
940491	AE2-034 C	25.71
940492	AE2-034 E	11.02
940521	AE2-037 C O2	9.96
940522	AE2-037 E O2	4.82
940571	AE2-044 C	2.91
940572	AE2-044 E	1.25
941541	AE2-151 C	1.21
941542	AE2-151 E	0.65
941951	AE2-207	1.88
942851	AE2-304 C	2.66

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
942852	AE2-304 E	1.03
943171	AE2-346 C	1.76
943172	AE2-346 E	0.75
AA2-074	AA2-074	1.81
CARR	CARR	0.13
CBM-S1	CBM-S1	3.9
CBM-S2	CBM-S2	4.65
CBM-W1	CBM-W1	4.0
CBM-W2	CBM-W2	25.56
CIN	CIN	1.79
CPLE	CPLE	2.66
G-007	G-007	0.48
IPL	IPL	1.12
LGEE	LGEE	0.52
MEC	MEC	3.98
MECS	MECS	1.73
O-066	O-066	3.02
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.48

© PJM Interconnection 2019. All rights reserved

13.5.20 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
1686726	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	112.45	115.17	DC	15.57

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECMA	9.42
315132	1EDGECMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O2	15.57
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942371	AE2-250 C O2	5.81
942471	AE2-260 C O2	8.16
942711	AE2-287 C O2	6.95
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPLE	CPLE	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

© PJM Interconnection 2019. All rights reserved

13.5.21 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
13612425	924510	AB2-100 TAP	DVP	942470	AE2-260 TAP	DVP	1	DVP_P1-2: LN 246	single	375.06	121.59	123.83	DC	8.54

Bus #	Bus	MW Impact
314589	3MURPHYS	0.05
315115	1S HAMPT1	0.51
315126	1ROARAP2	0.99
315128	1ROARAP4	0.95
315131	1EDGECMA	10.43
315132	1EDGECMB	10.43
315136	1ROSEMG1	3.27
315137	1ROSEMS1	2.03
315138	1ROSEMG2	1.53
315139	1GASTONA	4.87
315141	1GASTONB	4.87
315159	1KERR 2	0.35
315292	1DOMTR78	0.83
315293	1DOMTR9	0.68
315294	1DOMTR10	1.23
916041	Z1-036 C	0.27
917331	Z2-043 C	0.3
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.16
918491	AA1-063AC OP	1.05
918511	AA1-065 C OP	1.24
918531	AA1-067 C	0.21
918561	AA1-072 C	0.04
919691	AA2-053 C	1.06
919701	AA2-057 C	7.33
920041	AA2-088 C OP	0.51
920591	AA2-165 C	0.12
920671	AA2-174 C	0.05
920691	AA2-178 C	0.69
923801	AB2-015 C O1	3.46
924151	AB2-059 C O1	1.36
924401	AB2-089 C	0.94
924491	AB2-098 C	0.58
924501	AB2-099 C	0.58
924511	AB2-100 C	42.5
925121	AB2-169 C	0.69
925591	AC1-034 C	7.22
925781	AC1-054 C O1	3.62
926071	AC1-086 C	44.94
926201	AC1-098 C	6.36
926211	AC1-099 C	2.13

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
927021	AC1-189 C	8.97
927141	AC1-208 C	9.23
930401	AB1-081 C O1	1.15
930861	AB1-132 C O1	3.72
932631	AC2-084 C	9.07
933991	AD1-023 C	11.19
934231	AD1-050 C	2.08
934331	AD1-057 C O1	15.93
934521	AD1-076 C	41.0
936401	AD2-051 C O1	9.31
936531	AD2-068 C	4.32
936701	AD2-089 C	7.84
936711	AD2-090 C O1	3.67
938171	AE1-026 C1 O	25.42
938172	AE1-026 C2 O	3.68
938221	AE1-035 C	2.54
938661	AE1-088	2.91
938771	AE1-103 C O1	1.26
940491	AE2-034 C	4.98
940521	AE2-037 C O2	8.54
940571	AE2-044 C	4.73
941541	AE2-151 C	1.16
941951	AE2-207	3.06
943171	AE2-346 C	1.75
AA2-074	AA2-074	2.2
CARR	CARR	0.18
CBM-S1	CBM-S1	4.76
CBM-S2	CBM-S2	5.72
CBM-W1	CBM-W1	4.78
CBM-W2	CBM-W2	31.05
CIN	CIN	2.15
CPLE	CPLE	3.23
IPL	IPL	1.35
LGEE	LGEE	0.62
MEC	MEC	4.8
MECS	MECS	2.03
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.58

© PJM Interconnection 2019. All rights reserved

13.5.22 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
13974574	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P7-1: LN 2058-2181	tower	427.0	136.99	138.08	DC	10.37

Bus #	Bus	MW Impact
314541	3WATKINS	0.33
314554	3BTLEBRO	0.89
314557	3BETHELC	0.98
314566	3CRESWEL	1.25
314574	6EVERETS	3.59
314578	3HORNRTN	3.23
314582	3KELFORD	3.25
314594	6PLYMOTH	0.53
314603	3SCOT NK	3.19
314617	3TUNIS	0.68
314620	6CASHIE	0.62
314623	3WITAKRS	1.46
315131	1EDGECMA	13.29
315132	1EDGECMB	13.29
315136	1ROSEMG1	3.37
315137	1ROSEMS1	2.09
315138	1ROSEMG2	1.58
315139	1GASTONA	4.93
315141	1GASTONB	4.93
900672	V4-068 E	0.22
917332	Z2-043 E	0.92
917341	Z2-044 C	0.18
917342	Z2-044 E	0.63
917511	Z2-088 C OP1	1.15
917512	Z2-088 E OP1	4.05
918492	AA1-063AE OP	3.74
918512	AA1-065 E OP	3.94
918532	AA1-067 E	0.63
918562	AA1-072 E	0.15
919692	AA2-053 E	3.56
919701	AA2-057 C	7.53
919702	AA2-057 E	3.77
920042	AA2-088 E OP	6.79
920591	AA2-165 C	0.13
920592	AA2-165 E	0.5
920672	AA2-174 E	0.41
920692	AA2-178 E	2.15
923801	AB2-015 C O1	3.89
923802	AB2-015 E O1	3.19
924151	AB2-059 C O1	1.52
924152	AB2-059 E O1	6.41

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
924491	AB2-098 C	0.49
924492	AB2-098 E	0.21
924501	AB2-099 C	0.5
924502	AB2-099 E	0.21
924511	AB2-100 C	42.82
924512	AB2-100 E	21.09
925122	AB2-169 E	4.33
925591	AC1-034 C	8.06
925592	AC1-034 E	6.08
926071	AC1-086 C	45.49
926072	AC1-086 E	20.7
926201	AC1-098 C	6.13
926202	AC1-098 E	3.65
926211	AC1-099 C	2.06
926212	AC1-099 E	1.21
927021	AC1-189 C	8.53
927022	AC1-189 E	4.25
927141	AC1-208 C	9.2
927142	AC1-208 E	4.08
930401	AB1-081 C O1	1.29
930402	AB1-081 E O1	4.52
930861	AB1-132 C O1	3.76
930862	AB1-132 E O1	13.24
932631	AC2-084 C	8.74
932632	AC2-084 E	4.31
933991	AD1-023 C	9.23
933992	AD1-023 E	5.02
934331	AD1-057 C O1	17.76
934332	AD1-057 E O1	9.48
934521	AD1-076 C	34.62
934522	AD1-076 E	17.63
936401	AD2-051 C O1	7.79
936402	AD2-051 E O1	3.34
936531	AD2-068 C	3.31
936532	AD2-068 E	1.71
936701	AD2-089 C	8.85
936702	AD2-089 E	5.9
936711	AD2-090 C O1	3.88
936712	AD2-090 E O1	2.58
938171	AE1-026 C1 O	20.73
938172	AE1-026 C2 O	3.0
938173	AE1-026 E O1	6.26
938221	AE1-035 C	2.0
938222	AE1-035 E	0.98
938661	AE1-088	1.31
940491	AE2-034 C	4.38
940492	AE2-034 E	1.88
940521	AE2-037 C O2	6.99
940522	AE2-037 E O2	3.38
940571	AE2-044 C	5.28
940572	AE2-044 E	2.26
941541	AE2-151 C	0.97

© PJM Interconnection 2019. All rights reserved

Bus #	Bus	MW Impact
941542	AE2-151 E	0.52
941951	AE2-207	3.41
942471	AE2-260 C O2	55.24
942472	AE2-260 E O2	78.35
943171	AE2-346 C	1.5
943172	AE2-346 E	0.64
AA2-074	AA2-074	1.39
CARR	CARR	0.14
CBM-S1	CBM-S1	2.78
CBM-S2	CBM-S2	3.53
CBM-W1	CBM-W1	2.61
CBM-W2	CBM-W2	17.99
CIN	CIN	1.19
CPLE	CPLE	2.04
G-007	G-007	0.47
IPL	IPL	0.74
LGEE	LGEE	0.34
MEC	MEC	2.71
MECS	MECS	1.04
O-066	O-066	2.98
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.32

© PJM Interconnection 2019. All rights reserved

Short Circuit

© PJM Interconnection 2019. All rights reserved

13.6 Short Circuit

The following Breakers are overduty: None

Affected Systems

© PJM Interconnection 2019. All rights reserved

14 Affected Systems

14.1 LG&E

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

14.2 MISO

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

14.3 TVA

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

14.4 Duke Energy Progress

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

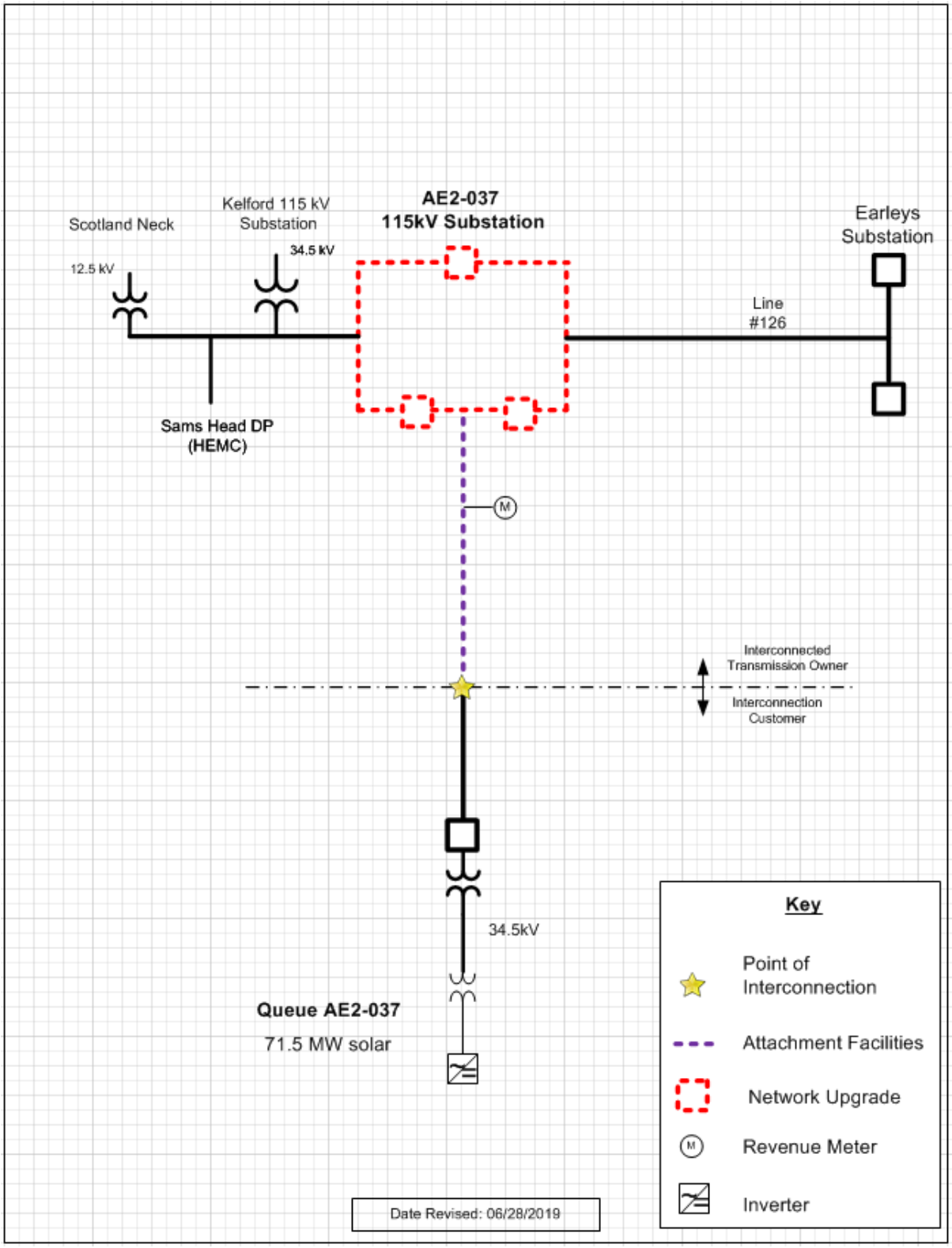
14.5 NYISO

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

© PJM Interconnection 2019. All rights reserved

Attachment 1

System Configuration



© PJM Interconnection 2019. All rights reserved